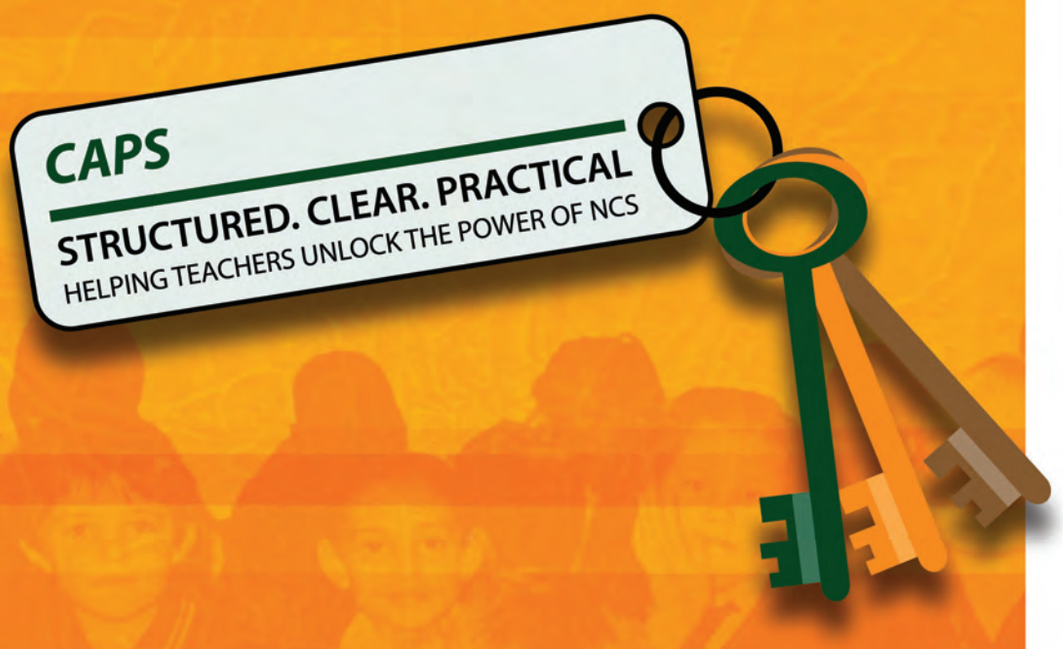
ISINDEBELE MATHEMATICS

National Curriculum Statement (NCS)

Curriculum and Assessment Policy Statement



Foundation Phase
Grade 1-3

basic education
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Basic Education
REPUBLIC OF SOUTH AFRICA

basic education

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REPUBLIC OF SOUTH AFRICA

ISITATIMENDE SOMTHETHO-KAMBISO WEKHARIKHYULAMU NOKUHLOLA

AMAGREYIDI 1-3

IIMBALO

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FOREWORD BY THE MINISTER

Our national curriculum is the culmination of our efforts over a period of seventeen years to transform the curriculum bequeathed to us by apartheid. From the start of democracy we have built our curriculum on the values that inspired our Constitution (Act 108 of 1996). The Preamble to the Constitution states that the aims of the Constitution are to:

- heal the divisions of the past and establish a society based on democratic values, social justice and fundamental human rights;
- improve the quality of life of all citizens and free the potential of each person;
- lay the foundations for a democratic and open society in which government is based on the will of the people and every citizen is equally protected by law; and
- build a united and democratic South Africa able to take its rightful place as a sovereign state in the family of nations.

Education and the curriculum have an important role to play in realising these aims.

In 1997 we introduced outcomes-based education to overcome the curricular divisions of the past, but the experience of implementation prompted a review in 2000. This led to the first curriculum revision: the *Revised National Curriculum Statement Grades R-9* and the *National Curriculum Statement Grades 10-12* (2002).

Ongoing implementation challenges resulted in another review in 2009 and we revised the *Revised National Curriculum Statement* (2002) and the *National Curriculum Statement Grades 10-12* to produce this document.

From 2012 the two National Curriculum Statements, for *Grades R-9* and *Grades 10-12* respectively, are combined in a single document and will simply be known as the *National Curriculum Statement Grades R-12.* The *National Curriculum Statement for Grades R-12* builds on the previous curriculum but also updates it and aims to provide clearer specification of what is to be taught and learnt on a term-by-term basis.

The *National Curriculum Statement Grades R-12* represents a policy statement for learning and teaching in South African schools and comprises of the following:

(a) Curriculum and Assessment Policy Statements (CAPS) for all approved subjects listed in this document;

(b) *National policy pertaining to the programme and promotion requirements of the National Curriculum Statement Grades R-12*; and

(c) *National Protocol for Assessment Grades R-12.*

MRS ANGIE MOTSHEKGA, MP
MINISTER OF BASIC EDUCATION

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ISIGABA 1: ISINGENISO BEGODU NESENDLALELO

1.1 ISENDLALELO

IsiTatimende seKharikhyulamu yeliZweloke amaGreyidi R - 12 (TKZ) sendlala umthetho-kambiso wekharikhyulamu nokuhlola emkhakheni wezefundo.

Ukuthuthukisa ukusetjenziswa kwaso, isiTatimende seKharikhyulamu yeliZweloke satjhugululwa, amatjhuguluko la azokuthoma ukusetjenziswa ngenyanga kaTjhirhweni ngomnyaka we-2012. Kwenziwa umtlolo owodwa opheleleko womThetho-kambiso weKharikhyulamu nokuHlola esifundweni ngasinye ukujamiselela iinTatimende zeemFundo, imiHlahlandlela yamaHlelo wokuFunda kanye nemiHlahlandlela yokuHlola iimFundo emaGreyidi R - 12.

1.2 UMBONOMAZOMBE

(a) *IsiTatimende seKharikhyulamu yeliZweloke samaGreyidi R - 12* (sangoTjhirhweni we-2012) sijamele isitatimende somThetho-kambiso sokufunda nokufundisa eenkolweni zeSewula Afrika begodu simumethe okulandelako:

(i) IinTatimende zomThetho-kambiso weKharikhyulamu nokuHlola zaleso naleso sifundo sesikolo esiphasisweko

(ii) Umtlolo womThetho-kambiso, i*National policy pertaining to the programme and promotion requirements of the National Curriculum Statement Grades R - 12; kanye no*

(iii) Mtlolo womThetho-kambiso, i*National Protocol for Assessment Grades R - 12 (kaTjhirhweni 2012)*

(b) *IsiTatimende seKharikhyulamu yeliZweloke samaGreyidi R - 12* (sikaTjhirhweni 2011 sijamiselela iintatimende zekharikhyulamu zelizweloke ezimbili zanje, ezibizwa

(i) *IsiTatimende seKharikhyulamu esiBuyekeziweko amaGreyidi R - 9, Government Gazette No. 23406 yamhlana amalanga ama*--31 kuMrhayili 2002, begodu ne-

(ii) *IsiTatimende seKharikhyulamu seLizwe Loke amaGreyidi 10 - 12 Government Gazettes, No. 25545 yahlana amalanga asi- 6 October 2003* and *No. 27594 yamhlana amalanga ali*-17 kuMrhayili 2005.

(c) Iintatimende zekharikhyulamu yelizweloke eziseengatjaneni (a) no (b) ngehla, zimumethe imitlolo yemithetho-kambiso elandelako esuswe beyajanyiselelwa *siTatimende seKharikhyulamu yeliZweloke samaGreyidi* 10 - 12 *(kuTjhirhweni 2012)* ngesikhathi seminyaka we-2012-2014.

(i) IinTatimende zeemFundo, imiHlahlandlela yamaHlelo wokuFundo begodu nemihlahlandlela yokuHlola iimFundo emaGreyidi R-9 nemaGreyidi 10-12 ;

(ii) Umtlolo womthetho-kambiso, i*National Policy on assessment and qualifications for schools in the General Education and Training Band*, egadangiswe ku*Government Notice No. 124* ku *Government Gazette No. 29626* yamhlana amalanga ali- 12 kuMhlolanja 2007;

(iii) Umtlolo womthetho-kambiso, i*National Senior Certificate: A qualification at Level 4 on the National Qualifications Framework (NQF)*, egadangiswe ku*Government Gazette No.27819* yamhlana amalanga ama- 20 kuVelabahlinze 2005;

(iv) Umtlolo womthetho-kambiso, *i-addendum to the policy document, the National Senior Certificate: A qualification at Level 4 on the National Qualifications Framework (NQF), regarding learners with special needs, owagadangiswa kuGovernment Gazette, No.29466* yamhlana amalanga ali-11 kuNobayeni 2006, ungeniswe emtlolweni womthetho-kambiso, i*National policy pertaining to the programme and promotion requirements of the National Curriculum Statement emaGreyidini R - 12; begodu*

(v) Umtlolo womthetho-kambiso, i-*addendum to the policy document, the National Senior Certificate: A qualification at Level 4 on the National Qualifications Framework (NQF), regarding the National Protocol for Assessment (emaGreyidini R - 12)*, ogadangiswe ku*Government Notice No.1267* ku*Government Gazette No. 29467* ymhlana amalanga ali-11 kuNobayeni 2006.

(d) Umtlolo womthetho-kambiso, i*National policy pertaining to the programme and promotion requirements of the National Curriculum Statement Grades R - 12*, begodu neengaba zesiTatimende somThetho-kambiso weKharikhyulamu nokuHlola njengombana zifakwe ezahlukweni 2, 3 begodu 4 zomtlolo lo eziphathelene nemigomo namazinga we*siTatimende seKharikhyulamu seLizwe Loke emaGreyidini R - 12.* Ngakhoke, ngokuya ngokwe*section 6A ye South African Schools Act, 1996 (Act No. 84 of 1996,)* yakha isendlalelo sokobana uNgqongqotjhe weFundo esiSekelo abonelele isilinganiso samazinga nemiphumela kanye nekambiso yokuhlola umsebenzi womntwana bona ibe khona eenkolweni zomphakathi nalezo ezizijameleko.

1.3 IMINQOPHO EVAMILEKO YEKHARIKHYULAMU YESEWULA AFRIKA

(a) *IsiTatimende seKharikhyulamu yeliZweloke samaGreyidi R - 12* sethula lokho okungathathwa njengelwazi, amakghono namagugu okumele kufundwe eenkolweni zeSewula Afrika. Ikharikhyulamu le inqophe ukuqinisekisa bonyana abantwana bazuza bebasebenzise ilwazi namakghono ngeendlela ezizwisekako emaphilweni wabo. Ngalokho, ikharikhyulamu ithuthukisa umqondo wokubuthelela ilwazi ebujameni obujayelekileko, ngesikhathi atjheja eembophweni zephasi.

(b) *IsiTatimende seKharikhyulamu yeliZweloke amaGreyidi R - 12* sifeza iminqopho yoku:

- hlomisa abafundi, ngaphandle kokutjheja ibhoduluko lezokuhlalisana-nezomnotho, ubulili, ikghono lezomzimba nofana lezengqondo, amakghono namagugu adingekako ukuzanelisa, begodu nokuzibandakanya okuzwisisekako emphakathini njengabahlali benarha etjhaphulukileko;
- enza ifundo yamazinga aphezulu ifinyeleleke;
- enza kube lula bonyana abafundi basuke emazikweni wezefundo baye emisebenzini; begodu
- nikela abaqatjhi ngephrofayili eyaneleko yamakghono womfundi.

(c) IsiTatimende seKharikhyulamu yeliZweloke amaGreyidi R - 12 sisekelwe eenkambisweni ezilandelako:

- Ukutjhuguluka kwezokuhlalisana: ukuqinisekisa bonyana ukungalingani kwezefundo kwesikhathi esidlulileko kwalungiswa nokuthi amathuba alinganako wezefundo anikelwe zoke iingaba zesintu.
- Ukufunda ngomdlandla nangelihlo elihlabako: ukukhuthaza indlela yokufunda ngelihlo elihlabako nelinomdlandla, kunokobana kubanjwe izinto ngehloko ngaphandle kokuzizwisisa.
- Ilwazi namakghono asezingeni eliphakamileko: iimfuneko ezimbalwa zelwazi namakghono okufanele zifunyanwe kileyo naleyogreyidi zibekiwe begodu zibekwe emazingeni aphakamileko, afunyanekako kizo zoke iimfundo

- Ukuragela phambili: okumumethweko nobujamo baleyo naleyo greyidi kutjengisa ukuragela phambili ukusukela kokulula ukuya kokubudisi.
- Amalungelo wobuntu, ukufaka koke, ubulungiswa bezebhoduluko nokuhlalisana: ukufaka imigomo yobulungiswa kezokuhlalisana, kezebhoduluko begodu namalungelo wabantu njengombana kuhlathululiwe kumThetho-sisekelo weSewula Afrika. IsiTatimende seKharikhyulamu yeliZweloke amaGreyidi 10 – 12 sitjhetjha khulu izinto ezifana nokutlhaga, ukungafani, ukungalingani, ubuhlanga, ilimi, iminyaka, abaphila nokukhubazeka begodu namanye amatshwayo.
- Ukukarekela amahlelo welwazi lendabuko: ukuthabela umlando onothileko wenarha namagugu wenarha le njengezinto eziqakathekileko ukunothisa amagugu amumethwe emThethweni-sisekelo; begodu
- Ukuthembeka, ikhwalithi nekghono: ukunikela ifundo emadanisekako ngekhwalithi, ububanzi nangokudepha kwefundo yakezinye iinarha.

(d) IsiTatimende seKharikhyulamu yeliZweloke amaGreyidi R–12 sinqophe ukukhiqiza abafundi abakwazi uku:

- bona nokurarulula imiraro nokuthatha iinqunto kusetjenziswa ukucabanga ngelihlo elibukhali nelokuzitlamela ;
- sebenzisana ngepumelelo ngokuzijamela begodu nabanye njengamalunga wesiqhema ;
- hlela nokuziphatha begodu nokuphatha imisebenzi yabo ngokuziphendulela nangepumelelo ;
- buthelela, ukutsenga, ukuhlela bese bahlaziya ilwazi ngelihlo lokuhlaba ;
- khulumisana ngepumelelo basebenzisa amakghono wokubonwako/ wokubukelwako, wamatshwayo begodu /nanyana welimi ngeendlela ezinengi
- sebenzisa isayensi nethekhnoloji ngepumelelo nangokucabangisisa begodu batjengise, ukuziphendulela ebhodulukweni neempilweni zabanye; noku
- Tjengisa ukuzwisisa iphasi bonyana linamahlelo anetjhebiswano ngokuyelela bonyana ukurarulula imiraro akwenzeki kukodwa ngeqadi.

(e) Ukuhlanganisa imihlobo ehlukahlukeneko yabafundi kufanele kube mgogodlha womkhandlu, wokuhlela begodu nokufundisa kileso naleso sikolo. Lokhu kungenzeka kwaphela lokha abotitjhere boke banokuzwisisa okuhluzekileko bokobana iinqabo zokufunda zingalemukwa bezilungiswe bunjani, begodu ukuhlanganisa kungahlelelwa bunjani

Okuqakathekileko ngokuhlanganisa imihlobo ehlukahlukeneko yabafundi kuqinisekisa bonyana iinqabo ziyabonwa bezitjhejwa ngiyo yoke imikhandlu efaneleko ehlangana nomphakathi wesikolo, okufaka hlangana abotitjhere, iinQhema eziSekelako eziNzinze kumaDistrigi, iinQhema eziSekelako eziseZingeni leenHlangano, ababelethi neenKolo eziKhethekileko njengeendawo zemiThombo. Ukulungisa iinqabo ngetlasini, abotitjhere bafanele basebenzise amaqhinga amanengi wekharikhyulamu afana nalawo afakwe ku- *Guidelines for Inclusive Teaching and Learning* (2010) yoMnyango weFundo Sisekelo

1.4 UKWABIWA KWESIKHATHI

1.4.1 IsiGaba esisiSekelo

(a) Isikhathi sokufundisa esiGabeni-esisiSekelo sitjengisiwe ngenzasi:

ISIFUNDO	IGREYIDI R (AMA-IRI)	AMAGREYIDI 1-2 (AMA-IRI)	IGREYIDI 3 (AMA-IRI)
ILimi leKhaya	10	7/8	7/8
ILimi lokuThoma lokwEngeza		2/3	3/4
IimBalo	7	7	7
AmaKghono wePilo	**6**	**6**	**7**
• ILwazi lokuThoma	(1)	(1)	(2)
• UbuKghwari bokuTlama	(2)	(2)	(2)
• IsiFundo sokuziThabulula	(2)	(2)	(2)
• UbuYena neHlalakuhle yomuntu qobo lakhe	(1)	(1)	(1)
INANI	**23**	**23**	**25**

(b) Isikhathi sokufundisa samaGreyidi R, 1 no 2 ma-iri ama-23 begodu seGreyidi yesi-3 ma- iri ama-25.

(c) Ama-iri alitjhumi abelwe amalimi emaGreyidini R – *2* bese ama-iri ali-11eGreyidini yesi-3. ILimi leKhaya labelwe ubunengi bama-iri abu-8 nobuncani bama-iri ali-7 begodu iLimi lokuThoma lokwEngeza labelwe ubuncani bama-iri ama-2 nobukhulu bama-iri ama-3 emaGreyidini R-2. ILimi leKhaya eGreyidini yesi- 3 labelwe ubunengi bama-iri- abu-8 nobuncani bama-iri ali-7 begodu iLimi lokuThoma lokwEngeza labelwe ubuncani bama-iri ama-3 nobunengi bama-iri ama-4.

(d) Kumakghono wePilo iLwazi Lokuthoma labelwe i-iri li-1 emaGreyidini R-2 nama –iri ama-2 njengombana kutjengiswe ngeembayaneni zeGreyidi yesi-3

1.4.2 IsiGaba esiPhakathi

(a) Isikhathi sokufundisa esiGabeni-esiPhakathi sitjengisiwe ngenzasi:

ISIFUNDO	AMA-IRI
ILimi leKhaya	6
ILimi lokuThoma lokweNgeza	5
IimBalo	6
ISayensi Yemvelo neTheknoloji	3,5
ISayensi yokuHlalisana	3
AmaKghono wePilo	4
• UbuKghwari bokuTlama	(1,5)
• IsiFundo sokuziThabulula	(1)
• UbuYena nokuHlalisana komuntu qobo lakhe	(1,5)
INANI	**27,5**

1.4.3 IsiGaba esiPhakamileko

(a) Isikhathi sokufundisa esiGabeni-esiPhakakamileko sitjengisiwe ngenzasi:

ISIFUNDO	AMA-IRI
ILimi leKhaya	5
ILimi lokuThoma lokwEngeza	4
IimBalo	4,5
ISayensi yeMvelo	3
ISayensi yokuHlalisana	3
ITheknoloji	2
ISayensi yezomNotho nokuPhatha	2
UkuziJayeza zePilo	2
UbuKghwari namaSiko	2
INANI	**27,5**

1.4.4 AmaGreyidi 10 - 12

(a) Isikhathi sokufundisa emaGreyidini 10-12 sitjengisiwe ngenzasi

ISIFUNDO	ISIKHATHI ESABIWEKO NGEVEKE (AMA-IRI)
I. ILimi leKhaya	4.5
II. ILimi LokuThoma lokweNgeza	4.5
III. IimBalo	4.5
IV. UkuziJayeza zePilo	2
V. Ubuncani bananyana ngiziphi iimfundo ezintathu ezikhethwe esiQhemeni B i-Anekstjha B, Amathebula B1-B8 yomtlolo womthetho-kambiso, iNational policy pertaining to the programme and promotion requirements of the National Curriculum Statement Grades R – 12, enqotjhiswe esigabeni sama-28 somtlolo womthetho- kambiso onikelweko..	12 (3x4ama-iri)
INANI	**27,5**

Isikhathi esabiweko ngeveke singasetjenziselwa kwaphela ubuncani obufunwa ziimfundo zeenTatimende zeKharikhyulamu yeliZweloke amaGreyidiR-12 (TKZ) njengombana ziveziwe ngehla, begodu angeze zasetjenziselwa nanyana ngiziphi iimfundo zokungezelele ezingezelelwe erhelweni leemfundo. Lokha umfundi nakafuna ukungezelela iimfundo, isikhathi esingezelelweko kufanele sabelwe ukufundisa iimfundo lezo.

ISIGABA 2: IHLATHULULO, IMINQOPHO, AMAKGHONO NOKUMUMETHWEKO

2.1 ISINGENISO

Esahlukweni sesi 2, esiGabeni esisiSekelo isitatimende somgomo wekharikhyulamu yezweloke yokuhlola iimbalo inikela abotitjhere ihlathululo yeembalo imigomo ethile, amakghono athile, iminqopho yokumumethweko, isisindo sokumumethweko, iinsetjenziswa ezitjhukumeziweko zesifundo seembalo eemfundweni zesiGaba esisiSekelo, imihlahlandlela ezitjhukumeziweko yokusekela abafundi abaneenqabo zokufunda iimbalo, iimbalo zehloko nokuthuthukisa ukufundisa amakghono wolwazi lokubala lwangaphambili ngeGreyidini R.

2.2 ZIYINI IIMBALO?

Iimbalo lilimi elisebenzisa amasimboli/ amatshwayo/amaphawu nenotheyitjhini ukuhlathulula ubudlelwano beenomboro, kweJiyomethri neenjamelo zegrafu. Kumisebenzi womuntu okufaka hlangana ukuqala, ukujamisela nokuphenya amaphetheni nobudlelwana obuqakathekileko ezintweni ezithintekako/ ezibonakala ngamehlo nesenzeko esiphathelene nokuhlalisana naphakathi kwamabumbeko weembalo ngokwazo. Kuyarhelebha ukuthuthukisa ikambiso yokomkhumbulo engezelela ilojikhi nokucabanga ngokuhlaba, ngokunemba nokurarulula imiraro ezakurholela ekuthatheni iinqunto.

2.3 IINHLOSO EZINQOPHILEKO

Ukufundisa nokufundwa kweembalo kuhlose ukuthuthukisa okulandelako emfundini:

- Ilemuko lelihlo lokuhlaba lokuthi ubudlelwano bembalo busetjenziswa njani epilweni ephathelene nezokuhlalisana, ibhoduluko, itjhebiswano lamasiko nokomnotho;
- Ukuzithemba nekghono lokuqalana namtjhana ngibuphi ubujamo beembalo ngaphandle kokuliywa kukwesaba iimbalo;
- Umoya werhuluphelo nethando leembalo;
- Ukuthokozela ubuhle nokukarisa kweembalo;
- Ukubona bonyana iimbalo ziyingcenye yemisetjenzana umuntu azitlamela yona;
- Umcabango ojulileko wokuzwisisa ukwenza umqondo weembalo ; no
- Ukuthola ilwazi elithile namakghono athlogekako woku:
  - Ukusebenzisa iimbalo eentweni ezithintekako, zokuhlalisana nemiraro yeembalo;
  - Ukufunda okuhlobana nokufundiswako (isib.ezinye iimfundo) noku;
  - Ragela phambili nokufunda iimbalo.

2.4 AMAKGHONO ANQOPHILEKO

Ukuthuthukisa amakghono weembalo aqakathekileko umfundi kufanele:

- athuthukisa ukusebenzisa ilimi lembalo ngefanelo;
- athuthukise ilwazi leenomboro, umqondo nomboro, nokubalisisa namakghono wokwenza;
- afunde ukulalela, ukukhuluma, ukucabanga, ikghono lokusebenza nokurarulula imiraro ngelojikhi nokusebenzisa ilwazi leembalo alizuzileko;
- akufunda ukurhubhulula , ukuhlaziya, ukujamisela nokurhumutjha ilwazi;
- akufunda ukuveza nokurarulula imiraro; noku
- ukwakha ilemuko lokubaluleka kwendima edlalwa ziimbalo epilweni yamambala, okufaka hlangana ukuthuthuka komfundi ngokwakhe.

2.5 IMINQOPHO YEENGABA ZOKUMUMETHWEKO

Esigabeni Esisisekelo, iimbalo zithatha iingaba ezihlanu zokumumethweko. Esinye nesinye isigaba sifaka isandla ekutholeni amakghono anqophileko. Ithebula elingenzasi litjengisa umnqopho ovamileko walokho okumumethwe esigabeni nomnqopho onqophileko walokho okumumethwe Esigabeni Esisisekelo.

ITHEBULA 2.1 IMINQOPHO YEENGABA ZOKUMUMETHWEKO ESIGABENI ESISISEKELO

ILWAZI LOKUMUMETHWEKO LEEMBALO		
Isigaba sokumumethweko	**Isigaba esivamileko sokumumethweko**	**Iminqopho Enqophileko yesigaba Esimumethweko Esigabeni Esisisekelo**
Iinomboro, ama-Opharetjhini nobudlelwano	Ukuthuthukisa umqondo weenomboro okufaka hlangana: • Ihlathululo yemihlobo ehlukeneko yeenomboro; • Ubudlelwana phakathi kweenomboro ezahlukahlukeneko; • Ukuhlobana ngobukhulu kweenomboro ezihlukahlukeneko; • Ukujanyelwa kweenomboro ngeendlela ezahlukahlukeneko; noku • Umphumela wokusebenza ngeenomboro.	Irherho leenomboro ezithuthukiswa ekupheleni kweGreyidi yesi-3 lifaka hlangana iinomboro ezipheleleko okungasenani 1000 nama fraktjhini apheleleko. Esigabeni lesi, umqondonomboro womfundi uthuthukiswa ngokusebenzisa izinto eziphathekako ngokubala izinto ezibuthelelweko, ukuhlukanisa nokubuthelela ubungako, ngokubala ngokweqa ngeendlela ezihlukahlukeneko, ukurarulula imiraro yobujamo obuthileko (igama) nokwakha nokwakha nokuphula iinomboro. • Ukubala kujayeza abafundi ukuthuthukisa umqondo nomboro, iimbalo zehloko, isilinganiso, amakghono wokubala nokubona amaphetheni. • Ukuthuthukisa komqondonomboro kurhelebha abafundi ukufunda nngemikghwa/ ngemikhuba yeenomboro nokuthuthukisa iindlela ezingenza ukubala kubelula. • Ukurarulula imiraro ngobujamo /ngobunjalo kungenza abefundi bakghone ukuveza imicabango ekungeyabo ngokukhuluma nangokutlola ngemigwalo namngamatshwayo. • Abefundi bakha ukuzwisisa umgomosiseko wokuhlanganisa, ukukhupha, ukubuyabuyelela nokuhlukanisa. • Abefundi bathuthukisa umqondo wefraktjhini ngokurarulula imiraro efakahlangana ukwabelanakobungako kwezinto eziphathekako ngokusebenzisa imigwalo. Imiraro kufanele ifake hlangana iinsombululo ezineensalelo zeenomboro ezipheleleko nofana amafraktjhini. Ukwabelana akukafaneli kuthole ingcenye yokipheleleko kwaphela, kodwana nokufunyana iingcenye zokubuthelelwa kwezinto. Esigabeni lesi abafundi basengakabi nobukghoni bokufunda nofana ukutlola amatshwayo wamafraktjheni.
AmaPhetheni, amaFanktjhini ne-Aljibhra	I-Aljibra lilimi lokurhubhulula nokukhulumisana ngokunengi kweembalo begodu kunganabiselwa eenfundweni zemisebenzi nobunye ubudlelwana obuphakathi kwezinto ezitjhugulukako. Ingcenye ephakathi yesigaba sokumumethweko kungobana umfundi aphumelele amakghono nokweza ngokusebenzisa i-Aljibra. Begodu kunqophe eku: • Ekuhlathululeni amaphetheni nobudlelwana ngokusebenzisa amatshwayo wokuphandhusela, amagrafu namathebula; noku • Nokubona ukuhlaziya kokuvamileko nokutjhugulukako emaphethenini, nobudlelwano ukwenza bonyana umfundi enze ibonelophambili nokurarulula imiraro.	Esigabeni lesi, abafundi basebenza ngakho kokubili: • Iphetheni yeenomboro (isib. ukubala ngokweqa) na • Maphetheni weJiyomethri (isib. iinthombe) Abefundi kufanele basebenzise izinto eziphathekako, imigwalo namatshwayo webumbeko ukukopa, ukwandisa, ukuhlathulula nokutlhama amaphetheni. Ukukopa amaphetheni kusiza abafundi bonyana babone ilojigi yokubana iphetheni yenziwe bunjani. Ukungezelela iphetheni kusiza umfundi ukuhlola bonyana bayizwisisile ilojijgi yephetheni. Ukuhlathululula iphetheni kusiza abafundi ukuthuthukisa amakghono welimi. Ukunqophisa ephethinini yelojigi kwendlalela isiwekelo sokuthuthukisa amakghono wokucabanga we-Aljibhra. Amaphetheni wenomboro asekela ukuthuthukisa umqondonomboro nemizwa yokusebenza ukwakha iinomboro, umbalo nobudlelwano. Amaphetheni weJiyomethri ifaka hlangana nokulandelanisa imida, amabumbeko nezinto begodu namaphetheni asephasini. Emaphethenini weJiyomethriki abafundi basebenzisa ilwazi labo lesikhala nebumbeko.

ILWAZI LOKUMUMETHWEKO LEEMBALO		
Isigaba sokumumethweko	**Isigaba esivamileko sokumumethweko**	**Iminqopho Enqophileko yesigaba Esimumethweko Esigabeni Esisisekelo**
Isikhala nobujamo (Jiyomethri)	Isifundo sesikhala nobujamo kwenzangcono ukwizisisa nokuthanda/ ukuthokozela kwamaphetheni, ngokunembako, ngokuphumelelako nangobuhle bebumbeko ngokwemvelo nangendlela yokuphila/yesiko. Inqophe • matshwayo (ubunjalo) ubudlelwano • ibandulo nelwazi, indawo/ ubujamo noku • tjhugulula ubujamo obubusobubili nezinto ezinobujamo ezibobusontathu.	Esigabeni lesi abafundi banqophe ezintweni ezinejamo ezibusontathu (3-D), nobujamo obubusobubili (2-D), indawo nelayelo. • Abafundi bahlola izinto zobujamo ezibusontathu (3-D) nobujamo obubusobubili (2-D) ngokuhlukanisa, ngemihlobo, ngokuhlukanisa ngeengaba, ukuhlathulula nokuzitjho. • Abafundi bagwala ubujamo/amajamo bebakhe ngezinto. • Abafundi babona bebahlathulule amajamo/ubujamo bezinto ezisemphakathini bazifanise nezinto nobujamo beembalo. • Abafundi bahlathulula ubujamo bezinto, bonangokwabo nabanye ngokusebenzisa ilwazimagama elifaneleko. • Abafundi balandela bebanikele nelayelo.
Ukumeda	Isilinganiso sinqophe ekukhethweni nekusetjenziswa kwamayunithi afaneleko, iinlinganisi/iimedo, amafomula ngokwesinganiso kwezakhi zezehlakalo, ubujamo, izintonebhoduluko. Ihlobanisa ngokunqophileko ngokwesayensi nangobuthegnigi, nangomnotho wephasi ukuvumela umfundi: • Ukwenza isilinganiso esifaneleko; noku • Thlogomela ngokuzwakalako kwesilinganiso nemiphumela.	• Esigabeni lesi umnqopho wesilinganiso wabafundi uthuthukiswa ngokusebenza ngokwenza ngezinto eziphathekako ezihlukeneko namajamo, ukufunda ngamatshwayo/ngobunjalo bobude, umthamo, ubudisi, indawo nesikhathi. • Abafundi balinganisa amatshwayo wobujamo nezinto ngokusebenzisa ama unithi angakalungiselelwa lapho kufaneleko, okufana nezandla, amagadango isimumathi njll. • Abafundi bamadanisa ubungako obuhlukahlukeneko ngokusebenzisa amagama amadanisako afana nokuthi, omude/omfitjhani, ebudisi khulu/elula njll. • Abafundi baziswa emayunithi avamileko afana namagremu, khilogremu, mililitha, amalitha, amasentimitha, amamitha njll. Imisebenzi ehlobana nesikhathi kufanele yakhiwe ngelemuko lokobana ukuzwisisa kwabafundi ngokudlula kwesikhathi ku-fanele kuthuthukiswe ngaphambi kokufundiswa kwesikhathi.
Ukuphatha idatha	Ngesifundo sokuphatha imininingwana, umfundi uthuthukisa amakghono wo: • Buthelela • Ukugqugquzela/ ukuhlanganisa ngeqhinga • Ukubonisa/ukubukisa noku • Ukuhlaziya nokurhumutjha idatha enikelweko.	Umnqopho wokufundisa nokufunda ngokuphathwa kwemininingwana efundweni esisekelo esekuhlukanisa ngeengaba izinto nemininingwana ngeendlela ezihlukahlukeneko, kususelwa ebujameni obuhlukahlukeneko bezinto nofana imininingwana/idatha. • Abafundi balindeleke bonyana barhumutjhe bebakhe isithombemgwalo negrafu yebha ekhambisana nokukhambelana ngakhunye ngakunye ngemininingwana enikeliweko.

2.6 UKWABIWA KWESIKHATHI SOKUMUMETHWEKO NGOKWEENGABA

Ukwabiwa kwesikhathi seembalo sokumumethweko ngokweengaba kusebenzela iinhloso eziqakathekileko ezimbili: Okokuthoma ukwabiwa kwesikhathi kunikela ikhokhelo lobungako besikhathi esithlogekako ukufundisa okumumethweko kileso naleso isigaba sokumumethweko ngokwaneleko; kwesibili isikhathi esabiweko sinikela ikhokhelo lobungako kokumumethweko okusabalaliselwe ekuhlolweni. Ukwabiwa kwesikhathi kweengaba zokumumethweko azifani Efundweni Esisekelo.

Ithebula 2.2 Ukwabiwa kwesikhathi kweengaba zokumumethweko esiGabeni esisisSekelo

Ukwabiwa kwesikhathi kweengaba zokumumethweko			
lingaba zokumumethweko:	**iGreyidi 1**	**iGreyidi 2**	**iGreyidi 3**
Iinomboro,ama-Opharetjhini nobudlelwano*	65%	60%	58%
AmaPhetheni, amaFanktjhini ne-Aljibhra	10%	10%	10%
Isikhala nobujamo (Jiyomethri)	11%	13%	13%
Ukumeda	9%	12%	14%
Ukuphatha iDatha	5%	5%	5%
	100%	**100%**	**100%**

*EmaGreyidini R – 3, kuqakathekile bona isigaba seenomboro, ama-Opheretjhini nobudlelwano kumnqopho oqakathekileko weeMbalo. Abafundi badinga ukuphuma Efundweni Esisekelo banesiqiniseko seenomboro ngokuzizwa nokusetjenziswa butjhelela. Ihloso kukobana abafundi bakghone bebazethembe ngeenomboro nokubalisisa. Ngalesi isizathu isikhathi senotjhinali esabelwe Iinomboro, ama-Opharetjhini nobudlelwano singezelelwe. Umsebenzi omnengi wephetheni kufanele unqophe kuphetheni yeenomboro, ukuhlanganisa ikghono leenomboro ebafundini ukuya phambili.

2.7 IIMBALO ESIGABENI ESISISEKELO:

Efundweni Esisekelo iimbalo zilingisa ngokwamanga ukuhlobana phakathi kwepilo yangaphambili-kwesikolo nepilo engaphandle kwesikolo ngakesinye isandla, begodu ngakesinye isandla kube ziiMbalo ezisezingeni eliphezulu, emaGreyidini alandelako. EmaGreyidini asesephasi abantwana kufanele kuvezwe epepeneneni ilemuko lakhe leembalo elibanikela amathuba amanengi wokwenza, wokukhuluma newokurekhoda imicabango yeeMbalo okungeyabo.

Ubungako besikhathi esiqithwa eembalweni yenza, iinqunto zamandla atjhayisanako ekuthuthukisweni umqondo weeMbalo namaKghono. Imisetjenzana abantwana ababandekanywa kiyo kufanele kungabi ngeyokubalibazisa nje kwaphela kodwana ifanele inqophe eeMbalweni njengombana kwethuliwe kwiKharikhyulamu.

2.7.1 Imihlahlandlela etjhukunyeziweko yokuphatha ikumba yokufundela.

Soke isikhathi esabiweko seembalo ngelanga kufanele sithathwe njengehlelo lesikhathi esisodwa. Ngesikhathi seembalo okulandelako kufanele kwenziwe:

- **Umsebenzi wetlasi loke**
  - Iimbalo zehloko
  - Ukuhlanganisa imiqondo
  - Ukuphathwa kwetlasi (ukwabiwa kwemisetjenzana ngokuzijamela njll)
- **Ukufundisa ngesiqhema esincani**
  - Ukubala
  - Ukuthuthukisa umqondo wenomboro (ngokukhuluma nangemisetjenzana yokwenza)
  - Ukusombulula imiraro (ngokukhuluma nangemisetjenzana yokwenza)
  - Ukurhekhoda okutloliweko
  - Ukuthuthukisa iindlela zokubalisisa (ngokukhuluma nangemisetjenzana yokwenza)
  - Amaphetheni
  - Isikhala nobujamo
  - Ukumeda
  - Ukuphatha idatha

- **Umsebenzi wokuzijamela**

Abafundi bayazilungiselela bebahlanganise ukuthuthukisa imiqondo emfumndweni zetlasi loke nekufundisweni ngesiqhema esincani.

Imisetjenzana yetlasi loke: Umnqopho uzokuba kakhulukazi eembalweni zehloko, ukuhlanganisa imiqondo nekwabeni kwemisetjenzana yokuzijamela okungasenani imizuzu ema-20 ngelanga ekuthomeni kwesifundo seembalo. Ngalesosikhathi utitjhere uzokusebenzisa netlasi loke ukubona nokurekhoda (lokha kufaneleko) ilanga losuku, zingaki enyangeni, inani labafundi abakhona nabangekho, nobujamo bezulu. Iimbalo zehloko zifakahlangana iimbalo zehloko ezisungulako ezifana "nenomboro ezangemuva nangaphambili ko-8, okunengi/nokuncani kuno-8 nga-2 yi: 4+2; 5+2; 6+2" njll. Ngaso leso sikhathi utitjhere angahlanganisa imiqondo engaba budisana. Begodu kuqakathekile bona itlasi inikelwe imisetjenzana evamileko begodu nemisetjenzana yokuzijamela abazenzela yona ngokwabo, ngalesosikhathi utitjhere uraga ngesigaba sesiqhema esincani.

Iimfundo eziqaliswe esiqhemeni esincani: Ngeziphumelelisako nange utitjhere athatha isiqhema sabantwana esincani (8 ukuya 12) abasezingeni elilinganakobabe naye emadeni nofana ematafuleni wabo, ngasikhathi leso itlasi loke libandakanywe emisetjenzaneni yokuzijamela. Utitjhere usebenza nabentwana **ngokukhuluma nangokwenza**, ababandakanye emisetjenzaneni efana nokubala, ukulinganisa, ukuthuthukiswa komnqopho weenomboro, imisetjenzana yokurarulula imiraro, nemisetjenzana ephathelene namaphetheni, isikhala nobujamo, ukumeda nokuphatha idatha okufanele kuhlelwe ngokuqophelela.

Ukuze uqinisekise ukufunda umsebenzi otloliweko (incwadi yokusebenzela, isibonelo iphepha lokusebenzela, amakarada wokusebenzela njll) kufuneka kube yingcenye yomsebenzi wesiqhema nakungakghoneka/nakukghonakalako. Abafundi kufanele babe neentlabagelo zokutlola (incwadi yokusebenzela njll) isentjenziselwe imisetjenzana yokurarulula imiraro. Isigaba sesiqhema kufanele bakhuthazwe **"ukwenza, ukukhuluma ukulingisa nokurekhoda"** ukucabanga kwabo kweembalo.

Abotitjhere kufanele banakekele bangaqaleliphasi/banganyazi abafundi ababuthaka, kufanele nabo badoswe. Kubalula ukumedanisa izinga lobudisi lomsebenzi wabafundi nangabe utitjhere usebenza ngezinga elipheze lalingana, Okungenani iinqhema ezisemazingeni ahlangeneko zingasebenza ngcono nekwakhiwako, kumeda kwenziwa amaphetheni nofana imisetjenzana yokuhlukanisa ngeengaba, nofana kwemidlalo.

Imisetjenzana yokuzijamela: Ngesikhathi utitjhere asebenza ngemfundo ezinqophiswe esiqhemeni esincani, abafundi boke ngetlasini kufanele babandakanywe ngehloso yemisetjenzana ehlukahlukeneko yeembalo enqotjhiswe ekuqiniseni nekuhlanganiseni iminqopho namakghono asele afundisiweko ngesikhathi esinqotjhiswe esiqhemeni esincani. Imisetjenzana yokuzijamela kufanele ihlukaniswe ukwenzelela bonyana inakekele iinqhema ezinamakghono ahlukeneko. Imisetjenzana yokuzijamela ifanele ifake hlangana:

- Imisetjenzana yencwadi yokusebenzela
- Amaphepha wokusebenzela ahlelwe ngokwemihlobo/amakarada wokusebenza wokubala, ukusebenzisa iinomboro, imiraro elula esebujameni (imiraro yamagama) njll
- Imidlalo yeembalo efana neLudo, amadomino, amaphazeli wejigso nama
- AmaThaski afakahlangana nokwakha, ukuhlukanisa ngeengaba, ukuphethina nokumeda.

Isikhathi seembalo kufanele sinikele ukulekelela ebafundini abaneenqabo zokufunda, imisetjenzana engezelelako yabakghonako, imisetjenzana yokuhlola njll.

Imisetjenzana yokuzijamela neyesiqhema esincani kufanele iqalwe (ngokwenza, nangokukhuluma) itshwaywe bese iyaqalisiswa (ukurhekhoda okutloliweko) ngutitjhere njengengcenye yokuhlola okulungiselelweko nengakalungiselelwa.

Ukulandela umkhondo wempendulo zabafundi (ngokukhuluma, ngokucocwako, ngokwenza, ngokurekhoda okutloliweko) esimeni sokufunda nokufundisa evumela utitjhere ukwenza ukuhlola okuragela phambili, ukulandelela iragelophambili nokuhlela ilekelelo ngokuya kwabafundi abaneenqabo zokufunda.

2.7.2 Abafundi abaneenqabo ekufundeni iimbalo

Kuqakathekile bonyana abafundi abahlangabezana neenqabo zokufunda iimbalo bonyana kuvezwe epepeneneni ekufundeni okusekelwe ngemisetjhenzana yokufunda. Ukwenza kweemboniso kusetjhenziswa izinto ezibonakalako ngokuhlanganyela nemisetjhenzana yokwenziwa kufanele isetjhenziswe ithutjana elide kunalabo abafundi abakghonako ngombana ukutjhugulukela emisebenzini engabonakaliko ngokurhabako kungabanga ukutjhuragana nokusalela. Abafundi labo bangadinga nofana banikelwe isikhathi esinengi soku:

- Qedelela imisebenzi yokuhlola namathaski
- Ukuthola amakghono wokucabanga (amaqhinga okungewabo)

Inani lemisetjhenzana okufanele iqedelelwe kufanele yehliswe ngaphandle kokuzwana ngokulisa okhunye iminqopho namakghono lawo anqotjhiweko.

2.7.3 Iimbalo zehloko

Iimbalo zehloko zidlala indima eqakathekileko kukharikhulamu. Amabhondi weenomboro nethebula yokkubuyelela okulindeleke bona abafundi bawazi nofana bawakhumbule ngokurhabako keliny nelinye igreyidi arhemisiwe. Ngokungezelelweko, iimbalo zehloko zisetjhenziswa ngokubanzi ngokuhlola iinomboro eziphakamileko ezihlangana kweenlinganiso ezimbili ngokubala ngokweqa nangokwenza imisetjenzana efuna ukuya phezulu naphasi elerini. Isib. Utitjhere wegreyidi yesi 3 angahle abuze imibuzo elandelanako, “thoma nga 796 ungezelela nge 7, lye ma 803. Yenza lokhu kwehle nge 5 lye ma 798. Ngezelela nge 10... ungezelela 2... ungezelele nga 90 ... yehlisa nga 5 ” njll. Imisetjenzana leyo irhelebha abafundi ukwakha inambalayini yembalo zehloko.

Iimbalo zehloko ziboniswa khulu ekubaleni nesahluko somqondo wokuthuthukisa inomboro okuhlobanisa inhloko zeenomboro namaPhetheni begodu kungenzeka ngesikhathi sokumeda nemisetjenzana yokuphatha kwedatha. Nakwenziwa iimbalo zehloko, utitjhere angakateleli abafundi ukwenza iimbalo zokubalisisa abangakwazi ukuzenza-iintlabagelo zokutlola nofana izinto zokubala kufanele zihlale njalo zikhona ukwenzelela abafundi abasazithlogako

2.8 IGREYIDI R

Indlela yokufunda i-IiMbalo kufanele isekelwe emithethweni yokuhlanganisa ngokuzeleko nokufunda okusekelwe ekudlaleni. Utitjhere kufanele asebenzele phambili, abemlamuli kunokuba mkghonakalisi. Umlamuli wenza amathuba amanengi wokufunda anganakuqakatheka avela ngokuzenzakalelako ngezikhathi semisetjenzana edzimelele emntwaneni efana nokudlala ngokutjhaphuluka ekhoneni lomkhumbulo olibhudango nofana endaweni lapha kwakhiwa khona ngamabhlogo, emisetjenzaneni yokudlala ngehlabathi namanzi okufaka imisetjenzana ekhokholwa ngutitjhere, enqophiswe emqondweni wokubala, ukuthuthukiswa komqondonomboro, isikhala nobujamo, amaphetheni, isikhathi neminye imisetjenzana yokuthoma i-IiMbalo. Umbala ngokwawo awusiwo umqondo we-IiMbalo, kodwana ungasetjenziselwa ukuthuthukisa umqondo we-IiMbalo ngemisetjenzana efana nokuhlela ngemihlobo, ukuhlela ngeenqhema nokuhlukanisa ngeengaba.

Woke amahlangothi weGreyidi R, okufaka hlangana ibhoduluko letlasi nokujayela ukufundisa nokufunda, kufanele kukhuthaze ukuthuthukisa umntwana ngokuzeleko. Ukuthuthuka okuhlanganisiweko nokuthoma ukwazi iimbalo okufakahlangana nokuthuthukiswa kokusebenzisa umkhumbulo

(ukurarulula-umraro, ukucabanga nokucabangisisa okuhlelekileko), ukuthuthukisa kwelimi (ilimi le-IiMbalo) nokubona kwanga uyezwa begodu nangokwemizwa nangokuhlalisana. Woke amahlangothi lawa angathuthukiswa ngeendatjana, iingoma, imidunduzelo, imidlalo yemino neyamanzi, amathoyisi wokufunda afakahlangana umdlalo webhodi, imisetjenzana yokwakha nokuhlola (ubudisi, isikhathi, ubungako, ukumeda njll). Ukudlala ngokuzakhela engqondweni, ukudlala ngaphandle nemidlalo yekundleni yezemidlalo. Imidlalo eminengi ingafakahlangana ihlangothi lenumeresi, isibonelo ukulinganisa ngesikhathi sokupheka nofana ukubala nakuthengwako.

Ngamanye amagama ukukghona ukuthoma ukubala nakuhlobana kwemiqondomagama weembalo kufanele njengokufundisa okuhle kulandele imithetho yokufunda elandelako lapha abantwana badlula eengabeni eentathu zokufunda:

- Isigaba sekhinestethiki (ilemuko lemiqondo ngemizimba nangemizwa);
- Isigaba sokuphathekako (3-D), kusetjenziswe izinto ezihlukahlukeneko ezifana namabhlogo, iimvalo zamabhodlela, iingojwana nezinyo izinto ezisemphakathini);
- Iphepha nepensela (iinjamiseleli ezisaphathekako kusetjenziswa imigwalo, amakarada amadanisako njll)

EGreyidini R ithebula lesikhathi libizwa **ihlelo langamalanga** (*qala* Umfanekiso woku-1) begodu ihlukaniswe ngeengaba ezintathu eziqakathekileko zibizwa:

- Imisetjenzana ekhokhelwa ngutitjhere
- Imisetjenzana yangamalanga/evamileko
- Imisetjenzana esungulwa bantwana nofana ukudlala ngokutjhaphuluka.

Igandelelo kufanele libe sekusebenziseni amahlangothi welandelano lemilayelo ukukhuthaza ukuzuza kokuthoma ukwazi inumeresi ngendlela esebujameni bokudlala nangokuzenzakalelako. Isibonelo, amathuba wokufunda inumeresi ngokukhokhelwa ngutitjhere enziwa ngesikhathi sendulungu. Iindulungu zinganikelwa umnqopho wokubala. Ekuseni ngesikhathi sokulotjhisana nalapha nakuqalwa abantwana abakhona nabangekho ingathathwa njengethuba lokudlala ngeenomboro isibonelo, ukubala. Ezinye iindulungu ezifana nendulungu ye-IiMbalo, indulungu yokuzwa inga uyabona, yokusikinyeka, yomvumo neyesayensi zinganikela umnqopho we-IiMbalo.

Imisetjenzana yobuciko bokuzithlamela ingagandelela i-IiMbalo isibonelo, ukusebenzisa amabumbeko weJiyomethri ezifana nendulungu nesikwere ukwenza ikholaji nofana ukutlama ifreyimu yesithombe. Itjhadi lobujamo bezulu, ikhalenda nendulungu yelanga lamabeletho zinikela ithuba lokuhlola umnqopho wokubala. Kulilwazi nokusungula kwakatitjhere okungandise ikghono lokufunda.

- *Umsebenzi wangamalanga* lapha abantwana bazibandakanya khona efana nesikhathi sokudla, isikhathi sokubuyelela ekhaya, nesokuya endlwaneni singanikelwa umnqopho oqaliswe ekubaleni. Boke abentwana abembethe izambatho ezibomvu baye endlwaneni kokuthoma (umbala neenomborosikhundla) omunye nomunye umntwana uthola isitja nembedlezwana (ukukhambelana kunye nakunye), uThandi ubawa imbedlezwana enye godi, uSipho akasayifuni enye imbedlezwana. Utitjhere ubona asebenzise isikhathi leso njengesikhathi sokufundisa ngamanye amagama utitjhere abemlamuli wokufundisa.
- Ngesikhathi *sokudlala ngokutjhaphululaka* utitjhere angathuthukisa **iiMbalo ezisathomako** ngokwakhiwa okufaneleko kwendawo yokudlalela. Ukudlala okutjhaphulukileko kwangaphandle okufana nokukhwela ifreyimu yesigodo nofana ukukhwela itsikiri kungathuthukisa ilwazimagama weembalo afana naphezulu/phasi, masinya/buthaka, ngaphasi/ngaphezulu njll. Ukudlala ngehlabathi namanzi kungangezelela ukuzwisisa kwemiqondo efana nobudisi nomthamo. Yoke imisetjenzana izokungezelela amakghono wokuzwa kwanga uyabona enza, lokhu kuba yengcenye yokuphila njengendabuko okutholakala ngokuphumelela ekufundisweni okuhleliweko kwelitheresi nenumeresi. Iimbonelo zamakghono ngilezi:
  - ukuthuthukisa ukuzwisisa ubujamo ebusesikhaleni isibonelo, ngemuva, ngaphambi kwe, ngaphasi kwe nofana hlanu kwento (lokhu kungahlanganiswa nokujanyelwa kwedijithi); ne
  - ukunqophisa nelathelarithi (lokhu kungahlanganiswa nokubunjwa kwenomboro neledere, nokufunda kusukela ngesinceleni ukuya ngesidleni)

Ukulungiselela okwendlalwe ngehla kutjengisa indlela ekhuthaza indlela yokurarulula umraro, ukucabanga nokucabangisisa isikhathi sokufunda, utitjhere angakhuthaza abantwana bonyana batjengise ngeenquto nebonelophambili lokungenzeka isibonelo, Njengokuthi isimumathi esisetjenziswe ngesikhathi sokudlala ngokutjhaphuluka singathatha umthamo omnengi kunesinye.

Ngokwenza iintjhukumezo ezingarhelebha nokumema umntwana bonyana acabange ngezinye iindlela zokurarulula imiraro. Utitjhere angakhuthaza abantwana ukucabanga ngokujulileko nangeendaba nangeenquto abazithathako. Ngaleyondlela kuzabe kungasi ngokweembalo kwaphela kodwana ukuthuthukisa okupheleleko ngelihlo elihlabako okuvezwa **Sitatimende soMthetho-kambiso weKharikhyulamu nokuHlola** kulethwa ngokudlala.

Umfanekiso woku-1: Ihlelo langamalanga le Greyidi R

(Kusuka ± 7:30 – 13:00)

UKUFIKA NOKUDLALA OKUTJHAPHULUKILEKO

Imizuzu e-36

Ukulotjhisa Wamabeletho lindaba | Amalanga Iregistara | IiMbalo AmaLimi AmaKghono WePilo

IMISETJENZANA ERHOLWA NGUTITJHERE
IiMbalo, AmaLimi, AmaKghono WePilo

50 imizuzu

- UMSEBENZI WOBUKGHWARI umsetjenzana o-1 oqakathekileko kanye nemi- 2 nofana emi-3 esekelako yangamalanga.
- ukudlala batjhaphulukile
- nokubutha ngetlasini

- Imidlalo yokuzenzisa
- Ukulingisa
- Ukudlala ngokwakha
- Amabhblogo
- Kokufunda
- Izinto zokudlala
- Imidlalo ecabangisako
- Amaphazela
- Ihugwana yeencwadi

30 imizuzu

IMISETJENZANA ERHOLWA NGUTITJHERE
IiMbalo, AmaLimi, AmaKghono WePilo.

10 imizuzu

Ukuya ngendlwaneni kwangamalanga
IiMbalo, AmaLimi, AmaKghono WePilo

20 imizuzu

IINQABULI:
Amalimi, Iimbalo, AmaKghono WePilo

60 imizuzu

Ukudlala utjhaphulukile ngaphandlenokubutha

- Ukudlala ngamanzi
- Ukudlala ngesanda
- Ukulingisa
- Iimbholo
- Ukujinka
- Izinto zokudlala ezinamavili
- Izinto zokudlala ezifundisako
- Ijungel jimu
- Amatayere
- Ukuthabulula umzimba
- Imidlalo

10 imizuzu

Ukuya ngendlwaneni kwangamalanga
IiMbalo, AmaLimi, AmaKghono WePilo.

30 imizuzu

IMISETJENZANA ERHOLWA NGUTITJHERE
IiMbalo, AmaLimi, AmaKghono WePilo.

30 imizuzu

INDATJANA ngamalanga

ukuphumula / isikhathi sokuthula nesokukhamba

IIMBALO

- Imisetjenzana esuselwe kuma (IiMbalo).
- Iingoma nombhino
- Imisetjenzana ebonakalako
- Imilolozelo yokubala
- Ukucocisana ngommongo
- Isitjengiso – mbono sesayensi
- Ukudlala okutjhaphulukileko
- Imisebenzi yangamalanga

AMALIMI

- Imisetjenzana esuselwe kuma (ILimi Lekhaya).
- Iindatjana
- Umdlalo wesiteji
- Iincwadi / iinthombe
- Ukufundi iinthombe
- Ukucocisana ngeenthombe
- Imisetjenzana ebonakalako
- Ipostara yababelethi
- Incwadi yomzali
- Iindaba
- Iinkondlo / imilolozelo
- Umbhino / iingomo / imilolozelo
- Umtjhinin wokudlala amakhasede
- Ukucocisana ngommongo
- Imidlalo yemikhambo yabantu
- Imisebenzi yangamalanga
- Ukudlala okutjhaphulukileko

AMAKGHONO WEPILO

- Imisetjenzana esuselwe kuma (AmaKghono WePilo).
- Imidlalo yemikhambo yabantu
- Umvumo nombhino
- Iinkondlo nemilolozelo
- Ukucocisana ngommongo
- Amalanga wamabeletho
- Imisebenzi yangamalanga
- Ukudlala okutjhaphulukileko

Ukuhlolwa eGreyidini R kufanele kube ngokungakalungiselelwa begodu abantwana akukafaneli babekwe ebujameni bokutlola ukuhlola.

Kungalesi sizathu imisetjenzana yokuhlola ingakafakwa e**Sitatimende Somthetho-kambiso Wekharikhyulamu nokuHlola** eGreyidini R. Omunye nomunye umsebenzi wokuhlola ufanele uhlelwe ngokuqophelela ukuze ihlanganise nemihlobobohlobo yamakghono.

EGreyidi R ukuhlolwa okunengi kwenziwa ngokubukela, lapho utitjhere arekhoda khona imphumela yokuhlolwa ngokusebenzisa irherho lokuhlola. Ngokukhamba konyaka, isithombe esizeleko ngomntwana ngamunye siyakheka, zizaliswe ngeentjhijilo nangobukghoni bakhe kwenza bonyana iintjhijilo ziqalelelwe, ubukghoni buthuthukiswe. Lokhu kuvumela intjhijilo bonyana ziqalelelwe nobukghoni buthuthukiswe.

Ihlelo lokufunda elihlelelweko langekumbeni yokufunda ehlelwe ngokusekelweko afanele angenziwa, njengombana angalekeleli ukukghonakala kweNumeresi emntwaneni weGreyidi R.

UGreyidi R akukafaneli kube yiGreyidi 1 eyehlisiweko. IGreyidi R unemikghwa yayo ehlukileko esekelwe ngokuthi umntwana oseminyakeni leyo wenza njani umqondo ngephasi aphila kilo, nokuthi uzuza njani ilwazi, amakghono, amagugu nendlela yokucabanga ebanikela amathuba weminyaka yokufunda okuhlelelweko.

2.9 IINSETJENZISWA EZIPHAKANYISIWEKO ZETLASI YEEMBALO ESIGABENI ESISISEKELO.

- Iimbali
- Idayisi elikhulu
- Ifreyimu ekulu yokubala
- Itjhadi lobude
- Iphostara ekulu eneenomboro 1 – 100 nephostara yegridi yeenomboro 101 – 200 (itjhadi lenomboro ezi-100)
- Amanambalayini ahlukahlukeneko (ajame rwe nathabaleleko)
- Isede yama karada flardi (amakarada anabisako)
- Imali yokudlala — iinhlamvu zemali nemali yephepha.
- Ikhalenda yonyaka loyo
- Iwatjhi ekulu yamasiba yebodeni
- Isikala sokudzimelela
- Amabhlogo wokwakha
- Idaka lokubumba
- Amabhoksi ahlukahlukeneko ngobujamo nesayizi athethwe ekhaya
- Amabhodlelo weplastiki ahlukahlukeneko nezinye iimumathi zokuhlathulula nokumadanisa umthamo
- Iimbonelo ezihle zeendulungu (iimbholo), iphrizimu enguncamane (ibhoksi), ikhuyubhu, ikurwana, iphiramidi namasilinda. Utitjhere angazenzela yena ngokwakhe lokhu.
- Iinkwere ezinengi zamaplastiki nofana amakhadibhoksi, aboncamane abahlukahlukeneko, iindulungu, aboncantathu abahlukahlukeneko babe namasayizi ahlukahlukeneko boke.
- Imidlalo yeeMbalo isib. iLudo, iinyoka namaleri, amaphazela angenelanako, amaDomino, amaTangremu njll.
- Okuqakathekileko emaGreyidini R neyoku 1:
  - Iindawo lapho kudlalwa khona ngesanda namanzi
  - Iinsetjenziswa zokukhwela , zokudzimelela, zokujinka nokweqayeqa
  - Isitolo sokudlala nezinto okufanele zithengwe ngemali yokudlala
  - Imihlobohlobo yemidlalo efaneleko okufana nokuthi ‘kunani ngaphakathi kwesikwere’?
  - Amabhlogo.

ISIGABA 3: UKUNQOPHISA NOKUHLATHULULA OKUMUMETHWEKO

3.1 ISINGENISO

Eemfundweni ezisesiGabeni seFundo ephasi, kuhlanu okumumethwe eendaweni ze-IiMbalo

- Iinomboro, ama-Opharetjhini noBudlelwano
- AmaPhetheni, amaFanktjhini ne-Aljibhra
- ISikhala nobuJamo (Jiyomethri)
- UkuMeda
- UkuPhatha iDatha

Esinye nesinye isigaba sokumumethweko siphulwa sibe ziinhlokwana zeeMbalo, isibonelo kuSikhala nobuJamo Esigabeni Esisisekelo esinye seenhloko bujamo obubusobubili (2-D). ImiQondo namaKghono ayanqotjhiswa ngaphakathi kwesinye nesinye isihloko. Esigabeni sesi-3 seSigaba Esisisekelo se-Mbalo, ISitatimende Somgomo WeKharikhyulamu nokuHlola sinqophisa besihlathulule lokho okufunekako kokumumethwe ziiMbalo.

3.2 ISENZO SOKUNQOPHISA IRAGELO PHAMBILI KILOKHO OKUMUMETHWEKO.

Ithebula yehlathululo efitjhazana yesigaba esithile sokukhula itjengisa isenzo seragelo phambili yeminqopho namakghono netuthuko kusukela eGreyidini R ukuya kweyesi-3. Ithebula yehlathululo efitjhazana yesigaba esithile sokukhula kweGreyidi itjengisa ituthuko yemiqondo namakghono buvundla kiwo womane amathemu wonyaka.

Noma kunjalo, kezinye iinhloko imiqondo namakghono ayafana emagreyidini amabili nofana amathathu alandelanako. Ukuhlathululula okumumethweko kuzakunikela umhlahlandlela wokobana iragelo phambili kufanele yenziwe bunjani ebujamweni obunjalo. Isenzo sokunqophisa okumumethweko kufanele sifundwe ngokuhlanganyela nokuhlukanisa ngeengaba kokumumethweko.

Umbonomazombe omfitjhazana wemininingwana Esigabeni Esisisekelo itjengisa iragelo phambili leengaba ezimumethweko; Iinomboro, ama-Opharetjhini noBudlelwano, amaPhetheni, amaFanktjhini ne-Aljibhra, Isikhala noBujamo (Jiyomethri), Ukumeda no kuPhatha iDatha buvundla emaGreyidini R – 3 njengoba zibekiwe ethebuleni elingenzasi.

UMBONOMAZOMBE WESIGABA ESISISEKELO

1. IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANO

Iragelo phambili leenomboro, ukusebenza nobudlelwano.

- Iragelo phambili eliqakathekileko leenomboro,ukusebenza nobudlelwano elenzeka ngeendlela ezintathu:
  - Ihlelo leenomboro liyanyuka.
  - Ukwethulwa kwemihlobo ehlukeneko yeenomboro.
  - Ukutjhuguluka kwamaqhinga wokubala.
- Njengombana ihlelo leenomboro lokubala linyuka ukufika kugreyidi 3, abafundi kufanele bathome ukuba namaqhinga amanengi afaneleko wokubala.
- Imiraro yobujamo kufanele ibe nokuphenduleka ehlelweni leenomboro egreyidini kunye nekghono lokubala labafundi.

IINHLOKO	IGREYIDI R	IGREYIDI 1	IGREYIDI 2	IGREYIDI 3
UKUTHUTHUKA KWEMIQONDO YEENOMBORO : Bala ngeenomboro ngokupheleleko				
1.1 **Ukubala izinto**	**Ukubala izinto eziphathekako** Linganisa bewubale ngokuthembeka okungenani kufika ema-10 izinto zangamalanga	**Ukubala izinto eziphathekako** Linganisa bewubale ngokuthembeka okungenani kufika ema-50 izinto zangamalanga. Ukubala ngeenqhema kuyakhuthazwa	**Ukubala izinto eziphathekako** Linganisa bewubale ngokuthembeka okungenani kufika ema 200 izinto ngamalanga. Ukubala ngeenqhema kuyakhuthazwa.	**Ukubala izinto eziphathekako** Linganisa bewubale ngokuthembeka okungenani kufika e-1000 izinto zangamalanga. Ukubala ngeenqhema kuyakhuthazwa
1.2 **Ukubala uyephambili nemuva**	Ukubala uyephambili nemuva nga: Ku-1 ukusuka kwenye nenye inomboro kusukela keyo-1 ukufika keye-10 Sebenzisa imilolozelo yeenomboro kunye neengoma	Ukubala uyephambili nemuva nga: Ku-1 ukusuka kwenye nenye inomboro hlangana no-1 ne-100 **Ukubala uye phambili nga-** • Li-10 ukusukela kwenye nenye inomboro ebala ngali-10 ehlangana no -1 ne-100 • Ku-5 ukusukele kwenye nenye inomboro ebala nga ku-5 ehlangana no -1 ne-100 • Ku-2 ukusukela kwenye nenye inomboro ebala nga- 2 ehlangana no -1 ne-100	Ukubala uyephambili neemuva nga: • Ku- 1 ukusuka nanyana ngiyiphi inomboro ehlangana ne-0 na 200 • Li- 10 ukusuka nanyana ngiliphi ibuyelelo le- 10 hlangana ne-0 ne 200 • Ku- 5 ukusuka nanyana ngaliphi ibuyelelo laka 5 hlangana ne- 0 ne 200 • Ku- 2 ukusuka nanyana ngaliphi ibuyelelo laka 2 hlangana ne- 0 ne 200 • Ku- 3 ukusuka nanyana ngaliphi ibuyelelo laka 3 hlangana ne- 0 na 200 • Ku- 1 ukusuka nanyana ngaliphi ibuyelelo laka 1 hlangana ne- 0 ne 200	Ukubala uyephambili neemuva nga: • Ku-1 ukusuka nanyana ngiyiphi inomboro ehlangana ne-0 ne-1000 • Li- 10 ukusuka nanyana ngiliphi ibuyelelo le 10 hlangana ne- 0 ne 1000 • Ku- 5 ukusuka nanyana ngaliphi ibuyelelo laka 5 hlangana ne- 0 ne 1000 • Ku- 2 ukusuka nanyana ngaliphi ibuyelelo laka 2 hlangana ne- 0 ne 1000 • Ku- 3 ukusuka nanyana ngaliphi ibuyelelo laka 3 hlangana ne- 0 ne 1000 • Ku- 1 ukusuka nanyana ngaliphi ibuyelelo laka 1 hlangana ne- 0 ne 1000 • Ma 20, 25, 50,100 ukufika okungenani e-1000.

IINHLOKO	IGREYIDI R	IGREYIDI 1	IGREYIDI 2	IGREYIDI 3
UKUTHUTHUKA KWEMIQONDO YEENOMBORO: Ukujamisela iinomboro ngokupheleleko				
1.3 **Amatshwayo weenomboro namabizo weenomboro**	**Ukukhumbula, ukubona nokufunda iinomboro** • Khumbula, ubone begodu ufunde amatshwayo wenomboro ukusuka ku-1 ukufika ku-10 • Khumbula, ubone begodu ufunde amagama weenomboro ukusuka ku-1 ukufika ku-10	**Ukukhumbula, ukubona nokufunda iinomboro** • Khumbula, ubone begodu ufunde amatshwayo wenomboro ukusuka ku-1 ukufika e-100 • Tlola amatshwayo wenomboro ukusuka ku-1 ukufika e-20 • Khumbula, ubone begodu ufunde amagama weenomboro kusuka ku-1 ukufika e-10 • Tlola amagama weenomboro ukusuka ku-1 ukufika e-10	**Ukukhumbula, ukubona nokufunda iinomboro** • Khumbula, ubone , ukubona nokufunda amatshwayo wenomboro ukusuka e-0 ukufika e-200 • Ukutlola amatshwayo wenomboro ukusuka e-0 ukufika e-200 • Khumbula, ubone begodu ufunde igama lenomboro ukusuka e-0 ukufika e-100 • Ukutlola amagama weenomboro ukusuka e-0 ukufika e-100	**Ukukhumbula, ukubona nokufunda iinomboro** • Khumbula, ubone begodu ufunde amatshwayo wenomboro ukusuka e-0 ukufika e-1000. • Tlola amatshwayo wenomboro ukusuka ku-1 ukufika e-1000 • Khumbula, ubone begodu ufunde amagama weenomboro ukusuka ku-1 ukufika e-1000. • Tlola amagama weenomboro ukusuka ku-1 ukufika e-1000
UKUTHUTHUKA KWEMIQONDO YEENOMBORO: Ukuhlathulula, ukumadanisa nokuhlela inomboro ngokupheleleko				
1.4 **Ukuhlathulula, ukumadanisa nokuhlela inomboro ngokupheleleko**	**Ukuhlathulula, ukumadanisa nokuhlela ibuthelelo lezinto ukufika e-10** • Ukuhlathulula iinomboro ngokupheleleko ukufika e-10. • Ukumadanisa bonanyana, ekudlwana, ekulu khulu engaphasi, elinganako epheze ilingane, engaphezulu ezimbadlwana kwe-10 ngiyiphi ekulu, encani, hlangana nezimbili izinto ezibuthelelweko. • Ukuhlela ngaphezu kwezimbili zebuthelelo lezinto ukusuka kencani ukuya kekulu ukufika e-10.	**Ukuhlathulula, ukumadanisa, nokuhlela izinto ukufika e-20** • Ukuhlathulula nokumadanisa izinto ezibuthelelweko ukuya ngobunengi, okungenani, kufana. • Ukuhlathulula nokumadanisa izinto ezibuthelelweko ukusuka kubunengi ukuya okulingeneko kunye nokusuka kokulingene uye kokunengi.		

IINHLOKO	IGREYIDI R	IGREYIDI 1	IGREYIDI 2	IGREYIDI 3
UKUTHUTHUKA KWEMIQONDO YEENOMBORO: Ukujamisela iinomboro ngokupheleleko				
1.4 **Ukuhlathulula, ukumadanisa nokuhlela inomboro ngokupheleleko**	**Sebenzisa inomborosikhundla ukutjengisa ukulandelana, indawo namkha ubujamo** Thoma ilemuko leenomborosikhundla Isib. Yokuthoma, yesibili, yesithathu ukufika keyesithandathu neyokugcina.	**Ukuhlathulula, ukumadanisa and nokuhlela iinomboro ukufika e-20** • Ukuhlathulula nokumadanisa iinomboro ezipheleleko ngokusebenzisa okuncani kuna, okukhulu kuna, okunengi kuna, okungaphasi kuna, okulinganako. • Ukuhlathulula bewuhlele iinomboro kusuka ngencani-khulu ukufika kekulukulu nokusuka kekulukulu kufika kencani-khulu **Sebenzisa inomborosikhundla ukutjengisa ukulandelana, indawo namkha ubujamo** • Ukubeka izinto ngokulandelana kusukela keyokuthoma ukufika keyetjhumi namkha keyokuthoma ukuya keyokugcina, Isib. Yokuthoma, yesibili, yesithathu..... yetjhumi	**Ukuhlathulula, ukumadanisa and nokuhlela iinomboro ukufika e- 99** • Ukuhlathulula nokumadanisa iinomboro ezipheleleko ukufika e-99 ngokusebenzisa okuncani kuna, okukhulu kuna, okunengi kuna, okungaphasi kuna, okulinganako. • Ukuhlathulula bewuhlele iinomboro ezipheleleko ukufika e-99 kusuka kencani-khulu ukufika kekulukulu nokusuka kekulukulu kufika kencani-khulu **Sebenzisa inomborosikhundla ukutjengisa ukulandelana, indawo namkha ubujamo** • Ukubeka izinto ngokulandelana kusukela keyokuthoma ukufika keyamatjhumi amabili namkha keyokuthoma ukuya keyokugcina, Isib. Yokuthoma, yesibili, yesithathu.....Yamatjhumi amabili.	**Ukuhlathulula, ukumadanisa nokuhlela iinomboro ukufika e-999.** • Ukuhlathulula nokumadanisa iinomboro ezipheleleko ukufika e- 999 ngokusebenzisa okuncani kuna, okukhulu kuna, okunengi kuna, okungaphasi kuna, okulinganako. • Ukuhlathulula bewuhlele iinomboro ezipheleleko ukufika e-999 kusuka kencani-khulu ukufika kekulukulu nokusuka kekulukulu kufika kencani-khulu **Sebenzisa inomborosikhundla ukutjengisa ukulandelana, indawo namkha ubujamo** • Ukusebenzisa , ukufunda nokutlola iinomborosikhundla kufaka hlangana nezirhunyeziweko (1st-koku1, 2nd-kwesi2, 3rd- kwesi-3 ukufika kokwama 31st)
UKUTHUTHUKA KWEMIQONDO YEENOMBORO :Ubukhulu bedijithi				
1.5 **Ubukhulu bedijithi**		**Thoma ukulemuka ubukhulu bedijithi okungenani iinomboro zamadijithi ama-2 ukufika e-20** • Ukuphula iinomboro zamadijithi ama-2 ukuya ngesibuyabuyelelo se-10 nakunye/ namayunidi.	**Thoma ukulemuka ubukhulu bedijithi okungenani iinomboro zamadijithi ama-2 ukufika e-99** • Ukuphula iinomboro zamadijithi ama-2 ukuya ngesibuyabuyelelo se-10 nakunye/namayunidi. • Ukufanisa nokutjho ubukhulu benye nenye idijithi.	**Ukulemuka ubukhulu bedijithi okungenani iinomboro zamadijithi ama-3 ukufika e-999** • Ukuphula iinomboro zamadijithi ama-3 ukufika e-999 ukuya ngesibuyabuyelelo se-100, ngesibuyabuyelelo se-10 nakunye/ namayunidi. • Ukufanisa nokutjho ubukhulu benye nenye idijithi.
UKURARULULA IMIRARO ESEBUJAMENI				
1.6 **Amaqhinga wokurarulula imiraro**	Sebenzisa amathekhiniki alandelako ukufika e-10. • Iinsetjenziswa eziphathekako Isib. Izinto zokubala. • Ileri yeenomboro ebonakalako.	Sebenzisa amathekhiniki alandelako nawurarulula imiraro uhlathulule neensombululo: • Ama-apharethasi aphathekako njengezinto zokubala • Iinthombe zokugwala iimbalo zendatjhana • Ukuphula nokuphula iinomboro • Ukubuyelela nokuqunta phakathi • Iinambalayini	Sebenzisa amathekhiniki alandelako lokha urarulula imiraro bekuhlathululwe iinsombululo zemiraro: • Imigwalo nofana amapharethasi aphathekako isib. Izinto zokubala • Ukwakha nokuphula kweenomboro • Ukubuyelela kabili nokuqunta phakathi • Inambalayini	Sebenzisa amathekhiniki alandelako lokha urarulula imiraro bekuhlathululwe iinsombululo zemiraro: • Ukwakha nokuphula kweenomboro • Ukubuyelela kabili nokuqunta phakathi • Inambalayini • Tlola ngamatjhumi.

IINHLOKO	IGREYIDI R	IGREYIDI 1	IGREYIDI 2	IGREYIDI 3
1.7 **Ukuhlanganisa nokukhupha**	Rarulula iimbalo zamagama (Indaba zokuhlanganisa) ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha ngempendulo ukufika e-10.	Rarulula iimbalo zamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, faka ukuhlanganisa, ukukhupha nempendulo ukufika e-20.	Ukusombulula imiraro yeembalo zamagama ezisebujameni abe ahlathululo iinsombululo okungezakhe umraro ofakahlangana ukuhlanganisa nokukhupha okuneempendulo ezifikelela e-99.	Ukusombulula imiraro yeembalo zamagama ezisebujameni abe ahlathululo iinsombululo okungezakhe umraro ofakahlangana ukuhlanganisa nokukhupha okuneempendulo ezifikelela e-999.
1.8 **Ukuhlanganisa okubuyelelweko kurholela ekubuyabuyeleleni**		Rarulula iimbalo zamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, faka ukuhlanganisa okubuyelelko nempendulo ukufiika ku-20	Ukusombulula imiraro yeembalo zamagama ezisebujameni abe ahlathululo iinsombululo okungezakhe, umraro ofakahlangana ukuhlanganisa okubuyelelweko okukhokhela ekubuyeleleni okunomphumelo ofikelela e-50.	Ukusombulula imiraro yeembalo zamagama ezisebujameni abe ahlathululo iinsombululo okungezakhe umraro ofakahlangana ukubuyelela okuneempendulo ezifikelela e-100.
1.9 **Ukubuthelela nokwabelana okurholela ekuhlukaniseni.**	Rarulula iimbalo zamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela kwenomboro ezizeleko ukufika e-10 begodu nangempendulo ezifaka hlangana okuseleko.	Rarulula iimbalo zamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela kwenomboro ezizeleko ukufika e-20 begodu nangempendulo ezifaka hlangana okuseleko.	Ukusombulula imiraro yeembalo zamagama ezisebujameni abe ahlathululo iinsombululo okungezakhe, umraro efakahlangana ukwabelana ngokulinganako nangokuhlela ngeenqhema ukufikelela e-50 kumphumela ozokufakahlangana neensalela.	Ukusombulula nokuhlathulula iinsombululo zemiraro eyenzekako efakahalangana ukwabelana ngokulinganako nokuhlela ngeenqhema ukufikela e-100 kumphumela ozokufakahlangana neensalela.
1.10 **Ukwabelana okurholela emafraktjhinini**			Ukusombulula nokuhlathulula iinsombululo zemiraro eyenzekako efakahlangana ukwabelana ngokulinganako ekurholela eensombululweni ezifaka amafraktjhini ahlobanako nangahlobaniko.	Ukusombulula nokuhlathulula iinsombululo zemiraro eyenzekako efakahlangana ukwabelana ngokulinganako ekurholela eensombululweni ezifaka amafraktjhini ahlobanako nangahlobaniko.
1.11 **Imali**	Thoma ukulemuka amasende nemali yamaphepha yeSewula Afrika.	• Khumbula bewufanise imali eziinhlavu yeSewula Afrika: • (5c, 10c, 20, 50c, R1, R2; R5) kunye nemali emaphepha i-R10 ne R20 • Ukurarulula imiraro efaka hlangana amanani wemali netjhentjii yama R20 neyamasende ukufika ema-20c	• Ukukhumbula nokufanisa imali yeSewula Afrika eziinhlamvu 5c, 10c, 20c, 50c, R1, R2, R5, nemali emaphepha R10, R20, R50 • Ukurarulula imiraro yemali efakahlangana inani netjhentjhi kufikela emarandeni ama-R99 namasende ama- 90c.	• Ukukhumbula nokufanisa imali yoke yeSewula Afrika eziinhlamvu nemali emaphepha • Ukurarulula imiraro yemali efakahlangana amanani netjhentjhi yamaranda namasende • Tjhugulula amarandi namasende

IINHLOKO	IGREYIDI R	IGREYIDI 1	IGREYIDI 2	IGREYIDI 3
UKUBALA OKUSEBUJAMENI OBUTJHAPHULUKILEKO				
1.12 **Amathekhiniki** **(iindlela namaqhinga)**		Sebenzisa amathekhiniki alandelayo nawubalako • Ama-apharethasi aphathekako njengezinto zokubala • Gwala iinthombe • Ukwakhabewuphadhle iinomboro • Ukubuyelela nkuqunta phakathi • Iinamba layini	Sebenzisa amaqhinga alandelako lokhana nakubalwako. • Imidwebo nofana amapharethasi aphathekako isib. Izinto zokubala • Ukwakha nokuphula kweenomboro • Ukubuyelela kabili nokuqunta phakathi • Inambalayini	Sebenzisa amaqhinga alandelako lokhana nakubalwako. • Ukwakha nokuphula kweenomboro • Ukubuyelela kabili nokuqunta phakathi • Inambalayini • Tlola ngamatjhumi.
1.13 **Ukuhlanganisa nokukhupha**	Ukusombulula imiraro yokuhlanganisa nokukhupha etjhiwo ngomlomo ngeensombululo ukufika e-10.	• Ukuhlanganisa ukufika e-20 • Ukukhupha ema- 20 • Sebenzisa amatshwayo afaneleko (+, –, =, □) • Ukuphrakthisa inambabhondi ukufika e-10	• Ukuhlanganisa ukufikela e-99 • Ukukhupha ema-99 • Ukusebenzisa amatshwayo afaneleko (+, –, =, □) • Ukuphrakthisa inambabhondi ukufika e-20	• Ukuhlanganisa ukufikela ku-999 • Ukukhupha ema-999 • Ukusebenzisa amatshwayo afaneleko (+, –, =, □) • Ukuphrakthisa inambabhondi ukufika e-30
1.14 **Ukuhlanganisa okubuyelelweko kurholela ekubuyabuyeleleni**		• Hlanganisa inomboro efanako ngokubuyelela ukufika e-20 • Sebenzisa amatshwayo afaneleko (+, =, □)	• Buyabuyelela iinomboro ukusuka keyo-1 ukufika e-10 ngaku -2, 5, 3 neye- 4 ukwenza ama-50. • Ukusebenzisa amatshwayo afaneleko (+, x, =, □)	• Buyabuyelela iinomboro ngeye 2, 3, 4,5,10 ukuhlanganisa i-100. • Ukusebenzisa amatshwayo afaneleko (x, □)
1.15 **Ukuhlukanisa**				• Hlukanisa iinomboro ukufika e-99 ngeye-2, 3, 4,5,10. • Ukusebenzisa amatshwayo afaneleko (÷, =, □)
1.16 **Iimbalo zehloko**	**Umqondo nomboro : Irherho 10** Umsetjenzana ngamunye uthoma ngeembalo zehloko: • Ukubala izinto zangamalanga • Ukubala uyephambili nemuva • Iinomboro sikhundla • Wahla izandla amahlandlha amanengi/ambalwa • Ngimaphi amahlandlha wokuwahla amanengi khulu/ncani khulu/ nengi/ ncanyana • Ngiyiphi inomboro eza ngaphambili/ ngemuva /hlangana	**Umqondonomboro: Irherho ukufika e-20** • Nikela inomboro ngaphambili namkha ngemuva kwenye inomboro. • Hlela isede enikelweko yeenomboro ezikhethiweko • Madanisa iinomboro ukufika e-20 bewutjho nokobana ngiyiphi keyo-1 neye-2 ekulu namkha encani.	**Umqondonomboro: Irherho ukufika e-99** • Ukurhemisa iinomboro ezikhethiweko ngokwesede enikeliweko. • Ukumadanisa iinomboro ukufika e-99 bewutjho bonyana ngiyiphi enengi nofana encani nga: 1, 2, 3, 4, 5, begodu nangali-10	**Umqondonomboro: Irherho ukufika e-1000** • Ukurhemisa iinomboro ezikhethiweko ngokwesede enikeliweko. • Ukuqanathisa iinomboro ukufika e-1000 nokutjho bona ngiyiphi ekulu namkha encani nga: 1, 2,3,4,5 begodu nangali 10.

IINHLOKO	IGREYIDI R	IGREYIDI 1	IGREYIDI 2	IGREYIDI 3
UKUBALA OKUSEBUJAMENI OBUTJHAPHULUKILEKO (KURAGELA PHAMBILI)				
1.16 **Iimbalo zehloko**		**Ukukhumbula msinyana:** • Ukukhumbula amaphuzu wamambala ngokuhlanganisa nokukhupha ukufika e-10 **Amaqhinga wokubala** Ukusebenzisa amaqhinga wokubala ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uyephambili nofana ubale uye emuva • Inambalayini. • Ukubuyelela nokuhlukanisa • Ukwakha nokuphula	**Ukukhumbula msinyana :** • Ukukhumbula amaphuzu wamambala ngokuhlanganisa nokukhupha ukufika e-20 • Hlanganisa nofana ukhuphe iimbuyabuyeleli ze-10 ukusukela e-0 ukuya e-100 **Amaqhinga wokubala** Ukusebenzisa amaqhinga wokubala ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uyephambili nofana ubale uye emuva • Inambalayini. • Ukubuyelela nokuhlukanisa • Ukwakha nokuphula • Ukusebenzisa ubudlelwana obuphakathi okuhlanganisa nokukhupha.	**Ukukhumbula msinyana :** • Ukukhumbula amaphuzu wamambala ngokuhlanganisa nokukhupha ukufika e-20 • Hlanganisa nofana ukhuphe iimbuyabuyeleli ze-10 ukusukela e-0 ukuya e-100 • Ukubuyelela kwamambala kwe: - Ithebula 2 wokubuyabuyelela aneempendulo ukufika e-20 - 10 amathebula wokubuyabuyelela aneempendulo ukufika e-100 • Amaphuzu weenomboro wokuhlukanisa: - ukufika e-20 ezihlukaniseka ngo ku 2 - ukufika e-100 ezihlukaniseka nge-10 **Amaqhinga wokubala** Ukusebenzisa amaqhinga wokubala alandelako: • Beka inomboro ekulu maqangi ukuze ubale uyephambili nofana ubale uye emuva • Inambalayini. • Ukubuyelela nokuhlukanisa • Ukwakha nokuphula • Ukusebenzisa ubudlelwana obuphakathi okuhlanganisa nokukhupha. • Ukusebenzisa ubudlelwana hlangana bokubuyelela nokuhlukanisa.
1.17 **Amafraktjhini.**			• Sebenzisa bewutjho amafraktjhini wohlavu olulodwa ajayelekileko okufakahlangana neengcezu, amakota, isithathu begodu nesihlanu njll • Ukubona amafraktjhini ebujameni obuyidayagremu • Tlola amafraktjhini njengecezu elilodwa, iinthathu ezimbili	• Sebenzisa bewutjho amafraktjhini wohlavu olulodwa nalayo angena hlavu olulodwa ajayelekileko okufakahlangana neengcezu, amakota, isithathu begodu nesihlanu njll • Ukubona amafraktjhini ebujameni obuyidayagremu • Thoma ukulemuka bona iinquntu ezimbili namkha iinthathu ezintathu zenza yinye epheleleko nokuthi isiquntu esisodwa namakota amabili ziyalingana. • Tlola amafraktjhini njengesiquntu esisodwa, iinthathu ezimbili

UMBONOMAZOMBE WESIGABA ESISISEKELO

2. AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA

Iragelo phambili lamaPhetheni, amaFanktjhini ne-Aljibhra.

- KumaPhetheni, amaFanktjhini ne-Aljibhra abafundi banikelwa amathuba wokuthi :
  - Baqedelele bebangezelele amaphetheni ajanyiselwe ngeendlela ezihlukeneko.
  - Bafanise bebahlathulule amaphetheni.
- Ukuhlathulula amaphetheni kuleka isisekelo kubafundi besigaba esiphakathi ukuthi bahlathulule imithetho yamaphetheni. Kwamva lokhu kuba ngendlela ehlelekileko emsebenzini we-aljibra esigabeni esiphakathi.

IINHLOKO	IGREYIDI R	IGREYIDI 1	IGREYIDI 2	IGREYIDI 3
2.1 **Amaphetheni weJiyomethri**	**Ukukopa nokungezelela.** Ukukopa nokungezelela amaphetheni alula ngokusebenzisa izinto ezibonakalako kunye nemigwalo (Isib. ngokusebenzisa imibala nobujamo)	**Ukukopa, ungezelele bewuhlathulule** Ukukopa, ungezelele bewuhlathulule ngamagama • Amaphetheni alula enziwe ngezinto ezibonakalako • Amaphetheni alula enziwe ngemigwalo yemida, ubujamo nofana izinto. **Yenza bewuhlathulule amaphetheni wakho** Yenza amaphetheni weJiyomethri • Ngezinto ezibonakalako • Ngokugwala imida, ubujamo nofana izinto **Amaphetheni asizombelezileko** **Ukukhomba, ukuhlathulula ngamagama nokukopa amaphetheni weJiyomethri** • Ngokwemvelo • Kusukela epilweni yangamalanga yesimodeni, • Asuka kwilifa lamasiko wethu	**Ukukopa, ungezelele bewuhlathulule** Ukukopa, ungezelele nokuhlathulula ngamagama • Amaphetheni arareneko eyenziwe ngezinto eziphathekako • Amaphetheni arareneko enziwa ngokugwala imida, ubujamo nofana izinto. **Yenza bewuhlathulule amaphetheni okungewakhe** • Ngezinto eziphathekako • Ngokugwala imida, ubujamo nofana izinto **Amaphetheni asizombelezileko** **Ukukhomba, ukuhlathulula ngamagama nokukopa amaphetheni weJiyomethri** • Ngokwemvelo • Kusukela epilweni yangamalanga yesimodeni, • Asuka kwilifa lamasiko wethu	**Ukukopa, ungezelele bewuhlathulule** Ukukopa, ungezelele nokuhlathulula ngamagama • Amaphetheni arareneko eyenziwe ngezinto eziphathekako • Amaphetheni arareneko enziwa ngokugwala imida, ubujamo nofana izinto. **Yenza bewuhlathulule amaphetheni wakho** • Ngezinto ezibonakalako • Ngokugwala imida, ubujamo nofana izinto **Amaphetheni asizombelezileko** **Ukukhomba, ukuhlathulula ngamagama nokukopa amaphetheni weJiyomethri** • Ngokwemvelo • Kusukela epilweni yangamalanga yesimodeni, • Asuka kwilifa lamasiko wethu
2.2 **Amaphetheni weenomboro.**		**Ukukopa, ukungezelela nokuhlathulula** Ukukopa, ungezelele bewuhlathulule ukulandelanisa kwenomboro elula ukufika e-100. **Ukutlama nokuhlathulula amaphetheni okungewakhe**	**Ukukopa, ukwandisa nokuhlathulula.** Ukukopa, ukwandisa nokuhlathulula iinomboro ezilula ezilamanako ukufika okungenani e-200. **Ukutlama nokuhlathulula amaphetheni okungewakhe**	**Ukukopa, ukwandisa nokuhlathulula.** Ukukopa, ukwandisa nokuhlathulula iinomboro ezilula ezilamanako ukufika okungenani e-999 **Ukutlama nokuhlathulula amaphetheni okungewakhe**

UMBONOMAZOMBE WESIGABA ESISISEKELO

3. ISIKHALA NOBUJAMO (IJIYOMETRHI)

Iragelo phambili lesikhala nobujamo.

Iragelo phambili eliqakathekileko lesikhala nobujamo liphumelele ngoku :

- Nqophisa emikghweni emitjha nematshwayeni wobujamo nezinto egreyidini enye nenye begodu;
- Tjhida ekufundeni ilimi lobujamo nokumadanisa imibono ehlukeneko entweni eyodwa ekufundeni nekulandeleni iinkombatjhuba ezisemebheni engakahleleki.

IINHLOKO	IGREYIDI R	IGREYIDI 1	IGREYIDI 2	IGREYIDI 3
3.1 **Ubujamo, ukujayeza nokubukela**	**Ilimi lobujamo** Hlathulula ubujamo bento nokuhlobana kwenye nenye isib. phezu-kwe, phambi-kwe, ngemuva-kwe, ngesinceleni, ngesidleni, phezulu, phasi, hlanu-kwe. **Ubujamo nekombatjhuba** • Ukulandela ikombatjhuba yokukhambakhamba ngetlasini	**Ilimi lobujamo** Hlathulula ubujamo bento nokuhlobana kwenye nenye isib. phezu-kwe, phambi-kwe, ngemuva-kwe, ngesinceleni, ngesidleni, phezulu, phasi, hlanu-kwe. **Ubujamo nokubukela** • Ukukhumbula nokumadanisa imibono ehlukeneko yezinto ezifanako zangamalanga. **Ubujamo nekombatjhuba** • Ukulandela ikombatjhuba yokukhambakhamba ngeklasini • Ukulandela umlayezo ubeka into ngokuhlobana kwenye nenye isib. beka ipensela ngemuva kwebhoksi.	**Ilimi lobujamo** Hlathulula ubujamo bento nokuhlobana kwenye nenye isib. phezu-kwe, phambi-kwe, ngemuva-kwe, ngesinceleni, ngesidleni, phezulu, phasi, hlanu-kwe. **Ubujamo nokubukela** • Ukukhumbula nokumadanisa imibono ehlukeneko yezinto ezifanako zangamalanga. **Ubujamo nekombatjhuba** Landela iinlayelo ukukhambakhamba ngetlasini.	**Ubujamo nokubukela** • Ukukhumbula nokumadanisa imibono ehlukeneko yezinto ezifanako zangamalanga • Yitjho into esetjenziswa ngamalanga lokha nawutjengiswa ihlangothi layo elingakajayeleki • Funda, hlathulula begodu ugwale amamebhe angasisemthethweni, nofana ukubona ingaphezulu lebuthelelo lezinto. • Thola izinto emimebheni **Ubujamo nekombatjhuba** • Landela iinlayelo ukwenzela ukukhambakhamba ngetlasini, begodu nesikolweni. • Nikela iinlayelo ukwenzela ukukhambakhamba. • Landela iinlayeelo kusuka kwenye indawo ukuya kwenye emebheni ongasingowomthetho.

IINHLOKO	IGREYIDI R	IGREYIDI 1	IGREYIDI 2	IGREYIDI 3
3.2 **Izinto ezibobusontathu** **(3-D)**	**Irherho lezinto** Ukubona nokutjho izinto ezibobusontathu (3-D) ezingetlasini neenthombeni • Ubujamo bebhola • Ubujamo bebhoksi **Amatshwayo wezinto** Hlathulula, hlukanisa ngemihlobo, umadanise izinto ezibusontathu (3-D) ngokuya: • ngobukhulu • ngombala • ngezinto ezigedekako • ngezinto ezitjhelelako **Imisebenzi enqotjhiweko** • Ukusebenzisa izinto ze 3-D ezifana namabhlogo wokwakha, izinto ezibuyelelweko njll. Ukwakha / ukutlama izinto .Isib umbhotjhongo, amabhlorho njll.	**Irherho lezinto** Ukubona nokutjho izinto ezibobusontathu (3-D) ezingetlasini neenthombeni • Ubujamo bebhola (indulungu) • Ubujamo bebhoksi (iphrizimu) **Amatshwayo wezinto** Hlathulula, hlukanisa ngemihlobo, umadanise izinto ezibusontathu (3-D) ngokuya: • ngobukhulu • ngombala • ngezinto ezigedekako • ngezinto ezitjhelelako **Imisebenzi enqotjhiweko** • Ukuyelela nokwakha izinto ze 3-D ngokusebenzisa iinsetjenziswa eziphathekako ezifana amabhlogo wokwakha, izinto ezibuyelelweko, iinsetjenziswa zokwakha.	**Irherho lezinto** Ukubona nokutjho izinto ezibobusontathu (3-D) ezingetlasini neenthombeni • Ubujamo bebhola (indulungu) • Ubujamo bebhoksi (iphrizimu) • Isilinda **Amatshwayo wezinto** Hlathulula, hlukanisa ngemihlobo, umadanise izinto ezibusontathu (3-D) ngokuya: • Ngobukhulu / isayizi • ngezinto ezigedekako • ngezinto ezitjhelelako **Imisebenzi enqotjhiweko** • Ukuyelela nokwakha izinto ze 3-D ngokusebenzisa iinsetjenziswa eziphathekako ezifana namabumbeko we 2-D asikiweko, amabhlogo wokwakha, izinto ezibuyelelweko, iinsetjenziswa zokwakha, nezinye izinto zeJiyomethri ezi 3-D.	**Irherho lezinto** Ukubona nokutjho izinto ezibobusontathu (3-D) ezingetlasini neenthombeni • Ubujamo bebhola (indulungu) • Ubujamo bebhoksi (iphrizimu) • Isilinda • Amaphiramidi. • Amakhowuni. **Amatshwayo wezinto** Ukuhlathulula, ukubeka ngeengaba nokumadanisa izinto ezibobusontathu (3-D) ngokuya nga: • Mabumbeko abobusobubili (2-D) lawo enza ubuso bezinto ezibobusontathu (3-D) • Mabala aparaleleko nofana ajikako. **Imisebenzi enqotjhiweko.** • Ukuyelela nokwakha izinto ze 3-D ngokusebenzisa iinsetjenziswa eziphathekako ezifana namabumbeko we 2-D asikiweko, idaka, iingojwana zamazinyo, amathunjana wokusela, nezinye izinto zeJiyomethri ezi 3-D.

IINHLOKO	IGREYIDI R	IGREYIDI 1	IGREYIDI 2	IGREYIDI 3
3.3 **Ubujamo obubusobubili (2-D)**	**Ukukhumbula, ukubona begodu nokutjho ubujamo obubuso bubili obungetlasini begodu neenthombeni, okufaka hlangana:** a) Amatshwayo wabafundi. b) Igama letlasi	**Iirhemo lamajamo** Yazi bewutjho ubujamo obubusobubili (2-D) • indulungu • uncantathu • isikwere **Amatshwayo wamajamo** Ukuhlathulula, ukuhlukanisa ngemihlobo, nokumadanisa amajamo abobusobubili (2-D) ngokuya ngo/nga: • bukhulu • mbala • amahlangothi athwi/anqophileko • amahlangothi andulungu/arondo	**Ubujamo obuhlukeneko.** Yazi bewutjho ubujamo obubusobubili (2-D) • Indulungu • Uncantathu • Isikwere • Uncamane **Amatshwayo wamajamo** Ukuhlathulula, ukuhlukanisa ngemihlobo nokumadanisa amajamo abobusobubili (2-D) ngokuya ngo /nge/nga: • bukhulu • jamo • amahlangothi athwi/anqophileko • amahlangothi andulungu/arondo	**Ubujamo obuhlukeneko.** Yazi bewutjho ubujamo obubusobubili (2-D) • Indulungu • Uncantathu • Isikwere • Uncamane **Amatshwayo wamajamo** Ukuhlathulula, ukuhlukanisa ngemihlobo nokumadanisa amajamo abobusobubili (2-D) ngokuya nge/nga: • jamo • amahlangothi athwi/anqophileko • amahlangothi andulungu/arondo **Gwala amajamo** • Iindulungu • Aboncantathu • Iinkwere • Aboncamane
3.4 **Isimethri**	**Isimethri** • Yazi isimethri ngowakho umzimba.	**Isimethri** • Yazi isimethri ngowakho umzimba. • Yazi bewuthale umuda wesimethri kumajamo abobusobubili (2-D) weJiyomethri nalawo angasiwo weJiyomethri.	**Isimethri** • Yazi bewuthale umuda wesimethri kumajamo abobusobubili (2-D) weJiyomethri nalawo angasiwo weJiyomethri.	**Isimethri** • Yazi bewuthale umuda wesimethri kumajamo abobusobubili (2-D) weJiyomethri • nalawo angasiwo weJiyomethri. • Ukukhetha umuda wesimethri ngokubhinca iphepha nokuveza isiboniso.

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4. UKUMEDA

Iragelo phambili lokuMeda

- Iragelo phambili lokumeda ukweqela kamanye amagreyidi kuphumelele ngokungenisa lokhu :
  - Iindlela ezitja zokumeda;
  - Amathulusi amatjha wokumeda,ukuthoma ngamathulusi angakahleleki ukuya kunsetjenziswa zeemedo ezihlelekileko zegreyidi 2 neye 3;
  - Amayunidi amatjha wokumeda, khulukhulu kugreyidi ye 2 neye 3.
- Ukubala nokurarulula imiraro yokumeda kufanele kuveze ilemuko lemisebenzi yeenomboro esele yenziwe.

IINHLOKO	IGREYIDI R	IGREYIDI 1	IGREYIDI 2	IGREYIDI 3
4.1 **Isikhathi**	**Ukudlula kwesikhathi** Kukhuluma ngokudlula kwesikhathi • Khuluma ngezinto ezenzeka emini nezinto ezenzeka ebusuku. • Abafundi balandelanisa izehlakalo ezenzeke emini. • Ukuhlela izehlakalo ezenzeka njalo emaphilweni wabo.	**Ukudlula kwesikhathi** Kukhuluma ngokudlula kwesikhathi • Hlela izehlakalo eziqhelekileko ezisuke epilweni yabo. • Ukumadanisa ubude besikhathi kusetjenziswa ilimi isib.iskhathi eside, isikhathi esifitjhani, masinyana, kabuthaka. • Ukulandelanisa izehlakalo kusetjenziswa ilimu elifaka nokuthi izolo, namhlanje, kusasa		

IINHLOKO	IGREYIDI R	IGREYIDI 1	IGREYIDI 2	IGREYIDI 3
4.1 **Isikhathi**		**Ukutjho isikhathi** • Ukuhlathulula nangabe kwenzeka into kusetjenziswa ilimi isib. Ekuseni, ngemuva kwedina, ebusuku, ekuseni khlu, ngemuva kwesikhathi. • Ukutjho nokulandelanisa amalanga weveke, neenyanga zonyaka. • Ukubeka amalanga wamabeletho ekhalendeni	**Ukutjho isikhathi** • Ukutjho nokulandelanisa amalanga weveke ne linyanga zonyaka. • Ukubeka ekhalendeni amalanga wamabeletho, imigidingo yekolo, amalanga wamaholideyi, izehlakalo zomlando, izehlakalo zesikolo. • Ukutjho isikhathi ngama-iri ali-12, isigamu se-iri nekota ye-iri esisewatjhini ye-analogo. **Bala ubude besikhathi nokudlula kwesikhathi** • Sebenzisa amakhalenda ukubala nokuhlathulula ubude besikhathi ukuya nga: - malanga - mveke. • Sebenzisa iwatjhi ukubala ubude besikhathi ukuya: - ngama-iri - nge siquntu se-iri.	**Ukutjho isikhathi** • Funda amalanga ekhalendeni. • Ukubeka ekhalendeni amalanga wamabeletho, imigidingo yekolo, amalanga wamaholideyi, izehlakalo zomlando, izehlakalo zesikolo. • Ukutjho isikhathi sama iri ali-12 - ngama-iri, - isigamu se-iri - ikota ye-iri - ngamaminithi asewatjhini ye-analogo newatjhi yedijithi nezinye iintlhabagelo zamadijithi ezitjengisa isikhathi: isib. Umaliledinini. **Bala ubude besikhathi nokudlula kwesikhathi** • Sebenzisa amakhalenda ukubala nokuhlathulula ubude besikhathi ukuya nga: - malanga - mveke - nyanga. • Ukutjhugululwa hlangana namalanga nemveke • Ukutjhugululwa hlangana kwemveke nenyanga • Sebenzisa amawatjhi ukubala ubude besikhathi ukuya: - ngama-iri - linquntu ze-iri. - Amakota we-iri.

IINHLOKO	IGREYIDI R	IGREYIDI 1	IGREYIDI 2	IGREYIDI 3
4.2 **Ubude**	**Ukumeda okungakahleleki** • Ukumadanisa nokuhlela ubude, ukuphakama nofana ububanzi bezinto ezimbili nofana ezinengi ngokuzibeka enye eqadi kwenye. Ukusebenzisa ilimu ukukhuluma nokufanisa Isib.ubude, ubufitjhani, omude nobubanzi.	**Ukumeda okungakahleleki** • Ukumadanisa nokuhlela ubude, ukuphakama nofana ububanzi bezinto ezimbili nofana ezinengi ngokuzibeka enye eqadi kwenye. Ukusebenzisa ilimu ukukhuluma nokufanisa Isib.ubude, ubufitjhani, omude nobubanzi. • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela bewurekhode ubude usebenzise iimedo ezisezingeni elingakahleleki isib. Ubude besandla, igadango, ubude bepensela, izinto zokubala. • Hlathulula ubude bezinto ngokubala nokutjho ubude kumayunidi angakahleleki.	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela bewurekhode ubude usebenzise iimedo ezisezingeni elingakahleleki isib. Ubude besandla, igadango, ubude bepensela, izinto zokubala. • Hlathulula ubude bezinto ngokubala nokutjho ubude kumayunidi angakahleleki. **Ukwethula ukumeda okuhlelekileko.** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela nokurekhoda ubude ngokusebenzisa amamitha (kungaba iingodo zamamitha namkha iintambo zobude bamamithara) njenge yunidi yobude obusezingeni.	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela nokurekhoda ubude ngokusebenzisa iimedo ezisezingeni elingakahleleki Isib. Izandla, igadango, ubude bepensela, izinto zokubala. • Hlathulula ubude bezinto ngokubala nokutjho bona mangaki amayunidi wobude angakahleleki abekakhona. **Ukwethula ukumeda okuhlelekileko.** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela nokurekhoda ubude ngokusebenzisa amamitha (kungaba iingodo zamamitha namkha iintambo zobude bamamithara) njenge yunidi yobude obusezingeni. • Ukulinganisa nokumeda ubude ngamasentimitha ngokusebenzisa irula. (Ukutjhugululwa hlangana namamitha namasentimitha akufuneki).

IINHLOKO	IGREYIDI R	IGREYIDI 1	IGREYIDI 2	IGREYIDI 3
4.3 **Ubungako/ ubudisi**	**Ukulinganisa okungakahleleki** • Ukumadanisa nokuhlela ubudisi bezinto ezimbili namkha ngaphezulu ngokuzizwa namkha ngokusebenzisa isikala esimedako. • Ukusebenzisa ilimi ukukhuluma nokumadanisa Isib. Umkhanyo, budisi, lula, budisi khulu.	**Ukulinganisa okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela, bekurekhodwe ubudisi, kusetjenziswa isikala sokudzimelela nesilinganiso esingakahleleki isib. Amabhlogo, iintina njll. • Hlathulula ubudisi bezinto ngokubala nokutjho ubudisi bamayunidi angakahleleki. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib.elula, ebudisi, elula-khulu, ebudisi-khulu.	**Ukulinganisa okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela, bekurekhodwe ubudisi, kusetjenziswa isikala sokudzimelela nesilinganiso esingakahleleki isib. amabhlogo,iintina • Hlathulula ubudisi bezinto ngokubala nokutjho ubudisi bamayunidi angakahleleki. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. elula,ebudisi,elula-khulu,ebudisi-khulu **Ukwethula ukulinganisa okuhlelekileko** • Ukumadanisa, ukuhlela nokurekhoda ubudisi beempakana zezinto zerhwebo lezo ubudisi bazo bubalwekwaphela ngamakiligremu Isib. Amakhilogremu ama-2 wereyisi nekilogremu e-1 yeflowuru. • Balinganise ubudisi babo ngamakhilogremu ngokusebenzisa isikala sangendlini yokuhlambela.	**kulinganisa okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela, bekurekhodwe ubudisi, kusetjenziswa isikala sokudzimelela nesilinganiso esingakahleleki isib. amabhlogo,iintina • Hlathulula ubudisi bezinto ngokubala nokutjho ubudisi bamayunidi angakahleleki. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib.elula,ebudisi,elula-khulu,ebudisi-khulu **Ukwethula ukulinganisa okuhlelekileko** • Ukumadanisa, ukuhlela nokurekhoda ubudisi beempakana zezinto zerhwebo lezo ubudisi bazo bubalwe ngamakhilogremu Isib. - Amakhilogremu ama-2 wereyisi nekhilogremu e-1 yeflowuru. - Ngamagremu Isib amagremu ama-500 wetshwayi. • Balinganise ubudisi babo ngamakhilogremu ngokusebenzisa isikala sangendlini yokuhlambela. (Ukutjhugululwa hlangana namagremu namakhilogremu akufuneki)

IINHLOKO	IGREYIDI R	IGREYIDI 1	IGREYIDI 2	IGREYIDI 3
4.4 **Umthamo/ Ivolumu**	**Ukumeda okungakahleleki** • Ukumadanisa nokuhlela ubungako okusamanzi (umthamo) okuseemumathini ezimbili ezibekwe enye eduze kwenye. Abafundi bazokuhlola ngokuthela esimumathini sesithathu nakunesidingo. • Ukumadanisa nokuhlela ubungako balokho okusamanzi okungaphathwa ziimumathi ezimbili nazizalisiweko. (umthamo) • Sebenzisa ilimi ukukhuluma ngokufana Isib okunengi,okuncani,okuzeleko,okunganalitho	**Ukumeda okungakahleleki** • Ukumadanisa nokuhlela ubungako okusamanzi (umthamo) okuseemumathini ezimbili ezibekwe enye eduze kwenye. Abafundi bazokuhlola ngokuthela esimumathini sesithathu nakunesidingo. • Ukumadanisa nokuhlela ubungako balokho okusamanzi okungaphathwa ziimumathi ezimbili nazizalisiweko. • Sebenzisa ilimi ukukhuluma ngokufana Isib okunengi, okuncani, okuzeleko, okunganalitho. • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela nokurekhoda umthamo weemumathi ngokusebenzisa iimedo ezingakahleleki. Isib Isigobho nekomitjhi	**Ukumeda okungakahlelelwa** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela bewurekhode umthamo weemumathi (Isib. ubunengi isimumathi esikghona ukuphatha nasizalisiweko) ngokusebenzisa izinto zokumeda ezingakahleleki isib. Iingobho neenkomitji.	**Ukumeda okungakahlelelwa** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela bewurekhode umthamo ongeemumathini (Isib. ubunengi isimumathi esikghona ukuphatha nasizalisiweko) ngokusebenzisa izinto zokumeda ezingakahleleki isib. Iingobho neenkomitji.

IINHLOKO	IGREYIDI R	IGREYIDI 1	IGREYIDI 2	IGREYIDI 3
4.4 **Umthamo/ Ivolumu**		• Ukuhlathulula umthamo wesimumathi ngokubala nookutjho bonyana mayunithi amangaki angakahleleki angazalisa isimumathi isib. Ibhodlelo linomthamo weenkomitji ezine.	• Ukuhlathulula umthamo wesimumathi ngokubala nookutjho bonyana mayunithi amangaki angakahleleki angazalisa isimumathi isib. Ibhodlelo linomthamo weenkomitji ezine. **Ukwethula ukumeda okuhlelekileko.** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela nokurekhoda ubungako bezinto ngokumeda ngamalitha. • Ukumadanisa, ukuhlela nokurekhoda ubungako beempakana zezinto zerhwebo lezo ubungako bazo bubalwe ngamalitha Isib ibisi lamalitha ama-2, isiselo selitha e-1, ipende yamalitha ama-5.	• Ukuhlathulula umthamo wesimumathi ngokubala nookutjho bonyana mayunithi amangaki angakahleleki angazalisa isimumathi isib. Ibhodlelo linomthamo weenkomitji ezine. **Ukwethula ukumeda okuhlelekileko.** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela nokurekhoda ubungako bezinto ngokumeda ngamalitha, isiquntu selitha nekota yamalitha • Ukumadanisa, ukuhlela nokurekhoda ubungako beempakana zezinto zerhwebo lezo ubungako bazo bubhalwe ngamalitha isib. Ibisi lamalitha ama-2, isiselo selitha e-1, ipende yamalitha ama-5 nofana kutlolwe ngamamililitha isib. Ibisi elimamililitha ama-500, isiselo esimamililitha ama -340, i-oli emamililtha ama -750. • Ukwazi bona ubungako bekomitji elingeneko bumamililitha ama-250. • Ukwazi bona ubungako betelebhula elingeneko bumamililitha ama-5 (Ukutjhugululwa hlangana namamililitha namalitha akufuneki).
4.5 **Ipherimitha nobungako bendawo**				**Ipherimitha** Ukurhubhulula ubude obuzombelezako bezinto ezi-2-D nezi 3-D ngokusebenzisa ukumadanisa okunqophileko namayunidi angakahleleki. **Ubungako bendawo** Ukurhubhulula ngobungako bendawo ngokusebenzisa ukuthayela.

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5. UKUPHATHA IDATHA

Iragelo phambili lokuphatha iDatha.

- Iragelo phambili lokuphatha idatha ukweqela kamanye amagreyidi kuphumelele ngoku:
  - Ukutjhida ekusebenzeni ngezinto ukuya ekusebenzeni ngedatha, kanye
  - Ngokusebenza ngeendlela ezitja zokwethulwa kwedatha.
- Abafundi kufanele basebenze ngomzombe wedatha ophelelekо okungenani kanye ngonyaka-lokhu kufaka ukubuthelela nokuhlelwa kwedatha, ukujamisela idatha, ukuhlaziya idatha, ukurhumutjha idatha nokubika idatha.
- Amanye wamaphuzu wokuphatha idatha angasetjenziswa nemisebenzi ehlukeneko.

IINHLOKO	IGREYIDI R	IGREYIDI 1	IGREYIDI 2	IGREYIDI 3
5.1 **Ukubuthelela nokuhlela izinto ngemihlobo**	**Ukubuthelela nokuhlela izinto ngemihlobo** Ukubuthelela nokuhlela izinto ezibonakalako ngemihlobo	**Ukubuthelela nokuhlela izinto ngemihlobo** Ukubuthelela nokuhlela izinto ezibonakalako ngemihlobo		
5.2 **Ukujamiselela ibuthelelo lezinto elihlelekileko**	**Ukujamiselela ibuthelelo lezinto elihlelekileko** Ukugwala iinthombe zezinto ezibuthelelweko.	**Ukujamiselela ibuthelelo lezinto elihlelekileko** Ukugwala iinthombe zezinto ezibuthelelweko		
5.3 **Coca bewubike ngokuhlelwa kwezinto ezibuthelelweko**	**Coca bewubike ngokuhlelwa kwezinto ezibuthelelweko** Phendula imibuzo ngokuthi: • Okubuthelelweko kwahlelwa ngemihlobohlobo bunjani? (umkhiqizo) • Imigwalo yebuthelelo.	**Coca bewubike ngokuhlelwa kwezinto ezibuthelelweko** • Nikela iinzathu ngokuthi okubuthelelweko kuhlelwe bunjani. • Phendula imibuzo ngokuthi: - Ukuhlelwa ngemihlobo kwenziwa bunjani (indlela yekambiso) - Okubuthelelweko kwahlelwa ngemihlobohlobo kunjani? (umkhiqizo) • Hlathulula okubuthelelweko nemigwalo ngemihlobo • Hlathululo bona okubuthelelweko kuhlelwe bunjani		

IINHLOKO	IGREYIDI R	IGREYIDI 1	IGREYIDI 2	IGREYIDI 3
5.4 **Ukubuthelela nokuhlela idatha**		**Ukubuthelela nokuhlela idatha** • Buthelela idatha yetlasi nofana yesikolo ukuphendula imibuzo ebuzwa ngutitjhere	**Ukubuthelela nokuhlela idatha** • Buthelela idatha yetlasi nofana yesikolo ukuphendula imibuzo ebuzwa ngutitjhere	**Ukubuthelela nokuhlela idatha** • Buthelela idatha yetlasi nofana yesikolo ukuphendula imibuzo ebuzwa ngutitjhere • Ukuhlela idatha enikelwe ngutitjhere namkha incwadi yomsebenzi/ incwadi yokufunda • Hlela idatha ukuya nge: - Amarhelo - Amathali - Amathebula
5.5 **Ukujamiselela idatha**		**Ukujamiselela idatha** • Ukujamiselela idatha negrafu yeenthombe. • Umkhawulo weenthombe zegrafu ngokunye nokunye ngokukhambelana.	**Ukujamiselela idatha** • Ukujamiselela idatha negrafu yeenthombe. • Umkhawulo weenthombe zegrafu ngokunye nokunye ngokukhambelana.	**Ukujamiselela idatha** • Ukujamiselela idatha kuma - Iphikthografi (Umkhawulo weenthombe zegrafu ngokunye nokunye ngokukhambelana) - Ibhagrafu
5.6 **Ukuhlaziya bebarhumutjhe idatha**		**Hlaziya bewurhumutjhe idatha** • Ukuphendula imibuzo ngedatha yeemkhawulo esegrafini yeenthombe ngakunye nakunye ngokukhambelanako.	**Hlaziya bewurhumutjhe idatha** • Ukuphendula imibuzo ngedatha yeemkhawulo esegrafini yeenthombe ngakunye nakunye ngokukhambelanako	**Hlaziya bewurhumutjhe idatha** Ukuphendula imibuzo ngedatha ethulwe : • Iphikthografi (Umkhawulo weenthombe zegrafu ngokunye nokunye ngokukhambelana) • Ibhagrafi

3.3 IHLATHULULO LOKUMUMETHWEKO

Kilesi isigaba sokumumethweko okuhlathululako, utitjhere unikelwe loku:

- Umbonomazombe wegreyidi R-3
- Iintjhukumezo zeenhloko ngokulandelanako ngokuya ngamathemu; ingasi woke amahlangothi wezinye iinhloko zoke owafundiswa kiwo woke amthemu. Amanye amahlangothi wezinye iinhloko afuna ukufundiswa ngaphambili kwamanye amahlangothi wezinye iinhloko.
- Ibelo elitjhukunyeziweko leenhloko ngonyaka, njengombana okhunye okumumethweko kudinga isikhathi esinengi kunesinye, ngokunjalo ezinye zeenhloko zidinga isikhathi esinengi kunezinye.
- Amanothi atlhadlhulako nomhlahlandlela wokufundisa aneembonelo nakufaneleko.

Esinye nesinye isigaba sokumumethweko siphulwe saba ziinhloko. Zoke iingaba zokumumethweko kufanele zifundiswe kuwo woke amathemu. Ukulandelaniswa kweenhloko ngokwamathemu kunikela umqondo wokuthi iinhloko zingasabalaliswa bezibuyekezwe unyaka woke. Akukakateleleki ukufundisa zoke iinhloko zeSikhala nobujamo, ukumeda nokuphatha iDatha ngawowoke amathemu, kodwana, zoke iinhloko kufanele zifundiswe phakathi konyaka.

Esahlukweni 2 (ipharagrafu 2.6) ukulinganiswa kwesigaba sokumumethweko sinikeliwe. Nange lokhu kuhlanganiswa nama-iri anikelweko ngomnyaka umuntu angabalisisa isikhathi esinikelweko kwesinye nesinye isigaba sokumumethweko.

Abotitjhere bangakhetha ukulandelanisa (ukuhlela) nokubeka igadango okumumethweko ngokuhlukileko kunalokho okuphakanyisiweko kilesi isahluko. Abotitjhere bangatjhugulula inani lesikhathi esinikelweko esihlokweni kancani, kodwana kufanele kutjhejwe ukuthathwa kokuhlobana kwama –iri wokulinda nesikhathi esibekiweko sesigaba, sokumumethweko eembalweni nofana esiGabeni esisiSekelo.

- **EGreyidini -R** iMathamethiksi ibunjwe ngendlela omhlobo weembalo ezivumbukako. Ngakho-ke kufanele bona kuyelelwe bonyana akukafaneli kuphulwe kube isikhathi sezifundo. Utitjhe we greyidi R ufanele alukelele iimbalo emisetjenzaneni yabafundi yangamalanga. Nanyana isikhathi sokufundisa iimbalo kufanele sibekelwe lapho utitjhere azokunqopha emisebenzini yokufundisa iimbalo kwaphela, nakungasinjalo abafundi angeke balemuke nofana bathuthukise iminqopho namakgono weembalo.
- Isikhathi samagreyidi 1-3 sabiwe ngale indlela
  - **Ama-iri alikhomba kufanele asetjenziselwe iimbalo ngeveke** (10x4 yamathemu x7yama-iri=280 yama-iri ngonyaka).
  - Zoke iimfundo zeembalo kufanele zibe li-iri nemizuzu ema 24 ngelanga emagreyidini 1-3.
  - Lokhu kutjho ukuthi kunamathemu amane wemveeke ezi-10 ezinamalanga amahlanu (ngomvulo ukuya kulosihlanu) weemfundo ngeveke.
  - Thatha iveke ukujayeza nokuhlanganisa njalo ekuthomeni kenye nenye ithemu, njengombana abantwana abancani bakhohlwa okumumethweko okunengi ngesikhathi sokuphumula begodu balahlekelwa naligido lokufunda. Nikela iveke eyodwa njalo ekupheleni kwethemu uhlanganise imiqondo. Lokhu kunikela 8x4x5=160 yeemfundo.

3.4 UKULANDELANISA NOKUHLELA OKUMUMETHWEKO

Amathebula alandelayo anikelwe igreyidi negreyidi ku R-3.

- Ukubeka igadango leenhloko lonyaka woke (kutjengisa ukusabalaliswa kweenhloko ngamathemu woke, bebuphakamise inani lesikhathi okufanelesicithwe kesinye nesinye isihloko sesinye nesinye isgamu sokumumethweko).
- Ukulandelanisa iinhloko konyaka woke (kutjengisa bonyana iinhloko zahlukaniswe bunjani ngamathemu nokuragela phambili kokumumethweko namakghono ngokuya ngamathemu).
- Amanothi wokuhlathulula ngokuya ngesihloko-amathebula lawo anikela ihlathululo lokumumethweko nomhlahlandlela wokufundiswako yesinye nesinye isihloko njengombana zilandelisiweko emathemini woke.

Ukuhlela Isifundo – Ukunikela Isihloko Sethemu

Inomboro sihloko esiqakatheke khulu Eembalweni zeSigabeni Esisisekelo. Esikhathini esiningi kwenye nenye iveke, ithemu, nonyaka inqophe eeNomborweni, Ukusebenza Nobudlelwana. Ngokulingeneko, iimfundo eentathu nofana ngaphezulu zeeMbalo kufanele zinqophe eeNomborweni, UkusebenzaNobudlelwana kwenye neneye iveke. Isikhath esiseleko sihlukaniselwa iingaba zokumumethweko ezinye.

Isikhala noBujamo nokuMeda zifuna isikhathi esinengi kunokuPhatha iDatha namaPhetheni, amaFanktjhini ne-Aljibhra. Ithebula elingenzasi linikela isitjengiso sokobana ziimfundo ezingaki okufanele zinikelwe esinye nesinye isigaba sokumumethweko nesihloko kwenye nenye igreyidi kuma Phetheni, amaFanktjhini ne-Aljibhra, Isikhala noBujamo, Ukumeda nokuphatha iDatha:

- **Ukwabela iGreyidi R iingaba zokumumethweko neenhloko eemfundweni**

Njenge **Greyidi R,** limbalo zithatha ubujamo be**Mbalo Ezisathomako** ngalokho ke isikhathi esilandelako esiphakanyisiweko sinikela zombili izehlakalo zeeMbalo ezinqophileko nemisetjenzana ehlangeneko engakahlelelwa. Lokhu kwenzelwe ukuqinisekisa ukufundiswa ngokuzeleko kwakho koke okumumethweko okukhona. Imisetjenzana yeeMbalo Ezivumbukako kungaba kubala inani lama puleyiti neembhigiri okufanele bazikhuphele ukufaka isibuyisamathe sabo, imidlalo yokubala edlalwa ngaphandle imidlalo yangendlini efana nama Domino namaphazili wejikhsara, njll. Utitjhere kufanele ahlele kuhle yoke imisetjenzana ngokuya ngokweendingo zabantwana bakhe neensetjenziswa ezikhona ngetlasini lakhe.

Isikhala noBujamo yingcenye eqakathekileko yokuthuthukisa i-liMbalo yomfundi omncani begodu kufanele busatjalaliswe iveke yoke, ngezehlakalo ezithize ezinqophileko ngaphasi kokukhokhelwa ngutitjhere, abafundi banikelwe amathuba amanengi wokwakha, ukudlala umdlalo wesanda namanzi.

Ukumeda kufanele kufakwe hlangana emisetjenzaneni yokubala, isib. Ukufunisela/ ukulinganisa nokubala lokha kumedwa ibanga ngezandla, iinyawo namagadango.

Irejistara yokubakhona netjhadi lobi ujamo bezulu zinikela amathuba aneleko wokusebenza ngoku**Phatha iDatha.**

Ithebula 3.1 Isikhathi esinikelweko ngokuya ngokumumethweko ngeveke

Iingaba zokumumethweko	Iinhloko	Isikhathi Esiphakanyisiweko
Iinomboro, ama-Opharetjhini noBudlelwano	Ukubala Ukukhumbula Inomboro Ukubona nokurhumutjha iinomboro eziphelelelo Inomboro oyibona ngamehlo wengcondo Ukurarulula imiraro	**imizuzu eli-120**
Amaphetheni, amaFanktjhini ne-Aljibhra	Ukukopulula, ukulula nokutlama amaphetheni wakhe.	**imizuzu ema-80**
Isikhala noBujamo (Jiyomethri)	Ukukhumbula, nokutjho iinthombe/ibumbeko ezinobujamo obubusobubili (2-D) Amabumbeko weJiyomethri. Ukwakha izinto ezinobujamo abobusontathu (3-D) usebenzise imatheriyali ephathekako Ubudlelwana bendawo Iinkombatjhuba	**imizuzu ema-80**
Ukumeda	Isikhathi Ubude Imasi / ubungakho/ ubunengi Umthamo	**imizuzu ema- 80**
Ukuphatha iDatha	Ukubuthelela, ukuhlela ngamananeko, ukugwala, ukufunda nokujamisela idatha.	**imizuzu ema-60**
INANI		**Imizuzu ema - 420 (ama iri ali-7 ngeveke)**

- **Isabelo seGreyidi yoku-1 sokumumethweko neenhloko zeemfundo emaGreyidini woku-1ukuya kwe-3**

Ngokulingeneko iimfundo ezintathu (o.u hlangana kwama-iri ama-4 nama-iri ama-4½) ngeveke zisetjenziselwa iiNomboro, ama-Opharetjhini noBudlelwano emagreyidini woku -1, wesi-2 nawesi-3. Iimfundo ezimbili eziseleko (o.u hlangana kwama-iri ama-2½ nama-iri ama-3) zihlukaniswa hlangana neenhloko zokhunye okumumethwekonukuya ngendlela ekuphakanyiswe ngayo ngenzasi.

Ithebula 3.2 Inani leemfundo eliphakanyisiweko ngokuya ngokumumethweko nangeThemu yeGreyidi yoku-1

lingaba zokumumethweko	linhloko	Inani leemfundo				
		IThemu yoku-1	IThemu yesi-2	IThemu yesi-3	IThemu yesi-4	Inani
linomboro, ama-Opharetjhini Nobudlelwano	linhloko zoke zeenomboro, ama-Opharetjhini noBudlelwano	22	30	28	25	**105**
Amaphetheni, amaFanktjhini ne-Aljibhra	Amaphetheni weenomboro	3	3	3	3	**12**
	Amaphetheni weJiyomethri	1	1	1	1	**4**
Isikhala noBujamo (Jiyomethri)	Amajamo abusobubili (2-D)		3		3	**6**
	Izinto ezibusontathu (3-D)	3		2	1	**6**
	Ubujamo, ukujayeza nokubukela	2			1	**3**
	Isimethri			1	1	**2**
Ukumeda	Isikhathi	2				**2**
	Ubude	2		2		**4**
	Ubudisi	2			2	**4**
	Umthamo/iVolumu	1	2		1	**4**
Ukuphatha iDatha	Ukubuthelela, ukuhlela ngemihlobo, ukujamisela nokurhumutjha izinto.	2	1			**3**
	Umzombe wedatha opheleleko			3		**3**
	lingaba zomzombe wedatha				2	**2**
Inani leemfundo		**40**	**40**	**40**	**40**	**160**

Ithebula 3.3 Inani leemfundo eziphakanyisiweko ngokuya ngeGreyidi yesi- 2

lingaba zokumumethweko	linhloko	Inani leemfundo				
		IThemu yoku-1	IThemu yesi-2	IThemu yesi-3	IThemu yesi-4	Inani
linomboro, ama-Opharetjhini Nobudlelwano	linhloko zoke zeenomboro, ama-Opharetjhini noBudlelwano	24	25	24	26	**99**
Amaphetheni, amaFanktjhini ne-Aljibhra	Amaphetheni weenomboro	3	3	3	3	**12**
	Amaphetheni weJiyomethri	1	1	1	1	**4**
Isikhala noBujamo (Jiyomethri)	ubujamo obubusobubili (2-D)		3		3	**6**
	Izinto ezibobusontathu (3-D)	3		2	1	**6**
	Ubujamo, ukujayeza nokubukela		2	1		**3**
	Isimethri		1		1	**2**
Ukumeda	Isikhathi	3	1	3	1	**8**
	Ubude	3			1	**4**
	Ubudisi		3		1	**4**
	Umthamo/iVolumu			3	1	**4**
Ukuphatha idatha	Umzombe wedatha opheleleko	3		3		**6**
	lingaba zomzombe wedatha		1		1	**2**
Inani leemfundo		**40**	**40**	**40**	**40**	**160**

Ithebula 3.4 Inani leemfundo eziphakanyisiweko ngokuya ngeGreyidi yesi- 3

lingaba zokumumethweko	linhloko	Inani leemfundo				
		IThemu yoku -1	IThemu yesi-2	IThemu yesi-3	IThemu yesi-4	Inani
linomboro, ama-Opharetjhini Nobudlelwano	linhloko zoke zeenomboro, ama-Opharetjhini noBudlelwano	26	22	19	27	**94**
Amaphetheni, amaFanktjhini ne-Aljibhra	Amaphetheni weenomboro	3	3	3	3	**12**
	Amaphetheni weJiyomethri	1	1	1	1	**4**
Isikhala noBujamo(Jiyomethri)	ubujamo obubusobubili (2-D)	2		2		**4**
	Izinto ezibusontathu (3-D)		3	3	1	**7**
	Ubujamo, ukujayeza nokubukela		2	3		**5**
	Isimethri		2		1	**3**
Ukumeda	Isikhathi	3	2	3	2	**10**
	Ubude		2	2		**4**
	Ubudisi		2		1	**3**
	Umthamo/iVolumu	2			1	**3**
	iPherimitha			1		**1**
	Ubungako bendawo				2	**2**
Ukuphatha idatha	Umzombe wedatha opheleleko	3		3		**6**
	lingaba zomzombe wedatha		1		1	**2**
Inani leemfundo		**40**	**40**	**40**	**40**	**160**

3.4.1 UMBONOMAZOMBE WE GREYIDI YOKU-1NGETHEMU

UMBONOMAZOMBE WEGREYIDI 1 1.IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA				
IINHLOKO	**ITHEMU 1**	**ITHEMU 2**	**ITHEMU 3**	**ITHEMU 4**
UKUTHUTHUKISWA KOMQONDOWENOMBORO: Ukubala ngenomboro ezipheleleko				
1.1 **Ukubala ngezinto**	**Ukubala** izinto ngokuthembekako kufika e -10. Ukunikela ngokuthembekako isilinganiso senomboro yezinto ezingahlolwa ngokuzibala	**Ukubala** izinto ngokuthembekako kufika ema- 20 Nikela ngokuthembekako isilinganiso senomboro yezinto ezingahlolwa ngokubala. Kukhuthazwa ukubala ngeenqhema	**Ukubala** izinto ngokuthembekako kufika ema -40 Nikela ngokuthembekako isilinganiso senomboro yezinto esingahlolwa ngokubala. Kukhuthazwa ukubala ngeenqhema.	**Ukubala** izinto ngokuthembekako kufika ema -50 Nikela ngokuthembekako isilinganiso senomboro yezinto esingahlolwa ngokubala. Kukhuthazwa ukubala ngeenqhema
1.2 **Ukubala uye phambili nemuva**	**Ukubala uye phambili nemuva nga:** • Kunye ukusuka kinanyana ngiyiphi inomboro hlangana no-1 ukuya ema -20	**Ukubala uye phambili nemuva nga:** • Kunye ukusuka kwenye nenye inomboro hlangana ne-0 na- 50 **Ukubala uye phambili nga:** • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 na-50 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 na-50 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne -0 na-20	**Ukubala uye phambili nemuva nga:** • Kunye ukusuka kwenye nenye inomboro ehlangana ne-0 na-80 **Ukubala uye phambili nga:** • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 na -80 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 na-80 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne -0 na-80	**Ukubala uye phambili nemuva nga:** • Kunye ukusuka kwenye nenye inomboro hlangana ne-0 ne-100 **Ukubala uye phambili nga:** • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-100 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-100 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne -0 ne-100
UKUTHUTHUKISWA KOMQONDO WENOMBORO: Ukujamiselela iinomboro ezipheleleko				
1.3 **Amatswayo weenomboro namagama weenomboro**	**Ukukhumbula, ukufanisa nokufunda iinomboro** • Khumbula, ufanise begodi ufunde amatshwayo wenomboro ukusuka ku-1 ukuya ku-20 • Tlola amatshwayo wenomboro ukusuka ku-1 ukuya ku-5 • Khumbula,ufanise begodu ufunde amagama wenomboro ukusuka ku-1 ukuya ku-5 • Tlola amagama wenomboro ukusuka ku-1 ukuya ku-5	**Ukukhumbula, ukufanisa nokufunda iinomboro** • Khumbula, ufanise begodu ufunde amatshwayo wenomboro ukusuka ku-1 ukufika ku-50 • Tlola amatshwayo wenomboro ukusuka ku-1 ukufika ku-10 • Khumbula, ufanise begodu ufunde amagama weenomboro ukusuka ku-1 ukufika ku-10. • Tlola amagama weenomboro ukusuka ku-1 ukufika ku-10.	**Ukukhumbula, ukufanisa nokufunda iinomboro** • Khumbula, ufanise begodu ufunde amatshwayo wenomboro ukusuka ku-1 ukufika ku-80 • Tlola amatshwayo wenomboro ukusuka ku-1 ukufika ku-20 • Khumbula, ufanise begodu ufunde amagama weenomboro ukusuka ku-1 ukufika ku-10. • Tlola amagama wenomboro ukusuka ku-1 ukufika ku-10	**Ukukhumbula, ukufanisa nokufunda iinomboro** • Khumbula, ufanise begodi ufunde amatshwayo wenomboro ukusuka ku-1 kuya ku-100. • Tlola amatshwayo wenomboro ukusuka ku-1 ukuya ku-20 • Khumbula, ufanise begodu ufunde amagama wenomboro ukusuka ku-1 ukuya ku -10. • Tlola amagama wenomboro ukusuka ku-1 ukufika ku-10

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
UKUTHUTHUKISWA KOMQONDO WENOMBORO: Ukuhlathulula, ukumadanisa nokuhlela iinomboro				
1.4 **Ukuhlathulula, ukumadanisa begodu nokuhlela iinomboro**	**Ukuhlathulula, ukumadanisa begodu nokuhlela izinto ukufikela ku-5** • Ukumadanisa izinto ezibuthelelweko kuya ngobunengi ezimbalwa; ngobunengi khulu, ncanikhulu; nengi -kuna, ncani-kuna; lingana na, ngobunengi, obufana, okuhlukileko. • Hlela izinto ezibuthelelweko kusuka kezinengi khulu kuya kezincanikhulu nokusuka kezincanikhulu ukuya kezikulukhulu **Hlathulula, umadanise, uhlele neenomboro ukufika ku-5** • Hlathulula, umadanise iinomboro eziphelelekо ngokuya ngobuncani-kuna, ngobukhulu-kuna, ngobunengi-kuna, ngaphasi kuna nangokulingana • Hlathulula bewuhlele neenomboro - Ukusuka ngencani-khulu ukufika kekulukulu nokusuka kekulukulu kufika kencanikhulu - Sebenzisa inambalayini ka: 1 - 5	**Ukuhlathulula, ukumadanisa begodu nokuhlela izinto ukufikela e-10** • Ukumadanisa izinto ezibuthelelweko kuya ngobunengi ezimbalwa; ngobunengi khulu, ncanikhulu; nengi -kuna, ncani-kuna; lingana na, ngobunengi, obufana, okuhlukileko. • Hlela izinto ezibuthelelweko kusuka kezinengi khulu kuya kezincanikhulu nokusuka kezincanikhulu ukuya kezikulukhulu **Hlathulula, umadanise, uhlele neenomboro ukufika ku-10** • Hlathulula, umadanise iinomboro eziphelelekо ngokuya ngobuncani-kuna, ngobukhulu-kuna, ngobunengi-kuna, ngaphasi kuna nangokulingana • Hlathulula bewuhlele neenomboro - Ukusuka ngencani-khulu ukufika kekulukulu nokusuka kekulukulu kufika kencanikhulu - Ngaphambi, ngemuva, phakathi nofana nahlangana - Sebenzisa inambalayini ka:0 - 10	**Ukuhlathulula, ukumadanisa begodu nokuhlela izinto ukufikela ku -15** • Ukumadanisa izinto ezibuthelelweko kuya ngobunengi ezimbalwa; ngobunengi khulu, ncanikhulu; nengi -kuna, ncani-kuna; lingana na, ngobunengi, obufana, okuhlukileko. • Hlela izinto ezibuthelelweko kusuka kezinengi khulu kuya kezincanikhulu nokusuka kezincanikhulu ukuya kezikulukhulu **Hlathulula, umadanise, uhlele neenomboro ukufika ku-15** • Hlathulula, umadanise iinomboro eziphelelekо ngokuya ngobuncani-kuna, ngobukhulu-kuna, ngobunengi-kuna, ngaphasi kuna nangokulingana • Hlathulula bewuhlele neenomboro - Ukusuka ngencani-khulu ukufika kekulukulu nokusuka kekulukulu kufika kencanikhulu - Ngaphambi, ngemuva, phakathi nofana nahlangana - Sebenzisa inambalayini ka:0 - 15	**Ukuhlathulula, ukumadanisa begodu nokuhlela izinto ukufikela ku -20** • Ukumadanisa izinto ezibuthelelweko kuya ngobunengi ezimbalwa; ngobunengi khulu, ncanikhulu; nengi -kuna, ncani-kuna; lingana na, ngobunengi, obufana, okuhlukileko. • Hlela izinto ezibuthelelweko kusuka kezinengi khulu kuya kezincanikhulu nokusuka kezincanikhulu ukuya kezikulukhulu **Hlathulula, umadanise, uhlele neenomboro ukufika ku-20** • Hlathulula, umadanise iinomboro eziphelelekо ngokuya ngobuncani-kuna, ngobukhulu-kuna, ngobunengi-kuna, ngaphasi kuna nangokulingana • Hlathulula bewuhlele neenomboro - Ukusuka ngencani-khulu ukufika kekulukulu nokusuka kekulukulu kufika kencanikhulu - Ngaphambi, ngemuva, phakathi nofana nahlangana - Sebenzisa inambalayini ka:0 - 20 **Sebenzisa iinomborosikhundla ukukhombisa ukuhlela, indawo nofana ubujamo benomboro.** • Beka izinto ngokwerhemo kusuka kweyokuthoma ukufika kweyesumi, nofana kweyokuthoma kufika kweyokuphela. Isib. Yokuthoma, yesibili, yesithathu..... yesumi, kweyokuphela. • Iinomborosikhundla zerherho lokuthoma kufika etjhumini

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
UKUTHUTHUKISWA KOMQONDO WENOMBORO: Ubukhulu bedijithi				
1.5 **Ubukhulu bedijithi**			Khumbula ubukhulu bedijithi beenomboro i-11 ukufika e-15 • Phulalaza inomboro zamadijithi amabili ngesumi nangayinye/imivo isib.12 li 10 na 2	Khumbula ubukhulu bedijithi i-11 ukufika e-19. • Phulalaza inomboro zamadijithi amabili ngesumi nangayinye/imivo isib.18 li 10 na 8
SOMBULULA IMIRARO ESEBUJAMENI				
1.6 **Amathekhiniki wokurarulula imiraro**	Sebenzisa amathekhiniki alandelako nawurarulula imiraro uhlathulule neensombululo: • Ama-apharethasi aphathekako isib. izinto zokubala • Iinthombe ezisetjenziselwa ukwenza iindatjhana zeembalo. • Amanambalayini ezisekelwe ma- apharethasi aphathekako njengemincanyana yokubala	Sebenzisa amathekhiniki alandelako nawurarulula imiraro uhlathulule neensombululo: • Ama-apharethasi aphathekako isib. izinto zokubala • Iinthombe zokugwala iimbalo zendatjhana • Ukwakha nokuphula iinomboro • Ukubuyelela nokuqunta phakathi • Amanambalayini ezisekelwe ma- apharethasi aphathekako njengemincanyana yokubala	Sebenzisa amathekhiniki alandelako nawurarulula imiraro uhlathulule neensombululo: • Ama-apharethasi aphathekako isib. izinto zokubala • Iinthombe zokugwala iimbalo zendatjhana • Ukwakha nokuphula iinomboro • Ukubuyelela nokuqunta phakathi • Amanambalayini ezisekelwe ma- apharethasi aphathekako njengemincanyana yokubala	Sebenzisa amathekhiniki alandelako nawurarulula imiraro uhlathulule neensombululo: • Ama-apharethasi aphathekako isib. izinto zokubala • Iinthombe zokugwala iimbalo zendatjhana • Ukwakha nokuphula iinomboro • Ukubuyelela nokuqunta phakathi • Amanambalayini ezisekelwe ma- apharethasi aphathekako njengemincanyana yokubala
1.7 **Ukuhlanganisa nokukhupha**	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika ku-5	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-10.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-15.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-20.
1.8 **Ukuhlanganisa ngokubuyelela okurholela ekubuyabuyeleleni**		Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukuhlanganisa okubuyelelweko nempendulo ukufika e-10.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukuhlanganisa okubuyelelweko nempendulo ukufika e-15.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukuhlanganisa okubuyelel-weko nempendulo ukufika e-20
1.9 **Ukubuthelela ngeenqhema nokwabelana okurholela ekuhlukaniselaneni**	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqhema kweenomboro eziphelileko ukufika ku-5 kanye nempendulo ezingahle zifaka iinsalela	Ukurarulula imiraro yamagama esebujameni bewuhlathulule iinsombululo zakho zemiraro okufaka hlangana ukwabelana ngokulingana nokubuthelela ngeenqhema kweenomboro eziphelileko ukufika ema-10 kanye nempendulo ezingahle zifaka iinsalela	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqhema kweenomboro eziphelileko ukufika e-15 kanye nempendulo ezingahle zifaka iinsalela	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqhema kweenomboro eziphelileko ukufika e-20 kanye nempendulo ezingahle zifaka iinsalela

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
1.11 **Imali**		• Khumbula bewufanise imali eziinhlavu zeSowula Afrika : • 5c, 10c, 20c, 50c, R1, R2; R5 • Sombulula imiraro efaka hlangana amanani wemali netjhentjii ye R10 neyamasende ukufika ku-20c	• Khumbula bewufanise imali eziinhlavu zeSowula Afrika : • 5c, 10c, 20c, 50c, R1, R2; R5 • Sombulula imiraro efaka hlangana amanani wemali netjhentjii ye R20 neyamasende ukufika ku-20c	• Khumbula bewufanise imali eziinhlavu zeSowula Afrika: - 5c, 10c, 20, 50c, R1, R2;R5 Imali yamaphepha ama R10 nama R20 • Sombulula imiraro yemali efaka hlangana amanani wemali netjhentjil yama R20 namasende ukufika ku-20c
UKUBALA OKUSEBUJAMENI OBUTJHAPHULUKILEKO				
1.12 **Amathekhiniki** **(lindlela namaqhinga)**	Sebenzisa amathekhiniki alandelayo nawubalisisako • Ama-apharethasi aphathekako njengezinto zokubala • Gwala iinthombe • Amanambalayini ezisekelwe ama-apharethasi aphathekako njengemincamo yokubala	Sebenzisa amathekhiniki alandelayo nawubalisisako • Ama-apharethasi aphathekako njengezinto zokubala • Gwala iinthombe • Ukwakha bewuphadhle iinomboro • Ukubuyelela nokuhafula phakathi • Amanambalayini ezisekelwe ama-apharethasi aphathekako njengemincamo yokubala	Sebenzisa amathekhiniki alandelayo nawubalisisako • Ama-apharethasi aphathekako njengezinto zokubala • Gwala iinthombe • Ukwakha bewuphadhle iinomboro • Ukubuyelela nokuhafula phakathi • Amanambalayini ezisekelwe ama-apharethasi aphathekako njengemincamo yokubala	Sebenzisa amathekhiniki alandelayo nawubalisisako • Ama-apharethasi aphathekako njengezinto zokubala • Gwala iinthombe • Ukwakha bewuphadhle iinomboro • Ukubuyelela nokuhafula phakathi • Amanambalayini ezisekelwe ama-apharethasi aphathekako njengemincamo yokubala
1.13 **Ukuhlanganisa nokukhupha**	**Irherho leenomboro: 1 - 5** • Ukuhlanganisa kufika ku- 5 • Ukukhupha kusuka ku-5 • Ngokwenza bhala iinamba bhondi kufikela ku- 5	**Irherho leenomboro: 1 - 10** • Hlanganisa ukufika ku-10 • Khupha ukufika ku- 10 • Sebenzisa amatshwayo afaneleko (+, –, =, □) • Ukuzijayeza inambabhondi kufika ku-7	**Irherho leenomboro: 1 - 15** • Hlanganisa ukufika ku-15 • Khupha e- 15 • Sebenzisa amatshwayo afaneleko (+, –, =, □) • Ukuzijayeza inambabhondi kufika ku-9	**Irherho leenomboro: 1 - 20** • Hlanganisa ukufika ku-20 • Khupha ema- 20 • Sebenzisa amatshwayo afaneleko (+, –, =, □) • Ukuzijayeza inambabhondi kufika ku-10
1.14 **Ukuhlanganisa ngokubuyelela okurholela** **ekubuyabuyeleleni**		• Hlanganisa ngokubuyelela (o.k.inomboro efanako) kufika ku-10 • Sebenzisa amatshwayo afaneleko (+, –, =, □)	• Hlanganisa ngokubuyelela (o.k.inomboro efanako) kufika ku-15 • Sebenzisa amatshwayo afaneleko (+, –, =, □)	• Hlanganisa ngokubuyelela (o.k.inomboro efanako) kufika ku-20 • Sebenzisa amatshwayo afaneleko (+, –, =, □)

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
1.16 **limbalo zehloko**	**Umqondonomboro: Irherho leenomboro kufika ku- 5** • Hlela isethi yeenomboro ezikhethiweko ozinikelweko • Madanisa iinomboro kufika ku-5, utjho bonyana ngiyiphi enengi nga-1 nofana encani nga-2.	**Umqondonomboro: Irherho leenomboro kufika ku- 10** • Hlela isethi yeenomboro ezikhethiweko ozinikelweko • Madanisa iinomboro ukufikela e-10 bewutjho bonyana ngiyiphi enengi nga-1 nephasi nga-2	**Umqondonomboro: Irherho leenomboro kufika ku-15** • Hlela isethi yeenomboro ezikhethiweko ozinikelweko • Madanisa iinomboro ukufikela e-15 bewutjho bonyana ngiyiphi enengi nga-1 nephasi nga-2 **Ukukhumbula msinyana:** • Inomboribhondi ukufika ku-5 • Khumbula amaphuzu wamambala wokuhlanganisa nokukhupha kufika ku-5 **Amaqhinga wokubalisisa** Sebenzisa amaqhinga wokubala nawu hlanganisako nokukhupha ngokuphumelela: • Beka inomboro ekulu ekuthomeni ukuze ukwazi ukubala uye phambili nemuva. • Amanambalayini • Ukubuyelela nokuhafula phakathi • Ukwakha nokuphula	**Umqondonomboro: Irherho leenomboro kufika ku- 20** • Hlela isethi yeenomboro ezikhethiweko ozinikelweko • Madanisa iinomboro ukufikela e-20 bewutjho bonyana ngiyiphi enengi nga-1 nephasi nga-2 **Ukukhumbula msinyana:** • Inombori bhondi ukufika ku-10 • Khumbula amaphuzu wamambala wokuhlanganisa nokukhupha kufika ku-10 **Amaqhinga wokubalisisa** Sebenzisa amaqhinga wokubala nawu hlanganisako nokukhupha ngokuphumelela: • Beka inomboro ekulu ekuthomeni ukuze ukwazi ukubala uye phambili nemuva. • Amanambalayini • Ukubuyelela nokuhafula phakathi • Ukwakha nokuphula

Imihlobo yemiraro yeGreyidi yuku-1

Iimbonelo lezi zemiraro ziqakathekile kufanele utitjhere azethule ngokuzibuyelela njalo etlasini lakhe. Nangabe utitjhere usebenza ngesiqhema esincani, kufanele aveze umraro ngokukhuluma. Nangabe abafundi bayakwazi ukufunda utitjhere angabanikela umraro otloliweko, nokho utitjhere kusafanele aveze umraro ngokukhuluma.

Imiraro esebujameni ingafakwa emaphepheni wabantwana wokusebenzela nokho ifanele ibe mifitjhani,inqophe, bekube ngejayelekileko nofana ngevamileko begodu utitjhere ufanele aqinisekise bonyana boke abafundi bayayizwisisa.

Ukubuthelela ngeenqhema

Ukubuthelela ngeenqhema , ukulahla isalela

UZimkhona uthengisa amahabhula ngemigodla, ufaka amahabhula ngamathathu emgodleni. Unamahabhula ali-14. Wenza imigodla emigodla emingaki yamahabhula nakakhamba ngamathathu?enamahabhula ngamathathu emgodleni.

Ukubuthelela ngeenqhema, ukungenisa isalela ependulweni

UKosabo ufuna ukuyokupha ugogo wakhe amaqanda ali-15. ngemabhoksini afaka -6 yamaqanda, uzokudinga amabhoksi amangaki ukufaka woke amaqanda anawo?

Ukwabelana

Ukwabelana, ukulahla isalela

Hlukanisa amaswidi ayi-14, hlukanisela abangani abathathu amaswidi ngokulinganako.

Ukuhlanganisa ngokubuyelela

Iintsikiri ezi-4 zinamavilo amangaki?

Ukuhlanganisa nokukhupha

Kunemihlobo emithathu yemiraro esisekelo yokuhlanganisa nokukhupha, omunye nomunye umraro ungabuzwa ngendlela ehlukileko imihlobo esisekelo ngile:

Itjhuguluko

UNoluthando beka namahabhula ama-5. USilo wamupha amahabhula a-8. Mangaki amahabhula anawo uNoluthando sewawoke?

UNoluthando bekanamahabhula ali-13, wapha uSilo amahabhula ama-5.UNoluthando usele namahabhula amangaki?

Ukuhlanganisa

UNosisi unabomabula abahlanu abahlaza kotjani , nababunane abahlaza kwesibhakabhaka. Bangaki abomabula anabo sebaboke?

Ukumadanisa

UNombuso unamabhanana ali-13. UThemba unamahlanu, uNombuso unabhanana amanengi kangangani kunoka Themba?

Ukubuza omunye nomunye umraro ngendlela ehlukileko

Imiraro ifanele ibuzwe ngendlela ehlukileko. Isib. Yomibili imiraro le miraro etjhugulukileko, kodwana okungaziwako kusendaweni ezihlukeneko.

UNoluthando bekanamahabhula. USilo wamupha abu-8 ngaphezulu. Kwanjesi sele anamahabhula ali-13. UNoluthando bekanamahaghula amangaki ekuthomeni?

UNoluthando bekanamahabhula amahlanu. USilo umupha amanye amahabhula. UNoluthando sele anamahabhula ali-13. Mangaki amahabhula awaphiwe ngu Silo?

Ubujamo bemiraro noBudlelwana bemisebenzi ehlukileko

UNino uthengisa amahotdog nge R4 ngayinye.Yenza ithebula elizomsiza ukuthola inani le- oda ekulu.

Inomboro yama Hotdogo	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Inani ngama R	**4**	**8**					

Sebenzisa ithebula lokuthola inani lama hotdogi alikhomba.

Lemihlobo yemiraro engehla inikelelwe ukurhola abotitjhere.Abafundi abangathweswa umthwalo ngemihlobo yamagama. Yelela bonyana abafundi ngasikhathi basebenzisa iindlela ezihlukileko ukusombulula umraro okungahle kungabi ngilokho utitjhere ebekakulindele.

UMBONOMAZOMBE WEGREYIDI 1 2. AMAPHETHENI,AMAFANKTJHINI NE-ALJIBHRA				
IINHLOKO	**ITHEMU 1**	**ITHEMU 2**	**ITHEMU 3**	**ITHEMU 4**
2.1 **Amaphetheni wejiyomethri**	**Ukukopa bewungezelele** Ukukopa bewungezelele amaphetheni alula ngokusebenzisa: • Izinto ezithintekako • Imigwalo (isib. sebenzisa imibala namajamo) **Imisebenzi yokulandelanisa ephakanyisiweko** Thoma ukukopa bewungezelele amaphetheni usebenzise izinto ezithintekako angabe abafundi sebayajayela ukusebenzisa amakrayoni nempensela, thoma ukukopa ungezelele amaphetheni ngokugwala.	**Ukukopa , ungezelele bewuhlathulule** Ukukopa, ungezelele bewuhlathulule ngamagama • Amaphetheni alula enziwe ngezinto ezithintekako • Amaphetheni alula enziwe ngemigwalo yemida, ubujamo nafana izinto. **Tlama begodu uhlathulule amaphetheni wakho** • Yenza amaphetheni weJiyomethri - Ngezinto ezithintekako - Ngokugwala imida, amajamo nofana izinto • Hlathulula amaphetheni wakho	**Ukukopa , ungezelele bewuhlathulule** Ukukopa , ungezelele bewuhlathulule ngamagama • Amaphetheni alula enziwe ngezinto ezithintekako • Amaphetheni alula enziwe ngemigwalo yemida, ubujamo nafana izinto. **Tlama begodu uhlathulule amaphetheni wakho** • Yenza amaphetheni weJiyomethri - Ngezinto ezithintekako - Ngokugwala imida, amajamo nofana izinto • Hlathulula amaphetheni wakho	**Amaphatheni asemaqadi nathi** ukukhomba, uhlathulula ngamagama bewukope amaphetheni wejiyomtri • Ngokwemvelo • Kusukela epilweni yangamalanga yesimodeni, • Asuka kwilifa lamasiko wethu **Tlama begodu uhlathulule amaphetheni wakho** • Yenza amaphetheni weJiyomethri - Ngezinto ezithintekako - Ngokugwala imida, amajamo nofana izinto • Hlathulula amaphetheni wakho

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
2.2 **Amaphetheni weenomboro**	**Ukukopa, ukungezelela nokuhlathulula** Ukukopa, ungezelele bewuhlathulule iinomboro ezilula ngokuzilandelanisa kufika okungasenani ku-20. Ukulandelanisa ukhombise ukubala uye phambli nasemuva nga: • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 na-20	**Ukukopa, ukungezelela nokuhlathulula** Ukukopa, ungezelele bewuhlathulule iinomboro ezilula ngokuzilandelanisa kufika okungasenani ku -50 Ukulandelanisa ukhombise ukubala uye phambli nasemuva nga: • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 na-50 **Ukubala uye phambili nga:** • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 na-50 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 na-50 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku-2 hlangana ne -0 na-50 **Yakha bewuhlathulule amaphetheni wakho** • Yakha bewuhlathulule amaphetheni wakho	**Ukukopa, ukungezelela nokuhlathulula** Ukukopa, ungezelele bewuhlathulule iinomboro ezilula ngokuzilandelanisa kufika okungasenani ku -80 Ukulandelanisa ukhombise ukubala uye phambli nasemuva nga: • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 na-80 **Ukubala uye phambili nga:** • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 na-80 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 na-80 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku-2 hlangana ne -0 na-80 **Yakha bewuhlathulule amaphetheni wakho** • Yakha bewuhlathulule amphetheni wakho	**Ukukopa, ukungezelela nokuhlathulula** Ukukopa, ungezelele bewuhlathulule iinomboro ezilula ngokuzilandelanisa kufika okungasenani ku -100. Ukulandelanisa ukhombise ukubala uye phambli nasemuva nga: • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 ne-100 **Ukubala uye phambili nga:** • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-100 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-100 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku-2 hlangana ne -0 ne-100 **Yakha bewuhlathulule amaphetheni wakho** • Yakha bewuhlathulule amaphetheni wakho

UMBONOMAZOMBE WEGREYIDI YOKU-1 3. ISIKHALA NOBUJAMO (JIYOMETHRI)				
IINHLOKO	**ITHEMU 1**	**ITHEMU 2**	**ITHEMU 3**	**ITHEMU 4**
3.1 **Ubujamo, ukuzijayeza nokubukela**	**Ilimi lobujamo** Hlathulula ubujamo bento nokuhlobana kwenye nenye isib. phezu-kwe, phambi-kwe, ngemuva-kwe, ngesinceleni, ngesidleni, phezulu, phasi, hlanu-kwe. **Ubujamo nekombatjhuba** • Ukulandela ikombatjhuba yokukhambakhamba ngeklasini • Ukulandela umlayezo ubeka into ngokuhlobana kwenye nenye isib.beka ipensela ngaphakathi kwebhoks. **Isitjhukumiso esinqophileko sokulandelanisa umsebenzi weThemu yoku-1** • Ilimi lobujamo lifanele lithulwe ngendlela ezokufaka abafundi ngokwenza kokusikinya umzimba • Lokhu kungaletha ndawonye ngokutlola nangokurekhoda njengokugwala, ukukhrayona nofana ukumadanisa imidwebo ngamagama. • Sebenzisa ilimi lobujamo elifundweko nawulandela ilayelo/ iinkombatjhuba. • Ilayelo/indlela yokwenza kufanele iphrakthiswe ngokusikinya umzimba lapho abafundi bazisikinya khona ngokukhupha izinto njengokutjho komlayezo.			**Ilimi lobujamo** Hlathulula ubujamo bezinto nokuhlobana kwenye nenye isib. phezu-kwe, phambi-kwe, ngemuva -kwe, ngesinceleni, ngesidleni, phezulu, phasi, hlanu-kwe. **Ubujamo nekombatjhuba** • Ukulandela ikombatjhuba yokukhambakhamba ngeklasini • Ukulandela umlayezo ubeka into ngokuhlobana kwenye nenye isib.beka ipensela ngaphakathi kwebhoks. **Isitjhukumiso esinqophileko sokulandelanisa umsebenzi weThemu yesi-4** • Ukusebenza ngobujamo nelayelo kungaletha ndawonye ngokutlola nangokurekhoda njengokugwala, ukukhrayona nofana ukumadanisa imidwebo ngamagama • Elinye nelinye ilimi lobujamo lifanele lithulwe ngendlela ezokufaka abafundi ngokwenza kokusikinya umzimba • Ilayelo/ikombatjhuba yokwenza kufanele iphrakthiswe ngokusikinya umzimba lapho abafundi bazisikinya khona ngokukhupha izinto njengokutjho komlayezo. **Ubujamo nokubona** • Metjhisa imibono ehlukeneko yezinto zangamalanga ezifanako.

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
3.2 **Izinto ezibusontathu** **(3-D)**	**Irherho lezinto** Ukubona nokutjho izinto ezibusontathu (3-D)ezingetlasini neenthombeni • Ubujamo bebhola (indulungu) • Ubujamo bebhoksi (iphrizimu) **Amatshwayo wezinto** Hlathulula, hlukanisa ngemihlobo, umadanise izinto ezibusontathu (3-D) ngokuya ngo: • bukhulu • nangombala **Imisetjhenzana enqophako** Ukubukela nokwakha izinto ezibusontathu (3-D) usebenzise amametheriyeli aphathekako njenge: amabhlogo wokwakha, imitheriyeli esebenzileko ibuye isetjhenziswe, izinto zokusebenza. **Isitjhukumiso esinqophileko nokulandelisana umsetjhenzana weThemu yoku-1** • Ngesikhathi esitjhaphulukileko kudlalwa ngezinto ezihlukeneko ezibusontathu (3-D). Kwakhiwa izinto ozithandako ngokusebenzisa amabhlogo, izinto zokusebenza zokwakha nofana amamethiriyali asebenzile abuyelelwe asetjenziswa. Lokhu kungenziwa ngesikhathi sokuzijamela. • Kopa imifaniso yezinto ozinikelwe ngutitjhere, lokhu kungenziwa ngesikhathi sokuzijamela. • Madanisa ubukhulu bezinto ezifanako isib.itjho bonyana ngiyiphi ibholo ekulu. • Khuluma ngemibala yezinto bewuhlukanise izinto lezo nangemibala yazo. • Fanisa bewuhlathulule izinto eziyiJiyomethri nezinto zangamalanga ngokutjho bonyana ubujamo bazo bunjengebholo nofana njengebhoksi. • Umsebenzi uyahlanganiswa ngokutlola imisetjhenzana ehleliweko.		**Irherho lezinto** Ukubona nokutjho izinto ezibusontathu (3-D)ezingetlasini neenthombeni • Ubujamo bebhola (indulungu) • Ubujamo bebhoksi (iphrizimu) **Amatshwayo wezinto** Hlathulula, hlukanisa ngemihlobo, umadanise izinto ezibusontathu (3-D) ngokuya: • ngobukhulu • ngombala • ngezinto ezigedekako • ngezinto ezitjhelelako **Isitjhukumiso esinqophileko nokulandelisana umsetjhenzana weThemu yesi-3** • Sebenza ngembholo nangezinto ezinobujamo obufana nobembholo, nangamabhoksi, nangezinto ezinobujamo bephrizimu kancamane nofana amakhyubhi. Qalisisa bonyana ngiziphi izinto ezigedekako, ezitjhelelako, ezingapakelana. • Fanisa bewuhlathulule izinto eziyiJiyomethri nezinto zangamalanga ngokutjho bonyana ubujamo bazo bunjengebholo nofana njengebhoksi. • Umsebenzi uyahlanganiswa ngokutlola imisetjhenzana ehleliweko.	**Irherho lezinto** Ukubona nokutjho izinto ezibusontathu (3-D) ezingetlasini neenthombeni • Ubujamo bebhola (indulungu) • Ubujamo bebhoksi (iphrizimu) **Amatshwayo wezinto** Hlathulula, hlukanisa ngemihlobo, umadanise izinto ezibusontathu (3-D) ngokuya: • ngobukhulu • ngombala • ngezinto ezigedekako • ngezinto ezitjhelelako **Isitjhukumiso esinqophileko nokulandelisana weThemu yesi-4** • Umsebenzi uyahlanganiswa ngokutlola imisetjhenzana ehleliweko.

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
3.3 **Ubujamo obubusobubili** **(2-D)**		**Irherho lamajamo** Ukubona nokutjho ubujamo obubusobubili (2-D) • iindulungu • aboncantathu • iinkwere **Amatswhayo wamajamo** Ukuhlathulula, ukuhlukanisa ngemihlobo nokumadanisa amajamo obubusobubili (2-D) ngokuya: • ngobukhulu • ngombala • ngamahlangothi anqophileko • ngamahlangothi arondo **Iminqopho etjhukumeziweko nokulandelanisa imisetjenzana yeThemu yesi-2** • Thoma ngokudlala ngokutjhaphulukileko ngemihlobohlobo yamajamo okufaka hlangana ukwenza iinthombe ngamajamo weJiyomethri asikiweyo. • Lokhu kungenziwa ngesikhathi sokuzijamela nangesikhathi sesifundo samakgono wepilo. • Ukukopa isithombe esenziwe ngamajamo weJiyomethri. Lokhu kungenziwa ngesikhathi sokuzijamela. • Madanisa ubukhulu bezinto ezifanako isib. Hlela iinkwere kusukela kesincani ukuya kesikhulu bewusebenzisa ilimi lobukhulu ukuhlathulula ubujamo. • Ukukhuluma ngemibala yamajamo bese uwahlela ngokuya ngemibala. • Ukusebenza ngendulungu neenkwere zobukhulu obuhlukahlukeneko naboncantathu abanejamo elihlukaneko.Zihlele ngokuya ngokuthi zinamahlangothi anqophileko nofana ayindulunga. • Ukuhlela nokubeka ngeenqhema ngokuya ngokuthi mhlawumbe ziboncantathu, iinkwere nofana indulungu. • Umsebenzi uhlanganiswa ngemisebenzi etloliweko.		**Irherho lamajamo** Ukubona nokutjho ubujamo obubusobubili (2-D) • iindulungu • aboncantathu • iinkwere **Amatswhayo wamajamo** Ukuhlathulula, ukuhlukanisa ngemihlobo nokumadanisa amajamo obubusobubili (2-D) ngokuya: • ngobukhulu • ngombala • ngamahlangothi anqophileko • ngamahlangothi arondo **Iminqopho etjhukumeziweko nokulandelanisa imisetjenzana yeThemu yesi-4** • Ukusebenza ngendulungu neenkwere zobukhulu obuhlukahlukeneko naboncantathu abanejamo elihlukaneko.Zihlele ngokuya ngokuthi zinamahlangothi anqophileko nofana ayindulunga. • Ukuhlela nokubeka ngeenqhema ngokuya ngokuthi mhlawumbe ziboncantathu, iinkwere nofana indulungu. • Umsebenzi uhlanganiswa ngemisebenzi etloliweko.

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
3.4 **Isimethri**			**Isimethri** • Ukubona isimethri emizimbeni yabo. • Ukubona nokugwala umuda wesimethri ebujameni babobusobubili (2-D) nasebujameni obuyijomthriki nobungasiyo iJiyomethriki. **Iminqopho etjhukumeziweko yemisetjenzana yeThemu yesi-3** • Qala imida yesimethri ezintweni eziphathekako neenthombe. • Imisetjenzana etlolwako akukafaneli bonyana igwalwe ngakenye ingcenye kwaphela nokho kufakwe hlangana neembolnelo lapho abafundi bagwala emudeni wesimethri.	**Isimethri** • Ukubona nokugwala umuda wesimethri ebujameni babobusobubili (2-D) nasebujameni obuyijomthriki nobungasiyo iJiyomethriki. **Iminqopho etjhukumeziweko yemisetjenzana yeThemu yesi-4** • Imisetjenzana etlolwako ifanele ifakehlangana iimbonelo lapho umuda wesimethri awusiwo umuda ojame rwe kwaphela.

UMBONOMAZOMBE WEGREYIDI 1 4. UKUMEDA				
IINHLOKO	**ITHEMU 1**	**ITHEMU 2**	**ITHEMU 3**	**ITHEMU 4**
4.1 **Isikhathi**	**Ukudlula kwesikhathi** Kukhulunywa ngokudlula kwesikhathi • Hlela izehlakalo eziqhelekileko ezisuke epilweni yabo. • Ukumadanisa ubude besikhathi kusetjenziswa ilimi isib.iskhathi eside, isikhathi esifitjhani, masinyana, kabuthaka. • Ukulandelanisa izehlakalo kusetjenziswa iLimi elifaka nokuthi izolo, namhlanje, kusasa. **Ukutjela ngesikhathi** • Ukuhlathulula nangabe kwenzeka into kusetjenziswa iLimi isib. Ekuseni, ngemuva kwedina, ebusuku, ekuseni khlu, ngemuva kwesikhathi. • Ukutjho nokulandelanisa amalanga weveke, neenyanga zonyaka. • Ukubeka amalanga wamabeletho.	Isikhathi kusetjenzwa ngaso ngokuragela phambili ngesikhathi sokufundisa itlasi loke.	Isikhathi kusetjenzwa ngaso ngokuragela phambili ngesikhathi sokufundisa itlasi loke.	Isikhathi kusetjenzwa ngaso ngokuragela phambili ngesikhathi sokufundisa itlasi loke.
4.2 **Ubude**	**Ukumeda okungakahleleki** • Ukumadanisa nokuhlela ubude, ukuphakama nofana ububanzi bezinto ezimbili nofana ezinengi ngokuzibeka enye eqadi kwenye. • Ukusebenzisa iLimi ukukhuluma ngokufanisa isib.ubude, ubufitjhani, ububanzi. • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela bewurekhode ubude usebenzise iimedo ezingakahlelwa isib. Ubude besandla, igadango, ubude bepensela, izinto zokubala, njll.		**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela nokurekhoda ubude kusetjenziswa iimedo ezingakahlelelwa isib. Ubude besandla, amagadango, ubude bepensela, izinto zokubala njll.	

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
4.3 **Ubudisi / ubungako**	**Ukumeda okungakahleleki** • Ukulinganisa, isilinganiso, ukumadanisa, ukuhlela, bekurekhodwe ubudisi, kusetjenziswa isikala sokudzimelela nesilinganiso esingakahleleki isib. Amabhlogo, iintina njll. • Ukusebenzisa iLimi ukukhuluma ngokumadanisa isib.elula, ebudisi, elula-khulu, ebudisi-khulu.			**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela, bekurekhodwe ubudisi, kusetjenziswa isikala sokudzimelela nesilinganiso esingakahleleki isib. Amabhlogo, iintina njll. • Ukusebenzisa iLimi ukukhuluma ngokumadanisa isib.elula, ebudisi, elula-khulu, ebudisi-khulu.
4.4 **Umthamo / Ivolumu**	**Ukumeda okungakahleleki** • Ukumadanisa nokuhlela ubungako beketjezi/okusamanzi (umthamo) okuseemumathini ezimbili ezibekwe esinye eduze nesinye. Abafundi bazokuhlela ngokuhlela esimumathini sesithathu.	**Ukumeda okungakahleleki** • Ukumadanisa nokuhlela ubungako beketjezi/okusamanzi (umthamo) okuseemumathini • Ukusebenzisa iLimi ukukhuluma ngokumadanisa isib.enengi kune, encani kune, encani, izele, edududu. • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela nokurekhoda umthamo okusesimumathini ngokusebenzisa iimedo ezingakahleleki isib. lingobho namakomitji.		**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela nokurekhoda umthamo okusesimumathini ngokusebenzisa iimedo ezingakahleleki isib. lingobho namakomitji.

UMBONOMAZOMBE WEGREYIDI 1 5. UKUPHATHA IDATHA				
IINHLOKO	**ITHEMU 1**	**ITHEMU 2**	**ITHEMU 3**	**ITHEMU 4**
5.1 **Ukubuthelela nokuhlela ngemihlobo izinto** **5.2** **Ukujamiselela okuhlelwe ngemihlobo ukubuthelela kwezinto** **5.3** **Coca bewubike ngokuhlelwa kwezinto ezibuthelelweko**	Ukubuthelela nokuhlela izinto ezithintekayo ngamalanga Ukugwala iinthombe zezinto ezihleleke ngemihlobo. • Nikela iinzathu ngokuthi okubuthelelweko kuhlelwe bunjani. Phendula imibuzo ngokuthi: - Ukuhlelwa ngemihlobo kwenziwa bunjani (indlela yekambiso) - Okubuthelelweko kwahlelwa ngemihlobo kunjani? (umkhiqizo) • Hlathulula okubuthelelwe ngemihlobo	Ukubuthelela nokuhlela izinto ezithintekayo ngamalanga Ukugwala iinthombe zezinto ezihleleke ngemihlobo. • Nikela iinzathu ngokuthi okubuthelelweko kuhlelwe bunjani. Phendula imibuzo ngokuthi: - Ukuhlelwa ngemihlobo kwenziwa bunjani (indlela yekambiso) - Okubuthelelweko kwahlelwa ngemihlobo kunjani? (umkhiqizo) • Hlathulula okubuthelelwe ngemihlobo		
5.4 **Ukubuthelela nokuhlela idatha** **5.5** **Ukujamiselela idatha** **5.6** **Ukuhlaziya bewurhumutjhe idatha**			**Okuphakanyisiweko:** Umzombe wedatha opheleleko ngokwenza igrafu yesithombe setlasi. • Buthelela bewuhlele idatha - ngetlasi nofana ngesikolo - ukuphendulwa kwemibuzo ebuzwa ngutitjhere • Ukujamiselela idatha ngegrafini yeenthombe. • Ukuphendula imibuzo ngedatha engegrafini yeenthombe.	• Ukuhlaziya idatha ebuya ekujanyiselelweni elinikelweko. • Okuphakanyisiweko: okungasenani iingrafu zeenthombe ezimbili.

3.4.2 Umbonomazombe weGreyidi yesi-2 ngeThemu

UMBONOMAZOMBE WEGREYIDI YESI-2 1.IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA				
IINHLOKO	**ITHEMU 1**	**ITHEMU 2**	**ITHEMU 3**	**ITHEMU 4**
UKUTHUTHUKISWA KOMQONDO NOMBORO: Ukubala ngeenomboro eziphelelekо				
1.1 **Ukubala izinto**	• Ukubala okungasenani ukufikela ku yezinto ngamalanga ngokuthembekako. • Ukunikela isilinganiso senomboro yezinto ezingahlolwa ngokuzibala. • Amaqhinga wokuhlela izinto ngokweenqhema kuyakhuthazwa.	• Bala okungasenani ukufikela ku yezinto ngamalanga ngokuthembekako • Ukunikela isilinganiso senomboro yezinto ezingahlolwa ngokuzibala. • Amaqhinga wokuhlela izinto ngokweenqhema kuyakhuthazwa.	• Bala okungasenani ukufikela ku yezinto ngamalanga ngokuthembekako • Ukunikela isilinganiso senomboro yezinto ezingahlolwa ngokuzibala. • Amaqhinga wokuhlela izinto ngokweenqhema kuyakhuthazwa.	• Bala okungasenani ukufikela ku yezinto ngamalanga ngokuthembekako • Ukunikela isilinganiso senomboro yezinto ezingahlolwa ngokuzibala. • Amaqhinga wokuhlela izinto ngokweenqhema kuyakhuthazwa.
1.2 **Ukubala uye phambili nemuva**	**Bala uye phambili nasemuva nga:** • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 ne-100 • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-100 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-100 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne -0 ne-100	**Bala uye phambili nemuva nga:** • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 ne-150 • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-150 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-150 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne-0 ne-150 • Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne -0 na-99 • Ku-4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne -0 na-100	**Bala uye phambili nemuva nga:** • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 ne-180 • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-180 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-180 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne-0 ne-180 • Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne -0 na-180 • Ku-4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne -0 na-180	**Ukubala uye phambili nemuva nga:** • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 na-200 • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 na -200 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 na-200 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne -0 na-200 • Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne -0 na-200 • Ku-4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne -0 na-200

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
UKUTHUTHUKISWA KOMQONDO NOMBORO : Jamiselela iinomboro ezipheleleko				
1.3 **Amatshwayo wenomboro namagama weenomboro**	**Ukufanisa, ukubona nokufunda iinomboro** • Ukufanisa, ukubona nokufunda amatshwayo wenomboro ukusuka kweli 0 ukuya e-100 • Ukutlola amatshwayo wenomboro ukusuka kweli 0 ukuya e-100 • Ukufanisa, ukubona nokufunda igama lenomboro ukusuka kweli 0 ukuya ema-25 • Ukutlola amagama weenomboro ukusuka kweli 0 ukuya ema-25	**Ukufanisa, ukubona nokufunda iinomboro** • Ukufanisa, ukubona nokufunda amatshwayo wenomboro ukusuka kweli 0 ukuya e-150 • Ukutlola amatshwayo wenomboro ukusuka kweli 0 ukuya e-150 • Ukufanisa, ukubona nokufunda igama lenomboro ukusuka kweli 0 ukuya ema-50 • Ukutlola amagama weenomboro ukusuka kweli 0 ukuya ema-50	**Ukufanisa, ukubona nokufunda iinomboro** • Ukufanisa, ukubona nokufunda amatshwayo wenomboro ukusuka kweli 0 ukuya e-180 • Ukutlola amatshwayo wenomboro ukusuka kweli 0 ukuya e-180 • Ukufanisa, ukubona nokufunda igama lenomboro ukusuka kweli 0 ukuya ema-75 • Ukutlola amagama weenomboro ukusuka kweli 0 ukuya ema-75	**Ukufanisa, ukubona nokufunda iinomboro** • Ukufanisa, ukubona nokufunda amatshwayo wenomboro ukusuka kweli 0 ukuya e-200 • Ukutlola amatshwayo wenomboro ukusuka kweli 0 ukuya e-200 • Ukufanisa, ukubona nokufunda igama lenomboro ukusuka kweli 0 ukuya ema-100 • Ukutlola amagama weenomboro ukusuka kweli 0 ukuya ema-100
UKUTHUTHUKISWA KOMQONDO NOMBORO : Ukuhlathulula, ukumadanisa nokuhlela iinomboro ezipheleleko				
1.4 **Ukuhlathulula, ukumadanisa nokuhlela iinomboro**	**Ukuhlathulula, ukumadanisa and nokuhlela iinomboro ukufika ku 25** • Ukumadanisa iinomboro ezipheleleko ngokusebenzisa ukuncani kuna, ukukhulu kuna, kunengi kuna, kungaphasi kuna nokuthi kuyalingana. • Ukulandelanisa iinomboro ezipheleleko kusukela kencani ukuya kekulu khulu nokusuka kwekulu khulu ukuya kwencani khulu.	**Ukuhlathulula, ukumadanisa and nokuhlela iinomboro ukufika ku 50** • Ukumadanisa iinomboro ezipheleleko ngokusebenzisa ukuncani kuna, ukukhulu kuna, kunengi kuna, kungaphasi kuna nokuthi kuyalingana. • Ukulandelanisa iinomboro ezipheleleko kusukela kencani ukuya kekulukazi nokusuka kwekulukazi ukuya kwencani khulu.	**Ukuhlathulula, ukumadanisa and nokuhlela iinomboro ukufika ku 75** • Ukumadanisa iinomboro ezipheleleko ngokusebenzisa ukuncani kuna, ukukhulu kuna, kunengi kuna, kungaphasi kuna nokuthi kuyalingana. • Ukulandelanisa iinomboro ezipheleleko kusukela kencani ukuya kekulukazi nokusuka kwekulukazi ukuya kwencani khulu. **Ukusebenzisa iinomborosikhundla ukutjengisa ukuhleleka, indawo nofana ubujamo** • Tjamisa izinto zirheme kusukela keyokuthoma ukuya keyamatjhumi amabili nofana yokuthoma ukuya keyokugcina isib. Kokuthoma, keyesibili, keyesithathu..... keyetjhumi	**Ukuhlathulula, ukumadanisa and nokuhlela iinomboro ukufika ku 99** • Ukumadanisa iinomboro ezipheleleko ngokusebenzisa ukuncani kuna, ukukhulu kuna, kunengi kuna, kungaphasi kuna nokuthi kuyalingana. • Ukulandelanisa iinomboro ezipheleleko kusukela kencani ukuya kekulukazi nokusuka kwekulukazi ukuya kwencani khulu. **Ukusebenzisa iinomborosikhundla ukutjengisa ukuhleleka, indawo nofana ubujamo** • Tjamisa izinto zirheme kusukela keyokuthoma ukuya keyamatjhumi amabili nofana yokuthoma ukuya keyokugcina isib. Kokuthoma, keyesibili, keyesithathu..... keyetjhumi
Ukuthuthukiswa komqondonomboro : Ubukhulu bedijithi				
1.5 **Ubukhulu bedijithi**	**Ukubona ubukhulu bedijithi yeenomboro phakathi kwe-11 na-25** • Ukuhlahlela iinomboro ezinamadijithi amabili zibe kubuyabuyelela kwamatjhumi nemivo/ngakunye. • Ukufanisa nokutjho ubukhulu bedijithi enye nenye.	**Ukubona ubukhulu bedijithi yeenomboro phakathi kwe-11 na-50** • Ukuhlahlela iinomboro ezinamadijithi amabili zibe kubuyabuyelela kwamatjhumi nemivo/ngakunye. • Ukufanisa nokutjho ubukhulu bedijithi enye nenye.	**Ukubona ubukhulu bedijithi yeenomboro phakathi kwe-11 na-75** • Ukuhlahlela iinomboro ezinamadijithi amabili zibe kubuyabuyelela kwamatjhumi nemivo/ngakunye. • Ukufanisa nokutjho ubukhulu bedijithi enye nenye.	**Ukubona ubukhulu bedijithi yeenomboro phakathi kwe-11 na-99** • Ukuhlahlela iinomboro ezinamadijithi amabili zibe kubuyabuyelela kwamatjhumi nemivo/ngakunye. • Ukufanisa nokutjho ubukhulu bedijithi enye nenye.

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
UKURARULULA IMIRARO ESEBUJAMENI				
1.6 **Amathekhiniki wokurarulula imiraro**	Sebenzisa amathekhiniki alandelako lokha urarulula imiraro bekuhlathululwe iinsombululo zemiraro: • Imigwalo nofana ama-apharethasi aphathekako isib. Izinto zokubala • Ukwakha nokuphula kweenomboro • Ukubuyelela kabili nokuhafula phakathi • Inambalayini esekelwe ngama-apharathasi aphathekako	Sebenzisa amathekhiniki alandelako lokha urarulula imiraro bekuhlathululwe iinsombululo zemiraro: • Imigwalo nofana amapharethasi aphathekako isib. Izinto zokubala • Ukwakha nokuphula kweenomboro • Ukubuyelela kabili nokuhafula phakathi • Inambalayini esekelwe ngama-apharathasi aphathekako	Sebenzisa amathekhiniki alandelako lokha urarulula imiraro bekuhlathululwe iinsombululo zemiraro: • Imigwalo nofana amapharethasi aphathekako isib. Izinto zokubala • Ukwakha nokuphula kweenomboro • Ukubuyelela kabili nokuhafula phakathi • Inambalayini	Sebenzisa amathekhiniki alandelako lokha urarulula imiraro bekuhlathululwe iinsombululo zemiraro: • Imigwalo nofana amapharethasi aphathekako isib. Izinto zokubala • Ukwakha nokuphula kweenomboro • Ukubuyelela kabili nokuhafula phakathi • Inambalayini
1.7 **Ukuhlanganisa nokukhupha**	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-20.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-50.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-75.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-99.
1.8 **ukuhlanganisa ngokubuyelela okurholela ekubuyabuyele-leni**	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukuhlanganisa okubuyelelweko okukhokhela ekubuyabuyeleleni okunempendulo ufikela e-20.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukuhlanganisa okubuyelelweko okukhokhela ekubuyabuyeleleni okunempendulo ufikela e-30.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukuhlanganisa okubuyelelweko okukhokhela ekubuyabuyeleleni okunempendulo ufikela e-40.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukuhlanganisa okubuyelelweko okukhokhela ekubuyabuyeleleni okunempendulo ufikela e-50.
1.9 **Ukubuthelela nokwaba okur-holela ekwahlu-kaniselaneni**	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqhema kweenomboro ezipheleleko ukufika e-20 kanye nempendulo ezingahle zifaka iinsalela	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqhema kweenomboro ezipheleleko ukufika e-30 kanye nempendulo ezingahle zifaka iinsalela	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqhema kweenomboro ezipheleleko ukufika e-40 kanye nempendulo ezingahle zifaka iinsalela	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqhema kweenomboro ezipheleleko ukufika e-50 kanye nempendulo ezingahle zifaka iinsalela
1.10 **Ukwabelana okurholela emafraktjhinini**		Ukurarulula bewuhlathulule iinsombululo zemiraro ezisebujameni efaka hlangana ukwabelana ngokulingana erholela empendulweni zamafraktjhini wohlavu olulodwa .isib. $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{5}$ njll.	Ukurarulula bewuhlathulule iinsombululo zemiraro ezisebujameni efaka hlangana ukwabelana ngokulingana erholela empendulweni zamafraktjhini wohlavu olulodwa .isib. $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{5}$ njll.	Ukurarulula bewuhlathulule iinsombululo zemiraro ezisebujameni efaka hlangana ukwabelana ngokulingana erholela empendulweni zamafraktjhini wohlavu olulodwa .isib. $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{5}$ njll.
1.11 **Imali**	Ukukhumbula nokufanisa imali yeSewula Afrika eziinhlamvu 5c, 10c, 20c, 50c, R1, R2, R5, nemali yamaphepha R10, R20, R50 Ukurarulula imiraro yemali efaka hlangana inani netjhentjhi ngamasende kufikela emasendeni ama 50c namaranda ama- R20	Ukukhumbula nokufanisa imali yeSewula Afrika eziinhlamvu 5c, 10c, 20c, 50c, R1, R2, R5, nemali yamaphepha R10, R20, R50 Ukurarulula imiraro yemali efaka hlangana inani netjhentjhi ngamasende kufikela emasendeni ama 50c namaranda ama- R50	Ukukhumbula nokufanisa imali yeSewula Afrika eziinhlamvu 5c, 10c, 20c, 50c, R1, R2, R5, nemali yamaphepha R10, R20, R50 Ukurarulula imiraro yemali efaka hlangana inani netjhentjhi ngamasende kufikela emasendeni ama 75c namaranda ama- R75	Ukukhumbula nokufanisa imali yeSewula Afrika eziinhlamvu 5c, 10c, 20c, 50c, R1, R2, R5, nemali yamaphepha R10, R20, R50 Ukurarulula imiraro yemali efaka hlangana inani netjhentjhi ngamasende kufikela emasendeni ama 99c namaranda ama-R99

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
UKUBALA OBUSEBUJAMENI OBUTJHAPHULUKILEKO				
1.12 **Amathekhiniki** **(irherho namano)**	Ukusebenzisa amathekhiniki alandelako nakubalisiswako: • Imigwalo nofana amapharethasi aphathekako isib. Izinto zokubala • Ukwakha nokuphula kweenomboro • Ukubuyelela kabili nokuhafula phakathi • Inambalayini esekelwe ngama-apharathasi aphathekako	Ukusebenzisa amathekhiniki alandelako nakubalisiswako: • Imigwalo nofana amapharethasi aphathekako isib. Izinto zokubala • Ukwakha nokuphula kweenomboro • Ukubuyelela kabili nokuhafula phakathi • Inambalayini esekelwe ngama-apharathasi aphathekako	Ukusebenzisa amathekhiniki alandelako nakubalisiswako: • Imigwalo nofana amapharethasi aphathekako isib. Izinto zokubala • Ukwakha nokuphula kweenomboro • Ukubuyelela kabili nokuhafula phakathi • Inambalayini	Ukusebenzisa amathekhiniki alandelako nakubalisiswako: • Imigwalo nofana amapharethasi aphathekako isib. Izinto zokubala • Ukwakha nokuphula kweenomboro • Ukubuyelela kabili nokuhafula phakathi • Inambalayini
1.13 **Ukuhlanganisa nokukhupha**	• Ukuhlanganisa ukufikela ku-20 • Ukukhupha ku-20 • Ukusebenzisa amatshwayo afaneleko (+, –, =, □) • Ukulungiselela iinomboro bhodi ukufika e 10	• Ukuhlanganisa ukufikela ku-50 • Ukukhupha ku-50 • Ukusebenzisa amatshwayo afaneleko (+, –, =, □) • Ukulungiselela iinomboro bhodi ukufika e 15	• Ukuhlanganisa ukufikela ku-75 • Ukukhupha ku-75 • Ukusebenzisa amatshwayo afaneleko (+, –, =, □) • Ukulungiselela iinomboro bhodi ukufika e 20	• Ukuhlanganisa ukufikela ku-99 • Ukukhupha ku-99 • Ukusebenzisa amatshwayo afaneleko (+, –, =, □) • Ukulungiselela iinomboro bhodi ukufika e 20
1.14 **ukuhlanganisa ngokubuyelela okurholela ekubuyabuyele-leni**	• Ukuhlanganisa inomboro efanako ngokubuyelela ukufika ku-20 • Buyabuyelela iinomboro ukufika ku 10 ngaku -2 • Ukusebenzisa amatshwayo ngokufaneleko (+, –, =, □)	• Buyabuyelela iinomboro ukufika ku 10 ngaku -2 nesi 5 • Ukusebenzisa amatshwayo ngokufaneleko (+, –, =, □)	• Buyabuyelela iinomboro ukufika ku 10 ngaku -2, 5 nesi 4 • Ukusebenzisa amatshwayo ngokufaneleko (+, –, =, □)	• Buyabuyelela iinomboro ukufika ku 10 ngaku -2, 5 nesi 4 • Ukusebenzisa amatshwayo ngokufaneleko (+, –, =, □)

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
1.16 **Imbalo zehloko**	**Umqondonomboro: Ezihlangana na-25** • Ukurhemisa iinomboro ezikhethiweko ngokwesede enikeliweko. • Ukuqanathisa iinomboro ukufika ku-25 bewutjho bonyana ngiyiphi - enengi nga-1 nofana encani nga-1, - enengi nga-2 nofana encani nga-2, - enengi nge-10 nofana encani nge-10. **Ukukhumbula masinyana:** • Ukukhumbula amaphuzu wamambala ngokuhlanganisa nokukhupha ukufika e-10 **Amaqhinga wokubalisa** Ukusebenzisa amaqhinga wokubalisa ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini yehloko • Ukubuyelela nokuhlukanisa • Ukwakha nokuphula • Ukusebenzisa ubudlelwana obuphakathi kokuhlanganisa nokukhupha.	**Umqondonomboro: E4zihlangana na-50** • Ukurhemisa iinomboro ezikhethiweko ngokwesede enikeliweko. • Ukuqanathisa iinomboro ukufika ku-50 bewutjho bonyana ngiyiphi: - enengi nga-1 nofana encani nga-1 - enengi nga-2 nofana encani nga-2 - enengi nga-3 nofana encani nga-3 - enengi nga-4 nofana encani nga-4 - enengi nga-5 nofana encani nga-5 - enengi nge-10 nofana encani nge-10 **Ukukhumbula masinyana:** • Ukukhumbula amaphuzu wamambala ngokuhlanganisa nokukhupha ukufika e-10 **Amaqhinga wokubalisa** Ukusebenzisa amaqhinga wokubalisa ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini yehloko • Ukubuyelela nokuhlukanisa • Ukwakha nokuphula • Ukusebenzisa ubudlelwana obuphakathi kokuhlanganisa nokukhupha.	**Umqondonomboro: Ezihlangana na-75** • Ukurhemisa iinomboro ezikhethiweko ngokwesede enikeliweko. • Ukuqanathisa iinomboro ukufika ku-75 bewutjho bonyana ngiyiphi: - enengi nga-1 nofana encani nga-1 - enengi nga-2 nofana encani nga-2 - enengi nga-3 nofana encani nga-3 - enengi nga-4 nofana encani nga-4 - enengi nga-5 nofana encani nga-5 - enengi nge-10 nofana encani nge-10 **Ukukhumbula masinyana:** • Ukukhumbula amaphuzu wamambala ngokuhlanganisa nokukhupha ukufika e-15 • Hlanganisa nofana ukhuphe iimbuyabuyeleli ze-10 ukusukela e-0 ukuya ema-50 **Amaqhinga wokubalisa** Ukusebenzisa amaqhinga wokubalisa ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini yehloko • Ukubuyelela nokuhlukanisa • Ukwakha nokuphula • Ukusebenzisa ubudlelwana obuphakathi kokuhlanganisa nokukhupha.	**Umqondonomboro: Ezihlangana na-99** • Ukurhemisa iinomboro ezikhethiweko ngokwesede enikeliweko. • Ukuqanathisa iinomboro ukufika ku-99 bewutjho bonyana ngiyiphi: - enengi nga-1 nofana encani nga-1 - enengi nga-2 nofana encani nga-2 - enengi nga-3 nofana encani nga-3 - enengi nga-4 nofana encani nga-4 - enengi nga-5 nofana encani nga-5 - enengi nge-10 nofana encani nge-10 **Ukukhumbula masinyana:** • Ukukhumbula amaphuzu wamambala ngokuhlanganisa nokukhupha ukufika e- 20 • Hlanganisa nofana ukhuphe iimbuyabuyeleli ze-10 ukusukela e-0 ukuya e-100 **Amaqhinga wokubalisa** Ukusebenzisa amaqhinga wokubalisa ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini yehloko • Ukubuyelela nokuhlukanisa • Ukwakha nokuphula • Ukusebenzisa ubudlelwana obuphakathi kokuhlanganisa nokukhupha.
1.17 **Amafraktjhini**		• Sebenzisa bewutjho amafraktjhini okufaka hlangana neengcezu, amakota, isithathu begodu nesihlanu njll • Ukubona amafraktjhini ebujameni obuyidayagremu • Tlola amafraktjhini njengecezu elilodwa, iinthathu ezimbili	• Sebenzisa bewutjho amafraktjhini okufaka hlangana neengcezu, amakota, isithathu begodu nesihlanu njll • Ukubona amafraktjhini ebujameni obuyidayagremu • Tlola amafraktjhini njengecezu elilodwa, iinthathu ezimbili	• Sebenzisa bewutjho amafraktjhini okufaka hlangana neengcezu, amakota, isithathu begodu nesihlanu njll • Ukubona amafraktjhini ebujameni obuyidayagremu • Tlola amafraktjhini njengecezu elilodwa, iinthathu ezimbili

Imihlobo yemiraro yeGreyidi yesi-2

Lezi ziimbonelo zemihlobo yemiraro ekufanele utitjhere azethule ngokuzibuyelela njalo etlasini lakhe. Nangabe utitjhere usebenza ngesiqhema esincani, kufanele aveze umraro ngokukhuluma. Nangabe abafundi bayakwazi ukufunda, utitjhere angabanikela umraro otloliweko, nokho utitjhere kusafanele aveze umraro ngokukhuluma.

Imiraro esebujameni ingafakwa emaphepheni wabantwana wokusebenzela, nokho ifanele ibe mifitjhani, inqophe bekube ngejayelekileko/ngevamileko, begodu utitjhere ufanele aqinisekise bonyana boke abafundi bayayizwisisa.

Ukubuthelela

Ukubuthelela, ukulahla isalela

UThoko uthengisa amahabhula ngemigodla eli-10 ngamunye. UThoko uthengisa amahabhula ngemigodla, ufaka ali-10 ngemgodleni ngamunye. Unamahabhula ama-81. Wenze imigodla emingaki yamahabhula?

Ukubuthelela, ukungenisa isalela ephendulweni

Umlimi unamaqanda ama-47, ufaka amaqanda asithandathu ngebhoksini ngalinye, udinga amabhoksi amangaki ukufaka woke amaqanda anawo?

Ukwabelana

Ukwabelana, ukulahla isalela.

Hlukanisa amaswidi ama-54, hlukanisela abangani abalikhomba amaswidi ngokulinganako.

Ukwabelana okurholela emafraktjhinini

Hlukanisa amatjhokolethi ali-11, wabele abangani abane ngokulinganako kungabi nesalela.

Amafraktjhini webuthelelo

Ugogo unikela uZizi ama-orentji ali-12, uZizi wenza ijuzi nge 1/3 ye-orentji. Usebenzise ama-orentji amangaki?

Imihlobo le yemiraro kufanele inikelwe abafundi ngemuva kokuba sele bararulule imiraro engaba mine nofana mihlanu, ekhokhela emihlobeni yamafraktjhini bebazi namabizo weengcezu zamafraktjhini.

Ukuhlanganisa amafraktjhini

Umbanduli webhola yezandla unikela ingceny ye orentji komunye nomunye umdlali. Abadlali bebhola yezandla bali-14. Umbanduli uthloga ama-orentji amangaki?

Imihlobo le yemiraro kufanele inikelwe abafundi ngemuva kokuba sele bararulule imiraro engaba mine nofana mihlanu, ekhokhela emihlobeni yamafraktjhini bebazi namabizo weengcezu zamafraktjhini.

Ukuhlanganisa okubuyelelweko

Imilelenjana/iinsikiri ezi-20 zinavilo amangaki?

Linganisa

UThami ukhamba amabhlogo asithandathu ngelanga. Ukhamba amabhlogo amangaki ngeveke?

Amagridi

Umma utjala amareyi alikhomba wekhabitjhi, ireyi ngalinye linamakhabitjhi abunane, mangaki amakhabitjhi sele awoke?

Ukuhlanganisa nokukhupha

Kunemihlobo emithathu yemiraro esisekelo yokuhlanganisa nokukhupha, omunye nomunye umraro ungabuzwa ngendlela ehlukileko. Imihlobo esisekelo ngile:

Itjhuguluko

UNoluthando bekanamaswidi ama-25. USilo wamupha amaswidi ali-18. UNoluthando sele anamaswidi amangaki sewawoke?

UNoluthando bekanaswidi ama-53. Wanikela uSilo amaswidi ama-32. UNoluthando usele namaseidi amangaki?

Ukuhlanganisa

Itlasi legrayidi 2 linaboncantathu aba-37 abahlaza kotjhani na-19 ahlaza kwesibhakabhaka. Bangaki aboncantathu nasele baboke?

Baneendulungu ezi-63, ezi-27 zihlaza kotjhani zoke ezinye zibomvu. Zingaki iindulungu ezihlaza okwesibhakabhaka?

Ukumadanisa

UNosisi unamabhanana ali13. UThemba unahlanu. UNosisi unamabhanana amanengi kangangani kunonaka Themba?

Ukubuza omunye nomunye umraro ngendlela ehlukileko.

Imiraro kufanele ibuzwe ngendlela ehlukileko. Isib. Yomibili imiraro le miraro etjhugulukileko, kodwana " ukungaziwako" kusendaweni ezihlukeneko.

UNoluthando bekanamswidi. USilo wamupha amaswidi ama-18 kwanjesi sele anamaswidi ama-43. UNoluthando bekanamaswidi amangaki ekuthomeni?

UNoluthando bekanamahabhula ama-25. USilo umupha amanye amahabhula. UNoluthando sele anamahabhula ama-43. Mangaki amahabhula awaphiwe nguSilo?

Ubujamo bemiraro noBudlelwana bemisebenzi ehlukileko.

ULina uthengisa amahotdog nge R4 ngalinye. Yenza ithebula elizomsiza ukuthola inani le-oda ekulu.

Ubunengi bama hotdogo	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Inani ngama R	**4**	**8**								

Sebenzisa ithebula elingehla ukuthola inani lamahotdog alikhomba namahotdog ali-15.

USibongile uhlala nabantwana. Ubiza ama R20 imali yokukhwela, bese ubiza R5 nge-iri ukuhlala nomntwana. Qedelela ithebula elilandelako.

Sedick

Inani lama-iri	**1**	**2**	**3**	**4**	**5**	**10**
Inani lama R	**25**	**30**				

Yelela bonyana umraro waka Sibongile nomraro wakaLina isetjenzwe ngendlela ezihlukileko.

Imihlobo yemiraro engehla inikelelwe abotitjhere. Abafundi abangathweswa umthwalo ngemihlobo yamagama. Yelela bonyana abafundi ngasikhathi basebenzisa iindlela ezihlukileko ukusombulula umraro okungahle kungabi ngilokho utitjhere ebekakulindeleko. Isib. Umraro wokuhlukanisa ungasombululwa ngokukhupha okubuyabuyelelweko, ukuhlanganisa nofana ukubuyabuyelela. Iindlela zabafundi zizokutjhuguluka ngokukhamba konyaka njengombana ukuzwisisa kwabo nokujayela umhlobo womraro, nangokuthuthuka kweenomboromqondo yabo.

UMBONOMAZOMBE WEGREYIDI YESI - 2 2. AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA				
IINHLOKO	**ITHEMU 1**	**ITHEMU 2**	**ITHEMU 3**	**ITHEMU 4**
2.1 **Amaphetheni weJiyomethri**	**Ukukopa, ukwandisa nokuhlathulula** Ukukopa, ukwandisa nokuhlathulula ngamagama • Amaphetheni enziwe ngezinto eziphathekako • Amaphetheni enziwa ngokugwala imida, ubujamo nofana izinto. **Imilandelande yamaphetheni:** Amaphetheni alula lapho amajamo, nofana ibuthelelo lamajamo ibuyelelwa ngendlela efana patsi. **Ukutlama nokuhlathulula iphetheni okungewakhe** • Ukutlhama iphetheni yeJiyomethri okungewakhe - Ngezinto eziphathekako - Ngokugwala imida, amajamo nofana izinto • Ukuhlathulula iphetheni okungewakhe	**Ukukopa, ukwandisa nokuhlathulula** Ukukopa, ukwandisa nokuhlathulula ngamagama • Amaphetheni eyenziwe ngezinto eziphathekako • Amaphetheni enziwa ngokugwala imida, ubujamo nofana izinto. **Imilandelande yamaphetheni:** Amaphetheni alula lapho amajamo, nofana ibuthelelo lamajamo ibuyelelwa ngendlela efana patsi. Amaphetheni lapho inomboro nofana isayizi yobujamo esigabeni ngasinye itjhuguluka ngendlela enebonelo phambili o.u amaphetheni angezeleleka njalo njalo. **Ukutlama nokuhlathulula iphetheni okungewakhe** • Ukutlhama iphetheni yeJiyomethri okungewakhe - Ngezinto eziphathekako - Ngokugwala imida, amajamo nofana izinto • Ukuhlathulula iphetheni okungewakhe	**Ukukopa, ukwandisa nokuhlathulula** Ukukopa, ukwandisa nokuhlathulula ngamagama • Amaphetheni eyenziwe ngezinto eziphathekako • Amaphetheni enziwa ngokugwala imida, ubujamo nofana izinto. **Imilandelande yamaphetheni:** Amaphetheni lapho inomboro nofana ubukhulu bobujamo kesinye nesinye isigaba buyatjhuguluka ngendlela yokubonela phambili: o.u. njalonjalo amaphetheni ayangezeleleka **Ukutlama nokuhlathulula iphetheni okungewakhe** • Ukutlhama iphetheni yeJiyomethri okungewakhe - Ngezinto eziphathekako - Ngokugwala imida, amajamo nofana izinto • Ukuhlathulula iphetheni okungewakhe	**Amaphetheni aseqadi kwethu** Ukukhomba, ukuhlathulula ngamagama nokukopa amaphetheni weJiyomethri • Ngokwemvelo • Kusukela epilweni yangamalanga yesimodeni, • Asuka kwilifa lamasiko wethu

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
2.2 Amaphetheni weenomboro	**Ukukopa, ukwandisa nokuhlathulula** Ukukopa, ukwandisa nokuhlathulula ukulandelana kweenomboro okungenani ukufika e- 100. • Ukulandelana kufanele kutjhengise ukubala uye phambili nemuva nga: • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 ne-100 • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-100 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-100 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne -0 ne-100	**Ukukopa, ukwandisa nokuhlathulula** Ukukopa, ukwandisa nokuhlathulula ukulandelana kweenomboro okungenani ukufika e- 150. • Ukulandelana kufanele kutjhengise ukubala uye phambili nemuva nga: • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 ne-150 • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-150 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-150 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne -0 ne-1 • Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne -0 ne-1 • Ku- 4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne -0 ne-1	**Ukukopa, ukwandisa nokuhlathulula** Ukukopa, ukwandisa nokuhlathulula ukulandelana kweenomboro okungenani ukufika e- 180. • Ukulandelana kufanele kutjhengise ukubala uye phambili nemuva nga: • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 ne-180 • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-180 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-180 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne -0 ne- • Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne -0 ne- • Ku- 4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne -0 ne- **Ukuzitlamela iphetheni yakhe yeenomboro**	**Ukukopa, ukwandisa nokuhlathulula** Ukukopa, ukwandisa nokuhlathulula ukulandelana kweenomboro okungenani ukufika e- 200. • Ukulandelana kufanele kutjhengise ukubala uye phambili nemuva nga: • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 na-200 • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 na-200 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 na-200 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne-0 na-200 • Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne-0 na-200 • Ku- 4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne-0 na- **Ukuzitlamela iphetheni yakhe yeenomboro**

UMBONOMAZOMBE WEGREYIDI YESI-2 3. ISIKHALA NOBUJAMO (JIYOMETHRI)				
IINHLOKO	**ITHEMU 1**	**ITHEMU 2**	**ITHEMU 3**	**ITHEMU 4**
3.1 **Ubujamo, ukuzijayeza nokubukela**		**Ilimi lobujamo** • Ukuhlathulula ubujamo bento yinye ngokuhlobane nenye isib. ngaphezulu, ngaphambi kwe, ngemuva, esinceleni, ngesindleni, phezulu, phasi, eqadi kwe **Ubujamo nekombatjhuba** • Landela ilayelo ukukhambakhamba ngetlasini	**Ubujamo nokubukela** • Madanisa imibono ehlukaneko yezinto ezifanako zamalanga woke. **Ubujamo nekombatjhuba** • Landela ilayelo ukukhambakhamba ngetlasini	

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
3.2 **Izinto ezibusontathu (3-D)**	**Izinto ezihlukahlukeneko** Ukubona nokutjho izinto ezi abobusontathu (3-D) ezingetlasini neenthombeni • Ubujamo bebhola (indulungu) • Ubujamo bebhoksi (iphrizimu) **Amatshwayo wezinto** Ukuhlathulula, ukubeka ngeengaba nokumadanisa izinto ezi abobusontathu (3-D) ngokuya ngo: • ngobukhulu • ngezinto ezigedekako • ngezinto ezitjhelelelako **Imisetjenzana enqotjhiweko** • Ukuqala nokwakha izinto ezibusontathu (3-D) ezinikelweko ngokusebenzisa imethiriyeli ephathekako ezifana sika ubujamo (2-D), amabhlogo wokwakha, ukubuyelela iberegise into esetjenzisiweko, ipahla esetjenzisa emsebenzini yokwakha, nezinye izinto ezibusontathu (3-D) zeJiyomethri ne **Umnqopho otjhukumeziweko nemisetjenzana yokulandelanisa eseThemeni yoku-1** • Ukukopa umfuziselo wento enikelwe ngutitjhere. Ukufuzisela nofana ukwakha kungenziwa kusetjenziswa amabhlogo wokwakha, ukubuyelela usebenzise izinto ezakhe zasetjenziswa ipahla esetjenziswa emsebenzini, nezinye izinto zeJiyomethri ezibusontathu (3-D), ukusika ubujamo obubusobubili (2-D). Lokhu kungenziwa ngesikhathi sokusebenza ngokuzijamela • Ukumadanisa nokuhlathulula ubukhulu bezinto ezifanako isib. Gandelela amabhoksi kusukela kelikhulu ukuya kelincani. • Iminqopho etjhukumeziweko nokulandelanisa imisetjenzana yeThemu yoku-1. Ukusebenza nge: • Iimbholo nezinto ezibumbeke njengeembholo Amabhoksi amihlobohlobo nezinye izinto ezibumbeke njengoncamane oyiphrizimu nofana ikhyubhu. Ukubona nokuhlathulula iJiyomethrik nezinto zangamalanga ngokutjho bonyana zijame njengebholo, zijjame njengebhoksi, ijame njengesilinda. Imisebenzi ihlanganiswa ngemisebenzana etloliweko		**Izinto ezihlukahlukeneko** Ukubona nokutjho izinto ezi abobusontathu (3-D) ezingetlasini neenthombeni • Ubujamo bebhola (indulungu) • Ubujamo bebhoksi (iphrizimu) • Isilinda **Amatshwayo wezinto** Ukuhlathulula, ukubeka ngeengaba nokumadanisa izinto ezi abobusontathu (3-D) ngokuya: • ngobukhulu • ngezinto ezigedekako • ngezinto ezitjhelelelako **Umnqopho otjhukumeziweko nemisetjenzana yokulandelanisa eseThemeni yesi-3** Ukusebenza nge: • Iimbholo nezinto ezibumbeke njengeembholo • Amasilinda nezinto ezibumbeke njengesilinda • Amabhoksi amihlobohlobo nezinye izinto ezibumbeke njengoncamane oyiphrizimu nofana ikhyubhu. Rhubhulula bonyana ngiziphi izinto ezigedekako, ngiziphi ezitjhelelako begodu ngiziphi ezingagandelelwa. Ukubona nokuhlathulula iJiyomethrik nezinto zangamalanga ngokutjho bonyana zijame njengebholo, zijjame jengebhoksi, ijame njengesilinda. Imisebenzi ihlanganiswa ngemisebenzana etloliweko	**Izinto ezihlukahlukeneko** Ukubona nokutjho izinto ezi abobusontathu (3-D) ezingetlasini neenthombeni • Ubujamo bebhola (indulungu) • Ubujamo bebhoksi (iphrizimu) • Isilinda **Amatshwayo wezinto** Ukuhlathulula, ukubeka ngeengaba nokumadanisa izinto ezi abobusontathu (3-D) ngokuya: • ngobukhulu • ngezinto ezigedekako • ngezinto ezitjhelelelako **Umnqopho otjhukumeziweko eseThemeni yesi-4** • Imisebenzi ihlanganiswa ngemisebenzana etloliweko

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
3.3 **Amajamo abobusobubili (2-D)**		**Amajamo ahlukahlukeneko** Ukubona nokutjho ubujamo obubusobubili (2-D) • Indulungu • Uncantathu • Isikwere • Uncamane **Ubujamo bebumbeko** Ukuhlathulula, ukuhlela nokumadanisa amajamo abusobubili (2-D): • Ubukhulu • Umbala • ibumbeko • amahlangothi anqophileko • amahlangothi arondo **Iminqopho etjhukumeziweko nokulandelanisa imisetjenzana yeThemu yoku-1.** • ukudlala ngokutjhaphuluka ngemihlobohlobo yamajamo okufaka hlangana iinthombe ezisikwe ezinobujamo beJiyomethriki. Lokhu kungenziwa ngesikhathi sokuzijamela. • Ukukopa iinthombe ezenziwe ngamajamo weJiyomethriki. Lokhu kungenziwa ngesikhathi sokuzijamela. • Ukumadanisa ubukhulu bamajamo afanako. Isib.ukuhlela aboncamane ukusuka kencani ukuya kekulu ube usebenzise ilimi lobukhulu ukuhlathulula ubujamo. • Ukukhuluma ngemibala yamajomo bese kuhlelwa amajamo ngokuya kombala. • Ukuhlela amajamo ngokuya ngokuthi anamahlangothi anqophileko nofana ayindulungu. Ukusebenza ngeendulungu neenkwere zobukhulu obuhlukahlukeneko, naboncantathu naboncamane ngendlela ezihlukeneko. • Ukuhlela nokubeka ngesiqhema amajamo ngokuya ngokuthi ziboncantathu, iinkwere, aboncamane, nofana ziindulungu. • Umsebenzi uhlanganiswa ngemisetjenzana etloliweko		**Amajamo ahlukahlukeneko** Ukubona nokutjho ubujamo abobusobubili (2-D) • Indulungu • Uncantathu • Isikwere • Uncamane **Ubujamo bebumbeko** Ukuhlathulula, ukuhlela nokumadanisa amajamo abusobubili(2-D) kuya : • ngobukhulu • ngombala • ngebumbeko • ngamahlangothi anqophileko • ngamahlangothi arondo **Iminqopho etjhukumeziweko nokulandelanisa imisetjenzana yeThemu yesi-4** • Ukuhlela amajamo ngokuya ngokuthi anamahlangothi anqophileko nofana ayindulungu. Ukusebenza ngeendulungu neenkwere zobukhulu obuhlukahlukeneko, aboncantathu naboncamane ababumbeke ngendlela ezihlukeneko. • Abafundi bahlela, babeke ngeenqhema ubujamo ngokuya ngokuthi ziboncantathu, iinkwere, aboncamane nofana indulungu. • Umsebenzi uhlanganiswa ngemisetjenzana etloliweko

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
3.4 **Isimethri**		**Isimethri** Ukubona nokugwala umuda wesimethri ebujameni obubusobubili (2-D) obusebujameni obuyiJiyomethri nobungasiyo iJiyomethri. **Iminqopho etjhukumeziweko yemisetjenzana yeThemu yesi-2** • Imida yesimethri ezintweni eziphathekako neenthombeni. • Imisetjenzana etlolwako ifanele ifake hlangana iimbonelo lapho umuda wesimethri awusiwo umuda ojame rwe kwaphela.		**Isimethri** Ukubona nokugwala umuda wesimethri ebujameni obubusobubili (2-D) obusebujameni obuyiJiyomethri nobungasiyo iJiyomethri. **Iminqopho etjhukumeziweko yemisetjenzana yeThemu yesi-4** • Imida yesimethri ezintweni eziphathekako neenthombeni. • Imisetjenzana etlolwako ifanele ifakehlangana iimbonelo lapho umuda wesimethri ungasiwo umuda ojame rwe kwaphela.

UMBONOMAZOMBE WEGREYIDI YESI-2 4. UKUMEDA				
IINHLOKO	**ITHEMU 1**	**ITHEMU 2**	**ITHEMU 3**	**ITHEMU 4**
4.1 **Isikhathi**	**Ukutjho isikhathi** • Ukutjho nokulandelanisa amalanga weveke. • Ukutjho nokulandelanisa iinyanga zonyaka. • Ukubeka ekhalendeni amalanga wamabeletho, imigidingo yekolo, amalanga wamaholideyi, izehlakalo zomlando, izehlakalo zesikolo. • Ukutjho isikhathi ngama-iri ali-12 usebenzise ama-iri, nesigamu se-iri esisewatjhini ye-analogo. **Balilsisa ubude besikhathi nokudlulisa isikhathi** • Sebenzisa iwatjhi ukubalisisa ubude besikhathi ngama-iri nofana isigamu se-iri.	**Ukutjho isikhathi** • Ukutjho isikhathi ngama-iri ali-12 usebenzise ama-iri, nesigamu se-iri esisewatjhini ye-analogo. **Balisisa ubude besikhathi nokudlulisa isikhathi** • Sebenzisa iwatjhi ukubalisisa ubude besikhathi ngama-iri nofana isigamu se-iri.	**Ukutjho isikhathi** • Ukutjho nokulandelanisa amalanga weveke. • Ukutjho nokulandelanisa iinyanga zonyaka. • Ukubeka ekhalendeni amalanga wamabeletho, imigidingo yekolo, amalanga wamaholideyi, izehlakalo zomlando, izehlakalo zesikolo. • Ukutjho ama-iri ali-12 ngama-iri, nesigamu se-iri esisewatjhini ye-analogo. **Balisisa ubude besikhathi nokudlulisa isikhathi** • Sebenzisa iwatjhi ukubalisisa ubude besikhathi ngama-iri nofana isigamu se-iri. • Sebenzisa amakhalenda ukubala nokuhlathulula ubude besikhathi ngamalanga nofana ngemveke.	**Ukutjho isikhathi** • Ukutjho isikhathi ngama-iri ali-12 usebenzise ama-iri, nesigamu se-iri esisewatjhini ye-analogo. **Balisisa ubude besikhathi nokudlulisa isikhathi** • Sebenzisa iwatjhi ukubalisisa ubude besikhathi ngama-iri nofana isigamu se-iri.
4.2 **ubude**	**Ukulinganisa okungakahleleki** • Linganisa, meda, madanisa, hlela bewurekhode ubude kusetjhenziswa izinto zokumeda ezingakalinganiswa isib. Ubude besandla, igadango, ubude bepensela, izinto zokubala njll. • Ukuhlathulula ubude bezinto ngokuzibala nokutjho ubude ngendlela engakalinganiswa. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. Edenyana, efitjhazana, ede, ebanzi **Ukwazisa iimedo ezihlelekileko** • Linganisa, meda, madanisa, hlela bewurekhode ubude kusetjhenziswa amamitha (nofana iingojwana ezibubude bemitha nofana intambo enobude bemitha) njengeemedo ezihlelelweko zobude.			**Ukwazisa iimedo ezihlelekileko** • Linganisa, meda, madanisa, hlela bewurekhode ubude kusetjhenziswa amamitha (nofana iingojwana ezibubude bemitha nofana indambo enobude bemitha) njengemedo elihlelelweko lobude.

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
4.3 **Ubudisi**		**Ukulinganisa okungakahleleki** • Linganisa, meda, madanisa, hlela bewurekhode ubudisi kusetjhenziswa isikala sokudzimelela nezinto zokumeda ezingakalinganiswa isib. Amabhlogo, iintina njll. • Ukuhlathulula ubudisi bezinto ngokuzibala noutjho amayunithi ngendlela engakalinganiswa. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. Lula, kubudisi, kulula khulu, kubudisi khulu **Ukwazisa ukulinganisa okuhlelekileko** • Ukumadanisa, ukuhlela nokurekhoda ubudisa bezinto ezipakwe ngokwerhwebo okubonisa ubudisi butjhiwe ngamakhilogremu isib. Amakhilogremu ama-2 wereyisi nekhilogremu -1 yeflowuru • Lapho kunesikala sangendlini yokuhlambela, abafundi bangazilinganisa ubudisi babo ngamakhilogremu kusetjenziswa isikala. Kulindeleke bonyana abafundi bafunde kwaphela inomboro eseduzana nekombabudisi. Bahlathulula ubudisi babo njengokuthi pheze/ citjhe/eduze ne/ khulu kancani kuna/ khulu nofana ngaphasi nofana ilingana patsi (nenomboro yamakhilogremu) bafunda esikaleni. • Lapho kunesikala sokudzimelela esinenquntu ezitlolwe ngamagremu abentwana bangalinganisa ubudisi		**Ukwazisa ukulinganisa okuhlelekileko** Amathaski atloliweko ukuhlanganisa okulandelako okufaka hlangana nokufunda kweenthombe ze: • Imikhiqizo enobudisi obutloliweko kizo • Isikala sangendlwaneni yokuhlambela esinenalidi ekhombe ilayini yegradiyetjhini

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
4.4 **Umthamo/ iVolumu**			**Ukulinganisa okungakahleleki** • Linganisa, meda, madanisa, hlela bewurekhode umthamo ongeemumathini (o.u. ubunengi isimumathi esikghona ukubuthatha nasizalisiweko) ngokusebenzisa izinto zokumeda ezingakahleleki isib. lingobho neenkomitji. • Ukuhlathulula umthamo wesimumathi ngokubala nookutjho bonyana mayunithi amangaki angakahleleki angazalisa isimumathi isib. Ibhodlelo linomthamo weenkomitji ezine. **Ukwazisa ukulinganisa okuhlelekileko** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela bewurekhode umthamo wezinto ngokumeda ngamalitha kusetjenziswa: - Amabhodlelo anomthamo ongamalitha - Ijege yokumeda enemida enenkombamthamo wamalitha • Ukumadanisa, ukuhlela nokurekhoda umthamo wezinto ezipakwe ngokwerhwebo ukubonisa umthamo obutjhiwo ngamalitha isib. Amalitha ama-2 webisi, ilitha yi-1 yesiselo esimakhaza, amalitha ama-5 wepende	**Ukwazisa ukulinganisa okuhlelekileko** Amathaski atloliweko ukuhlanganisa okulandelako okufaka hlangana nokufunda kweenthombe ze: • Imikhiqizo enemithamo etloliweko kizo ukuze kulandelaniswe ngokuhlela. • Iinthombe zeenjege lapho umthamo upheze walingana ilitha eli-1 nofana amalitha ama-2 enomuda wegradetjhini • Ukufunda ngokutjhideza enomborweni enomuda wegradetjhini ngokuhlathulula umthamo yazo njengokuthi pheze, eduzana, enengi kuna, elinganapatsi nenomboro (yamalitha)

UMBONOMAZOMBE WEGREYIDI 2 5. UKUPHATHA IDATHA				
IINHLOKO	**ITHEMU 1**	**ITHEMU 2**	**ITHEMU 3**	**ITHEMU 4**
5.4 **Ukubuthelela bewuhlele idatha**	**Eziphakamisiweko:** Hlanganisa umzombe wegrafu yeenthombe yetlasi ngakunye nakunye okukhambelanako. • Buthelela idatha ngetlasi nofana ngesikolo ukuphendula imibuzo ebuzwe ngutitjhere. • Jamisela idatha egrafini yeenthombe ngakunye nakunye okukhambelanako.		**Eziphakamisiweko:** Yenza igrafu yeenthombe eyodwa enakunye nakunye kokukhambisanako ngedatha oyinikelweko ingaba isithombe nofana ithebula. • Buthelela idatha ngetlasi nofana ngesikolo ukuphendula imibuzo ebuzwe ngutitjhere. • Jamisela idatha egrafini yeenthombe ngakunye nakunye okukhambelanako.	
5.5 **Ukujamiselela idatha**				
5.6 **Ukuhlaziya bewurhumutjha idatha**	• Phendula imibuzo ngedatha esegrafini yeenthombe ngakunye nakunye okukhambelanako	Ukuhlaziya idatha esijamiselelweni esinikelweko Eziphakamisiweko Okungasenani igrafu eyodwa enakunye nakunye kokukhambisanako		Ukuhlaziya idatha esijamiselelweni esinikelweko **Eziphakamisiweko** Okungasenani igrafu eyodwa enakunye nakunye kokukhambisanako

3.4.3 Umbonomazombe we Greyidi yesi- 3 ngeThemu

UMBONOMAZOMBE WEGREYIDI YESI- 3 1.IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA				
IINHLOKO	**ITHEMU 1**	**ITHEMU 2**	**ITHEMU 3**	**ITHEMU 4**
UKUTHUTHUKISWA KOMQONDO NOMBORO: Ukubala ngenomboro eziphelelko				
1.1 **Ukubala izinto**	Buthelela okungasenani ama-yezinto ukulinganisa nokubala ngokuthembekako. Ukunikela isilinganiso senomboro yezinto ezingahlolwa ngokuzibala. Amaqhinga wokuhlela izinto ngokweenqhema kuyakhuthazwa.	Buthelela okungasenani ama-yezinto ukulinganisa nokubala ngokuthembekako. Ukunikela isilinganiso senomboro yezinto ezingahlolwa ngokuzibala. Amaqhinga wokuhlela izinto ngokweenqhema kuyakhuthazwa.	Buthelela okungasenani ama-yezinto ukulinganisa nokubala ngokuthembekako. Ukunikela isilinganiso senomboro yezinto ezingahlolwa ngokuzibala. Amaqhinga wokuhlela izinto ngokweenqhema kuyakhuthazwa.	Buthelela okungasenani i- yezinto ukulinganisa nokubala ngokuthembekako. Ukunikela isilinganiso senomboro yezinto ezingahlolwa ngokuzibala. Amaqhinga wokuhlela izinto ngokweenqhema kuyakhuthazwa.
1.2 **Ukubala uye phambili nasemuva**	Ukubala uye phambili nemuva nga: • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 na-200. • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 na-200. • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 na-200. • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne-0 na-200. • Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne -0 na-200. • Ku-4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne-0 na-200. • Ma-100 okungasenani ukufika e-1000.	Ukubala uye phambili nemuva nga: • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 na-500. • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 na-500. • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 na-500. • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne-0 na-500. • Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne -0 na-500. • Ku-4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne-0 na-500. • Ma-50, 100 okungasenani ukufika e-1000.	Ukubala uye phambili nemuva nga: • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 na-700. • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 na-700. • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 na-700. • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne-0 na-700. • Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne -0 na-700. • Ku-4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne-0 na-700. • Ma-20, 25, 50, 100 okungasenani ukufika e-1000.	Ukubala uye phambili nemuva nga: • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 ne-1000. • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-1000. • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-1000. • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne-0 ne-1000. • Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne -0 ne-1000 • Ku-4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne -0 ne-1000 • Ma-20, 25, 50, 100 okungasenani ukufika e-1000.

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
UKUTHUTHUKISWA KOMQONDONOMBORO : Jamiselela iinomboro ezipheleleko				
1.3 **Amatshwayo namagama wenomboro**	**Ukufanisa, ukubona nokufunda iinomboro** • Ukufanisa, ukubona nokufunda amatshwayo wenomboro ukusuka kweli ukuya e-500 • Ukutlola amatshwayo wenomboro ukusuka kweli ukuya e-500 • Ukufanisa, ukubona nokufunda igama lenomboro ukusuka kweli ukuya ema-250 • Ukutlola amagama weenomboro ukusuka kweli ukuya ema-100	**Ukufanisa, ukubona nokufunda iinomboro** • Ukufanisa, ukubona nokufunda amatshwayo wenomboro ukusuka kweli ukuya e-1000 • Ukutlola amatshwayo wenomboro ukusuka kweli ukuya e-1000 • Ukufanisa, ukubona nokufunda igama lenomboro ukusuka kweli ukuya ema-250 • Ukutlola amagama weenomboro ukusuka kweli ukuya ema-250	**Ukufanisa, ukubona nokufunda iinomboro** • Ukufanisa, ukubona nokufunda amatshwayo wenomboro ukusuka kweli ukuya e-1000 • Ukutlola amatshwayo wenomboro ukusuka kweli ukuya e-1000 • Ukufanisa, ukubona nokufunda igama lenomboro ukusuka kweli ukuya ema-500 • Ukutlola amagama weenomboro ukusuka kweli ukuya ema-500	**Ukufanisa, ukubona nokufunda iinomboro** • Ukufanisa, ukubona nokufunda amatshwayo wenomboro ukusuka kweli ukuya e-1000 • Ukutlola amatshwayo wenomboro ukusuka kweli ukuya e-1000 • Ukufanisa, ukubona nokufunda igama lenomboro ukusuka kweli ukuya ema-1000 • Ukutlola amagama weenomboro ukusuka kweli ukuya ema-1000
UKUTHUTHUKISWA KOMQONDONOMORO: Ukuhlathulula, ukumadanisa and nokuhlela iinomboro ezipheleleko				
1.4 **Ukuhlathulula, ukumadanisa nokuhlela iinomboro ezipheleleko**	**Ukukhumbula, ukumadanisa and nokuhlela iinomboro ukufika ku 99** • Ukumadanisa iinomboro ezipheleleko ngokusebenzisa kuncani kuna, kukhulu kuna, kunengi kuna, kungaphasi kuna nokuthi kuyalingana. • Ukulandelanisa iinomboro ezipheleleko kusukela kencani ukuya kekulu khulu nokusuka kwekulu khulu ukuya kwencani khulu.	**Ukukhumbula, ukumadanisa and nokuhlela iinomboro ukufika ku 500** • Ukumadanisa iinomboro ezipheleleko ngokusebenzisa kuncani kuna, kukhulu kuna, kunengi kuna, kungaphasi kuna nokuthi kuyalingana. • Ukulandelanisa iinomboro ezipheleleko kusukela kencani ukuya kekulu khulu nokusuka kwekulu khulu ukuya kwencani khulu.	**Ukukhumbula, ukumadanisa and nokuhlela iinomboro ukufika ku 700** • Ukumadanisa iinomboro ezipheleleko ngokusebenzisa kuncani kuna, kukhulu kuna, kunengi kuna, kungaphasi kuna nokuthi kuyalingana. • Ukulandelanisa iinomboro ezipheleleko kusukela kencani ukuya kekulu khulu nokusuka kwekulu khulu ukuya kwencani khulu. • Ukusebenzisa iinomborosikhundla ukutjengisa ukuhleleka, indawo nofana ubujamo • Ukusebenzisa, ukufunda nokutlola iinomboro sikhundla okufaka hlangana inhlobo elirhunyeziweko ukufikela ku-31	**Ukukhumbula, ukumadanisa and nokuhlela iinomboro ukufika ku 1000** • Ukumadanisa iinomboro ezipheleleko ngokusebenzisa kuncani kuna, kukhulu kuna, kunengi kuna, kungaphasi kuna nokuthi kuyalingana. • Ukulandelanisa iinomboro ezipheleleko kusukela kencani ukuya kekulu khulu nokusuka kwekulu khulu ukuya kwencani khulu.
UKUTHUTHUKISWA KOMQONDONOMORO: Ubukhulu bedijithi				
1.5 **Ubukhulu bedijithi**	**Ukukhumbula ubukhulu bedijithi yeenomboro kufika e-99** • Ukwazi bonyana idijithi nedijithi lijamele ini. • Ukuhlahlela iinomboro ezinamadijithi amabili zibe kubuyabuyelela kwamatjhumi nemivo/ngakunye. • Ukufanisa nokutjho ubukhulu bedijithi enye nenye.	**Ukukhumbula ubukhulu bedijithi yeenomboro kufika e-500** • Ukwazi bonyana idijithi nedijithi lijamele ini. • Ukuhlahlela iinomboro ezinamadijithi amathathu zibe kubuyabuyelela kwamatjhumi nemivo/ngakunye. • Ukufanisa nokutjho ubukhulu bedijithi enye nenye.	**Ukukhumbula ubukhulu bedijithi yeenomboro kufika e-700** • Ukwazi bonyana idijithi nedijithi lijamele ini. • Ukuhlahlela iinomboro ezinamadijithi amathathu zibe kubuyabuyelela kwamatjhumi nemivo/ngakunye. • Ukufanisa nokutjho ubukhulu bedijithi enye nenye.	**Ukukhumbula ubukhulu bedijithi yeenomboro kufika e-999** • Ukwazi bonyana idijithi nedijithi lijamele ini. • Ukuhlahlela iinomboro ezinamadijithi amathathu zibe kubuyabuyelela kwamatjhumi nemivo/ngakunye. • Ukufanisa nokutjho ubukhulu bedijithi enye nenye.

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
UKURARULULA IMIRARO ESEBUJAMENI				
1.6 Amathekhiniki wokurarulula imiraro	Sebenzisa amathekhiniki alandelako lokha urarulula imiraro bekuhlathululwe iinsombululo zemiraro: • Ukwakha nokuphula kweenomboro • Ukubuyelela kabili nokuhafula phakathi • Inambalayini	Sebenzisa amathekhiniki alandelako lokha urarulula imiraro bekuhlathululwe iinsombululo zemiraro: • Ukwakha nokuphula kweenomboro • Ukubuyelela kabili nokuhafula phakathi • Inambalayini • Tjhideza eduze kwetjhumi	Sebenzisa amathekhiniki alandelako lokha urarulula imiraro bekuhlathululwe iinsombululo zemiraro: • Ukwakha nokuphula kweenomboro • Ukubuyelela kabili nokuhafula phakathi • Inambalayini • Tjhideza eduze kwetjhumi	Sebenzisa amathekhiniki alandelako lokha urarulula imiraro bekuhlathululwe iinsombululo zemiraro: • Ukwakha nokuphula kweenomboro • Ukubuyelela kabili nokuhafula phakathi • Inambalayini • Tjhideza eduze kwetjhumi
1.7 Ukuhlanganisa nokukhupha	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-99.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-400.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-800.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-999.
1.8 ukuhlanganisa ngokubuyelela okurholela ekubuyabuyeleleni	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukubuyabuyelela okunempendulo ufikela e-50.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukubuyabuyelela okunempendulo ufikela e-75.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukubuyabuyelela okunempendulo ufikela e-75.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukubuyabuyelela okunempendulo ufikela e-100.
1.9 Ukubuthelela nokwabelana okurholela ek-wahlukanisela-neni	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqhema kweenomboro ezipheleleko ukufika e-50 kanye nempendulo ezingahle zifaka iinsalela.	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqhema kweenomboro ezipheleleko ukufika e-75 kanye nempendulo ezingahle zifaka iinsalela.	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqhema kweenomboro ezipheleleko ukufika e-75 kanye nempendulo ezingahle zifaka iinsalela.	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqhema kweenomboro ezipheleleko ukufika e-100 kanye nempendulo ezingahle zifaka iinsalela.
1.10 Ukwabelana okurholela emafraktjhinini	Ukurarulula bewuhlathulule iinsombululo zemiraro ephathekako efaka hlangana ukwabelana ngokulingana erholela empendulweni zamafraktjhini wohlavu olulodwa nalayo angenahlavu eyodwa. isib. njll.	Ukurarulula bewuhlathulule iinsombululo zemiraro ephathekako efaka hlangana ukwabelana ngokulingana erholela empendulweni zamafraktjhini wohlavu olulodwa nalayo angenahlavu eyodwa. isib. njll.	Ukurarulula bewuhlathulule iinsombululo zemiraro ephathekako efaka hlangana ukwabelana ngokulingana erholela empendulweni zamafraktjhini wohlavu olulodwa nalayo angenahlavu eyodwa. isib. njll.	Ukurarulula bewuhlathulule iinsombululo zemiraro ephathekako efaka hlangana ukwabelana ngokulingana erholela empendulweni zamafraktjhini wohlavu olulodwa nalayo angenahlavu eyodwa. isib. njll.
1.11 Imali	• Ukukhumbula nokufanisa imali yeSewula Afrika eziinhlamvu nemali yamaphepha • Ukurarulula imiraro yemali efaka hlangana inani netjhentjhi ngamasende namaranda.	• Ukukhumbula nokufanisa imali yeSewula Afrika eziinhlamvu nemali yamaphepha • Ukurarulula imiraro yemali efaka hlangana inani netjhentjhi ngamasende namaranda.	• Ukukhumbula nokufanisa imali yeSewula Afrika eziinhlamvu nemali yamaphepha • Ukurarulula imiraro yemali efaka hlangana inani netjhentjhi ngamasende namaranda. • Tjhugulula imali yamaranda namasende.	• Ukukhumbula nokufanisa imali yeSewula Afrika eziinhlamvu nemali yamaphepha • Ukurarulula imiraro yemali efaka hlangana inani netjhentjhi ngamasende namaranda. • Tjhugulula imali yamaranda namasende.

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
UKUBALA OBUSEBUJAMENI OBUTJHAPHULUKILEKO				
1.12 Amathekhiniki (iindlela nofana amaqhinga)	Ukusebenzisa amathekhiniki alandelako nakubalisiswako: • Ukwakha nokuphula kweenomboro • Ukubuyelela kabili nokuhafula phakathi • Inambalayini	Ukusebenzisa amathekhiniki alandelako nakubalisiswako : • Ukwakha nokuphula kweenomboro • Ukubuyelela kabili nokuhafula phakathi • Inambalayini • Tjhideza eduze kwetjhumi	Ukusebenzisa amathekhiniki alandelako nakubalisiswako : • Ukwakha nokuphula kweenomboro • Ukubuyelela kabili nokuhafula phakathi • Inambalayini • Tjhideza eduze kwetjhumi	Ukusebenzisa amathekhiniki alandelako nakubalisiswako : • Ukwakha nokuphula kweenomboro • Ukubuyelela kabili nokuhafula phakathi • Inambalayini • Tjhideza eduze kwetjhumi
1.13 Ukuhlanganisa nokukhupha	• Ukuhlanganisa ukufikela ku-99 • Ukukhupha ku-99 • Ukusebenzisa amatshwayo afaneleko (+, –, =, □) • Ukulungiselela iinomboro bhodi ukufika e 20	• Ukuhlanganisa ukufikela ema-400 • Ukukhupha ema-400 • Ukusebenzisa amatshwayo afaneleko (+, –, =, □) • Ukulungiselela iinomboro bhodi ukufika e 30	• Ukuhlanganisa ukufikela ema-800 • Ukukhupha ema-800 • Ukusebenzisa amatshwayo afaneleko (+, –, =, □) • Ukulungiselela iinomboro bhodi ukufika e 30	• Ukuhlanganisa ukufikela ema-800 • Ukukhupha ema-800 • Ukusebenzisa amatshwayo afaneleko (+, –, =, □) • Ukulungiselela iinomboro bhodi ukufika e 30
1.14 Ukuhlanganisa ngokubuyelela okurholela ekubuyabuyele-leni	• Buyelela iinomboro kusuka ku-1 kufika e-10 nge 2, 5, 3, 4 • Ukusebenzisa amatshwayo ngokufaneleko (x, =, □)	• Buyelela i-2, 3, 4, 5, 10 kufika e-50 • Ukusebenzisa amatshwayo ngokufaneleko (x, =, □)	• Buyelela i-2, 3, 4, 5, 10 kufika e-100 • Ukusebenzisa amatshwayo ngokufaneleko (x, =, □)	• Buyelela i-2, 3, 4, 5, 10 kufika e-100 • Ukusebenzisa amatshwayo ngokufaneleko (x, =, □)
1.15 Ukuhlukanisa	• Hlukanisa iinomboro kufika e-50 nga 2, 5, 10 • Ukusebenzisa amatshwayo ngokufaneleko (÷, =, □)	• Hlukanisa iinomboro kufika e-50 nga 2, 4, 5, 10 • Ukusebenzisa amatshwayo ngokufaneleko (÷, =, □)	• Hlukanisa iinomboro kufika e-99 nga 2, 3, 4, 5, 10 • Ukusebenzisa amatshwayo ngokufaneleko (÷, =, □)	• Hlukanisa iinomboro kufika e-99 nga 2, 3, 4, 5, 10 • Ukusebenzisa amatshwayo ngokufaneleko (÷, =, □)

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
1.16 **Imbalo zehloko**	**Umqondonomboro: linombiri ezihlangana na 200** • Ukurhemisa iinomboro ezikhethiweko ngokwesede enikeliweko. • Ukuqanathisa iinomboro ukufika ku-200 bewutjho bonyana ngiyiphi: - enengi nga-1 nofana encani nga-1 - enengi nga-2 nofana encani nga-2 - enengi nga-3 nofana encani nga-3 - enengi nga-4 nofana encani nga-4 - enengi nga-5 nofana encani nga-5 - enengi nge-10 nofana encani nge-10 **Ukukhumbula masinyana:** • Ukukhumbula amaphuzu wamambala ngokuhlanganisa nokukhupha ukufika e- 20. • Hlanganisa nofana ukhuphe iimbuyabuyeleli ze-10 ukusukela e-0 ukuya e-100. **Amaqhinga wokubalisa** Ukusebenzisa amaqhinga wokubalisa ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini yehloko • Ukubuyelela nokuhlukanisa • Ukwakha nokuphula • Ukusebenzisa ubudlelwana obuphakathi kokuhlanganisa nokukhupha.	**Umqondonomboro: linombiri ezihlangana na 500** • Ukurhemisa iinomboro ezikhethiweko ngokwesede enikeliweko. • Ukuqanathisa iinomboro ukufika ku-500 bewutjho bonyana ngiyiphi: - enengi nga-1 nofana encani nga-1 - enengi nga-2 nofana encani nga-2 - enengi nga-3 nofana encani nga-3 - enengi nga-4 nofana encani nga-4 - enengi nga-5 nofana encani nga-5 - enengi nge-10 nofana encani nge-10 **Ukukhumbula masinyana:** • Ukukhumbula amaphuzu wamambala ngokuhlanganisa nokukhupha ukufika e- 20 • Hlanganisa nofana ukhuphe iimbuyabuyeleli ze-10 ukusukela e-0 ukuya e-100. **Amaqhinga wokubalisa** Ukusebenzisa amaqhinga wokubalisa ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini yehloko • Ukubuyelela nokuhlukanisa • Ukwakha nokuphula • Ukusebenzisa ubudlelwana obuphakathi kokuhlanganisa nokukhupha.	**Umqondonomboro: linombiri ezihlangana na 750** • Ukurhemisa iinomboro ezikhethiweko ngokwesede enikeliweko. • Ukuqanathisa iinomboro ukufika ku-750 bewutjho bonyana ngiyiphi: - enengi nga-1 nofana encani nga-1 - enengi nga-2 nofana encani nga-2 - enengi nga-3 nofana encani nga-3 - enengi nga-4 nofana encani nga-4 - enengi nga-5 nofana encani nga-5 - enengi nge-10 nofana encani nge-10 **Ukukhumbula masinyana:** • Ukukhumbula amaphuzu wamambala ngokuhlanganisa nokukhupha ukufika e- 20 • Hlanganisa nofana ukhuphe iimbuyabuyeleli ze-10 ukusukela e-0 ukuya e-100. **Amaqhinga wokubalisa** Ukusebenzisa amaqhinga wokubalisa ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini yehloko • Ukubuyelela nokuhlukanisa • Ukwakha nokuphula • Ukusebenzisa ubudlelwana obuphakathi kokuhlanganisa nokukhupha. Ukusebenzisa ubudlelwano phakathi kokubuyabuyelela nokuhlukanisa	**Umqondonomboro: linombiri ezihlangana ne 999** • Ukurhemisa iinomboro ezikhethiweko ngokwesede enikeliweko. • Ukuqanathisa iinomboro ukufika ku-999 bewutjho bonyana ngiyiphi: - enengi nga-1 nofana encani nga-1 - enengi nga-2 nofana encani nga-2 - enengi nga-3 nofana encani nga-3 - enengi nga-4 nofana encani nga-4 - enengi nga-5 nofana encani nga-5 - enengi nge-10 nofana encani nge-10 **Ukukhumbula masinyana:** • Ukukhumbula amaphuzu wamambala ngokuhlanganisa nokukhupha ukufika e- 20 • Hlanganisa nofana ukhuphe iimbuyabuyeleli ze-10 ukusukela e-0 ukuya e-100 • Ukubuyabuyelela nokuhlukanisa amaphuzu wamambala wa: - Wamathebula wangakubili ukufikela ku-2x10 - Wamathebula wangalitjhumi ukufikela e-10x10 **Amaqhinga wokubalisa** Ukusebenzisa amaqhinga wokubalisa ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini yehloko • Ukubuyelela nokuhlukanisa • Ukwakha nokuphula • Ukusebenzisa ubudlelwana obuphakathi kokuhlanganisa nokukhupha. Ukusebenzisa ubudlelwano phakathi kokubuyabuyelela nokuhlukanisa

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
1.17 Amafraktjhini	• Sebenzisa bewutjho amafraktjhini okufaka hlangana namahafu, amakota, kwesithathu, kobunane nokwesihlanu njll • Ukubona amafraktjhini ebujameni obuyidayagremu • Tlola amafraktjhini njengehafu yi-1 , ku-1 kokuthathu	• Sebenzisa bewutjho amafraktjhini okufaka hlangana neengcezu, amakota, kwesithathu, kobunane nokwesihlanu njll • Ukubona amafraktjhini ebujameni obuyidayagremu • Tlola amafraktjhini njenge hafu yi-1 , ku-1kokuthathu	• Sebenzisa bewutjho amafraktjhini okufaka hlangana neengcezu, amakota, kwesithathu, kobunane nokwesihlanu njll • Ukubona amafraktjhini ebujameni obuyidayagremu • Ukuthoma ukubona iincezu ezimbili nofana iintathu ezintathu zenza okukodwa okuzeleko godu ucezu namakotara amabili ziyalingana. • Tlola amafraktjhini njenge hafu yi-1, ku-2-kokuthathu.	• Sebenzisa bewutjho amafraktjhini okufaka hlangana neengcezu, amakota, kwesithathu, kobunane nokwesihlanu njll • Ukubona amafraktjhini ebujameni obuyidayagremu • Ukuthoma ukubona iincezu ezimbili nofana iintathu ezintathu zenza okukodwa okuzeleko godu ucezu namakotara amabili ziyalingana. • Tlola amafraktjhini njenge hafu yi-1, ku-2-kokuthathu

Imihlobo yemiraro yeGreyidi yesi-3

Lezi ziimbonelo zemihlobo yemiraro ekufanele utitjhere azethule ngokuzibuyelela njalo etlasini lakhe. Nangabe utitjhere usebenza ngesiqhema esincani, kufanele aveze umraro ngokukhuluma. Nangabe abafundi bayakwazi ukufunda, utitjhere angabanikela umraro otloliweko, nokho utitjhere kusafanele aveze umraro ngokukhuluma.

Imiraro esebujameni ingafakwa emaphepheni wabantwana wokusebenzela, nokho ifanele ibe mifitjhani, inqophe bekube ngejayelekileko/ngevamileko, begodu utitjhere ufanele aqinisekise bonyana boke abafundi bayayizwisisa.

Ukubuthelela

Ukubuthelela, ukulahla isalela

Umbhagi uthengisa amarolo woburotho ngamaphakethi athwala -12. Unamarolo woburotho anga- 118. Maphakethe amangaki angawenza ngemphakethi ezithwele -12 ngayinye?

Ukubuthelela, ukungenisa isalela ephendulweni

Umlimi unamaqanda ama-227. Ngemabhoksini ufaka 6 yamaqanda, uzodinga amabhoksi amangaki ukufaka amaqanda woke?

Ukwabelana

Ukwabelana, ukulahla isalela.

Abangani abahlanu bahlukaniselana ibhoksi lamaswidi ama-84, bonyana boke bathole amaswidi ngokulinganako. Umngani ngamunye uzokuthola ngaki yamaswidi?

Ukwabelana okurholela emafraktjhinini

Hlukanisa amatjhokolethi ali-15, wabele abangani abasithandathu ngokulinganako kungabi nesalela.

Amafraktjhini nebuthelelo

Ugogo unikela uZizi R12. UZizi ufuna ukonga isithathu semali. Yimalini afanele bonyana ayonge?

Imihlobo le yemiraro kufanele inikelwe abafundi ngemuva kokuba sele bararulule imiraro engaba mine nofana mihlanu, ekhokhela emihlobeni yamafraktjhini bebazi namabizo weengcezu zamafraktjhini.

Ukuhlanganisa amafraktjhini

Umbanduli webhola yezandla unikela ingcenye ye-orentji komunye nomunye umdlali. Abadlali bebhola yezandla bali-14. Umbanduli uthloga ama-orentji amangaki?

Imihlobo le yemiraro kufanele inikelwe abafundi ngemuva kokuba sele bararulule imiraro engaba mine nofana mihlanu, ekhokhela emihlobeni yamafraktjhini bebazi namabizo weengcezu zamafraktjhini.

Ukwabelana ngokulinganako

UPeter mncancani kunoRhulani. Lokha uPeter nakadla isineyi sinye soburotho, uRhulani udinga zimbili iineyi zoburotho. Lokha uPeter adla mbili yeeneyi, uRhulani uthloga iineyi ezine zoburotho. Ngemuva kwamalanga badle iineyi ezi-12. UPeter udle iineyi ezingaki noRhulani wadla zingaki?

UMandla noSizwe benza umsetjenzana bobabili. UMandla usebenza ama-iri amathathu, USizwe yena usebenza i-iri yinye. Babhadelwe R60. Kufanele bayabelane njani imali?

Ukuhlanganisa okubuyelelweko

Iinkoloyi ezi-36 zinamavili amangaki?

Linganisa

UThami wonga 35c njalo ngeveke. Uzokonga malini eemvekeni ezi-8?

Amagridi

Umnumzane Khumalo utjala amareyi a-20 wenhlahla zama-orentji. Kunenhlahla ezi-12 ereyini ngayinye. Zingaki inhlahla sezizoke?

Ukuhlanganisa nokukhupha

Kunemihlobo emithathu yemiraro esisekelo yokuhlanganisa nokukhupha, omunye nomunye umraro ungabuzwa ngendlela ehlukileko. Imihlobo esisekelo ngile:

Itjhuguluko

UNoluthando ubuthelele iintikara ezi-234. UGugu wamnikela iintikara ezi-80 ngaphezulu. Sekaneentikara ezingaki kwanjesi?

Kunabakhweli aba-500 ngesitimeleni kwathi aba-176 behla. Kunabakhweli abangaki abasele ngesitimeleni?

Ukuhlanganisa

UNosisi ubuthelela izinto ezakhe zasebenza ulungiselela iphrojekthi yesikolo. Ubuthelele amabhodlela weplasitiki ayi-124 namaketukana a-268. Ubuthelele izinto ezingaki?

Isitolo sinamaphakethi wamatjhipsi a-368; ama-82 ngawe Chippos amanye ngaweZiksnacks. Maphakhethe amangaki wamaZiksnacks alapho?

Ukumadanisa

Abentwana begreyidi 2 babuthelele R446, kwathi abentwana begreyidi 3 babuthelela R729. Abentwana begreyidi 3 babuthelele malini ukudlula begreyidi 2?

Ukubuza omunye nomunye umraro ngendlela ehlukileko.

Imiraro kufanele ibuzwe ngendlela ehlukileko. Isib. Yomibili imiraro le miraro etjhugulukileko, kodwana “ ukungaziwako” kusendaweni ezihlukeneko.

Isitolo besinamaphakethe wepuphu, kwa odwa amanye ayi-55. Manjesi sekunamaphakethe wepuphu ali-170. Bekunanaphakethe wepuphu amangaki ekuthomeni?

Isitolo besinamaphakethe wetjhukela ama-500. Ngemuva kokuthengisa amanye amaphakethe, basala nama-324 wamaphakethe wetjhukela aseleko. Bathengise amaphakethe amangaki?

Ubujamo bemiraro noBudlelwana bemisebenzi ehlukileko.

ULina uthengisa amahotdog nge R4 ngalinye. Yenza ithebula elizomsiza ukuthola inani le-oda ekulu.

Inani lama hotdogi	**1**	**2**	**3**	**4**	**5**	**10**	**20**	
Inani ngama R	**4**	**8**						

Sebenzisa ithebula elingehla ukuthola inani lamahotdog alikhomba namahotdog ali-15.

USibongile uhlala nabantwana. Ubiza ama R20 imali yokukhwela, bese ubiza R5 nge-iri ukuhlala nomntwana. Qedelela ithebula elilandelako.

Inani lama -iri	**1**	**2**	**3**	**4**	**5**	**10**
Inani ngama R	**25**	**30**				

Yelela bonyana umraro waka Sibongile nomraro wakaLina isetjenzwe ngendlela ezihlukileko.

Imihlobo yemiraro engehla inikelelweukuhlahla / ukukhokhela abotitjhere. Abafundi abangathweswa umthwalo ngemihlobo yamagama. Yelela bonyana abafundi ngasikhathi basebenzisa iindlela ezihlukileko ukusombulula umraro okungahle kungabi ngilokho utitjhere ebekakulindeleko. Isib. Umraro wokuhlukanisa ungasonjululwa ngokukhupha okubuyabuyelelweko, ukuhlanganisa nofana ukubuyabuyelela. Iindlela zabafundi zizokutjhuguluka ngokukhamba konyaka njengombana ukuzwisisa kwabo nokuzijayeza imihlobo yemiraro ehlukahlukeneko, nangokuthuthuka kweenomboromqondo yabo

UMBONOMAZOMBE WEGREYIDI YESI-3 2. AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA				
IINHLOKO	**ITHEMU 1**	**ITHEMU 2**	**ITHEMU 3**	**ITHEMU 4**
2.1 **Amaphetheni weJiyomethri**	**Ukukopa, ukwandisa nokuhlathulula** Ukukopa, ukwandisa nokuhlathulula ngamagama • Amaphetheni enziwe ngezinto eziphathekako • Amaphetheni enziwa ngokugwala imida, ubujamo nofana izinto. **Amaphetheni ahlukahlukeneko:** • Amaphetheni alula lapho amajamo, nofana ibuthelelo lobujamo libuyelelwa ngendlela efana patsi. **Ukutlhama nokuhlathulula iphetheni okungewakhe** • Ukutlhama iphetheni yeJiyomethri okungewakhe - Ngezinto eziphathekako - Ngokugwala imida, ubujamo nofana izinto • Ukuhlathulula iphetheni okungewakhe	**Ukukopa, ukwandisa nokuhlathulula** Ukukopa, ukwandisa nokuhlathulula ngamagama • Amaphetheni enziwe ngezinto eziphathekako • Amaphetheni enziwa ngokugwala imida, ubujamo nofana izinto. **Amaphetheni ahlukahlukeneko :** • Amaphetheni alula lapho amajamo, nofana ibuthelelo lobujamo libuyelelwa ngendlela efana patsi. • Amaphetheni lapho inomboro nofana ubukhulu bobujamo kesinye nesinye isigaba buyatjhuguluka ngendlela yokubonela phambili: o.u. njalonjalo amaphetheni ayangezeleleka **Ukutlhama nokuhlathulula iphetheni okungewakhe** • Ukutlhama iphetheni yeJiyomethri okungewakhe - Ngezinto eziphathekako - Ngokugwala imida, ubujamo nofana izinto • Ukuhlathulula iphetheni okungewakhe	**Ukukopa, ukwandisa nokuhlathulula** Ukukopa, ukwandisa nokuhlathulula ngamagama • Amaphetheni enziwe ngezinto eziphathekako • Amaphetheni enziwa ngokugwala imida, ubujamo nofana izinto. **Amaphetheni ahlukahlukeneko :** • Amaphetheni alula lapho inani lamajamo kesinye nesinye isigaba litjhuguluka ngendlela yokubonela phambili: o.u. amaphetheni ayangezeleleka njalonjalo. **Ukutlhama nokuhlathulula iphetheni okungewakhe** • Ukutlhama iphetheni yeJiyomethri okungewakhe - Ngezinto eziphathekako - Ngokugwala imida, ubujamo nofana izinto • Ukuhlathulula iphetheni okungewakhe	**Amaphetheni akhona koke** Ukubona, ukuhlathulula ngamagama godu ukope amaphetheni weJiyomethri. • Ngokwemvelo • Ngepilo yesimodeni • Okususelwe kumagugu wesitjhaba
2.2 **Amaphetheni weenomboro**	**Ukukopa, ukungezelela nokuhlathulula:** Ukukopa, ukungezelela nokuhlathulula ukulandelana kweenomboro okungenani ukufika e-200. Ukulandelana kufanele kutjhengise ukubala uye phambili nemuva nga: • amakhefu anqotjhisiweko eGreyidini yesi-2 ngamarherho weenomboro angezelelweko. • ngama -100 ukuya okungasenani ema-500.	**Ukukopa, ukungezelela nokuhlathulula:** Ukukopa, ukungezelela nokuhlathulula ukulandelana kweenomboro okungenani ukufika e-500. Ukulandelana kufanele kutjhengise ukubala uye phambili nemuva nga: • amakhefu anqotjhisiweko eGreyidini yesi-2 ngamarherho weenomboro angezelelweko. • Ngama 50, 100, ukuya okungasenani e-1000.	**Ukukopa, ukungezelela nokuhlathulula:** Ukukopa, ukungezelela nokuhlathulula ukulandelana kweenomboro okungenani ukufika e-750. Ukulandelana kufanele kutjhengise ukubala uye phambili nemuva nga: • amakhefu anqotjhisiweko eGreyidini yesi-2 ngamarherho weenomboro angezelelweko • ngama -20, 25, 50, 100, ukuya okungasenani e-1000	**Ukukopa, ukungezelela nokuhlathulula :** Ukukopa, ukungezelela nokuhlathulula ukulandelana kweenomboro okungenani ukufika e-1000. Ukulandelana kufanele kutjhengise ukubala uye phambili nemuva nga: • amakhefu anqotjhisiweko eGreyidini yesi-2 ngamarherho weenomboro angezelelweko. • ngama -20, 25, 50, 100, ukuya okungasenani e-1000.

UMBONOMAZOMBE WEGREYIDI YESI-3 3. ISIKHALA NOBUJAMO (JIYOMETHRI)				
IINHLOKO	**ITHEMU 1**	**ITHEMU 2**	**ITHEMU 3**	**ITHEMU 4**
3.1 **Ubujamo, ukuzijayeza nokubukela**		**Ubujamo nokubukela** • Madanisa imibono ehlukeneko yezinto ezifanako zangamalanga woke. • Itjho into oyibona ngamalanga woke nakuvezwa ihlangothi elingakajayeleki. **Ubujamo nekombatjhuba** • Landela ikombatjhuba ukukhambakhamba ngetlasini nasesikoleni. • Ukunikela ilayelo ukukhambakhamba ngetlasini nasesikoleni	**Ubujamo nokubukela** • Ukufunda, ukurhumutjha nokugwala amamebhe angakahleleki, nofana ukubona ilingaphezulu lezinto ezibuthelweleko. • Thola izinto emimebheni. **Ubujamo nekombatjhuba** • Ukulandela ilayelo kusuka endaweni eyodwa kuya kwenye emamebheni angakahleleki	

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
3.2 **Izinto ezibusontathu (3-D)**		**Amajamo ahlukahlukeneko** Ukukhumbula nokutjho izinto ezi abobusontathu (3-D)ezingetlasini neenthombeni • Ubujamo bebhola (indulungu) • Ubujamo bebhoksi (iphrizimu) • Amasilinda **Amatshwayo wezinto** Ukuhlathulula, ukubeka ngeengaba nokumadanisa izinto ezi abobusontathu (3-D) ngokuya nge: • ngokuya ngamajamo labobusobubili (2-D) elenza ubuso bezinto zabobusontathu (3-D) • iindawo esipara nofana ilingaphandle eligobeneko • Umnqopho otjhukumeziweko eseThemeni 2 **Imisetjenzana enqophiweko** Tjheja bewakhe izinto ze abobusontathu (3-D) ezinikelweko ngokusebenzisa amamathiriyeli aphathekako afana naikiweko akhitjhwa amajamo we abobusobubili (2-D), umdaka/ibumba, isibangulimazinyo, iphayiphi lokusela nezinye izinto eziyi abobusontathu (3-D) zeJiyomethriki. **Umnqopho otjhukumeziweko nokulandelanisa kwemisetjenzana eThemeni yesi-2** Ukusebenza ngendulungu, iphrizimu, isilinda, iphiramidi nesikurwana. Ukunqopha emihlotjeni yelingaphezulu yenye nenye umhlobo wento. Ukuhlukanisa ilingaphezulu ngokuya ngokuthi ligobene nofana lithabalele. Sebenzisa amakhadibhodi aziinkwere asikiweko ukwena ibhoksi. Khuluma ngelingaphezulu ellithabalele phezulu kwamaphrizimu, namasilinda be uwahlathulule ngokuthi azindulungu, iinkwere nofana uncamane. Umsebenzi uhlanganiswa ngemisetjenzana etloliweko	**Amajamo ahlukahlukeneko** Ukukhumbula nokutjho izinto ezi abobusontathu (3-D)ezingetlasini neenthombeni • Ubujamo bebhola (indulungu) • Ubujamo bebhoksi (iphrizimu) • Amasilinda • Amaphiramidi • Iinkurwana **Amatshwayo wezinto** Ukuhlathulula, ukubeka ngeengaba nokumadanisa izinto ezi abobusontathu (3-D) ngokuya nge: • ngokuya ngamajamo labobusobubili (2-D) elenza ubuso bezinto zabobusontathu (3-D) • iindawo esipara nofana ilingaphandle eligobeneko **Imisetjenzana enqophiweko** Tjheja bewakhe izinto ze abobusontathu (3-D) ezinikelweko ngokusebenzisa amamathiriyeli aphathekako afana naikiweko akhitjhwa amajamo we abobusobubili (2-D), umdaka/ibumba, isibangulimazinyo, iphayiphi lokusela nezinye izinto eziyi abobusontathu (3-D) zeJiyomethriki. **Umnqopho otjhukumeziweko nokulandelanisa kwemisetjenzana eThemeni yesi-3** Ukusebenza ngendulungu, iphrizimu, isilinda, iphiramidi nesikurwana. Ukunqopha emihlotjeni yelingaphezulu yenye nenye umhlobo wento. Ukuhlukanisa ilingaphezulu ngokuya ngokuthi ligobene nofana lithabalele. Khuluma ngephasi elithabaleleko phezu kwe phrizimu, namasilinda bewuwa hlathulule ngokuya ngokuthi azindulungu, iinkwere, uncamane nofana uncantathu. Ukutjho nokubeka ngesiqhema izinto zeJiyomethriki ezingehla. Ukusebenzisa iingojwana zokuthlorholoja amazinyo, amaphayephi wokusela nofana amaphepha aphuthelweko ukwenza iphiramidi. Umsebenzi uhlanganiswa ngemisetjenzana etloliweko	**Amajamo ahlukahlukeneko** Ukukhumbula nokutjho izinto ezi abobusontathu (3-D)ezingetlasini neenthombeni • Ubujamo bebhola (indulungu) • Ubujamo bebhoksi (iphrizimu) • Amasilinda • Amaphiramidi • Iinkurwana **Amatshwayo wezinto** Ukuhlathulula, ukubeka ngeengaba nokumadanisa izinto ezi abobusontathu (3-D) ngokuya nge: • ngokuya ngamajamo labobusobubili (2-D) elenza ubuso bezinto zabobusontathu (3-D) • iindawo esipara nofana ilingaphandle eligobeneko **Umnqopho otjhukumeziweko nokulandelanisa kwemisetjenzana eseThemeni yesi-4** Umsebenzi uhlanganiswa ngemisetjenzana etloliweko

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
3.3 **Amajamo abobusobubili** **(2-D)**	**Ukubahlanga kobujamo** **Ukubona nokutjho ubujamo obubusobubili (2-D)** • Indulungu • Uncantathu • Isikwere • Uncamane **Ubujamo bebumbeko** Ukuhlathulula, ukuhlela nokumadanisa ubujamo obubusobubili(2-D): • ibumbeko • amahlangothi anqophileko • amahlangothi arondo **Iminqopho etjhukumeziweko nokulandelanisa imisetjenzana yeThemu yoku-1** Itjho bewubuthelele amajamo. Ukunqophisa emihlotjeni yamahlangothi kilelo nalelo ijamo. Hlukanisa ubujamo ngokukhuluma ngokuthi amahlangothi wawo ayindulungu nofana anqophile. Gwala indulungu, iinkwere, aboncamane noncantathu. Umsebenzi uhlanganiswa ngemisetjenzana etloliweko.		**Ukubahlanga kobujamo** **Ukubona nokutjho ubujamo obubusobubili (2-D)** • Indulungu • Uncantathu • Isikwere • Uncamane **Ubujamo bebumbeko** Ukuhlathulula, ukuhlela nokumadanisa ubujamo obubusobubili(2-D): • ibumbeko • amahlangothi anqophileko • amahlangothi arondo **Iminqopho etjhukumeziweko nokulandelanisa imisetjenzana yeThemu yesi-3** Itjho bewubuthelele amajamo. Ukunqophisa emihlotjeni yamahlangothi kilelo nalelo ijamo. Hlukanisa ubujamo ngokukhuluma ngokuthi amahlangothi wawo ayindulungu nofana anqophile. Gwala indulungu, iinkwere, aboncamane noncantathu. Umsebenzi uhlanganiswa ngemisetjenzana etloliweko.	
3.4 **Isimethri**		**Isimethri** Jamisa umuda wesimethri ngokufoya amaphepha nokubonisa **Umnqopho otjhukumeziweko eseThemeni yesi-2** Imisebenzi yokufoya amaphepha eyakha ukuzwisisa isimethri kufaka: • imisebenzi lapho ipende emanzi ebekwa ekhasini ngaphambi kokulifoya • imisetjhenzana lapho iphepha lisikwa lidatjulwe emudeni obhinciweko.		**Isimethri** Ukukhumbula nokugwala imida yesimethri kibo bubusobubili (2-D) bobujamo beJiyomethri nobujamo okungasibo beJiyomethri **Iminqopho ephakanyisiweko yeThemu yesi- 4** Imisetjuenzana etlolwako kufanele ifake iimbonelo lapho • Umuda awusimumuda otjhingaphasi ngasosoke isikhathi. • Kunimida yesimethri edlula kowodwa ebujamweni nofana entweni

UMBONOMAZOMBE WEGREYIDI 3 4. UKUMEDA				
IINHLOKO	**ITHEMU 1**	**ITHEMU 2**	**ITHEMU 3**	**ITHEMU 4**
4.1 **Isikhathi**	**Ukutjho isikhathi** ukufunda amalanga ekhalendeni • Ukubeka ekhalendeni amalanga wamabeletho, imigidingo yekolo, amalanga wamaholideyi, izehlakalo zomlando, izehlakalo zesikolo. • Ukutjho isikhathi ngama-iri ali-12 usebenzise - ama-iri - nesigamu se-iri - nekota ye-iri - nemizuzu ewatjhini ye-analogo neyedijithali nezinye iinsetjenziswa zedijithali ezitjhengisa isikhathi.isib umaliledinini/ ufunjathwako.	**Ukutjho isikhathi** ukufunda amalanga ekhalendeni • Ukubeka ekhalendeni amalanga wamabeletho, imigidingo yekolo, amalanga wamaholideyi, izehlakalo zomlando, izehlakalo zesikolo. • Ukutjho isikhathi ngama-iri ali-12 usebenzise - ama-iri - nesigamu se-iri - nekota ye-iri - nemizuzu ewatjhini ye-analogo neyedijithali nezinye iinsetjenziswa zedijithali ezitjhengisa isikhathi.isib umaliledinini/ ufunjathwako. **Balilsisa ubude besikhathi nokudlulisa isikhathi** Sebenzisa ikhalendara ukubala nokuhlathulula ubude besikhathi ngamalanga, ngemveke nangenyanga. • Sebenzisa iwatjhi ukubalisisa ubude besikhathi ngama-iri nofana isigamu se-iri.	**ukufunda amalanga ekhalendeni** • Ukubeka ekhalendeni amalanga wamabeletho, imigidingo yekolo, amalanga wamaholideyi, izehlakalo zomlando, izehlakalo zesikolo. • Ukutjho isikhathi ngama-iri ali-12 usebenzise - ama-iri - nesigamu se-iri - nekota ye-iri - nemizuzu ewatjhini ye-analogo neyedijithali nezinye iinsetjenziswa zedijithali ezitjhengisa isikhathi.isib umaliledinini/ ufunjathwako. **Balilsisa ubude besikhathi nokudlulisa isikhathi** Sebenzisa ikhalendara ukubala nokuhlathulula ubude besikhathi ngamalanga, ngemveke nangenyanga. Okufaka hlangana: • UTjhuguluka hlangana namalanga nemveke • UTjhuguluka hlangana iimveke nenyanga Sebenzisa iwatjhi ukubalisisa ubude besikhathi ngama-iri nofana isigamu se-iri nekota.	**ukufunda amalanga ekhalendeni** • Ukubeka ekhalendeni amalanga wamabeletho, imigidingo yekolo, amalanga wamaholideyi, izehlakalo zomlando, izehlakalo zesikolo. • Ukutjho isikhathi ngama-iri ali-12 usebenzise - ama-iri - nesigamu se-iri - nekota ye-iri - nemizuzu ewatjhini ye-analogo neyedijithali nezinye iinsetjenziswa zedijithali ezitjhengisa isikhathi.isib umaliledinini/ ufunjathwako. **Balilsisa ubude besikhathi nokudlulisa isikhathi** Sebenzisa ikhalendara ukubala nokuhlathulula ubude besikhathi ngamalanga, ngemveke nangenyanga. Okufaka hlangana: • UTjhuguluka hlangana namalanga nemveke • UTjhuguluka hlangana iimveke nenyanga Sebenzisa iwatjhi ukubalisisa ubude besikhathi ngama-iri nofana isigamu se-iri nekota.

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
4.2 **Ubude**		**Ukulinganisa okungakahlelelwa** • Linganisa, meda, madanisa, hlela bewurekhode ubude kusetjhenziswa izinto zokumeda ezingakalinganiswa isib. Ubude besandla, igadango, ubude bepensela, izinto zokubala njll. • Ukuhlathulula ubude bezinto ngokuzibala noutjho ubude ngendlela engakalinganiswa. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. edenyana, efitjhazana, ede, ebanzi **Ukwazisa iimedo ezihlelelweko** • Linganisa, meda, madanisa, hlela bewurekhode ubude kusetjhenziswa amamitha (nofana iingojwana ezibubude bemitha nofana indambo enobude bemitha) njengemedo elihlelelweko lobude. • Linganisa, meda bewurekhode ngamasentimitha usebenzise irula. Akungabinokutjhugululwa phakathi kwamamitha namasenthimitha	**Ukwazisa iimedo ezihlelelweko** • Linganisa, meda, madanisa, hlela bewurekhode ubude kusetjhenziswa amamitha (nofana iingojwana ezibubude bemitha nofana indambo enobude bemitha) njengemedo elihlelelweko lobude. • Linganisa, mmeda bewurekhode ngamasenthimitha usebenzise irula.	

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
4.3 **Ubudisi/** **Ubungako**		**Ukulinganisa okungakahlelelwa** • Linganisa, meda, madanisa, hlela bewurekhode ubudisi kusetjhenziswa isikala sokudzimelela nezinto zokumeda ezingakalinganiswa isib. Amabhlogo, iintina njll. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. lula, kubudisi, kulula khulu, kubudisi khulu **Ukwazisa ukulinganisa okuhlelekileko** • Ukumadanisa, ukuhlela nokurekhoda ubudisa bezinto ezipakwe ngokwerhwebo okubonisa ubudisi butjhiwe ngamakhilogremu isib. Amakhilogremu ama-2 wereyisi nekhilogremu yi-1 yeflowuru. • Lapho kunesikala sangendlini yokuhlambela, abafundi bangazilinganisa ubudisi babo ngamakhilogremu kusetjenziswa isikala. Kulindeleke bonyana abafundi bafunde kwaphela inomboro eseduzana nekombabudisi Bahlathulula ubudisi babo njengokuthi pheze/ citjhe/eduze ne/ khulu kancani kuna/ khulu nofana ngaphasi nofana ilingana patsi (nenomboro yamakhilogremu) bafunda esikaleni. • Lapho okuneenkala zokumeda ezineencenye zobungako ezimeregweko ngamagremu, abafundi bangameda ubungako nofana izinto ezihlukeneko. (alikho itjhuguluko elihlangana namagremu namakhilogremu elifunekako)		**Ukwazisa ukulinganisa okuhlelekileko** Amathaski atloliweko ukuhlanganisa okulandelako okufaka hlangana nokufunda kweenthombe ze: • Imikhiqizo enobudisi obutloliweko kizo • Isikala sangendlwaneni yokuhlambela esinenalidi ekhombe ilayini yegradiyetjhini

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
4.4 **Umthamo/ Ivolumu**	**Ukulinganisa okungakahlelelwa** • Linganisa, meda, madanisa, hlela bewurekhode umthamo ongeemumathini (o.u. ubunengi isimumathi esikghona ukubuthatha nasizalisiweko) ngokusebenzisa izinto zokumeda ezingakahleleki isib. lingobho neenkomitji. • Ukuhlathulula umthamo wesimumathi ngokubala nookutjho bonyana mayunithi amangaki angakahleleki angazalisa isimumathi isib. Ibhodlelo linomthamo weenkomitji ezine. **Ukwazisa iimedo ezihlelekileko** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela bewurekhode umthamo wezinto ngokumeda ngamalitha kusetjenziswa: - Amabhodlelo anomthamo ongamalitha nofana imumathi ezinomthamo otlolwe ngamamililitha isib. iketukana - Ijege yokumeda enemida enenkombamthamo wamalitha, isiquntu samalitha namakota wamalitha - Ijege yokumeda enemida enenkombamthamo wamamililitha - Iinkomitji nentelebhula ezitjengisa umthamo wazo. • Ukumadanisa, ukuhlela nokurekhoda umthamo wezinto ezipakwe ngokwerhwebo ukubonisa umthamo obutjhiwo ngamalitha isib. Amalitha ama-2 webisi, 1 ilitha yesiselo esimakhaza, amalitha ama-5 wepende • Yazi bonyana ikopi ehlelekileko iyi-250 yamamililitha • Yazi bonya itelebhula ehlelekileko i-5 sama milimitha			**Ukwazisa ukulinganisa okuhlelekileko** Amathaski atloliweko ukuhlanganisa okulandelako okufaka hlangana nokufunda kweenthombe ze: • Imikhiqizo enemithamo etloliweko kizo ukuze kulandelaniswe ngokuhlela. • Iinthombe zeenjege lapho umthamo upheze walingana ilitha eli-1 nofana amalitha ama-2 enomuda wegradetjhini (gradation line) • Ukufunda ngokutjhideza enomborweni enomude wegradetjhini (gradation line) ngokuhlathulula umthamo yazo njengokuthi pheze, eduzana, enenganakuna, elinganapatsi nenomboro (yamalitha) Akukafaneli bona kube khona ukutjhugulula amamililitha abe malitha nofana amalitha abe mamililitha

IINHLOKO	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4
4.5 **Ipherimitha**			**Ipherimitha** Phenya ibanga mazombe ebujameni obubusobubili (2-D) neentweni eziyi abobusontathu (3-D) usebenzise ukumadanisa okunqophileko nofana amayunithi angakahleleki	
4.6 **Ubungako bendawo**				**Ubungako bendawo:** Phenya ubungako bendawo usebenzise amathayela

UMBONOMAZOMBE WEGREYIDI 3 5. UKUPHATHA IDATHA				
IINHLOKO	**ITHEMU 1**	**ITHEMU 2**	**ITHEMU 3**	**ITHEMU 4**
5.4 **Ukubuthelela bewuhlele idatha** **5.5** **Ukujamiselela idatha** **5.6** **Ukuhlaziya bewurhumutjha idatha**	**Okuphakayisiweko:** Umzombe wedatha opheleleko ukuwenza ibha grafu. Buthelela idatha ngetlasi nofana ngesikolo ukuphendula imibuzo ebuzwe ngutitjhere. Ukusebenzisa amathali ukurekhoda idatha emahlelweni anikelweko. Jamisela idatha e: • Amathebula • Ibha grafu Ukukhuluma nge **nokuphendula imibuzo** ngedatha esemathebuleni naku bha grafu.	Ukuhlaziya idatha esijamiselelweni esinikelweko **Okuphakanyisiweko:** • Okungasenani igrafu eyodwa yeenthombe ena 1 naku 1 okukhambisanako • Okungasenani ibha grafu yinye	**Okuziphakanyisiweko:** Ukuhlela kabutjha kwedatha enikelweko. Ngokwerherho, ngethali, nofana ngebha grafu. Jamiselela idatha kwi bha grafu. Phendula imibuzo ngedatha ngebha grafu.	Ukuhlaziya idatha esijamiselelweni esinikelweko **Okuphakanyisiweko:** • ungasenani igrafu eyodwa enakunye nakunye kokukhambisanako • Okungasenani ibha grafu yinye

3.5 AMANOTHI WOKUTLHADLHULA NEMIHLAHLANDLELA YOKUFUNDISA

Ithebula engenzasi inikela utitjhere lokhu:

- iingaba zokumumethweko begodu neenhloko kenye nenye igreyidi ne themu;
- imiqondo namakghono atjhukunyisiweko anqotjhiweko ngethemu;
- amanothi wokutlhadlhula nemihlahlandlela yokufundisa; begodu
- ubude besikhathi esinikelwe isihloko ngasinye eemfundweni ezabelwe i iri li-1 namaminithi ama24.

3.5.1 Ihlathululo Yokumumethweko eGreyidini yoku-1

IGREYIDI YOKU-1 ITHEMU YOKU-1
1. IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA

NgeThemu yokuthoma, isikhathi sisetjenziselwa ukuthuthukisa imiqondo nomboro yangaphambili. Ukuthuthukisa amakghono wangaphambili aphathelene namaphetheni, isikhala nobujamo, ukumeda begodu nedatha zakha isisekelo samakghono wokufunda ngokujayelekileko namakghono wenomboro ngokunqophileko.

Ukumetjha

Ukumetjha kurholela ekuzwisiseni umqondo wakunye nakunye okukhambelanako, okusisekelo sokumadanisa inani lezinto ezisesiqhemeni ngakelinye ihlangothi.

Lokha umfundi akghona ukubona “okufanako”, kuyakghoneka bona umetjhe amasede amabili. Ukufana yinto yokuthoma yokonga. Ukonga likghono eliqakathekileko lokumeda, inomboro nesikhala nejamo.

Ukuhlela ngemihlobo

Lokha ubeka ngamananeko, abafundi bafuna okufanako nokuhlukileko. Abafundi bathuthukisa godu ikghono lokuhlathulula nokubona. Ukuhlathulula kutjho bonyana abafundi bangakhumbula bebatjho izinto ezibazombelezileko. Ukubona kutjho bonyana abafundi bangayidobha into lokha naba nikelwe ihlathululo. Abafundi babona malungana nokuthize okuphawulekako. Abafundi bahlela izinto ngokuya ngesayizi, umbala, ijamo, ubude, ubudisi, nomthamo. Ukuhlela kwenziwa :

ngezinto zangamalanga zekuphatheni idatha;

amajamo nezinto zejiyomethri ebujamweni nesikhaleni; begodu

nokuphawulekako ezintweni ezimedwako.

Ukumadanisa

Lokha abafundi bamadanisa izinto banqophisa emehlukweni ohlangana nezinto. Abafundi banganqophisa ngo:

- bukhulu nofana ngobuncani;
- budisi nofana ngokulula;
- bude nofana ngobufitjhani;
- kumakhaza nofana okutjhisako;
- kunganalitho nofana okuzeleko;
- bunengi nofana ngobuncani; na
- kuthoma, kokugqina nofana okuphakathi.

Ukufunda ukumadanisa sifundo sokunqophisa ku:

- misetjenzana yokuthoma yokumeda;
- misetjenzana yokuthoma yobujamo nesikhala (okufaka hlangana umsebenzi wobujamo/wendawo); begodu
- nemisetjenzana yokuthoma yamaphetheni.

Emisebenzini yeenomboro, abafundi bametjha izinto eziseenqhemeni ezihlukahlukeneko. Bafunda ukubona iinqhema ezinenani elinganako lezinto ngakizo, nokuhlukanisa iinqhema ezingaba nezinto ezinengi nofana ezimbalwa kunezinye iinqhema.

Ukuhlela

Ukuhlela kusisekelo serherho leenomboro. Ukubeka nokubala izinto ngokuhlelekileko kusiza abafundi abancani ukwenza isiqinisekiso sokobana babala into kanye kuphela. Ukubeka izinto ngokuhlelekileko nakubalwako kwenza isendlalelo sokuzwisisa bonyana iinomboro ungazihlela bunjani.

Imisebenzi yokuthoma yamaphetheni efaka hlangana amajamo nofana izinto isiza ukunqophisa ukulalelisisa komfundi lokha nakuhlelwako. Ngokuya kwesikhathi, abafundi basebenzisa ikghono leli lokha nabasebenza ngamaphetheni weenomboro.

Ukulinganisa okunqophako ngaphandle kokubala

Ukulinganisa okunqophako ngaphandle kokubala kulemuka msinyana inani lezinto ebuthelelweni ngaphandle kokuzibala.

Ukulinganisa okunqophako ngaphandle kokubala kusiza abafundi ukubona amabuthelelo amancani njengeyunithi eyodwa. Lokhu kunikela abafundi isisekelo esiqinileko sokusebenza ngeenomboro.

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.1 Ukubala izinto	Ukubala izinto ngokuthembeka ukufika ema 50. Nikela ukulinganisa okuzwakalako kwenani lezinto ezingahlolwa ngokubalwa.	Ukubala izinto ngokuthembeka ukufika ema 10. Nikela ukulinganisa okuzwakalako kwenani lezinto ezingahlolwa ngokubalwa.	Ukubala kusiza abafundi ukuthuthukisa ilemuko lesayizi leenomboro nokwenza isendlalelo sokubala ngeenomboro eziphelelekо . NgeThemu yokuthoma, abafundi bathuthukiusa amakghono alandelako: • Ukubala koke • Ukubala uragele phambili • Umthetho wenani leenomboro • Ukusebenza ngamatheksti atloliweko Ukubala eThemini yoku-1 kunqotjhiswe ekuthuthukiseni ikghono lomfundi lokubala. Ukuthuthukisa ikghono lokubala kubavumela bona ba: • bale izinto ezibuthelelweko nalezo ezingakabuthelelwa; • ukubala baye phambili nemuva; • ukubala izenzeko/imisikinyeko; • ukubala kulandelane enambalayinini; • ukuthuthukisa ikghono lokulemuka isayizi yeenomboro ngokuzihlela nokuzimadanisa; noku • Linganisa nokwenza ibonelo phambili. Ukubala izinto Ngaphambi kokobana abafundi babale izinto, batlhoga ithuba lokobana bazijayeze ukubala ngehloko/ngokukhulunywako. Abafundi kufanele babe nerherho elikhulunywako /lehloko lamagama weenomboro ngokuhlelekileko: kunye, kubilib, kuthathu, ukufika ema 20. Khuthaza abafundi ukutjho imilolozelo yeenomboro begodu badlale nemidlalo ezoqinisekisa ukubala ngehloko. Ikghono leli lokubala ngehloko nofana ukubala okungakahleleki kuqakathekile ukuthuthukisa ilwazi lamagama weenomboro begodu nekghono legido/ iphetheni eseenomborweni. Abafundi bazabala inomboro yento ngayinye begodu bametjhisa amagama weenomboro namasede wezinto. Lokhu kufaka hlangana bonyananta nokutjhidisa into nokutjho igama lenomboro. Kuqakathekile bona abafundi bazi bonyana igama lenomboro yokugcina ekhulunyiweko lijamele into yokugcina ebaliweko esiqhemeni. Kufanele bazi begodu bazwisise bona inomboro yegama etjengiswe ekugcineni itjho inani lesede nofana ikhadinali yesede. Akusingiboboke abafundi abakghona ukubala ngehloko begodu batjho amagama weenomboro ngokulandelana abangenza umqondo ozwakalako ngokubala kwabo. Kungenzeka beqe ezinye iinomboro begodu batjho bonyana kunezinto zokubala ezine lokha nakunezinto zokubala ezihlanu.	

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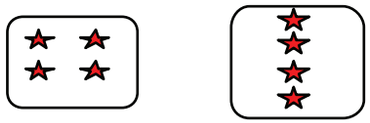
1.1 Ukubala izinto	Ukubala izinto ngokuthembeka ukufika ema 50. Nikela ukulinganisa okuzwakalako kwenani lezinto ezingahlolwa ngokubalwa.	Ukubala izinto ngokuthembeka ukufika ema 10. Nikela ukulinganisa okuzwakalako kwenani lezinto ezingahlolwa ngokubalwa.	Kuqakathekile bona abafundi babale inani elifanako lezinto ezingafaniko. Isibonelo: • Ukubala izinto zokubala ezisithandathu • Ngilethela amapensela asithandathu • Bala iinkunubhe ezisithandathu Ukongiwa / ukutlhogonyelwa Abafundi bazathoma ukulemuka lokha nababala inani lezinto bona, inomboro ayithikanyezwa yisayizi nofana ubujamo. Omunye angabuza: zingaki iinkwekwezi ezikaradeni ngalinye?  Ubujamo nofana ukuhleleka kweenkwekwezi kuhlukile, kodwana inani leenkwekwezi ekaradeni ngalinye lilingana patsi. Kuqakathekile bona lokha sibala izinto eziphathekako, abafundi babone inani elincani lezinto ngaphandle kokubala. Isibonelo , ukubona • kuhlanu , njengenani lemino esandleni sinye • izinto zokubala ezintathu, zihleleke ngananyana ngiyiphi indlela • kunye ukufika kusithandathu, ngokuhleleka kwamaqatjhazi edayisini Lokhu singakubiza godu ngokuthi kulinganisa okunqophako ngaphandle kokubala. Ngakho ke: Isisekelo somqondonomboro siyathuthuka ngokubala izinto eziphathekako. Abafundi bafunda: • Ukuhlobanisa inomboro magama nebuthelelo lezinto; • Ukwakha isithombe ngqondo sokobana inomboro itjho bonyanani o.u. yikulu kangangani; nokuthi • Igama lenomboro yento ebalwe kokugcina lijamele inani lezinto esiqhemeni.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.1 Ukubala izinto	Ukubala izinto ngokuthembeka ukufika ema 50. Nikela ukulinganisa okuzwakalako kwenani lezinto ezingahlolwa ngokubalwa.	Ukubala izinto ngokuthembeka ukufika ema 10. Nikela ukulinganisa okuzwakalako kwenani lezinto ezingahlolwa ngokubalwa.	Iinlayelo nemibuzo yokusekela ukubala izinto • Bala iingojwana zokubala ezili 10. Zihlele zibe semudeni. • Buyelela uhlele iingojwana begodu ubale. Inani lisalingana na? • Bala iimvala zamabhodlhelo la ngaphandle kokuzithinta. • Inani liyalingana na? • Uqabanga bona kunamakhrayoni amangaki lapha? • Manengi nofana mancani kunalokhu obewukucabanga? • Wazinjani bonyana unenani lelo? • Wazinjani bonyana ubale elinye nelinye ikhrayoni? • Ungayihlola njani ipendulo yakho? Ukudlulela emathekstini atloliweko Abafundi kufanele banikelwe amathuba wokubala iimboniso zezinto. Isibonelo: Kungaki lokhu? **Ragela phambili ubale** Lokha abafundi sebakghona ukubala zoke izinto bathome ku-kunye, kufanele babale baye phambili kusukela ebuthelelweni asele banalo. Isibonelo: Bawa abafundi bona babale bakhuphe izinto ezilikhomba, bese kusukela ezintweni ezilikhomba lezo, ababale bakhuphe ezinye godu ezintathu kufika lapho baba nezinto ezi-10. Ukubala uragele phambili liqhinga eliphumelelisako lokubala kunokubala koke begodu abafundi bazakiusebenzisa ukubala baragele phambili lokha nababalisisako. **Iinsetjenziswa:** Kuyasiza ukwakha ibuthelelo lezinto ezihlukeneko ezingasetjenziswa bafundi njengezinto zokubala. **Isibonelo:** • Iinthoro zomlilo • Iingojwana ze-ayisikhrimu • Iintanga zeperegisi • Amabhontjisi • Iimvalo zamabhodlelo	

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1.2 **Ukubala uye phambili nemuva**	**Ukubala uye phambili nemuva** ngakunye ukusuka kwenye nenye inomboro hlangana ne-0 ne-100 **Ukubala uye phambili nga:** • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-100 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-100 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku-2 hlangana ne-0 ne-100	**Ukubala uye phambili nemuva** ngakunye ukusuka kwenye nenye inomboro hlangana ne-0 na-20	**Ukubala uye phambili ngakunye** Ukubala ngehloko nofana ukubala uphimisele (ukubala okungakahleleki) kuligadango eliqakathekileko lokubongelela amagama weenomboro ngokuhlelekileko. Lokha abafundi bakghona ukwenza lokhu, akutjho bonyana banelwazi lesayizi yeenomboro abayitjhoko. Ethemini yoku-1 kulindeleke bona abafundi babale kwaphela baye phambili nemuva nga kunye ukufikela ema-20. Ukubala uye phambili nemuva kungenziwa netlasi loke. Yenza isiqinisekiso sokobana abafundi abarhuweleli nje kuphela ngaphandle kokuzwisisa. Eenqhemeni okunqotjhwe kizo nemberegweni wokuzijamela imisetjenzana elandelako ingenziwa ukwenza umqondo ozwakalako ekubaleni: Thoma ku-kubili ubale ukufika ku-bunane Bala ukusuka ku-kune ukufika e-10 Bala ukusuka ku-kubili ukufika ku-bunane. Ubale iinomboro ezingaki? **Bala ukufika etjhumini** Ekuthomeni abafundi bazakuthoma babale ukufika etjhumini begodu baphrakthise amagama weenomboro ngokulandelana. Abafundi banga thitjhelekaka ukubala ngehloko ngakho ke kufanele babale ngeendlela ezahlukahlukeneko, nakungasinjalo, bazamane barhuwelele. Ukubala okungakahleleki kufanele kusekelwe ngokufunda amatshwayo weenomboro begodu nokubala izinto. Abafundi kufanele banikelwe imifanekiso ebonakalako yeenomboro ngokulandelana kwazo. Imifanekiso ebonakalako elandelako ingasetjenziswa: • Imincamo yokubala • I-Abhakhasi • Inambalayini Ekuthomeni, inamba layini ayibe nazozoke iinomboro, bese kuba yinambalayini ekhamba iba neenkhala lapho ezinye iinomboro zingekho, ingasetjenziswa. Lokhu kutjho bonyana abafundi kufanele bazazi iinomboro ngokulandelana kwazo ukuzaliselela iinkhala. Ukubala uye emuva Ukubala uye emuva likghono elibudisi ebafundini begodu ukuzijayeza njalo kuyatlhogeka. Thoma ukubala uye emuva kusukela enomborweni lokha abafundi nasele bayijayele inomboro u- 2, bese wakhela phezu kwayo lokha unqophise enomborweni enye nenye engaphezulu.	

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1.2 **Ukubala uye phambili nemuva**	**Ukubala uye phambili nemuva** ngakunye ukusuka kwenye nenye inomboro hlangana ne-0 ne-100 **Ukubala uye phambili nga:** • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-100 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-100 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku-2 hlangana ne-0 ne-100	**Ukubala uye phambili nemuva** ngakunye ukusuka kwenye nenye inomboro hlangana ne-0 na-20	**Ukubala ukufika ema-20** Ukubala ukudlula etjhumini kungafuna bona abafundi batjho ukulandelana kokubala balandele/ngemuva kwakatitjhere. Kuqakathekile ukukhuthaza abafundi bona bathome ukubala ukusukela kunoma ngiyiphi inomboro. Ukuthoma ku-8 kunzima khulu kunokuthoma ku-1. Abafundi bazakusebenzisa ikghono leli lokha nababala baragela phambili ngokuhlanganisa/ekuhlanganiseni. **Iinsetjenziswa** • Imincamo yokubala ukufika ema-20 • I-Abhakhasi • Amagridi weenomboro ayasiza ukuthuthukisa ikghono labafundi lokufunda ilwazi ethebuleni. Ngoba abafundi babala kufikela etjhumini, igridi kufanele ikhombise ilwazi elilandelako kuphela: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 • Inambalayini etjengisa iinomboro ezifika ema- 20	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.3 Amat-shwayo namagama weenom-boro	Ukubona, ukukhumbula nokufunda iinomboro • Ukubona, ukukhumbula nokufunda amatshwayo weenomboro ukusuka ku-1 ukufika e-100 • Ukutlola amatshwayo weenomboro ukusuka ku-1 ukufika ema-20 • Ukubona, ukukhumbula nokufunda amagama weenomboro ukusuka ku-1 ukufika e-10 • Ukutlola amagama weenomboro ukusuka ku-1 ukufika e-10	Ukubona, ukukhumbula nokufunda iinomboro • Ukubona, ukukhumbula nokufunda amatshwayo weenomboro ukusuka ku-1 ukufika e-20 • Ukutlola amatshwayo weenomboro ukusuka ku-1 ukufika ku-5 • Ukubona, ukukhumbula nokufunda amagama weenomboro ukusuka ku-1 ukufika ku-5 • Ukutlola amagama weenomboro ukusuka ku-1 ukufika ku-5	Ukufunda nokutlola amatshwayo namagama weenomboro Abafundi bafanele bafunde bona bangakwenza bunjani lokhu: • Ukutlola amatshwayo namagama weenomboro • Ukufunda amatshwayo weenomboro • Ukutjho iinomboro Ukufunda nokutlola amatshwayo namagama weenomboro kufuze kukhambisane nemisetjenzana yokubala. Abafundi kufanele banikelwe amathuba wokumetjhisa amatshwayo namagama weenomboro nebuthelelo lezinto abazibalako. Ngalendlela, abafundi bamadanisa itshwayo lenomboro, igama lenomboro, isijamiselo senomboro nehlathululo yenomboro. Imisetjenzana yaphambili eminye Ukuzijayeza ukutlola Abafundi bangazijayeza ukutlola amatshwayo wenomboro ngeendlela ezihlukahlukeneko: • Ngokugadangisa phezu kweenamba • Ukwenza ‘ukuhlanganisa amaqathjaza’ imisetjenzana ngengaphandle lamatshwayo weenomboro • Ngokutlola esandeni • Tlola etjhokbhodini nofana esamendeni • Ngokupenda • Ngokukorotjha iinomboro ngokusebenzisa iwulu. Umsebenzi lo usiza khulukhulu ekugandeleleni lapho kuthonywa khona lokha kutlolwa iinombor. • Ngokugadangisa iinomboro ezikulu, ezisikwe ephepheni lokurhuhla nofana ematjhileni. Ukufunda iinomboro Lokhu kungenziwa ngoku: • Ukukhomba iinomboro enambalayinini nofana egridini yeenomboro • Ukufunda amakarada weenomboro Ukumetjhisa amatshwayo weenomboro nebuthelelo lezinto Lokhu kungenziwa ngoku : • Metjhisa inani lezinto neenomboro • Ukubala ibuthelelo lezinto nokukhetha ikarada leenomboro elifaneleko lenani lezinto lezo. • Ukubala izinto eziseenthombeni begodu nokutlola itshwayo lenomboro.	

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1.4 **Hlathulula, madanisa begodu uhlele iinomboro**	Hlathulula , madanisa begodu uhlele izinto ezifika ema-20 • Hlathulula begodu uhlele ibuthelelo lezinto mayelana ezinengi , ezincani, ezilinganako • Hlathulula begodu uhlele ibuthelelo lezinto kusukela kwezinengi ukuya kwezincani nakusuka kwezincani ukuya kwezinengi • Hlathulula, madanisa begodu uhlele iinomboro kufika ema-20 • Hlathulula begodu umadanise iinomboro eziphelelekomayelana nokuthi yincani kuna, yikulu kuna nokuthi idlula nga, ingaphasi nga, ilingana na • Hlathulula begodu uhlele iinomboro kusuka kwencani khulu ukuya kwekulu khulu nakusuka kwekulu khulu ukuya kwencani khulu	Hlathulula, madanisa begodu uhlele izinto ezifika kwezi-5. • Hlathulula begodu uhlele ibuthelelo lezinto mayelana nokuthi zinengi, lidlanzana, ezidlulako, ezincani, nengi kuna, ncani kuna, kuyalingana, zinengi okulinganako, umehluko • Hlathulula begodu uhlele ibuthelelo lezinto kusukela kwezinengi ukuya kwezincani nakusuka kwezincani ukuya kwezinengi. • Yenza Izinto ezihlukahlukeneko ezihlanu • Hlathulula, madanisa begoduuhlele iinomboro kufika ku-5 • Hlathulula begodu umadanise iinomboro eziphelelekokufika ku 5 usebenzise ilimi isib. • Mayelana nokuthi, kuncani kuna, kukhulu kuna ,kudlula nga, kuncani nga • Hlathulula begodu uhlele: - iinomboro kusukela kwencani khulu ukuya kwekulu khulu nakusuka kwekulu khuluv ukuya kwencani klhulu - ngokusebenzisa ilimi isib ngaphambi, ngemuva phakathi/ hlangana	Ukumadanisa nokuhlela iinomboro kusiza abafundi ukukhaliphisa umqondo wabo wokuhlobana kwama sayizi weenomboro. Izaba siza ukuthuthukisa umqondo wokobana inomboro yikulu nofana yincani kangangani kunezinye iinomboro. Lokha abafundi banomqondo omuhle wokuhlobana kwamasayizi weenomboro, kuzakuba lula kibo ukulemuka amatshwayo asisekelo. Emabangeni asiSekelo lokhu sikubiza bona yinumerosithi. Amakghono wokubala aqakathekile ekumadaniseni nokuhlela iinomboro. Ukuhlela iinomboro kufaka hlangana: • Ukufunda ngamakhadinal namba asitjela ngobungako/ngenani lenomboro • Ukusebenzisa, ukufunda nokutlola amagama namatshwayo weenomboro • Ilimi lokumadanisa iinomboro Ukumadanisa inomboro yezinto Lokhu kwenziwa khulu khulu ngokusebenzisa kunye-nakunye-okukhambelanako. Abafundi babala ibuthelelo lezinto begodu bamadanise amagama weenomboro yinye-nayinye-nezinto lezo. Ukumadanisa ibuthelelo lezinto kudzimelele elemukweni lomfundi lokubala. Kuqakathekile ukunqophisa emqondweni wokuthi ‘ kunengi na kuncani’ lokha umadanisa amanani. Lokha umadanisa izinto, ilimi lokumadanisa liyathuthuka. Isibonelo: Okunengi ngange, inomboro elinganako ne, lingana ne, kunengi kuna, kuncani kuna, kulidlanzana kuna Ukuhlela ibuthelelo lezinto Kusukela ekubaleni nekumadaniseni amasede amabili wezinto , abafundi bavumbulula begodu bafunde ngobudlelwana obubili obuqakathekileko: • Amabuthelelo amabili ayalingana lokha nakabelana igama lenomboro elifanako, nanoma amabuthelelo kungenzeka angakahleleki ngokufanako. • Ukubala iinomboro kujamele ukulandelana kweenomboro ezilandelanako ezanda ngayinye ngasosoke isikhathi .isib ukuhlanu uza ngemuva kwaka kune, kungakho ibuthelelo lezinto ezihlanu linengi ngakunye kunebuthelelo lezinto ezine nofana ibuthelelo lezinto ezine lincani ngakunye kunebuthelelo lezinto ezihlanu Ukuhlela nokumadanisa iinomboro Lokha abafundi bahlela iinomboro, bangahle basebenzise isikhala esikhona hlangana neenomboro ukuthola bona ngiyiphi inomboro ekulu. Isibonelo, bazakuthi u-5 mkhulu kuno-2 ngombanyana u-5 uza ngemuva kuka ku-2. Abafundi bafanele bahlobanise ukubalwa kweezinto begodu bamadanise ibuthelelo yezinto ezilithoba nesiqhema sezinto ezimbili. Egreyidini 2 no 3 abafundi bazabe bahlela bebamadanise iinomboro ngokuhlathulula inani/ ubungako bamadijithi. Abafundi bafanele bahlele iinomboro ngokusebenzisa imifanekiso ehlukahlukeneko.	

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1.4 **Hlathulula, madanisa begodu uhlele iinomboro**	Hlathulula , madanisa begodu uhlele izinto ezifika ema-20 • Hlathulula begodu uhlele ibuthelelo lezinto mayelana ezinengi , ezincani, ezilinganako • Hlathulula begodu uhlele ibuthelelo lezinto kusukela kwezinengi ukuya kwezincani nakusuka kwezincani ukuya kwezinengi • Hlathulula, madanisa begodu uhlele iinomboro kufika ema-20 • Hlathulula begodu umadanise iinomboro eziphelelekomayelana nokuthi yincani kuna, yikulu kuna nokuthi idlula nga, ingaphasi nga, ilingana na • Hlathulula begodu uhlele iinomboro kusuka kwencani khulu ukuya kwekulu khulu nakusuka kwekulu khulu ukuya kwencani khulu	Hlathulula, madanisa begodu uhlele izinto ezifika kwezi-5. • Hlathulula begodu uhlele ibuthelelo lezinto mayelana nokuthi zinengi, lidlanzana, ezidlulako, ezincani, nengi kuna, ncani kuna, kuyalingana, zinengi okulinganako, umehluko • Hlathulula begodu uhlele ibuthelelo lezinto kusukela kwezinengi ukuya kwezincani nakusuka kwezincani ukuya kwezinengi. • Yenza Izinto ezihlukahlukeneko ezihlanu • Hlathulula, madanisa begoduuhlele iinomboro kufika ku-5 • Hlathulula begodu umadanise iinomboro eziphelelekokufika ku 5 usebenzise ilimi isib. • Mayelana nokuthi, kuncani kuna, kukhulu kuna ,kudlula nga, kuncani nga • Hlathulula begodu uhlele: - iinomboro kusukela kwencani khulu ukuya kwekulu khulu nakusuka kwekulu khuluv ukuya kwencani klhulu - ngokusebenzisa ilimi isib ngaphambi, ngemuva phakathi/ hlangana	Abafundi bangahlela iinomboro ngokusebenzisa inambalayini. **Isibonelo:** • Thatha inomboro yesi-3 uyibeke enambalayinini • Khetha inomboro ngemuva kwaka ku 4 uyibeke endaweni yayo efaneleko enambalayinini • Khetha inomboro phakathi kuka ku-3 no ku-5 uyibeke endaweni yayo efaneleko enambalayinini • Khetha inomboro ngaphambi kwaka ku-2 uyibeke endaweni yayo efaneleko enambalayinini • Khetha inomboro ngaphambi kwaka ku-3 uyibeke endaweni yayo efaneleko enambalayinini Amakarada weenomboro **Isibonelo**: Abafundi bangapaka amakarada ngokulandelana kwawo. **1** **2** **3** **4** **5** Ukudlulela emathekstini atloliweko Abafundi bangahlanganisa ilwazi labo ngokuqedelela imisebenzi eencwadini zabo zokusebenzela. Lokhu kungenziwa ngesikhathi sokusebenza ngokuzijamela. **Ubukhadinali nobu-odinali** Ubukhadinali kutjho inani loke lesede nofana lebuthelelo. Ubu-odinali kutjho indawo / ubujamo lapho into ikhona hlangana nesede yezinto. Kufanele kwenziwe ukuhlobana phakathi kweenomboro zekhadinali neenomboro ze-odinali. Abafundi bazakubona lokhu lokha nababala isiqhema sezinto begodu bazi bonyana lokha bathinte into yesihlanu, bazabe sebabale izinto ezihlanu ngesikhathi leso. Iinomborosikhundla kusetjenzwa ngazo kwaphela eThemini yesi-4.	

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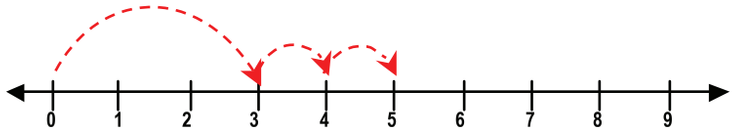
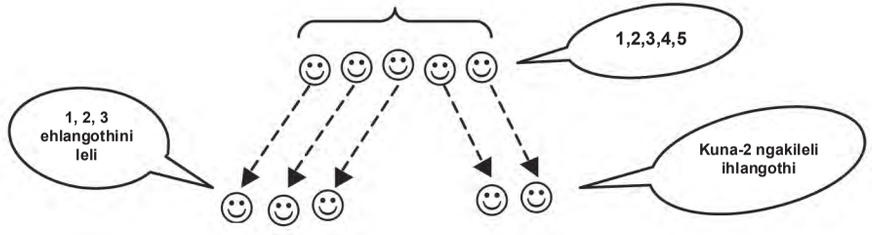
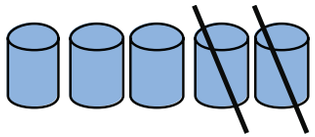
UKURARULULA IMIRARO ESEBUJAMENI				
1.6 Amathek-hiniki wok-urarulula imiraro	Sebenzisa amathekhiniki alandelako lokha nawurarulula imiraro begodu uhlathulule iinsombululo zemiraro: • Iinsetjenziswa eziphathekako isib. iimbali • Iinthombe zokugwala isamba sendatjana • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula • Amanambalayini	Sebenzisa amathekhiniki alandelako lokha nawurarulula imiraro begodu uhlathulule iinsombululo zemiraro: • Iinsetjenziswa eziphathekako isib. iimbali • Iinthombe zokugwala isamba sendatjana • Amanambalayini esekelwe ziinsetjenziswa eziphathekako isib. Imincamo yokubala	NgeThemu le, abafundi bazakuthoma ukurarulula imiraro yamagama basebenzisa amathekhiniki alandelako ukurarulula imiraro leyo: • Iinsetjenziswa eziphathekako • Imigwalo • Amanambalayini **Imigwalo neensetjenziswa eziphathekako** Abafundi bazakugwala iinthombe bebasebenzise neensetjenziswa eziphathekako ukurarulula imiraro. Ekupheleni kweThemu abafundi banga gwala iinthombe eziphethe iinomboro ukuhlathulula umbalo neensombululo. Kuqakathekile bona iinthombe nofana imigwalo ephethe iinomboro ezihlathulula umbalo nesisombululo nge: • Amamaraga wobunye • Iinomboro **Amanambalayini** Ukusebenzisa Amanambalayini ukwenzela ukubasiza ukubalisisa kuzakunikela abafundi indlela yokurekhoda ukucabanga kwabo nokwenza ilandelela yalokho. Begodu ivumela abafundi bona babe barekhode isiboniso abangasisebenzisa ukuhlathulula bona bawurarulule njani umraro. NgeThemu le, abafundi bazakuvezelwa Amanambalayini begodu bazathoma ukuwasebenzisa njengeqhinga lokubalisisa. Ekuthomeni, lokha kusetjenzwa ngamanambalayini intambo yemincamo ingabekwa ngehla nofana ngaphasi kwenambalayini ukusiza abafundi ukubala. Ngaphambi kokobana abafundi basebenzise inambalayini njengeqhinga lokubalisisa, bafanele bayisebenzisele uku: • Bala baye phambili nemuva • Ukufunda amatshwayo weenomboro • Ukutlola amatshwayo weenomboro • Ukubeka /jamisa iinomboro enambalayinini • Ukuhlela nokumadanisa iinomboro Lokha usebenzisa inambalayini njengesiboniso sokubalisisa, umqondo wo ‘ukweqa’ ungafundwa ngokusebenzisa imino nofana ngokugwala umuda ngaphandle nangokweqa kwamambala kusuka kwenye inomboro ukuya kwenye. Imisetjenzana yehlobo leli isiza abafundi ukubona lapho iinomboro zikhambelana khona. Kufanele bakwazi bonyana: “ukususka ku-3 ukuya ku-5 kuzakuthatha imeqo emi-2”. Abafundi kufanele banikelwe amathuba wokwenza ibonelo phambili lokuthi mimeqo emingaki khesithi kusuka ku-2 ukuya ku-5.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.6 Amathek-hiniki wok-ururalula imiraro	Sebenzisa amathekhiniki alandelako lokha nawurarulula imiraro begodu uhlathulule iinsombululo zemiraro: • Iinsetjenziswa eziphathekako isib. iimbali • Iinthombe zokugwala isamba sendatjana • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula • Amanambalayini	Sebenzisa amathekhiniki alandelako lokha nawurarulula imiraro begodu uhlathulule iinsombululo zemiraro: • Iinsetjenziswa eziphathekako isib. iimbali • Iinthombe zokugwala isamba sendatjana • Amanambalayini esekelwe ziinsetjenziswa eziphathekako isib. Imincamo yokubala	**Isibonelo** sokobana abafundi bangayisebenzisa njani inambalayini ethemini : Kunabesana abathathu nabantazana ababili abenza isifundo sobukghwari esingezelelweko esikolweni. Bangaki abafundi abangetlasini yobukghwari? Abafundi bangasebenzisa inambalayini ngendlela elandelako ukufinyelela ependulweni.  Qala amanothi angenzasi ngaphasi kwe 'iindlela nofana amaqhinga' ukuveza inambalayini. Tjheja bona esikhathini esinengi abafundi bararulula imiraro ngendlela utitjhere angakalindeli ngayo. **Isibonelo**, ukurarulula umraro ongehla, abafundi bangakhetha ukuthoma ukubala ngenani labantazana aba-2, bese bahlanganise noku-3. Iindlela yabafundi izakutjhuguluka ngokukhamba konyaka lokha ukuzwisisa kwabo nokuzijayeza imihlobo yemiraro khula begodu nomqondo nomboro wabo uthuthuka.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.7 Ukuh-langanisa nokukhupha	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-20.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-20.	Iimbalo zamagama zivame ukusetjenziswa njengesingeniso eembalweni (ama-oparetjhini). Abafundi bathoma ngokurarulula imiraro ngokusebenzisa iinsetjenziswa eziphathekako; lokhu kuthuthukisa: • Ukugwala iinthombe; • Ukugwala iinthombe nokutlola iinomboro ukuhlathulula iimbalo (ama-opharetjhini) noku; • Ukusebenzisa iinomboro kuphela. **Isibonelo:** Kunabantwana abahlanu emjinkweni. Abathathu basehlangothini elilodwa. Bangaki abangakelinye ihlangothi? Ethemini yokuthoma abafundi bangarekhoda imiraro yamagama ngendlela elandelako. **Amaqhinga wokubalisisa** Ukusebenzisa ukubala koke ukwenzeka ukurarulula umraro womjinko  Lapha, abafundi babala isiqhema ngasinye nebuthelelo loke, ngakho ke, babala okungasenani kathathu. Ukusebenzisa ukubala uragele phambili ukurarulula umraro oyaphasi naphezulu (see-saw) Abafundi babala baragele phambili ukusuka kukuthathu bebafike kukuhlanu. Leli liqhinga elisiza khulu lokha umuntu nakalisebenzisako. “Ngiyazi bona kunabantwana abathathu begodu umntwana oyedwa wenze babe bane, begodu omunye umntwana oyedwa wenze babe bahlanu abantwana. Kunabantwana ababili ngakwelinye ihlangothi”. *Ukuhlanganisa nokukhupha usebenzisa ama-apharathasi* Abafundi basebenzisa ama-apharathasi aphathekako ngendlela ethize ukufinyelela ependulweni. Abafundi basebenzisa iinsetjenziswa ukwakha umqondo ozwakalako wokuhlanganisa nokukhupha basebenzisa izinto abangazithinta, bazibambe begodu bajikajike nazo. Bonyana abafundi bazisebenzisa njani iinsetjenziswa, kuzakukhethwa kbonyana isisbalo samagama sijame/sakhiwe bunjani.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.7 Ukuh-langanisa nokukhupha	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-20.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-20.	**Ukurekhoda imifanekiso yokuhlanganisa nokukhupha** • **Ukurekhoda usebenzisa ama-apharathasi aphathekako** Abafundi bangasebenzisa iinsetjenziswa eziphathekako ukbala koke nokubala baragele phambili. Nanyana kunjalo, abafundi bangasebenzisa amaqhinga la lokha nabagwala iinthombe ukutjengisa ukucabanga kwabo, amaqhinga wabo wokubalisisa begodu nomphumela. • **Ukurekhoda iinthombe kwaphela** **Isibonelo:**  **Ukurekhoda eenthombeni neenomborweni** Ukwenzela bona abafundi basebenzise iinomboro neenthombe ukuhlathulula ukucabanga kwabo, kufanele ba: • Kghone ukukhumbula iinomboro 1-5 • Bale izinto ezihlanu begodu bazi bonyana u ku 5 ujamele zoke izinto ezibaliweko. • Tlole iinomboro • Hlele begodu bamadanise iinomboro **Imihlobo yemiraro yokuhlanganisa neyokukhupha** Kunemihlobo okungasenani emithathu yemiraro esisekelo yokuhlanganisa nokukhupha begodu omunye nomunye umhlobo ungabekwa ngeendlela ezahlukahlukeneko. Imihlobo esisekelo ngile: *Itjhuguluko* UNoluthando beka namahabhula amabili. USilo wamupha amanye amhabhula amathathu. Sekanamahabhula amangaki nje uNoluthando? UNoluthando beka namahabhula amahlanu. Wapha uSilo amahabhula amane. Sekanamahabhula amangaki nje uNoluthando? *Hlanganisa* UNosesi unamamabula ababili ahlaza kotjani nababili ahlaza kwesibhakabhaka. Unamamabula amangaki sewawoke uNosesi? UNosesi unamamabula amane. Amathathu ahlaza begodu aseleko ahlaza kwesibhakabhaka. UNosesi unamamabula amangaki ahlaza kwesibhakabhaka?	

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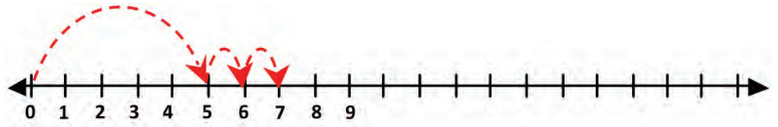
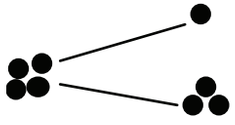
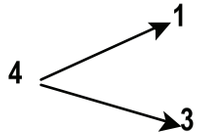
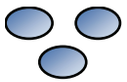
1.7 Ukuh-langanisa nokukhupha	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-20.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-20.	*Ukumadanisa* UNosesi unamabhanana amahlanu. UThemba unebhanana elilodwa. Amabhanana ka Nosesi adlula wakaThemba ngamabhanana amangaki? **Iinsetjenziswa:** Abafundi bangasebenzisa izinto zokubala ezitjhaphulukileko, ukubasiza ukubona bona kwenzekani lokha umuntu ahlanganisa amanani ndawonye nofana lokha umuntu nakawahlukanisako. Izinto zokubala ezitjhaphulukileko zisiza abafundi ukubona bona kwenzekani lokhana babala koke. **Iimbonelo** zezizinto zokubala ezitjhaphulukileko ngilezi: • Izinto zokubala • Iingojwana zokubala • Iimvalo zamabhodlhelo • Iintanga zeperegisi • Amatje • Amakhyubhu weyunifiksi • Ukusebenza ngerherho leenomboro ukusuka ku-1 kuya ku-5, abafundi bangasebenzisa imino yabo njengezizinto zokubala ezitjhaphulukileko.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.9 Ukubuthele-la nok-wabelana okurholela ekuhlu-kaniseni	Ukurarulula nokuhlathulula iinsombululo zemiraro ephathekako okufaka hlangana ukwabelana ngokulinganako nokubuthelela ngeenomboro ezibanzi ukufika ema 20 begodu nangeempendulo ezingahle zifake hlangana nesalela.	Ukurarulula nokuhlathulula iinsombululo zemiraro ephathekako okufaka hlangana ukwabelana ngokulinganako nokubuthelela ngeenomboro ezibanzi ukufika ku 5 begodu nangeempendulo ezingafaka hlangana isalela.	EGreyidini yoku-1 umqondo wokuhlukanisa uthulwe ngokunikela abafundi imiraro ephathekako efaka hlangana ukwabelana nokubuthelela. Itshwayo lokuhlukanisa livezwa kwaphela lokha abafundi sele baseGreyidini yesi- 3. Ngaphasi lapha ziimbonelo zemihlobo yemiraro yamagama ezingenziwa. **Ukubuthelela** *Ukubuthelela, ulahle isalela* USphenge uthengisa amaskwatjhi ngemigodlana efaka amaskwatjhi amabili umgodlana ngamunye. Usele namaskwatjhi amahlanu. Migodlana emingaki efaka amaskwatjhi amabili umgodlana ngamunye, angayenza? *Ukubuthelela, ukufaka hlangana, isalela ependulweni* Kunamahabhula amane. Migodlana emingaki yamahabhula amabili athatha engazaliswa ngawo? **Ukwabelana** *Ukwabelana , kulahlwe isalela* Yabela abangani abathathu amaswidi amahlanu ukwenzela bona boke bathole inani elilinganako lamaswidi. **Ukurekhoda imifanekiso ukwenzela ukubuthelela nokwabelana** Lokha sitjengisa ukwabelana kwemiraro yamagama, abafundi “bazakwabelana” into yinye ngesikhathi esisodwa. Abafundi beGreyidi yoku-1 balindeleke babelane into eyodwa ngesikhathi begodu kuzokutjengiswa ekurekhodeni kwabo. Lokha unyaka uragela phambili abafundi bazakghona ukurekhoda basebenzisa iinthombe neenomboro ukubonisa inomboro eyabelweko.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
UKUBALA OBUSEBUJAMWENI OBUTJHAPHULUKILEKO Zinengi iindlela zokucabanga ngokuhlela ukubala kokufunda nokufundisa. Enye indlela ngeyokucabanga ngerherho leenomboro. Irherho leenomboro abafundi abasebenza ngaphakathi kwalo lizakutjho bona ngimaphi ama-apharathasi wasebenzisako nokuthi bazazirekhoda bunjani iinsombululo zabo. Ngakho-ke, enye indlela yokucabanga ngokubala esiGabeni esisiSekelo kujamisela ukubala. Lokhu kwenziwa ngoku: • Sebenzisa ama-apharathasi aphathekako; • Ukugwala iinthombe; • Ukusebenzisa iinthombe namatshwayo; • Ukusebenzisa iinomboro nabotjhobi; nofana • Ukusebenzisa imitjho yeenomboro. Abafundi basuka ekusebenziseni ama-apharathasi aphathekako ukuya ekusebenzeni ngezinto ezingaphathekiko ematshwayeni weenomboro nemitjhweni yeenomboro. Ukubalisisa kuwela ngaphakathi komqondo wobujamo bokurarulula imiraro. Abafundi bathuthukisa amakghono wokurarulula imiraro ukwenzela ukusebenza ngeenomboro. Abafundi bafanele benze ukubala obusebujameni obutjhaphulukileko.				

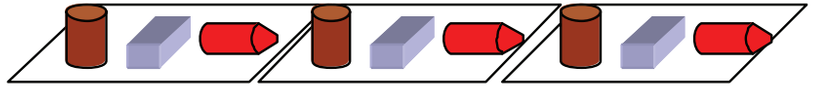
IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.12 Amathekh-iniki (iindlela nofana amaqhinga)	Sebenzisa amathekhiniki alandelako nawenza: • Ama-apharathasi aphathekako isib. Izinto zokubala • Ukugwala iinthombe • Ukwakha nokuphula iinomboro • Ukubuyelela nokuhafula • Amanambalayini	Sebenzisa amathekhiniki alandelako nawu urarulula imiraro begodu uhlathulule iinsombululo zemiraro: • Ama-apharathasi aphathekako isib. Izinto zokubala • Iinthombe zokugwala umphumela wendatjana • Amanambalayini asekelwe ma-apharathasi aphathekako isib. Imincamo yokubala	Ethemini yokuthoma abafundi bazakurarulula imiraro yeenomboro basebenzisa ama-apharathasi aphathekako. Kuqakathekile bona abafundi basebenzise imihlobo ehlukahlukeneko yama-apharathasi akhethiwe ngokuyelela ukuthuthukisa imiqondo efundisiweko. Lokha abafundi baba nokuzithemba ngokusebenzisa ama-apharathasi, ukutjengisa ukucabanga kwabo, bangarekhoda ukubala kwabo ngokugwala. Kufanele ulindele bona imigwalo yabo itjengise ama-apharathasi aphathekako. Kungahle kube khona abanye abafundi abazakuthi zisuka nje batjengise ukubala kwabo ngokugwala begodu bangasebenzisi iinsetjenziswa eziphathekako. **Amanambalayini asekelwe ma-apharathasi aphathekako** Lokha usebenzisa amanambalayini njengamathekhiniki ukwenzela ukubala, kuthlogeka bona abafundi bathome ngokusebenzisa lokhu: • Amanye ama-apharathasi wokubala asemideni' isib imincamo yokubala, iinomboro ezilandelanako; • Inambalayini yokubala uye phambili nemuva; ne • Nambalayini ukwenzela ukubeka kuhle nokuhlela iinomboro. Inambalayini ehleleke kuhle kufanele isetjenziswe (begodu ibe ngelungileko) lokha abafundi nabahlanganisa begodu nabakhuphako. Inambalayini ehleleke kuhle kufanele itjengise zoke iinomboro ezikiyo. • Ukwethula ukuhlanganisa ngokusebenzisa inamba layini a) Utitjhere ubeka inambalayini ethoma ngeli- ukuya e- ebhodini. Utjengisa abafundi bona bangawurarulula njani umraro usebenzisa inambalayini. Ubeka isithombe somqasana eli-. **Isibonelo:** Umqasana weqa ukusuka eli- uye kusi- begodu usuke lapho weqe imeqo emibili godu. Mimeqo emingaki nasele iphelele?  b) Abafundi basebenzisa imino yabo ukweqa enambalayinini esemadeskeni wabo, lokha utitjhere abanikela imitjho yeenomboro neempendulo ezifika e-10, Isibonelo: 1 + 2 =3.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.13 Ukuh-langanisa nokukhupha	Irherho leenomboro : 1 -20 • Hlanganisa ukufika ema-20 • Khupha ukusuka ema 20 • Sebenzisa umbalo/ itshwayo elifaneleko • (£) • Zijayeza ukulumbana / ukuhlangana kweenomboro kufika e 10	Irherho leenomboro : 1 -5 • Hlanganisa kufika ku 5 • Khupha kusuka ku 5 • Zijayeza ukulumbana / ukuhlangana kweenomboro kufika ku-5	EThemini yoku-1 abafundi bazwisisa **ukuhlanganisa njengokuhlanganisa iinqhema begodu nanjengokubala uragele phambili**. Basebenzisa ukuzwisisa kwabo kokuthi ukuhlanganisa kungenziwa nanganoma ngiyiphi indlela ukukhetha bona ubala njani. Basebenzisa intambo yemincamo, bagwala iinthombe nofana inambalayini ukwenzela ukubala njengokuthi 3 + 2 nofana 1 + 4 ngokubala uragele phambili. Bayaziphula iinomboro ukwenzela ukuhlanganisa. EThemini yoku-1 abafundi barhumutjha ukukhupha njengoku 'thatha ususe'. Bajamisela u 'thatha ususe' ngokusebenzisa izinto nokugwala iinthombe nangemitjho yeenomboro. Bayakhumbula bona inani lezinto eziseleko ziyipendulo yokubala. Babuye barekhode Ukuhlanganisa nokukhupha ngokusebenzisa: • ama-apharathasi aphathekako; • Iinthombe nofana imigwalo; nofana • Iinthombe neenomboro. **Ukusebenza ngerherho leenomboro 1 – 5** Lokha abafundi basebenza nofana babalisisa ngaphakathi kwerherho leli leenomboro bangakha ukuzwisisa kwabo kokuhlanganisa nokukhupha ngendlela elandelako: • Sebenzisa ama-apharathasi aphathekako ukujamisela iinomboro nokubala • Ukurekhoda ukubala kwabo basebenzisa iinthombe nofana iimfaniso • Ukurekhoda ukubala kwabo ngokusebenzisa ukuhlanganisa iinthombe neenomboro **Ukwakha nokuphula iinomboro** Ukuhlanganisa nokukhupha eGreyidini yoku-1 kunqotjhiswe ekwenzeni bona abafundi bacabange ngeenomboro njengento evela kwezinye iinomboro. Esikhathini esinengi abafundi bazibandakanya **emsebenzini owodwa owenziwe waba ziinkhawu-khawu**. Imisetjenzana le, inqotjhiswe enomborweni eyodwa. Isibonelo , lokha abafundi basebenza ngenomboro u-4 abafundi bazaku: • phula u-4 ngeendlela ezahlukahlukeneko; • tjho nofana bafundele iinqetjhana lezo phezulu; nofana • gwala nofana bazitlole phasi.  	

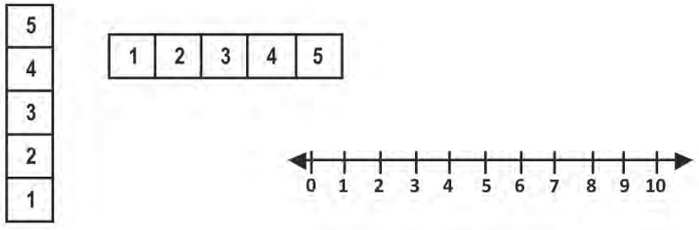
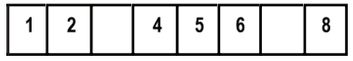
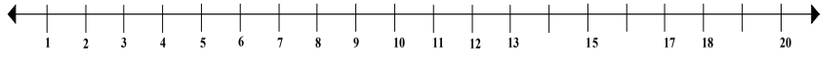
IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.13 Ukuh-langanisa nokukhupha	Irherho leenomboro : 1 -20 • Hlanganisa ukufika ema-20 • Khupha ukusuka ema 20 • Sebenzisa umbalo/ itshwayo elifaneleko • (£) • Zijayeza ukulumbana / ukuhlangana kweenomboro kufika e 10	Irherho leenomboro : 1 -5 • Hlanganisa kufika ku 5 • Khupha kusuka ku 5 • Zijayeza ukulumbana / ukuhlangana kweenomboro kufika ku-5	Abafundi bangasebenzisa namakarada weenomboro ukutjengisa iingcenye zeenimboro. Ngakho ke , ukutjengisa u 4, amanye wamakarada alandelako angasetjenziswa: 1 3 2 2 Imiqondo le ingasekelwa ngokurekhoda eencwadini zomsebenzi wangetlasini ngesikhathi sokusebenza ngokuzijamela 4 → 1, 3 Lokhana bakhuphako, abafundi bavame ukuzibandakanya eembalweni zeendatjana ezithuthukisa ukukhupha njengo 'thatha ukhuphe' nofana 'bala ukhuphe'. Abafundi kufanele benze **imisetjenzana yeengcenye ezitjhiyiweko**. Imisetjenzana le, isekela ukuzwisisa ukukhupha begodu ifuna kube nencenye efihlekileko nofana engaziwako. **Isibonelo :** Ngina  Ngifisa ngathana ngina-5 Itshwayo **alithulwa** kileThemu le. Abafundi kufanele bavezelwe iindlela ezinengi zokutlola imitjho ezakubasiza lokha nakwethula itshwayo ngeThemu yesi-2. **Isibonelo soku-1** ☐ na ☐ kwenza 2 **Isibonelo sesi-2** ☐ na ☐ kwenza 3	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.13 Ukuh-langanisa nokukhupha	Irherho leenomboro : 1 -20 • Hlanganisa ukufika ema-20 • Khupha ukusuka ema 20 • Sebenzisa umbalo/ itshwayo elifaneleko • (£) • Zijayeza ukulumbana / ukuhlangana kweenomboro kufika e 10	Irherho leenomboro : 1 -5 • Hlanganisa kufika ku 5 • Khupha kusuka ku 5 • Zijayeza ukulumbana / ukuhlangana kweenomboro kufika ku-5	**Ukulumbana kweenomboro** NgeThemu le, abafundi bazijayeza ukulumbana kweenomboro ukufika ku-5. Lokhu kungathulwa ngokusebenzisa iinthombe nemitjho yeenomboro ngokusebenzisa iimfaniso ezihlukahlukeneko **Ukuhlanganisa** **Isibonelo:** *Ukwenza u-5 nofana ukuthola abangani aba-5 usebenzise iinthombe neenomboro* Faka umbala ngeenkwereni ukwenza uku-5 **Isibonelo:** _____ na _____ kwenza 5 _____ na _____ kwenza 5 _____ na _____ kwenza 5 _____ na _____ kwenza 5 **Ilimi loku hlanganisa nokukhupha** Abafundi kufanele bazijayeze ilimi lokuhlanganisa nokukhupha. **Ukuhlanganisa :** hlanganisa, ukuhlanganisa, begodu, ukwandisa nga, hlanganisa, sekukoke, kwenza, inani **Ukukhupha:** Khupha, thatha ususe, khupha, umehluko, phakathi, ncani kuna, ncitjhiswe nga. Ethemini yesi-2 abafundi bazaku “tjhugulula” ilimi lokuhlanganisa nokukhupha benze amatshwayo. Abafundi kufanele bakghone ukulandela iinlayelo ezifana nalezi ezilandelako: • Yenza kudlule ngaku 3 • Yandisa nga 1 • Khupha ku 3 • Yenza kube kuncani nga 1 • Kunengi ngaku 3 na 2 • 4 khupha 2 • 3 ncani nga-1	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.16 limbalo zehloko	**Umqondonomboro : irherho 20** • Ukuhlela amasede weenomboro ezikhethekiloeko onikelwe zona • Ukumadanisa iinomboro kufika e 100 begodu batjho bonyana ngiyiphi ekulul nofana encani • Ukwazi bonyana ngiyiphi inomboro enengi nga 1 nofana encani nga 1 eenomborweni onokelwe zona • Ukwazi bonyana ngiyiphi inomboro ekulu ngaku 2 nofana encani nga 2 kunenomboro onikelwe yona • Ukwazi bona ngiyiphi inomboro ekulu nga li 10 nofana encani nga li10 kunenomboro onikelwe yona **Ukukhumbula masinyana :** • Ukuhlangana kweenomboro kufika e 10 • Ukukhumbula amaphuzu wokuhlanganisa nokukhupha kufika e 10 **Amaqhinga weembalo zehloko** Sebenzisa amaqhinga wokubala Ukuhlanganisa nokukhupha ngekghono: • Beka inomboro ekulu ekuthomeni ukwenzela ukuragela phambili nokubala nofana ukubala uye emuva • Inambalayini • Ukubuyelela kabili nokuhafula • Ukwakha nokuphula	**Umqondonomboro : irherho 5** • Ukuhlela amasede weenomboro ezikhethekiloeko onikelwe zona • Ukumadanisa iinomboro kufika e 10 begodu batjho bonyana ngiyiphi ekulul nofana encani • Ukwazi bonyana ngiyiphi inomboro enengi nga 1 nofana encani nga 1 • Ukwazi bonyana ngiyiphi inomboro ekulu ngaku 2 nofana encani ngaku 2	Isikhathi seembalo zehloko zithuthukisa ebafundini: • umqondonomboro; • ilimi leemBalo ; • Amakghono wokucabanga; nama • kghono wokulalela. Ngesikhathi seembalo zehloko abafundi kufanele banikelwe ithuba lokuhlathulula iindlela zabo zokwenza. Iimbalo zehloko zakha ilemuko leenomboro (ukuba no 'muzwa' weenomboro) begodu zithoma ukufundisa abafundi indlela elula yokusebenza ngeenomboro. Inomboro u ku-5 akusese yinomboro nje kwaphela. Isibonelo, enomborweni uku-5, abafundi kufanele bazi bona: • Uza ngemuva kuka ku-4; • Uza ngaphambi kuka-6; • Ingakhambisana nezinto ezi-5 ; • Bangatlola itshwayo; begodu • Bangatlola igama lenomboro. **Umqondonomboro** Iimbonelo zemibuzo nemisetjenzana engabuzwa begodu yenziwe: • Abafundi bajama emudeni bese uyababuza: ngubani osekuthomeni, wesibili, wesithathu nofana wokugcina? • Ngiyiphi encani, 3 nofana 5? • Ngikuphi okunengi, 2 nofana 4? • Ngipha inomboro ephakathi kuka 1 no 3, • Ngipha inomboro ephakathi kuka 2 no 5. Yinye kuphela inomboro lapho? • Beka amakarada weenomboro ngokulandelana ukusuka kwencani khulu ukuya kwekulu khulu inomboro. Imibuzo engabuzwa ngokubala: • Thoma ngaku-3 begodu ubale uye phambili ngakunye ukufika e-10.	

IGREYIDI YOKU-1 ITHEMU YOKU-1 2. AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.1 Amapheth-eni weJi-yomethri	**Ukukopa ,ungezelele bewuhlathulule** Ukukopa, ungezelele bewuhlathulule ngamagama • Amaphetheni alula enziwe ngezinto eziphathekako • Amaphetheni alula enziwe ngemigwalo yemida, ubujamo nafana izinto. **Tlama begodu uhlathulule amaphetheni wakho** Tlama amaphetheni weJiyomethri • Ngezinto eziphathekako • Ngokugwala imida, ubujamo nofana izinto **Amaphetheni asizombelezileko** Ukubona, ukuhlathulula ngamagama nokukopa amaphetheni weJiyomethri • Wemvelo, • Kusukela epilweni yangamalanga yesimodeni, • Kusukela kezamagugu nendabuko yethu.	**Ukukopa Nokungezelele** Ukukopa bewungezelele amaphetheni alula usebenzisa • Izinto eziphathekako • Imigwalo (isib. Ukusebenzisa imibala nobujamo)	**Ukukopa** iphetheni kusiza abafundi ukubona ilojikhi yokuthi iphetheni yenziwe njani. **Ukungezelela** iphetheni kusiza abafundi ukubona bonyana bayizwisisile ilojikhi yephetheni. Abafundi bangakopa begodu bangezelele amaphetheni enziwe ngezinto eziphathekako nangaphambi kokuberegisa ikhrayoni nofana ipensela ukuthoma ukukopa nokungezelela amaphetheni ngokugwala. Amaphetheni angenziwa ngezinto zangamalanga ezijayelekile ezitholakala ngetlasini, njengezinto zokubala, iinthoro zomlilo, amabhoksana womlilo, iimbumbeko zeJiyomethri, imincamo, itolitji yekoteni, amabhoksi, amabholo, amakhrayoni, amapensela njll. Abafundi bangenza izinto ngebumba nofana ihlama yokudlala izinto lezi zingaberegiswa ukwenzwa amaphetheni. Egreyidi yoku-1 abantwana banganqopha emaphethenini lapho iimbumbeko nofana izinto (iinqema zembumbeko nofana zezinto) zibuyabuyelelwe ngendlela efana poro. **Isibonelo 1**: Emaphethenini amanye ubukhulu bezinto eenqhemeni buyatjhintjhana, kodwana iinqhema zibuyabuyelelwa ngendlela ezifana patsi. **Isibonelo 2**: Amaphetheni angenziwa ngokusebenzisa into eyodwa kodwana imibala itjhuguluke ngendlela eqhelileko. **Isibonelo 3:** Kwamaphethenini amanye izinto ezihlukahlukeneko zisetjenzisiwe ukwenza iinqhema, kodwana iinqhema zezinto zibuyabuyelelwa ngendlela efana patsi 	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.1 Amapheth-eni weJi-yomethri	**Ukukopa ,ungezelele bewuhlathulule** Ukukopa, ungezelele bewuhlathulule ngamagama • Amaphetheni alula enziwe ngezinto eziphathekako • Amaphetheni alula enziwe ngemigwalo yemida, ubujamo nafana izinto. **Tlama begodu uhlathulule amaphetheni wakho** Tlama amaphetheni weJiyomethri • Ngezinto eziphathekako • Ngokugwala imida, ubujamo nofana izinto **Amaphetheni asizombelezileko** Ukubona, ukuhlathulula ngamagama nokukopa amaphetheni weJiyomethri • Wemvelo, • Kusukela epilweni yangamalanga yesimodeni, • Kusukela kezamagugu nendabuko yethu.	**Ukukopa Nokungezelele** Ukukopa bewungezelele amaphetheni alula usebenzisa • Izinto eziphathekako • Imigwalo (isib. Ukusebenzisa imibala nobujamo)	Ukusiza abafundi begreyidi yoku 1 ukubona bonyana iinqhema zibuyelelwe njani, kuqakathekile ukubeka isiqhema ngasinye embhampirini ezihlukeneko nofana uyibonise ebhlogweni lekhasi. **Isibonelo 4:** Amaphetheni angenziwa ngokubuyelela iinqhema zezinto. Iinqhema zingenziwa ngezinto ezifanako ezibekwe ebujameni obuhlukeneko. Ukwenza amaphetheni kuyingcenye eqakathekileko emfundweni eziphasi, begodu kwenzeka elimini, emaKghonweni wePilo nembalweni. Isibonelo ukwenza amaphetheni kuyingcenye yomvumo, imidunduzelo, ukugida nokunye okunengi okuyimihlobo yobugwari obubonakalo. Kunamathuba wokujayeza abafundi amakghono abonakalako wamaphetheni aberegiswa embalweni lokha nabefunda amakghono wepilo – khulukhulu ukuthungelela imincamo nofana ukugwala amaphetheni.	Isifundo -1

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.2 Amaphe-theni weenom-boro	**Ukukopa, ukungezelela nokuhlathulula** Ukukopa, ukungezelele bewuhlathulule Ukulandelanisa kwenomboro elula ukufika ku-100. **Tlama begodu uhlathulule amaphetheni wakho** Yenza bewuhlathulule amaphetheni weenomboro	**Ukukopa, ukungezelela nokuhlathulula** Ukukopa, ukungezelele bewuhlathulule Ukulandelanisa kwenomboro elula ukufika ku-20. Ukulandelanisa kufanele kubonise ukubalela ukuya phambili nemuva: • nga-1 kusuka kwenye nenye inomboro hlangana ne-0 na-20	EsiGabeni esisiSekelo, amaphetheni wenomboro akha imiqondo nomboro yabafundi. Amaphetheni wenomboro ahlanganiswe nama-opharetjhini kwenomboro noBudlelwana. Ukulandelanisa iinomboro kungahlanganiswa nokubala. Ukulandelanisa iinomboro kuhlanganisa begodu kuthuthukisa amakghono wabafundi wokubala. Njengombana amakghono wabafundi wokubala atjhughuluka begodu athuthuka, ngesizathu salokho nokulandelanisa kwenomboro kuyatjhughuluka. Lokha abafundi babala ngehloko bangatjengiswa ukulandelana kweenomboro okutlolwe phasi ngendlela ezihlukahlukeneko. Isib.  Abafundi bangazalisela iinomboro ezitjhiyiweko ebanikelwe zona ngananoma ngiyiphi indlela yokulandelanisa engaphezulu. Khumbula, godu bonyana abafundi batlola iinomboro ukufika ku-5. Abafundi bangazaliselela iinomboro ezitjhiyiweko ngehloko bebasebenzise amakarada weenomboro ukuqedelela ukulandelana. Qala amanothi wokuhlathulula, wokumadanisa nokulandelanisa. **Isibonelo 1:** Umkhondo weenomboro/igridi yenomboro  **Isibonelo 2:** Ukulandelanisa iinomboro Ekupheleni kweThemu, irherho leenomboro likhuphuka beliyofika ema-20. Abafundi bangasebenzisa ukulandelana kweenomboro kusika 1 – 20 nofana ingcenye yokulandelana **Isibonelo 3**: Inambalayini  	Iimfundo ezi-3

IGREYIDI YOKU- 1 ITHEMU YOKU- 1 3. ISIKHALA NOBUJAMO (JIYOMETHRI)				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.1 **Ubujamo, ukuzijayeza nokubukela**	**Ilimi lobujamo** Hlathulula ubujamo bento eyodwa ehlobene nenye, isib.phezu kwe-, phambi kwe- ,emuva kwe-, ngesinceleni, esidleni, phezulu, phasi, hlanu kwe-. **Ubujamo nokubukela** Madanisa imibono ehlukahlukeneko yezinto ezifanako zangamalanga. **Ubujamo neenkombatjhuba** • Landela iinkombatjhuba ukukhambakhamba ngetlasini • Landela iinlayelo ukubeka into eyodwa ehlobene nenye, isib. faka ipensela ngaphakathi kwebhoksi.	**Ilimi lobujamo** Hlathulula ubujamo bento eyodwa ehlobene nenye, isib.phezu kwe-, phambi kwe- ,emuva kwe-, ngesinceleni, esidleni, phezulu, phasi, hlanu kwe-. **Ubujamo neenkombatjhuba** • Sebenzisa ilimi lobujamo olifunde lokha nawulandela iinkombatjhuba. • Landela iinkombatjhuba ukukhambakhamba ngetlasini • Landela iinlayelo ukubeka into eyodwa ngokuya ngobudlelwane nenye isib. faka ipensela ngaphakathi kwebhoksi.	**Ilimi lobujamo** Ilimi lobujamo kufanele lethulwe ngemisetjenzana ephathekako ebandakanya abafundi ngokusikinyeka komzimba okufaka hlangana iingoma nemidunduzelo ngemisikinyeko nangemidlalo enamagama womsikinyeko. Lokhu kungenziwa ngesikhathi sokufundisa ngetlasini loke nofana ngesikhathi esinqophileko sokufundisa isiqhema. Kuphakanyiswe bonyana uthathe iimfundo ezimbili emisetjenzaneni yobujamo ngeThemini yoku-1, kodwana ragela phambili uthule begodu uzijayeze amagama wobujamo weengcenyana zetlasi loke, isiqhema esinqotjhiweko nesikhathi sokusebenza esitjhaphulukileko. Ilimi lobujamo lingajayezwa ngesikhathi seemfundo zeLimi namaKghono wePilo. Kuqakathekile ukuthula amagama wobujamo ngamapara ngesikhathi esisodwa isib. phasi naphezulu; ngaphakathi nangaphandle. Amagama wobujamo aqakathekile afaka hlangana: • Esinceleni, esidleni; • Phambili/ emuva; • Ngemuva, ngaphambi kwe-; • Phezu kwe-/ ngaphasi; • Phakathi/ ngaphandle; • Ngaphasi/ ngaphezu; • Ngaphasi/ ngaphezulu; • Eduze/ kude; • Hlangana Ilimi lobujamo lingahlanganiswa ngokurekhoda okutlolwako njengokugwala, ukufaka umbala nofana ukumadanisa imigwalo ngamagama. **Ubujamo neenkombatjhuba** Abafundi bangathoma ngokufunda elinye ilimi lobujamo begodu basebenzise ilwazi leli ukulandela: • Iinyalelo ukukhomba nofana ukubeka izinto ezinoBudlelwana nezinye isib. “beka amakhrayoni eqadi kwezinto zokubala”, “beka amakarada weenomboro phezu kwamakhabhodi”. • Iinkombatjhuba zokuzikhambela ngokwabo etlasini isib. “iza phambili”, jama eqadi kwesitulo sakho”, “yeqa phezu komgqomu weenzibi” njll. Ukufundisa abafundi ukulandela iinkombatjhuba kufanele kwenziwe ngemisetjenzana ephathekako lapho abafundi bazikhambela ngokwabo nofana izinto ngokuya ngeenyalelo.	Iimfundo ezi-2

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.2 **Izinto ezibu-sobuntathu (3-D)**	**Irherho lezinto** Ukubona nokutjho izinto ezi 3-D ezingetlasini begodu neenthombeni • Ubujamo bebholo (iindulungu) • Ubujamo bebhoksi (amaphrizimu) **Amatshwayo wezinto** Ukuhlathulula, ukuhlela nokumadanisa izinto ezi 3-D ngokuya ngo: • bukhulu • mbala • izinto ezigedekako • izinto ezitjhelelako **Imisetjenzana enqotjhiweko** Tjheja begodu wakhe izinto ezi 3-D ezinikelweko ngokusebenzisa amamathiriyelii aphathekako afana namabhlogo wokwakha, izinto ezibuyelelwa zisetjenziswe godu, nezinto zokwakha	**Irherho lezinto** Ukubona nokutjho izinto ezi 3-D ezingetlasini begodu neenthombeni • Ubujamo bebholo (iindulungu) • Ubujamo bebhoksi (amaphrizimu) **Amatshwayo wezinto** Ukuhlathulula, ukuhlela ngeengaba nokumadanisa izinto ezi 3-D ngokuya ngo: • bukhulu • mbala **Imisetjenzana enqotjhiweko** Tjheja begodu wakhe izinto ezibusontathu 3-D ezinikelweko ngokusebenzisa amamathiriyelii aphathekako afana namabhlogo wokwakha, izinto ezibuyelelwa zisetjenziswe godu nezinto zokwakha	Umsebenzi omnengi wezinto ezibusobuntathu (3-D) eGreyidini yoku-1 kufanele wenziwe ngezinto eziphathekako / ezithintekako. Iphasi silibona ngamahlangothi amathathu, ngakho ke ukuthoma ngezinto eziphathekako kusiza abafundi bona bakhele phezu kwelwazi/ kwelemuko abeza nalo esikolweni. Abafundi abanengi abancani bayatlhaga ukuhlathulula izinto zejiyomethri ezibusobuntathu (3-D) kusuka eenthombeni. Ukusebenza ngezinto eziphathekako kusiza abafundi bona barhumutjhe iinthombe zobujamo beJiyomethri ngokukhamba kwesikhathi. Lokha nawuphethe into yamambala ephathekako, ungayijikajikisa uyiqale mahlangothi woke. Ungakghona ukubona ukuthi iqaleka injani ukusuka ngemuva nangaphasi. Lokha nawuphethe isithombe kwaphela, kufanele ubone ngelihlo lemgqondo iingcenye ezingabonakaliko emgwalweni lowo. Lokhu akusilula njalo ebafundini abancani. Lokha abafundi banikelwe ihlathululo yento kuphela ngaphandle kokuthi bayibone nofana bayiphathe, kuba budisi khulu ukuzwisisa ubujamo bento ngokupheleleko **Ukwakha ngezinto ezi 3-D** Abafundi bathoma ngomdlalo otjhaphulukileko ngezinto ezihlukahlukeneko ezi 3D begodu bazakhele izinto ezikhethwe ngibo basebenzisa amabhlogo wokwakha nofana izinto zokwakha nofana izinto ezisetjenziswe zabuyelelwa godu. Lokhu kungenziwa ngesikhathi sokusebenza ngokuzijamela. Ungasebenzisa izinto ezisetjenziswe zabuyelelwa godu (njengamabhoksi weenthoro zomlilo) nofana amabhlogo wokwakha nofana ezinye izinto zokwakha ukwenza umfanekiso nofana umakhiwo isib. umbhotjhongo, irobothi, isitimela, iteksi, inqaba njll. Abafundi bangenza ikhophi yomfanekiso. Lokhu kungenziwa ngesikhathi sokuzijamela, kodwana kuqakathekile bonyana bacocisane nabafundi ngokobana kubayini imihlobo ethile yezinto isetjenziswa ukwenza imifanekiso. Lokhu kusiza ukunqophisa abafundi ezintweni eziphawulekako ebumbekweni lejiyomethri. Isibonelo, lokha umbhotjhongo nawakhiwa ngamabhoksi nofana ngamabhlogo, ungabuza abafundi bonyana “ningakghona ukwakha umbhotjhongo nisebenzisa amabholo wodwana?” kufanele bahlathulule ipendulo yabo. **Ukukhumbula nokutjho iimbholo (iindulungu) namabhoksi (amaphrizimu)** Abafundi bafanisa begodu bahlathulule ubujamo beembholo (iindulungu) nobujamo bamabhoksi (amaphrizimu) Abafundi kufanele bahlathulule izinto zangamalanga ngokutjho bonyana zinobujamo bebholo nofana bebhoksi, isib. isitina lesi sijame njengebhoksi nofana ilamune leli lijame njengebholo. Kuqakathekile bonyana abafundi babone begodu basebenze ngeembonelo zezinto ezinengana ezinobujamo obufana neembholo nezifana namabhoksi. Abafundi kufanele banikelwe ihlelo lezinto ezisabundulunga bonyana basebenze ngazo isib. iimbholo zobukhulu obuhlukakhlukeneko, iimabula, amalamune njll. Abafundi kufanele banikelwe godu ihlelo lezinto ezinobujamo obufana nephrisimu ukusebenza ngazo isib. amabhlogo, iintina, namabhoksi wobukhulu obungalinganiko.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.2 **Izinto ezibu-sobuntathu (3-D)**	**Irherho lezinto** Ukubona nokutjho izinto ezi 3-D ezingetlasini begodu neenthombeni • Ubujamo bebholo (iindulungu) • Ubujamo bebhoksi (amaphrizimu) **Amatshwayo wezinto** Ukuhlathulula, ukuhlela nokumadanisa izinto ezi 3-D ngokuya ngo: • bukhulu • mbala • izinto ezigedekako • izinto ezitjhelelako **Imisetjenzana enqotjhiweko** Tjheja begodu wakhe izinto ezi 3-D ezinikelweko ngokusebenzisa amamathiriyelii aphathekako afana namabhlogo wokwakha, izinto ezibuyelelwa zisetjenziswe godu, nezinto zokwakha	**Irherho lezinto** Ukubona nokutjho izinto ezi 3-D ezingetlasini begodu neenthombeni • Ubujamo bebholo (iindulungu) • Ubujamo bebhoksi (amaphrizimu) **Amatshwayo wezinto** Ukuhlathulula, ukuhlela ngeengaba nokumadanisa izinto ezi 3-D ngokuya ngo: • bukhulu • mbala **Imisetjenzana enqotjhiweko** Tjheja begodu wakhe izinto ezibusontathu 3-D ezinikelweko ngokusebenzisa amamathiriyelii aphathekako afana namabhlogo wokwakha, izinto ezibuyelelwa zisetjenziswe godu nezinto zokwakha	Abafundi bangathola begodu bahlukanise izinto zobujamo obufana nebholo (indulungu), nofana ubujamo obufana nebhoksi (amaphrizimu) lokha nabanikelwa ibuthelelo lezinto. Abafundi bangathola, babonise begodu batjho izinto ezinobujamo obufana namabhoksi (amaphrizimu) ngetlasini. Abafundi bangalayelwa bonyana benze ubujamo beembholo nofana bamabhoksi ngebumba nofana ngehlama yokudlala. **Ukumadanisa nokuhlathulula izinto ze3-D: ubukhulu** Abafundi bamadanisa ubukhulu bezinto ezifanako **Isibonelo:** • hlela amabholo ngokuya ngobukhulu • sebenzisa ilimi lobukhulu ukumadanisa izinto “ibhoksi likhudlwana kunebholo, ngombana ngingafaka ibholo phakathi kwebhoksi. **Ukuhlathulula izinto za (3-D)** Abafundi bakhuluma ngemibala yezinto begodu bazihlukanise ngokuya ngombala. Ukubona nokutjho izinto nemibala yazo, nokumadanisa ubukhulu bezinto kungajayezwa ngesikhathi sokusebenza ngamaphetheni **Imisebenzi etlolwako** Nanyana imisebenzi eminengi yezinto za3-D yenziwa ngokwenza, umsebenzi ungahlanganiswa ngemisebenzi etlolwako **ILimi** Kuqakathekile ukuthuthukisa ikghono labafundi lokukhuluma ngezinto za3-D • ILimi lobukhulu: khulu, khudlwana, khulu khulu, ncani, ncanyana, ncani khulu • Imibala • ILimi lezinto ngokwazo: amabhoksi, iimbholo (**abafundi abakalindeleki ukwazi amaThemu la: indulungu namaphrisimu)** • ILimi lobujamo ukuhlathulula umakhiwo **Isibonelo** • Phezu kwe, ngaphasi • Ngemuva, ngaphambili • Eqadi kwe, magega na • Ngaphasi, ngaphezu • Eduze, hlangana • Ngaphakathi, ngaphandle ILimi lobukhulu nombala lingathuthukisa elimini nofana ngesikhathi sesifundo samaKghono wePilo begodu sisetjenziswe nofana sijayezwe esikhathini sokufunda iimbalo. Ilimi lobujamo lingathuthukiswa elimini nofana esikhathini sokufunda amaKghono wePilo begodu nangesikhathi lapho abafundi banqophe khulu khulu ebujameni. Kungasetjenziswa nofana kujayezwe lokha abafundi nabasebenza ngezinto za3-D	Iimfundo ezi-3

IGREYIDI YOKU-1 ITHEMU YOKU-1 4. UKUMEDA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.1 Isikhathi	**Ukudlula kwesikhathi** Khuluma ngokudlula kwesikhathi • Ukuhlela izehlakalo eziqhelekileko ezisuke epilweni yabo • Ukumadanisa ubude besikhathi kusetjenziswe ilimi isib. eside, esifitjhani, kabuthaka. • Ukulandelanisa izehlakalo ngokusebenzisa ilimi elifaka njengokuthi izolo, namhlanje, kusasa. **Ukutjho isikhathi** • Ukuhlathulula nakwenzeka into ngokusebenzisa ilimi isib. ekuseni,ngemuva kwedina, ebusuku, ekuseni khulu, ngemuva kwesikhathi. • Ukutjho begodu nokulandelanisa amalanga weveke. • Ukutjho begodu nokulandelanisa iinyanga zonyaka. • Ukubeka amalanga wamabeletho ekhalendeni.	**Ukudlula kwesikhathi** Khuluma ngokudlula kwesikhathi • Ukuhlela izehlakalo eziqhelekileko ezisuke epilweni yabo • Ukumadanisa ubude besikhathi kusetjenziswe ilimi isib. eside, esifitjhani, kabuthaka. • Ukulandelanisa izehlakalo ngokusebenzisa ilimi elifaka njengokuthi izolo, namhlanje, kusasa. **Ukutjho isikhathi** • Ukuhlathulula nakwenzeka into ngokusebenzisa ilimi isib. ekuseni,ngemuva kwedina, ebusuku, ekuseni khulu, ngemuva kwesikhathi. • Ukutjho begodu nokulandelanisa amalanga weveke. • Ukutjho begodu nokulandelanisa iinyanga zonyaka. • Ukubeka amalanga wamabeletho ekhalendeni	Abafundi bafanele bafunde ukukhuluma ngoku: • Landelanisa izehlakalo begodu • nobude besikhathi Inengi lemisebenzi lenzeka ngamalanga ngesikhathi sokufundiswa kwetlasi nofana ngesikhathi esinqophileko sokufundisa isiqhema Abafundi bakhuluma begodu baphendule imibuzo lokha izinto nazenzeka, basebenzisa ilimi elinjenga: ekuseni, ngemva kwamadina, ebusuku, ngaphambi nangemva kwesikhathi **Ukukhamba kwesikhathi** Abafundi balandelanisa izehlakalo basebenzisa ilimi elinjenga: izolo, namuhla, kusasa. Abafundi bamadanisa ubude besikhathi basebenzisa ilimi elinjenga: edenyana nofana efitjhazana begodu emsinyazana nofana ebuthaka khulu. Abafundi bakhuluma ngokuhlela izehlakalo zamaphilo wabo. Bahlela godu nokulandelana kweenthombe njenga: • amagadango wokwenza imbhedlezwana nofana ikopi yetiye; • iinthombe ezitjengisa umtwana okhula abe mumuntu omkhulu • umzombe wepilo yeembandana isib. Iqanda ukuya ekukhwini, nofana iqanda ukuya esirhwarhweni nofana iqanda ukuya eviyaviyaneni; begodu • Izehlakalo eziqhelileko zangelanga (ukuvuka, ukuba sesikoleni, ukudlala, ukudla isidlo santambama, ukulala). Ukutjho isikhathi • Abafundi bafunda amalanga weveke ngeengoma nangemidunduzelo. Lokhu kwenziwa ngamalanga. • Amalanga wamabeletho abekwa ekhalendeni ngelanga elifaneleko. • Abafundi bafunda izinyanga zomnyaka ngengoma nangemidunduzelo.	Iimfundo ezi-2

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.2 Ubude	**Ukulinganisa okungakahleleki** • Ukumadanisa nokuhlela ubude, ukuphakama nofana ububanzi bezinto ezimbili nofana ezinengi ngokuzibeka enye eqadi kwenye. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa, isib. ubude, ubufitjhani, ububanzi. • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu nokurekhoda ubude usebenzise iimedo ezingakahleleki isib. izandla, igadango, ubude bepensela, izinto zokubala, njll. • Ukuhlathulula ubude bezinto ngokubala nangokutjho ubude ngamayunithi angakahleleki.	**Ukulinganisa okungakahleleki** • Ukumadanisa nokuhlela ubude, ukuphakama nofana ububanzi bezinto ezimbili nofana ezinengi ngokuzibeka enye eqadi kwenye. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa, isib. ubude, ubufitjhani, ububanzi.	Zoke iimedo zeGreyidi yoku-1 azikahleleki. Akukho ukumeda okuhlelekileko kobude emayunithini ahlelekileko enziweko. Kuphakanyiswe bonyana iimfundo zeembalo zinqotjhiswe emathemini amabili emnyakeni munye (iThemu yoku-1 neyesi-3). Umnqopho eThemini yoku-1 ungaba sekumadaniseni okunqotjhiweko begodu ngeThemu yesi-3 abafundi bangasebenza namayunithi wokumeda angakahleleki. Abafundi bangabuya bazijayeze begodu bahlanganise imiqondo le ngesikhathi sokusebenza sokuzijamela ngonyaka woke. **Ukumadanisa okunqophileko kobude bezinto ezithintekako** ukuthuthukisa ukuzwisisa ubude belimi lokukhuluma ngakho. Abafundi bathoma ngokucabanga nokukhuluma ngobude ngokumadanisa izinto ezimbili (nofana imigwalo yezinto ezimbili) ngomehluko obonakala khulu wobude. **Isibonelo** • Isiquntu eside nesincani sentambo • Umuthi omude nomfitjhani, • Umlambo obanzi nomatsikani Abafundi bangenza nofana bagwale iimbonelo njengoku: • Sebenzisa ibumba nofana ihlama yokudlalisa ukwenza inyoka ede nefitjhani • Sebenzisa amabhlogo ukwenza umbhotjhongo omude nomncani/omfitjhani • Gwala utitjhere omude nomfitjhani Lokha abafundi nabakhulumma ngobude ngokuya ngokungafani, ungabathulela elimini elitjha lokumadanisa isibonelo, “ngenze isitimela eside kodwana uSihle wenze esidanyana”. Ukumadanisa ubude ngokubeka izinto emaqadi kwezinye Lokha abafundi nabangakhuluma ngobude obudluleleko (ubude, ubufitjhani njll), begodu umadanise ubude bezinto ezihluke ngokubonakalako ngokurhedlula, bangaragela phambili eembonelweni ezingabonakali lulae nawuzirhedlulako kokuthoma begodu zifuna ukubekwa enye hlanu kwenye ukwenzelela ukuzimadanisa. isibonelo, • Thola bonyana ngibaphi abantwana abade ngokubajamisa bafulathelene • Ukubeka amakhrayoni amabili elinye kelinye begodu banqophise ingaphasi lamakhrayoni ukuthola bonyana ngiliphi elifitjhani khulu Abafundi bafanele banikelwe ithuba lokumadanisa iimbonelo ezimbili zemihlobohlobo eminengi njengeengodo, amapensela, amathunjana wokusela isiselo esimakhaza, ubude bentambo, iribhoni, imitletlana yephepha njll. Imigwalo yezinto ezimbili ingamadaniswa godu lokha nazingabekwa eqadi kenye nenye begodu zinqophise phezulu nofana phasi.	

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IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.3 Ubungako/ Ubudisi	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela, begodu nokurekhoda ubudisi, ngokusebenzisa iimedo ezingakahleleki begodu nesikala sokudzimelela isib. amabhulogo, iintina njll. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. lula, budisi, lula-khulu, budisi-khulu. • Ukuhlathulula ubude bezinto ngokubala nangokutjho ubude ngamayunithi angakahleleki.	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela, begodu nokurekhoda ubudisi, ngokusebenzisa iimedo ezingakahleleki begodu nesikala sokudzimelela isib. amabhulogo, iintina njll. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. lula, budisi, lula-khulu, budisi-khulu.	Koke ukumeda eGreyidini yoku-1 akukahleleki. Akukho ukumedwa okuhlelekileko kobungako ngokusebenzisa amayunithi ahlelekileko nofana iinsetjenziswa. Kuphakanyiswe bonyana iimfundo zeembalo zinqotjhiswe ebudisini okungasenani emathemini amabili wonyaka (iThemu yoku- 1 neyesi-4). Umnqopho eThemini yoku-1kungaba kumadanisa okunqophileko begodu eThemini yesi-4 abafundi bangasebenza ngamayunithi angakahleleki wokumeda. Abafundi bangazijayeza begodu bahlanganise imiqondo le ngesikhathi somsebenzi wokuzijamela umnyaka woke. **Ukumadanisa okunqophileko kobudisi bezinto ezithintekako** • Ukuthuthukisa ukuzwisisa kobudisi nelimi lokukhuluma ngakho. Abafundi bathoma ukucabanga nokukhuluma ngobungako ngokumadanisa izinto ezidisi nezilula. Baphakamisa into elula khulu begodu balinge ukuphakamisa into ebudisi khulu. Lokhu kungahlanganiswa ngokuveza imigwalo emadanisa izinto ezibudisi khulu nalezo ezilula khulu. Lokha abafundi nabangakhuluma ngobungako ukuya ngokungafani, ubudisi nobulula, abafundi bangamadanisa izinto ezimbili begodu batjho bonyana ngiyiphi ebudisi khulu begodu ngiyiphi elula khulu. Lokhu kungenziwa ngokuphatha into esandleni ngasinye nokumadanisa bonyana ngiyiphi ebudisi khulu nelula khulu. • Abafundi bafanele barekhode woke umsebenzi nanyana ngemigwalo nofana imisebenzi ekhambelanako. • Ukumadanisa ubudisi kusetjenzisa isikala sokudzimelela isikhali zokudzimelela esithengwako singasetjenziswa. Lokha nawungenasikala sokudzimelela esithengwako, ungasenza ngokunamathisela ipara yakunye okulandelako ihangere yembaji: Ikopi yeyogathi, ingaphasi elisikiweko lebhodlela lamalitha ama-2 nofana ingaphasi elisikiweko lelitha yi-1 yebisi nofana ibhoksi lejusi (iimumathi ezifanako zilengiswa emahlangothini womabili wehangere). • Abafundi bangathoma ngokubeka izinto ezilinganako emahlangothini womabili wesidzimeleli, ukubona bonyana isisekelo sehangere yembaji sidzimelele lokha izinto lezi ezimbili zinobudisi obulinganako. • Abafundi bamadanisa izinto ngokubeka into yinye ehlangothini ngalinye lesidzimeleli, ukubona bonyana ngiyiphi ebudisi khulu nofana elula khulu. • Abafundi bangamadanisa izinto ngokubeka izinto ezinengana ehlangothini linye nofana womabili wesidzimeleli ukubona bonyana zizinto ezingaki ngayinye ezinobudisi obulingana nenye isib, amakhrayoni ama-5 anobudisi obulingana nesikere si-1. • Lokhu kungandiselelwa kuserayitjhini , lapho abafundi bahlola khona ubudisi obukhambelanako bezinto ezikhamba ngazibili baze bakghone ukulandelanisa izinto ezintathu nofana ezinengi ukusuka kelula khulu ukuya kwebudisi khulu nofana ukusuka kwebudisi khulu ukuya kwelula khulu.	

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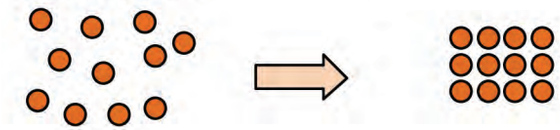
4.3 Ubungako/ Ubudisi	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela, begodu nokurekhoda ubudisi, ngokusebenzisa iimedo ezingakahleleki begodu nesikala sokudzimelela isib. amabhulogo, iintina njll. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. lula, budisi, lula-khulu, budisi-khulu. • Ukuhlathulula ubude bezinto ngokubala nangokutjho ubude ngamayunithi angakahleleki.	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela, begodu nokurekhoda ubudisi, ngokusebenzisa iimedo ezingakahleleki begodu nesikala sokudzimelela isib. amabhulogo, iintina njll. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. lula, budisi, lula-khulu, budisi-khulu.	Izinto ezikhethwako zifanele zifake hlangana izinto ezikulu ezilula nezinto ezincani ezibudisi isib. Ipakana yetswayi enamagremu ama-250 amadaniswa nebhoksi lamasiriyeli lamagremu ama-400. Lokhu kusiza abafundi bonyana bazwisise ukusuka ekuthomeni bonyana ubudisi buhlobana kuphela nobukhulu lokha nakukalwa izinto ezifanako. Abafundi bathuthukisa umqondo wobudisi nelimi lokuhlathulula ubudisi ngesikhathi sinye. Njengombana lokhu kungasatlhogi iinomboro, bungenziwa ekuthomeni kweThemu yoku-1 ngaphambi kokubana abafundi bahlanganise inomboro zabo zokwenza umqondo wenomboro ne-opharetjhini ukufikela enomborweni yesi-5. **Ukurhekhoda** Nanyana ukumeda kulikghono lokwenza, abafundi bafanele benze godu imisebenzi yokutlola, engafaka hlangana ukugwala nokufaka umbala, kokubili bonyana bazijayeze ukusebenzisa amakhrayoni nofana amapensela begodu bonyana bazijayeze ukurekhoda lokha nabamedako.	Iimfundo ezi-2

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.4 Umthamo/ Ivolumu	**Ukumeda okungakahleleki** • Ukumadanisa nokuhlela ubungako obusamanzi (umthamo) obuseemumathini ezimbili ezibekwe esinye hlanu kesinye. Abafundi bahlola ngokuthi bathele esimumathini sesithathu nakutlhogekako. • Ukumadanisa nokuhlela ubungako beketjezi/okusamanzi okungathathwa ziimumathi ezimbili nazizeleko • (umthamo) • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. enengi kune, encani kune, encani, izele, edududu. • Ukulinganisa, ukumeda, ukumadanisa ukuhlela begodu nokurekhoda umthamo ongeemumathini ngokusebenzisa izinto zokumeda ezingakahleleki isib. lingobho neenkomitji. • Ukuhlathulula umthamo wesimumathi ngokubala nokutjho bonyana kuthathwa amayunithi amangaki angakahleleki ukuzalisa isimumathi. isib.ibhodlela linomthamo wamakopi amane.	**Ukumeda okungakahleleki** • Ukumadanisa nokuhlela ubungako okusamanzi (umthamo) okuse mumathini ezimbili ezibekwe esinye eduze nesinye. Abafundi bahlola ngokuthi bathele esimumathini sesithathu nakutlhogekako. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. enengi kune, encani kune, encani, izele, edududu.	Uyini umthamo? Iyini ivolumu? Umthamo linani elingaphathwa yinto (inani loke lesikhala esingaphakathi kwabo). IVolumu linani lesikhala esithathwa yinto. Ibhodlela lingaba nomthamo wamakopi amane azeleko,kodwana ngesikhathi esithileko ingaba nekopi linye lokumanzana ngaphakathi.Abafundi eGreyidini yoku-1 abakalindeleki ukwazi umehluko hlangana nomthamo nevolumu. Koke ukumeda eGreyidini yoku-1 akukahleleki. Akukho ukumedwa okuhlelekileko komthamo/kwevolumu ngokusebenzisa amayunithi ahlelekileko. Kuphakanyisiwe bonyana iimfundo zeembalo zinqotjhiswe emthameni/evolumini emathemini amathathu wonyaka (iThemu yoku- 1, yesi-2 neyesi-4). Umnqopho eThemini yoku-1 kungaba sekuthuthukiseni ilimi ukukhuluma nokumadanisa amavolumu adluleleko, iThemu yesi-2 ingaba sekumadaniseni okunqophileko. IThemu yesi-3 abafundi bangasebenza amayunithi wokulinganisa angakahleleki. Abafundi bangazijayeza begodu bahlanganise imiqondo le ngesikhathi sokusebenza ngokuzijamela umnyaka woke. **Ukumadanisa okunqophileko kwamavolumu eemumathini** Ukuthuthukisa ukuzwisisa kobudisi nelimi lokukhuluma ngakho.Abafundi bangathoma ukucabanga nokukhuluma ngevolumu ngokumadanisa bonyana kungangani okuseemumathini ezimbili ezifanako(nofana imigwalo yeemumathi ezimbili ezifanako) banqophisa : • Okuzeleko nokudududu. • Okunengi kuna/okuncani kuna. • Okufana na. Abafundi bangazalisa begodu bathulule iimumathi basebenzisa amanzi nofana isanda njll. Njengombana lokhu kungasatlhogi iinomboro, bungenziwa ekuthomeni kweThemu yoku-1 ngaphambi kobana abafundi bahlanganise umqondo wenomboro ne-opharetjhini ukufikela enomborweni yesi-5. **Ukurhekhoda** Nanyana ukumeda kulikghono lokwenza, abafundi baufanele benze godu imisebenzi yokutlola, engafaka hlangana ukugwala nokufaka umbala, ukuze bazijayeze • ukusebenzisa amakhrayoni nofana amapensela begodu • barekhode lokha nabamedako.	Isifundo esi-1

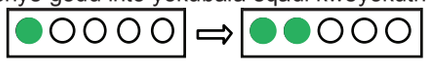
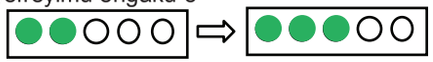
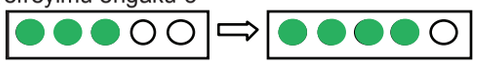
IGREYIDI YOKU-1 ITHEMU YOKU-1 5. UKUPHATHA IDATHA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
Ukusebenza ngebuthelelo lezinto				
5.1 Ukubuthele-la nokuhlela ngemihlobo izinto	**Ukubuthelela nokuhlela izinto ngemihlobo** Ukubuthelela nokuhlela ngemihlobo izinto eziphathekako zangamalanga	**Ukubuthelela nokuhlela izinto ngemihlobo** Ukubuthelela nokuhlela ngemihlobo izinto eziphathekako zangamalanga **Ukujamiselela ibuthelelo lezinto elihlelekileko** Ukugwala isithombe sezinto ezibuthelelweko **Coca bewubike ngokuhlelwa kwezinto ezibuthelelweko** • Nikela ngesizathu lobonyana ibuthelelo lihlelwe bunjani • Phendula imibuzo nge: - ukuhlukanisa ngemihlobo kwenziwe njani (indlela yekambiso) - ihlukaniso ngemihlobo libukeka bunjani (umkhiqizo) • Coca ngebuthelelo nemigwalo • Hlathulula bonyana ibuthelelo lihleleke bunjani	Ukuhlela ngemihlobo, Ukujamiselela nokuhlathulula ibuthelelo elihlelekileko, kumakghono aqakathekileko wabafundi wokuthuthuka emazingeni asisekelo (qala amanothi wamakghono wangaphambili welwazi leenomboro ekuthomeni kwamanothi wehlathululo) Lendlela yekambiso ithuthukisa amakghono wabafundi abazowasebenzisa nabenza umzombe wokuphatha idatha. Abafundi banganikelwa ibuthelelo lezinto begodu babawiwe bonyana bazihlele. Isibonelo, nikela abafundi iinqhema ezifanako zezinto zokubala begodu ubawe abafundi bazihlele ngeenqhema ngokuya ngemibala, banikele ibuthelelo lezinto ezihlukeneko zokubala njengekunubhana yokubopha uburotho, indumba yeperegisi, iinthoro zomlilo, imvalo zamabhodlelo begodu ubawe abafundi bazihlele ngeenqhema. Abafundi bese bagwala iinthombe zeenqhema abazenzileko. Ngalendlela abafundi barekhoda lokho abakwenzileko. Baphendula imibuzo ngeenqhema. **Isibonelo** “Uzenze njani iinqhema zezinto zokubala? Ngenze iinqhema zemibala.” “Ngisiphi isiqhema sombala wezinto zokubala ezinengi”? Isiqhema sami esinengi sombala besibomvu.” “Bewunemibala emingaki yezinto zokubala ehlukahlukeneko?” Benginemibala emihlanu ehlukahlukeneko.” Abafundi bangazitholela indlela yabo yebuthelelo. Isibonelo, abafundi bangabuthelela amabhlari etatawini lesikolo, nofana beze neemumathi zokudla emakhaya.	Iinfundo ezi-2
5.2 Uku-jamiselela ibuthelelo lezinto eli-hlelekileko	**Ukujamiselela ibuthelelo lezinto ezihlelekileko** Ukugwala isithombe sezinto ezibuthelelweko			
5.3 Ukucoca be-godu ubike ngebuthele-lo lezinto ezihleliweko	**Coca bewubike ngokuhlelwa kwezinto ezibuthelelweko** • Nikela iinzathu zokobana ibuthelelo lihlelwe bunjani • Phendula imibuzo bonyana: - ukuhlela kwenziwe bunjani (indlela yekambiso) - ibuthelelo elihlelekileko liqaleka bunjani (umkhiqizo) • Coca ngebuthelelo nemigwalo • Hlathulula bonyana ibuthelelo lihleleke bunjani			

IGREYIDI YOKU-I ITHEMU YESI-2 1. IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
UKUTHUTHUKA KWEMIQONDO YEENOMBORO : Bala ngeenomboro ngokupheleleko				
1.1 Ukubala izinto	Ukubala izinto ngokuthembeka ukufika e-50. • Nikela isilinganiso esizwakalako senani lezinto ezingahlolwa ngokuzibala.	Ukubala izinto ngokuthembeka ukufika ema-20 • Nikela isilinganiso esizwakalako senani lezinto ezingahlolwa ngokuzibala. • Ukubala ngeenqhema kuyakhuthazwa.	**Ngikuphi okuhlukileko kuneThemi yoku-1** Ethemini yesi-2 ubala, irherho lenomboro liyangezeleleka. Kusesenomnqopho ekuzwisiseni ukuba inomboro yamaswaphela itjho inani lezinto ngesedeni. Abafundi babala izinto ezinengi begodu ethemini yesi-2 kufanele bafunde bonyana bajamisa bunjani izinto lokha nababalako ukuze lokha nabahlola ukubala kwabo ihlelwelo libarhelebhe ukubala bulula. **Isibonelo:** **Izinto zokubala ezingakabuthelelwa ngeenqhema** → **Izinto zokubala ezihlelwe ngeenqhema**  NgeThemu le abafundi baragela phambili ukungezelela amakghono wabo wokubala nokuzijayeza: • ukubala koke; • ukubala uragele phambili • ikambisolawulo lekhadinali yeenomboro; and begodu • ukusebenza ngamatheksti atloliweko NgeThemu lesibili abafundi bathoma uku: • Bala izinto abangakghoni ukuzithinta nofana ukuzibamba. **Isibonelo :** Sibuza abafundi: Ziingaba ezingaki ezikhona erhalasini lefesdiri • **Bala izehlakalo**	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.1 Ukubala izinto	Ukubala izinto ngokuthembeka ukufika e-50. • Nikela isilinganiso esizwakalako senani lezinto ezingahlolwa ngokuzibala.	Ukubala izinto ngokuthembeka ukufika ema-20 • Nikela isilinganiso esizwakalako senani lezinto ezingahlolwa ngokuzibala. • Ukubala ngeenqhema kuyakhuthazwa.	**Isibonelo:** Wahla amahlandla ali-15 Phakamisa imino ebu-8 **Isilinganiso** Ukulinganisa inani lezinto esiqhemeni kuthuthukisa amakghono aqakathekileko wokubonela phambili. Isiza abafundi ukubona bonyana ukubonela phambili kuyakholakala. Lokhu kuqakathekile lokha nabenza iimbalo: bangazihlola bona ukuqinisekisa bonyana iimpendulo zabo ngezikholwekako. Kulisizo ebafundini ukubala iintjengiso zezinto ezibuthelelweko nalezo ezingakabuthelelwa. Linga ukuhlukanisa izinto ezibuthelelweko nalezo ezingakabuthelelwa ngokubawa abafundi bona balinganise bonyana ngiziphi ezinezinto ezinengi. Bangalinganisa inomboro yezinto esithombeni ngasinye. Bangatlola iinomborwezi phaasi. Bangabala ke. Kufanele bamadanise ukulinganisa nokubala kwabo. Tjela abafundi bona bakhulume ngokuthi babale bunjani. Zama ukuthola bona abanye abafundi babale ngeenqhema. **Ukulinganisa ngokunqophileko** Abafundi bangezelela ikghono labo lokukhumbula ibuthelelo elincani lezinto **Ukubala ngeenqhema** Ukusiza abafundi ukubala ngamakhefu waku-2, 5 begodu ne-10 kufuneka bona babuthelele ngeenqhema zangaku-2, 5 nali -10. Amakarada weenomboro kufanele aboniswe kilelo nalelo buthelelo ukubonisa inani lezinto ezibaliweko. Ukubala ngeenqhema kuzokulungiselela abafundi ukuzwisisa ukubala ngokubuyelela esigabeni esimaphakathi. **Iinsetjenziswa:** Itjhejo kufanele linikelwe emihlotjeni yama-apharathasi osetjenzisiweko • Iinsetjenziswa ezihlelekileko, njengentambo yemincamo yokubala • I-Abhakhasi yokujayeza ukubala ngeenqhema zanga-10 • Ukwenza iinyandazanga-2, iinyanda zanga-5 netjhumi begodu uzibale zoke.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.2 Ukubala uye phambili nemuva	**Ukubala uye phambili nemuva nga:** • Kunye ukusuka kwenye nenye inomboro hlangana ne-0 ne-100 **Ukubala uye phambili nga:** • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-100 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-100 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku-2 hlangana ne-0 ne-100	**Ukubala uye phambili nemuva nga:** • Kunye ukusuka kwenye nenye inomboro hlangana ne-0 na-50 **Ukubala uye phambili nga:** • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 na-50 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 na-50 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku-2 hlangana ne-0 na-20	**Ngikuphi okuhlukileko kuneThemu yoku-1?** Ethemini ye-2, abafundi kwanje babala bafike ema-50 ngakunye. Babala godu ngamakhefu we-10, 5 naku-2 **Ukubala weqa ngomlomo** Ukubala ngokweqa ngelinye ibizo lokubala ngeenqhema. Kuyasiza ukuthuthukisa ilemuko lamaphetheni weenomboro. Ukubala ngokweqa kugcugcuzela abafundi ukubala nokucabanga ngeenqhema, okwenza bona babe nekghono elinengi. Lokhu kusiza godu ukuthuthukisa amakghono wabo wokulinganisa. Ukubala ngeenqhema kubenza baLimike ubudlelwano hlangana neenomboro ezingalandelani kuhle. Ibeka isisekelo sephetheni yeenomboro nokubuyabuyelela. **Imisebenzi eya phambili** Nazi ezinye iimphakamiso zeendlela ezihlukeneko zokwenza ukubala ngokweqa: • Thoma ngokubala iinomboro ezilandelana kuhle kodwana ugandelele yesibili ngaso soke isikhathi. Isibonelo abafundi bangawahla izandla, batjho leyo naleyo nomboro yesibili phezudlwana. Begodu bawa abafundi bona babale kodwana batjho leyo naleyo nomboro yesibili ngeenhlokweni zabo. Lokhu kungangezelelwa ebafundini bona batjho kuphela inomboro yesithathu, yesine nofana yesihlanu. • Ungahlukanisa itlasi ngeenqhema, begodu isiqhema ngasinye singadlhegana ukutjho inomboro elandelako. Nangabe, isibonelo, uhlukanisa itlasi ngeenqhema ezihlanu, isiqhema ngasinye kufanele sibale leyo naleyo nomboro yesihlanu. • Bawa abafundi benze iphetheni ephathekako njengokuthintana ngeenhloko ekubaleni kokuthoma, baphambanise imikhono bathinte amahlombe wabo ekubaleni kwesibili, babethe iinyonga lokha barhuwelela enye nenye inomboro yesithathu. • Isikhathi sokubetha nofana sokuwahlela umbhino kungasetjenziswa ngokuhlanganyela nokubala ngokweqa. **Ukubala izinto kungathuthukisa ikghono lokubala ngokukhuluma.** Ngetlasini, imisetjenzana yokubala esikhathini esinengi ithuthukisa amakghono ahlukahlukeneko Ukubala ngokweqa kuvezwa ngcono ngokwenza lokha nawubuthelela izinto. **Imisebenzi eya phambili** **Igridi yeenomboro** Bawa abafundi batjengise iinomboro abazibonako lokha nababala ngaku-2, 5, 10. Buza bona khuyini abakubonako ngeenomboro lezo. Hlukanisa iinomboro lezo abafundi abathoma ngazo.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.2 **Ukubala uye phambili nemuva**	**Ukubala uye phambili nemuva nga:** • Kunye ukusuka kwenye nenye inomboro hlangana ne-0 ne-100 **Ukubala uye phambili nga:** • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-100 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-100 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku-2 hlangana ne-0 ne-100	**Ukubala uye phambili nemuva nga:** • Kunye ukusuka kwenye nenye inomboro hlangana ne-0 na-50 **Ukubala uye phambili nga:** • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 na-50 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 na-50 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku-2 hlangana ne-0 na-20	**Ukuya emathekstini atlolwako** • Amanambalayini – Abafundi bangatjengisa ukubala ngokweqa kwabo basebenzisa inambalayini. • Ukulandelana kweenomboro – Ukuya ekugcineni kweThemu abafundi bangakghona ukuqedelela ukulandelana kweenomboro okulula (qala amanothi wamaphetheni weenomboro) **limbonelo:** 2, 4, 6, 8, – 5, 10, 15, 20, – 10, 20, 30, 40, –	
1.3 **Amat-shwayo namabizo weenom-boro**	Ukulemuka, ukubona nokufunda amatshwayo weenomboro • Khumbula, ufanise begodu ufunde amatshwayo wenomboro ukusuka ku-1 ukufika ku-100. • Tlola amatshwayo wenomboro ukusuka ku-1 ukufika ku-20 • Khumbula, ufanise begodu ufunde amagama weenomboro ukusuka ku-1 ukufika ku-10. • Tlola amagama weenomboro ukusuka ku-1 ukufika ku-10.	Ukulemuka, ukubona nokufunda amatshwayo weenomboro • Khumbula, ufanise begodu ufunde amatshwayo wenomboro ukusuka ku-1 ukufika ku-50. • Tlola amatshwayo wenomboro ukusuka ku-1 ukufika e-10 • Khumbula, ufanise begodu ufunde amagama weenomboro ukusuka ku-1 ukufika ku-10. • Tlola amagama weenomboro ukusuka ku-1 kufika ku-10.	**Ngikuphi okuhlukileko kuneThemu yoku-1?** Ethemini le-2, irhelo leenomboro lokwazi, ukufunda nokutlola amatshwayo wenomboro begodu nokungezelela amagama. Ukubala enambalayini begodu namagridi weenomboro kunikela abafundi ijayelo ekufaniseni, ekukhumbuleni, ekutjhweni nasekufundeni amatshwayo weenomboro. Nikela abafundi ngokuzijayeza okuya phambili ngokunqopha itjhejo lamatshwayo weenomboro ebhodulukweni nangomtlolo ogadangiswako. **Isibonelo:** • Ukuqala eenomborweni zamakhasi begodu, neencwadini • Ukukhomba amalanga wamabeletho ekhalendeni **Imisebenzi eya phambili** • Utitjhere unikela imiyalelo ukufumana inomboro, begodu abafundi basebenzisa amakarada wefladi aneenomboro ukukhomba iimpendulo - Thola inomboro eza nje ngaphambi kwe-12 - Thola inomboro emuva nje kwe-12 - Inomboro edlula i-11 ngaku-3 - Inomboro engaphasi kwe-14 nga-1	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.4 Ukuhlathu-lula, uku-madanisa nokuhlela iinomboro	**Hlathulula, umadanise, uhlele izinto kufika ku-20** • Ukuhlathulula nokumadanisa izinto ezibuthelelweko ngokuya ngobunengi, ngambalwa, okunengi khulu, okuncani khulu, okunengi kuno, okuncani kuna, kufana na, okulinganako ngobunengi obulingana na, okuhlukileko. • Ukuhlathulula nokuhlela izinto ezibuthelelwako ukusuka kwenengi ukuya kencani begodu nokusuka kencani uye kokunengi. Hlathulula, ukumadanisa begodu uhlele iinomboro kufika ku-20 • Hlathulula, uqathanise iinmboro ezipheleleko ngokuya ngobuncani-kuna, ngobukhulu – kuna nobunengi-kuna nangokulingana • Hlathulula bewuhlele neenomboro ukusuka ngencani-khulu ukufika kekulukulu nokusuka kekulukulu ukufika kencani khulu - phambili, emuva, phakathi/ - hlangana - Usebenzisa inambalayini kusuka e-0 ukufika e-20 • Hlathulula umadanise usebenzisa ilimi isib. Ngaphambili, ngemuva, ngaphakathi/hlangana	**Hlathulula, umadanise, uhlele izinto ukufika e-10** • Ukuhlathulula nokumadanisa izinto ezibuthelelweko ukuya ngobunengi, ngambalwa, okunengi khulu, okuncani khulu, okunengi kuno, okuncani kuna, kufana na, okulinganako ngobunengi obulingana na, okuhlukileko. • Ukuhlathulula nokuhlela izinto ezibuthelelweko ukusuka kubunengi ukuya okulingeneko kunye nokusuka kokulingene uye kokunengi. Hlathulula, uqathanise, uhlele neenomboro kufika e-10 • Hlathulula, uqathanise iinmboro ezipheleleko ngokuya ngobuncani-kuna, ngobukhulu – kuna nobunengi-kuna nangokulingana • Hlathulula bewuhlele neenomboro kusuka ngencani-khulu ukufika kekulukulu nokusuka kekulukulu kufika kencanikhulu - Ngaphambili, ngemuva, ngaphakathi/hlangana - Usebenzisa inambalayini kusuka e-0 ukufika e-10 • Hlathulula umadanise usebenzisa ilimi isib. Ngaphambili, ngemuva, ngaphakathi/hlangana	**Ngikuphi okuhlukileko kuneThemini yoku-1?** Ethemini ye-2, abafundi baragela phambili uku: • hlela nokumadanisa izinto; • hlela nokumadanisa iinomboro; begodu • sebenzisa ilimi lokuhlela nokumadanisa. NgeThemu le abafundi baragela phambili ngokuhlela nokumadanisa izinto. NgeThemu le abafundi bangathoma ukwakha ubudlelwano hlangana kweenomboro ngokunqophisa kweyodwa begodu nakwezimbili ezingezelelweko, kweyodwa begodu nakwezimbili ezingaphasi. • Lokha nabamadanisa amasede kufanele bakghone ukuhlathulula lokhu ngokutjho bonyana, “ Nginezinto zokubala ezinengi ngambili kunezakhe” nofana “ Unezidlula zami ngayinye” • Lokha nawumadanisa iinomboro kufanele bakwazi ukutjho bonyana “okunengi ngakunye kokune kuhlanu” **Ukwakha ilemuko lomqondo “wokudlula ngakunye kuna”** Umqondo wokunengi kuna nokuncani kuna kukuthoma kokuhlanganisa nokukhupha okungakahleleki. Ivumela abafundi bonyana bazwisise ubukhulu benomboro begodu nehlelo leenomboro. • Layela abafundi bonyana babeke into yokubala yi-1 ngesikhaleni sokuthoma esingenalitho sekarada labo lefreyimu engaku -5”. Tjela abafundi bona babeke enye godu into yokubala eqadi kweyokuthoma.  Buza: Unazingaki njenganje? Kunengi kangangani okukodwa ngakunye? • Layela abafundi bonyana babeke yi-1 godu into yokubala ekaradeni yabo yefreyimu engaku-5  Buza: Unazingaki njenganje? Kunengi kangangani okukodwa ngakubili? • Layela abafundi bonyana babeke yi-1 godu into yokubala ekaradeni yabo yefreyimu engaku-5 	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.4 Ukuhlathu-lula, uku-madanisa nokuhlela iinomboro	**Hlathulula, umadanise, uhlele izinto kufika ku-20** • Ukuhlathulula nokumadanisa izinto ezibuthelelweko ngokuya ngobunengi, ngambalwa, okunengi khulu, okuncani khulu, okunengi kuno, okuncani kuna, kufana na, okulinganako ngobunengi obulingana na, okuhlukileko. • Ukuhlathulula nokuhlela izinto ezibuthelelwako ukusuka kwenengi ukuya kencani begodu nokusuka kencani uye kokunengi. Hlathulula, ukumadanisa begodu uhlele iinomboro kufika ku-20 • Hlathulula, uqathanise iinmboro ezipheleleko ngokuya ngobuncani-kuna, ngobukhulu – kuna nobunengi-kuna nangokulingana • Hlathulula bewuhlele neenomboro ukusuka ngencani-khulu ukufika kekulukulu nokusuka kekulukulu ukufika kencani khulu - phambili, emuva, phakathi/ - hlangana - Usebenzisa inambalayini kusuka e-0 ukufika e-20 • Hlathulula umadanise usebenzisa ilimi isib. Ngaphambili, ngemuva, ngaphakathi/hlangana	**Hlathulula, umadanise, uhlele izinto ukufika e-10** • Ukuhlathulula nokumadanisa izinto ezibuthelelweko ukuya ngobunengi, ngambalwa, okunengi khulu, okuncani khulu, okunengi kuno, okuncani kuna, kufana na, okulinganako ngobunengi obulingana na, okuhlukileko. • Ukuhlathulula nokuhlela izinto ezibuthelelweko ukusuka kubunengi ukuya okulingeneko kunye nokusuka kokulingene uye kokunengi. Hlathulula, uqathanise, uhlele neenomboro kufika e-10 • Hlathulula, uqathanise iinmboro ezipheleleko ngokuya ngobuncani-kuna, ngobukhulu – kuna nobunengi-kuna nangokulingana • Hlathulula bewuhlele neenomboro kusuka ngencani-khulu ukufika kekulukulu nokusuka kekulukulu kufika kencanikhulu - Ngaphambili, ngemuva, ngaphakathi/hlangana - Usebenzisa inambalayini kusuka e-0 ukufika e-10 • Hlathulula umadanise usebenzisa ilimi isib. Ngaphambili, ngemuva, ngaphakathi/hlangana	Buza: Unazingaki njenganje? Kunengi kangangani okukodwa Ngakuthathu? Zingaki izinto zokubala ozidingako ukwenza isihlanu? Buza bonyana “ungangitjelani ngenomboro ye-4?(kuncani koku-5 nga-1) Ungangitjelani ngenomboro ye-2? (kuncani koku-5 ngaku-3) **Ukuhlela iinomboro** Abafundi kufanele bahlele iinomboro basebenzisa imihlobohlobo yemifanekiso. • Ukubeka imifanekiso ngeenqhema Abafundi bamadanisa isiqhema sezinto ezi-9 esiqhemeni sezinto ezi-2 • Imifanekiso yemida Lokha abafundi nabahlela iinomboro bangasebenzisa ibanga elihlangana neenomboro ukwazi bonyana ngiyiphi inomboro ekulu. Isibonelo, bazakutjho bona i-9 likhulu kune-2 ngombana i-9 liza ngemuva kwe-2. Ukuhlelwa kweenomboro kungenziwa kanengi ngesikhathi sokuzijamela. **Imisebenzi eya phambili** *Ukuhlela iinomboro* Abafundi bahlela amakarada weenomboro ukusukela kwe-1 ukuya kwezi-13 ukusuka kwencani khulu ukuya kwekulu khulu. Abafundi bajikisa amakarada weenomboro zabo bawaqalisa phasi. Bakhetha nanyana ngimaphi amakarada a-4, bawahlela ngobuncani khulu ukuya ngobukhulu khulu babawe umkhozi bona ahlole bonyana ulungile. Nabakghona ukwazi amakarada a-4 ngokupheleleko banga khetha ikarada lesihlanu. Bawabeka ngehlelo elilungileko begodu bakope iinomboro ukusukela kwencani khulu ukuya kwekulu khulu. **Amathaski atloliweko** Abafundi kufanele bahlanganise ukuzwisisa kwabo ngokuqedelela amathaski atloliweko **Iimbonelo** Ngokuphela kweThemu bafele bakwazi ukuqedelela umhlobo ofanako wemitjho. Okudlula oku-3 nga-1 ku_____ Okudlula oku-4 nga-1 ku _____ Okuncani nga-1 koku-2 ku _____ Udlula oku-4 nga-1_____ _____ kuncani koku-3 nga-1	

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1.6 Amathek-hiniki wok-ururarulula imiraro	Sebenzisa amathekhiniki alandelako nawurarulula imiraro begodu uhlathulule neensombululo zemiraro: • Ama-apharethasi aphathekako njengezinto zokubala • Iinthombe zokugwala indatjhana zeembalo • Ukwakha nokuphula iinomboro • Ukubuyelela nokuhafula phakathi • Amanambalayini	Sebenzisa amathekhiniki alandelako nawurarulula imiraro uhlathulule neensombululo: • Ama-apharethasi aphathekako njengezinto zokubala • Iinthombe zokugwala iimbalo zendatjhana • Ukwakha nokuphula iinomboro • Ukubuyelela nokuhafula phakathi • Amanambalayini esekelwe ngeesetjenziswa eziphathekako isib. Ukubala imincamo.	**Ngikuphi okuhlukileko kuneThemu yoku-1?** NgeThemu le abafundi baziswa ngokubuyelela kabili nangokuhafula phakathi. Qala amanothi ngaphasi kwesigaba sokubala. Ekupheleni kweThemu le abafundi bathoma ukurarulula imiraro yamagama basebenzisa amathekniki alandelako: • Imigwalo nama-apharathasi aphathekako • Ukwakha nokuphula iinomboro • Ukubuyelela nokuhafula phakathi • Amanambalayini **Imigwalo nofana ama-apharathasi aphathekako** Abafundi baragela phambili ukugwala iinthombe begodu basebenzisa ama-apharathasi aphathekako ukurarulula imiraro. Kuqakathekile bonyana iinthombe nofana imigwalo zineenomboro begodu nemitjho yeenomboro. **Ukwakha nokuphula** Le ngenye yamathekhiniki aqakathekileko Esigabeni Esisisekelo. Ukusebenzisa ikhekhiniki le izovumela abafundi bonyana bahlukane (ukuphula) babuye bahlanganise iinomboro ukwenza ukubala kube lula. **Isibonelo** 6 + 4 → 5 + 1 + 4→ 5 + 5 → 10 Ithekhiniki le iyasetjenziswa godu njalonjalo esigabeni esiphakathi. **Ukubuyabuyelelela kabili nokuhafula phakathi** Ithekhiniki le inelwazi lwamambala begodu ifuna umqondo nomboro onamandla. Abafundi abakghona ukukhetha lokhu njengethekhiniki bamajadu kwamambala emaqhingeni wokuphumelelisa abawasebenzisako. NgeThemu le abafundi bathoma Ukubuyelela kabili iinomboro ngombana babala ukufika e-10. Ngaphambi kokusebenzisa Ukubuyelela kabili nokuhafula phakathi njengeqhinga lokuphumelelisa ukubala umqondo kufanele ufundiswe. EGreyidini ye-2 abafundi banikelelwa ngomutjho wenomboro begodu babuzwa: “singasebenzisa bunjani Ukubuyelela kabili okuseduze ukukhupha ipendulo ya 5 + 6=£?” Abafundi bayalemuka bonyana uku-5 nesi-6 kutjhidelene. Iisetjenziswa eziphathekako ziyasetjenziswa ukubonisa bonyana: “Ngizokubuyelela uku-5 okuziinqhema ezimbili zakuhlanu. Ngihlanganise ukuhlanu kabili ngithole i-10 begodu nginayi-1 eseleko okufanele ngiyihlanganise. Ipendulo yi-11. Basebenzisa ilimi labo nofana imigwalo, abafundi bangasebenzisa iqhinga. Egreyidi ye-3 abafundi bazokghona ukusebenzisa amaqhinga nakabala ngeenomboro ezinamadijithi amathathu. NgeThemu le abafundi bazosebenzisa Ukubuyelela kabili nokuhafula phakathi ngalendlela:	

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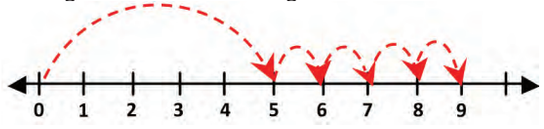
1.6 Amathek-hiniki wok-urarulula imiraro	Sebenzisa amathekhiniki alandelako nawurarulula imiraro begodu uhlathulule neensombululo zemiraro: • Ama-apharethasi aphathekako njengezinto zokubala • Iinthombe zokugwala indatjhana zeembalo • Ukwakha nokuphula iinomboro • Ukubuyelela nokuhafula phakathi • Amanambalayini	Sebenzisa amathekhiniki alandelako nawurarulula imiraro uhlathulule neensombululo: • Ama-apharethasi aphathekako njengezinto zokubala • Iinthombe zokugwala iimbalo zendatjhana • Ukwakha nokuphula iinomboro • Ukubuyelela nokuhafula phakathi • Amanambalayini esekelwe ngeesetjenziswa eziphathekako isib. Ukubala imincamo.	**Ukubuyabuyelela kabili:** • Imilelenjana emibili enamavili amathathu, inamavili amangaki? • UBatjeleni noNowa banamamabula a-4 ngamunye. Mamabula amangaki abanawo selawoke? Abafundi bangagwala iinthombe basebenzise ama-apharathasi aphathekako ukubonisa bonyana inomboro ibuyabuyelelwe kabili. **Ukuhafula phakathi:** • Ethemini ye-2 abafundi bazijayeza ukuhafula phakathi bonyana bakghone ukuyisebenzisa njengeqhinga ngeThemu ye-3. • Ukubuyelela kabili nokuhafula phakathi kufanele kujayezwe ebujameni obutjhaphulukileko. **Amanambalayini** Ukusebenzisa amanambalayini ukusiza ukubala kuzovumela abafundi uku: • Rekhoda ukucabanga kwabo; • Landela umkhondo wemicabango yabo; begodu • Babe nesithombe sokurekhoda abangasisebenzisa ukuhlathulula bonyana bawurarulule bunjani umraro. Abafundi bebasebenzisa Amanambalayini ukusuka ethemini yoku-1. Njengobana abafundi baragela phambili ebangeni elisisiSekelo kufanele bagqugquzelwe ukusebenzisa amanambalayini ngendlela enelwazi elidluleleko. Ethemini yoku-1, abafundi babale baya phambili ngakunye. Lokhu kuboniswa enambalayinini ngokweqa ngakunye. **Isibonelo soku-1:** Kunabesana aba-5 nabentazana aba-4 abenza iimfundo ezingezelelweko zobukghwari esikoleni. Bangaki abafundi abasetlasini yobukghwari?  Ethemini ye-2 abafundi bangaragela phambili ngokubala baya phambili ngakunye, kodwana bangakhuthazwa ukusebenzisa inambalayini ukubonisa ukubala uye phambili ngeenqhema. **Isibonelo sesi-2** Abafundi bangahlukanisa uku-4 ngeenqhema ezi-2. Inambalayini izobonisa imeqo ngaku-2 ukusuka ku-5. 	

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1.7 Ukuh-langanisa nokukhupha	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-20.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-10.	**Ngikuphi okuhlukileko kuneThemu yoku-1?** NgeThemu le abafundi bazijayeza ukwenza imiraro yamagama begodu basebenzela ukuzithemba nabasebenzisa amanye amaqhinga nabararulula imiraro. Umnqopho ngeThemu le kufanele ube sekurekhodeni. Abafundi kufanele batlole phasi imitjho yeenomboro njengerekhodi elitloliweko lemiraro ukuya kwemi-5. Abafundi bazokuragela phambili ngokusebenzisa iisetjenziswa eziphathekako nokugwala ukujamela iimbalo zabo ukusukela koku-5 ukuya e-10. Qala amanothi weThemu yoku-1 wemihlobo yemiraro engenziwa ngeThemu le.	

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1.8 Ukuhlanganisa ngokubuyelela okurholela ekubuyabuyeleleni	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukuhlanganisa okubuyelelweko okurholela ekubuyabuyeleleni nempendulo ukufika e-20	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukuhlanganisa okubuyelelweko okurholela ekubuyabuyeleleni nempendulo ukufika e-10	Ngezelela irherho lenomboro lifike e-10 ngeThemu le livumela bonyana abafundi bathome ngokuhlanganisa okubuyelelweko. Ukubala ufike e-10 kuvumela ukurekhoda. **Isibonelo:** • 1 + 1 + 1 • 2 + 2 + 2 + 2 • 3 + 3 + 3 IThemu yoku-1 yakha umqondo begodu nokuzwisisa ukuhlanganisa begodu abafundi kufanele bakghone ukuhlanganisa iinqhema ezilinganako. NgeThemu le abafundi bazosebenza ngemiraro yamagama evumela umfanekios wokuhlanganisa okubuyelelweko. Ukuhlanganisa okubuyelelwako kuvamise ukuthulwa ebafundini njengeenqhema zeenomboro ezilinganako. Ekuthomeni abafundi bangathulwa eenqhemeni ezilinganako zangamalanga. Imiraro ebandakanya ukuhlanganisa okubuyelelweko • linqhema zanga -2: izandla, iinyawo, amakowusu, amadlhavu, amanyathelo, amehlo, iindlebe, amavilo womlelenjana • linqhema zanga -3: amavilo womlelenjane amathathu, umphetho waboncantathu • linqhema zanga -4: amavilo wekoloyi, imilenze yeentulo • linqhema zanga - : imino, iinzwani Ilimi lokuhlanganisa okubuyelelweko liqakathekile. Abafundi kufabele banikelwe amathuba wokuhlathulula ngomlomo lokhu abakubonako. **Ukurekhoda imifanekiso yokuhlanganisa okubuyelelweko** • Ukusebenzisa ama-apharethasi aphathekako. • Abafundi bazokubonisa iimbalo zabo basebenzisa ama-apharethasi abuthelelweko. • Ngeethombe kwaphela. • Abafundi bazokugwala iinthombe ukubonisa bona bazibuthelele bunjani ukwenzela ukuzihlanganisa. • Ukurekhoda iinthombe neenomboro. • linthombe zizobonisa imigwalo esekelwa ziinomboro. • Ukuya emathekstini atlolwako.	

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1.11 Imali	• Ukukhumbula nokufanisa imali yeSewula Afrika - iinhlamvu 5c, 10c, 20c, 50c, - imali yamaphepha R10, ne-R20, • Ukurarulula imiraro yemali efaka hlangana inani netjhentjhi ngamasende kufikela emasendeni ama 50c namaranda ama- R20	• Ukukhumbula nokufanisa imali yeSewula Afrika iinhlamvu 5c, 10c, 20c, 50c, R1, • Ukurarulula imiraro yemali efaka hlangana inani netjhentjhi kufikela emarandeni ali-R10 ukufikela emasendeni ama-20c	Ukufundisa abafundi ngemali, uhlathulula imiqondo elandelako: • iyini imali • kungani imali iqakathekille • indlela imali esetjenziswaa ngayo ngamalanga • indlela abafundi ababala ngayo imali Abafundi bafunda ngemali ngaphambi kobana beze esikoleni. Abanye abafundi bangaba nomqondo wokubaluleka kwemali begodu bakghone ukubona nokutjho iinhlamvu nemali yamaphepha. NgeThemu le abafundi bafanele bafunde imiqondo esisekelo yokusebenzisa imali ngaphakathi kobujamo obenzekako njengokwenza umdlalo wesitolo. • Letha iinhlamvu zeSewula Afrika begodu na-R20 ne-R10 esikoleni. Abafundi bathinta imiphetho yeenhlamvu begodu bacocisane bonyana ihluka bunjani. Bacocisana ngamatshwayo aseenhlamvini nasemalini yamaphepha. • Abafundi babeka iinhlamvu ngaphasi kwesiquntu sephepha begodu basebenzise isitlabagelo esithambileko sokutlola ukuhlikihla phezu kwazo isib. Amapensela wemibala nofana amaphastelsi. Basika amakhophi, bawanamathisele encwadini zabo begodu batjho iinhlamvu. • Bagandangisa begodu basike imifanekiso eminengi yeenhlamvu zama -5c, 10c nama 20c. Banamathelisa iinhlamvu zoke ezingenza ama -20c ne-10c isib. 20c = 10c ne-5c ne-5c • 20c = 5c ne-5c ne-5c ne-5c • Isamba ukufika ema-20c – iinhlamvu zodwa - Abafundi sele bakwazi ukubala ngaku -5 nangama-10c begodu basebenzisa ilwazi ukuthola isamba. - Utitjhere unikela umfundi ngamunye iphepha lamakhophi leenhlamvu zemali e-5c, 10c nama- 20c. o Ubatjela bona ngiziphi iinhlavu abafanele bazikhuphe, isib. Iinhlamvu zemali ezintathu zama-5c. o Babala ngaku-5 nofana 10c benze ukuhlanganisa okubuyelelwako, 5c+5c+5c. - Utitjhere ubawa abafundi bonyana bakhuphe ama-20c basebenzisa iinhlamvu zemali ezihlukahlukeneko. Kufanele babone bonyana ngamunye ukhupha iinhlavu zemali ezima-5c amabili nehlamvu yinye yama-10c. - Abafundi bazalisa amaphepha wokusebenzela lapho babonisa khona bonyana ngiziphi iinhlavu zemali ezenza isamba samasende ama-20c **Isibonelo:** 20c = 10c + 10c nofana 5c+ 5c + 5c + 5c= 20c nofana 5c+5c + 10c =20c	

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1.11 Imali	• Ukukhumbula nokufanisa imali yeSewula Afrika - iinhlamvu 5c, 10c, 20c, 50c, - imali yamaphepha R10, ne-R20, • Ukurarulula imiraro yemali efaka hlangana inani netjhentjhi ngamasende kufikela emasendeni ama 50c namaranda ama- R20	• Ukukhumbula nokufanisa imali yeSewula Afrika iinhlamvu 5c, 10c, 20c, 50c, R1, • Ukurarulula imiraro yemali efaka hlangana inani netjhentjhi kufikela emarandeni ali-R10 ukufikela emasendeni ama-20c	• Nikela itjhentjhi usebenzise iinhlamvu zodwa - Utitjhere wenza ukukhupha kweenhlamvu nabafundi isib. Bakhupha iinhlavu zemali ezima-5c ukwenza ama-20c. - Utitjhere uyabuza: “Nawubhadela umamukelimali ama-15c, yimalini eseleko? Abafundi ababa nobudisi bokusebenzisa iinhlavu zemali kuphela basebenzisa izinto zokubala ukubasekela. - Abafundi bazalisa amaphepha wokusebenzela lapho basebenzela khona itjhentjhi yezinto abazithenge ngama-20c nofana ngaphasi **Isibonelo:** - 10c - 5c = 5c - 20c - 10c =10c - amatjhumi apheleleko - 20 -5c – 5c - 5c = 5c -ukukhupha okubuyelelweko	
UKUBALA OBUSEBUJAMENI OBUTJHAPHULUKILEKO				
1.12 Amathekh-iniki (iindlela nofana amaqhinga)	Ukusebenzisa amathekhiniki alandelako nakubalisiswako: • Ama-apharethasi aphathekako isib. Izinto zokubala • gwala iinthombe • ukwakha nokuphula iinomboro • ukubuyabuyelela kabili nokuhafula • amanambalayini	Ukusebenzisa amathekhiniki alandelako nakubalisiswako: • Ama-apharethasi aphathekako isib. Izinto zokubala • ukwakha nokuphula iinomboro • ukubuyelela kabili nokuhafula • Amanambalayini asekelwe ngama-apharethasi aphathekako isib. Ukubala imincamo.	**Ngikuphi okuhlukileko kuneThemu yoku-1?** EThemini ye-2, abafundi bathoma ukubala ukufika e-10. Ukusebenza ngaphakathi kwerherho lenomboro kutjho bonyana ithekhiniki yokubala ingathuthukiswa begodu ijayezwe. Amaqhinga la ayajayezwa nasesigabeni somraro wenomboro. **Ukwakha nokuphula iinomboro** Imisetjenzana yokwakha nokuphula ithuthukisela phambili ilemuko labafundi lobukhulu obuhlobeneko beenomboro. Imisetjenzana le ibeka isisekelo sama-opharetjhini. Ukuhlukanisa (ukuhlukanisa) nokubuya uhlanganise iinomboro kungasiza ukwenza iimbalo zibe lula. Ukujayeza njalo emsebenzini onje kukhuthaza abafundi bona bayisebenzise njengeqhinga leembalo. **Ukubuyebuyelela nokuhafula** Ngaphambi kokubana usebenzise Ukubuyelela nokuhafula phakathi njengeqhinga lokubala lifuneka bona lithonywe ngokuzwisiseka begodu lijayezwe. • Ukusebenzisa ama-apharethasi aphathekako. Lokhu kungenziwa ngelayelo elinqophileko.Tjela begodu bonisa abafundi bonyana kuneengojwana ezihlanu zokubala begodu uzokghona ukubuyabuyelela inani lelo ngokundlala ezinye godu iingojwana zokubala ezihlanu. • **Ukuya** emathekstini atlolwako usebenzisa iinthombe. • **Abafundi** banganikelwa imifanekiso yokubuyabuyelela kabili begodu bangakghona ukujamela iinthombe ngeenthombeni	

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1.12 Amathekh-iniki (iindlela nofana amaqhinga)	Ukusebenzisa amathekhiniki alandelako nakubalisiswako: • Ama-apharethasi aphathekako isib. Izinto zokubala • gwala iinthombe • ukwakha nokuphula iinomboro • ukubuyabuyelela kabili nokuhafula • amanambalayini	Ukusebenzisa amathekhiniki alandelako nakubalisiswako: • Ama-apharethasi aphathekako isib. Izinto zokubala • ukwakha nokuphula iinomboro • ukubuyelela kabili nokuhafula • Amanambalayini asekelwe ngama-apharethasi aphathekako isib. Ukubala imincamo.	• **Ukusebenzisa iinomboro** Abafundi bangathoma ngokuzalisa imitjho enjenge: Uku -1 okubuyabuyelelwe kabili ngu..... Uku -2 okubuyabuyelelwe kabili ngu..... Uku -3 okubuyabuyelelwe kabili ngu..... Uku -4 okubuyabuyelelwe kabili ngu..... **Amanambalayini asekelwe ma-apharethasi aphathekako.** Lokha nawusebenzisa amanambalayini njengethekhiniki ukuze ubale, abafundi bafuneka bathome ngokusebenzisa. • Amanye ama-apharethasi womuda isib. Ukubala imincamo, ukulandela imikhondo yeenomboro; • Inambalayini ukubala uye phambili begodu nemuva; begodu • Inambalayini ukuze abeke ebujameni nokuhlela iinomboro. Inambalayini ehlelekileko ifanele isetjenziswe (begodu ifanele khulu) lokha abafundi nabenza ukuhlanganisa nokukhupha. Inambalayini ehlelekileko ifanele ibonise zoke iinomboro ezikiyo.	

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1.13 Ukuh-langanisa nokukhupha	Irherho leenomboro: 1 -20 • Hlanganisa ukufika ema-20 • Khupha ukusuka ema-20 • Sebenzisa amatshwayo afaneleko (+, –, =, □) • Ukujayela ukulumbana kweenomboro ukuya e-10	Irherho leenomboro: 1 -10 • Hlanganisa ukufika e-10 • Khupha e-10 • Sebenzisa amatshwayo afaneleko (+, –, =, □) • Ukujayela ukulumbana kweenomboro ukuya ku-7	**Ngikuphi okuhlukileko kuneThemu yoku-1?** Ethemini le-2, irherho leenomboro ingezeleleke ukusuka ku-5 ukuya e-10. NgeThemu le abafundi bazokuthoma ukuzwisisa: • Ihlelo elihlanakelekako lokuhlanganisa; begodu • Ubudlelwano phakathi kokuhlanganisa nokukhupha Ngaphambi kokobana abafundi bathulelwe amatshwayo wokuhlanganisa begodu nokukhupha, abafundi kufanele babe nelemuko elaneleko loku: • bala koke; • bala uye phambili ukusuka enomborweni ekulu; • sebenzisa nokuzwisisa ilimi lokuhlanganisa nokukhupha; begodu • hlela nokumadanisa iinomboro. Ethemini le, abafundi baragela phambili ukwakha ukuzwisisa kwabo kokuhlanganisa nokukhupha. Ukuhlangisa nokukhupha kusesenoBudlelwana obukhulu ekubaleni. Umqondo wokunengi nga -1 nofana okuncani ngaku-2 kusetjenziswa ngombana kukhambelana nenomboro elandelako ekubaleni okulandelanako. NgeThemu le abafundi bazosebenzisa amatshwayo ukutlola ukulandelana kweenomborongokubuyelela nangokuzithemba. Iragelo phambili ekusebenziseni amatshwayo kufanele kusetjenzwe ngakho ngokuyelela. Kuqakathekile bonyana abafundi bazwisise amahlathululo ahlukeneko akhambisana namatshwayo. Abafundi kufanele bakghone ukuzwisisa nokusebenzisa amagama njengokuhlanganisa, koke, koke kwenza, khupha, umehluko hlangana nokukhupha ngaphambi kokwethula amatshwayo. Abafundi kufanele bathome ngokwazi ukuphendula imibuzo enjenga-3 naku-2; khupha oku-3 e-5, ngaphambi kokusebenzisa itshwayo.	

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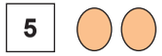
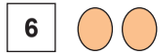
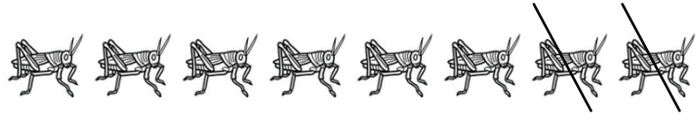
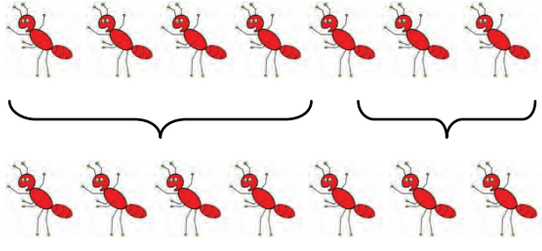
1.13 Ukuh-langanisa nokukhupha	Irherho leenomboro: 1 -20 • Hlanganisa ukufika ema-20 • Khupha ukusuka ema-20 • Sebenzisa amatshwayo afaneleko (+, –, =, □) • Ukujayela ukulumbana kweenomboro ukuya e-10	Irherho leenomboro: 1 -10 • Hlanganisa ukufika e-10 • Khupha e-10 • Sebenzisa amatshwayo afaneleko (+, –, =, □) • Ukujayela ukulumbana kweenomboro ukuya ku-7	**Ukurekhoda imifanekiso** Ukubala ufike e-10 kutjho bonyana abafundi basazokurekhoda iimbalo zabo basebenzisa: • imigwalo nofana iinsetjenziswa eziphathekako; • iinthombe neenomboro; nofana • linomboro zodwa. Ukuya ekupheleni kweThemu, ngaphakathi kwerherho leenomboro yoku-1 ukuya ku-5, abafundi kufanele bazithembe nabasebenzisa iinomboro zodwa begodu bangagwali iinthombe ukujamela iimbalo zabo. **Amaqhinga wokubala nawenza ukuhlanganisa nokukhupha** *Ukuhlanganisa ngokubala koke* Abafundi bazokuthoma ku-1 bafike ku-5 begodu baragele phambili ngokubala ukufika ku-7 *Ukuhlanganisa ngokubala uye phambili* Abafundi bazokubala baya phambili ukusuka ku-5 ukuya ku-7  Ithekhiniki le inekghono khulu kunokubala uye phambili ngakunye. Abafundi bazosebenzisa ithekhiniki le kanengi khulu lokha irherho leenomboro lingezeleleka. *Bala uye phambili usuka enomborweni ekulu.*  Abafundi babala baya phambili ukusuka enomborweni ekulu, esi-6, begodu babale baye phambili ukufika-8. *Ukukhupha ngokukhupha* 7 – 3 = 7- 3 = 4 Lokha nabarekhoda ukukhupha abafundi bangakhansela imifanekiso ukutjengisa ukukhupha.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.13 Ukuh-langanisa nokukhupha	Irherho leenomboro: 1 -20 • Hlanganisa ukufika ema-20 • Khupha ukusuka ema-20 • Sebenzisa amatshwayo afaneleko (+, –, =, □) • Ukujayela ukulumbana kweenomboro ukuya e-10	Irherho leenomboro: 1 -10 • Hlanganisa ukufika e-10 • Khupha e-10 • Sebenzisa amatshwayo afaneleko (+, –, =, □) • Ukujayela ukulumbana kweenomboro ukuya ku-7	*Ukukhupha ngokubala uye phambili* 6 - 2 = □ Abafundi bangabala baye phambili ukusuka e-2 ukuya esi-6. Bafanele bazi bonyana babale iinomboro zingaki ukusuka kwe-2 ukuya esi-6. *Ukukhupha ngokubalela emuva* 8 - 2 = □  Abafundi bangathoma enomborweni ekudlwana, ebu-8, begodu babalele babuyele emuva ngamagadango ama-2 ukuya kwasi-6. **Ukwakha nokuphula iinomboro** Lokhu kungenziwa ngeendlela ezihlukahlukeneko  7 = 4 + 3 7 = 4 + 3 **Ukulumbana kweenomboro** NgeThemu le abafundi bazijayeza ukulumbana kweenomboro ukufika ku-7. Lokhu kungakhonjiswa ngeenthombe begodu nemitjho yeenomboro basebenzise imifanekiso ehlukahlukeneko.	

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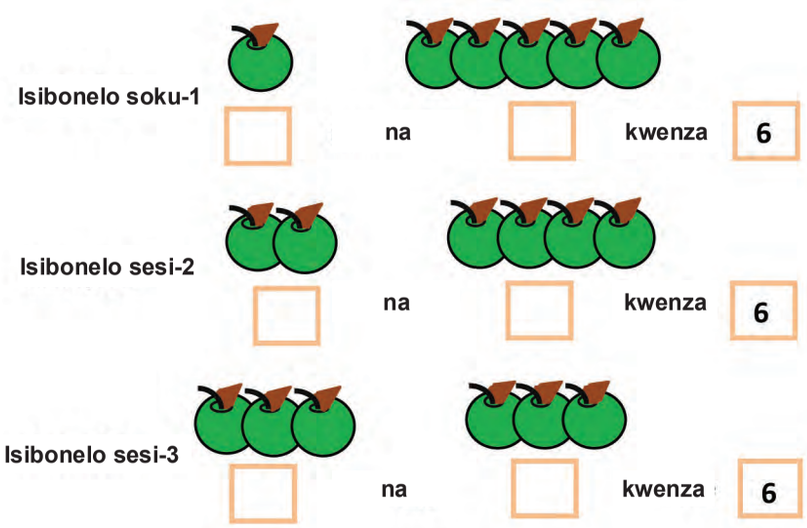
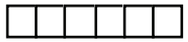
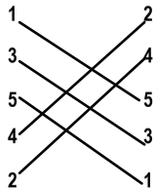
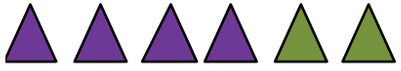
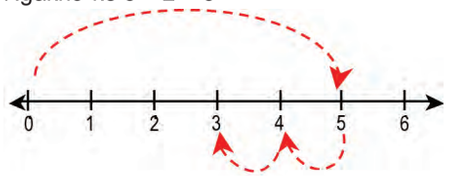
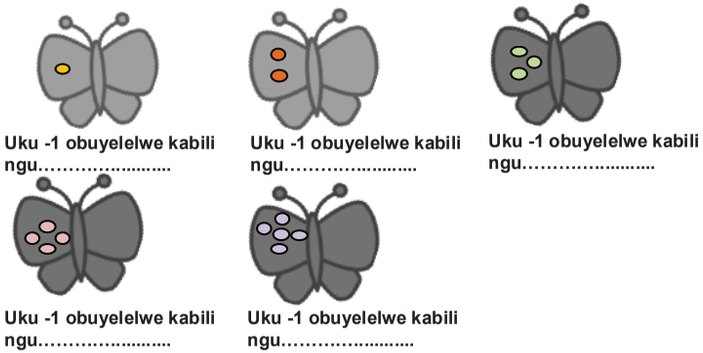
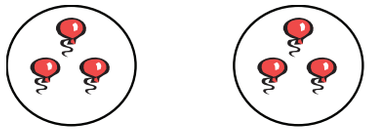
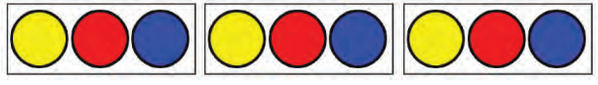
1.13 Ukuh-langanisa nokukhupha	Irherho leenomboro: 1 -20 • Hlanganisa ukufika ema-20 • Khupha ukusuka ema-20 • Sebenzisa amatshwayo afaneleko (+, –, =, □) • Ukujayela ukulumbana kweenomboro ukuya e-10	Irherho leenomboro: 1 -10 • Hlanganisa ukufika e-10 • Khupha e-10 • Sebenzisa amatshwayo afaneleko (+, –, =, □) • Ukujayela ukulumbana kweenomboro ukuya ku-7	Ukuhlanganisa **Iimbonelo:** *Ukwenza isi-6 nofana ukuthola abangane aba-6 usebenzisa iinthombe begodu neenomboro*  **Isibonelo soku-1** □ **na** □ **kwenza** **6** **Isibonelo sesi-2** □ **na** □ **kwenza** **6** **Isibonelo sesi-3** □ **na** □ **kwenza** **6** *Ukwenza isi-6 ngokusebenzisa iinthombe neenomboro* Faka umbala ukubonisa isi-6 ngeendlela ezihlikeneko  _____ na_____ kwenza isi- 6 *Ukusebenzisa iinomboro zodwa* Madanisa iinomboro ezikhamba ngambili ukwenza isi-6 	

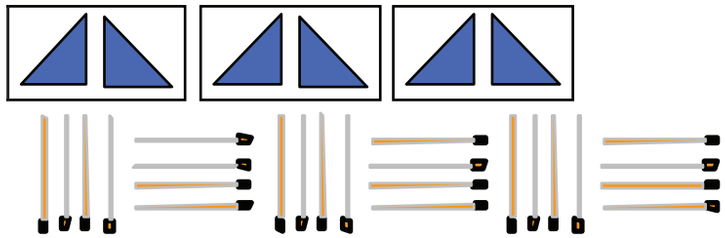
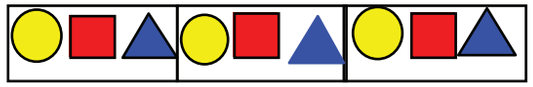
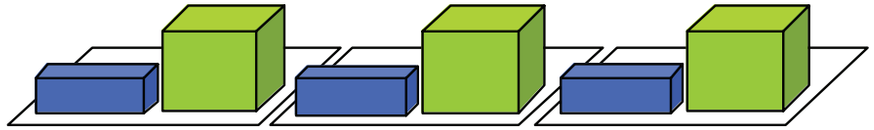
IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.13 Ukuh-langanisa nokukhupha	Irherho leenomboro: 1 -20 • Hlanganisa ukufika ema-20 • Khupha ukusuka ema-20 • Sebenzisa amatshwayo afaneleko (+, –, =, □) • Ukujayela ukulumbana kweenomboro ukuya e-10	Irherho leenomboro: 1 -10 • Hlanganisa ukufika e-10 • Khupha e-10 • Sebenzisa amatshwayo afaneleko (+, –, =, □) • Ukujayela ukulumbana kweenomboro ukuya ku-7	**Okuhlanakelekako** NgeThemu le abafundi bathoma ukukhumbula umukghwa wokuhlanekezela ukuhlanganisa ngaphandle kokwazi, iThemu. **Isibonelo:** Bala aboncantathu **6 + 2 = □** **2 + 6 = □** Ukutlola okuhlobene nokuhlanganisa nokukhupha iinomboro zemitjho – ukuzwisisa ubudlelwano hlangana kokuhlanganisa nokukhupha NgeThemu le abafundi bafunda kobana bangatlola umutjho weenomboro wokukhupha bawutlolela umutjho wenomboro wokuhlanganisa. **Isibonelo**  4 + 2 = 6 en 6 – 2 = 4 2 + 4 = 6 en 6 – 4 = 2 **Itshwayo lokulingana** Itshwayo lokulingana akukafaneli bona lithulwe msinyazana. Kungasiza ukusebenzisa amatshwayo ngendlela enetjhuguluko elaneleko begodu kunikela abafundi itjhuba esikhundleni setshwayo lokubala. **Isibonelo** Kukoke kwenza 4 en 2 → 6	

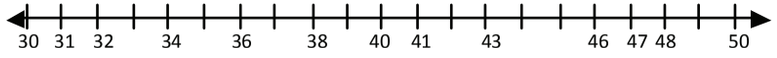
IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.13 Ukuh-langanisa nokukhupha	Irherho leenomboro: 1 -20 • Hlanganisa ukufika ema-20 • Khupha ukusuka ema-20 • Sebenzisa amatshwayo afaneleko (+, –, =, □) • Ukujayela ukulumbana kweenomboro ukuya e-10	Irherho leenomboro: 1 -10 • Hlanganisa ukufika e-10 • Khupha e-10 • Sebenzisa amatshwayo afaneleko (+, –, =, □) • Ukujayela ukulumbana kweenomboro ukuya ku-7	**Ukusebenzisa inambalayini** Thula ukukhupha ukufikela e-10 enambalayinini. Utitjhere usebenzisa inambalayini ukukhupha iinomboro ezifika e-10 isib. 5 – 2 = **Isibonelo:** Umqasana weqela enomborweni yesi-5, bese ubuyela emuva ngokweqa iinomboro ezi- 2 begodu ujama enomborweni yesi-3. Ngakho-ke 5 – 2 = 3  **Amathaski atloliweko** Abafundi bafanele banikelwe imihlobohlobo yemifanekiso ukusekela ukuzwisisa ukuhlanganisa nokukhupha. • Bala uye phambili • Hlanganisa ngokubala ukusuka enomborweni ekulu; nofana • Khupha ngokufaka isiphambano esivundlako phezu kweenthombe. **Umqondo wokubuyelela kabili** Irherho leenomboro abafundi abasebenza ngalo libavumela bonyana bathome ukubuyelela kabili. Lokhu kungathulwa ngeendlela ezinengi begodu kungenziwa lokha abafundi nababala izinto. **Isibonelo**: Abafundi bangenza iinqhema zezinto zokubala zanga - 2, izinto zokubala zanga - 4, izinto zokubala ezi-6 nezinto zokubala ezi -8 nezinto zokubala ezi-10. Imitjho yeenomboro kufanele ikhambisane nemifanekiso.  **Uku -1 obuyelelwe kabili ngu……..** **Uku -1 obuyelelwe kabili ngu……..** **Uku -1 obuyelelwe kabili ngu……..** **Uku -1 obuyelelwe kabili ngu……..** **Uku -1 obuyelelwe kabili ngu……..**	

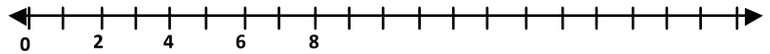
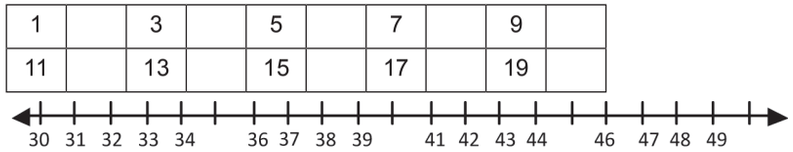
IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.14 Ukuh-langanisa okubuyele-lweko kurholela ekubuy-abuyeleleni	• Hlanganisa ngokubuyelela (o.u.inomboro efanako) kufika ku-20 • Sebenzisa amatshwayo afaneleko (+, =, □)	• Hlanganisa ngokubuyelela (o.k.inomboro efanako) kufika e-10 • Sebenzisa amatshwayo afaneleko (+, =, □)	**Ngikuphi okuhlukileko kuneThemu yoku-1?** Ethemini ye-2, abafundi bathoma ukwenza ukuhlanganisa okubuyelelweko ukufika e-10. Lokha abafundi nabanomqondo omuhle kwamambala wenomboro yoku-1 ukufika keye- 5, ukuhlanganisa okubuyelelweko kuzokwenza ingqondo kibo. Ukuhlanganisa okubuyelelweko kufanele kuthulelwe abafundi njengeenqhema zeenomboro ezilinganako. Ukusebenza ngeenqhema zezinto kuqakathekile ekuzwisiseni ukubuyabuyelela. Abafundi bafanele bakghone uku : • enza iinqhema zezinto ezilinganako; • hlathulula ihlelo; begodu • bala inani loke lezinto. Ekuthomeni abafundi bazobala ngakunye kodwana lokha nabatjhelelako ekubaleni ngokweqa bafanele babale izinto ezihlelwe ngakubili, ngakuhlanu nofana ngalitjhumi. Abafundi bamele bavezelwe epepeneneni imifanekiso eminengi ehlukahlukeneko ezisekela ukuzwisisa kokuhlanganisa okubuyebuyelelweko. Kungaba lisizo ukwethulela abafundi ngeenthombeni zeenqhema ezilinganako zangamalanga, isibonelo: Iinqhema zanga-2 – izandla, iinyawo, amakowusu, amadlhavu, iinyathelo, iindlebe, amavili wemlelenjani. Iinqhema zanga-3 - amavili wemlelenjani enamavili amathathu, umkhawulo wakancantathu. **Isibonelo:** Mangaki amavili nasele awoke? Mingaki imino. Zalisa inomboro yemitjho engenzasi. **□ + □ + □ = 15** **Ukurekhoda imifanekiso yokuhlanganisa okubuyebuyelelweko.** Umnqopho la usekuthuthukiseni ilimi ukusekela ukuzwisisa ukubuyabuyelela. Abafundi bazorekhoda ukuzwisisa kwabo ngokusebenzisa iinthombe. Abafundi kufanele banikelwe iinthombe zezinto ezisesiqhemeni begodu bagwale isiyingilizi magega nazo ukubonisa iinqhema zezinto.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.14 **Ukuh-langanisa okubuyele-lweko kurholela ekubuy-abuyeleleni**	• Hlanganisa ngokubuyelela (o.u.inomboro efanako) kufika ku-20 • Sebenzisa amatshwayo afaneleko (+, =, □)	• Hlanganisa ngokubuyelela (o.k.inomboro efanako) kufika e-10 • Sebenzisa amatshwayo afaneleko (+, =, □)	 Ilimi elingasetjenziswa ngelithi kuna – 2 okunok kwaku-3nofana iinqhema ezi-2 zangaku-3. Lokha abafundi nabanokuzithemba ekuhlathululeni iinjamiseleli zeenthombe ngokusebenzisa ilimi bangahlathulula imitjho yeenomboro. Umutjho wenomboro: 3 + 3 = 6	
1.16 **limbalo zehloko**	**Umqondonomboro: hlangana na-20** • Hlela isede enikelweko leenomboro ezikhethiweko • Madanisa iinomboro ukufika ema-20 begodu utjho nokobana ngiyiphi ekulu nofana encani nga-1 begodu nanga-2. **Ukukhumbula msinyazana** • Ukulumbana kweenomboro ukufika e-10. • Khumbula amaphuzu wokuhlanganisa nokuhlukanisa ukufika e-10 **Amaqhinga wokubala** Ukusebenzisa amaqhinga wokubala ukuhlanganisa nokukhupha ngefanelo. • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana emuva • Inambalayini. • Ukubuyelela nokuqunta phakathi • Ukwakha nokuphula	**Irherho Lemiqondo Leenomboro 10** • Hlela isede enikelweko yeenomboro ezikhethiweko • Madanisa iinomboro ukufika ema-10 begodu utjho nokobana ngiyiphi ekulu nofana encani nga-1 begodu nanga-2.	**Ngikuphi okuhlukileko kuneThemu yoku-1?** Ethemini ye-2, irherho leenomboro liyakhula ukusuka ku-5 ukufika e-10 Iimbonelo zemibuzo nemisetjenzana engabuzwa begodu nengenziwa: Thoma ngo-3 ubale uye phambili ngakunye ukufika e-10 Ngiyiphi encani ku -8 nofana ku-5? Ngiyiphi enengi ku-8 nofana ku-4? Kuyini okuncani ngaku-2 kune-9? Kuyini oknengi ngaku-2 kuna -3? Nginikela inomboro ehlangana kwa- 1 noku-3 Nginikela inomboro ehlangana kwe-6 begodu ne-10. Kunenomboro yinye kwaphela? Beka amakarada weenomboro la ukusuka enomborweni encani ukufika kwekulu.	

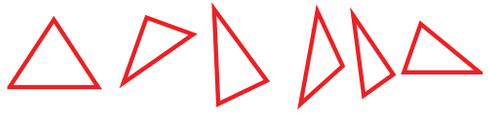
IGREYIDI YOKU-1 ITHEMU YESI-2 2. AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.1 Amapheth-eni weJi-yomethri	**Ukukopa, ukungezelele begodu nokuhlathulula** Ukukopa, ukungezelela begodu nokuhlathulula ngamagama • Amaphetheni alula enziwe ngezinto eziphathekako • Amaphetheni alula enziwe ngemigwalo yemida, amajamo nofana izinto. **Tlama amaphetheni wakho.** namamaphetheni weJiyometri • Ngezinto eziphathekako • Ngokugwala imida, ubujamo nofana izinto **Amaphetheni asizombelezileko** Ukubona, ukuhlathulula ngamagama nokukopa amaphetheni weJiyomethri • Ngokwemvelo, • Kusukela epilweni yangamalanga yesimodeni, • Kusukela kezamagugu nendabuko yethu.	**Ukukopa, ukungezelela nokuhlathulula.** Ukukopa, ukungezelela begodu bewuhlathulule ngamagama • Amaphetheni alula enziwe ngezinto eziphathekako • Amaphetheni alula enziwe ngemigwalo yemida, amajamo nofana izinto. **Tlama amaphetheni wakho** Tlama amaphetheni weJiyometri • Ngezinto eziphathekako • Ngokugwala imida, amajamo nofana izinto	**Ukukopa** iphetheni kusiza abafundi ukubona ilojikhi yokobana iphetheni yenziwe bunjani. **Ukungezelela** iphetheni kusiza abafundi ukuhlola bonyana bayizwisisile ilojikhi yephetheni. **Ukuhlathulula** iphetheni kusiza abafundi ukuthuthukisa amakghono wabo welimi nokukhuluma. Kuyokusiza ukubona bonyana abafundi bahlathulula njani amaphethini Egreyidini yoku-1 abafundi banganqopha emaphethinini wezinto nofana eenqhemeni zezinto ezibuyelwe ngendlela efanako patsi/poro. Ethemini yesi-2 abafundi abanengi bayazigedla nabasebenzisa ikhrayoni nofana ipensela nabagwalako. Abafundi bangaragela phambili ngokukopa nangokungezelela amaphetheni enziwe ngeenthombe esikhundleni sezinto. Kufanele banqophise ekuhlathululeni amaphetheni. Akusilula ngasosoke isikhathi ukuhlathulula iphetheni. Ungabasiza ukufunda bonyana bakhulume njani, ngani ngokubuza imibuzo efana nelandelako: “Majamo anjani awabona ephetheneni le?” “Anemibala efanako?” “Ubona ijamo linye nofana manengi ephetheneni?” “Ingabe zoke izinto ziqale endaweni yinye na?” “Kunenani elifanako lezinto esiqhemeni ngasinye?” “Zizinto ezingaki ezisesiqhemeni ngasinye?” “ingabe amajamo woke anobungako obulinganako?” njll Ethemini yesi - 2 eminye yeminqopho ingaba sekusebenziseni amajamo weJiyometri wa-3-D abafundi abawafunde eThemini yoku-1. Abafundi bangenza amajamo abo 2-D ngokusika iphepha nofana ikarada, nofana bangawagwala. Bangenza amaphetheni ngamajamo wamabhoksi begodu nangamajamo weembholo abazenze ngebumba nofana ngehlama yokudlala. Amaphetheni angenziwa ngokusebenzisa ijamo elilodwa kodwana umbala wezinto utjhuguluke ngendlela eqhelekileko isib.  Kuqakathekile eGreyidini yoku-1 ukusiza abafundi babone bonyana ngisiphi isiqhema esibuyelelwako, ngokubeka isiqhema ngasinye eencetjhaneni zephepha ezahlukahlukeneko nofana kubonisa ngaphakathi kwebhlogo ngekhasini.	

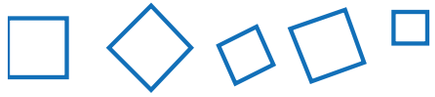
IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.1 Amapheth-eni weJi-yomethri	**Ukukopa, ukungezelele begodu nokuhlathulula** Ukukopa, ukungezelela begodu nokuhlathulula ngamagama • Amaphetheni alula enziwe ngezinto eziphathekako • Amaphetheni alula enziwe ngemigwalo yemida, amajamo nofana izinto. **Tlama amaphetheni wakho.** namamaphetheni weJiyometri • Ngezinto eziphathekako • Ngokugwala imida, ubujamo nofana izinto **Amaphetheni asizombelezileko** Ukubona, ukuhlathulula ngamagama nokukopa amaphetheni weJiyomethri • Ngokwemvelo, • Kusukela epilweni yangamalanga yesimodeni, • Kusukela kezamagugu nendabuko yethu.	**Ukukopa, ukungezelela nokuhlathulula.** Ukukopa, ukungezelela begodu bewuhlathulule ngamagama • Amaphetheni alula enziwe ngezinto eziphathekako • Amaphetheni alula enziwe ngemigwalo yemida, amajamo nofana izinto. **Tlama amaphetheni wakho** Tlama amaphetheni weJiyometri • Ngezinto eziphathekako • Ngokugwala imida, amajamo nofana izinto	Amaphetheni angenziwa ngeenqhema ezifanako ezibuyelelwako, lapho isiqhema ngasinye sinomhlobo munye wento kodwana indawo yezinto eenqhemeni iyatjhughuluka. Iinqhema ezifanako poro ziyabuyelelwa isib.  Emaphethenini amanye izinto ezahlukeneko ziyasetjenziswa ukwenza isiqhema, kodwana iinqhema zezinto ziyabuyelelwa ngendlela efanako isib.poro  Emaphethenini amanye ubukhulu bezinto eenqhemeni buyatjhuguluka, kodwana iinqhema ziyabuyelelwa ngendlela efanako patsi/poro.  Abafundi bangenza amaphetheni ngokuthungelela imincamo. Ukwenza amaphetheni kungenziwa godu eemfundweni zamaKghono wePilo.	Isifundo-1

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.2 Amaphe-theni weenom-boro.	**Ukukopa, ukungezelela begodu nokuhlathulula** Ukukopa, ukungezelela begodu nokuhlathulula Ukulandelaniswa kwenomboro elula ukufika ku-100. **Tlama amaphetheni wakho** Tlama amaphetheni wakho weenomboro	Ukulandelanisa kufanele kubonise ukubala ukuya phambili nemuva • Nga-1 ukusuka kunanyana ngiyiphi inomboro hlangana na -1 nama-50 **Ukubala uye phambili nga:** • Nga-10 ukusuka kwenye nenye eyisibuyabuyeleli se-10 hlangana ne-0 na-50 • Ngaku-5 ukusuka kwenye nenye inomboro esibuyabuyeleli saka ku-5 hlangana ne-0 na-50 • Ku-2 ukusuka kwenye nenye inomboro esibuyabuyeleli saka ku-2 hlangana ne-0 na-20 **Tlama amaphetheni wakho** • Tlama amaphetheni wakho weenomboro	Ukulamanisa iinnomboro kungahlanganiswa nokubala. Lokha amakghono wabafundi wokubala atjhugulukako godu athuthukako, imihlobo yokulamanisa iinomboro abafundi abasebenza ngayo ingathuthuka. Ukulandelanisa kufanele kubonise ukubala uye phambili nemuva ngabo: • Kunye ukusuka kwenye nenye inomboro hlangana neyoku -1 ukufika ku- 50 • Litjhumi ukusukela kwenye nenye inomboro ebala ngali-10 ehlangana ne -0 na-50 • Kuhlanu ukusukele kwenye nenye inomboro ebala ngaku-5 ehlangana ne -0 na-50 • Kubili ukusukela kwenye nenye inomboro ebala nga- 2 ehlangana ne - 0 na- 20 Lokha abafundi babala ngomlomo bangatjengiswa ukulandelanisa iinomboro ezitlolwe phasi ngezindlela ezingafaniko. Bangakhomba inomboro ebaliweko **Isibonelo :** 1 **2** 3 **4** 5 **6** 7 **8** 9 **10** 11 **12** 13 **14** 15 **16** 17 **18** 19 **20** Abafundi bangazalisa iinomboro ezingekho ezivezwe nanoma ngawuphi umhlobo wokulandelanisa ongehla. Khumbula bonyana abafundi batlola iinomboro ngamatshwayo ukufika e-10. Abafundi bangazalisa iinomboro ezingekho ekulandelaneni kweenomboro ukudlula e-10 nangabe: • yenziwa ngomlomo • amakarada weenomboro anikelwe bonyana afakwe eenkhaleni; nofana • irhelo lamatshwayo weenomboro linikelwe. Abafundi bangagwala umuda ukusuka enomborweni ekhethiweko ukuya endaweni efaneleko. Ezinye iimbonelo zinikelwe ngenzasi: Inambalayini eneenomboro ezinye ezitjhiyiweko  Ukulandelanisa okubonisa ukubala uye phambili nemuva ngakunye eneenomboro ezinye ezitjhiyiweko. Abafundi bamadanisa iinomboro erhelweni elinikelweko. Bagwala umuda ukubonisa lapho inomboro ekhethiweko kufanele ifakwe khona. 40, 41, 42, __, 44; __, __, 47, ___, 49, 50. 50, 49, 48, __, __, 45, 44, ___, ____, 41, 40 Zitlolwe ngokulandelana uye phambili ngembuyeleli ezitjhiwo ngehla ezinezinye iinomboro ezitjhiyiweko.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.2 **Amaphe-theni weenom-boro.**	**Ukukopa, ukungezelela begodu nokuhlathulula** Ukukopa, ukungezelela begodu nokuhlathulula Ukulandelaniswa kwenomboro elula ukufika ku-100. **Tlama amaphetheni wakho** Tlama amaphetheni wakho weenomboro	Ukulandelanisa kufanele kubonise ukubala ukuya phambili nemuva • Nga-1 ukusuka kunanyana ngiyiphi inomboro hlangana na -1 nama-50 **Ukubala uye phambili nga:** • Nga-10 ukusuka kwenye nenye eyisibuyabuyeleli se-10 hlangana ne-0 na-50 • Ngaku-5 ukusuka kwenye nenye inomboro esibuyabuyeleli saka ku-5 hlangana ne-0 na-50 • Ku-2 ukusuka kwenye nenye inomboro esibuyabuyeleli saka ku-2 hlangana ne-0 na-20 **Tlama amaphetheni wakho** • Tlama amaphetheni wakho weenomboro	Inambalayini etjengisa iinkhala okufanele abafundi bazizalise  Igridi yenomboro efake nofana etjhiye ukubala okulandelanako  Abafundi bafaka umbala nofana bagubuzese iinomboro lokha nababala ngokweqa. Ekupheleni kweThemu, irherho leenomboro likhuphukela ema-50. Abafundi bangasebenza ngokulandelanisa inomboro ezipheleleko ukusuka 1 ku– 50 nofana iingcenye zokulandelanisa.	Iimfundo ezi-3

IGREYIDI YOKU- 1 ITHEMU YESI- 2 3. ISIKHALA NOBUJAMO (JIYOMETHRI)				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.1 **Ubujamo, ukuzijayeza nokubukela**	**Ilimi lobujamo** Hlathulula Ubujamo bento eyodwa ehlobene nenye, isib.phezu kwe, phambi kwe- ,emuva kwe-, ngesinceleni, esidleni, phezulu, phasi, hlanu kwe-. **Ubujamo nokubukela** Madanisa imibono ehlukahlukeneko yezinto ezifanako zangamalanga. **Ubujamo neenkombatjhuba** Landela iinkombatjhuba ukukhambakhamba ngetlasini Landela iinlayelo ukubeka into eyodwa ehlobene nenye, isib. Ukubeka ipensela ngaphakathi kwebhoksi.		Ilimi lobujamo elithuthukiswe eThemini loku-1 lifanele lijayezwe njalonjalo ngesikhathi sokufundisa itlasi loke begodu kunqotjhwe esikhathini sokufundisa ngeenqhema ethemini yoke, zinikele isikhathi esifitjhani sokuzijayeza ilimi njalo njalo. Ukusebenza ngelimi lobujamo kungahlanganiswa ngokutlola irekhodi njengokugwala, ukufaka umbala nofana ukumadanisa imigwalo namagama. Lokhu kungenziwa ngesikhathi sukuzijamela. Amanye amalimi wobujamo angajayezwa abafundi nabasebenza ngobujamo babobusobubili 2-D.	limfundo ezi-2
3.2 **Izinto ezi-busontathu (3-D)**	Ukubona nokutjho izinto ezibusontathu 3-D ezingetlasini begodu neenthombeni • Ubujamo bebholo (indulungu) • Ubujamo bebhoksi (iphrizimu) **Amatshwayo wezinto** Ukuhlathulula, ukuhlela ngeengaba nokumadanisa izinto ezibusontathu 3-D ngokuya ngo: • bungako • mbala • izinto ezigedekako • izinto ezitjhelelako **Imisetjenzana enqophiweko** Tjheja begodu wakhe izinto ezibusontathu 3-D ezinikelweko ngokusebenzisa amamathiriyelii aphathekako afana namabhulogo wokwakha, ukubuyelela usebenzise godu imatheriyali namakhidi wokwakha		Abafundi bangaragela phambili bakhe izinto ngematheriyali ebuyelelwe yasetjenziswa godu nofana amabhlogo wokwakha nofana amakhidi wokwakha ngesikhathi sokuzijamela	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.3 **Amajamo abobusobubili (2-D)**	**Irherho yobujamo** Ukubona nokutjho ubujamo obubusobubili (2-D) • Iindulungu • Aboncantathu • Iinkwere **Amatshwayo wamajamo** Ukuhlathulula, ukuhlela nokumadanisa ubujamo obubusobubili (2-D): • ubukhulu • umbala • ibumbeko • amahlangothi anqophileko • amahlangothi ayindulungu	**Irherho yobujamo** Ukubona nokutjho ubujamo obubusobubili (2-D) • Iindulungu • Aboncantathu • Iinkwere **Amatshwayo wamajamo** Ukuhlathulula, ukuhlela nokumadanisa ubujamo obubusobubili (2-D): • ubukhulu • umbala • ibumbeko • amahlangothi anqophileko • amahlangothi arondo	Imisebenzi eminengi isebenzaa ngamajamo eGreyididi yoku-1 yenziwa ngokuzijayeza izinto eziphathekako. Yoke imisebenzi ifanele ihlanganiswe ngokutlola imisebenzi. Abafundi bathoma ngomdlala otjhaphululekileko onamajamo ahlukahlukeneko, okufaka hlangana ukwenza iinthombe ngenquntu ezisikiweko zamajamo weJiyomethri. Lokhu kungenziwa ngesikhathi sokuzijamela. Lokhu kungabuye kwenziwe ngesikhathi sesifundo samaKghono wePilo. Abafundi bakopa iinthombe ezenziwe ngamajamo weJiyomethri. Iinthombe lezi zingatholakala eencwadini zokufundisa nofana kutitjhera. Lokhu kwenza abafundi babone iindulungu begodu neenkwere zobungako obuhlukahlukeneko, iinkwere begodu naboncantathu abasebujameni obuhlukahlukeneko begodu naboncantathu abanobujamo obuhlukahlukeneko. Lokhu kungenziwa ngesikhathi sokuzijamela. Lokhu kungabuye kwenziwe ngesikhathi sesifundo samaKghono wePilo. **Ukumadanisa nokuhlathulula izinto ezibobusombili (2-D): isayizi** Abafundi bamadanisa isayizi yezinto ezifana patsi ngobujamo Isib. • Ukuhlela iindulungu ukusuka kencani ukuya kwekulu • ukubeka zoke iinkwere ndawonye nofana ukubeka ezinesayizi efanako ndawonye Sebenzisa ilimi lesayizi ukumadanisa amajamo ahlukahlukeneko, isib. “Ngagwala uncantathu ngaphakathi kwesikwere, ngakho-ke uncantathu mncani kunesikwere”. **Ukuhlathulula amajamo wabobusombili (2-D) : umbala** Abafundi bakhuluma ngemibala yamabumbeko begodu bahlela amabumbeko ngokuya ngemibala. Ukubona nokutjho amagama wezinto begodu nemibala yazo, kanye nokumadanisa isayizi yezinto kungajayezwa ngesikhathi sokusebenza ngamaphetheni **Ukulemuka nokutjho iindulungu, aboncantathu begodu neenkwere** Abafundi bafanele basebenze ngeendulungu nangeenkwere zamasayizi ahlukahlukeneko, begodu nangaboncantathu abanobujamo obuhlukileko. Kuqakathekile bonyana abafundi bangaboni isibonelo sobujamo obubodwa kwaphela. Amasede wamabumbeko athengiswako amanengi anikela isibonelo esisodwa saboncantathu.Abafundi bafanele bbakghone ukuwabona • Aboncantathu abanamabumbeko ahlukahlukeneko begodu babekwa endaweni ezihlukahlekeneko. Laba ngabanye baboncantathu: 	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.3 **Amajamo abobusobu-bili (2-D)**	**Irherho yobujamo** Ukubona nokutjho ubujamo obubusobubili (2-D) • Iindulungu • Aboncantathu • Iinkwere **Amatshwayo wamajamo** Ukuhlathulula, ukuhlela nokumadanisa ubujamo obubusobubili (2-D): • ubukhulu • umbala • ibumbeko • amahlangothi anqophileko • amahlangothi ayindulungu	**Irherho yobujamo** Ukubona nokutjho ubujamo obubusobubili (2-D) • Iindulungu • Aboncantathu • Iinkwere **Amatshwayo wamajamo** Ukuhlathulula, ukuhlela nokumadanisa ubujamo obubusobubili (2-D): • ubukhulu • umbala • ibumbeko • amahlangothi anqophileko • amahlangothi arondo	• Iinkwere zamasayizi ahlukahlukeneko zibekwe ngeendlela ezihlukahlukeneko  • Iindulungu zamasayizi ahlukahlukeneko. Lezi ngezinye zeendulungu. Kuqakathekile bonyana abafundi basebenze ngeemfaniso zamakhadibhodi asikiweko wamajamo. Lokhu kwenza abafundi babone abancantathu abahlukahlukeneko begodu neenkwere ezibekwe eendaweni ezihlukahlukeneko. Abafundi bahlela ngemihlobo amabumbeko ngokuya ngokuthi zinamahlangothi anqophileko nofana ayindulungu. Abafundi bahlela ngemihlobo begodu babeka amajamo ngeenqhema ngokuya ngokuthi aboncantathu, aziinkwere, nofana azindulungu. Umsebenzi uhlanganiswa ngokutlola imisebenzi. Imisebanzi le ifaka hlangana ukufa umbala, ukumadanisa amagama namabumbeko, njll	Iimfundo ezi-3

IGREYIDI YOKU-1 ITHEMU YESI-2 4. UKUMEDA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.1 Isikhathi	**Ukudlula kwesikhathi** Khuluma ngokudlula kwesikhathi • Ukuhlela izehlakalo eziqhelekileko ezisuke epilweni yabo • Ukumadanisa ubude besikhathi kusetjenziswe ilimi isib. iskhathi eside, isikhathi esifitjhani, kabuthaka. • Ukulandelanisa izehlakalo ngokusebenzisa ilimi elifaka njengokuthi izolo, namhlanje, kusasa. **Ukutjho isikhathi** • Ukuhlathulula nakwenzeka into ngokusebenzisa ilimi isib. ekuseni,ngemuva kwedina, ebusuku, ekuseni khulu, ngemuva kwesikhathi. • Ukwazi amalanga weveke, neenyanga zonyaka. • Ukwazi iinyanga zonyaka • Ukubeka amalanga awamabeletho ekhalendeni		Abafundi bafanele bafunde bonyana kukhulunywa njani : • ngokulandelanisa izehlakalo • nangobude besikhathi Abafundi baragela phambili nokuhlanganisa iindlela yokukhuluma ngesikhathi ngamalanga ngesikhathi sokufundisa setlasi loke nofana ngesikhathi sokunqopha sokufundisa ngesiqhema. Abafundi bakhuluma begodu baphendula imibuzo ephathelene nokuthi izinto zenzeka nini, ngokusebenzisa ilimi elinjengokuthi ekuseni, ngemuva kwedina, ebusuku, ekuseni khulu, ngemuva kwesikhathi. Abafundi balandelanisa izehlakalo ngokusebenzisa ilimi elinjengokuthi izolo, namhlanje, kusasa; amalanga weveke begodu neenyanga zonyaka Abafundi bamadanisa ubude besikhathi ngokusebenzisa ilimi elinjengokuthi isikhathi eside nofana isikhathi esifitjhani begodu msinyana nofana buthaka. Abafundi bakhuluma ngokuhlela izehlakalo zepilo yabo. Bahlela ukulandelana kweenthombe ezinjenga • amagadango wokwenza iimbedlezwana nofana ikopi letiye; • iinthombe ezitjengisa ukukhula komntwana aze abe mumuntu okhulileko; • umzombelezo wepilo yeembandana, isib. Iqanda liba yikukhu, nofana iqanda liba sirhwerhwe nofana iqanda liba iviyaviyani;begodu • izehlakalo eziqhelileko zelanga (ukuvuka, ukuba sesikolweni, ukudlala, ukudla kwamadina, ukulala). Ragela phambili ukubeka amalanga wamabeletho ekhalendeni umnyaka woke	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.2 Ubude	**Ukulinganisa okungakahleleki** • Ukumadanisa nokuhlela ubude, ukuphakama nofana ububanzi bezinto ezimbili nofana ezinengi ngokuzibeka enye eqadi kwenye. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa, isib. ubude, ubufitjhani, ububanzi. • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu urekhode ubudeusebenzise iimedo ezingasisezingeni isib. Izandla, igadango, ubude bepensela, izinto zokubala, njll.		Zoke iimedo zeGreyidi yoku-1 azikahleleki. Akukho ukumeda okuhlelekileko kobude emayunithini asezingeni enziweko. EThemini yoku-1 kuphakanyiswe bonyana abafundi banqophe • ekumadaniseni okunqophileko kobude bezinto ngokubeka into hlanu kwenye; • ukuhlela nokumadanisa ubude nofana ukuphakama nofana ububanzi bezinto ezintathu nofana ezinengi, ngokubeka izinto ngazimbili enye hlanu kwenye, bekufike lapho zoke izinto zilandelaniswe khona godu • Ukuthuthukisa ilimi lokukhuluma ngemahluko ngobude, ukuphakama, nobubanzi, njll Ngesikhathi sokusebenza ngokuzijamela ethemini yoke, abafundi bangazijayeza begodu bahlanganise ukuhlela nokumadanisa ubude nofana ukuphakama nofana ububanzi bezinto ezintathu nofana ezinengi, ngokubeka izinto ngazimbili ezinye hlanu kwezinye, bekufike lapho zoke izinto zilandelaniswe khona. Woke umsebenzi ufanele urekhodwe.	
4.3 Ubungako/ ubudisi	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela, bekurekhodwe ubudisi, ngokusebenzisa iimedo ezingasisezingeni begodu nesikala sokudzimelela isib. Amabhulogo, iintina njll. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. lula, budisi, lula-khulu, budisi-khulu.		Zoke iimedo zeGreyidi yoku-1 azikahleleki. Akukho ukumeda okuhlelekileko bobungako emayunithini ahlelekileko enziweko. EThemini yoku-1 kuphakanyiswe bonyana abafundi banqophe • ekumadaniseni okunqophileko kobungako bezinto ; begodu • ukuhlela nokumadanisa ubungako bezinto ezintathu nofana ezinengi ngokubeka izinto ngazimbili ezihlaleleneko, bekufike lapho zoke izinto zilandelaniswe khona godu • Ukuthuthukisa ilimi lokukhuluma ngokuhlukahluka bobungako Ngesikhathi sokusebenza ngokuzijamela ethemini yoke, abafundi bangazijayeza begodu bahlanganise ukuhlela nokumadanisa ubungako bezinto ezintathu nofana ezinengi, ngokubeka izinto ngazimbili ezinye hlanu kwezinye, bekufike lapho zoke izinto zilandelaniswe khona. Woke umsebenzi ufanele urekhodwe.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.4 Umthamo/ Ivolumu	**Ukumeda okungakahleleki** • Ukumadanisa nokuhlela ubungako obusamanzi (umthamo) obuseemumathini ezimbili ezibekwe esinye eduze kesinye. Abafundi bahlola ngokuthi bathele esimumathini sesithathu nakutlhogekako. • Ukumadanisa nokuhlela ubungako beketjezi/okusamanzi okungathathwa ziimumathi ezimbili nazizeleko (umthamo) • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. enengi kune, encani kune, encani, izele, edududu. • Ukulinganisa, begodu nokumeda; Ukumadanisa nokuhlela bewurekhode umthamo ongeemumathini ngokusebenzisa izinto zokumeda ezingakahleleki isib. lingobho neenkomitji.	**Ukumeda okungakahleleki** • Ukumadanisa nokuhlela ubungako okusamanzi (umthamo) okuse mumathini ezimbili ezibekwe esinye eduze nesinye. Abafundi bahlola ngokuthi bathele esimumathini sesithathu nakutlhogekako. • Ukumadanisa nokuhlela ubungako beketjezi/okusamanzi okungathathwa ziimumathi ezimbili nazizeleko (umthamo) • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. enengi kune, encani kune, encani, izele, edududu. • Ukulinganisa nokumeda; Ukumadanisa nokuhlela bewurekhode umthamo ongeemumathini ngokusebenzisa izinto zokumeda ezingakahleleki isib. lingobho neenkomitji.	Zoke iimedo eGreyidini yoku-1 azikahleleki. Asikho isimedo esihlelekileko zobungako emayunithini ahlelekileko enziweko. Umnqopho ophakanyisweko weThemi yoku-1 bewukuthuthukisa ilimi lokukhuluma ngomthamo odluleleko begodu nokumadaniswako. iminqopho yethemu yesi-2 ungaba sekumadaniseni okuhlelekileko iminqopho yethemu yesi-4 ungaphathelana nabafundi basebenza ngamayunithi wokumeda angakahleleki. Abafundi bangazijayeza begodu bahlanganise imiqondo lengesikhathi sokusebenza ngokuzijamela okwenzeka umnyaka woke. **Ukumadanisa okuhlelekileko wemithamo ongeemumathini** • Ukuthuthukisa ukuzwisisa komthamo begodu nelimi lokukhuluma ngawo. Abafundi bathoma ukucabanga begodu bakhulume ngomthamo ngokumadanisa bonyana kungangani okungaphakathi kweemumathi ezimbili ezifana patsi (nofana imigwalo yeemumathi ezimbili azifana patsi. Kunqotjhwe kokulandelako: - zele begodu dududu - nengi kuna/ncani kuna - fana na Abafundi bangazalisa begodu bathulule iimumathi ngokuthi ba: • Madanisa amavolumu amabili nofana amanengi, iimumathi eziqaleka zihlukile ngokuthela esimumathini sesithathu. Lokha abafundi nabakghona ukukhuluma ngamavolumu adluleleko (angenalitho begodu nazeleko, njll) begodu bamadanisa amavolumu (ahlukileko ngokuwaqala nje akude) eemumathini ezimbili ezifanako. Nqopha khulu khulu eemumathini ezibanzi nezincani ngobubanzi, isib. • zalisa ibhodlelo lamalitha ama-2 begodu nebhodlelo elinama-500ml alingane; • Buza abafundi bonyana ngisiphi isimumathi sebhodlelo esinengi. Abafundi bangahlola ngokuthi bathele iketjezi esimumathini sesithathu begodu nokumerega ukuphakama kwalo. Abafundi abasese batjha kanengi abatjheji bonyana isimumathi sibanzi kangangani nababeka umbono ngevolumu; baqala kwaphela bonyana isimumathi sizaliswe kangangani Abafundi bafanele banikelwe ilemuko elinengi nakumadaniswa amavolumu eemumathini ezinobubanzi obuhlukahlukeneko. **Ukurekhoda** Abafundi bafanele barekhode woke umsebenzi.	Iinfundo ezi- 2

IGREYIDI YOKU-1 ITHEMU YESI-2 5. UKUPHATHA IDATHA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO: IMINQOPHO YETHEMU YESI-2**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
UKUSEBENZA NGEBUTHELELO LEZINTO				
5.1 Ukubuthelela nokuhlela ngeengaba kwezinto	**Ukubuthelela nokuhlela izinto** Ukubuthelela nokuhlela ngeengaba izinto eziphathekako zangamalanga	**Ukubuthelela nokuhlela izinto** Ukubuthelela nokuhlela ngeengaba izinto eziphathekako zangamalanga	Qala amanothi weThemu yoku-1 Ethemini ye-2 abafundi baragela phambili ngokusebenza ngokubuthelela ngendlela efanako, kodwana bahlahlwa/bakhokhelwa kancani. Lokha abafundi nasele bakhokhelwe ekambisweni yokuhlela ngeengaba begodu nokujamisela ibuthelelo, ngesikhathi sokunqophisa iinqhema, bangazijayeza wona ngesikhathi sokuzijamela. Lokha abafundi sebejayele ukuphendula imibuzo ngebuthelelo labo, ungababawa bonyana bahlathulule ibuthelelo labo, ngaphandle kokubakhokela ngemibuzo enqophileko.	Isifundo -1
5.2 Ukujamiselela ibuthelelo lezinto elihlelekileko	**Ukujamiselela ibuthelelo lezinto elihlelekileko** Ukugwala isithombe sezinto ezihleleke ngemihlobo	**Ukujamiselela ibuthelelo lezinto elihlelekileko** Ukugwala isithombe sezinto ezibuthelelweko		
5.3 Ukucoca nokubika ngokuhlelwa kwezinto ezi-buthelelweko	**Ukucoca nokubika ngokuhlelwa kwezinto ezibuthelelweko** • Nikela iinzathu zokobana ibuthelelo lihlelwe bunjani • Phendula imibuzo nge: - ukuhleleka ngemihlobo kwenziwe bunjani (indlela yekambiso) - Ukuhlelela ngemihlobo kwebuthelelo kuqaleka bunjani (umkhiqizo) • Hlathulula ibuthelelo begodu nemigwalo • Hlathulula bonyana ibuthelelo lihleleke bunjani	**Ukucoca nokubika ngokuhlelwa kwezinto ezibuthelelweko** • Nikela iinzathu zokobana ibuthelelo lihlelwe bunjani • Phendula imibuzo ngo: - ukuhleleka ngemihlobo kwenziwe bunjani (indlela yekambiso) - Ukuhlelela ngemihlobo kwebuthelelo kuqaleka bunjani (umkhiqizo) • Hlathulula ibuthelelo begodu nemigwalo • Hlathulula bonyana ibuthelelo lihleleke bunjani		
Kuphakanyiswa bonyana ukusebenza ngomzombelezo wokuphathwa kwedatha kumnqopho weThemu ye-3 neye 4.				

IGREYIDI YOKU-1 ITHEMU YESI-3 1. IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
UKUTHUTHUKISA UMQONDONOMBORO: Bala ngeenomboro eziphelelekо				
1.1 Ukubala izinto	Ukubala izinto ngokuthembeka ukufika ema-50 Nikela ukulinganisa okuzwakalako kwenani lezinto ezingahlolwa ngokubala	Ukubala izinto ngokuthembeka ukufika ema-40 Nikela ukulinganisa okuzwakalako kwenani lezinto ezingahlolwa ngokubalwa	**Khuyini okuhlukileko kuneThemini yesi-2** Ethemini yesi-3, abafundi bandisa irherho lokubala. Kusese nomnqopho wokuzwisisa umthetho wekhadinali. Ngesikhathi seThemu le, abafundi bafanele bafunde ukubeka izinto ngokuhleleka ngerherho nababalako ukuze nabahlola ukubala kwabo, ihlelo libasize ukubala lula khulu.Isib, izinto zokubala zingabekwa ngamareyi. NgeThemu le abafundi baragela phambili ngokwandisa amakghono wabo wokubala nokuzijayeza: • Ukubala zoke • Ukubala okuragela phambili • Umthetho weenomboro zekhadinali, begodu noku • Sebenza ngamatheksti atloliweko **Ukulinganisa okunqophe patsi** Abafundi baragela phambili ngokuzijayeza ukubona ibuthelelo elincani lezinto **Ukubala ngeenqhema** Ukuze silekelele abafundi ukubala ngamakhefu wangakubili, ngakuhlanu begodu nanga-10, bafanele babuthelele izinto ngazimbili, ngazihlanu begodu nangetjhumi ukuze babale ibuthelelo lezinto. Amakarada weenomboro afanele akhangiswe kelinye nelinye ibuthelelo ukutjengisa inani lezinto ezibaliweko.Ukubala ngeenqhema kuzokubalungiselela abafundi bonyana bazwisise ukubuyabuyelela **linsetjenziswa:** Ukuyelela ngokutjheja kufanele kunikelwe imihlobo yeensetjenziswa ezisetjenziswako • Ama-apharethasi ahlelekileko njengentambo enemincamo yokubala, ingasetjenziswa. • I –abhakhasi ingasetjenziselwa ukuzijayeza ukubala ngeenqhema zangalitjhumi. • Bangenza iinyanda zanga-2, iinyanda zanga-5 begodu nangalitjhumi ngeenthoro zomlilo nofana iingojwana zokubala begodu babale koke.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.2 **Ukubala uye phambili nemuva**	**Ukubala uye phambili nemuva nga:** • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 ne-100 **Ukubala uye phambili nga:** • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-100 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-100 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku-2 hlangana ne-0 ne-100	**Ukubala uye phambili nemuva nga-** • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 na-80 **Ukubala uye phambili nga:** • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 na-80 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 na-80 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku-2 hlangana ne-0 na-80	**Khuyini okuhlukileko kuneThemu yoku-1?** EThemini yesi-3, abafundi sebabala ukufika ku-80 Baragela phambili nokubala ngeembuyabuyelelo za-2, 5 begodu ne-10 **Imisetjenzana engezelelweko** **Imisetjenzana yetlasi loke** Ukubala uye phambili nemuva ukufika ku-80 • Abafundi babala baye phambili nemuva • Utitjhere ukhomba iinomboro egridini yeenomboro njengombana abafundi babala bebafike ku-70. • Abafundi babala ngakuhlanu ukusuka ku-25 ukuya ukufika ku-60. • Abafundi babala ngamatjhumi ukuya phambili ukusukela ku-0 ukufika ku-80 Ukubala ngokweqa kusetjenziswa abo-5,nabo-10 ukufika ku-80 • Abafundi babala nga-10 ukufika ku-50 ngesikhathi utitjhere akhomba itjhadini leenomboro • Utitjhere ukhomba iimbuyeleli zaka -5 etjhadini le-100 abafundi bona babale. • Abafundi babala baye phambili begodu nemuva ngabo-10 Ngokusetjenziswa itjhadi le-100, abafundi bafanele baphendule emiyelelweni yemihlobo efanako: • Bala uye phambili ngamatjhumi ukusuka ema-20 • Bala uye umva ngakunye ukusukela ema-56. • 80, 70, 60: batjho iinomboro ezintathu ezilandelako kusetjenziswa itjhadi le-100. **Umsebenzi wokuzijamela** Amakghono wokubala ngokweqa kudingeka bonyana asetjenziswe emisetjenzaneni etloliweko. Isibonelo: Abafundi bakhambisa amehlo: • Baqedelela ukulandelana kweenomboro ezilula; begodu • Bazalisa iinomboro ezitjhiyiweko emkhondweni weenomboro begodu nenambalayini, nitlola iinomboro ezimbili ezilandelako 66, 65, 64,-----,-----,	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.3 **Amatshwayo weenomboro namagama weenomboro**	**Ukwazi nokufunda iinomboro** • Ukwazi nokufunda amatshwayo wenomboro kusukela ku- 0 ukufika ku-100 • Ukutlola amatshwayo weenomboro ukusukela ku -0 ukufika ku-100 • Ukwazi nokufunda amabizo wenomboro kusuka ku- 1ukufika-10 • Ukutlola amabizo wenomboro • Kusukela ku-1ukufika ku-10	**Ukwazi nokufunda iinomboro** • Ukwazi nokufunda amatshwayo wenomboro 0-80 • Ukutlola amatshwayo weenomboro 0-80 • Ukwazi nokufunda amabizo weenomboro 1-10 • Tlola amabizo wenomboro 1-10	**Ngikuphi okuhlukileko kuneThemini yesi-2?** Ethemini yesi-3, irherho leenomboro likhuphukele ema-80. Kwanjesi kulindeleke bonyana abafundi batlole amatshwayo weenomboro ukufika ema-20. Kudingeka bonyana bakghone ukwenza lokho ngombana babala ukufika ema-20 begodu kutlolwa imitjho yeenomboro. Abafundi baragela phambili nokuzijayeza ukufunda nokutlola amagama weenomboro zabo. Bafanele bakghone ukumadanisa itshwayo negama lenomboro. Imisetjenzana yencwadi yokusebenzela nokutlola ngetlasini-incwadi yokusebenzela ingenziwa ngesikhathi sokuzijamela. Isibonelo somsebenzi wokutlola: Madanisa amagama nezinto Kunye ✂ Kubili ✱ ✱ ✱ ✱ Kuthathu ✸✸ Kune ✶✶✶✶✶✶ Kuhlanu ✖✖✖✖✖✖✖✖✖✖ Sithandathu ✺✺✺ Likhomba ✷✷✷✷✷✷✷ Bunane ※ ※ ※ ※ ※ Litjhumi ✦✦✦✦✦✦✦✦✦ **Okulindeleke ebafundini?** • Bangakghona ukufunda amatshwayo weenomboro ukufika e-50 • Bakghona ukutlola amatshwayo weenomboro ukufika e-20 • Bakghona ukufunda amagama weenomboro ukufika e-10 • Bakghona ukutlola amagama weenomboro ukufika e-10	

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1.4 Ukuhlathulula, ukumadanisa, nokuhlela iinomboro	**Ukuhlela nokumadanisa, Izinto** • Madanisa ibuthelelo lezinto ngokuya ngobunengi, ngambalwa, ngokunengi khulu,ngokuncani khulu, okunengi kuna, okuncani kuna, okulinganako, ngokunengi, okulingana na, okuhlukileko • Ukuhlela ibuthelelo lezinto kusukela kokukhulu khulu kuya kokuncani khulu nakokuncani khulu ukuya kokukhulu khulu • Izinto ezihlukahlukenekoukufikela e-100 **Ukuhlela nokumadanisa iinomboro** • Ukuhlela iinomboro - Kusukela kencani khulu ukuya kekulu khulu nakusukela kekhulu khulu kuya kencani khulu. - Ngaphambili,ngemuva,phakathi/ hlangana - Ukusebenzisa inambalayini 0-100 • Ukumadanisa iinomboro ezipheleleko ngokuya ngobunani kuna, okukhulu kuna, engaphasi kuna, ilingana na • Kunye –nakhunye kokukhambelanako • Izinto ezihlukahlukenekoukufikela e-100 **Sebenzisa inomborosikhundla ukutjengisa ukulandelana ,indawo namkha ubujamo** • Beka izinto emudeni ngokulandelana kusukela keyokuthoma ukufika keyamatjhumi namkha keyokuthoma ukuya keyokugcina, Isib. Yokuthoma, yesibili, yesithathu..yetjhumi yamaswaphela(iinomboro zeodinali) Amahlangothi womraro weenom-boro zekhadinali ngerherho lokusuka ekuthomeni ukuya etjhumini	**Ukuhlela nokumadanisa izinto ezi-15** • Madanisa ibuthelelo lezinto ngokuya ngobunengi,ngokunca ni,ngokunengi khulu,ngokuncani kuna,ngokulingana na,okungafaniko • Ukuhlela ibuthelelo lezinto kusukela kezinengi khulu ukuya kezincani khulu begodu nezincani khulu ukuya kezikhulu khulu • Ukuhlela izinto kufikela e-15 **Ukuhlela nokumadanisa iinom-boro** • Ukuhlela iinomboro - Kusukela kencani khulu ukuya kekulu khulu nakusukela kekhulu khulu kuya kencani khulu. - Ngaphambili,ngemuva,phakathi/ - hlangana - Ukusebenzisa inambalayini 0-80 • Ukumadanisa iinomboro ezipheleleko ngokuya ngobunani kuna,okukhulu kuna, engaphasi kuna,ilingana na • Kunye –nakhunye kokukhambelanako • Izinto ezihlukahlukenekoukufikela e-15 **Sebenzisa inomborosikhundla ukutjengisa ukulandelana ,indawo namkha ubujamo** • Beka izinto emudeni kusukela keyokuthoma ukuya keyesitjhumi nofana keyokuthoma ukuya keyokugcina isib.kokuthoma, kwesibili,kwesithathu ... keyetjhumi, yokugcina (iinomboro ezima odinali)	**Ngikuphi okuhlukileko eThemini 2?** Ethemini 3,abafundi baragela phambili ngoku: • ngokuhlela nokumadanisa izinto • ngokuhlela nokumadanisa iinomboro; noku • sebenzisa ilimi lokuhlela nokumadanisa. **Imisetjenzana iragela phambili** Utitjhere utjho inomboro isib. 12 Utitjhere ubuza imibuzo: ikuphi inomboro le phezulu kwenambalayini? Ngiyiphi inomboro eza ngemuva kwenomboro u-12 Ngiyiphi inomboro eza ngaphambili kwenomboro u -12? Ngiyiphi inomboro eza ngemuva kwenomboro 12? 12 munengi nga-1 kune------ 12 mncani nga 1 kune------	

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1.5 Ubukhulu bedijithi	**Thoma ukulemuka ubukhulu bedijithi okungenani iinomboro zamadijithi ama-2 ukufika kama-20** • Ukuphula iinomboro zamadijithi amabili ukuya ngamatjhumi nangakunye ukufika ema-20 isib. 12 li-10 naku-2	**Ukubona ubungako bedijithi bokungasenani iinomboro zamadijithi ama-2 ukuya ku-15** • Hlukanisa iinomboro izinamadijithi amabili ngamatjhumi nangakunye ukuya e-15 isib.u-12 li-10 naku-2	**Ngikuphi okuhlukileko kune Themu yesi-2?** NgeThemu leli abafundi bathoma ukuphula iinomboro zibe matjhumi nangakunye / amayunithi kusetjenziswa: • Ukubuthelela izinto zibe matjhumi; begodi. • Nehlobo lokutlola u-14=10 no 4 Ukuzwisisa kobukhulu bedijithi buthuthukiswa kusukela esigabeni esisisekelo nesiphakathi. eGreyidini 1 abafundi bathoma ukucabanga ngeenqhema zezinto ezibekwe ngamatjhumi nofana njenge unithi.Bathoma ukudlula ekuboneni itjhumi njengezinto ezilitjhumi ezihlukeneko, njenga nje sebabona u-10 njengeyunithi elilodwa nofana njenga-1 yetjhumi. Ukuthoma ukwizisisa ubukhulu bedijithi ethemini le,abafundi bafanele ba: • bazi amagama weenomboro bebabale ngokulandelanisa ngokuzithemba okungasenani ukufika ema-20 • ukutlola nokufunda amatshwayo weenomboro • ukwenza ukuhlanganisa nokukhupha okulula • ukubala izinto ngokwenza ngokubuthelela:na • ngokukghona ukujamiselela iinqhema/okubuthelelweko **Ukuphula iinomboro zibe matjhumi nangakunye/nangamayunithi** Umnqopho eGreyidini 1 kukwenza ibuthelelo lamatjhumi nangokuhlukeneko okunga kunye. Ngaphambili kokuphula iinomboro zibe matjhumi nangakhunye, abafundi kufanele bathole ithuba elaneleko lokuzijayeza ukuphula iinomboro ngeendlela ezihlukeneko ngeThemu yoku-1 no 2.Lokho kufanele kwenzeke ngehlobo lokwenza nangokutlola. **Ukusebenzisa iinsetjenziswa eziphathekako** Iimbonelo eziphathekako ziqakathekile ekwakheni umqondonomboro wabafundo,ukujamiselela iinomboro nomthetho wobukhulu bedijithi.Nakubalwa ngamatjhumi nangokubeka ngeenqhema zetjhumi,abafundi bazokuthoma ukuzwisisa bonyana iimbuyabuyeleli ze-10 zinikela ibhrorho nakubalwako isib.26,27,28,29,30,31. Bafanele bathome ukulemuka bonyana igama netshwayo 10 kujamele iyunithi elilodwa. Ukusebenza ngezinto eziphathekako ngokuzibeka ngeenqhema ukubumba itjhumi langakunye bebazwisise bonyana i-10 libuthelelo linye lezinto ezilitjhumi ezikhamba ngakhunye. Ukutjengisa abafundi ibuthelelo langokwetjhumi bese ubatjele bonyana i-14 litjhumi –li-1 naku-4 okuhlukeneko, kuzokwakha umqondo wokobana i-14 lilitjhumi eli-1 na -4 yezinto ezihlukeneko. Ukubuthelela izinto ezihlukeneko kwenza ibuthelelo lokwetjhumi kube nokuzwisiseka khulu. Ukusebenzisa i-abhakhasi,abafundi kufanele batjengise: Itjhumi linye Itjhumi linye nokukodwa oku-2; Itjhumi linye noku-3 okungakodwa begodi Itjhumi linye naku-4 okungakodwa 	

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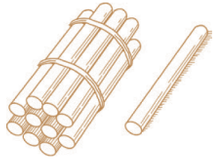
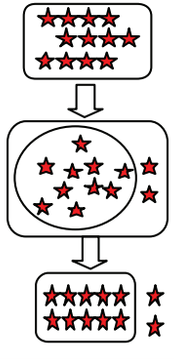
1.5 Ubukhulu bedijithi	**Thoma ukulemuka ubukhulu bedijithi okungenani iinomboro zamadijithi ama-2 ukufika kama-20** • Ukuphula iinomboro zamadijithi amabili ukuya ngamatjhumi nangakunye ukufika ema-20 isib. 12 li-10 naku-2	**Ukubona ubungako bedijithi bokungasenani iinomboro zamadijithi ama-2 ukuya ku-15** • Hlukanisa iinomboro izinamadijithi amabili ngamatjhumi nangakunye ukuya e-15 isib.u-12 li-10 naku-2	Lindela abafundi bonyana babale ngakunye ukwenza ibuthelelo langa litjhumi .Kabanengi kuzokuba ngiyoyodwa indlela ukutjho inomboro nofana ukutjho bonyana zingakhi lapho. Abafundi bangenza iinyanda zangalitjhumi nezihlukeneko ngakunye ukutjengisa bonyana i-11 angaphulwa ngokuba yinyanda yinye yetjhumi nokukodwa okuhlukeneko.  Ukungenelanisa amakhyubhu kungapakwa ukwenza umbhotjhongo nofana ikholomu ye-10 Amakarada wobukhulu bedijithi angasetjenziswa ukutjhengiswa amatjhumi nangakunye. **Ukudlulela ethekisini etloliweko** **Ukujamiselela ngeenthombe ngebuthelelo lamatjhumi nangakunye.** Abafundi bangajanyiselelwa ngeenthombe ezivumela ibuthelelo lamatjhumi nangakunye okuseleko. **Isibonelo.** Ekupheleni kweThemu abafundi bafanele bakghone ukutlola: 13 = 1 itjhumi naku 3 okukodwa okuhlukeneko 13 = 10 noku 3 **Iinsetjenziswa ezitjhukunyeziweko** Izinto ezingabuthelelwa: • Iingojwana zokubala • Izinto zokubala ezingathungelelwa • Iingojwana zomlilo • Iingojwana ze ayisikhrimu • Amakhyubhu angenelanako • Imincamo yokubala • I-abhakhasi 	

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1.6 Amathek-hiniki wok-ururarulula imiraro	Sebenzisa amathekhiniki alandelako nawururarulula imiraro uhlathulule neensombululo zemiraro: • Ama-apharethasi aphathekako isib. izinto zokubala • Iinthombe zokugwala iimbalo zendatjhana • Ukwakha nokuphula iinomboro • Ukubuyelela nokuhafula phakathi • Amanambalayini	Sebenzisa amathekhiniki alandelako nawururarulula imiraro bewuhlathulule iinsombululo zemiraro • Ama-apharethasi aphathekako isib. Izinto zokubala • Iinthombe zokugwala isamba sendatjana • Ukukwakha nokuphula iinomboro • Ukubuyelela nokuhlukanisa phakathi • Inambalayini esekelwe ngezinto eziphathekako	**Ngikuphi okuhlukileko kuneThemu yesi-2** Amakghono wokubala aragela phambili nokujayezwa. Ukubuyelela kabili nokuhlukanisa phakathi kungasetjenziswa njengethekhniki yokubalisisa ngeThemu leli. Nanyana kunjalo, abafundi bafanele baragele phambili nokuzijayeza ukubuyelela kabili nokuhlukanisa phakathi imiraro yamagama nojameni obutjhaphukileko. Ekupheleni kweThemu le abafundi bathoma ukururulula imiraro yamagama basebenzise amathekhiniki alandelako: • Ukugwala nofana ama-Apharethasi aphathekako • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhlukanisa phakathi • Amanambalayini Qala amanothi eThemini yesi-2.	
1.7 Ukuh-langanisa nokukhupha	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-20.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-15.		
1.8 Ukuh-langanisa okubuyele-lweko kurholela ekubuy-abuyeleleni	Rarulula imiraro yamagama esebujameni begodu uhlathulule iinsombululo zakho zemiraro, ezifaka ukuhlanganisa okubuyelelweko okurholela ekubuyabuyeleleni nempendulo ukufika e-20	Rarulula imiraro yamagama esebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukuhlanganisa okubuyelelweko okurholela ekubuyabuyeleleni nempendulo ukufika e-15	Qala iThemu yesi-2 iimbonelo zemiraro kodwana sebenza ngeenomboro ukufika e-15.	

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1.9 Ukubuthele-la nok-wabelana okurholela ekuhlu-kaniseni	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqema kweenomboro ezipheleleko ukufika e-20 kanye nempendulo ezingahle zifaka iinsalela	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqema kweenomboro ezipheleleko ukufika e-15 kanye nempendulo ezingahle zifaka iinsalela	Bona iThemu yoku-1 iimbonelo zemiraro kodwana sebenza ngeenomboro ukufika e-15.	
1.11 Imali	• Khumbula bewufanise imali eziihlavu zeSewula Afrika : - Iinhlavu (5c, 10c, 20, 50c, R1, R2; R5) - nemali emaphepha iR10 ne R20 • Sombulula imiraro efaka hlangana amanani wemali netjhentjii yama R20 neyamasende ukufika ku-20c	• Khumbula bewubone iinhlavu zemali yeSewula Afrika 5c, 10c, 20c, 50c, R1, R2, R5 • Sombulula imiraro yemali okufaka hlangana isamba nethjentjhi ukuya ku R20 nangamasende ukuya ku20c	**Isamba – amaranda kwaphela** Abafundi basebenza nga R1, R2, R5, R10 ne R20 imali yamaphepha. Abafundi bahlanganisa isamba ukufika ema-R20 ngokwenza basebenzisa ukudlala ngemali. Isibonelo: R5 + R10 = R15 R10 + R10 + R10 =R30 – ukuhlanganisa ngokubuyelela R5 +R2 + R8 = R15 – ukuzaliselela ukufika e- 10 **Itjhentjhi: amaranda kwaphela** Abafundi basebenza nge R1, R2, R5, R10 ne R20 imali yephepha. Benza ukukhupha ngokusebenzisa imali yamaphepha. Abafundi baqedelela amaphepha wokusebenzela lokha nabasebenzisa itjhentjhi yezinto abazithenge R20 nofana ngaphasi **Isibonelo:** R10 – R8 =R2 R15 – R5 =R10	
UKUBALA OKUSEJAMENI OBUTJHAPHULUKILEKO				

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1.12 Amathekh-iniki (iindle-la namkha amaqhinga)	Sebenzisa amathekhiniki alandelayo nawubalako • Ama-apharethasi aphathekako njengezinto zokubala • Gwala iinthombe • Ukwakha bewuphadhle iinomboro • Ukubuyelela nokuhafula phakathi • Amanambalayini	Sebenzisa amathekhiniki alandelayo nawenza iimbalo • Ama-apharethasi aphathekako • Ukwakha bewuphadhle iinomboro • Ukubuyelela nokuhafula phakathi • Iinamba layini esekelwe ngamas apharethasi aphathekako isib. ukubala umncamo	Abafundi balindeleke bonyana bararulule ukubalisisa okusebujameni obutjhaphulukileko ngokusebenzisa amathekhiniki alandelako: • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhlephula phakathi • Amanambalayini Qala amanothi weThemu yesi-2	

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1.13 Ukuh-langanisa nokukhupha	Irherho leenomboro: 0 - 20 • Hlanganisa ukufika ku-20 • Khupha ukufika ku- 20 • Sebenzisa amatshwayo afaneleko (+, –, =, □) • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-10	Irherho leenomboro: 0 - 15 • Hlanganisa ukufika ku-15 • Khupha ukusuka ku-15 • Sebenzisa amatshwayo afaneleko (+, –, =, □) • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-9	**Ngikuphi okuhlukileko kuneThemu yesi-3?** EThemini 2, ukubalisisa kwerherho leenomboro selandisiwe ukusuka e-10 ukuya -15 Ukuze usebenze ngamatshwayo wokuhlanganisa nowokukhupha, abafundi kufanele babe nelemuko elaneleko loku: • Ukusebenzisa nokuzwisisa ilimi lokuhlanganisa nelokukhupha • Ukubala koke • Ukubala uye phambili kusuka enomborweni ekulu • Ukuhlela nokumadanisa iinomboro **Amaqhinga wokubalisa nakwenziwa ukuhlanganisa nokukhupha** NgeThemu le abafundi bazokuragela phambili nokusebenzisa amaqhinga alandelako: • Ukwenza ukuhlanganisa ngokubala koke • Ukwenza ukuhlanganisa ngokubala uye phambili • Ukubala uye phambili ukusuka enomborweni ekulu • Ukwenza ukukhupha ngokukhupha okhunye • Ukukhupha ngokubala aye emuva NgeThemu le abafundi bozoku: **Ukutjhugulula inomboro yetjhumi begodu akhuphe nofana kuhlanganiswe yinye.** Iqhinga leli lingafundiswa ngerherho eliphasi leenomboro belisetjenziswe eenomborweni eziphezulu. **Isibonelo:** 9 + 6 = □ Abafundi bangathi kibo: “Ngizokukhupha yinye ku-6 begodu ngihlanganise ne-9 ukwenza i-10.” Bese 9 + 6 angatlolwa nje 10 + 5 = 15 **Isibonelo :** 8 + 5 = □ Abafundi bangathi kibo “ngizokukhupha 2 koku -5 begodu ngihlanganise koku-8 ukwenza i-10”. Bese 8 + 5 angatlolwa banjesi 10 + 3 = 13	

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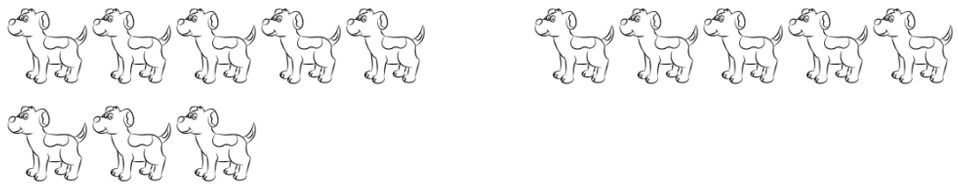
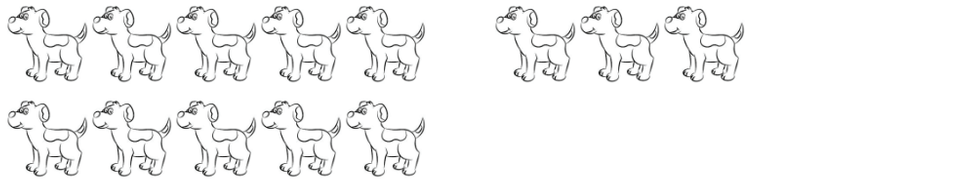
1.13 Ukuh-langanisa nokukhupha	Irherho leenomboro: 0 - 20 • Hlanganisa ukufika ku-20 • Khupha ukufika ku- 20 • Sebenzisa amatshwayo afaneleko (+, –, =, □) • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-10	Irherho leenomboro: 0 - 15 • Hlanganisa ukufika ku-15 • Khupha ukusuka ku-15 • Sebenzisa amatshwayo afaneleko (+, –, =, □) • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-9	Nakufundwa iqhinga leli, abafundi basebenzisa iinsetjenziswa eziphathekako ukuzwisisa iqhinga. Isibonelo: buthelela izinja ukuze zenze i- 10  9 + 4  10 + 3 9 + 4 = 10 + 3 = 13 **Ukuphula inomboro ibe yingcenye encani ukwenza ukubalisisa kube lula** Abafundi bazophula inomboro ibe ziingcenye ezihlukeneko. Bazokuphula inomboro ibe ziingcenye ezilawulekako ebafundini. • Ukusebenzisa abotjhobi neenomboro ukutjengisa ukucabanga 8 + 6 = □ 8 + 2 + 4 8 + 2 □ 10 + 4 = 14 8 + 7 = □ 8 + 2 + 5 8 + 2 □ 10 + 5 = 15 15 – 9 = □ 15 – (5+4) 15 – 5 □ 10 – 4 = 6	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.13 Ukuh-langanisa nokukhupha	Irherho leenomboro: 0 - 20 • Hlanganisa ukufika ku-20 • Khupha ukufika ku- 20 • Sebenzisa amatshwayo afaneleko (+, –, =, □) • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-10	Irherho leenomboro: 0 - 15 • Hlanganisa ukufika ku-15 • Khupha ukusuka ku-15 • Sebenzisa amatshwayo afaneleko (+, –, =, □) • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-9	**Ukusebenzisa ilwazi elidlulileko njengethekhniki** Amathekhiniki atjengiswe ngenzasi avumela abafundi bonyana bahlele ukubala nomqondo weenomboro. Ukuzijayeza amathekhiniki angenzasi kuzokhuthaza abafundi bonyana bakghone ukutjengisa ubudlelwano obuphakathi kweenomboro nokufundisa abafundi bonyana bangakwazi ukusenzisa iwazi labo ukuze babalisise. **Ukubeka inomboro ekulu ekuthomeni ukuze akghone ukubala aye phambili nofana uye emuva.** 4 + 12 = Hlela kabutjha u- 4 + 12 njenge 12 + 4 bese ubala uye phambili 4 kusuka ku12. Ukubona ukubuyelela kabili okuseduzane 7 + 6 Abafundi bangahlathulula bona isibalo singatlolwa bunjesi 6 + 6 -1 (ukubuyelela kabili bese uhlanganise na- 1) nofana 7 + 7 - 1 (buyelela kabili i-7 bese ukhupha 1). Abafundi bangahle barekhode amaqhinga wabo ngokusebenzisa abotjhobi 6 + 6 → 12 + 1 = 13 **Ukusebenzisa ilwazi eliphikisako lobudlelwano obuphakathi kokuhlanganisa nokukhupha** 15 – 9 = □ Abafundi bayazi bonyana isibalo sengabuye sitlolwe njengokuhlanginisa. “Ngiyazi bonyana 9 + □ = 15.” Abafundi bangahle basebenzise ukubala uye phambili ukuze bakwazi ukubalisisa. **Ukulumbana kweenomboro** Ukuze uzijayeze ukulumbana kweenomboro abafundi bafanele banikelwe imisetjenzana ehlukahlukeneko okufanele bayenze. Lokhu kwenziwa ngesikhathi sokuzijamela. Inambalayini nayo ingasetjenziswa ukuze bazijayeze ukulumbanisa ukufika e-9 **Umqondo wokubuyelela kabili** Abafundi kufanele batlole imitjho yeenomboro ngeThemu le: 1 + 1 = □ 2 – 1 = □ 2 + 2 = □ 4 – 2 = □ 3 + 3 = □ 6 – 3 = □ 4 + 4 = □ 8 – 4 = □ Abafundi kufanele bakghone ukuphendula imibuzo elandelako: • Ukubuyelela kabili 3 • Bayini abobuthathu ababili? • Ngigeda isithandathu ngokubuyelela kabili. Ayini amaphuzu wami? • Mangaki amakowusu asempareni ezi-5 zamakowusu?	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.14 **Ukuh-langanisa okubuyele-lweko kurholela ekubuy-abuyeleleni**	• Hlanganisa ngokubuyelela (o.k.inomboro efanako kufika) ku-20 • Sebenzisa amatshwayo afaneleko (+, =, □)	• Hlanganisa ngokubuyelela (o.k.inomboro efanako kufika) e-15 • Sebenzisa amatshwayo afaneleko (+, =, □)	**Ngikuphi okuhlukileko ethemeni 2?** Ethemeni 3, abafundi baragela phambili nokuthuthukisa ilimi loku kokuhlanganisa okubuyelelako. Isibonelo • Kuna -2 ubunengi babo 3 • Iinqhema ezi-4 zabo- 2 Abafundi baragela phambili nokutlola imitjho yeenomboro ukujamisela kweenthombe. Ukubala ngokweqa kufanele kuragele phambili ukulekelela abafundi ukubala izinto ezibuthelelweko eziseenthombeni. Nangabe iinthombe nofana izinto zibuthelelwe ngazimbili, abafundi bafanele babale ngazimbili ingasi ngakuny ukuthola inani lezinto.	
1.16 **limbalo ze-hloko**	**Umnqopho wenomboro: irherho 20** • Hlela isethi enikelweko leenomboro ezikhethiweko • Madanisa iinomboro ema-20 bewutjho bonyana ngiyiphi enengi nofana encani • Ukwazi bonyana ngiyiphi inomboro enokunengi nga-1 nofana ngencani nga-1 • Ukwazi bonyana ngiyiphi inomboro ekulu nga-2 nofana ngokuncani nga-2 • Ukuwazi bonyana ngiyiphi inomboro enokunengi nga-10 nofana incani nga-10 • Ukukhumbula msinyana: • Ukulumbana kwenomboro ukufika ke-10 • Ukukhumbula amaphuzu wokuhlanganisa nowokukhupha e-10 **Amaqhinga wokubala** Ukusebenzisa amaqhinga wokubala ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini. • Ukubuyelela kabili nokuhafula phakathi	**Umnqopho wenomboro:irherho 15** • Hlela isethi leenomboro ezikhethiweko olinikelweko • Madanisa iinomboro bewutjho bonyana ngiyiphi enengi nofana encani • Ukwazi bonyana ngiyiphi inomboro enengi nga-1 nofana encani nga-1 • Ukwazi bonyana ngiyiphi inomboro enengi nga-2nofana encani nga-2 • Ukukhumbula msinyana: • Ukulumbana kwenomboro ukufika e-5 • Ukukhumbula amaphuzu wokuhlanganisa nowokukhupha e-5 **Amaqhinga wokubala** Ukusebenzisa amaqhinga wokubala ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini. • Ukubuyelela kabili nokuhafula • phakathi • Ukwakha nokuphula	**Ngikuphi okuhlukile ethemeni yesi-2?** Ethemeni 2, irherho leenomboro lingezelelwe kusuka e-10 ukufika e-15 Iimbonelo zemibuzo nemisetjenzana okungabuzwa begodu kewnziwe: • Thoma ku-3 bese ubale uye phambili ngokunye bewufike e-10 • Abafundi bajama umjeje begodu babuze: Ngubani wokuthoma, wesibili, wesithathu nofana wokugcina? • Ngiyiphi engaphasi nge-14 nofana 8? • Ngiyiphi ekulu li-8 nofana yi-4? • Ngiyiphi engaphasi ngaku-2 kune-13? • Ngiyiphi ekulu nga-2 kune -8 • Nginikela inomboro ehlangana kuka-1 na-3 • Nginikela inomboro ehlangana kwe-10 ne-14. Ingabe inomboro yinye kwaphela? • Beka amakarada weenomboro ngehlelo elisuka kencani khulu ukuya kekulu khulu. **Ukukhumbula msinyana** Ngitjengisa inomboro enginga yihlanganisa ukuze ngenze oku-5 (ukutlola phasi nofana kusetjenziswe ubukhulu bedijithi nofana amakarada weflaridi) • 1 • 2 • 3 • 4 Ngitjengise inomboro eseleko____ nange kususwa ku-5(ukutlola phasi nofana ukusebenzisa ubukhulu bedijithi nofana amakarada weflaridi) • 1 • 2 • 3 • 4 1 + 2 = 3 uyini u- 2 + 1? Ipendulo iyafana? 3 + 1 = 4 uyini u 1 + 3? Ingabe ipendulo iyafana?	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.16 limbalo zehloko	**Umnqopho wenomboro: irherho 20** • Hlela isethi enikelweko leenomboro ezikhethiweko • Madanisa iinomboro ema-20 bewutjho bonyana ngiyiphi enengi nofana encani • Ukwazi bonyana ngiyiphi inomboro enokunengi nga-1 nofana ngencani nga-1 • Ukwazi bonyana ngiyiphi inomboro ekulu nga-2 nofana ngokuncani nga-2 • Ukuwazi bonyana ngiyiphi inomboro enokunengi nga-10 nofana incani nga-10 • Ukukhumbula msinyana: • Ukulumbana kwenomboro ukufika ke-10 • Ukukhumbula amaphuzu wokuhlanganisa nowokukhupha e-10 **Amaqhinga wokubala** Ukusebenzisa amaqhinga wokubala ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini. • Ukubuyelela kabili nokuhafula phakathi	**Umnqopho wenomboro:irherho 15** • Hlela isethi leenomboro ezikhethiweko olinikelweko • Madanisa iinomboro bewutjho bonyana ngiyiphi enengi nofana encani • Ukwazi bonyana ngiyiphi inomboro enengi nga-1 nofana encani nga-1 • Ukwazi bonyana ngiyiphi inomboro enengi nga-2nofana encani nga-2 • Ukukhumbula msinyana: • Ukulumbana kwenomboro ukufika e-5 • Ukukhumbula amaphuzu wokuhlanganisa nowokukhupha e-5 **Amaqhinga wokubala** Ukusebenzisa amaqhinga wokubala ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini. • Ukubuyelela kabili nokuhafula • phakathi • Ukwakha nokuphula	**Amaqhinga wokubala :** Ukusebenzisa amaqhinga wokubalisisa ekuhlanganiseni nekukhupheni ngokuphumelelako. Hlanganisa okulandelako ngokubeka inomboro ekulu kokuthoma bese ubala uye phambili : 1 + 2 2 + 3 1 + 4 Buyelela kabili u-1 Bayini abo-2 ababili? Kuyini ukuhlukana phakathi kwa-4 Ngokusebenzisa inambalayini Mumeqo emingaki ukusuka ku-3 ukuya ku 5? Mimeqo emingaki wokeqa ubuyela emuva kusuka ku-5 ukuya ku-2?	

IGREYIDI YOKU-1 ITHEMU YESI-3 2. AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.1 Amapheth-eni weji-yomethri	**Ukukopa, ungezele bewuhlathulule** Ukukopa, ungezelele bewuhlathulule ngamagama • Amaphetheni alula enziwe ngezinto ezibonakalako • Amaphetheni alula enziwe ngemigwalo yemida, ubujamo nafana izinto. **Tlama begodu uhlathulule amaphetheni wakho** Tlama amaphetheni weJiyomethri • Ngezinto ezibonakalako • Ngokugwala imida, ubujamo nofana izinto **Tlama begodu uhlathulule amaphetheni wakho** Tlama amaphetheni wakho: • Ngezinto ezibonakalako • Ngokugwala imida, ubujamo nofana izinto **Amaphetheni asizombelezileko** Ukubona, ukuhlathulula ngamagama nokukopa amaphetheni weJiyomethri • Ngokwemvelo, • Kusukela epilweni yangamalanga yesimodeni, • Kusukela kezamagugu nendabuko yethu.	**Ukukopa, ungezele bewuhlathulule** Ukukopa, ungezelele bewuhlathulule ngamagama Amaphetheni alula enziwe ngezinto ezibonakalako • Amaphetheni alula enziwe ngemigwalo yemida, ubujamo nafana izinto. • Tlama begodu uhlathulule amaphetheni wakho **Tlama amaphetheni wakho:** Ngezinto ezibonakalako • Ngokugwala imida, ubujamo nofana izinto	Egreyidi yoku-1 abafundi banganqhopha emaphethinini lapho amalunga abuyelelwe ngendlela ejayelekileko. Qala amanothi weThemu yesi-2.	Isifundo 1

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.2 Amaphe-theni weenom-boro	**Ukukopa, ukungezelela nokuhlathulula** Ukukopa, ukungezelele bewuhlathulule Ukulandelanisa kwenomboro elula ukufika ku-100. **Tlama begodu uhlathulule amaphetheni wakho** Yenza bewuhlathulule amaphetheni weenomboro	**Ukukopa, ukungezelela nokuhlathulula** Ukubala uye phambili nemuva nga: • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 na-80 • **Ukubala uye phambili nga:** • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 na-80 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 na-80 **Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku-2 hlangana ne-0 na-80**	Ukulandelana kweenomboro kungahlanganiswa nokubala. Lokha amakghono wabafundi wokubala atjhugulukako godu athuthukako, imihlobo yokulandelana kweenomboro abafundi ababerega ngayo ingathuthuka. Ukulandelanisa kufanele kubonise ukubala uye phambili nemuva ngabo: • Ku-1 kusuka kwenye nenye inomboro hlangana ne-1 kuya 80 • Li-10 kusukela kwenye nenye inomboro ebala ngali-10 ehlangana ne -0 na 80 • Ku-5 kusukele kwenye nenye inomboro ebala nga ku-5 ehlangana ne - 0 na 80 • Ku-2 kusukela kwenye nenye inomboro ebala nga- 2 ehlangana ne - 0 na- 80 Lokha abafundi babala ngomlomo bangatjengiswa ukulandelanisa iinomboro ezitlolwe phasi ngezindlela ezingafaniko. Bangakhomba inomboro ebaliweko. **Isibonelo 1: Sebenzisa itjhadi yeenomboro** 1 **2** 3 **4** 5 **6** 7 **8** 9 **10** 11 **12** 13 **14** 15 **16** 17 **18** 19 **(20)** 21 **22** 23 **24** 25 **26** 27 **28** 29 **30** 31 **32** 33 **34** 35 **36** 37 **38** 39 **40** **Isibonelo 2:** Ukusebenzisa inambalayini ukukhomba iphetheni Ukubala nge- 10 kusuka e-50 kuya -80. Abafundi bafunda iinomboro kuya -80, kodwana batlola iinomboro kusuka -1 kuya -15. Amaphetheni weenomboro ngaphezu kwe 15 angenziwa nge: • Faka umbala emaphethenini weenomboro esegridini yeenomboro; • Zungeleza iphethenini yeenomboro ezisegridini yeenomboro nofana enambalayinini; • Sebenzisa amakarada weenomboro ukupaka ukulandelana kweenomboro; • Ukusebenzisa amakarada weenomboro ukubonisa iinomboro ezitjhiyiweko ngendlela etloliweko yokulandelanisa • Ukusebenzisa irhelo lamatshwayo weenomboro elinikelweko ukugwala umuda ukusukela eenomborweni ezilungileko kuya endaweni ekufanele iyivale. Abefundi banganikelwa iinomboro ezitlolwe ngokulandelana neenomboro ezitjhiyiweko. Mabanikelwe irhelo leenomboro ezingahle zisetjenziswe, abangakhetha ipendulo elungileko. Abafundi bangazalisa iinomboro ezingekho ezivezwe nanoma ngawuphi umhlobo wokulandelanisa ongehla, godu bazalise iinomboro ezitjhiyiweko eenomborweni ezitlolwe ngokulandelana. isib. **2, 12, 22, ___, 42, 52, 62.**	Iimfundo- 3

IGREYIDI YOKU-1 ITHEMU YESI-3 3. ISIKHALA NOBUJAMO (JIYOMETHRI)				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.1 **Ubujamo, ukuzijayeza nokubukela**	**Ilimi lobujamo** Hlathulula ubujamo bento eyodwa ehlobene nenye, isib.phezu kwa-, phambi kwa- ,emve kwa, ngesinceleni, esidleni, phezulu, phasi, hlanu kwa-. **Ubujamo nokubukela** Madanisa imibono ehlukahlukeneko yezinto ezifanako zangamalanga woke. **Ubujamo neenkombatjhuba** Landela iinkombatjhuba ukukhambakhamba ngetlasini Landela iinlayelo ukubeka into eyodwa ehlobene nenye, isib. Ukubeka ipensela ngaphakathi kwebhoksi.		Ilimi lobujamo elithuthukiswe eThemini loku-1 lifanele lijayezwe njalonjalo ngesikhathi sokufundisa itlasi loke begodu kunqotjhiswe esikhathini sokufundisa ngesiqhema ethemini yoke, zinikele isikhathi esifitjhani sokuzijayeza ilimi njalo njalo. Amanye amalimi wobujamo angajayezwa abafundi nabasebenza ngezinto zobujamo obubobusontathu (3-D). Ukusebenza ngendawo begodu nangekombatjhuba kungahlanganiswa ngokutlola irekhodi njengokugwala, ukufaka umbala nofana ukumadanisa imigwala namagama. Lokhu kungenziwa ngesikhathi sokuzijamela.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.2 **Izinto ezibu-sontathu** **(3-D)**	**Izinto ezihlukahlukeneko** Ukubona nokutjho izinto ezibusontathu 3-D ezingetlasini begodu neenthombeni • Ubujamo bebhola (indulungu) • Ubujamo bebhoksi (iphrizimu) **Amatshwayo wezinto** Ukuhlathulula, ukubeka ngeengaba nokumadanisa izinto ezibusontathu 3-D ngokuya: • ngobukhulu • ngombala • ngezinto ezigedekako • ngezinto ezitjhelelako **Imisetjenzana enqophiweko** Tjheja begodu wakhe izinto ezibusontathu 3-D ezinikelweko ngokusebenzisa amamathiriyelii aphathekako afana namabhulogo wokwakha, ukubuyelela usebenzise godu imatheriyali namakhidi wokwakha	**Izinto ezihlukahlukeneko** Ukubona nokutjho izinto ezibusontathu 3-D ezingetlasini begodu neenthombeni • Ubujamo bebhola (indulungu) • Ubujamo bebhoksi (iphrizimu) **Amatshwayo wezinto** Ukuhlathulula, ukubeka ngeengaba nokumadanisa izinto ezibusontathu 3-D ngokuya : • ngobukhulu • ngombala • ngezinto ezigedekako • ngezinto ezitjhelelako	**Ukunqopha ematshwayeni wezinto ezibusontathu 3D** Abafundi basebenza ngeembholo begodu ngezinto ezinesibumbeko esifana neembholo, begodu nezinye izinto ezinesibumbeko esifana nerekhthengelaamaphrizimu nofana amakhyubsi. Abafundi bangenza into yokutjhelela nofana ngokuphatha ngokujayelekileko ngokubeka ibhoksi ngakelinye ihlangothi lencwadi ekulu. Abafundi barhubhulula bonyana ngiziphi izinto ezigedekako, nezitjheleleko Abafundi bangarhubhulula godu bonyana bangakhgona ukupakelanisa nofana benze imibhotjhongo ngokusebenzisa iimbholo zodwa nofana amabhoksi wodwa Ngesikhathi sokuzijamela abafundi bangakghona ukuragela phambili ngoku: • hlela izinto ngokuya ngobungako; • hlela izinto ngokuya ngobungako; • ukwakha ngezinto; begodu • ukwenza iimbholo nofana amabhoksi ngomdaka nofana ngahlama yokudlala. **Ukukhumbula nokutjho iimbholo (iindulungu) begodu namabhoksi** **(amaphrizimu)** Abafundi baragela phambili ngokubona begodu bahlathulule izinto zeJiyomethri nezangamalanga ngokutjho bonyana zinesibumbeko esifana nebholo nofana ibhoksi, isib. Isitina lesi sinobujamo obufana bebhoksi nofana ilamuna leli linobujamo obufana nebholo. **Imisebenzi etlolwako** Umsebenzi owenziwako ngezinto za 3D ufanele uhlanganiswe ngokutlola imisebenzi.	Iimfundo ezi- 2

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.3 Amajamo abobusobu-bili (2-D)	**Imihlobohlobo yobujamo** Ukubona nokutjho ubujamo obubusobubili (2-D) • Iindulungu • Aboncantathu • Iinkwere **Ubujamo bebumbeko** Ukuhlathulula, ukuhlela nokumadanisa ubujamo obubusobubili (2-D): • Ubukhulu • Umbala • ibumbeko • amahlangothi anqophileko • amahlangothi arondo		Akukanqotjhiswa emajamweni wabobusobubili (2-D) eThemini yesi-3. Kodwana, abafundi bangaragela phambili benze iinthombe ngokusika amajamo wabosombili nofana batlola imisebenzi ngesikhathi sokusebenza ngokuzijamela eeMbalweni nofana kemaKghono wePilo.	
3.4 Isimethri	**Isimethri** Ukukhumbula isimethri emzimbeni wakhe • Ukukhumbula nokugwala umuda wesimethri emajamweni wejiyimethri wabobusobubili • (2-D) begodu nemajamweni angasiwo weJiyomethri wabobusobubili (2-D)	**Isimethri** Ukukhumbula isimethri emzimbeni wakhe • Ukukhumbula nokugwala umuda wesimethri emajamweni wejiyimethri wabobusobubili • (2-D) begodu nemajamweni angasiwo weJiyomethri wabobusobubili (2-D)	Abafundi bafanele baqale imida yamasimethri ezintweni eziphathekako neenthonjeni. Imisebenzi etlolwako ifanele ingabi ngileyo yokutlola kwaphela, kodwana ifanele ifake iimbonelo lapho abafundi bagwala khona umuda wesimethri emahlangothini woke wamajamo weJiyomethri, abantantathu, begodu namajamo angasiwo weJiyomethri, isib. Ukugwala umuntu.	Isifundo-1

IGREYIDI YOKU-1 ITHEMU YESI-3 4. UKUMEDA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI -3**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.1 Isikhathi	**Ukudlula kwesikhathi** Kukhulunywa ngokudlula kwesikhathi • Hlela izehlakalo eziqhelekileko ezisuke epilweni yabo • Ukumadanisa ubude besikhathi ngokusebenzisa ilimi isib.isikhathi eside, isikhathi esifitjhani, msinyana, kabuthaka. • Ukulandelanisa izehlakalo ngokusebenzisa ilimi elinjekuthi izolo, namhlanje, kusasa. **Ukutjho isikhathi** • Ukuhlathulula nangabe kwenzeka into ngokusebenzisa ilimi isib. ekuseni,ngemuva kwedina, ebusuku, ekuseni khulu, ngemuva kwesikhathi. • Ukwazi amalanga weveke, • Ukwazi iinyanga zonyaka. • Ukubeka amalanga wamabeletho ekhalendeni		Abafundi bafanele bafunde bonyana kukhulunywa njani : • ngokulandelanisa izehlakalo begodu • nangobude besikhathi Abafundi baragela phambili ukuhlanganisa iindlela zokukhuluma ngesikhathi ngamalanga ngesikhathi sokufundisa itlasi loke nofana ngesikhathi sokufundisa isiqhema esinqotjhiweko. Abafundi bakhuluma bebaphendule imibuzo ephathelene nokuthi izinto zenzeka nini, ngokusebenzisa ilimi njengokuthi ekuseni, ngemuva kwamadina, ebusuku, ekuseni khulu, emuva kwesikhathi. Abafundi balandelanisa izehlakalo ngokusebenzisa ilimi njengokuthi izolo, namhlanje, kusasa; amalanga weveke begodu neenyanga zonyaka. Abafundi bamadanisa ubude besikhathi ngokusebenzisa ilimi njengokuthi isikhathi eside nofana isikhathi esifitjhani begodu msinyana nofana buthaka. Abafundi bakhuluma ngokuhlela izehlakalo zepilo yabo. :Bahlela godu ukulandelana kweenthombe njengokuthi • amagadango wokwenza iimbedlezwana nofana ikopi letiye; • iinthombe ezitjengisa ukukhula kwesana belibe mumuntu okhulileko; • umzombelezo wepilo yeembandana, isib. Iqanda liba yikukhu, nofana iqanda liba sirhwerhwe nofana iqanda liba iviyaviyani;begodu • izehlakalo eziqhelileko zelanga (ukuvuka, ukuba sesikolweni, ukudlala, ukudla kwamadina, ukulala). Ragela phambili ukubeka amalanga wamabeletho ekhalendeni umnyaka woke	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI -3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.2 Ubude	**Ukulinganisa okungakahleleki** • Ukumadanisa nokuhlela ubude, ukuphakama nofana ububanzi bezinto ezimbili nofana ezinengi ngokuzibeka enye eqadi kwenye. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa, isib. ubude, ubufitjhani, ububanzi. • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu urekhode ubude usebenzise iimedo ezingasisezingeni isib. Ubude besandla, igadango, ubude bepensela, izinto zokubala, njll.	**Ukulinganisa okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu urekhode ubudeusebenzise iimedo ezingasisezingeni isib. Ubude besandla, igadango, ubude bepensela, izinto zokubala, njll.	**Khuyini ukumeda okuhlukileko eThemini yesi-3?** Zoke iimedo egreyidini yoku-1 azikahleleki. Akukafaneli bonyana kwenziwe ukumeda okuhlelekileko bobungako kusetjenziswa imivosimedo ejayelekileko. EThemini yoku-1 kuphakanyiswe bonyana abafundi banqophe • ekumadaniseni okunqophileko kobungako bezinto ngokuzibeka enye hlanu kwenye • ukuhlela nokumadanisa ubungako nofana ukuphakama nofana ububanzi bezinto ezintathu nofana ezinengi ngokubeka izinto ngazimbili enye hlanu kwenye, bekufike lapho zoke izinto zilandelaniswe khona; begodu • Ukuthuthukisa ilimi lokukhuluma ngemahluko yobungako, ukuphakama nofana ububanzi, njll Ngesikhathi sokusebenza ngokuzijamela ethemini yoke, abafundi bangazijayeza begodu bahlanganise ukuhlela nokumadanisa ubude nofana ukuphakama nofana ububanzi bezinto ezintathu nofana ezinengi, ngokubeka izinto ngazimbili ezinye hlanu kwezinye, bekufike lapho zoke izinto zilandelaniswe khona. Woke umsebenzi ufanele urekhodwe. EThemini yesi-3 abafundi banganqopha ekwenzeni ukumeda okungakahleleki ngokusebenzisa ubungako bamayunithi obungakahleleki. **Ukumeda okungakahleleki kobude ngokusebenzisa amayunithi wobude angakahleleki.** Abafundi bangafunda woke amakambisolawulo begodu nokuprakthisa ukumeda ngokusebenzisa amayunithi angasi sezingeni. Ukumeda okungakahleleki bamayunithi kufanele kungathathwa njengokunyazekako kunokumeda ngamayunithi asezingeni. Ukumeda ubude bamayunithi angasisezingeni kufaka ukubala bonyana mangaki amayunithi akhethiweko afanako ngobude njengezinto ezimedwako.Isibonelo, ubude bedeski bududude bezandla ezi-8. Abafundi bafanele bemede imihlobo eminengi yezinto ngokusebenzisa imihlobo yezinto njengamayunithiangakahleleki Zintathu iindlela zokusebenzisa amayunithi angakahleleki • Ukubeka ngereyi entweni emedwako izinto ezimedako zobude obulinganako, njengamabhoksana womlilo, iimvadlwana zamabhodlela ezinobujamo obufana patsi nofana izinto zokubala, amapensela amatjha, njll. Isibonelo, ukumeda ububanzi bedeski, amapensela amatjha angabekwa ngokulandelana ukusuka ekuthomeni ukufika ekugcineni uvundle itafula. Lapha kuqakathekile bonyana • Zoke izinto zinobude obulinganako. Angekhe utjho bonyana incwadi yakho inobubanzi beemuvalo zamabhodlelo webisi ali-12 nangabe iimvalo zamabhodlelo zinobukhulu obungalinganiko, isib. Iimvalo zamabhodlelo webisi ezimalitha ama-2, iimvalo zamabhodlelo wenamaneyidi weplastiki, iimvalo zamabhodlelo wesimbi, njll; begodu	

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4.2 Ubude	**Ukulinganisa okungakahleleki** • Ukumadanisa nokuhlela ubude, ukuphakama nofana ububanzi bezinto ezimbili nofana ezinengi ngokuzibeka enye eqadi kwenye. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa, isib. ubude, ubufitjhani, ububanzi. • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu urekhode ubude usebenzise iimedo ezingasisezingeni isib. Ubude besandla, igadango, ubude bepensela, izinto zokubala, njll.	**Ukulinganisa okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu urekhode ubudeusebenzise iimedo ezingasisezingeni isib. Ubude besandla, igadango, ubude bepensela, izinto zokubala, njll.	• Akunankhala ezitjhiywa hlangana nezinto : zifanele zipakelwe ngokulandelana ukuze zithintane • Sebenzisa izinto ezimbili ezifana patsi njengamayunithi angasi sezingeni. Beka yinye hlanu kwenye, bese ukhambisa yokuthoma uyise kelinye ihlangothi lesibili. Lokhu kwenziwa nakumedwa ngobude besandla, ubude benyawo nofana amagadango • Ukusebenzisa into eyodwa kwaphela njengesimedo esingasisezingeni begodu ngokuyigeda nofana ukumerega lapho iphelela khona ngaphambi kokuyigeda. Abafundi bafanele bafundiswe ukutjho iyunithi, isib. Incwadi inobubanzi beemuvalo zebhodlelo ezi-12, ikumba yokufundela inobude obumagadango ama-38. Lokha abafundi nasele bamede ngananyana ngiyiphi iyunithi amahlandla ambala, bafanele balinganise bonyana ingaba nobude obungangani beyunithi into efanele imedwe Abafundi bafanele bafundiswe bonyana ukuze nimadanise ubude, ukuphakama nanyana ububanzi iyunithi efana patsi ifanele isetjenziswe. Isib.nangabe ububanzi bomnyango omedweko bububude besandla obu-20 begodu ububanzi bedeski bububude bamapensela a-8, angekhe utjho bonyana umnyango ubanzi kunedeski. Abafundi bafanele bamede ngamayunithi angakahleleki ahlukahlukeneko, ukuze bakghone • ukuthoma ukuzwisisa bonyana lokha iyunithi nayiyincani , izokusetjenziswa amahlandla amanengana ,isib. ububanzi bekumba yokufundela bungaba magadango ama-20 kodwana kube bubude beenyawo obuma-48. • Thoma ukusebenzisa amayunithi afanele lokho abakumedako, isib. Ukumeda ububanzi bekumba yokufundela ngeemuvalo zamabhodlelo kukumorosa isikhathi. **Ukurekhoda iimedo** Nanyana ukumeda kulikghono lokuzijayeza ukwenza, abafundi bafanele barekhode iimedo zabo ngaso soke isikhathi. **Ukumeda ubude njengobujamo bokurarulula imiraro begodu nokubala** Ngesikhathi esibekelwe linomboro, imiSebenzi noBudlelwana, abafundi bangararulula imiraro esebenzisa ubujamo bobude beemedo ezingakahleleki, isib. Ibhoksi lesibha sephuphu sokuvasa linokuphakama kweenthoro zomlili ezi-8. Ibhoksi lesiriyeli linokuphakama kweenthoro zomlilo ezi-13. Liphakame kangangani ibhoksi lamasiriyeli kunebhoksi lesibha sepuphu sokuvasa? Yelela irherho leenomboro ezifaneleko zeThemu, nemihlobo ehlukahlukeneko yeenkinga zeThemu	Iimfundo zesi-2

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI -3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.3 Ubungako/ ubudisi	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela, bekurekhodwe ubungako, ngokusetjenzisa iimedo ezingakahleleki begodu nesikala sokudzimelela isib. Amabhulogo, iintina njll. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. elula, ebudisi, elula-khulu, ebudisi-khulu.		Zoke iimedo egreyidini yoku-1 azikahleleki. Akukafaneli bonyana kwenziwe ukumeda okuhlelekileko bobungako kusetjenziswa imivosimedo ejayelekileko. EThemini yoku-1 kuphakanyiswe bonyana abafundi banqophe • ekumadaniseni okunqophileko kobungako bezinto ; • ukuhlela nokumadanisa ubungako bezinto ezintathu nofana ezinengi ngokubeka izinto ngazimbili zidzimelele, bekufike lapho zoke izinto zilandelaniswe khona; begodu • Ukuthuthukisa ilimi lokukhuluma ngemahluko yobungako Ngesikhathi sokusebenza ngokuzijamela ethemini yoke, abafundi bangazijayeza begodu bahlanganise ukuhlela nokumadanisa ubungako bezinto ezintathu nofana ezinengi, ngokubeka izinto ngazimbili zidzimelele, bezifike lapho zoke izinto zilandelaniswe khona. Woke umsebenzi ufanele urekhodwe.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI -3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.4 Umthamo/ Ivolumu	**Ukumeda okungakahleleki** • Ukumadanisa nokuhlela ubungako okusamanzi (umthamo) okuseemumathini ezimbili ezibekwe esinye eduze nesinye. Abafundi bahlola ngokuthi bathele esimumathini sesithathu nakutlhogekako. • Ukumadanisa nokuhlela ubungako beketjezi/okusamanzi okungathathwa ziimumathi ezimbili nazizeleko • (umthamo) • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. enengi kune, encani kune, encani, izele, edududu. • Ukulinganisa nokumeda; Ukumadanisa nokuhlela bewurekhode umthamo ongeemumathini ngokusebenzisa izinto zokumeda ezingakahleleki isib. lingobho neenkomitji.		Zoke iimedo egreyidini yoku-1 azikahleleki Akukafaneli bonyana kwenziwe ukumeda okuhlelekileko bobungako kusetjenziswa imivosimedo ejayelekileko. Ukufikela nje phakathi konyaka umnqopho womthamo/ ivolumu bekuku • thuthukisa ilimi ngokukhuluma ngomthamo/ ngevolumu; • ukumadanisa amavolumu eemumathini ezimbili ezifanako; and • ukumadanisa amavolumu eemumathini ezinobubanzi obuhlukahlukeneko, ngokuthela esimumathini sesithathu. Qala amanothi weThemu yesi-2 Abafundi bangazijayeza begodu bahlanganise imiqondo le ngesikhathi sokusebenza ngayedwana.	

IGREYIDI YOKU-1 ITHEMU YESI-3 5. UKUPHATHA IDATHA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI -3**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
UKUSEBENZA NGEBUTHELELO LEZINTO				
5.1 **Ukubuthelela nokuhlukanisa ngemihlobo kwezinto**	Ukubuthelela nokuhlela izinto ngemihlobo Ukubuthelela nokuhlela izinto ngemihlobo eziphathekako ngamalanga	**Ukuhlukanisa ngemihlobo** Ukuhlukanisa ngemihlobo ibuthelelo lwezinto akusese munqopho onqophileko engcenyeni yesibili yonyaka. Kodwana, inganikelwa njengemisetjhenzana engakavami ngesikhathi sokusebenza ngokuzijamela. Umnqopho ophakamisiweko ethemini –3 umzombe wokuphatha idatha: bona okulandelako.		
5.2 **Ukujamiselela ibuthelelo lezinto elihlelekileko**	**Ukujamiselela ibuthelelo lezinto elihlelekileko** Ukugwala isithombe sezinto ezihleleke ngemihlobo			
5.3 **Coca bewubike ngokuhlelwa kwezinto ezibuthelelweko**	**Coca bewubike ngokuhlelwa kwezinto ezibuthelelweko** • Nikela ngesizathu lobonyana ibuthelelo lihlelwe bunjani • Phendula imibuzo ngo: - kuhlukanisa ngemihlobo kwenziwe njani (indlela yekambiso) - hlukaniso ngemihlobo libukeka bunjani (umkhiqizo) • Coca ngebuthelelo nemigwalo • Hlathulula bonyana ibuthelelo lihleleke bunjani			
Ukusebenza ngedatha				

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI -3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
5.4 Ukubuthelela nokuhlela idatha	**Ukubuthelela nokuhlela idatha** • Buthelela idatha yetlasi nofana yesikolo ukuphendula imibuzo ebuzwa ngutitjhere	**Ukubuthelela nokuhlela idatha** Buthelela idatha yetlasi nofana yesikolo ukuphendula imibuzo ebuzwa ngutitjhere **Jamiselela idatha** • Ukujamiselela idatha gegrafi yeenthombe. **Ukuhlaziya bewurhumutjhe idatha** • Ukuphendula imibuzo ngedatha esegrafini yeenthombe	**Umnqopho ophakamisiweko: Umzombe opheleleko wokuphatha idatha** Emzombeni wokuphatha idatha • Abefundi babuthelela ilwazi ukuphendula imibuzo. Eemfundweni ezisisekelo nasemabangeni aphakathi umbuzo lo ujwayeleke ukunikelwa ngutitjhere nofana incwadi yokufundisa. • Abefundi bahlukanisa ngemihlobo bebajamisele ilwazi ngezindlela ezenza kubelula ukuhlaziya. Umhlobo wokujamisela lowo abefundi begreyidi -1 bazijayeza yona igrafu yeentombe; godu • Abefundi bahlaziya ilwazi egrafini yeenthombe ngokuphendula imibuzo ebuzwe ngutitjhere. Igrafu yeenthombe yeklasi Egreyidini yo-1 kuqakathekile ukuthoma, UkuPhatha iDatha ngokwenza igrafu yesithombe seklasi. Ukusebenzisana njengetlasini, kusiza abefundi ukuzibandakanya kizozoke iingaba zekambiso ngaphandle kokulahlekelwa minininggwana yananyana ngiliphi izinga. • Ukwenza igrafu kuvumela utitjhere bonyana ukunqophisa abafundi ngamahlangothi abalulekileko wokuphathwa kwedatha begodu nangalokho abadinga ukukwazi ngokuqakatheka kwesimo segrafu yeenthombe • Igrafu ilebulwa kuphi godu bunjani (isihloko segrafu) • Iingaba zilebulwa kuphi godu bunjani • Igrafu yeentombe ithloga ukuba nento ehlathulula bonyana isithombe ngasinye simayelana nani. • Iinthombe nofana iinkhala zenthombe zithloga ukuba bukhulu obufanako. • Zibekwa bunjani iinthombe ngokulinganako emareyini. • Ifundwa bunjani igrafu Ukusebenza emzombeni wedatha epheleleko kungathatha iinfundo ezimbalwa. **Buthelela, uhlele bewujamiselele idatha** Abotitjhere abasesigabeni kufanele bakhethe iinhloko ezahlukeneko ezenzelwe ukubuthelela idatha nokuhlaziya egreyidini ngayinye. Abotitjhere abasesigabeni kufanele baqinisekise bonyana iinhloko ezahlukeneko zikhethelwe ukubuthelela idatha nokuhlaziya egreyidini ngayinye. Iinbonelo ezifaneleko ezifaka hlangana ukuhlela kabutjha itjhadi lobujamo bezulu beenyanga ezidlulileko ukwakha igrafu yeenthombe nofana igrafu yelanga lamabeletho labafundi. **Hlaziya idatha** Abafundi baphendula imibuzo njenge: “Ngumhlobo muphi wobujamo bezulu bebubunengi khulu enyangeni le?” “Ngumhlobo muphi wobujamo bezulu bebubuncani khulu enyangeni le?” “Sibe namalanga amangaki anelanga ukudla amalanga anamafu?” Ukusebenza emzombeni wedatha epheleleko kungathatha iinfundo ezimbalwa.	Isifundo 3
5.5 Ukujamiselela idatha	**Ukujamiselela idatha** Ukujamiselela idatha gegrafi yeenthombe.			
5.6 Ukuhlaziya bewurhumutjhe idatha	**Ukuhlaziya bewurhumutjhe idatha** Ukuphendula imibuzo ngedatha esegrafini yeenthombe			

IGREYIDI YOKU-1 ITHEMU YESI- 4 1. IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
UKUTHUTHUKISA UMQONDO NOMBORO : Ukubala ngeenomboro ezibanzi				
1.1 Ukubala izinto	Ukubala iinomboro ngokuthembeka kufika ema 50 Nikela ukulinganisa okuzwakalako kwenani lezinto ezingahlolwa ngokubala	Ukubala izinto ngokuthembeka kufika ema 50 Nikela ukulinganisa okuzwakalako kwenani lezinto ezingahlolwa ngokubala.	**Yini umehluko kuneThemini yesi 3?** ETheminin ye 4, abafundi bangezelela irherho lokubala. Kusese nomqopho wokuzwisisa umthetho wekhadinalithi. NgeThemu le, abafundi kufanele bafunde bona bangazibeka njani izinto ngerherho lokha nababalako ukwenzela bona bahlole ukubala kwabo, ihlelo leli lisiza abafundi ukubala lula khulu. Isibonelo: limbali zingabekwa zibe mareyi. NgeThemu le, abafundi baragela phambili nokulula amakghono wabo wokubala begodu bazijayeza: • Ukubala kokel; • Ukubala baragele phambili; • Umthetho weenomboro wekhadinalithi; noku • Sebenza ngemitlolo etloliweko. Abafundi kufanele benze ubudlelwano phakathi kokubala kwe – odinali ne khadinali. Lokhu kuba yipumelelo lokha nabalemukako bona ukulisa ukubala lokha ufika entweni yama 50, kutjho bonyana bazabe sebabale 50 yezinto. Sikhatheso, sebayazi gadesi bona indlela umuntu abala ngayo izinto, ayithikamezi ukubala. **Ukubala ngeenqhema** Ukusiza abafundi bona babale ngamakhefu wakubili, hlanu na li 10, kufanele babuthelele izinto nga zi 2, 5 na li 10. Ikarada lenomboro kufanele libekwe kwelinye nelinye ibuthelelo ukutjengisa inani lezinto ezibaliweko. Ukubala ngeenqhema kuzakulungisa abafundi bona bazwisise ukubuyabuyelela noku balisisa. Ekupheleni kweThemu abafundi kufanele bakghone ukukhumbula ibuthelelo ngokuhlukanisa inomboro phakathi. Isibonelo : “ngiyazi bonyana ngu li 10 ngoba ngibeke u ku 4 ngakelinye ihlanbothi no si 6 ngakwelinye”. **Iinsetjenziswa :** Kufanele bona kutjhejwe begodu kuthlogonyelwe ihlobo leensetjenziswa eziberegiswako. • Iinsetjenziswa ezisasakhiwo, njengentambo yemincamo yokubala, ingasetjenziswa. • I-abhakhasi ingasetjenziswa ukubala ngeenqhema ezingalitjhumi. • Abafundi bangenza iinyanda zaku 2, iinyanda zaku 5 neenyanda zali tjhumi beseke babala koke	

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1.2 **Ukubala uye phambili nemuva**	**Ukubala uye phambili nemuva nga:** • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 ne-100 **Ukubala uye phambili nga:** • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-100 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-100 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku-2 hlangana ne-0 ne-100	**Ukubala uye phambili nemuva nga:** • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 ne-100 **Ukubala uye phambili nga:** • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-100 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-100 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku-2 hlangana ne-0 ne-100	**Yini umehluko kuneThemini yesi 1?** EThemini ye 4, abafundi babala ngamakhefu wali 10, 5 naku 2 kufika e 100. Ukubala bngamakhefu kuba likghono eliqakathekileko elizakusetjenziswa bafundi eGreyidini yesi 2 neyesi 3 begodu izasiza abafundi lokha nabenza ukubalisisa kwabo. Ekupheleni kweThemu abafundi kufanele bakwazi uku: Bala nehloko begodu baphendule imibuzo imibuzo efana nokuthi : • Thoma ema 52, bala uye phambili ngakunye kufika ema 72. • Thoma ema 88 begodu ubale uye emuva ngakunye kufika ema 70. • Thoma ema 38 begodu ubale ngakubili kufika ema 50. • Thoma ema 45 begodu ubale ngakuhlanu kufika e 100. • Thoma e 10 begodu ubale nga litjhumi kifika e 100. Abafundi kufanele bakgone ukusebenzisa amakghono wabo wokubala emisebenzini etloliweko. isibonelo: • Kopulula begodu ukhulise ukulandelana okulula kweenomboro ukufika okungasenani kwezili 100. Bona isigaba samaphetheni weenomboro	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.3 Amatswayo weenom-boro namagama weenom-boro	**Ukwazi nokufunda iinomboro** • Ukwazi nokufunda amatshwayo weenomboro 0 kuya e 100 • Ukutlola amatshwayo weenomboro 0 kuya ema 20 • Ukwazi nokufunda amatshwayo weenomboro 1 kuya e 10 • Ukutlola amagama weenomboro 1 kuya e 10.	**Ukwazi nokufunda iinomboro** • Ukwazi nokufunda amatshwayo weenomboro 0 kuya e 100 • Ukutlola amatshwayo weenomboro 0 kuya ema 20 • Ukwazi nokufunda amatshwayo weenomboro 1 kuya e 10 • Ukutlola amagama weenomboro 1 kuya e 10.	**Yini umehluko kuneThemini yesi 3?** ETheminin ye 4, irherho leenomboro lingezeleleka lifike e 100. Ukutlola amatshwayo namagama weenomboro kuyaqinisekiswa ethemini le. Alikho ilwazi elitjha elifundwako. Kuqakathekile ukutjheja bona ukulinganisa nokubala kudzimelele khulu ekusebenziseni amagama weenomboro. Abafundi kuthlogeka bona basebenzise, batjho bebatlole amagama weenomboro ngeendlela ezinengi ngokungakghoneka ngakho. Ekupheleni kweThemu, kufanele bakghone ukwenza imihlobo elandelako yemisetjenzana: Ukumetjhisa amatshwayo weenomboro, amagama weenomboro nofana iinthombe zezinto Ikarada leli lithi si 6 Liyini leli ikarada? 6 11 Metjhisa amagama nezinto Kunye ✂ Kubili ✱ ✱ ✱ ✱ Kuthathu ✱✱ Kune ✶✶✶✶✶ Kuhlanu ✖✖✖✖✖✖✖✖✖ Sithandathu ✺✺✺ Likhomba ✷✷✷✷✷✷✷ Bunane ※ ※ ※ ※ ※ Lithoba ✦✦✦✦✦✦✦✦	

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1.4 Ukuhlathu-lula, uku-madanisa nokuhlela iinomboro	**Hlela begodu umadanise izinto ezifika ema 20.** • **Madanisa** ibuthelelo lezinto mayelana nokuthi zinengi, mbadlwana, ezinengi, ncani khulu; dluleleko kuna,ncani kuna; okufanako na, nje okunengi nganga, hlukileko • **Hlela** ibuthelelo lezinto kusukela kwezinengi ukuya kwezincani khulu nakusuka kwezincani khulu ukuya kwezinengi. • **Izinto ezihlukahlukeneko**ezifika ema 20 **Ukuhlela nokumadanisa iinomboro** • **Hlela iinomboro** : - Kusuka kwencani khulu ukuya kwekulu khulu nakusuka kwekulu khulu ukuya kwencani khulu - Ngaphambi , ngemuva, phakathi, /hlangana - Ngokusebenzisa inamba layini ye 0 kufika ema 20 • **Madanisa** iinomboro ezipheleleko mayelana nencani kuna, ekulu kuna, enengi kuna, ncani kuna, kulingana na • Kunye nakunye okukhambelanako • **Irherho leenomboro** kufika ema 20 **Sebenzisa iinomboro ezima – odinali ukubonisa ukuhleleka , indawo nofana ubujamo** • **Hlela** izinto ngomuda / ngelayini kusuka kweyokuthoma ukuya kweyetjhumi nofana kweyokuthoma ukuya kweyokugcina isib yokuthoma, yesibili, yesithathu … yetjhumi, yokugcina. (iinomboro ezima -odinali) **Ihlangothi lemiraro yeenomboro ezima- odinali** zerherho elithoma kweyokuthoma ukuya kweyetjhumi.		Ngokuhlela nokumadanisa izinto neenomboro, abafundi bafunde bonyana: • Ihlangothi lomraro lenomboro yekhadinali lisetjenziselwa ukuhlathulula inomboro esedeni. **Yini umehluko kuneThemini yesi 3?** Abafundi bavezelwa eenimborweni ezima -odinali. Ekupheleni kweThemu nonyaka abafundi kufanele bakghone ukusebenzisa ilimi lokuhlela nokumadanisa ngeendlela ezilandelako: • Kokuthoma, kwesibili, kwesithathu, kwesine, kwesihlanu, kwesithandathu…….. • Kungaki …… • Kunengi ngange, inomboro efanako ne… • Kulingana na, nengi kuna, gaphasi kuna, lidlanzana kuna, khulu kuna, ncani kuna, khulu kuna……. • Hlela , kokuthoma, kokugcina, ngaphambie, emuva kwe, duze na, phakathi kwe • Iinomboro • Kokuthoma, kwesibili, kwesithathu, kwesine, kwesihlanu, kwesithandathu…….. • Kungaki …… • Kunengi ngange, inomboro efanako ne… • Kulingana na, nengi kuna, gaphasi kuna, lidlanzana kuna, khulu kuna, ncani kuna, khulu kuna……. • Hlela , kokuthoma, kokugcina, ngaphambie, emuva kwe, duze na, phakathi kwe ◯◯◯◯◯◯◯◯◯◯◯◯◯◯◯◯◯◯◯◯ • Faka umbala osarulani endulungwini yesihlanu. • Faka umbala obomvu endulungwini yokuthoma. • Faka umbala ohlaza sasibhakabhaka endulungwini yobunane. Abafundi kufanele baphendule imibuzo efana nokuthi • Ngubani wokuthoma ereyini? • Ngubani wesibili emudeni? • UMthunzi unamapensela wamakhrayoni ama 5 . UKali unamapensela wamakhrayoni abu 8. • Ngubani onamapensela wamakhrayoni alidlanzana? • Nginikela inomboro phakathi kwe 15 ne 17? • Tlola phasi iinomboro ezihlanga ku 4 ne 10 • 1, 2, 3, 4, _, _, _, _, _, 10 • Zalisa iinomboro ezingekho	

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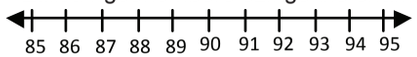
1.4 Ukuhlathu-lula, uku-madanisa nokuhlela iinomboro	**Hlela begodu umadanise izinto ezifika ema 20.** • **Madanisa** ibuthelelo lezinto mayelana nokuthi zinengi, mbadlwana, ezinengi, ncani khulu; dluleleko kuna,ncani kuna; okufanako na, nje okunengi nganga, hlukileko • **Hlela** ibuthelelo lezinto kusukela kwezinengi ukuya kwezincani khulu nakusuka kwezincani khulu ukuya kwezinengi. • **Izinto ezihlukahlukeneko**ezifika ema 20 **Ukuhlela nokumadanisa iinomboro** • **Hlela iinomboro** : - Kusuka kwencani khulu ukuya kwekulu khulu nakusuka kwekulu khulu ukuya kwencani khulu - Ngaphambi , ngemuva, phakathi, /hlangana - Ngokusebenzisa inamba layini ye 0 kufika ema 20 • **Madanisa** iinomboro eziphelelekо mayelana nencani kuna, ekulu kuna, enengi kuna, ncani kuna, kulingana na • Kunye nakunye okukhambelanako • **Irherho leenomboro** kufika ema 20 **Sebenzisa iinomboro ezima – odinali ukubonisa ukuhleleka , indawo nofana ubujamo** • **Hlela** izinto ngomuda / ngelayini kusuka kweyokuthoma ukuya kweyetjhumi nofana kweyokuthoma ukuya kweyokugcina isib yokuthoma, yesibili, yesithathu … yetjhumi, yokugcina. (iinomboro ezima -odinali) **Ihlangothi lemiraro yeenomboro ezima- odinali** zerherho elithoma kweyokuthoma ukuya kweyetjhumi.		<table><tr><td>Ngaphambili</td><td>Iinomboro</td><td>Emuva</td></tr><tr><td></td><td>17</td><td></td></tr><tr><td></td><td>12</td><td></td></tr><tr><td></td><td>14</td><td></td></tr><tr><td></td><td>9</td><td></td></tr><tr><td></td><td>6</td><td></td></tr></table> Tlola iinomboro lezi ngokulandelana kusuka kekulu khulu ukya kencani khulu. Tlola iinomboro lezi ngokulandelana kusuka kencani khulu ukuya kekulu khulu . Tlola iinomboro lezi kusuka kencani khulu ukuya kekulu khulu. Kopulula begodu uqedelele ngokusebenzisa amagama athi **muncani** no **munengi**: • Ama-35 _____ kunama-38 • Ama-79 _____kunama-65 Ukwazi bona inomboro engaphambili yincani ngayinye nokuthi inomboro engemuva yikulu ngakunye. Abafundi kufanele baphendule imibuzo efana nokuthi : • Ngiyiphi inomboro eza ngaphambi kwe-17? • Ngiyiphi inomboro eza ngemuva kwama-82? • Zalisa ngeenomboro ezingekho enambalayini.  Beka amakarada weenomboro alandelako ngokuhlelekileko: • Ngiziphi iinomboro ezitholakala phakathi kwama-25 nama-30? • Nginikela inomboro edlula ama-76 nga-1? • Nginikela inomboro edlula ama-76 ngaku-2? • Ngiyiphi inomboro encani ngaku-1 kuna- 45? • Ngiyiphi inomboro encani ngaku-2 kuna-39?	

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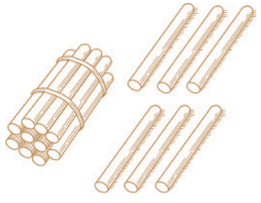
1.5 Ubukhulu bedijithi	**Ukukhumbula ubukhulu bedijithi beenomboro zamadijithi amabili okungasenani kufika ema 20** • Hlukanisa iinomboro zamadijithi amabili uzenze amatjhumi nama yunithi isib. Uli- 12 uba li-10 naku-2		**Yini umehluko kuneThemini yesi-3?** NgeThemu le, abafundi baragela phambili nokwakha bebathuthukise umqondo wobukhulu badijithi. EThemini yesi 4,abafundi basebenza ngerherho leenomboro ezikudlwana begodu baragele phambili noku: • Bala begodu ubeke ngeenqhema ukwenzela ukwakha isiqhema samatjhumi nabo kunye abazijameleko; • Tlola i18 = 1 itjhumi nabo kunye ababu 8 abazijameleko; noku • Bese urekhoda uli 14 = 10 naku 4. Abafundi kufanele baragele phambili nokusebenzisa iinsetjenziswa eziphathekako ngokwenza iinqhema ukwenzela ukwakha amatjhumi begodu nemivo ukuthuthukisa ukuzwisisa bonyana i- 10 lisiqhema sinye setjhumi sabo kunye abazijameleko.  Ngokusebenzisa i-abhakhasi, abafundi kufanele bakwazi ukutjengisa : • Itjhumi linye; • Itjhumi linye nabo kunye aba-5; • Itjhumi linye nabo kunye abasi-6; njll Ungalindela bona abafundi baragele phambili nokubala ngakunye ukwenza iinqhema zabo litjhumi. Ebafundini abanengi, kuzakuba ngiyoyodwa indlela elula yokutjho inomboro nofana yokutjho bona zingaki. 	

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1.5 Ubukhulu bedijithi	**Ukukhumbula ubukhulu bedijithi beenomboro zamadijithi amabili okungasenani kufika ema 20** • Hlukanisa iinomboro zamadijithi amabili uzenze amatjhumi nama yunithi isib. Uli- 12 uba li-10 naku-2		**Amakarada wobukhulu bedijithi/amakarada wamaFladi** Amakarada wobukhulu bedijithi kufanele asetjenziswe ethemini le ukutjengisa bona iinomboro zakhiwa bunjani. Amakarada wobukhulu bedijithi angatjengiswa kanyekanye nenyanda nofana nesiqhema sezinto. **Iinsetjenziswa** Izinto ezingabuthelelwa ndawonye: • Iingojwana zokubala • Izinto zokubala ezingathungelelwa ndawonye • Iingojwana zomlilo • Iingojwana ze - ayisikhrimu • Amakhuyubhu angenelanako • Amakarada wobukhulu bedijithi • Imali yokudlala Kuyasiza ukuba neenqhema ezihlala zilungile zamatjhumi ezibekwe bafundi ngeenqhema bazibulunga ngeemumathini.	
1.6 Amathek-hiniki wok-urarulula imiraro	Sebenzisa amathekhiniki alandelako lokha nirarulula imiraro noku hlathulula iinsombululo zemiraro: • Iinsetjenziswa eziphathekako isib. Iimbali • Iinthombe zokugwala umphumela wendatjana • Ukwakha nokuphula iinomboro • Ukubuyelela kabili noku hafula • Amanambalayini		**Yini umehluko kuneThemini yesi 3?** Ekupheleni kweThemu le, abafundi bathoma ukurarulula imiraro yamagama basebenzisa amathekhiniki alandelako: • Ukugwala nofana iinsetjenziswa eziphathekako • Ukwakha nofana ukuphula iinomboro • Ukubuyelela kabili noku hafula Amanambalayini Qala amanothi weThemu yesi-2.	

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1.7 Ukuh-langanisa nokukhupha	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-20.		Ekupheleni kweThemu abafundi kufanele bakghone ukwenza/ ukurarulula imiraro efana nale engenzasi. **Itjhuguluko** UNoluthando beka namahabhula ama-5. USilo wamupha amanye amahabhula abu-8. Sekanamahabhula amangaki nje uNoluthando? UNoluthando beka namahabhula ali-13. Wapha uSilo amahabhula ama-5. Sekanamahabhula amangaki nje uNoluthando? **Hlanganisa** UNosesi unabomabula aba-5 abahlaza nababu-8 abahlaza kwesibhakabhaka. Unabomabula abangaki sebaboke uNosesi? UNosesi unabomabula abali-13. Aba-5 bahlaza okotjhani kuthi abaseleko babe hlaza kwesibhakabhaka. UNosesi unabomabula abangaki abahlaza kwesibhakabhaka? **Ukumadanisa** UNosesi unamabhanana ali-13. UThemba unamabhanana ama-5. Amabhanana ka Nosesi adlula wakaThemba ngamabhanana amangaki?	
1.8 Ukuh-langanisa okubuyele-lwako okurholela ekubuy-abuyeleleni	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukuhlanganisa okubuyelelweko okurholela ekubuyabuyeleleni nempendulo ukufika e-20		Ekupheleni kweThemu abafundi kufanele bakghone ukwenza/ ukurarulula imiraro efana nale engenzasi. **Ukuhlanganisa okubuyelelako** Iintsikiri ezi-4 zinama vili amangaki? **Isilinganisa** UThami usela iinkomitji ezi-2 zebisi ngamalanga. Ziinkomitji ezingaki zebisi aziselako ngeveke? **Amagridi** Umnu Khumalo utjala amareyi ama-3 wekhabitjhi. Kuneentjalo ezi-5 ereyini ngalinye. Zingaki iintjalo zekhabitjhi azitjalileko sezizoke?	

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1.9 Ukubuthele-la nok-wabelana okurholela ekuhlu-kaniseni	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqema kweenomboro eziphelelekо ukufika e-20 kanye nempendulo ezingahle zifaka iinsalela		Ekupheleni kweThemu abafundi kufanele bakghone ukwenza/ ukurarulula imiraro efana nale engenzas **Ukubuthelela ngeenqhema** Ukubuthelela , ulahle isalela • UStela uthengisa amhabhula ngemigodla efaka 3 amhabhula emgodleni ngamunye. Unamhabhula ali 14. Angenza imigodla emingaki efaka ama- apula ama 3? Ukubuthelela , ufake hlangana isalela ependulweni • UBeni ufuna ukuyokunikela ugogo wakhe amaqanda ali 15. Uthloga amabhoksi amangaki wokufaka amaqanda asi 6 ukupaka woke amaqanda? **Ukwabelana** Ukwabelana , ulahle isalela • Ukwabelana abangani aba 3 amaswidi ali 14 ukwenzela bona boke bathole inani elilinganako lamaswidi. Ukwabelana , okurholela emafraktjhinini • Ukwabela abangani aba 3 amatjhokoledi ama 4 ukwenzela bona boke bathole iinqetjhana ezilinganako zetjhokoledi kungabi khona okusalelako. (Abafundi akuthlogeki bonabatjho ingcenye yefratjhini eyodwa kokuthathu. Bangamane bahlathulule ifraktjhini leyo ngobulula ngokuthi “isiqetjhana”okutjho bonyana Amafraktjhini wokubuthelela).	
1.11 Imali	Ukukhumbula nokubona iinhlamvu zemali ye Sewula Afrika: 5c, 10c, 20c, 50c, R1, R2, R5, nemali yamaphepha, R10 ne R20. Ukurarulula imiraro yemali efaka hlangana amanani netjhentji kufika ema R20 nangamasende ukufika emasendeni 20c		Ekupheleni kweThemu abafundi kufanele bakghone ukwenza/ ukurarulula imiraro efana nale engenzas UJobha uthenge ubrotho ngamaranda ali R8. Wabubhadela ngetjhumi lama R10 efasi. Uzakuthola malini itjhentji? Unina laka Rosi wathenga isikhafu ngamaranda ali R17. Ubhadale ngama 2 amaranda alitjhumi afasi. Wathola malini itjhentji? Ilanga lamabeletho laka Judi belingo Sondarha. Udadwabo umuphe amaranda ama R5, umnakwabo wamupa amaranda ama R2 umzawakhe wamupha amaranda ali R10 . Uthole malini nasele iyoke?	

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UKUBALA				
1.12 Amathekniki (iindlela namaqh-inga)	Ukusebenzisa amathekhiniki alandelako lokha kwenziwa umsebenzi wokubalisisa: • Ukugwala nofana iinsetjenziswa eziphathekako isib. iimbali • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula • Amanambalayini		**Yini umehluko kuneThemini yesi 3?** Abafundi balindeleke bararulule ukubalisisa ebujamweni obutjhaphulukileko ngokusebenzisa amathekhiniki alandelako: • Ukugwala nofana iinsetjenziswa eziphathekako - Imigwalo yabafundi kufanele ithome ukuqaleka ngokuhlelekileko begodu kufanele bakwazi ukuhlathulula ukubalisisa kwabo okuddzimelele emigwalweni yabo. • Ukwakha nofana ukuphula iinomboro • Ukubuyelela kabili noku hafula • Amanambalayini. Qala amanothi weThemu yesi-2.	

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1.13 Ukuh-langanisa nokukhupha	• Ngezelela ngama ema 20 • Khupha ema 20 • Sebenzisa itshwayo elifaneleko (+, –, =, □) • Ukuzijayeza ukulumbana kweenomboro kufika e 10		Ukuhlanganisa nokukhupha ngerherho leenomboro elihlangana kwe 0 - 20 kutjho bonyana abafundi bazaku: • Thoma ukuthuthukisa umqondo wobukhulu bedijithi ematjhumini nakibo kunye; • Ragele phambili babale ngeenqhema; begodu • Thome ukubona bonyana ukubala uragele phambili ngabo kunye akusiliqhinga eliphumelelisako. Abafundi bazakuragela phambili noku: • bala izinto; • khumbula, ukufunda nokutlola amagama weenomboro; noku • madanisa noku hlela iinomboro. Ukwenzela kobana basebenze ngamatshwayo wokuhlanganisa nokukhupha, abafundi kufanele babe nelwazi elaneleko loku: • ukubala koke; • ukubala baragele phambili kusuka enomborweni ekulu; • ukusebenzisa nokuzwisisa ilimi lokuhlanganisa noku khupha ; noku • ukuhlela nokumadanisa iinomboro. Abafundi baragela phambili nokwakha ukuzwisisa kokuhlanganisa noku khupha. Ekupheleni konyaka abafundi kufanele ba: • ukusebenzisa ilwazi magama eliphathelene nokuhlanganisa nokukhupha namatshwayo wokuhlathulula nokurekhoda imitjho yeenomboro yokiuhlanganisa nokukhupha; • ukusebenzisa umsebenzi ophathekako nongakahleleki womthetho womsebenzi otlolwako wokutlola umsebenzi wokuhlanganisa nokukhupha; • ukurarulula imiraro yokubala yokuhlanganisa nokukhupha begodu bangarekhoda iimpendulo zabo ngokusebenzisa imitjho yeenomboro; • ukuzwisisa bona ukukhupha kuhlanganisa okupherhukileko, kandi ngakelinye ihlangothi ukuhlanganisa nacho kukhupha okupherhukileko begodu kufanele basebenzise lokhu ukwenzela ukufinyelela eempendulweni nekurekhodeni ukubalisisa.	

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1.13 Ukuh-langanisa nokukhupha	• Ngezelela ngama ema 20 • Khupha ema 20 • Sebenzisa itshwayo elifaneleko (+, –, =, □) • Ukuzijayeza ukulumbana kweenomboro kufika e 10		Ukuzwisisa Ukuhlanganisa nokukhupha abafundi kufanele bakghone uku: • ukwazi nokusebenzisa iphuzu lokuthi ukuhlela ukuhlanganisa akutjho litho; • sebenzisa amatshwayo + , - ne = ; • ukwazi bonyana □ lijamele inomboro engaziwako; • ukuzwisisa ukukhupha njengoku 'thatha utjhidise' nokuthi 'ukliuthola umehluko phakathi kwe ';no • kutjho nokutlola amaphuzu akhambelanako ephuzwini lokuhlanganisa onikelwe lona nofana ngendlela ephikisako isib. 8 + 6 = 14 kutjho bonyana 14 – 6 = 8. Ukurekhoda iimfaniso zokuhlanganisa nokukhupha: Lokha abanye abafundi basafuna ukurekhoda nokubala ngabo ku 1, bathloga ukurhelejwa bona ukuthoma ukurekhoda nokubala ngeenqhema. Kufanele bakghone uku: Gwala iinthombe nokusebenzisa iinomboro, khulu khulu ukubonisa iinqhema. **Ukuphula inomboro ibe ziinqetjhana ukwenza ukubala kube lula** Abafundi bazakuphula inomboro ibe ziinqetjhana ezahluka hlukeneko. Bazakuphula inomboro ibe ziinqetjhana ezibambekako kibo. Kokuthoma, abafundi bazahlephula u likhomba ab bokn. Nokho, lokha amaphuzu wenomboro kufika e 10 azwisiseka begodu abafundi bakghona ukusebenza ngeenomboroezingeni eliphezulu, bangamuhlephula u-likhomba abe ziinqetjhana ezihluka hlukeneko. Ukusebenzisa ubutjhobi neenomboro ukutjengisa ukucabanga 11 + 7 = □ 11 + 4 + 3 11 + 4 → 15 + 3 = 18 11 + 7 = □ 11 + 5 + 2 11 + 5 → 16 + 2 = 18 17 – 9 = □ 17 – (7 + 2) 17 – 7 → 10 – 2 = 8	

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1.13 **Ukuh-langanisa nokukhupha**	• Ngezelela ngama 20 • Khupha ema 20 • Sebenzisa itshwayo elifaneleko (+, –, =, □) • Ukuzijayeza ukulumbana kweenomboro kufika e 10		**Ukulumbana kweenomboro** Ukwenzela ukuzijayeza ukulumbana kweenomboro, abafundi kufanele banikelwe imisetjenzana ehlukahlukeneko bona bayenze. Lokhu kwenziwa kuhlekuhle ngesikhathi sokusebenza ngokuzijamela. Inamba layini nayo ingasetjenziswa ukuzijayeza ukulumbana kweenomboro kufika e 10. **Ukusebenzisa ilwazi elidlulileko namathekhiniki** Amathekhiniki aboniswe ngaphasi avumela abafundi bona bahlele kuhle ukubala kwabo nomqodo weemboro. Ukzijayeza amthekiniki angahaskuz gcugcuzela abafundi bona batjengise ubudlelwano phakathi kweenomboro nokufundisa abafundi bona kokwakho bangasebenzisa ilwazi labo ukusiza ukubalisisa. **Beka inomboro ekulu ekuthomeni ukwenzela ukubala uragele phambili nofana ukubalauye emuva.** 4 + 12 = □ Buyelela uhlele 4 + 12 as 12 + 4 bese uyabala uragele phambili kusuka e-12. **Bala uragele phambili ukusuka enomborweni ekulu** Abafundi kufanele bakghone ukubala baragele phambili ukusukela enomborweni ekulu. Lokhu liqhinga elisiza khulu kunokubala ngabo kunye ukufika ku-14 bese ubala ungezelele ngakuhlanu. 14 + 5 = □ Abafundi babala ukusuka e-14, bese 15, 16, 17, 18, 19. Ukubona okuseduze nokubuyelelwe kabili 8 + 7 Umfundi angahlathulula bonyana umphumela ungatlolwa njenge 8 + 8 -1 (ukubuyelela kabili u bu 8 uhlanganise naku 1) nofana 7 + 7 + 1 (ukubuyelela kabili u li 7 uhlanganise naku 1). Abafundi bangarekhoda amaqhinga wabo ngokusebenzisa abotjhobi : 8 + 8 16 + 1 = 17 Tjhugulula inomboro ibe litjhumi bese ukhupha nofana uhlanganisa ngabokunye Iqhinga leli lingafundiswa ngerherho leenomboro ezincani begodu lisetjenziswe eenomborweni ezikudlwana. 9 + 6 = □ Abafundi bangazitjela bonyana : “Ngizakuthatha kunye ku-6 begodu ngikuhlanganise ne-9 ukwenzela ukuthola i-10.” U li 9 + 6 angatlolwa njengo 10 + 5 = 15	

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1.13 Ukuh-langanisa nokukhupha	• Ngezelela ngama ema 20 • Khupha ema 20 • Sebenzisa itshwayo elifaneleko (+, –, =, □) • Ukuzijayeza ukulumbana kweenomboro kufika e 10		8 + 5 = □ Abafundi bangazitjela bonyana : “Ngizakukhupha kubili ku-5 begodu ngikuhlanganise no-8 ukwenzela ukuthola i-10.” U- 8 + 5 angatlolwa njengo 10 + 3 = 13 **Sebenzisa ilwazi lobudlelwano obuphikisanako bokuhlanganisa nokukhupha** 15 – 9 = □ Umfundi uyazi bona umphumela ungatlolwa njengesibalo sokuhlanganisa: “Ngiyazi bona u- 9 + □ = 15.” Umfundi angasebenzisa ukubala aragele phambili ukwenza ukubalisisa. **Amanambalayini** Kufanele bagkhone ukusebenzisa amanambalayini ukusekela ukubalisisa kwabo. Isibonelo: 13 + 6 = □	
1.14 Ukuh-langanisa okubuyele-lwako okurholela ekubuy-abuyeleleni	• Hlanganisa inomboro efanako ngokubuyelela ema 20 • Sebenzisa itshwayo elifaneleko (+, =, □)		**Yini umehluko kuneThemini yesi-3?** EThemini yesi 4, abafundi baragela phambili nokuthuthukisa ilimi lokuhlanganisa okubuyelelako. **Isibonelo**: • Abo-3 aba-2 • Iinqhema ezi 4 zabo ku 2 Abafundi baragela phambili nokutlola imitjho yeenomboro ukwenzela iinjamiselo eziphathekako. Ukubala ngokweqa kufanele kuragele phambili kurhelebhe abafundi ukubala izinto ezibuthelelwe ngeenthombe. Lokha iinthombe nofana izinto zibuthelelwe ngazimbili, bese abafundi kufanele babale ngakubili bangasabali ngakunye ukuthola inani lezinto. Ekupheleni kweThemu abafundi kufanele bakghone uku: • Ukuzwisisa ukuhlanganisa okubuyelelako njengokwenza iinqhema ezilinganako; • ukujamisela ukuhlanganisa okubuyelelako ngokusebenzisa izinto eziphathekako nemigwalo; • ukurekhoda imitjho yeenomboro ekhambelanako emsebenzini owenziwako nofana imigwalo; no • ukusebenzisa inamba layini ukufika ependulweniuse number lines to arrive at an answer.	

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1.16 **limbalo zehloko**	**Umqondonomboro : Irherho 20** • Yitjho inomboro engaphambi nengemuva kwenomboro onikelwe yona. Hlela isede yeenomboro ezikhethekileko onikelwe zona. • Madanisa iinomboro kufika ema 20 begodu utjho bonyana ngiyiphi enengi nofana encani. • Ukwazi bonyana ngiyiphi inomboro enengi ngaku 1 nofana encani ngaku 1enomborweni. • Ukwazi bonyana ngiyiphi inomboro enengi ngaku 2 nofana encani ngaku 2 enomborweni. **Ukukhumbula masinyana:** • Amaphuzu wokuhlanganisa nawokukhupha kufika e 10 **Amaqhinga wokubalisisa** Ukusebenzisa amaqhinga wokubala ukuhlanganisa noku khupha ngokuphumelela: • Beka inomboro ekulu mantanzi ukwenzela ukubalela phezu kwayo nofana ukubala uye emuva. • Inanambalayini • Ukubuyelela kabili noku hafula • Ukwakha nokuphula iinomboro		**Yini umehluko kuneThemini yesi 3?** EThemini yesi 4, irherho leenomboro liyanda kusuka e-15 ukuya ema-20. **limbonelo** zemibuzo nemisetjenzana engabuzwa nengenziwa: • Thoma ku-3 ubale uye phambili ngabo kunye kufika e-10. • Abafundi bajama umuda babuze: ngubani osekuthomeni, wesibili, wesithathu nofana wokugcina? • Ngiyiphi encani i-14 nofana bu- 8? • Ngiyiphi enengi u bu-8 nofana u-4? • Yini encani ngaku-2 kune-13? • Yini enengi ngaku-2 kuno-8? • Nikela inomboro ephakathi kuka-1 no-3. • Nginikela inomboro ephakathi kwe-10 ne-14. Yinye kuphela inomboro leyo? • Beka amakarada weenomboro la ngokulandelana ukusuka kwelinenomboro encani ukuya kwelinenomboro ekulu. **Ukukhumbula msinyana** Ngitjengisa inomboro engingayihlanganisa ukwenza i-10 (ukutlola phasi nofana ukusebenzisa ubukhulu bedijithi nofana amaflardi karada) • 1 • 2 • 3 • 4 Ngitjengisa inomboro etjhiyekileko lokha ….suswe e 10 (ukutlola phasi nofana ukusebenzisa ubukhulu bedijithi nofana amaflardi karada) • 1 • 2 • 3 • 4 • 6 + 4 = 10 kuyini uku- 4 + 6? Ipendulo iyafana na? • 5 + 2 = 7 kuyini uku- 2 + 5? Ipendulo iyafana na? **Amaqhinga wokubalisisa:** Sebenzisa amaqhinga wokubalisisa Ukuhlanganisa nokukhupha ngekghono. • Hlanganisa okulandelako ngokubeka inomboro ekulu mantanzi nokubala uragele phambili: 1 + 9 2 + 6 1 + 4 • Buyelela kabili u-1 Yini abo-2 ababili? Iyini ihafu yaka ku-4? • Ukusebenzisa inambalayini. Mimeqo emingaki ukusuka ku-3 ukufika ku-5? Mimeqo emingaki ebuyela emuva ukusuka ku-5 ukufika-2?	

IGREYIDI YOKU-1 ITHEMU YESI-4 2. AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.1 Amapheth-eni weJi-yomethri	**Ukukopa, ungezelele bewuhlathulule** Ukukopa,ungezelele bewuhlathulule ngamagama • Amaphetheni alula enziwe ngezinto ezibonakalako • Amaphetheni alula enziwe ngemigwalo yemida, ubujamo nafana izinto. **Yenza amaphetheni wakho weJiyomethri** ngezinto eziphathekako • ngokugwala imida, ubujamo nofana izinto **Amaphetheni asizombelezileko** Ukubona, ukuhlathulula ngamagama nokukopa amaphetheni weJiyomethri • ngokwemvelo, • kusukela epilweni yangamalanga yesimodeni, • kusukela kezamagugu nendabuko yethu.	**Amaphetheni asizombelezileko** Ukubona,ukuhlathulula ngamagama nokukopa amaphetheni weJiyomethri • Ngokwemvelo • Kusukela epilweni yangamalanga yesimodeni • Kusukela kezamagugu nendawo yethu **Yenza amaphetheni wakho weJiyomethri** • ngezinto eziphathekako, ngokugwala imida ubujamo nofana bezinto	Abafundi bazokusebenza ngamaphetheni ukusukela kewemvelo, kusukela epilweni yangamalanga yesimodeni nakezamagugu yendawo yethu ukusukela egreyidini 1 kufikela kugreyidi 6. Lokhu kutjho bonyana akumelanga uchithe isikhathi esinengi esihlokweni lesi. Kufanele begodu ukhethe imisetjenzana namaphetheni afanele nakhambelana igreyidi leyo naleyo. EGreyidini yoku-1 abafundi bangahlikihla amaphetheni ngaphakathi. Iimbonelo nofana iintjengiso ezisebenzisekako maphetheni wamakari wemithi, ibhasi lemuthi, isoli yamanyathelo, amaphetheni wamatayere, isivalo samadreyini, emapheyivinini njll. Umhlobo omunye wamaphetheni abafundi abangawuqala ngewesimethri, isib. amakari amanengi wemithi ayi-simethri Abafundi bangaqala amaphetheni endradeni (wensimbi, zamaplanga, nofana ivayibrakrit); Umsebenzi weentina namathayilesi wefluru; Iizambatho namatjhila amabhorodo, iinkopi neempiringi; ibholo leenyawo; iinlwane ezifana neenkomo, iviyaviyani lebusuku, namaviyaviyani wemini, iduba, idlulamithi, iziingwe, iinyoni, iingogwana; amathuthumbo namakari weemithi; imisebenzi yemincamo yesindu neyesimanje; begodu neempoto zomdaka zesindu nofana iimantji ezilukiwe. Kuneendlela ezihlukileko zokuhlathulula amaphetheni esiwabonako asizombelezileko. Amanengi amaphetheni asizombelezileko enziwe ngemida, ubujamo nofana ngezinto. Amajamo nofana izinto akuthlogeki bonyana zihlotjaniswe nabobusobubili nabobusontathu beJiyomethri okusetjenziswa ngabo eGreyidini yoku-1. Abafundi bangaqalaqala begodu bebahlathulule bonyana • Kuyini ukubuyelela isib. amathosi, imida, nabonyana ngibuphi ubujamo; and • Kubuyelelwa njani isib.gwala imida iphambane omunye phezu komunye (njengase fadugwini), ngabe woke ayalingana ngobukhulu na?, ngabe arhatjheke ngokulinganako na?, ngabe woke amajamo ayalingana ngobukhulu na?,anemibala efanako na?, nofana aqale ndawonye na?, isib. Nangabe usika ilamune phakathi ngokuphambanako woke amalunga amatsikana phakathi begodu abanzi ngemaqadi.	1 Isifundo

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2.2 Amaphe-theni weenom-boro	**Ukukopa, ukungezelela nokuhlathulula** Ukukopa, ungezelele bewuhlathulule ukulandelanisa kweenomboro ezilula ukufika e-100. **Ukutlama amaphetheni okungewakhe** Tlama amaphetheni okungowakho weenomboro.	**Ukukopa, ukungezelela nokuhlathulula** Ukukopa, ungezelele bewuhlathulule ukulandelanisa kweenomboro ezilula ukufika e-100. **Ukulandelana kufanele kutjengise:** • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-100 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-100 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku-2 hlangana ne-0 ne-100	Ukulandelana kweenomboro kungahlotjaniswa ngokubala. Lokho amakgono wabafundi wokubala akhula begodu atjhuguluka, iinhlobo zokulandelana kweenomboro zomsebenzi wabafundi zingakhula. Ukulandelana kufanele kutjengise ukubala uye phambili nemuva nga: • ku-1 ukusukela kwenye nenye inomboro hlangana no-1 ne-100 • li-10 ukusukela nanoma ngisiphi isibuyeleli se-10 hlangana ne-0 ne-100 • ku-5 ukusukela nanoma ngisiphi isibuyeleli sika-5 hlangana ne-0 ne-100 • ku-2 ukusukela nanoma ngisiphi isibuyeleli sika-2 hlangana ne-0 ne-100 Abafundi bangakhomba iinomboro enambalayinini, egridini yeenomboro, nofana ngokubhala ngokulandelana lokha babalakonokutlola ngokulandelana lokha nebabalako. Abafundi bangavala (ngemmbali) nofana bafake umbala, nofana bazungelezele iinomboro enambalayinini, eGridini yenomboro, nofana ukulandelana kokutloliweko lokha abalako. Abafundi bangazalisa iinomboro ezitjhiyiweko nazitlolwako enambalayinini, nofana emagreyidini ukuzijayeza ukubala. Khumbula bonyana abafundi babhala ukufika e-20. Qala amanothi weThemu yesi-3 bonyana abafundi bangasebenza njani ngokulandelana kweenomboro ngaphezulu kwa-20.	Iinfundo ezi-3

IGREYIDI YOKU-1 ITHEMU YESI-4 3. ISIKHALA NOBUJAMO (JIYOMETHRI)				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.1 **Ubujamo, ukuzijayeza nokubukela**	**Ilimi lobujamo** Hlathulula ubujamo bento yinye nokuhlobana kwenye kenye isb. ngaphezulu, ngaphambi-kwe, ngemuva, ngesinceleni, ngesidleni, phezulu, phasi, hlanu-kwe. **Ubujamo neenkombatjhuba** • Landela inkombatjhuba zokukhambakhambe uzombeleze ngekumbeni yokufundela. • Landela iinlayelo ukubeka izinto ngokuhlobana kwenye kenye isib. Faka ipensela ngaphakathi kwebhoksi. **Ubujamo nemibono** Madanisa imibono ehlukeneko yezinto zangamalanga efifanako.	**Ilimi lobujamo** Hlathulula ubujamo bento yinye nokuhlobana kwenye kenye isib. ngaphezulu-kwe, ngaphambi-kwe, ngemuva, ngesinceleni, ngesidleni, phezulu, phasi, hlanu-kwe. **Ubujamo neenkombatjhuba** • Landela inkombatjhuba zokukhambakhambe uzombeleze ngekumbeni yokufundela. • Landela iinlayelo ukubeka izinto nokuhlobana kwenye kenye isib. Faka ipensela ngaphakathi kwebhoksi. **Ubujamo nemibono** Madanisa imibono ehlukeneko yezinto zangamalanga efifanako.	**Ubujamo neenkombatjhuba** Qala amanothi weThemu yoku-1. Nanyana ngibuphi ubujamo beLimi kufanele bethulwe ngokwenza imisetjenzana efaka hlangana abafundi bonyana benze imsikinyeko. Lokho kungenziwa ngesikhathi sokufundisa itlasi loke nofana ngesikhathi somnqopho wokufundisa iinqhema. Iinkombatjhuba kufanele zifundwe ngokwenza imisetjenzana ephathekako efaka hlangana ukusikinya imizimba yabo nofana izinto ngokulandela iinyalelo. Lokhu kungenziwa ngesikhathi sokufundisa itlasi loke nofana ngesikhathi somnqopho sokufundisa isiqhema. Umsebenzi wobujamo neenlayelo unganzinziswa ngamarekhodi atloliweko afana nemigwalo okufaka umbala nofana ukumadanisa imigwalo namagama. Lokhu kungenziwa ngesikathi sokuzijamela. **Ubujamo nokubukela** Abafundi besigaba esisiSekelo bafanele bazwisise bonyana izinto ziqaleka ngokuhlukeneko lokha umuntu aziqale ngehlangothi elingafaniko. Abafundi bangathatha lula bonyana izinto ezifana neenkoloyi zibonakala zizincani lokha zivela kude. Njengombana abafundi basebenza khulu ngeencwadi nangokutjengisa eencwadini zabo kufanele bonyana bazisise bonyana kungani into esebujameni obungaphambili buveza isithombe esikhulu kunaleso esisebujameni obungemuva. Ngesikhathi somnqopho weenqhema zabafundi, abafundi bangatjengisa ngokubeka izandlha zabo phambi kwabo, ukuvimbela ukubukela izinto ezibonakala zizikulu nazikude. Abafundi besigaba esisiSekelo kufanele banikelwe imisetjenzana ehlukileko abangayenza ukumadanisa ukubukela okuhlukeneko (ukubukela ngaphezulu, ngemaqadi, ngaphambili) bezinto ezihlukeneko zangamalanga. Lokhu kuzakugcina kusiza abafundi bonyana bakgone ukuhlathulula imigwalo yeJiyomethri eyenziwe ebujameni obuhlukeneko.	Isifundo esi-1

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.2 **Izinto ezibu-sontathu** **(3-D)**	Irherho lezinto Ukukhumbula nokutjho amagama wezinto ezibusontathu (3-D) ngeTlasini nofana ngekumbeni yokufundela neenthombeni • Ubujamo bebholo • Ubujamo bebhoksi **Amatshwayo wezinto** Hlathulula, hlukanisa, umadanise izinto ezibusontathu ngokuya: • ngobukhulu • ngokombala • ngezinto ezigedekako • ngezinto ezitjhelelako **Imisetjenzana enqophikweko** Ukubona nokwakha izinto ezinikelweko ezibusontathu ngokusebenzisa izinto eziphathekako ezifana namabhlogo wokwakha, amamatheriyali ebuyelelwe asetjenziswa godu, ikhidi yokwakha.	Irherho lezinto Ukukhumbula nokutjho izinto ezibusontathu ngeTlasini yokufundela neenthombeni. • Ubujamo bebholo (iindulungu) • Ubujamo bebhoksi (iphrizimu) **Amatshwayo wezinto** Hlathulula,hlukanisa ngemihlobo umadanise izinto ezinguSobantu ngokuya ngo: • bukhulu • ngokombala • izinto ezigedekako • izinto ezitjhelelako	Ukusebenza ngezinto ezibusontathu (3-D) kunganzinziswa ngemisetjenzana etlolwako.	1 Isifundo

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.3 **Amajamo abobusobu-bili (2-D)**	**Amajamo ahlukahlukeneko** Bona bewutjho amagama wezinto ezikhombisa ubusobubili (2-D) • indulungu • unqanthathu • isikwere **Amatshwayo wobujamo bezinto** Hlathulula,hlukanisa, umadanise ubujamo ezibusobubili ngokuya: • ngobukhulu • ngombala • ngezinto ezigedekako • ngezinto ezitjhelelako	**Irherho lamajamo** Ukukhumbula nokutjho abobusobubili • indulungu • uncantathu • isikwere **Amatshwayo wobujamo** Ukuhlathulula, ukuhlukanisa ngemihlobo, ukumadanisa ubujamo babobusobubili ngokuya: • ngobukhulu • ngombala • ngamahlangothi anqophileko • ngamahlangothi arondo	Qala amanothi weThemu yesi-2 Abafundi basebenza ngezindingilizi nenkwere ezihlukahlukeneko naboncantathu abahlukeneko ngamasayizi. Bazihlela ngokubumbeka kwazo njengokuthi zindulungu nofana ezinqophileko nofana ezinamahlangothi arondo. Abafundi bahlela ngeengaba bebabuthelele ubujamo ngokuya bonyana boncantathu, iinkwere nendulungu. Umsebenzi unzinziswa ngokutlolwa kwemisetjenzana.	limfundo ezi-3
3.4 **Isimethri**	**Isimethri** • Ukubona ubujamo besimethri emizimbeni yabo • Ukubona nokugwala umuda weSimethri ebujameni obubusobubili beJiyomethri namajamo angasiwoweiJiyomethri	**Isimethri** • Ukubona nokugwala imida ye Simethri ebujameni obubusobubili • (2-D) yeJiyomethri namabumbeko angasiwo weJiyomethri	Abafundi kufanele baqale imida yesimethri ezintweni eziphathekako nasenthombeni Imisetjenzana etlolwako • ayingathathwa kuphela ehafini enye kodwana • ayifake hlangana iimbonelo lapho abafundi bagwala imida yesimethri. Imida yesimethri akukameli bonyana ijame poro njalo kodwana ingaba imida ethabaleleko.	Isifundo si-1

IGREYIDI YOKU-1 ITHEMU YESI-4 4. UKUMEDA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.1 Isikhathi	**Ukudlula kwesikhathi** Khuluma ngokudlula kwesikhathi • Hlela izehlakalo eziqhelekileko zepilo yabo • Ukumadanisa ubude besikhathi ngokusebenzisa ilimi isib.isikhathi eside, isikhathi esifitjhani, msinyana, kabuthaka. • Ukulandelanisa izehlakalo ngokusebenzisa ilimi elifaka njengokuthi izolo, namhlanje, kusasa. **Ukutjho isikhathi** • Ukuhlathulula nakwenzeka into kusetjenziswa ilimi isib. Ekuseni, ngemuva kwedina, ebusuku, ekuseni khulu, ngemuva kwesikhathi. • Ukwazi amalanga weveke, • Ukwazi iinyanga zonyaka • Ukubeka amalanga wamabeletho ekhalendeni	**Ukudlula kwesikhathi** Khuluma ngokudlula kwesikhathi • Hlela izehlakalo eziqhelekileko zepilo yabo • Ukumadanisa ubude besikhathi ngokusebenzisa ilimi isib.isikhathi eside, isikhathi esifitjhani, msinyana, kabuthaka. • Ukulandelanisa izehlakalo ngokusebenzisa ilimi elifaka njengokuthi izolo, namhlanje, kusasa. **Ukutjho isikhathi** • Ukuhlathulula nakwenzeka into kusetjenziswa ilimi isib. Ekuseni, ngemuva kwedina, ebusuku, ekuseni khulu, ngemuva kwesikhathi. • Ukwazi amalanga weveke, • Ukwazi iinyanga zonyaka • Ukubeka amalanga wamabeletho ekhalendeni	Abafundi bafanele bafunde bonyana kukhulunywa njani : • ngokulandelanisa izehlakalo begodu • nangobude besikhathi Abafundi baragela phambili ukuhlanganisa iindlela zokukhuluma ngesikhathi ngamalanga ngesikhathi sokufundisa itlasi loke nofana ngesikhathi sokufundisa ngesiqhema. Abafundi bakhuluma begodu baphendula imibuzo ephathelene nokuthi izinto zenzeka nini, basebenzise ilimi elinjengokuthi ekuseni, ngemuva kwedina, ebusuku, ekuseni khulu, ngemuva kwesikhathi. Abafundi balandelanisa izehlakalo kusetjenziswa ilimi elifana nokuthi izolo, namhlanje, kusasa; amalanga weveke begodu neenyanga zonyaka Abafundi bamadanisa ubude besikhathi kusetjenziswa ilimi elifana nokuthi isikhathi eside nofana isikhathi esifitjhani begodu msinyana nofana buthaka. Abafundi bakhuluma ngokuhlela izehlakalo ezisuke eempilweni zabo. Bahlela ukulandelana kweenthombe ezinjenga • magadango wokwenza iimbedlezwana nofana ikopi letiye; • iinthombe ezitjengisa ukukhula komntwana aze abe mumuntu okhulileko; • umzombelezo wepilo yeembandana, isib. Iqanda liba yikukhu, nofana iqanda liba sirhwerhwe nofana iqanda liba iviyaviyani;begodu • izehlakalo eziqhelileko zelanga (ukuvuka, ukuba sesikolweni, ukudlala, ukudla kwamadina, ukulala). Ragela phambili ukubeka amalanga wamabeletho ekhalendeni unyaka woke	Iimfundo ezi-2

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.2 Ubude	**Ukulinganisa okungakahleleki** • Ukumadanisa nokuhlela ubude, ukuphakama nofana ububanzi bezinto ezimbili nofana ezinengi ngokuzibeka enye eqadi kwenye. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa, isib. mude, fitjhani, mude khulu, banzi. • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu urekhode ubudeusebenzise iimedo ezingasisezingeni isib. Izandla, igadango, ubude bepensela, izinto zokubala, njll.	Zoke iimedo egreyidini yoku-1 azikahleleki. Akunamedo ezihlelekileko zobude ezinamayunithini asezingeni enziwako. Ngesikhathi sokusebenza ngokuzijamela kiyo yoke iThemu, abafundi bangazijayeza begodu bahlanganise ukumeda ubude, ububanzi, nokuphakama ngamayunithi angakahleleki. Woke umsebenzi ufanele urekhodwe. Qala amanothi weThemu yesi-3		
4.3 Ubungako /Ubudisi	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela, bekurekhodwe ubungako, ngokusetjenzisa iimedo ezingakahleleki begodu nesikala sokudzimelela isib. Amabhulogo, iintina njll. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. elula, ebudisi, elula-khulu, ebudisi-khulu.	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela, bekurekhodwe ubungako, ngokusetjenzisa iimedo ezingakahleleki begodu nesikala sokudzimelela isib. Amabhulogo, iintina njll. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. elula, ebudisi, elula-khulu, ebudisi-khulu.	Zoke iimedo eGreyidini yoku-1 azikahleleki. Akukafaneli bonyana kwenziwe ukumeda okuhlelekileko bobungako kusetjenziswa amayunithi ahlelekileko. **Khuyini okuhlukileko eThemini yesi-4?** EThemini yoku-1 kuphakanyiswe bonyana abafundi banqophe • ekumadaniseni okunqophileko kobungako bezinto; • ukuhlela nokumadanisa ubungako bezinto ezintathu nofana ezinengi,ngokubeka izinto ngazimbili enye hlanu kwenye, bekufike lapho zoke izinto zilandelaniswe khona; begodu • Ukuthuthukisa ilimi lokukhuluma ngomahluko wobungakol EThemini yesi-4 abafundi banganqopha ekwenzeni ukumeda okungakahleleki ngokusebenzisa ubungako bamayunithi obungakahleleki.	

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4.3 Ubungako /Ubudisi	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela, bekurekhodwe ubungako, ngokusetjenzisa iimedo ezingakahleleki begodu nesikala sokudzimelela isib. Amabhulogo, iintina njll. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. elula, ebudisi, elula-khulu, ebudisi-khulu.	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela, bekurekhodwe ubungako, ngokusetjenzisa iimedo ezingakahleleki begodu nesikala sokudzimelela isib. Amabhulogo, iintina njll. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. elula, ebudisi, elula-khulu, ebudisi-khulu.	**Ukumeda ubungako obungakahleleki ngokusebenzisa amayunithi angakahleleki.** Abafundi bangafunda zoke iinkambisolawulo begodu nekambiso yokumeda ngokusebenzisa amayunithi angakahleleki. Ukumeda ngamayunithi angakahleleki kufanele kungathathwa njengokunyazekako kunokumeda ngamayunithi ahlelekileko. Ukumeda ubude ngamayunithi angasisezingeni kufaka ukubala bonyana mangaki amayunithi akhethiweko afanako ngobude njengezinto ezimedwako.Isibonelo, irula inobungako obufanako nebamabhulogo ali-9. Abafundi bafanele bamede imihlobohlobo yezinto basebenzise Izinto ezihlukahlukenekoezinamayunithi angakahleleki. Abafundi bafanele bafundiswe ngeenkhathi zoke ukutjho iyunithi nabanikela ubungako, isib. Incwadi inobungako obufanako bamamabula ama-34. Lokha abafundi nasele bamede nanganyana ngiyiphi iyunithi amahlandla ambala, bafanele balinganise bonyana ingaba ubungako obungangani beyunithi into efanele imedwe. Ukulinganisa ngaphambi kokumeda kuqakathekile, kodwana kungenziwa kwaphela lokha abafundi nabenze ukumeda ngeyunithi leyo. Abafundi bafanele bafundiswe bonyana ukuze nimadanise ubungako bezinto ezihlukahlukeneko, iyunithi efana patsi ifanele isetjenziswe. Isib. nangabe irula inobungako obumabhlogo ama-20 begodu isikere sinobungako obulingana namamabula ama-20, umuntu angekhe atjho bonyana zinobungako obulinganako nofana obungalinganiko, nofana ngikuphi okubudisi. **Ukurekhoda iimedo** Nanyana ukumeda kulikghono lokuzijayeza ngokwenza. Abafundi bafanele barekhode iimedo zabo ngaso soke isikhathi. **Ukumeda ubungako njengobujamo bokurarulula imiraro neembalo** Ngesikhathi esibekelwe linomboro, ama-Opharetjhini noBudlelwana, abafundi bangararulula imiraro esebenzisa ubujamo bobungako besimedo ezingakahleleki, isib. Idasta inobungako bamamabula ali-11. Ibhoksi lamakhrayoni linobungako bamamabula a-8. Zizokuba nobungako bamamabula amangaki nasele zizoke? Yelela irherho leenomboro ezifanele iThemu, nanyana imihlobo ehlukahlukeneko yemiraro efanele iThemu.	Iimfundo ezi- 2

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.4 Umthamo/ Ivolumu	**Ukumeda okungakahleleki** • Ukumadanisa nokuhlela ubungako beketjezi/ okusamanzi (umthamo) obuseemumathini ezimbili ezibekwe esinye eduze nesinye. Abafundi bahlola ngokuthi bathele esimumathini sesithathu nakutlhogekako. • Ukumadanisa nokuhlela ubungako obusamanzi obungathathwa ziimumathi ezimbili nazizeleko (umthamo) • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. enengi kune, encani kune, encani,izele, idududu. • Ukulinganisa nokumeda; Ukumadanisa nokuhlela umthamo weemumathini ngokusebenzisa iimeda ezingakahleleki isib. lingobho neenkomitji.	**Ukumeda okungakahleleki** • Ukulinganisa nokumeda; Ukumadanisa nokuhlela umthamo weemumathini ngokusebenzisa iimeda ezingakahleleki isib. lingobho neenkomitji.	Zoke iimedo eGreyidini yoku-1 azikahleleki. Akukafaneli bonyana kwenziwe ukumeda okuhlelekileko bobungako kusetjenziswa amayunithi angakahleleki. **Khuyini okuhlukileko eThemini yesi-4?** EThemini yoku-1 kuphakanyiswe bonyana abafundi banqophe • ekuthuthuseni ilimi lokukhuluma ngemehluko yamavolumu; • ekumadaniseni amavolumu weemumathi ezimbili ezifanako • ekumadaniseni amavolumu eemumathini ezimbili ezingafani EThemini yesi-4 abafundi banganqopha ekwenzeni ukumeda okungakahleleki ngokusebenzisa ubungako bamayunithi obungakahleleki. **Uyini umthamo? Iyini ivolumu?** Ibhodlelo lingaba nomthamo wamakopi amane, kodwana ngekhe lazaliswa swi, isibonelo, lingamumatha ivolumu yekopi elilodwa lamanzi ngesikhathi esithileko. Umthamo ubungakho bento engamumathwa simumathi, Ivolumu bungako besikhala esithathwa simumathi (soke isikhala esingaphakathi kwento). Ivolumu bungako besikhala esithathwa simumathi. Kesinye isikhathi abafundi bazokumeda bonyana kungangani okusamanzi okungesimumathini. Lokhu kumeda ivolumu yento engesimumathini. Kesinye isikhathi abafundi bazokumeda bonyana isimumathi singamumatha kangangani nasizeleko swi. **Ukumeda ubude obungakahleleki ngokusebenzisa amayunithi wobude angakahleleki** Abafundi bangafunda zoke iinkambisolawulo neenkambiso zokumeda ngokusebenzisa amayunithi angakahleleki. Ukumeda ngamayunithi angakahleleki kufanele bonyana zingaqaleka kwanga azikaqakatheki kunokumeda ngamayununthi ahlelekileko. Abafundi bafanele bathole ithuba lokumeda ivolumu/umthamo ngokusebenzisa izinto ezihlukahlukeneko njengamayunithi ahlelekileko, isib. Amakopi (kodwana ingasi amakopi wokumeda), iingobho, (kodwana ingasi amathispuni wokumeda), iimvalo zamabhodlelo njengeemvalo zamabhodlelo webisi wamalitha ama-2, Amabhlegana amancani, amabhodlelo amancani, njll. Ukumeda ivolumu/umthamo ngamayunithi angakahleleki kufaka ukubala bonyana kukangaki lapho umuntu azalisa begodu athela khona eyunithini ekhethiweko bekufike lapho umuntu afinyelela khona ebungakweni nofana evolumini efunekako. Abafundi bafanele bafundiswe ngaso soke isikhathi ukutjho iyunithi, isib. Kuneegobho ezi-48 eziphelelekо zamanzi ngebhodlelweni nofana kunamanzi angaphasi kwekopi ngebhodlelweni.	

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4.4 Umthamo/ Ivolumu	**Ukumeda okungakahleleki** • Ukumadanisa nokuhlela ubungako beketjezi/ okusamanzi (umthamo) obuseemumathini ezimbili ezibekwe esinye eduze nesinye. Abafundi bahlola ngokuthi bathele esimumathini sesithathu nakutlhogekako. • Ukumadanisa nokuhlela ubungako obusamanzi obungathathwa ziimumathi ezimbili nazizeleko (umthamo) • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. enengi kune, encani kune, encani,izele, idududu. • Ukulinganisa nokumeda; Ukumadanisa nokuhlela umthamo weemumathini ngokusebenzisa iimeda ezingakahleleki isib. lingobho neenkomitji.	**Ukumeda okungakahleleki** • Ukulinganisa nokumeda; Ukumadanisa nokuhlela umthamo weemumathini ngokusebenzisa iimeda ezingakahleleki isib. lingobho neenkomitji.	Lokha abafundi nasele bameda nanyana ngiyiphi iyunithi amahlandla ambalwa, bafanele balinganise umthamo/ivolumu ngokusebenzisa iyunithi leyo. Ukulinganisa ngaphambi kokumeda kuqakathekile, kodwana kungenziwa kwaphela lokha abafundi nabameda ngeyunithi leyo. Abafundi bafanele bafundiswe bonyana ukuze bamadanise amavolumu nofana imithamo, iyunithi efana patsi ifanele isetjenziswe. Isib.nangabe irhalasi Limimatha amathispuni ama-20 wamanzi begodu ikopi Limimatha iingobho zamanzi ezi-10, umuntu angekhe atjho bonyana irhalasi Limimatha amanzi amanengi. Abafundi bafanele bamede ngamayunithi angakahleleki ahlukahlukeneko, ukuze bakghone • ukuthoma ukuzwisisa bonyana iyunithi nayiyincani , izokusetjenziswa amahlandla amanengana, isib. ivolumu engebhodlelweni ingaba ziingobho ezi-20 kodwana lilingane nekopi li-1; begodu. • ukuthoma ukusebenzisa amayunithi afanele lokho abakumedako, isib. Ukumeda amalitha amabili wamabhodlelo azeleko ngethispuni kukumotjha isikhathi. **Ukurekhoda iimedo** Nanyana ukumeda kulikghono lokuzijayeza ukwenza, abafundi bafanele ukurekhoda iimedo zabo ngaso soke isikhathi. **Ukumeda umthamo njengobujamo bokurarulula imiraro neembalo** Ngesikhathi esibekelwe linomboro, ama-Opharetjhini noBudlelwana, abafundi bangararulula imiraro esebenzisa ubujamo bobungako / ivolumu besimedo ezingakahleleki, isibonelo, uGogo usebenzisa amakopi amabili webisi ukwenza iphudinghi. Nakabuyelela iresiphi kabili, uzokusebenzisa ibisi elingangani? Yelela irhelo leenomboro elifanako leThemu leyo, begodu nemihlobo yemiraro ehlukahlukeneko.	

IGREYIDI YOKU-1 ITHEMU YESI-4 5. UKUPHATHA IDATHA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
Ukusebenza ngebuthelelo lezinto				
5.1 Ukubuthelela nokuhlukanisa ngemihlobo kwezinto	**Ukubuthelela nokuhlela izinto ngemihlobo** Ukubuthelela nokuhlela izinto ngemihlobo eziphathekako ngamalanga		Ukuhlela ngemihlobo ibuthelelo lezinto akusese munqopho onqophileko engcenyeni yesibili yonyaka. Kodwana, inganikelwa njengemisetjhenzana engakavami ngesikhathi sokusebenza ngokuzijamela. Umnqopho ophakamisiweko eThemini–4 kusekufundeni nasekuhlaziyeni igrafu yeenthombe.	
5.2 Ukujamise-lela ibuthelelo lezinto elihlele-kileko	**Ukujamiselela ibuthelelo lezinto elihlelekileko** Ukugwala isithombe sezinto ezihleleke ngemihlobo			
5.3 Coca bewubike ngokuhlelwa kwezinto ezi-buthelelweko	**Coca bewubike ngokuhlelwa kwezinto ezibuthelelweko** • Nikela ngesizathu lobonyana ibuthelelo lihlelwe bunjani • Phendula imibuzo nge: - ukuhlukanisa ngemihlobo kwenziwe njani (indlela yekambiso) - ihlukaniso ngemihlobo libukeka bunjani (umkhiqizo) • Coca ngebuthelelo nemigwalo • Hlathulula bonyana ibuthelelo lihleleke bunjani			

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
UKUSEBENZA NGEDATHA				
5.4 Ukubuthelela nokuhlela idatha	**Ukubuthelela nokuhlela idatha** Buthelela idatha yetlasi nofana yesikolo ukuphendula imibuzo ebuzwa ngutitjhere			
5.5 Ukujamiselela idatha	**Jamiselela idatha** Ukujamiselela idatha gegrafi yeenthombe.			
5.6 Ukuhlaziya bewurhumutjhe idatha	**Hlaziya bewurhumutjhe idatha** Ukuphendula imibuzo ngedatha esegrafini yeenthombe	Hlaziya idatha kusuka ebujamelweni obunikelweko	Lokha abafundi balemuka umzombe wedatha epheleleko (okuphakamisiweko eThemini-3), banganqophisa ekuhlaziyeni iinjamiselelo abanikelwe zona. Kuphakanyisiwe bonyana eThemini–4 abafundi bahlaziye (ngokuphendula imibuzo) okungenani amagrafu ama–2 weenthombe.	Iimfundo ezi-2

3.5.2 ITLHADLHULO YOKUMUMETHWEKO EGREYIDINI YESI-2

IGREYIDI YESI-2 ITHEMU YOKU- 1 1. IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
UKUTHUTHUKISA INOMBORO MNQONDO: Bala ngeenomboro ezipheleleko				
1.1 Ukubala izinto	**Ukubala izinto eziphathekako** Linganisa begodu ubale ngokuthembeka izinto zangamalanga ukuya okungaseneni ema-200. Amaqhinga wokubuthelela ayakhuthazwa.	**Ukubala izinto eziphathekako** Bala ngokuthembeka izinto zangamalanga ukuya okungasenani i-100 Nikela isilinganiso senomboro yezinto ngokuzwakalako ezingahlolwa ngokubala	**Qala amanothi weGreyidi yoku-1, iThemu yesi-3 neye-4** EThemini yoku- 1 yeGreyidi 2 kuhlanganiswe umsebenzi owenziwe ngeThemu ye-4 yeGreyidi yoku-1 **Ukubala ngeenqhema** Umnqopho weThemu le usekubaleni uye phambili ngeenqhema. Lekelela abafundi ukubala iinomboro yezinto ngokubagqugquzela bonyana babeke izinto ngeenqhema zangakubili, ngakuhlanu nangalitjhumi. Amakarada weenomboro kufanele kutjengiswe kelinye nelinye ibuthelelo ukutjengisa inomboro yezinto ezibaliweko. Ukubala ngeenqhema kuzokulungiselela abafundi bonyana bazwisise ukubuyabuyelela. Abafundi kufanele banikelwe ithuba lokubona bonyana isiqhema se-100 singenziwa ngeendlela ezihlukneko. isibonelo • I-10 leenqhema zamatjhumi; • I-100 lezinto ezikhamba ngayinye nofana • Iinqhema ezi-2 zama-50. **Ukubala uye phambili** Abafundi basadinga ilemuko lokunikelwa ibuthelelo lezinto bese babala baye phambili ukusuka lapho. **Iinsetjenziswa:** Ukuyelela ngokutjheja kufanele kunikelwe imihlobo yeensetjenziswa ezisetjenziswako • Iinsetjenziswa ezihlelekileko, ezifana imilandelande yemincamo yokubala, zingasetjenziswa. • I –abhakhasi ingasetjenziselwa ukulungiselela ukubala ngeenqhema zangokulitjhumi. • Bangenza iinyanda zanga-2, iinyanda zanga-5 nangalitjhumi ngeenthoro zomlilo nofana iingojwana zokubala bese zibalwa sezizoke. • Imali yokudlalisa	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.1 Ukubala izinto	**Ukubala izinto eziphathekako** Linganisa begodu ubale ngokuthembeka izinto zangamalanga ukuya okungaseneni ema-200. Amaqhinga wokubuthelela ayakhuthazwa.	**Ukubala izinto eziphathekako** Bala ngokuthembeka izinto zangamalanga ukuya okungasenani i-100 Nikela isilinganiso senomboro yezinto ngokuzwakalako ezingahlolwa ngokubala	Abafundi nasele babone ama-apharathasi wokubala angakahleleki nofana ezingakabekwa ngeenqhema, bagqugquzele bonyana babeke izinto ngeenqhema nebabalako. Abafundi kudingeka benze ukuhlangana phakathi kwama odinali namakhadinali nebabalako. Lokhu kuphumelela lokha abafundi babona bonyana nawujamisa ukubala uye phambili afike entweni ya-50. Ekupheleni kweThemu abafundi bafanele bakghone uku: • bala izinto abangazithinta nofana baziphathe; • bala izinto zokubala ngeenqhema zangakuhlanu nangalitjhumi; begodu • hlela kabutjha izinto zokubala begodu abuyelele azibale. Abafundi bafanele bakghone ukuphendula imibuzo.”Usese nenani lezinto zokubala ezilinganako?” **Imisetjenzana iragela phambili** Abafundi kufanele bakghone ukuphendula imihlobo yeenlayelo nemibuzo elandelako: • Nazi izinto zokubala ezili-100. Zibale ngokuzibuthelela ngeenqhema ezimatjhumi. Manjesi zihlole ngokuzibala ngakunye. Ngaphambi kokubana uthome, uqabanga bonyana isamba sisazokufana? • Ukubala zoke izinto zokubala ezi-100, uzokunyula ukubala ngeenqhema zama-20 nofana ngama-25? Kungani? • Thatha isiqunto bonyana kungaba ngiyiphi indlela engcono yokubala iimpensela ezibuthelelweko. • Lapha kune zinto zokubala ezi-80. Nasingazibala ngazimbili nofana ngamatjhumi, isamba sezinto zokubala zisazokulingana. • Bala izinto zokubala ezima-46 ngokuzibeka ngeenqhema zangazimbili.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.2 Ukubala uye phambili nemuva	Ukubala uye phambili nemuva nga: • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 na-200 • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 na -200 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 na-200 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne -0 na-200 • Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne -0 na-200 • Ku-4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne -0 na-200	Ukubala uye phambili nemuva nga: • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 na-100 • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 na -100 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 na-100 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne-0 na-100.	IThemu yoku- 1 yeGreyidi yesi- 2 umsebenzi ohlanganisiweko owenziwe ngeThemu yesi-4 eGreyidini yoku- 1. Ukubala ngokweqa kuzokuhlala kulikghono eliqakathekileko elizokulekelela abafundi nebabalako. Ukwenza umlolozelo ngeenomboro ngokulandelana kusese likghono eliqakathekileko elithlogekako. Ukubala kufanele kuragele phambili ukwenza ingcenye yepilo yangamalanga yomfundi nangokunjalo nangemidunduzelo iingoma neendatjana kufanele kube yingcenye yelemuko lokubala. EGreyidini yoku-1 abafundi bathuthukise iminqopho elandelako ephathelene nokubala: • Umnqopho wokonga • Umthetho wekhadinali – ukutjho ibuthelelo • Ukulinganisa patsi • Ukumadanisa kunye-nakunye okukhambelanako **Ukubala ngokweqa** Ukubala ngokweqa kungelinye igama elitjho ukubala ngeenqhema kuyasiza ukuthuthukisa ilemuko lamaphetheni weenomboro. Ukubala ngokweqa kugqugquzela abafundi ukubala nokucabanga ngeenqhema, okubenza babe nekghono. Lokho nacho kubasiza bonyana bathuthukise amakghono wabo wokulinganisa. Ukubala ngeenqhema kubenza balemuke ubudlelwano obuphakathi kweenomboro ezingalandelani kuhle. Iba sisandlalelo sephetheni yeenomboro nokubuyabuyelela Abafundi kufanele baragele phambili nokusekelwa ngemifanekiso ukulekelela ukubala ngokweqa: **Isibonelo** 2 4 6 8 10 12 14 16 18 20 22 24 26 8 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90 92 94 96 98 100	

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1.2 Ukubala uye phambili nemuva	Ukubala uye phambili nemuva nga: • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 na-200 • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 na -200 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 na-200 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne -0 na-200 • Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne -0 na-200 • Ku-4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne -0 na-200	Ukubala uye phambili nemuva nga: • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 na-100 • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 na -100 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 na-100 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne-0 na-100.	**Imisetjenzana iragela phambili :** Ukubala uye phambili nemuva ukufika e-100 kusetjhenziswa itjhadi le-100 elikhulu: (5-7 yemizuzu ngelanga). Thoma ukubala NETLASI LOKE, jama kenye yeenoboro isib. 24. Abafundi bayadlhegana ngokubala baragele phambili kusukela enomborweni leyo bakwenze ngeenqhema/ ngababili/ ngamunye ngamunye njengokulayelwa ngutitjhere, kutlolwe inomboro lapho bagcina khona. Buza imibuzo efana nokuthi ngiyiphi iphetheni oyibonako? Igcina kuphi iphetheni yokuthoma (isibonelo: iphetheni yokubala ngaku 2: 2; 4; 6; 8; 10) Ekhupheleni kweThemu abafundi bafanele bakghone uku: Bala ngomlomo baphimisele bebaphendule imibuzo efana nokuthi: • Thoma ema-52, bala uye phambili ngakunye ukufika ema-75 • Thoma ema-88 ubale uye emuva ngakunye ukufika ema-70 • Thoma ema-38 ubale ngakubili ukufika ema-50 • Thoma ema-45 ubale ngakuhlanu ukufika e-100 • Thoma e-10 ubale ngalitjhumi ukufika e-100 Abafundi bafanele ukusebenzisa amakghono wabo wokubala emisetjenzaneni etloliweko. Isibonelo, emisetjenzaneni yokuzijamela, bangaqedelela ukulandelana kweenomboro: Abafundi bakopa bebandise ukulandelana kweenomboro okuhlukeneko. **Isibonelo** 76; 75; 74; __; 72; __; __; __; 68 (ubuyele emuva ngakunye) 27; 28; 29; __; __; 32; __ (uye phambili ngakunye). 8; 10; __; 14, __ (ngakubili nofana inomboro-lingana) 5; 10, 15, 20; 25; ___ (ngakuhlanu) 90; __; 70 60; __ (ukubala ubuyele emuva ngalitjhumi). 10, 20, 30, 40, ___, 60, 70, ___ (ukubala ubuyele emuva ngalitjhumi).	

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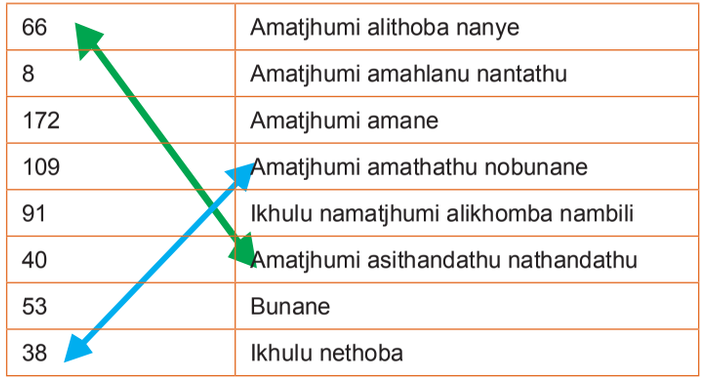
1.3 Amat-shwayo weenom-boro namagama weenom-boro	**Ukukhumbula, ukubona nokufunda iinomboro** • Ukukhumbula, ukubona nokufunda amatshwayo weenomboro ukusukela e-0 ukufika kuma-200 • Ukutlola amatshwayo weenomboro ukusuka e-0 ukufika ma-200 • Ukwazi nokufunda amabizo wenomboro ukusuka e-0 ukufika e-100 • Utlola amagama wenomboro ukusukela e-0 ukufika e-100	**Ukukhumbula, ukubona nokufunda iinomboro** • Ukukhumbula, ukubona nokufunda amatshway wenomboro ukusukela e-0 ukufika e-100 • Ukutlola amatshwayo weenomboro ukusuka e-0 ukufika e-100 • Ukwazi nokufunda amabizo wenomboro kusuka e-0 ukufika ema-25 • Utlola amagama wenomboro kusukela e-0 ukufika ema- 25	NgeThemu le abafundi baragela phambili ngoku: • funda nokutlola amatshwayo wenomboro ukufika e-100, begodu • funda nokutlola amagama wenomboro ukufika ema-25 Ekupheleni kweThemu abafundi kufanele bakghone uku: • tlola itshwayo lenomboro legama lenomboro ethuliweko: • Itjhumi nekhomba Amatjhumi amabili nantathu  Fundela phezulu iinomboro ezisekaradeni ngalinye: **83** **47**	

66	Amatjhumi alithoba nanye
8	Amatjhumi amahlanu nantathu
172	Amatjhumi amane
109	Amatjhumi amathathu nobunane
91	Ikhulu namatjhumi alikhomba nambili
40	Amatjhumi asithandathu nathandathu
53	Bunane
38	Ikhulu nethoba

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1.4 Ukuhlathu-lula, uku-madanisa, nokuhlela iinomboro	**Ukumadanisa nokuhlela iinomboro kufika ema- 99** • Ukuhlela iinomboro ezipheleleko. Ukufika ema-99 kusukela kencani khulu ukuya kwekulu khulu begodu nakusukela kekulu khulu ukuya kwencani khulu • Ukumadanisa iinomboro ezipheleleko kufika ema- 99 usebenzise okuncani kuna, okukhulu kuna, okunengi kuna, okuncani kuna, okulingana na. **Sebenzisa iinomborosikhundla ukutjengisa ukuhlela, iindawo nofana ubujamo** Beka izinto emudeni ngokulandelana ukusuka kweyokuthoma ukuya kweyetjhumi nofana keyokuthoma ukuya keyokugcina, Isib. Yokuthoma, yesibili, yesithathu.... ematjhumini amabili.	**Ukumadanisa nokuhlela iinomboro kufika ema- 25** • Ukuhlela iinomboro ezipheleleko. Kusukela kencani khulu kufikela kekulu khulu begodu kusukela kekulu khulu kuya kencani khulu • Ukumadanisa iinomboro ngokusebenzisa ngokunengi khulu, ngokuncani khulu, okunengi kuna, okuncani kuna, okulinganako. **Sebenzisa iinomborosikhundla ukutjengisa ukuhlela, iindawo nofana ubujamo** Beka izinto emudeni ngokulandelana ukusuka kweyokuthoma ukuya kweyetjhumi nofana keyokuthoma ukuya keyokugcina, Isib. Yokuthoma, yesibili, yesithathu ... keyetjhumi.	Irherho leenomboro lokuhlela nokumadanisa limetjha irherho leenomboro lokubala. Lokhu kutjho bonyana ukuze ubale ufike ema-99, umqondo weenomboro wabafundi kufanele uthuthukise kuhle ukuze afike esisombululweni. Lokha abafundi bangahlela bamadanise ngokuzithemba ngaphezulu kwemfuneko lokho kungangezelea inomboro nokuzwisisa amatswayo wembalo Abafundi kufanele baragele phambili nokusebenzisa ilimi lokuhlela nokumadanisa: • Wokuthoma, wesibili, wesithathu, wesine, wesihlanu, wesithandathu..... • Zingaki..... • Ngokunengi ngange, inomboro elinga na..... • Ilingana na, okunengi kuna, engaphasi kune, ezimbalwa kune, okukhulu kuna, okuncani kuna ...banzi kuna… • Kokuthoma, kokugcina, ngaphambili, ngemuva, okulandelako, hlangana na.... Ngokuhlela nokumadanisa izinto neenomboro abafundi bafunda bonyana: • ubujamo benomboro eyikhadinali busetjhenziswe ukuhlathulula inomboro ese-setheni; • ubujamo benomboro eyi-odinali itjho inomboro ehlobana nendawo yayo esethini. Isibonelo faka umbala osarulana esekeleni yesithathu **Imisetjhenzana eragela phambili** • Iinomboro eziyi odinali: Coca ngomahluko ophakathi kwamagama ‘kunye’ noko’kuthoma’; ‘kubili’ no ‘kwesibili’ njll. Ukubuza imibuzo efana nokuthi: ungawasebenzisa nini amagama ‘kuthathu nokwesithathu?’ singatlola u-kokuthoma, kwesibili, kwesithathu ngendlela erhunyeziweko? • Hlukanisa abafundi babe ziinqhema ezintathu ukuya kezine ngokulinganako. Omunye nomunye umfundi uthola ikarada lapho azokutlola khona igama lakhe. Abafundi bazokubeka amakarada wamagama ngokulandelana kwama alfabethi. Utitjhere nabafundi bangathoma babuze imibuzo, Isib. ngubani wesine esiqhemeni senu?	

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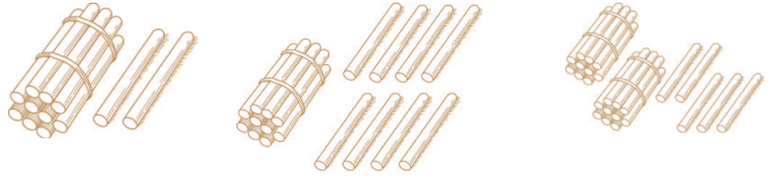
1.5 Ubukhulu bedijithi	**Ukulemuka ubukhulu bedijithi okungenani iinomboro zamadijithi ama-2 ukufika ema-99** • Ukwazi bonyana idijithi ngayinye ijameleni • Ukuphula iinomboro zamadijithi amabili ukufika e-99 zibe ziimbuyeleli zetjhumi nemivo (TM) • Bona bewutjho ubukhulu bedijithi ngayinye	**Thoma ukulemuka ubukhulu bedijithi okungenani iinomboro zamadijithi ama-2 ukufika ema-25** • Ukwazi bonyana idijithi ngayinye ijameleni • Ukuphula iinomboro zamadijithi amabili zibe ziimbuyeleli zetjhumi nemivo (TM) • Bona bewutjho ubukhulu bedijithi ngayinye	**Kuyini okuhlukileko kune Greyidi yoku-1?** EThemeni yoku-1, abafundi basebenza ngerherho leenomboro eziphezulu bebaragele phambili noku: • bala begodu benze iinqhema zatjhumi nezitjhaphulukileko zangakunye; begodu • tlola i-18 = 1 itjhumi nemivo e-8 13 = 10 na 3. NgeThemu le abafundi bafanele baragele phambili ukuzibandakanya emalemukweni amanengi ukuthoma itjhumi libesilinganiso begodu libe liyunithi. Itjhumi liyitjhumi elilodwa eLimimethe imivo elitjhumi. Amagama ajayelekileko 'itjhumi nokukodwa' (ama-24 ku-2 yeenqhema nofana ku-2 yamatjhumi na-4 yokukodwa) kufanele asetjenziswe njalonjalo ukuthoma ilimi elitshwaya ukuphula nokwakha. **Ukusebenza ngama-apharethasi aphathekako** • **Ukubala ngeengojwana/iinthoro zomlilo** Ukubala iingojwana nofana iinthoro zomlilo zingabuthelelwa ukutjengisa iinyanda zangalitjhumi nezingakahlangani ezingazinye. **Isibonelo:** **Ukutjengisa 12** **Ukutjengisa 18** **Ukutjengisa 25**  • **I-Abhakhasi** Abafundi bafanele baragele phambili nokusebenzisa ama-apharathasi aphathekako ngokubuthelela benze itjhumi lokukodwa nokuzwisisa bonyana i-10 lisiqhema sinye lezinto ezilitjhumi ezingakunye. Ngokusebenzisa i-abhakhasi, abafundi bafanele bakghone ukutjengisa: • Itjhumi linye; • Itjhumi linye nemivo e-5; • Itjhumi linye nemivo e-6; • Itjhumi linye nemivo e-7; • Itjhumi linye nemivo e-8; begodu • Itjhumi linye nemivo e-9	

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1.5 Ubukhulu bedijithi	**Ukulemuka ubukhulu bedijithi okungenani iinomboro zamadijithi ama-2 ukufika ema-99** • Ukwazi bonyana idijithi ngayinye ijameleni • Ukuphula iinomboro zamadijithi amabili ukufika e-99 zibe ziimbuyeleli zetjhumi nemivo (TM) • Bona bewutjho ubukhulu bedijithi ngayinye	**Thoma ukulemuka ubukhulu bedijithi okungenani iinomboro zamadijithi ama-2 ukufika ema-25** • Ukwazi bonyana idijithi ngayinye ijameleni • Ukuphula iinomboro zamadijithi amabili zibe ziimbuyeleli zetjhumi nemivo (TM) • Bona bewutjho ubukhulu bedijithi ngayinye	• **Amabhlogo weDienes** Ngethemeni le iinsetjenziswa zokufundisa ubukhulu bedijithi bungakhuliswa. Amabhlogo wesisekelo se-10 (kuyincenye yamabhlogo weDienes) angathulwa ukuthuthukisa umqondo wesumi njengelinye eliphelelekho begodu bonyana: - abokunye abali-10 benza itjhumi li-1; - abokunye abama-20 benza amatjhumi ama-2; begodu - abokunye abali-16 benza itjhumi eli-1 nnemivo esi-6 Nanyana abafundi basadinga ukubala nokubuthelela ngalitjhumi, bangatjengisa i-18 ngokubeka isitina sinye sangalitjhumi ndawonye abeke iintinyana ezibunane ezihlukeneko ukutjengisa inomboro. Abafundi bafanele begodu babuthelele ukutjengisa ama-20 **Ukujamisela okulinganako** NgeThemu leli umnqopho kubonisa ukujamiselela okulinganako lwenomboro efanako. Amatjhumi amabili kufanele ahlathululwe njengamatjhumi ama-2 (kusetjenziswa iinyanda nofana iinqhema zezinto) Nofana inqhema ezi-2 zamatjhumi. Kuqakathekile bonyana utjhengise abafundi bonyana ama-20 wezinto ezikhamba ngayinye, isiqhema sinye esinetjhumi begodu neenqhema ezimbili zakalitjhumi. Abafundi bafanele banikelwe ithuba lokuhlathulula amalungiselelo, batjho bonyana ngokuphi okuhlukileko nokuthi ngikuphi okufanako. • **Amakarada wobukhulu bedijithi/ amakarada wamafladi** Amakarada wobukhulu beditjhithi angaziswa abe asetjenziswe ngeThemu leli ukutjengisa bonyana iinomboro ziyakhiwa. Amakarada wobukhulu bedijithi angatjengiswa akhambisane neenyanda nofana iinqhema zezinto. • **Ubungakho bedijithi** Abafundi bafanele bathome batjho bonyana idijithi ngalinye lijamele ini? Buza abafundi: - uli-7 ujamele liphi idigithi enomborweni ama-27? - uku-2 ujamele yiphi idijithi enomborweni ama-29? Abafundi bafanele basebenzise amakarada wobungako bedijithi ukuqinisekisa iintatimende zabo. • **Ukudlulela emathekistini atloliweko** Ngesikhathi sokuzijamela abafundi bafanele babandakanywe emisetjenzaneni etlolwako eyakhako nehlanganisako: - Umqondo weenqhema zangalitjhumi nalezo ezihlukeneko zangakunye/imivo; begodu - Nobukhulu bedijithi	

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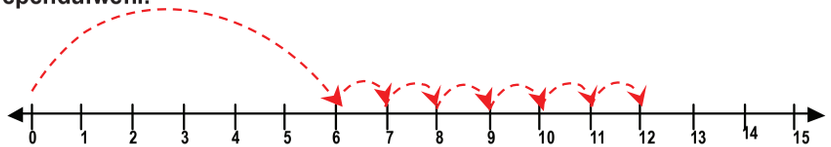
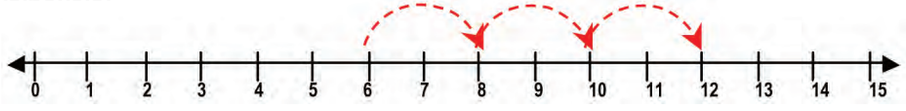
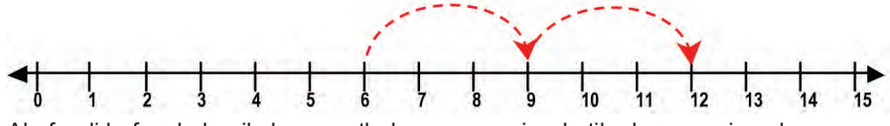
1.5 Ubukhulu bedijithi	**Ukulemuka ubukhulu bedijithi okungenani iinomboro zamadijithi ama-2 ukufika ema-99** • Ukwazi bonyana idijithi ngayinye ijameleni • Ukuphula iinomboro zamadijithi amabili ukufika e-99 zibe ziimbuyeleli zetjhumi nemivo (TM) • Bona bewutjho ubukhulu bedijithi ngayinye	**Thoma ukulemuka ubukhulu bedijithi okungenani iinomboro zamadijithi ama-2 ukufika ema-25** • Ukwazi bonyana idijithi ngayinye ijameleni • Ukuphula iinomboro zamadijithi amabili zibe ziimbuyeleli zetjhumi nemivo (TM) • Bona bewutjho ubukhulu bedijithi ngayinye	**Isibonelo:** Faka umbala emincameni eli-12 Faka umbala emincameni eli-16 Zaliselela ngenomboro engekho (lokhu kungenziwa nofana kuhlathululwe ngokusebenzisa ama-apharathasi aphathekako i-18 = netjhumi li-1 nemivo ebu ____ ama-23 = namatjhumi ama_____ nemivo emi-3 **Iinsetjenziswa eziphakanyisiweko** Izinto ezingabuthelelwa: • Iingojwana zokubala • Izinto zokubala ezingathungelelwa • Iinthoro zomlilo • Iingojwana ze-ayisikhrimu • Amakhyubsi angenelanako	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.6 Amathek-hiniki wok-ururalula imiraro	Sebenzisa amathekhiniki alandelako nawurarulula imiraro uhlathulule neensombululo zemiraro: • Imigwalonofana ama-apharathasi aphathekako isib. izinto zokubala • Ukwakha nokuphula iinomboro • Ukubuyelela nokuhafula phakathi • Amanambalayini	Sebenzisa amathekhiniki alandelako nawurarulula imiraro uhlathulule neensombululo zemiraro: • Imigwalo nofana ama-apharathasi aphathekako isib. izinto zokubala • Ukwakha nokuphula iinomboro • Ukubuyelela nokuhafula phakathi • Amanambalayini	Abafundi balindeleke bonyana basombulule imiraro yamagama ngokusebenzisa amathekhiniki alandelako: • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuquntula phakathi • Amanambalayini **Imigwalo nofana ama-apharathasi aphathekako** Abafundi bazokuragela phambili nokugwala iinthombe begodu basebenzise ama-apharathasi aphathekako ukusombulula imiraro. Kuqakathekile bonyana iinthombe nofana imigwalo kumumethe iinomboro begodu nemitjho yeenomboro. **Ukwakha nokuphula** Le ngenye yamathekhiniki aqakatheke khulu esigabeni sisekelo. Ukusebenzisa ithekhniki le kuvumela abafundi ukuhlukanisa nokuhlanganisa iinomboro ukulekelela ukwenza ukubalisa kube lula. Bazokusebenzisa ithekhniki le ngobubanzi nesigabeni esiphakathi. **Ukubuyelela kabili nokuhafula phakathi** Ithekhniki le inelwazi lezinto zephasi begodu ifuna umqondo weenomboro eqinileko. Abafundi abakghona ukukhetha ithekhniki le batjhuguluka lula emaqhingeni abawasebenzisako. Isibonelo: Umraro wamagama: ngelinye ilanga ekliniki abantwana abali-17 bahlatjwa injekhtjheni yomgomani. Ngelanga elilandelako abanye abali-16 nabo bahlatjwa injekhtjheni yomgomani. Abafundi abangaki abahlatjwe injekhtjheni nesele baboke? Umraro kufanele usombululwe ngokusebenzisa ukubuyelela kabili. Umfundi angahle athi buyelela kabili i-16 hlanganisa nanye nofana kubuyelele kabili i-17 ukhuphe yinye. **Amanambalayini** Ukusebenzisa inambalayini ngokulandelana kungavumela abafundi ukurhekhoda ukucabanga kwabo nokulandelela umtlala wayo. Begodu ivumela abafundi bonyana babe nomfanekiso wokurhekoda abangawusebenzisa ukuhlathulula bonyana bawusombulule bunjani umraro. Abafundi bathome ukusebenza ngenambalayini eGreyidini yo-1. Kwanje sekufanele bakghone ukwakha inambalayini enganalitho lapho bazokufaka khona inomboro yokuthoma begodu bakhetha bonyana bangasuka bunjani enomborweni enye ayekenye. NgeThemu le kuzokuba neraagelo phambili esakhiweni senambalayini. Isibonelo sokusebenzisa inambalayini ukurekhoda amathekhiniki wokubala: UZonke unamathoyi asi-6, uZanele unamanengi nga-6 kunoZonke. UZanele unamathoyi amanengi ngamangakhi? Abafundi bazokwakha inambalayini elandelako ukubasiza bonyana bafike bunjani **ependulweni.**  Abafundi bangaphula i-6 ibe ziinqhema ezimbili. Inambalayini izokutjengisa imeqo yanga-2 kusuka esi-6.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.6 Amathek-hiniki wok-ururalula imiraro	Sebenzisa amathekhiniki alandelako nawurarulula imiraro uhlathulule neensombululo zemiraro: • Imigwalonofana ama-apharathasi aphathekako isib. izinto zokubala • Ukwakha nokuphula iinomboro • Ukubuyelela nokuhafula phakathi • Amanambalayini	Sebenzisa amathekhiniki alandelako nawurarulula imiraro uhlathulule neensombululo zemiraro: • Imigwalo nofana ama-apharathasi aphathekako isib. izinto zokubala • Ukwakha nokuphula iinomboro • Ukubuyelela nokuhafula phakathi • Amanambalayini	**Isibonelo:** Abafundi nasele bazithemba ngokubala baye phambili kusukela enomborweni enikelweko. Inambalayini ithome esi-6. Ngendlela inambalayini le yakhiwe ngayo imetjha umqondo wokubala uye phambili. Kubalulekile bonyana abafundi babone Amanambalayini ezithoma eenomborweni ezihlukeneko nawuyisebenzisela ukubala uye phambili nofana ukuhlela iinomboro. Omunye angaphula isi-6 sibe zinqhema za-2 begodu uhlanganise uye phambii ukusuka esi-6. **Isibonelo:**  U-12 angahafulwa begodu imeqo emi-3 yanga ku-2 iyarekhodwa. **Isibonelo:**  Abafundi bafanele banikelwe amathuba amanengi wokutjho bonyana inomboro ingatholakala bunjani nawusebenzisa inambalayini. Omunye angabuza: mimeqo enjani ehlukeneko esingayenza ukufika ku-15? Ukuze weqe ukuya eenomborweni abafundi bafanele bazi amabhondi ka-15 nofana bafanele bakwazi ukusenzisa inambalayini ukuze bathole ipendulo. Kuqakathekile bonyana abafundi bakhulume ngokuthi kufanele ube mude kangangani umeqo loyo. Ukuzijayeza imihlobo le yemisebenzi ulungiselela abafundi bonyana bakwazi ukusebenza ngomuda onganazo iinomboro. Nawusebenza ngenambalayini, abanye abafundi badinga ukubamba intambo enemincamo ibe ngaphezulu nofana ngaphasi kwenambalayini ukubasiza bonyana babale. Vumela abafundi bonyana bakhethe amathekhiniki abazizwa batjhaphulukileko nabawasebenzisako. Ngokunjalo, nangabe abafundi basebenzisa amathekhiniki layo abazizwa banganakghono kiwo, badinga bonyana balulekwe bonyana basebenzise leyo abayikghonako. Abafundi bazijayeza amaqhinga layo. Akutlogeki bonyana babe butjhelela ekuwasebenziseni. Yelela bonyana abafundi kanengi basebenzisa iindlela ezihlukeneko zokusombulula umraro okungenzeka bonyana akusikho obekulindelwe ngutitjhere. Isibonelo, umraro wokuhlukanisa ungasombululwa ngokukhipha okubuyelelwe kabili. Iindlela zokwenza zabafundi kuzokutjhugulula ngokukhamba konyaka njengombana ukuzwisa nokujayela imihlobo yemiraro isiya ngokukhula begodu nomqondonomboro wabo uthuthuka	

<table>
<tr><th>IINHLOKO</th><th>IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA</th><th>IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1</th><th>AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA</th><th>UBUDE BESIKHATHI
(eemfundweni ze-iri -1 begodu namaminithi ama -24)</th></tr>
<tr><td>1.7
Ukuh-langanisa nokukhupha</td><td>Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-99.</td><td>Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-20.</td><td>
Ngikuphi okuhlukileko kuneGreyidini yoku-1?
NgeThemu leli abafundi bazijayeza ukwenza imiraro yamagama bebasebenzela ukuba babantu abazithembako ekusebenziseni amathekhiniki alandelako nabasombulula imiraro:
• Ukugwala nofana ama-apharathasi aphathekako
• Ukwakha nokuphula
• Ukubuyelela kabili nokuhafula
• Amanambalayini
Ethemini leli, nikela abafundi irhelebho elinengi emizameni yabo yokurekhoda nokujamiselela ukubala kwabo. Abafundi bafanele batlole phasi ukulandelana kweenomboro njengerekhodi lokusombulula imiraro. Kuqakathekile ukuqala bonyana ngibaphi abafundi abatlagako ukutlola umutjho wenomboro ukuthola umraro othile.
<table>
<tr><th colspan="3">Ihlobo lomraro 1: Itjhentjhi</th></tr>
<tr><th></th><th>Hlanganyela</th><th>Hlukanisa</th></tr>
<tr><td>Umphumela awaziwa</td><td>UMoeketsi unamaswidi asi-6, uMahlodi umnikela amanye amane ngaphezulu. UMoeketsi unamaswidi amangaki nasele awoke?</td><td>Kunaswidi ali-15. UMoeketsie udla asi- 6. Kusele mangaki wakaMahlodi?</td></tr>
<tr><td>Itjhentjhi ayaziwa</td><td>UMoeketsi unamaswidi asi-6, utloga amaswidi amangaki ngaphezu kwala ukuze abe namaswidi ali-15?</td><td>Moeketsi unamaswidi ali-15. UMahlodi udla ambadlwana. Kusele ali-9. UMahlodi udle amaswidi amangaki?</td></tr>
<tr><td>Ukuthoma akwaziwa</td><td>UMoeketsi unamaswidi ambadlwana. UMahlodi umnikela ali-9 ngaphezulu. UMoeketsi uthome anamaswidi amangaki?</td><td>UMoeketsi udle amaswidi. Unikela uMahlodi asi-6 kwanjesi usele namaswidi abu-8. Uthome anamaswidi amangaki?</td></tr>
</table>
<table>
<tr><th colspan="3">Ihlobo lomraro 2: Ukumadanisa</th></tr>
<tr><th></th><th>Hlanganyela</th><th>Hlukanisa</th></tr>
<tr><td>Umphumela awaziwa</td><td>UMoeketsi unamaswidi asi-6.</td><td>UMahlodi unamaswidi -15.</td></tr>
<tr><td>Itjhentjhi ayaziwa</td><td>UMahlodi unamaswidi ali-9. UMahlodi unamaswidi amanengi ngamgaki kuno Moeketsi?</td><td>UMahlodi unamaswidi asi-6. Unamaswidi ali-9 angaphasi kunowaka Moeketsi. UMahlodi unamaswidi amangaki?</td></tr>
<tr><td>Ukuthoma akwaziwa</td><td>UMahlodi unamaswidi -15. Unamaswidi amanengi nga-9 kuno Moeketsi. UMoeketsi unamaswidi amangaki?</td><td>UMahlodi unamaswidi a 16. UMoeketsi unamaswidi angaphasi nga-9 kuno Mahlodi. UMahlodi unamaswidi amangaki?</td></tr>
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<table>
<tr><th>IINHLOKO</th><th>IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA</th><th>IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1</th><th>AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA</th><th>UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)</th></tr>
<tr><td>1.7
Ukuh-langanisa nokukhupha</td><td>Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-99.</td><td>Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-20.</td><td>
<table>
<tr><th colspan="3">Ihlobo lomraro 3: Ukulinganisa</th></tr>
<tr><th></th><th>Hlanganyela</th><th>okuhlukanisiweko</th></tr>
<tr><td>Umphumela awaziwa</td><td>UMahlodi unamaswidi ali-15. UMoeketsi unamaswidi asi-6. Kudingeka amaswidi amangaki okufanele uMoeketsi awathole ukuze abe nalingana newaka Mahlodi?</td><td>UMahlodi unamaswidi ali-16. UMoeketsi unamaswidi asi-6. Kufanele uMoeketsi adle amaswidi amangaki ukuze abe namaswidi alingana newaka Moeketsi?</td></tr>
<tr><td>Itjhentjhi ayaziwa</td><td>UMoeketsi unamaswidi asi-6. Nakangathenga amanye ali -9 uzokuba namswidi alingana newaka Mahlodi. UMahlodi unamaswidi amangaki?</td><td>UMoeketsi unamaswidi asi-6. Nangabe uMahlodi angadla amaswidi ali-9 azokulingana namaswidi kaMoeketsi. UMoeketsi unamaswidi amangaki?</td></tr>
<tr><td>Ukuthoma akwaziwa</td><td>UMahlodi unamaswidi ali-15. Nange Moeketsi angathenga amanye amaswidi asi-9 angaba namaswidi alingana newaka Mahlodi. UMoeketsi unamaswidi amangaki?</td><td>UMahlodi unamaswidi ali-16. Nangakhe adle amaswidi ali-9 angaba namaswidi alingana newaka Moeketsi. UMoeketsi unamaswidi amangaki?</td></tr>
</table>
</td><td>`</td></tr>
<tr><td>1.8
Ukuh-langanisa okubuyele-lweko kurholela ekubuy-abuyeleleni</td><td>Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukuhlanganisa okubuyelelweko okurholela ekubuyabuyeleleni okunempendulo ufikela e-50.</td><td>Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukuhlanganisa okubuyelelweko okurholela ekubuyabuyeleleni okunempendulo ufikela e-20.</td><td>Ukubuyabuyelela
Isendlalelo sokuzwisisa ukubuyabuyelela eGreyidini le kungeenqhema. Ukwenza iinqhema kungasiza abafundi ebujameni bokujamiselela ukubuyabuyelela.
Kuneengaba ezintathu eziqakathekileko zobujamo bemiraro obufaka hlangana ukubuyabuyelela kweenomboro ezipheleleko :
• Iinqhema ezilinganako (isib. Amathebula kathathu, elinye nelinye linabantwana abathatho) layo ajanyiselelwe njengamasthi abuyelelweko.
• Ukubuyabuyelela kokumadanisa (isib. inani labendazana libuyabuyelela kathathu ukudlula labesana)
• Ukurhemisa aboncamane (isib. Amareyi amane wabantwana abane): okujanyiselelwe njengamareyi namakholomu.
Obunye nobunye ubujamo bungafaniswa neendlela ethile yokubuza umbuzo (bona iumhlobo wokusombulula imiraro eseGreyidini yesi-2 wesahluko sesi-2)
Ubujamo bemiraro bokubuyabuyelela kufaka hlangana iinomboro ezintathu ezilandelanako ebedlelwaneni beembalo:
• Ubunengi bezinto esedini ngayinye
• Ubunengi bamasethi
• Isamba</td><td></td></tr>
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IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.8 Ukuh-langanisa okubuyele-lweko kurholela ekubuy-abuyeleleni	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukuhlanganisa okubuyelelweko okurholela ekubuyabuyeleleni okunempendulo ufikela e-50.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukuhlanganisa okubuyelelweko okurholela ekubuyabuyeleleni okunempendulo ufikela e-20.	**Iimbonelo zemiraro ezingenziwa ngeThemu le** Kulindelekile bonyana ngesikhathi kurarululwa imiraro elandelako, abafundi bazokusebenzisa iinthombe, imigwalo nofana ama-apharathasi aphathekako ukulekelela ukubala. Nangabe abafundi bagwala iinthombe ezibalekelela ukubala, imigwalo ifanele itjengise isimo sokubuthelela. Abafundi bafanele bagqugquzelwe ukutlola imitjho yeenomboro yayoyoke imiraro yamagama. Lindela abafundi bonyana basebenzise ukuhlanganisa okubuyelelwe kabili komutjho weenomboro ukubonisa isisombululo. **Iimbonelo zemiraro ezingenziwa:** **Ukuhlanganisa okubuyelelwako** • Imilelenjana emine inamavili amangaki? • Abafundi abali-7 banamehlo amangaki? Abafundi bangahle basombulule umraro ngendlela elandelako: Iinthombe nofana imigwalo kufanele zitjengise ukuhlela abantu/ izinto ngeenqhema Abafundi kufanele bagqugquzelwe ukubala ngaku-2 ukuze bathole ipendulo. Bafanele godu bagqugquzelwe bonyana bajamiselele ukubala kwabo ngemitjho yeenomboro. **2 + 2 + 2 + 2 + 2 + 2 + 2 = 14** **Isilinganiso** UThami usela iinkomitji zebisi ezi-3 ngamalanga. Usela iinkomitji ezingaki zebisi ngeveke? **AmaGridi nofana ukurhemisa** UMnumzana uKhumalo utjale amareyi ama-3 wekhabitjhi. Kuneetjalo zekhabitjhi ezi-5 ereyini. Kuneentjalo ezingaki zamakhabitjhi nasele zizoke? • Isivande somrorho sinamareyi ama-5 weentjalo elinye nelinye ireyi lineentjalo ezilinganako. Nange kunesamba seentjalo esi-15, ziintjalo ezingaki ezisereyini ngayinye? • Isivande semirorho sineentjalo ezi-18 ezitjalwe ereyini. Kuneentjalo ezi-6 ereyini ngayinye. Mangaki amareyi akhona sewawoke?	

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1.9 Ukubuthele-la nok-wabelana okurholela ekuhlu-kaniseni	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqema kweenomboro eziphelelekо ukufika e-50 kanye nempendulo ezingahle zifaka iinsalela	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqema kweenomboro eziphelelekо ukufika e-20 kanye nempendulo ezingahle zifaka iinsalela	Njengekubuyabuyeleni, isisekelo sokuzwisisa ukuhlukanisa eGreyidini leli, kukwaba ngokulingana nokubuthelela ngeenqhema. • Ukubuthelela (isib. kunabantwana abalitjhumi nambili, etafuleni ngayinye kunabantwana abane, kunamatafula amangaki?) • Ukwabelana (isib. Abantwana abalitjhumi nambili abangematafuleni amane, kunabantwana abangaki etafuleni ngayinye?) Abanye abafundi bafika esikolweni bakghona ukwenza imiraro yokubuthelela nokwabelana ngokusebenzisa ama-apharathasi aphathekako.Ubujamo bemiraro yokubuyabuyelela nokuhlukanisa ifaka hlangana iinomboro ezintathu ezilandelanako ezisebudlelwaneni obuseembalweni: • Ubunengi bezinto obusesedini ngayinye • Ubunengi bamasedini • Isamba **Iimbonelo zemiraro ezingenziwa ngeThemu leli.** **Ukwabelana** • Ngineempensela ezi-12 okufanele nginabele zona nobathathu ngokulinganako, ziimpensela ezingaki ezizokutholwa ngomunye nomunye wenu? • Kuneenkoloyi zokudlala ezi-18, ningazabelana ngokulingana phakathi kwenu nobabili? • Kunamapremu ali-16 nabantwana aba-8 babele ngokulingana, umntwana ngamunye uzokuthola amapremu amangaki? • UPopana unamathuthumbo ama-20 uwafaka ngemavasini ama-2. Kungene amathuthumbo amangaki evasini? • UTomi ubhaga amakhekhe a-8. Unamasimathisi ali-40. Angafaka amasimathisi amangaki ekhekheni ngalinye? **Ukubuthelela** • Ungenza iinkoloyi ezingaki nange unamavili abu-8? Iinthuthu zona zingaba zingaki? • Kunamahabhula ali-18 ngebhoksini kungazaliswa imigodla emingaki enamahabhula ama-3 engazaliswa? • Umbhagi ubhaga amatjhatjhatjha ama-30. Ufaka amatjhatjhatjha asi-6 ngebhoksini elinye nelinye, uzokuzalisa amabhoksi amangaki? • Kunabantwana aba-16 ngendlini. Singenza iinqhema ezingaki ezinamalunga amane? **Ukurhemisa** UMongezi upaka izinto zokubala ezi-20 emareyi ali-10. Kunezinto zokubala ezingaki ereyini nghalinye?	

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1.11 Imali	• Khumbula begodu ubone imali eziinhlavu zeSewula Afrika : (5c, 10c, 20, 50c, R1, R2; R5) kunye nemali yemaphepha (R10, R20, R50). • Sombulula imiraro efaka hlangana amanani wemali netjhentjii yama R99 neyamasende ukufika e-90c	• Khumbula begodu ubone imali eziinhlavu zeSewula Afrika : (5c, 10c, 20, 50c, R1, R2; R5) kunye nemali yemaphepha (R10, R20, R50). • Sombulula imiraro efaka hlangana amanani wemali netjhentjii emasende ukufika e-50c nofana amaranda ukufikela e-R20	**Ngikuphi okuhlukileko kuneGreyidini yoku-1?** NgeThemu le abafundi bazijayeza ukubona imali nokuphula imali ibe ziingcenye ezincani. **limboniso zemiraro ezingenziwa ngeThemu leli** • Ukuhlukanisela abantwana abane ama-50c ngokulinganako. Hlathulula bonyana ungakwenza bunjani? • Itjhapisi eyodwa Ibiza i-10c. UBusi usebenzisa ama-50c. Ungathenga amatjhapisi amangaki? • UThenji ubhadelela ama-R5 ukukhwela iteksi nakaya esikolweni, ubhadele ngemali yephepha ema-R20. Uzokubuyelwa yimalini itjhentjhi? Uzokusalelwa yimalini nasele abuyela ekhaya ngeteksi? • IFizipopo Ibiza R2-50, UPalesa ufuna ukuthenga amafizipopo a-4, unemali engange ama –R8, 00. Ngabe unemali eyaneleko yokuthenga amafizipopo? Nangabe ayikaneli, udinga imali engangani uPalesa?	

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1.12 Amathekh-iniki (iindlela namaqh-inga)	Sebenzisa amathekhiniki alandelako nawubalako • Imigwalo nofana ama-apharethasi aphathekako njengezinto zokubala • Ukwakha bewuphadhle iinomboro • Ukubuyelela nokuhafula phakathi • Iinamba layini	Sebenzisa amathekhiniki alandelayo nawubalako • Imigwalo nofana ama-apharethasi aphathekako njengezinto zokubala • Ukwakha bewuphadhle iinomboro • Ukubuyelela nokuhafula phakathi • Iinamba layini	**Ngikuphi okuhlukileko kuneGreyidini yoku-1?** Abafundi balindeleke bonyana basombulule imiraro yokubala esebujameni obutjhaphulukileko kusetjenziswa amathekhiniki alandelako: • Imigwalo nofana ama-apharathasi aphathekako • Ukukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Amanambalayini **Imigwalo namkha ama-apharathasi aphathekako** Abafundi bazokuragela phambili nokugwala iinthombe begodu basebenzise ama-apharathasi ukusombulula imiraro. Kuqakathekile bonyana iinthombe nofana imigwalo emumethe iinomboro begodu nemitjho yeenomboro. **Ukwakha nokuphula** Le ngenye yamathekkhniki aqakathekileko esigabeni esisekelo (abafundi bazokusebenzisa ukusabalalisa njalonjalo esigabeni esiphakathi). Ukusebenzisa ithekhniki le kuvumela abafundi ukusabalalisa nokubuyisela iinomboro okulekelela ukubala kubelula. NgeThemu leli abafundi bazoku: • Phula iinomboro kusetjenzisa ubukhulu bedijithi • Phula iinomboro kusetjenzisa isibuyabuyelelo se-10 noku • Phula iinomboro zikhambe ngazimbili isib. Ukukhamba ngakubili okwenza ama-20 **Ukubuyelela kabili nokuhafula phakathi** Abafundi baragela phambili nokusebenzisa ukubuyelela kabili nokuhlukanisa phakathi njengeqhinga lokubala. **Amanambalayini** Qala amanothi ukubona iimbonelo zokwenza inambalayini okusesigabeni esiphathelene nokusombulula imiraro. • Ukuhlanganisa nokukhupha Abafundi bafanele bakhe inambalayini okungeyabo begodu baphule iinomboro ngendlela yeengcenye eziphathekako. **Isibonelo:** 8 + 12 Inambalayini ifanele ithome ku-8 begodu abafundi batlama : - Imeqo emi 2 yesi 6 - Imeqo emi 4 yaka- 3 - Imeqo emi 3 yaka 4 - Umeqo owodwa we-10 bese kube nemeqo waka-2	

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1.12 Amathekh-iniki (iindlela namaqh-inga)	Sebenzisa amathekhiniki alandelako nawubalako • Imigwalo nofana ama-apharethasi aphathekako njengezinto zokubala • Ukwakha bewuphadhle iinomboro • Ukubuyelela nokuhafula phakathi • Iinamba layini	Sebenzisa amathekhiniki alandelayo nawubalako • Imigwalo nofana ama-apharethasi aphathekako njengezinto zokubala • Ukwakha bewuphadhle iinomboro • Ukubuyelela nokuhafula phakathi • Iinamba layini	• Ukubuyelela Amanambalayini kufanele ziragele phambili nokusetjenziswa ukulekelela ukuhlanganisa ngokubuyelela. Umeqo olinganako urekhodwa enambalayini nemitjho elekelelako nayo ingarekhodwa ngokunjalo. **Isibonelo:** 5 + 5 + 5 + 5 + 5 = 25 Iimeqo emi-5 yaku-5 yenza ama-25 Iinqhema ezi-5 zaku-5 = 25 5 x 5 = 25 Ukubuyabuyelela okunikelweko, abafundi bafanele bakghone ukuhlathulula bonyana imeqo ingenziwaa njani enambalayinini. Vumela abafundi bonyana bakhethe amathekhiniki abazizwa batjhaphukile khulu. Nanyana kunjalo nangabe abafundi basebenzisa amathekhniki lawo abanganakghono badinga ukukhokhelwa bonyana basebenzise lawo abanekghono lokuwenza. Yelela bonyana abafundi kanengi bangahle basombululе umraro ngendlela utitjhere agade angakayilindeli. Isibonelo umraro wokuhlukanisa ungasombululwa ngokukhupha okubuyelelwe nofana ukubuyabuyelela. Iindlela abafundi zizokutjhuguluka ngokukhamba konyaka njengombana ukuzwisisa nokujayela umhlobo womraro ukhula, begodu njengembana umqondonomboro uthuthuka.	

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1.13 Ukuh-langanisa nokukhupha	• Hlanganisa ukusuka ema-99 • Khupha ukufika ema-99 • Sebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuzijayeza/ Ukuphrakhthisa ukulumbana kwenomboro ukufika e-10	• Hlanganisa ukufika ema-20 • Khupha ukusuka ema-20 • Sebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuzijayeza/ Ukuphrakhthisa ukulumbana kwenomboro ukufika e-10	**Ngikuphi okuhlukileko kuneGreyidini yoku-1?** Kunomnqopho omkhulu ngokuthuthukisa amaqhinga wokubalisisa nofana amathekhiniki ngeThemu leli. Ukuphula iinomboro ukuze ubale kuba ithekhniki ebalulekileko abafundi abangawajayela. **NgeThemu le iminqopho iba se:** Kusebenziseni imisetjenzana yokwakha nokuphula iinomboro ezokulekelela ukuzwisisa ukuhlanganisa nokukhupha Abafundi bazijayeza ukuhlanganisa nokukhupha ukufika ema-20. Kuphakathi kwerherho leenomboro lezi bonyana abafundi bazokuthoma ukuthuthukisa umqondo wetjhumi neyunithi. Ukubala ngeenqhema kuhlala kubalulekile begodu abafundi bafanele bathome ukubona bonyana ukubala uye phambili ngabo kunye ngokulula akusilo iqhinga elilula. Kungaphakathi kwaleli irherho leenomboro lapho abafundi bafanele bacabange khulu ngamaqhinga lawo abawasebenzisa ukukhetha iindlela amaqhinga afaneleko wokubala kulekelela abafundi bonyana babe babali abanekghono. Ukuze kubalwe phakathi kwerherho leenomboro kusuka kuli-0 kufika ema-20 ilemuko labafundi lifanele lifake hlangana: • Ukubala izinto; • Ukukhumbula, ukufunda nokutlola iinomboro; • Ukumadanisa nokuhlela iinomboro; • Ukukwa nokuphula iinomboro; • Ukuzijayeza ukuhlanganisa nokukhupha ukufika ema-20 • Ukubuyelela kabili nokuhafula phakathi noku • Ukutjho ngehloko amaphuzu weenomboro	

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1.13 Ukuh-langanisa nokukhupha	• Hlanganisa ukusuka ema-99 • Khupha ukufika ema-99 • Sebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuzijayeza/ Ukuphrakhthisa ukulumbana kwenomboro ukufika e-10	• Hlanganisa ukufika ema-20 • Khupha ukusuka ema-20 • Sebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuzijayeza/ Ukuphrakhthisa ukulumbana kwenomboro ukufika e-10	**Amathekhiniki wokubala angenziwa wokubala nokukhupha** Amathekhiniki atjengiswe ngenzasi avumela abafundi ukwenza ngokomthetho ukubala nomqondo wenomboro. Ukujayeza amathekhiniki angenzasi azokugqugquzela abafundi ukubonisa ngobudlelwana obuhlangana neenomboro begodu ifundisa abafundi bonyana bangasebenzisa bebenze ngokwelwazi labo ukuze babale. **Beka inomboro ekulu maqangi ukuze babale bayephambili nofana emuva.** 4 + 12 = □ Hlela kabutjha 4 + 12 njengo 12 + 4 and babala on from 12. Ukubona okuseduze nokubuyelela kabili 8 + 7 Abafundi bangahlathulula bonyana isibalo singatlolwa bunjesi 8 + 8 -1 (buyelela kabili u 8 khupha u- 1) nofana 7 + 7 + 1 (buyelela kabili 7 hlanganisa no-1). Abafundi bangahle barekhode amaqhinga wabo basebenzisa abotjhobi 8 + 8 → 16 + 1 = 15 Tjhugulula inomboro iye etjhumini bese ukhiphe nofana uhlanganise kunye Iqhinga leli lingafundiswa ngerherho leenomboro eziphasi bese isetjenziswa eenomborweni eziphezulu. 9 + 6 = □ Abafundi bangathi ngokwabo “ngizokukhupha kunye koku-6 bese ngiyihlanganise koku-9 ukwenza i-10.” Ngakho ke 9 + 6 angatlolwa bunjesi 10 + 5 = 15. 8 + 5 = □ Abafundi bangathi ngokwabo “ngizokukhupha okubili koku- 5 bese ngihlanganise no-8 ukwenza i-10.” Ngakho-ke 8 + 5 angatlolwa bunje 10 + 3 = 13.	

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1.13 Ukuh-langanisa nokukhupha	• Hlanganisa ukusuka ema-99 • Khupha ukufika ema-99 • Sebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuzijayeza/ Ukuphrakhthisa ukulumbana kwenomboro ukufika e-10	• Hlanganisa ukufika ema-20 • Khupha ukusuka ema-20 • Sebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuzijayeza/ Ukuphrakhthisa ukulumbana kwenomboro ukufika e-10	**Ukuphula inomboro ibe ziingcezu ezincani ukwenza ukubala kubelula** Abafundi bazokuphula inomboro zibe ziingcezu ezihlukeneko lezo eziphathekako kibo Ukubala uye phambili ngokuphula inomboro yinye 11 + 7 = □ 11 + 4 + 3 11 + 4 → 15 + 3 = 18 11 + 7 = □ 11 + 5 + 2 11 + 5 → 16 + 2 = 18 17 – 9 = □ 17 – (7 + 2) 17 – 7 → 10 – 2 = 8 12 + 7 = □ 10 + 2 + 7 7 + 2 → 9 + 10 = 19 **Ukusebenzisa ilwazi lobudlelwano lokupherhuka hlangana nokuhlanganisa nokukhupha** 15 – 9 = □ Abafundi bayazi bonyana isibalo singabuyelelwa sitlolwe njengesibalo sokuhlanganisa: “ngiyazi bonyana i-9 + □ = 15.” Umfundi angahle asebenzise ukubala uye phambili ukuze ukwazi ukubala. **Ukulumbana kweenomboro** Ukuze kujayezwe iukulumbana kweenomboro imisetjenzana ehlukahlukeneko kufanele inikelwe abafundi. Lokhu kwenziwa ngesikhathi sokuzijamela. Inambalayini nayo ingasetjenziswa ukuzijayeza ibhondi ye-10.	

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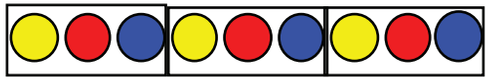
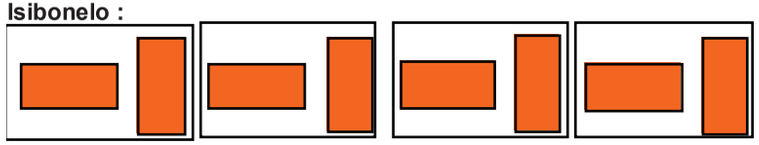
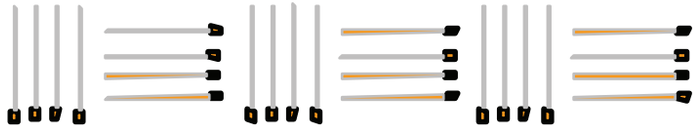
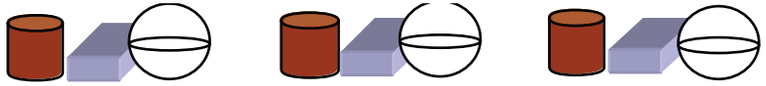
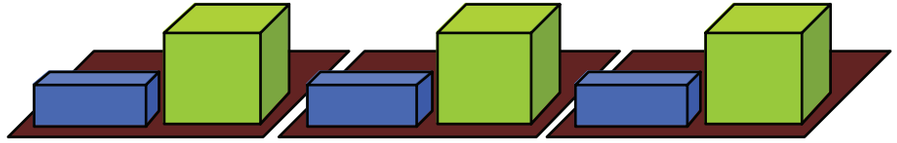
1.14 Ukuh-langanisa okubuyele-lweko okurholela ekubuy-abuyeleleni	• Hlanganisa ngokubuyelela o.u.inomboro efanako kufika ema-50 • Buyabuyelela iinomboro kusuka ku-1 ukufika e-10 nga 1, 2, 5, 3 begodu nge-4 • Sebenzisa amatshwayo afaneleko (+, -, =, □)	• Hlanganisa ngokubuyelela o.u.inomboro efanako ukufika ema-20 • Buyabuyelela iinomboro ukusuka kweyoku-1 kufika e-10, nga-2 • Sebenzisa amatshwayo afaneleko (+, -, =, □)	**Ngikuphi okuhlukileko eGreyidini yoku-1?** Abafundi bazokutjhugulukela kusuka ekuhlanganiseni okubuyelelwako ukuya ekubuyabuyeleni. Bazothoma ukuzwisisa umqondo ophathelene nokubuyabuyelela. Bazokubandakanywa emisetjenzaneni ebavumela bonyana babone ubudlelwana beenomboro: • Inani lezinto esesethini/isiqhema • Inani lamasethi nofana iinqhema • Isamba Abafundi bafika eGreyidini ye-2 bazwisisa ukuhlanganisa okubuyelelwe: Ekupheleni kweThemu bafanele bakghone uku: • hlobanisa ukubala ngokweqa nokuhlanganisa okubuyelelwe ukuzwisisa ukubuyabuyelela; • sebenzisa, ufunde begodu utlole itshwayo lokubuyabuyelela; • tlola umutjho weenomboro wokubuyabuyelela; noku • buyelela iinomboro kusuka kweyoku- 1 kufika e-10 nga- 2. Nakwenziwa imiraro yokusombulula yamagama, abafundi ngokulindelekileko okunengi bazokusebenzisa ukuhlanganisa okubuyelelwe, ngaphandle kwaleyo imiraro yamagama enokurhemisa imifanekiso. Kusebujameni obutjhaphukileko bonyana eminye imifanekiso yokubuyabuyelela ingasetjenziswa. **Ukurhemisa** Njengombana abafundi bathola ilemuko ngemihlobohlobo ehlukeneko yeembalo zamagama zokubuyabuyelela, ukuhlela iinqhema ngokurhemisa kunganikela isakhiwo sokutjengisa ukukhulumisana kweendabuko kokubuyabuyelela Isib. 2 x 4 ifana nokuthi 4 x 2 4 + 4 = 8 2 + 2 + 2 + 2 = 8 Ukusebenzisa ukurhemisa kuvumela u: • kwakha nokuphula iinomboro • ukuhlanganisa ekubuyabuyelela begodo nokuhlanganisa okubuyelelweko • ukucabanga ngokubuyabuyelela njengokurhemisa begodu • kundlalela isisekelo somthetho wokuhlanekela	

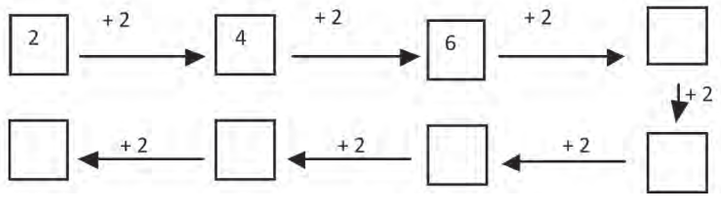
IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.14 Ukuhlanganisa okubuyelelweko okurholela ekubuyabuyeleleni	• Hlanganisa ngokubuyelela o.u.inomboro efanako kufika ema-50 • Buyabuyelela iinomboro kusuka ku-1 ukufika e-10 nga 1, 2, 5, 3 begodu nge-4 • Sebenzisa amatshwayo afaneleko (+, -, =, □)	• Hlanganisa ngokubuyelela o.u.inomboro efanako ukufika ema-20 • Buyabuyelela iinomboro ukusuka kweyoku-1 kufika e-10, nga-2 • Sebenzisa amatshwayo afaneleko (+, -, =, □)	Nqophisa itjhejo labafundi eenomborweni ezisemareyini nenani leezinto zokubala emareyini. ◎ ◎ ◎ ◎ ◎ ◎ ◎ ◎ 4 + 4 = 8 Kunamareyi ama-4 wanga- 2, okwenza abe -8 nasele awoke. Abafundi kufanele godu barekhode ngendlela elandelako: ◎ ◎ ◎ ◎ ◎ ◎ ◎ ◎ 2 + 2 + 2 + 2 = 8 Kunamareyi ama-2 wanga- 4. Okwenza abe -8 nasele awoke. Igama elithi “buyabuyelela” lingethulwa: uku-4 ubuyabuyelela ka-2 kwenza ubu-8. Lokha abefundi sebanelemuko elaneleko, itshwayo lokubuyabuyelela lingethulwa ndawonye nelimi elilandelako elithuthukisiweko: kuneenqhema e-4 zika-2 abo-2 aba-4 2 + 2 + 2 + 2 = 8 Iinqhema ezi-4 zika-2 nofana uku-4 ubuyabuyelelwa ka-2 kulingana no-8 Nanyana itshwayo sele lithuliweko, amagama, iinthombe begodu nemifanekiso ebuyabuyelelweko ukulekelela ukuzwisisa itshwayo kuhlala kubalulekile. Imifanekiso yokuzwisisa ukubuyabuyelela: • Amakhyubsi weyunifikisi angasetjenziswa begodu angapakwa amakholomu ama-4 wamakhyubsi begodu lelinye nelinye ikholomu kungaba namakhyubsi ama-2. Lokhu kuvumela abafundi bonyana “kunamawobhu amane ewobhini ngalinye kunezinto ezi-2. Ivumela bonyana barekhode 2 +2 + 2 + 2 begodu iinqhema ezi- 4 zika-2 ngu 4 x 2. • Inambalayini ingasetjenziswa ukutjengisa ukuhlanganisa okubuyelelwe nofana iinqhema zeenomboro. Lokhu kuhlanganiswa khulu nokubala kokweqa. Abafundi bafanele bakghone ukurekhoda okulandelako: Isiqhema si-1 sika- 2 ngu-2 nofana buyabuyelela u-1 ngaku-2 ngu-2 nofana 1 x 2 = 2 Iinqhema ezi-2 zika-2 ngu- 4 nofana buyabuyelela u-2 ngaku-2 ngu- 4 nofana 2 x 2 = 4 Iinqhema ezi-3 zika-2 ngu- 6 nofana buyabuyelela u-3 ngaku- 2 ngu 6 nofana 3 x 2 = 6	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.16 limbalo zehloko	**Umnqopho wenom-boro: irherho 99** • Hlela isethi enikelweko leenomboro ezikhethiweko • Madanisa iinomboro ema-99 bewutjho bonyana ngiyiphi enengi nofana encani nga-1, 2, 3, 4, 5 ne-10 • **Ukukhumbula masinyana:** • Ukukhumbula amaphuzu wokuhlanganisa nowokukhupha kufika e- 20 • Hlanganisa nofana ukhuphe imbuyeleli ze-10 **Amaqhinga wokubala** Ukusebenzisa amaqhinga wokubala ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini. • Ukubuyelela kabili nokuhafula phakathi • Ukwakha nokuphhula • Sebenzisa ubudlelwano phakathi kokuhlanganisa nokukhupha	**Umnqopho wenom-boro: irherho 25** • Hlela isethi enikelweko leenomboro ezikhethiweko • Madanisa iinomboro ema-99 bewutjho bonyana ngiyiphi enengi nofana encani nga-1, 2 ne-10 • **Ukukhumbula masinyana:** • Ukukhumbula amaphuzu wokuhlanganisa nowokukhupha kufika e-10 **Amaqhinga wembalo zehloko** Ukusebenzisa amaqhinga wokubala ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini. • Ukubuyelela kabili nokuhafula phakathi • Ukwakha nokuphula • Sebenzisa ubudlelwano phakathi kokuhlanganisa nokukhupha	**Ngikuphi okuhlukileko eGreyidini yoku-1?** **IThemu le inqophe eku:** Ihlelo leembalo zehloko kufanele zithuthukiswe ngokuhleleke ngokuyelela unyaka woke. Abafundi abakafaneli ukubawiwa ukubala okungakhethiko ngamalanga. Njengombana abafundi baqeda iinhloko bebathuthukise amaqhinga wokubalisisa engcenyeni yesifundo ihlangothi lomraro lalokhu kungahlanganiswa nehlelo lembalo zehloko: Amaqhinga namakghono athuthukiswa ngesifundweni esiqakathekileko, bese siyajayezwa, ngezinye iinkhathi ngerhelo leenomboro ezincani; ehlelweni lembalo zehloko. Ungahlalisa irherho leenomboro phasi ngeThemu yoku-1 bese lingezelelwe phakathi nonyaka. Ekuthomeni konyaka, irherho leenomboro namaqhinga wokubala angasekelwa ekuthuthukisweni eGreyidini yoku-1. **Umqondonomboro:** **Imihlobo yeembonelo zemibuzo engabuzwa:** **Amagama weenomboro namatshwayo** Phakamisa ikarada nofana tlola igama lenomboro. Khetha umfundi bonyana atlole iinomboro ezimadanako. **Okunengi nofana okuncani** Khuyini lokhu • Kuncani ku-15 nga-1 • Kunengi ku-9 nga-1 • Okunengi e-15 nga-10 • Okuncani e-16 nga-10 Ngiliphi iledere lesi-5 lama Alfabethi? Ngiyiphi inyanga yonyaka yesi-9? **Ukuhlela nokumadanisa** Ngikuphi okunengi: 12 nofana 21 Nginikela inomboro ehlangana kwe-17 ne-19 **Amaqiniso ngokuhlanganisa nokukhupha:** • Ukwazi ngehliziyo koke ukuhlanganisa nokukhupha kwenomboro kokulumbana kweenomboro ze-10 □ + △ = 10 □ + △ = 8	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.16 limbalo zehloko	**Amaqhinga wokubala** • Ukusebenzisa amaqhinga wokubala ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini. • Ukubuyelela kabili nokuhafula phakathi • Ukwakha nokuphhula • Sebenzisa ubudlelwano phakathi kokuhlanganisa nokukhupha	**Amaqhinga wembalo zehloko** Ukusebenzisa amaqhinga wokubala ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini. • Ukubuyelela kabili nokuhafula phakathi • Ukwakha nokuphula • Sebenzisa ubudlelwano phakathi kokuhlanganisa nokukhupha	Amaqiniso wokuhlanganisa nokukhupha nazozoke iinomboro ukufika okufaka hlangana ne-10 1 + 9 = 10 9 + 1 = 10 2 + 8 = 10 8 + 2 = 10 8 – 4 = 4 8 – 4 = 4 8 – 5 = 3 8 – 3 = 5 Ukukhumbula masinyana ukuhlanganisa okubuyelelwa kabili ukufika e-10. Lokhu kufanele kufake hlangana amaqiniso nokukhipha okukhambisanako. • 1 + 1 = 2 • 2 + 2 = 4 • 3 + 3 = 6 • 4 + 4 = 8 • 5 + 5 = 10 Ngitjengisa inomboro engingayihlanganisa .....ukwenza i-10. (Tlola phasi nofana usebenzise ubukhulu bedijithi nofana amakarada weFlardi) • 8 • 2 • 9 • 5 • 3 Ngitjengise inomboro etjhiyiweko lokha.....ekitjhwe e-10. (Tlola phasi nofana usebenzise ubukhulu bedijithi nofana amakarada weFlardi) • 5 • 3 • 6 • 1 • 7 Ezinye iimbalo zehloko zingenziwa ngaphandle kwama-apharathasi, nokho kanengi kuqakathekile ukwenza imbalo zehloko ngama-apharathasi begodu wenze amarekhodi walokho okwenziweko. **Ama-apharathasi aphakanyisiweko** • Inambalayini (ehlelekileko begodu engenalitho) • iGridi yenomboro • amakarada wobukhulu bedijithi (amakarada weFladi) • imincamo yokubala	

IGREYIDI YESI-2 ITHEMU YOKU-1 2. AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.1 Amapheth-eni weJi-yomethri	**Ukukopa, ungezelele nokuhlathulula** Ukukopa ,ungezelele nokuhlathulula ngamagama • Amaphetheni alula enziwe ngezinto eziphathekako • Amaphetheni alula enziwe ngemigwalo yemida, ubujamo nafana izinto. **Tlama begodu uhlathulule amaphetheni wakho** Yenza amaphetheni weJiyomethri • Ngezinto eziphathekako • Ngokugwala imida, amajamo nofana izinto **Amaphetheni asizombelezileko** Ukubona, ukuhlathulula ngamagama nokukopa amaphetheni weJiyomethri • Ngokwemvelo, • Kusukela epilweni yangamalanga yesimodeni, • Kusukela kezamagugu nendabuko yethu.	**Ukukopa, ungezelele nokuhlathulula** Ukukopa ,ungezelele nokuhlathulula ngamagama • Amaphetheni alula enziwe ngezinto eziphathekako • Amaphetheni alula enziwe ngemigwalo yemida, ubujamo nafana izinto. **Tlama begodu uhlathulule amaphetheni wakho** Yenza amaphetheni weJiyomethri • Ngezinto eziphathekako • Ngokugwala imida, amajamo nofana izinto	Ukukopa iphetheni kusiza abafundi ukubona ilojikhi yokuthi iphetheni yenzwe njani. Ukungezelela iphetheni kusiza abafundi ukubona bonyana bayizwisisile ilojikhi yephetheni. Ukuhlathulula iphetheni kusiza abafundi ukuthuthukisa amakghono welimi nokukhuluma. Kuyosiza wena ukubona bonyana abafundi bahlathulula njani amaphethini Kuvame ukuba lula ebafundini ukukhuluma ngephetheni ngemuva kokuyenza. Abafundi bathloga bonyana babandulwe bonyana bafune ini begodu bayihlathulule njani iphetheni. Ungabafanisela ngokubabuza imibuzo enjenge. “Ubona ubujamo obunjani ephetheneni le?” “Zinemibala efanako?” “Ubona ubujamo bunye nofana ubujamo obunengi ephetheneni?” “Ingabe zoke izinto ziqale endaweni yinye?” “Kunenomboro ezifanako zezinto esiqhemeni ngasinye?” “Zizinto ezingaki esiqhemeni ngasinye?” “Ingabe ubujamo boke buyalingana?” njll Faka ubujamo obungubusobubili beJiyomethri begodu nobujamo bezinto ezibusobantathu beJiyomethri lokho abafundi abakufundile. Abafundi bangenza ubujamo bakabusobubili ngokuqunta amaphepha nofana amakarada, nofana bangazigwala. Bangenza amaphetheni ngobujamo bebhoksi, ubujamo bebholo nesilinda abazenze ngebumba nofana ngehlama yokudlala. Amaphetheni angenziwa ngokusebenzisa ubujamo obubodwa kodwana umbala wezinto utjhuguluke ngendlela ejayelekileko. **Isibonelo :**  Amaphetheni angenziwa ngeenqhema ezifanako ezibuyelelweko, lapho isiqhema ngasinye sinomhlobo munye wento, kodwana indawo yezinto eenqhemeni iyatjhughuluka. Iinqhema ezifanako ziyabuyelelwa isib.	Isifundo esi-1

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.1 Amapheth-eni weJi-yomethri	**Ukukopa, ungezelele nokuhlathulula** Ukukopa ,ungezelele nokuhlathulula ngamagama • Amaphetheni alula enziwe ngezinto eziphathekako • Amaphetheni alula enziwe ngemigwalo yemida, ubujamo nafana izinto. **Tlama begodu uhlathulule amaphetheni wakho** Yenza amaphetheni weJiyomethri • Ngezinto eziphathekako • Ngokugwala imida, amajamo nofana izinto **Amaphetheni asizombelezileko** Ukubona, ukuhlathulula ngamagama nokukopa amaphetheni weJiyomethri • Ngokwemvelo, • Kusukela epilweni yangamalanga yesimodeni, • Kusukela kezamagugu nendabuko yethu.	**Ukukopa, ungezelele nokuhlathulula** Ukukopa ,ungezelele nokuhlathulula ngamagama • Amaphetheni alula enziwe ngezinto eziphathekako • Amaphetheni alula enziwe ngemigwalo yemida, ubujamo nafana izinto. **Tlama begodu uhlathulule amaphetheni wakho** Yenza amaphetheni weJiyomethri • Ngezinto eziphathekako • Ngokugwala imida, amajamo nofana izinto	**Isibonelo :**   Emaphethenini amanye izinto ezahlukeneko ziyasetjenziswa ukwenza iinqhema, kodwana iinqhema zezinto ziyabuyelelwa ngendlela efana patsi. **Isibonelo :**  Emaphethenini amanye ubukhulu bezinto eenqhemeni buyatjhuguluka, kodwana iinqhema ziyabuyelelwa ngendlela efanako.  Abafundi bangenza amaphetheni ngokuthungelela imincamo. Ukwenza amaphetheni kungenziwa eemfundweni zamakghono wepilo.	Isifundo esi-1

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.2 Amaphe-theni weenom-boro	**Ukukopa, ukungezelela nokuhlathulula** Ukukopa, ukungezelele nokuhlathulula ukulandelanisa kwenomboro elula ukufika e-200 **Tlama begodu uhlathulule amaphetheni wakho** Tlama begodu uhlathulule amaphetheni weenomboro	**Ukukopa, ukungezelela nokuhlathulula** Ukukopa, ukungezelele nokuhlathulula ukulandelanisa kweenomboro okulula ukufika e-100 **Ukulandelana kufanele kubonise ukubala uye phambili nemuva nga:** • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 ne-100 • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-100 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-100 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku-2 hlangana ne-0 ne-100	Ukulandelana kweenomboro kungahlahlotjaniswa begodu kusekele ukubala. Lokha amakghono wabafundi atjhuguluka begodu athuthuka, imihlobo yokulandelana kweenomboro abafundi abasebenza ngakho kungathuthuka. Ukulandelanisa kufanele kubonise ukubala uye phambili nemuva nga: • ku-1 ukusuka kwenye nenye inomboro hlangana no-1 ne-100 • Ii-10 ukusukela kwenye nenye inomboro ebala ngali-10 ehlangana no-1 ne- 100 • Ku-5 ukusukele kwenye nenye inomboro ebala nga ku-5 ehlangana no–1 ne- 100 • Ku-2 ukusukela kwenye nenye inomboro ebala nga-2 ehlangana no–1 ne-100 Egreyidini ye-2 abefundi babala baye phambili nga-10, 5 kanye na 2 kokuthoma. Abafundi bangakhomba iinomboro lokha nababalako. Kuqakathekile bonyana unikele abafundi ukulandelana kweenomboro okujamiselelweni okuhlukeneko. isib • Ukulandelanisa kweenomboro okutloliweko 100; 99; 98; 97; 96; ... • Amanambalayini • Igridi yeenomboro • Iketani yeenomboro Abafundi bangagubuzesa, bafake umbala, nofana bazungelezele iinomboro lokha nababalako. Abafundi bangazalisela iinomboro ezitjhiyiweko enambalayinini, egridini yeenomboro, ekulandelaneni kweenomboro ezitloliweko begodu emaketanini weenomboro. Isib.  Ekupheleni kweThemu, abafundi babala umsebenzi ngokulandelanisa ukusuka nokufika e-100	Iimfundo ezi- 3

IGREYIDI YESI-2 ITHEMU YOKU-1 3. ISIKHALA NOBUJAMO (JIYOMETHRI)				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.2 Izinto ezibu-sontathu (3-D)	**Izinto ezihlukahlukeneko** Ukukhumbula nokutjho abobusontathu (3-D) abakhona ngetlasini neenthombeni • Ubujamo beembholo, (indulungu) • Ubujamo bebhoksi (amaphrizimu) • Isilinda **Amatshwayo wezinto** Hlathulula, ubeke ngamananeko begodu umadanise izinto ezinobujamo babobusontathu (3-D) ngokucala okulandelako: • isayizi • izinto ezigedekako • izinto ezitjhelelako **Imisebenzi okunqotjhiswe kiyo** Tjheja begodu wakhe izinto ezibusontathu (3-D) ngokusebenzisa umatheriyali ophathekako nokusika izinto ezinobujamo obubusobubili (2-D), amabhlogo wokwakha, umetheriyali obuyelelwa usetjenziswe, ikhithi yokwakha, nezinye izinto ezibusontathu (3-D) zejiyomethri	**Izinto ezihlukahlukeneko** Ukukhumbula nokutjho abobusontathu (3-D) abakhona ngetlasini neenthombeni • Ubujamo beembholo, (indulungu) • Ubujamo bebhoksi (amaphrizimu) **Amatshwayo wezinto** Hlathulula, ubeke ngamananeko begodu umadanise izinto ezinobujamo babobusontathu (3-D) ngokucala okulandelako: • isayizi • izinto ezigedekako • izinto ezitjhelelako **Imisebenzi okunqotjhiswe kiyo** Tjheja begodu wakhe izinto ezibusontathu (3-D) ngokusebenzisa umatheriyali ophathekako nokusika izinto ezinobujamo obubusobubili (2-D), amabhlogo wokwakha, umetheriyali obuyelelwa usetjenziswe, ikhithi yokwakha, nezinye izinto ezibusontathu (3-D) zejiyomethri.	**Ngikuphi okuhlukileko eThemini yoku- 1?** • Amasilinda matjha eGreyidini yesi-2 kodwana angavezwa eThemini yesi- 3. EThemini yoku-1, abafundi banga buyekeza begodu banzinzise abakwenze eGreyidini yoku-1. Abafundi bangaqalana namasilinda eThemini yesi-3. Umsebenzi omnengi wezinto ezibusontathu (3-D) eGreyidini yesi-2 kufanele wenziwe ngezinto eziphathekako / ezithintekako. Iphasi silibona ngamahlangothi amathathu, ngakho ke ukuthoma ngezinto eziphathekako kusiza abafundi bona bakhele phezu kwelwazi/ kwelemuko abeza nalo esikoloweni. Abafundi abanengi abancani bayatlhaga ukuhlathulula izinto zejiyomethri ezibusontathu (3-D) kusuka eenthombeni. Ukusebenza ngezinto eziphathekako kusiza abafundi bona barhumutjhe iinthombe zobujamo beJiyomethri ngokukhamba kwesikhathi. Lokha nawuphethe into yamambala ephathekako, ungayijikajikisa uyiqale mahlangothi woke. Ungakghona ukubona bonyana iqaleka injani kusuka ngemuva nangaphasi. Lokha nawuphethe isithombe kwaphela, kufanele ubone ngelihlo lemgqondo iingcenye ezingabonakaliko emgwalweni lowo. Lokhu akusilula njalo ebafundini abancani. Lokha abafundi banikelwe ihlathululo yento kuphela ngaphandle kokuthi bayibone nofana bayiphathe, kuba nzima khulu ukuzwisisa ubujamo bento ngokupheleleko. **Ukwakha ngezinto ezibusontathu (3-D)** Abafundi bakopulula isifaniso sento ethile obanikela yona wena njengotitjhere isib. Umbhotjhongo, irobodo, isitimela, iteksi, indlu yekosi (ikhasele) njll. Iimfaniso nofana izakhiwo zingenziwa ngokusebenzisa amabhlogo wokwakha, imatheriyali engabuye isetjenziswe godu, amakhithi wokwakha nezinye izinto ezibusontathu **(3-D) zejiyomethri, nokusika izinto ezinobujamo babobusobubili (2-D).** Lokhu kungenziwa ngesikhathi sokusebenza ngokuzijamela. Kuqakathekile bona abafundi bakhulume ngemifanekiso abayenzileko. Isibonelo, lookha kwakhiwe umbhotjhongo ngamabhoksi nofana ngamabhlogo, ungabuza abafundi bonyana, “umjbhotjhongo ungawakha ngeembholo kuphela na?” kufanele bahlathulule ipendulo yabo. **Ukumadanisa nokuhlathulula izinto ezibusontathu (3-D): isayizi** Abafundi bamadanisa isayizi yezinto ezifanako isib. • Ukuhlela iimbholo ngamasayizi wawo ;noku • Sebenzisa ilimi lesayizi ukmadanisa izinto: “Ibhoksi likhulu kunebholo, ngoba ngingafaka ibholo ngaphakathi kwebhoksi.”	Iimfundo ezi-3

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IGREYIDI YESI-2 ITHEMU YOKU-1 4. UKUMEDA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.1 Isikhathi	**Ukutjho isikhathi** • Ukwazi amalanga weveke • Ukwazi iinyanga zonyaka • Ukubeka amalanga wamabeletho, amafestivali wezekolo, amaholideyi womphakathi, iminyanya wezomlando, izehlakalo zesikolo ezisekhalendeni. • Ukutjho isikhathi sama-iri ali-12 ngama-iri,ngesiquntu se-iri begodu nangekota ye-iri **Ukubala ubude besikhathi nokudlula kwesikhathi** Ukusebenzisa amakhalenda ukubala nokuhlathulula ubude besikhathi ngamalanga nofana ngeemveke. Ukusebenzisa amawatjhi ukubala ubude besikhathi ngama-iri, ngesiquntu se-iri nofana ngekotara yama-iri.	**Ukutjho isikhathi** • Ukwazi amalanga weveke • Ukwazi iinyanga zonyaka • Ukubeka amalanga wamabeletho, amafestivali wezekolo, amaholideyi womphakathi, iminyanya wezomlando, izehlakalo zesikolo ezisekhalendeni. • Ukutjho isikhathi sama-iri ali-12 ngama-iri ngamawatjhi we-analogo	EGreyidini yoku-1 abafundi bakhulume ngokulandelako: • landelanisa izehlakalo; begodu • nobude besikhathi Bafunde ngamalanga weveke begodu naweenyanga zonyaka begodu basebenzisa lokhu nawamanye amalimi ukukhuluma ngokulandelanisa izehlakalo zepilo yabo. Bakhuluma ngokuthi izinto zithatha isikhathi esingangani, ngokusebenzisa ilimi njengokuthi isikhathi eside nofana isikhathi esifitjhani begodu msinyana, buthaka. Abafundi bahlela ukulandelana kweenthombe njenga: • amagadango wokwenza iimbedlezwana nofana ikopi letiye; • iinthombe ezitjengisa ukukhula kwesana lize libe mumuntu omdala; • umzombelezo wepilo yeembandana, isib. Iqanda liba yikukhu, nofana iqanda liba sirhwerhwe nofana iqanda liba iviyaviyani;begodu • izehlakalo eziqhelileko zelanga (ukuvuka, ukuba sesikolweni, ukudlala, ukudla ukudla kwantambama, ukulala). Babeka amalanga wamabeletho umnyaka woke. EGreyidini yesi-2 abafundi baragela phambili ukuzijayeza ukukhuluma ngobude besikhathi begodu nangokulandelanisa isikhathi. Ngesikhathi sokufundisa itlasi loke nesikhathi sokufundisa ngeenqhema ezinqotjhiweko, abafundi baragela phambili ukukhuluma ngamalanga weveke, ngeenyanga zonyaka begodu nangelanga lamhlokho, nangamalanga adlulileko begodu nangamalanga asezako. Abafundi bajayela amakhalenda ngokuragela phambili ngokubeka: • amalanga wamabeletho; • amafestivali wezekolo, • iminyanya wezomlando, • izehlakalo zesikolo; • amaholideyi womphakathi, ezisekhalendeni. Ngesikhathi sokusebenza ngokuzijamela abafundi baragela phambili nokulandelanisa izehlakalo zepilo yabo begodu balandelanisa iinthombe zezehlakalo ngefanelo.	

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4.1 Isikhathi	**Ukutjho isikhathi** • Ukwazi amalanga weveke • Ukwazi iinyanga zonyaka • Ukubeka amalanga wamabeletho, amafestivali wezekolo, amaholideyi womphakathi, iminyanya wezomlando, izehlakalo zesikolo ezisekhalendeni. • Ukutjho isikhathi sama-iri ali-12 ngama-iri,ngesiquntu se-iri begodu nangekota ye-iri **Ukubala ubude besikhathi nokudlula kwesikhathi** Ukusebenzisa amakhalenda ukubala nokuhlathulula ubude besikhathi ngamalanga nofana ngeemveke. Ukusebenzisa amawatjhi ukubala ubude besikhathi ngama-iri, ngesiquntu se-iri nofana ngekotara yama-iri.	**Ukutjho isikhathi** • Ukwazi amalanga weveke • Ukwazi iinyanga zonyaka • Ukubeka amalanga wamabeletho, amafestivali wezekolo, amaholideyi womphakathi, iminyanya wezomlando, izehlakalo zesikolo ezisekhalendeni. • Ukutjho isikhathi sama-iri ali-12 ngama-iri ngamawatjhi we-analogo	**Ngikuphi okuhlukileko egreyidini yoku-1?** Umnqopho wegreyidi yesi-2 usitjela ngesikhathi, khulukhulu ngokufunda iwatjhi. EThemini yoku-1 abafundi banqophisa ukulalelisisa kwabo ekukhulumeni ngesikhathi ngama-awa, ngokusebenzisa iwatjhi ye-analogo kodwana, abafundi bafanele batjho isikhathi sezehlakalo esiqhelileko selanga esenzeka njalo. Isibonelo, abafundi bangabawiwa bonyana batjho bonyana isikolo singena sikhathi bani, isikhathi sokudla sinini begodu isikolo siphuma nini, nofana batjhintja nini ukusuka kesinye isifundo ukuya kwesinye. Khetha iinkhathi lapho iwatjhi itjengisa isikhathi poro. Kuqakathekile bonyana kube newatjhi esebenzako ibekwe ngetlasini, ukuze abafundi baqale kiyo. Abafundi bangenza iimfaniso zamawatjhi. Ungababawa bonyana bakutjengise iinkhathi ezihlukileko begodu ufake neembalo, isib. Ngitjengise i-iri le-10 ehloko. Ngitjengise bonyana kuzokuba sikhathi bani ngemuva kwama-iri ama-2 ngemuva kwe-10.	Iimfundo ezi-2

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.2 Ubude	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu urekhode ubudeusebenzise iimedo ezingakahleleki isib. Ubude besandla, amagadango, ubude bepensela, izinto zokubala, njll. • Ukuhlathulula ubude bezinto ngokubala begodu nokutjho bonyana anobude obungangani amayunithi angakahleleki • Ukusebenzisa ilimi ukukhuluma ngokumadanisa, isib. ubude, ubufitjhani, mude khulu, banzi khulu. **Ukwethula ukumeda okuhlelekileko** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu nokurekhoda ubudengokusebenzisa amamitha (iintonga emamitha nofana intambo enobude bemitha) njengomuvosimedo ojayelekileko.	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu urekhode ubudeusebenzise iimedo ezingakahleleki isib. Ubude besandla, amagadango, ubude bepensela, izinto zokubala, njll. • Ukuhlathulula ubude bezinto ngokubala begodu nokutjho bonyana anobude obungangani amayunithi angakahleleki • Ukusebenzisa ilimi ukukhuluma ngokumadanisa, isib. ubude, ubufitjhani, mude khulu, banzi khulu. **Ukwethula ukumeda okuhlelekileko** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu nokurekhoda ubudengokusebenzisa amamitha (iintongamamitha nofana intambo enobude bemitha) njengomuvosimedo ojayelekileko.	**Ngikuphi okuhlukileko egreyidini yoku-1?** Egreyidini yoku-1 abafundi banqopha eku: • bekeni izinto enye hlanu kwenye ukumadanisa ubude, ukuphakama nobubanzi; begodu • Medeni okuhlelekileko ngeemivosimedo ezijayelekileko Ethemini yoku-1 yegreyidi yesi-2 abafundi bafanele baragele phambili banqophe ekumedeni okungakahleleki ngokusebenzisa amaminithi angakahleleki, kodwana bangabethulela amamitha njengeyunithi yokumeda. **Ukumeda ubungakho obungakahleleki ngokusebenzisa amayunithi angakahleleki.** Abafundi bangafunda zoke iinkambisolawulo begodu nekambiso yokumeda ngokusebenzisa amayunithi angakahleleki. Ukumeda ngamayunithi angakahleleki kufanele kungathathwa njengokunyazekako kunokumeda ngamayunithi ahlelekileko. Ukumeda ubude ngamayunithi angakahleleki kufana ukubala bonyana mangaki amayunithi akhethiweko anobude obulinganako njengento emedweko. Isibonelo ubude bedeski bububude besandla esi-8. Abafundi bafanele bamede izinto ezihlukahlukeneko ngokusebenzisa izinto ezihlukahlukeneko njengamayunithi angakahleleki. Kuneendlela ezintathu zokusebenzisa amayunithi angakahleleki: ubude, ubude begodu nobanzi • Ukubeka ngereyi buvundla into emedwako, izinto ezinengi zobude obulinganako, njengamabhoksana womlilo, iimvadlwana zamabhodlela ezinobujamo obufana patsi nofana izinto zokubala, amapensela amatjha, njll. Isibonelo, ukumeda ububanzi bedeski, amapensela amatjha angabekwa ngokulandelana ukusuka ekuthomeni ukufika ekugcineni avundle itafula. Lapha kuqakathekile bonyana - zoke izinto zinobude obulinganako. Angekhe utjho bonyana incwadi yakho inobubanzi beemuvalo zamabhodlelo webisi ali-12 nangabe iimvalo zamabhodlelo zinobukhulu obungalinganiko, isib. Iimvalo zamabhodlelo webisi ezimalitha ama-2, iimvalo zamabhodlelo wenamaneyidi weplastiki, iimvalo zamabhodlelo wesimbi, njll; begodu - Akunaankhala ezitjhiywa hlangana nezinto : zifanele zipakelwe ngokulandelana ukuze zithintane • Sebenzisa izinto ezimbili ezifana patsi njengamayunithi angakahleleki. Beka yinye hlanu kwenye, bese ukhambisa yokuthoma uyise kelinye ihlangothi lesibili. Lokhu kwenziwa nakumedwa ngobude besandla, ubude benyawo nofana amagadango • Ukusebenzisa into eyodwa kwaphela njengesimedo esingasisezingeni begodu ngokuyigeda nofana ukumerega lapho iphelela khona ngaphambi kokuyitjhelelisa. Abafundi bafanele bafundiswe ukutjho iyunithi, isib. Incwadi inobubanzi beemuvalo zebhodlelo ezi-12, ikumba yokufundela inobude obumagadango ama-38. Lokha abafundi nasele bamede ngananyana ngiyiphi iyunithi amahlandla ambala, bafanele balinganise bonyana ingaba nobude obungangani beyunithi into efanele imedwe. Ukulinganisa ngaphambi kokumeda kuqakathekile, kodwana kungenziwa kwaphela lokha abafundi nabenze ukumeda ngeyunithi leyo.	Iimfundo ezi-3

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.2 Ubude	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu urekhode ubudeusebenzise iimedo ezingakahleleki isib. Ubude besandla, amagadango, ubude bepensela, izinto zokubala, njll. • Ukuhlathulula ubude bezinto ngokubala begodu nokutjho bonyana anobude obungangani amayunithi angakahleleki • Ukusebenzisa ilimi ukukhuluma ngokumadanisa, isib. ubude, ubufitjhani, mude khulu, banzi khulu. **Ukwethula ukumeda okuhlelekileko** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu nokurekhoda ubudengokusebenzisa amamitha (iintonga emamitha nofana intambo enobude bemitha) njengomuvosimedo ojayelekileko.	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu urekhode ubudeusebenzise iimedo ezingakahleleki isib. Ubude besandla, amagadango, ubude bepensela, izinto zokubala, njll. • Ukuhlathulula ubude bezinto ngokubala begodu nokutjho bonyana anobude obungangani amayunithi angakahleleki • Ukusebenzisa ilimi ukukhuluma ngokumadanisa, isib. ubude, ubufitjhani, mude khulu, banzi khulu. **Ukwethula ukumeda okuhlelekileko** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu nokurekhoda ubudengokusebenzisa amamitha (iintongamamitha nofana intambo enobude bemitha) njengomuvosimedo ojayelekileko.	Abafundi bafanele bafundiswe bonyana ukuze nimadanise ubude, ukuphakama nanyana ububanzi iyunithi efana patsi ifanele isetjenziswe. Isib.nangabe ububanzi bomnyango omedweko bububude besandla obu-20 begodu ububanzi bedeski bububude bamapensela a-8, angekhe utjho bonyana umnyango ubanzi kunedeski. Abafundi bafanele bamede ngamayunithi angakahleleki ahlukahlukeneko, ukuze bakghone • ukuthoma ukuzwisisa bonyana lokha iyunithi nayiyincani , izokusetjenziswa amahlandla amanengana ,isib. ububanzi bekumba yokufundela bungaba magadango ama-20 kodwana kube bubude beenyawo obuma-48. • Thoma ukusebenzisa amayunithi afanele lokho abakumedako, isib. Ukumeda ububanzi bekumba yokufundela ngeemuvalo zamabhodlelo kukumorosa isikhathi. **Ukwethula ukumeda okuhlelekileko** Isikhathi esinengi esisetjenziswa esifundweni sokumeda eGreyidini yesi-2 sifanele sibe kumeda okungakahleleki. Nanyana kunjalo abantwana banganikelwa ithuba lokuthuthukisa ukucabanga bonyana imitha ingangani. Lokho kwenzeka kuhle lokha abafundi nabameda ngesisetjenziswa esiyimitha yinye ngobude(njengerula yemitha, isigodo esiquntwe saba yimitha yinye ngobude nofana iinquntu zentambo enobude bemitha yinye). Ukubona ubude bemitha kusiza abafundi ukwenza umfanekiso wokobana imitha yide kangangani. Kuyakghonakala ukumeda amamitha ngevili lethrandlela , kodwana ubude bemitha abubonakali lula. Abafundi bangathoma ngokuthola izinto ezinobude bemitha yi-1 poro. Kuqakathekile ukuba nezinto eningaqala kizo ngamalanga njengeemadaniso, isib.ububanzi bomnyango nokuphakama kwefesidere buyimitha yi-1 ubude. Lokhu kusiza abafundi basebenziseubude lobu nofana ububanzi abakghona ukububona ukulinganisa ubude bezinye izinto abazimedako. Lokha abafundi nasele banelemuko lokumeda ngamamitha, bafanele balinganise ngaphambi kokunye nokunye ukumeda . Abafundi bangathola izinto ezingaba zide nofana zifitjhani kunemitha li-1. Ekugcineni bangakumeda ubude obuhlukahlukeneko nofana amabanga ngamamitha. **Ukurekhoda iimedo** Nanyana ukumeda kulikghono lokuzijayeza ukwenza, abafundi bafanele barekhode iimedo zabo ngaso soke isikhathi **Ukumeda ubude njengobujamo bokurarulula imiraro neembalo** Ngesikhathi esibekelwe Iinomboro, imiSebenzi noBudlelwana,abafundi bangararulula imiraro esebenzisa ubujamo bobude besimedo ezingakahleleki, isibonelo, ideski likaLebo libubude besandla obu-11. Ideski likathitjhera libubude besandla obu-19. Linobude obungangani itafula likathitjhera? Ukumeda amamitha ngobude Yelela irhelo leenomboro elifanako leThemu leyo, begodu nemihlobo yemiraro ehlukahlukeneko	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.3 Ubungako/ ubudisi	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela, bekurekhodwe ubungako, ngokusetjenzisa iimedo ezingakahleleki begodu nesikala sokudzimelela isib. Amabhulogo, iintina njll. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. elula, ebudisi, elula-khulu, ebudisi-khulu. **Ukwethula ukumeda okuhlelekileko** • Ukumadanisa, ukuhlela nokurekhoda ubungako bezinto ezipakelwe ukuthengiswa ezinobungako obutjengiswe ngamakhilogremu, isib. amakhilogremu ama-2 wereyisi nekhiligremu li-1 leflowuru • Ukumeda ubungako babo ngokusebenzisa isikala sokumeda sangendlini yokuhlambela		Egreyidini yoku-1 kuphakanyiswe bonyana abafundi banqophe ekusebenzeni ngokumeda ukudzimelela uku-: • madanisa ubungako bezinto bunqopha; • hlela nokumadanisa ubungako bezinto ezintathu nofana ezinengi, ngokubeka izinto ngazimbili esikaleni sokudzimelela, bezilandelaniswe zoke izinto; begodu • Thola ubungako bezinto ngokusebenzisa amayunithi angakahleleki wobungako Abafundi banqopha godu ekuthuthukiseni ilimi lokukhuluma ngobungako Ngesikhathi sokusebenza ngesikhathi sokuzijamela abafundi bangazijayeza ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu barekhoda ubungako ngokusebenzisa isidzimelelo begodu namayunithi wobungako obungakatheleki. **Ukumeda ubungako njengobujamo bokurarulula imiraro neembalo** Ukuraralula imiraro neembalo kungaragela phambili ngokusebenzisa ubujamo bobungako obunikelwe ekumedeni okungakahleleki. Ngesikhathi esibekelwe Iinomboro, imiSebenzi noBudlelwana, abafundi bangararulula imiraro esebenzisa ubujamo bobungako besimedo ezingakahleleki, isib. Idasta inobungako bamamabula ali-11. Ibhoksi lamakhrayoni linobungako bamamabula a-8 Zizokuba nobungako bamamabula amangaki nasele zizoke? Yelela irherho leenomboro ezifanele iThemu, nanyana imihlobo ehlukahlukeneko yemiraro efanele iThemu.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.4 Umthamo/ Ivolumu	**Ukumeda okungakahleleki** • Ukulinganisa nokumeda; Ukumadanisa nokuhlela (isib. umthamo ongamumathwa simumathii nasizeleko) ngokusebenzisa iimedo ezingakahleleki isib. lingobho namakopi. • Ukuhlathulula umthamo besimumathi ngokubala nokutjho bonyana mangaki amayunihi angakahleleki angazalisa isimumathi, isib. Ibhodlelo linobungako bamakopi amane **Ukwethulwa kokumeda okuhlelekileko** • Ukulinganisa, ukumeda; ukumadanisa nokuhlela nokurekhoda umthamo wezino ngokumeda amalitha. • Ukumadanisa, ukuhlela nokurekhoda umthamo wezinto ezipakelwe ukuthengiswa, ubungako bazo butlolwa ngamalitha, isib. Amalitha ama-2 webisi, ilitha li-1 lesiselo esimakhaza, amalitha ama-5 wepende		Egreyidini yoku-1 kuphakanyiswe bonyana abafundi banqophe • ekuthuthuseni ilimi lokukhuluma ngemehluko yamavolumu; • ekumadaniseni amavolumu weemumathi ezimbili ezifanako • ekumadaniseni amavolumu weemumathini ezimbili ezingafaniko, khulukhulu iimumathi ezibanzi khulu begodu nezimatsikana khulu • ekumedeni amavolumu nemithamo ngeensetjenziswa begodu namayunithi angakahleleki. **Uyini umthamo? Iyini ivolumu?** Ibhodlelo lingaba nomthamo wamakopi amane, kodwana ngekhe lizale swi, isibonelo, ingamumatha ivolumu yekopi elilodwa lamanzi ngasikhathi. Umthamo ubungako bento engamumathwa simumathi, Ivolumu bungako besikhala esithathwa simumathi (soke isikhala esingaphakathi kwento). Ivolumu bungako besikhala esithathwa simumathi. Kesinye isikhathi abafundi bazokumeda bonyana lingangani iketjezi (nofana isanda nofana ezinye izinto) elingesimumathini. Lokhu kumeda ivolumu yento engesimumathini. Kesinye isikhathi abafundi bazokumeda bonyana isimumathi singamumatha kangangani nasizeleko swi. Ngesikhathi sokusebenza ngokuzijamela abafundi bangajayela ukulinganisa, ukumeda, ukumadanisa Ukupheka nokubhaga kubujamo obuqakathekileko lapho abafundi bangazijayeza ukumeda umthamo. **Ukumeda umthamo njengobujamo bokurarulula imiraro neembalo** Ngesikhathi esibekelwe Iinomboro, amaFankhtjhini noBudlelwana, abafundi bangararulula imiraro esebenzisa ubujamo bobungako / ivolumu besimedo ezingakahleleki, isibonelo, uGogo usebenzisa amakopi amabili wetiye ukwenza ipudinghi. Nakawabuyelela kabili, uzokusebenzisa ibisi elingangani? Zizokuba nobungako bamamabula amangaki nasele zizoke? Yelela irhelo leenomboro elifanako leThemu leyo, begodu nemihlobo yemiraro ehlukahlukeneko.	

IGREYIDI YESI- 2 ITHEMU YOKU- 1 5. UKUPHATHA IDATHA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
5.4 Ukubuthelela nokuhlela idatha	**Ukubuthelela nokuhlela idatha** Buthelela idatha yetlasi nofana yesikolo ukuphendula imibuzo ebuzwa ngutitjhere	**Ukubuthelela nokuhlela idatha** Buthelela idatha yetlasi nofana yesikolo ukuphendula imibuzo ebuzwa ngutitjhere	**Ngikuphi okuhlukileko eGreyidini -1?** • Abafundi abasasebenzi ngeembuthelelo zezinto • Abafundi baragela phambili ngokusebenza ngegrafu yeenthombe-kobabili kwakha umzombe wedatha begodu kuhlaziye igrafu yeenthombe abanikelwe yona. **Ukuphathwa mazombe okupheleleko kwedatha** Ukuphathwa mazombe kwedatha • Abafundi babuthelela ilwazi ukuphendula imibuzo. Esigabeni esisisekelo nesiphakathi umbuzo lo ujwayeleke ukunikelwa ngutitjhere nofana incwadi yokufundisa; • Abefundi bahlukanisa ngemihlobo bebajamisele ilwazi ngezindlela ezenza kubelula ukuhlaziya. Umhlobo wokujamisela lowo abefundi begreyidi -2 bazijayeza yona igrafu yeentombe; godu • Abefundi bahlaziya ilwazi egrafini yeenthombe ngokuphendula imibuzo ebuzwe ngutitjhere. Igrafu yeenthombe yetlasi Kuphakanyisiwe bonyana abefundi begreyidini 2 basebenze mazombe ngokuphathwa Kwedatha epheleleko ngokwenza igrafu yesithombe seklasi okungenani kabili onyakeni (kanye ethemini yoku-1 begodu kanye ethemini ye-3). Ukusebenzisana njengetlasini, kusiza abefundi ukuzibandakanya kizozoke iingaba zekambiso ngaphandle kokulahlekelwa minininggwana yananyana ngiliphi izinga. Isib. Ukugwala iinthombe zoke. Ukwenza igrafu kukuvumela bonyana unqophise abafundi ngamahlangothi abalulekileko wokuphathwa kwedatha begodu nangalokho abadinga ukukwazi ngokuqakatheka kwesimo segrafu yeenthombe **Izimo zegrafu yeenthombe ekufanele abafundi bayifundiswe:** • Igrafu ilebulwa kuphi godu bunjani (isihloko segrafu) • Iingaba zilebulwa kuphi godu bunjani • Igrafu yeentombe ithloga ukuba nento ehlathulula bonyana isithombe ngasinye simayelana nani. • Iinthombe nofana iinkhala zenthombe zithloga ukuba bukhulu obufanako. • Zibekwa bunjani iinthombe ngokulinganako emareyini. • Ifundwa bunjani igrafu	Iimfundo ezi-3
5.5 Ukujamiselela idatha	**Ukujamiselela idatha** Jamiselela idatha yegrafu yeenthombe	**Ukujamiselela idatha** Jamiselela idatha yegrafu yeenthombe		
5.6 Ukuhlaziya bewurhumutjhe idatha	**Ukuhlaziya bewurhumutjhe idatha** Ukuphendula imibuzo ngedatha esegrafini yeenthombe	**Ukuhlaziya bewurhumutjhe idatha** Ukuphendula imibuzo ngedatha esegrafini yeenthombe		

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
			Abafundi kufanele bazi bona kuqakathekile bonyana bathome ngokufunda isihloko segrafu, ukuze bazi bonyana igrafu ikhuluma ngani. Bafanele bafunde godu iinhloko ezibuthabalala nezijame rwe. Abafundi akukakateleleki bonyana bazi amagama aphathelene netheknoloji asetjenzisiwe ukuhlathulula iingcenye zegrafu, kwaphela kufanele bafunde ngaphasi nangehlangothini ukubona bonyana igrafu iphathelene nani. Sivamise ukufunda ukusukela ngesinceleni kuya ngesidleni, kodwana lokha abafundi bafunda amagrafu kufanele bafunde kusukela esinceleni kuya ngesidleni begodu kusuka phasi kuya phezulu. Lokhu kufanele kuhlathululelwe abafundi. Badinga ukuzijayeza amakghono la. **Ukukhetha isihloko begodu ubuze imibuzo yokubuthelela idatha** Egreyidini ye-2 kufanele ubuze imibuzo isib. “Ngiliphi ihlelo lakamabonwakude elithandwa yitlasi lethu?” Abotitjhere abasesigabeni kufanele baqinisekise bonyana iinhloko ezahlukeneko zikhethelwe ukubuthelela idatha nokuhlaziya egreyidini ngayinye. Iihloko ezilingeneko zifaka hlangana umdlalo othandwako, isiselo esimakhaza esithandwako, imibala ethandwako, iinkathi ezidlulile ezithandwako, ukudla okuthandwako, ihlelo likamabonwakude elithandwako njll. **Ukuhlela iingaba zokubuthelela ilwazi** Nikela abafundi irherho leengaba ukukhetha kizo. **Ukujamisela kwedata** Umfundi ngamunye uthola isiquntu sephepha esilinganako ukugwala impendulo zabo. Imigwalo ihlelwe ngamareyi ukwenza igrafu yeenthombe. Iinhloko zingezelelwe emahlangothini nasegrafini. **Ukuhlaziya nokuhlathulula kwedatha** Abafundi baphendula imibuzo ababuzwe yona ngegrafu yeenthombe. Isib. “Ngiliphi ihlelo likamabonwakude elinedumo khulu ngetlasini yethu?” “Ngiliphi ihlelo elithandwa idlanzana labafundi ngetlasini?” “Abafundi abanengi bathanda.....nofana .....? “Bangaki abanye abafundi abakhetha ..... kune .....?	

IGREYIDI YESI-2 ITHEMU YESI-2 1. IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.1 Ukubala izinto	**Ukubala izinto eziphathekako** Linganisa begodu ubale okungasenani ukufikela ku yezinto ngamalanga ngokuthembekako. Iqhinga lokubuthelela liyakhuthazwa	Bala okungasenani ukufikela ku yezinto ngamalanga ngokuthembekako Ukunikela isilinganiso senomboro yezinto ezingahlolwa ngokuzibala.	**Ngikuphi okuhlukileko eThemini yoku-1?** Ethemini lesi-2 irherho leenomboro likhulile begodu abafundi kwanje babala izinto ezili-150. Ngombana le yinomboro ekulu yezinto ukuyibala, umnqopho kufanele ube sekubaleni ngeenqhema. Leli likghono abafundi bebazijayeza lona ukusukela egreyidini yoku-1 begodu iyasetjenziswa erherhweni leenomboro ezikulu. Kuqakathekile bonyana ngokuphela kweThemu abafundi babone ibuthelelo lezinto ezili-150 begodu bangaphamisa indlela enekghono khulu ukuyibala. Ukubala izinto ethemini le kusekela: • ikghono lokubala elitlhogekako ekuzwisiseni ubukhulu bedijithi; • ukubala ngehloko • ukutjho amagama weenomboro • ukukhumbula amatshwayo weenomboro; begodu • Ikghono lokubala elitlhogekako ekubaleni. **lisetjenziswa** Kufanele kuyelelwe khulu iisetjenziswa ezisetjenziswako. • Iinsetjenziswa ezihlelekile, njengemincamo yokubala • I-abhakhasi ukujayeza ukubala ngeenqhema zangalitjhumi • Iinyanda zanga-2, iiynanda zanga-5 nalitjhumi zibalwe zoke. • Amabhlogo weDienes, khulukhulu lawo akhamba ngetjhumi. • Imali yokudlalisa	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.2 Ukubala uye phambili nemuva	**Ukubala uye phambili nemuva nga:** • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 na-200 • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 na -200 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 na-200 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne -0 na-200 • Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne -0 na-200 • Ku-4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne -0 na-200	**Ukubala uye phambili nemuva nga:** • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 na-150 • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 na -150 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 na-150. • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne -0 na-150. • Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne -0 na-99. • Ku-4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne -0 na-100.	**Ngikuphi okuhlukileko eThemini yoku-1?** Ethemini yesi-2 irherho leenomboro lokbala lingezelelekile begodu abafundi bathoma ukubala ngakuthathu nangakune kokuthoma. Lokhu kungathulwanlokha nakubalwa izinto eziphathekako, ukubala entambeni yemincamo yokubala, ukusebenzisaigridi yekhulu nenambalayini. • Ekupheleni kweThemu abafundi bakghona ukuphendula imibuzo enjenge: • Thoma e-132, bala uye phambili ngakunye ukufika e-150 • Thoma e-120 begodu ubale uye emuva ngakunye ukufika e-98 • Thoma ema-60 begodu ubale uye phambili ngakubili ukufika e-100 • Thoma e-100 begodu ubale uye phambili ngakubili ukufika e-138 • Thoma ko-3 begodu ubale uye phambili ngakuthathu ukufika e-30 • Thoma ema-60 begodu ubale uye phambili ngakuthathu ukufika e-42 • Thoma ku-4 begodu ubale uye phambili ngakune ukufika e-40 • Thoma ema-84 ubale uye emuva ngakune ukufika e-68 • Thoma ema-45 begodu ubale uye phambili ngakuhlanu ukufika e-100 • Thoma ukubala e-100 begodu ubale uye emuva ngalitjhumi ukufika e-10 Abafundi kufanele babale baye emuva ukusuka kokhunye nokhunye ukubuyelelwa abakunikelweko.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.3 Amat-shwayo weenom-boro namagama weenom-boro	**Ukukhumbula, ukubona nokufunda iinomboro** • Ukukhumbulaukubona nokufunda amatshwayo wenomboro ukusuka eli 0 ukuya e-200 • Ukutlola amatshwayo wenomboro ukusuka eli-0 ukuya ema-200 • Ukufanisa, ukubona nokufunda igama lenomboro ukusuka eli 0 ukuya e-100 • Ukutlola amagama weenomboro ukusuka eli 0 ukuya e-100.	Ukukhumbula, ukubona nokufunda iinomboro • Ukukhumbula, ukubona nokufunda amatshwayo wenomboro ukusuka kweli 0 ukuya e-150 • Ukutlola amatshwayo wenomboro ukusuka kweli 0 ukuya e-150 • Ukufanisa, ukubona nokufunda igama lenomboro ukusuka eli 0 ukuya ema-50 • Ukutlola amagama weenomboro ukusuka eli 0 ukuya ema-50	**Ngikuphi okuhlukileko eThemini yoku-1?** Abafundi baragela phambili ngokufunda nokutlola amatshwayo weenomboro nokutjho amagama weenomboro ukungezeza irherho leenomboro.abafundi bazabe bakhumbula, bafunda begodu batlola amatshwayo weenomboro ukudlula ikhulu batlole namagamaweenomboro ukufika -50. Iyelelo kufanele lithathwe lokha nawukhuluma ngeenomboro zamadijithi amathathu, isibonelo, kufanele uthi “amakhulu amathathu namatjhumi amabili nantathu” kunokuthi “ kunye, kubili, kuthathu”. Lokha nawutlola iinomboro zamadijithi amathathu hlangana kwe-100 ne-110, idijithi ebujameni betjhumi lili-0. Abafundi abanye bathola kubudisi ukutlola iinomboro lezi ngamatshwayo lokha nabanikelwa amatshwayo ngamagama. Isibonelo, ukutlola i-102 kungaba budisi kwabanye abafundi. Bangatlola i-1002. Amakarada wobukhulu bedijithi alisizo khulukhulu ukusiza abafundi ukuzwisisa bonyana angajamela bunjani iinomboro kuhle. Abafundi bafanele ukunikelwa godu ukujayeza okwaneleko ukutlola iinomboro lezi. Iimbonelo zokurekhoda okutloliweko: • Tlola amatshwayo weenomboro. Ikhulu namatjhumi amathathu nakhunye | Ikhulu namatjhumi amane nekhomba | • Madanisa amagama weenomboro ematshwayeni weenomboro • Zalisa umutjho weenomboro • Zalisa amanambalayini neendlela zeenomboro	

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1.4 Ukuhlathu-lula, uku-madanisa nokuhlele iinomboro	**Ukuhlathulula, ukumadanisa nokuhlela iinomboro ukufika ema-99**	**Ukuhlathulula, ukumadanisa nokuhlela iinomboro ukufika ema-50** • Ukuhlathulula nokumadanisa iinomboro eziphele-leko ngokusebenzisa ukuncani kuna, ukukhulu kuna, kunengi kuna, kungaphasi kuna nokuthi kuyalingana. • Ukuhlathulula nokulandelanisa iinomboro eziphele-leko kusukela kencani ukuya kekulukazi nokusuka kwekulukazi ukuya kwencani khulu. **Sebenzisa iinomborosikhundla ukubonisa ukuhlela, indawo nofana ubujamo** Beka izinto emudeni ukusuka kweyokuthoma ukufikela kweyetjhuminahlanu nofana yokuthoma ukufika kweyokugcina isib. Kokuthoma, kwesibili, kwesithathu..... kwetjhumi.	**Ngikuphi okuhlukileko eThemini yoku-1?** NgeThemu le abafundi baragela phambili ukuhlela nokumadanisa iinomboro. Inambalayini iihlala njalo imfanekiso oqakathekile olisizo khulukhulu ekuhloleni bonyana inomboro ikuphi ekuhlobaneni nezinye iinomboro. Umfanekiso wenambalayini uzakusekela abafundi emaqhingeni wabo wengqondo wokubala. **Imisetjenzana yokuzijamela yokuzijamela** Zijayeza ukutlola kunye ukufika etjhumini Rekhoda okulandelako ngeencwadini zomsebenzi: • Ngiyiphi inomboro eza ngaphambi kwa-46 • ngiyiphi inomboro eza ngemuva kwa-48? • Ngiyiphi inomboro ehlangana kwa-45 nama-47 • Sebeznisa umuda wenomboro begodu uzalise iinomboro ezitjhiyiweko. • Tlola ku-1 okudlula iinomboro lezi: - ku-1 okudlula ama-23 ma ___ - ku -1okudlula ama-29 ma___ - ku -1okudlula ama-42 ma ___ • Tlola ku-1 okungaphasi kweenomboro lezi: - ku -1 okungaphasi kwama-20 ma ___ - ku -1 okungaphasi kwama-31ma ___ - ku -1 okungaphasi kwama -42 ma ___ • Tlola kali-10 okudlula iinomboro lezi: - kali-10 okudlula ama-20 ma ____ - kali -10 okudlula ama 30 ma ___ • Tlola kali-10 okungaphasi kweenomboro lezi - kali – 10 okungaphasi kwama -50 ma ___ - kali – 10 okungaphasi kwama – 40 ma ___ • Tlola iinomborongerhelo ukusuka kwekulukhulu ukuya kwencani khulu. 130, 133, 123, 143, 103, 113) • Zalisa umutjho: - ama -24 a _____ kunama-24 - ama-36 a _____ ne-19	

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1.5 Ubukhulu bedijithi	**Khumbula ubukhulu bedijithi beenomoro zamadijithi amabili ukufika ema-99** • khumbula bonyan idijithi ngayinye ijamele ini • Hlanganisa iinomboro zamadijithi amanbili ngokubuyabuyelela kwangalitjhumi nangakunye. • Fanisa begodu utjho ubungako bedijithi ngayinye.	**Khumbula ubukhulu bedijithi beenomoro zamadijithi amabili ukufika ema-50** • khumbula bonyan idijithi ngayinye ijamele ini • Hlanganisa iinomboro zamadijithi amanbili ngokubuyabuyelela kwangalitjhumi nangakunye. • Fanisa begodu utjho ubungako bedijithi ngayinye.	**Ngikuphi okuhlukileko eThemini yoku-1?** NgeThemu le irherho leenomboro ingezelelekile ukusuka ema-25 ukuya ema-50. Abafundi basebenzisa ilwazi labo lemiqondo yobukhulu bedijithi erherhweni leenomboro ezikulu. NgeThemu le abafundi baragela phambili ngoku: • bala begodu ubonise itjhumi nakunye ngeendlela ezihlukeneko; • bala insetjenziswa ezibuthelelwe mantanzi/ ezithome ngokujanyiswa; • sebenzisa amakarada wobukhulu bedijithi ukubonisa iinomboro ezibuthelelweko zabalwa • Bonisa ukuhlela okuhlukahlukenenko kweenomboro, isibonelo, ama-35 angaboniswa njengama-35 yabokunye abatkjhaphulukileko, amatjhumi a-3 na-5 yabokunye abatjhaphulukileko godu neeqhema ezi-2 zamatjhumi ne-15 yabokunye abatjhaphulukileko; begodu • Yitjho ubungako bedijithi ngalinye • Umsebenzi ongehla uvame ukwenziwa ziinqhema okunqotjwe kizo begodu ngesikhathi sokufunda ngokuzijamela abafundi bnagarekhoda okulandeko 48 = 4 iinqhema zangalitjhumi nabokunye abatjhaphulukileko ababu-8 48 = 40 na 8 Lokhu kusekelwa kusebenzisa amakarada amaflardi nofana amakarada wobukhulu bedijithi **Ubungako bedijithi** Abafundi kufanele bathome ukutjho bona idijithi ngalinye lijamele ini. Buza abafundi: • Uli-7 ujamelel yiphi inomboro ema-27? • U-4 ujamele yiphi inomboro ema-49? Abafundi kufanele basebenzise amakarada wobukhulu bedijithi ukufakazela iintatimende zabo	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
UKURARULULA IMIRARO ESEBUJAMENI				
1.6 Amathekh-iniki wok-urarulula imiraro	Sebenzisa amathekhiniki alandelako lokha urarulula imiraro bekuhlathululwe iinsombululo zemiraro: • Imgwalo nofana iinsetjenziswa eziphathekako isib, iimbali • Ukwakha nokuphula iinomboro • Ukubuyabuyelel kabili nokuhafula phakathi • Amanambalayini	Sebenzisa amathekhiniki alandelako lokha urarulula imiraro bekuhlathululwe iinsombululo zemiraro: • Imgwalo nofana iinsetjenziswa eziphathekako isib, iimbali • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Amanambalayini	Abafundi balindeleke bona bararulule imiraro yamagama basebenzise amathekhiniki alandelako: • Imigwalo nofana iinsetjenziswa eziphathekako isib, iimbali • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Amanambalayini **ukugwala nofana iinsetjenziswa eziphathekako** Abafundi bazaragela phambili nokugwala iinthombe begodu basebenzise iinsetjenziswa eziphathekako ukurarulula imiraro. Ukugwala izinto ngayinye ukufikela ema-30 nofana nema-50 akwanelisi begodu kufanele kungakhuzwa, bakhuthaze bona bafake hlangan amatshwayo weenomboro ekurekhodeni kwabo, okufaka hlangana iinjamiso zeenthombe. Abafundi bangakhuthazwa godu bona batlole imitjho yeenpmboro. Qala amanothi weThemu yoku-1	
1.7 Ukuh-langanisa nokukhupha	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-99.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-50.	**Ngikuphi okuhlukileko eThemini yoku-1?** NgeThemu le abafundi kufuze baragele phambili nokwenza iimbalo zemitjho begodu basebenzele ukusebenzisa amathekhiniki alandelako lokha nabararulula imiraro: • Imgwalo nofana iinsetjenziswa eziphathekako isib, iimbali • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Amanambalayini Umnqopho ngeThemu le ihlala ikurekhoda. Abafundi kufuze kobana batlole phasi imitjho yeenomboro njengerekhodi elitloliweko emrarweni osombululiweko. Kuqakathekile ukuqala bonyana ngibaphi abafundi abahlulekako ukutlola imitjho yeenomboro ukuqalana nomraro othile. Lokha abafundi nabanbawa bona ubabonise bonyana ijanyelwa bunjani imiraro nemitjho yeenomboro emuva kokuyirarulula, sikhathi esihle sokubabonisa Iimbonelo zemiraro okufanele zenziwe ngeThemu le, qala amanothi weThemu yesi-2.	

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1.8 Ukuh-langanisa okurholela ekubuy-abuyeleleni	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukuhlanganisa okubuyelelweko okurholela ekubuyabuyeleleni okunempendulo ufikela e-50.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukuhlanganisa okubuyelelweko okurholela ekubuyabuyeleleni okunempendulo ufikela e-30.	**Ngikuphi okuhlukileko eThemini yoku-1?** Irherho leenomboro leThemu le lingezeleleke lafika ema-30. Abafundi kufuze bagcugcuzelwe ukutlola imitjho yeenomboro. Umuntu angalindela abafundi bonayana basebenzise ukuhlanganisa okubuyelelweko kwemitjho yeenomboro ukubonisa isisombululo. NgeThemu le abafundi kufanele batlole imitjho yeenomboro ebuyabuyelelwako yesisombululo sabo. Bebagade bathulwe etshwayeni lokubuyabuyelela ethemini yoku-1 begodu kufanele basebenzise ilemuko leli lokha nabararulula imiraro yokubuyabuyelela yeenomboro. Ukuhlanganisa okubuyelelweko nomhlobo wemiraro yegridi/yerhemo kufanele kubonise ukubuyabuyelela kwemitjho yeenomboro. Kusazokuba nabafundi abazobanokuzethemba okukhulu ekurekhodeni iinsombululo zabo basebenzisa ukuhlanganisa okubuyelelwe kungasi ukubuyabuyelela. **Iimbonelo zemiraro engenziwa ngeThemu** Uukuhlanganisa okubuyelelweko • Inamavilo amangaki imilelenjana eli-8? • Banamehlo amangaki abantwana abali-9? **Isilinganiso** UThami usela amarhalasi wamanzi asi-6 qobe ngamalanga. Usela amarhalasi mngaki ngeveke? **Amagridi/ Ukurhemisa** UMnu. Khumalo utjala amareyi asi-6 weentjalo zekhabitjhi. Kuneentjalo ezihlanu ereyini .Kuneentjalo zekhabitjhi ezingaki sezizoke?	

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1.9 Ukubuthele-la nok-wabelana okurholela ekuhlu-kaniseni	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqema kweenomboro eziphelelekо ukufika e-99 kanye nempendulo ezingahle zifaka iinsalela	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqema kweenomboro eziphelelekо ukufika e-50 kanye nempendulo ezingahle zifaka iinsalela.	**Iimbonelo zemiraro engenziwa ngeThemu** NgeThemu le yumela abafundi ukusebenzisa imigwalo neensetjenziswa eziphathekako ukubonisa iinsombululo zabo. Imitjho yeenomboro kufanele isetjenziswe. Umfundi angasebenzisa ukukhupha okubuyelelweko ukubonisa bonyana bafike bunjani ependulweni. **Irhemo/ Igridi** UMongezi upakela izinto zokubala ezima-20 ngamareyi ali-10. **Ukubuthelela** *Ukubuthelela, ukulahla okuseleko* Stella sells apples in bags of 6 apples each. She has 40 apples. How many bags of 6 apples each can she make up? UStella uthengisa ama-abhula ngeenkhwama zangesi-6 ngalinye. Unama-abhula ama-40. Angenza iinkhwanyana zama-abhula ali-6 ngasinye amangaki? *Ukubuthelela, ukufaka okuseleko ngependulweni* UBen ufuna ukusela ugogo wakhe amaqanda ama-35. Mabhoksi amangaki wamaqanda angathatha amaqanda asi-6 ibhoksi ngalinye azowafuna ukupakela woke amaqanda? **Ukwabelana** *Ukwabelana, ukulahla okuseleko* • Hlukanisa amaswidi ama-45 hlangana nabangane ukuze boke bathole inani lamaswidi elilinganako. • USue banoGreg benza umsetjenzana bobabili. USue usebenza ama-iri ama-3 uGreg usebenza i-iri yi-1. Babhadalwa amaranda ama-R40. Kufuze bayihlukaniselane bunjani imali le?	
1.10 Ukwabelana okurholela emafra-khtjhinini	Ukurarulula nokuhlathulula iinsombululo zemiraro ezisebujameni efaka hlangana ukwabelana ngokulingana erholela empendulweni zamafraktjhini wohlavu olulodwa Isib. njll.	Ukurarulula nokuhlathulula iinsombululo zemiraro ezisebujameni efaka hlangana ukwabelana ngokulingana erholela empendulweni zamafraktjhini wohlavu olulodwa Isib. njll.	**Ngikuphi okuhlukileko eThemini yoku-1?** Enye yeminqopho yokuthoma ekuthuthukeni kwamafraktjhini kufanele kube ukusiza abafundi bonyana bakhe umbono weengcenye zamafraktjhini yokuzeleko – iingcenye ezitholakala lokha okuzeleko nofana iyunithi nayihlukaniswe ngeengcenye zobukhulu obulinganako nofana ngokwabelana okulingeneko Abafundi baqaleka bazwisisa umqondo wokuhlukanisa ubungako eengcenyeni ezimbili nofana ezinengi ukuhlukaniswa ngokulinganako phakathi kwabangane. Bagcina sebahlanganisa phakathi komqondo wokwabelana ngokulingana neengcenyana zamafraktjhini. Ukwabelana imisetjenzana ziindawo ezihle zokuthoma umqondo wamafraktjhini. Ikharikhulamu yethu ithule godu umqondo wokwabelana okurholela eeengcenyaneni zamafraktjhini. Ukwabelana imisetjenzana kububzwa ngokujayelekileko ngendlela yemiraro yemitjho elula. Ekuthomeni lokha abafundi nabenza imisetjenzana yokwabelana (ukuhlukanisa) bathola bona ukuhlukanisa nofana ukwabelana kutjhiya iinqunjwana zokuseleko. Babelana godu iinqunjwana zokuseleko. Ilimi lamafraktjhini lingathulwa ngomlomo.	

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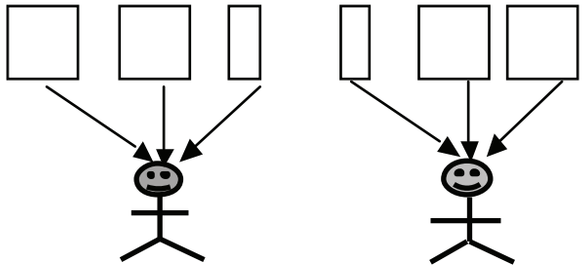
1.10 Ukwabelana okurholela emafra-khtjhinini	Ukurarulula nokuhlathulula iinsombululo zemiraro ezisebujameni efaka hlangana ukwabelana ngokulingana erholela empendulweni zamafraktjhini wohlavu olulodwa Isib. njll.	Ukurarulula nokuhlathulula iinsombululo zemiraro ezisebujameni efaka hlangana ukwabelana ngokulingana erholela empendulweni zamafraktjhini wohlavu olulodwa Isib. njll.	Bese umuntu angatlola amagama wamafraktjhini, isib. Isiquntu sinye, ikotara yinye, ingcenye yinye yobuthathu. Lokha nawutlola ngeengcenye ezinengi zamafraktjhini isib. Iinquntu ezi-3, amakotara ama-3, tlola lokhu njengedijithi nangegama. Itshwayo loku-3 ngaphezu koku-2 nofana oku-3 ngaphezu kwa-4 ayitjho litho begodu kungcono khulu bonyana itshwayo leli litjhiywe esigabeni esiphakathi. **Ukwabelana** Eembonelweni ezingenzasi ubujamo bokwabelana ngokulinganako enensalela ezingabelwa isetjenzisiwe. Abantwana ababili babelana amakuke wetjhokoledi ama-5 ukuze omunye nomunye athole inani elifanako. Umntwana ngamunye angathola mangaki? Abafundi bazokunikela umntwana ngamunye ama-2 bese banqunta phakathi ikuke eliseleko  **Iinsalela** Kuqakathekile bona abafundi bagwale iimpendulo zabo. Ekuthomeni lisa abafundi bahlathulule ngamagama wabo “ingcenye” abayiphulileko. Lindela lokho lokha abafundi nabaqunta ingcenye eseleko. Iingcenye lezo zingaba bukhulu obungalinganiko. Lokhu ngeze kwathelela indlela abahlathulula ngayo ikambiso yokwabelana. Lokha abafundi nabangabelana kuhle, amagama wamafraktjhini anganikelwa eengcenyeni. Ukusuka ekwabelaneni imiraro ngeensombululo ezinensalelo zeensombululo ezinenomboro eziphelelekо neengcenye zamafraktjhini, kutjho bonyana abafundi bavezwe epepeneneni wezingaqhezu neenomboro ezihlangene. Abafundi akukalindeleki bonyana bazi begodu basebenzise itheminoloji. Isibonelo: ingcenye ezi-2 nesiquntu kungatlolwa ngokuhlelekile njengo-2½, eyinomboro ehlangeneko. **Ukwabelana amathaski nelimi lamafraktjhini** Ukucocisana ngemiphumela yabafundi sikhathi esihle sokuthula ilwazi leengcenye zamafraktjhini. Lokha ikuke letjhokoledi naliphulwe ngenquntu ezilinganako, itjho bona, “lokhu sikubiza ngeengcezu ezine”. Ikuke loke liquntwe iingcenye ezine. Iingcenye zoke zinobujamo obufanako. Abafundi kufanele balemuke amahlangothi wamabili weengcenye zamafraktjhini: • Inani leengcenye; begodu • Ukulingana kweengcenye.	

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1.10 Ukwabelana okurholela emafra-khtjhinini	Ukurarulula nokuhlathulula iinsombululo zemiraro ezisebujameni efaka hlangana ukwabelana ngokulingana erholela empendulweni zamafraktjhini wohlavu olulodwa Isib. $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{5}$ njll.	Ukurarulula nokuhlathulula iinsombululo zemiraro ezisebujameni efaka hlangana ukwabelana ngokulingana erholela empendulweni zamafraktjhini wohlavu olulodwa Isib. $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{5}$ njll.	Ukwabelana imisetjenzana kusiza abafundi ukuthuthukisa imiqondo elandelako: • Lokha nasihlukanisa okuthileko ngeengcenye ezi -2 ezilinganako, sizibiza ngeenquntu/ ngamahafu • Lokha nasihlukanisa okuthileko ngeengcenye ezi-3 ezilinganako, sizibiza ngokwesithathu • Lokha nasihlukanisa okuthileko ngeengcenye ezi-4 ezilinganako, sizibiza iinkotara • Lokha nasihlukanisa okuthileko ngeengcenye ezi-5 ezilinganako, sizibiza ngobuhlanu. Umnqopho wamafraktjhini wemiraro yamagama ethemini le uvumela abafundi bonyana ba: • abela ubuthelele izinto ezilinganako; • itjho iingcenye zamafraktjhini; • thola amafraktjhini wezinto eziphelelekо; begodu • bona bonyana ifraktjhini yingcenye yokuzele. **limbonelo** zemiraro ezilungele iThemu yesi-2 • UMompi, uSizwe noGugu kufanele babelane iliqa elisasitina letjhokoledi ngokulinganako. Umntwana ngamunye kufanele athole itjhokoledi engangani? Gwala isithombe ukubonisa ipendulwakho. • UMandla, uBusi, uZitha noThembi babelana amaqa asasitina ama-5. Bangawabelana bunjani ngokulinganako? Gwala isithombe ukubonisa ipendulwakho. • UNomfundo noKarabo babelana iswidi linye le-liquorice. UNomfundo uthi munye namunye kufanele athole isiquntu. Uqinisile? Gwala isithombe ukubonisa ipendulo yakho. Kuqakathekile bonyana lokha abafundi nabagwala iiinsombululo zabo bakghona ukuhlathulula bona babelene bunjani. Ekuthomeni sebenzisa ilwazi labafundi elingakahleleki ukuhlathulula iingcenye zamafraktjhini. Lokha nabanokuzithemba begodu bazwisisa imiqondo “wokuzeleko nokuncanyana”, igama lefraktjhini lingathulwa. Bese umuntu angatlola amagama wamafraktjhini, isib. Isiquntu sinye, ikotara yinye, ingcenye yinye yangakuthathu. Itshwayo lefraktjhini alikathulwa, lokha itshwayo la-1 ngaphezu kwaku-2 ayitjho litho begodu kungcono khulu bonyana itshwayo leli litjhiyelwe amagreyidi ezako.	
1.11 Imali	• Ukukhumbula nokubona imali yeSewula Afrika eziinhlamvu (5c, 10c, 20c, 50c, R1, R2, R5), nemali yamaphepha (R10, R20, R50) • Ukurarulula imiraro yemali efaka hlangana inani netjhentjhi ngamasende kufikela emarandeni ama R99 namasende ama- 90c	• Ukukhumbula nokubona imali yeSewula Afrika eziinhlamvu (5c, 10c, 20c, 50c, R1, R2, R5), nemali yamaphepha (R10, R20, R50) • Ukurarulula imiraro yemali efaka hlangana inani netjhentjhi ngamasende kufikela emasendeni ama 50c namaranda ama- R50	**Ngikuphi okuhlukileko eThemini yoku-1?** NgeThemu le abafundi bazijayeza ukukhumbula imali nokuphula imali ngeengcenyana ezincani. **limbonelo zemiraro ezingenziwa ngeThemu le** • Ungakghona ukwaba amasende ama-50c ngokulinganako hlangana kwabantwana laba abane? Hlathulula bona bunjani? • UJoe usebenzisa amasende ama-50c ukuthenga amaswidi wetjhingamu. Uthenge amaswidi wetjhungamu amangaki? • UThenje ubhadele amaranda R5 ukukhwela itaxi ekuseni ukuya esikoleni. Ubhadela ngemali yephepha ema-R20. Uthola itjhentjhi yamalini? Uzabe anamalini eseleko nakabuyela ekhaya? • Itekhsi kaZurina ibiza amaranda a-R5, 50. Uthola itjhentjhi yamalini ngemarandeni ali-R10? UMia usebenzise amaranda ama-R38. Begade amaranda ama-R50. Yimalini anayo eseleko?	

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UKUBALA OKUSEBUJAMWENI OBUTJHAPHULUKILEKO				
1.12 Amathekh-iniki (iindlela namaqh-inga)	Ukusebenzisa amathekhiniki alandelako nakubalisiswako: • Imgwalo nofana iinsetjenziswa eziphathekako isib, iimbali • Ukwakha nokuphula iinomboro • Ukubuyelel a kabili nokuhafula phakathi • Amanambalayini	Ukusebenzisa amathekhiniki alandelako nakubalisiswako: • Imgwalo nofana iinsetjenziswa eziphathekako isib, iimbali • Ukwakha nokuphula iinomboro • Ukubuyelel a kabili nokuhafula phakathi • Amanambalayini	**Ngikuphi okuhlukileko eThemini yoku-1?** Abafundi balindeleke bonyana bararulule iimbalo zobujamo obutjhaphulukileko usebenzisa amaqhinga alandelako: • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Amanambalayini **Imigwalo nofana iinsetjenziswa eziphathekako** Abafundi baragela phambili ngokugwala iinthombe basebenzisa iisetjenziswa eziphathekako ukurarulula imiraro. Kuqakathekile bonyana iinthombe nofana imigwalo ibe neenomboro begodu nemitjho yeenomboro. **Ukwakha nokuphula** Le ngenye yamaqhinga aqakathekileko esigabeni esisisekelo (isetjenziswa kanenginengi esigabeni esiphakathi)usebenzisa iqhinga leli kuvumela abafundi ukuhlukana (hlukanisa) nokuhlanganisa iinomboro ukusiza ukwenza iimbalo lula. Kuqakathekile bonyana abafundi basebenzise ilwazi abalaziko nabaphula iinomboro isib. • ukuphula usebenzisa ubukhulu bedijithi; • ukuphula usebenzisa ukubuyelela ngali-10; begodu • ukuphula wenze amapara weenomboro isib. Amapara wangama-20 ziyaziwa alo ama-20 angaphulwa ngeendlela ezihlukeneko. **Ukubuyelela kabili nokuhafula phakathi** Abafundi bavame ukuthola ukubuyelela kabili kulula; kodwana, kuqakathekile ukufundisa abafundi ukusebenzisa ilwazi labo ngokubuyelela kabili: • Sebenzisa ukukhumbula kokubuyelela kabili ukubona eduze kokubuyelela kabili **Ukubuyelela kabili** — **Ukubuyelela kabili okuseduze** 12 + 12 — 12 + 13 25 + 25 — 25 + 24 • Sebenzisa iqhinga lokubuyelela kabili begodu uncephezele umehluko, isib. 13 = 14 = ukubuyelela kabili i-13 naku-1 Iqhinga leli ngelinelwazi tle begodu lifuna inomboro mizwa enamandla. Abafundi abakghona ukukhetha itheknini le bamajadu khulu emaqhingeni abawasebenzisako. **Isibonelo:** Ngelanga linye ekliniki abanatwana abama-24 banikelwa iinjektjheni zomgomane. Ngelanga elilandelako abantwana abama-25 bafakwa iinjektjheni. Bantwana abangaki abafakwa iijektjhini sele baboke. Umraro ungararululwa ngokusebenzisa ukubuyelela kabili. Umfundi angatjho bonyana ukubueyela kabili ngama -24 naku-1 nofana ukubuyelela kabili ngama-25 ukhuphe ku-1.	

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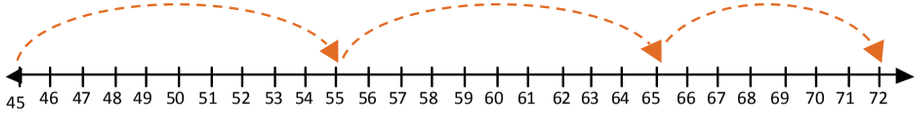
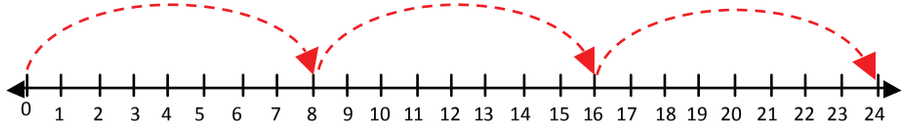
1.12 Amathekh-iniki (iindlela namaqh-inga)	Ukusebenzisa amathekhiniki alandelako nakubalisiswako: • Imgwalo nofana iinsetjenziswa eziphathekako isib, iimbali • Ukwakha nokuphula iinomboro • Ukubuyelel a kabili nokuhafula phakathi • Amanambalayini	Ukusebenzisa amathekhiniki alandelako nakubalisiswako: • Imgwalo nofana iinsetjenziswa eziphathekako isib, iimbali • Ukwakha nokuphula iinomboro • Ukubuyelel a kabili nokuhafula phakathi • Amanambalayini	**Amanambalayini** Ukusebenzisa amanambalayini ukuze ukubasiza nababalako kuzanikela abafundi indlela yokurekhoda ukucabanga kwabo nokulandela umkhondo wayo. Ivumela abafundi godu ukuba nerekhodi lomfanekiso abangayisebenzisa ukuhlathulula bonyana bawurarulule bunjani umraro. Abafundi bebasebenzisa amanambalayini ukusuka egreyidini yoku-1. Njenganje kufanele bakwazi ukwakha amanambalayi angenalitho lapho abazokubeka inomboro ethomako begodu akhethe bonyana usuka bunjani kwenye aye kwenye. Isibonelo sendlela umfundi angasebenzisa inamabalayini: • Ukuhlanganisa nokukhupha Abafundi kufanele bonyana bakhe amanambalayini wabo begodu baphule iinomboro ngeengcenyana ezilawulekako. **Isibonelo:** 45 + 27  • **Ukubuyabuyelela** Amanambalayini kufanele aragele phambili nokusetjenziswa ukusekela ukuhlanganisa okubuyelelwe. Ukweqa okulingeneko kurekhodwa enambalayinini begodu imitjho esekelako nayo ingarekhodwa. **Isibonelo:**  8 + 8 + 8 = 24 ukweqa ka-3 kwango-8 kwenza ama-24 iinqhema ezi-3 zango-8 = 24 3x 8 = 24 Ekubuyabuyeleni okunikelweko abafundi kufanele bakghone ukuhlathulula bonyana imeqo ingenziwa enambalayinini.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.13 Ukuh-langanisa nokukhupha	• Ukuhlanganisa ukufikela ku-99 • Ukukhupha ku-99 • Ukusebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuzijayeza iinomboro ebhodini ukufika e 20	• Ukuhlanganisa ukufikela ku-50 • Ukukhupha ku-50 • Ukusebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuzijayeza ukulumbana kweenomboro ukufika e -15	**Ngikuphi okuhlukileko eThemini yoku-1?** Abafundi egreyidini yesi-2 bazoragela phambili ukusebenzisa iinsetjenziswa eziphathekako neminye imifanekiso ukusiza ukuhloma inomboro mizwa nokubala. Ukusetjenziswa kwemifanekiso le kuzakuba ngokungabonakaliko ukuya nokuya kwesikhathi.ngokuphela konyaka egreyidini yesi-2 abafundi kufanele ukube babala ukufikela eenomborweni yamadijithi amathathu ngaphandle kokusetjenziswa kweensetjenziswa eziphathekako. Abafundi begreyidi yesi-2 baragela phambili uksebenzisa nokutjhega amaqhinga wabo wokubala. Bathloga ukusekelwa ekwenzeni isiqiniseko sokobana ukurekhoda kwabo kungerherho. Ukuze ifundwe ngibo nabanye. Begreyidi yesi-2 bazokusebenzisa ukurekhoda kwemihlobo eminengi bazakuba nokuzethemba okukhulu ekusebenziseni iinomboro begodu namatshwayo njengendlela yokurekhoda. Abafundi kufanele bakghone “ukucabanga” ngemibuzo ababuzwe yona begodu baqale erherhweni leenomboro lomraro ukuthatha isinqumo ngeqhinga elihle khulu. Ngokurarulula imiraro abafundi bathoma ukuthuthukisa amaqhinga wabo wokubala begodu neendlela zabo zokurekhoda. Egreyidini yesi-2 bazokutjhega lokho. NgeThemu le kufanele babe nokuzithemba ekufundeni iindlea zabo zokurekhoda begodu bahlathulula bonyana bafike bunjani ependulweni Abafundi kufanele bakghone ukwenza okulandelako ngokuhlanganisa nangokukhupha: Nanyana abafundi basebenzisa iinsetjenziswa eziphathekako nemifanekiso ukusekela ukubala kwabo nakuza ekusebenzeni ngeenomboro, kufanele bakghone ukubala ngeleveli engaphathekiko. Ngethemini abafundi kufuneka baragele phambili ngemibuzo yokubala ngokubuyelela kabili ngeendlela ezihlukeneko ukuze bakghone ukusebenzisa ukubuyelela kabili okuseduze njengeqhinga lokubala. **Isibonelo:** Buyelela kabili ama-20. Tlola lokhu njengokuhlanganisa imitjho yeenomboro kopa uzalise: • 12 + 12 = □ • 15 + □ = 30 • 16 + □ = 32 • 17 + 17 = □ • 36 = 18 + □ • 38 = □ + 19 Iindlela ezingabakhona zokubonisa ukubala ngokuhlanganisa nangokukhupha.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.13 Ukuh-langanisa nokukhupha	• Ukuhlanganisa ukufikela ku-99 • Ukukhupha ku-99 • Ukusebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuzijayeza iinomboro ebhodini ukufika e 20	• Ukuhlanganisa ukufikela ku-50 • Ukukhupha ku-50 • Ukusebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuzijayeza ukulumbana kweenomboro ukufika e -15	**ukuphula inomboro ibe ziinqunjwana ezincani ukwenza ukubala kube lula** **ukusebenzisa ilwazi lobukhulu bedijithi ukuphula iinomboro ngalitjhumi nangakunye** *Ukuhlanganisa iinomboro zamadijithi amabili ngokuphula innomboror zombili* 23 + 36 = □ 23 + 36 = (20 + 3) + (30 + 6) = (20 + 30) + (3 + 6) = 50 + 9 = 59 **Ukuhlanganisa ngokuphula inomboro yinye** *Ukuhlanganisa iinomboro zamadijithi amabili ngokuphula inomboro yinye* 23 + 36 = □ 23 + (30 + 6) 23 + 30 → 53 + 6 = 59 Abafundi bangaphula inomboro ngeendlea ezihlukeneko ezilawulekako. Lokhu kutjho bonyana bazokwenza ngeendlela ezihlukeneko: 23 + 36 = □ 23 + (10 + 10 + 10 + 6) 23 + 10 → 33 + 10 → 43 + 10 → 53 + 6 = 59 Ukukhupha ukuphula iinomboro zombili 47 – 26 = □ 47 – 26 = (40 + 7) – (20 + 6) = (40 – 20) + (7 – 6) = 20 + 1 = 21 42 – 26 = □ 42 – 26 (30 + 12) – (20 + 6) 30 – 20 = 10 12 – 6 = 6 10 + 6 = 16	

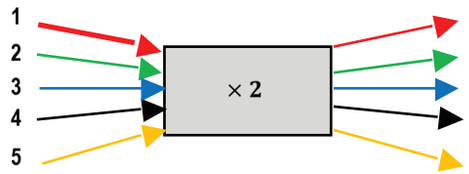
IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.13 Ukuh-langanisa nokukhupha	• Ukuhlanganisa ukufikela ku-99 • Ukukhupha ku-99 • Ukusebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuzijayeza iinomboro ebhodini ukufika e 20	• Ukuhlanganisa ukufikela ku-50 • Ukukhupha ku-50 • Ukusebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuzijayeza ukulumbana kweenomboro ukufika e -15	• Ukukhupha ngokuphula inomboro 47 – 26 = □ 47 – (20 + 6) 47 – 20 = 27 27 – 6 = 21 42 – 26 = □ (30 + 12) – 26 30 – 26 = 4 12 + 4 = 16 lindela bonyana abanye abafundi banga phula inomboro ngeendlela ezihlukeneko ukwenza bulula izinto bonyana babale: 47 – 26 = □ 47 – (10 + 10 + 6) 47 – 10 → 37 – 10 → 27 – 6 = 21 **Ukusebenzisa ilwazi langaphambili njengamathekniki** Amathekniki aboniswa ngenzasi avumela abafundi bonyana bahlele kuhle ukubala kwabo nemizwa yeenomboro. Ukujayeza amathekniki angenzasi kuzokuthaza abafundi bonyana batjengise ubudlelwano hlangana kweenomboro nokufundisa abafundi bonyana bakghone ukusebenzisa nokutjengisa ilwazi labo ukubasiza ukubala. **Bala uye phambili nemuva** 48 – 39 = □ Ukubala uye phezulu ngakunye ukusuka ema-39 liqhinga elifaneleko ngombana iinomboro zitjhidelene. Ukulemuka ukubuyelela kabili okuseduze 24 + 25 uhlathulula bonyana kubuyelwe kabili ngama-24 naku-1 nofana kubuyelelwe kabili ngama-25 naku-1. 24 + 24 + 1 Abafundi bangarekhoda amaqhinga wabo basebenzisa amasungulo 24 + (20 + 4) + 1 24 + 20 → 44 + 4 → 48 + 1 = 49	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.13 Ukuh-langanisa nokukhupha	• Ukuhlanganisa ukufikela ku-99 • Ukukhupha ku-99 • Ukusebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuzijayeza iinomboro ebhodini ukufika e 20	• Ukuhlanganisa ukufikela ku-50 • Ukukhupha ku-50 • Ukusebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuzijayeza ukulumbana kweenomboro ukufika e -15	**Ukusebenzisa ukuqunta kabili/ukuhafula ukuphula inomboro** 29 + 12 29 + (6 + 6) 29 + 6 → 35 + 6 = 41 **Tjhugulela inomboro ekubuyabuyeleni kwalitjhumi begodu ukhuphe nofana uhlanganise** Bala uye phezulu nofana phasi enomborweni eseduze ne-10 28 + 19 = □ La abafundi kufuze bazitjele bonyana banamandla wokuthetha amabili. Tjhugulula ama-28 nofana i-19 ebuyelelweni eliseduza langali-10. Bazazikhethela. Isibalo singatlolwa bunje: 28 + 19 = 28 + 20 - 1 28 + 20 → 48 - 1 = 47 Abanye abafundi bangaphula ama-20 ngeenqhema ezi-2 zangali-10 ukubala kuhle. Kusiza abafundi ukuba nokuzithemba okukhulu eembalweni nofana ngokuzijamela eembalweni, nabanamaqhinga - ukuhlola iinsombululo zabo; begodu - Ukuhlulela ukuzwakala kweensombululo zabo.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.14 Ukuh-langanisa okubuyele-lweko okurholela ekubuy-abuyeleleni	• Buyabuyelela iinomboro ku-1ukufika e- 10 ngaku – 1, 2,5,3 na-4 • Ukusebenzisa amatshwayo afaneleko (+, -, =, □)	• Buyabuyelela iinomboro ukufika ku 10 ngaku -2 nesi 5 • Ukusebenzisa amatshwayo afaneleko (+, -, =, □)	**Ngikuphi okuhlukileko eThemini yesi-12** Ngethemini yesibili abafundi batjheje ukujayeza ukuzwisisa ukubuyabuyelela. Ukubuyabuyelela ku-1 ukufike e-10 ngaku-5 kuthulwa. Ukwethula ukubuyabuyelela ngaku-5, qala amanothi wokubuyabuyelela ngaku-2 ethemini yoku-1. Ekupheleni kweThemu abafundi bafanele bakghone ukurekhoda okulandelako: Isiqhema si-1 saku-5 ku-5 nofana ku-1 ukubuyabuyelele ngaku-5 ku-5 nofana 1 × 5 = 5 Iinqhema ezi-2 zaku-2 ku-4 nofana ku-2 ukubuyabuyelele ngaku-2 ku-4 nofana 2 × 2 = 4 Iinqhema ezi-3 zaku-2 si-6 nofana ku-3 ukubuyabuyelele ngaku-2 si-6 nofana 3 × 2 = 6 Umnqopho awukho ekufundeni ngehloko kodwana ekwakheni umqondo wokubuyabuyelela. Abafundi bafunda ukufunda begodu bazwisisa imitjho yeenomboro yokubuyabuyelela. Imifanekiso yokubuyabuyelela ukubuyabuyelela kufanele kunikelwe begodu nokurekhoda okunengi kwenziwe encwadini yomsebenzi. Iimbonelo zomsebenzi otloliweko Ukurekhoda emathebuleni:	

Inani labantwana	1	2	3	4	5	6	7	8	9
Inani lemilenze									

Amatjhadi naneko

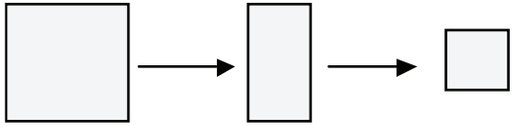
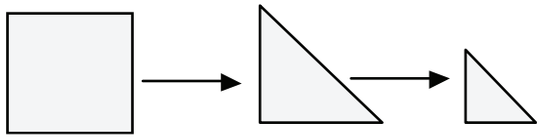


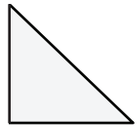
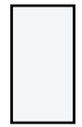
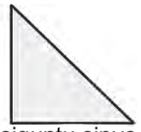
Lokha nawusebenza ngeenomboro zamaphetheni, ukubuyabuyelela kungahlanganiswa nokubala okweqako, ngokuphenya amaphetheni wokubuyabuyelela egreyidini yenomboro.

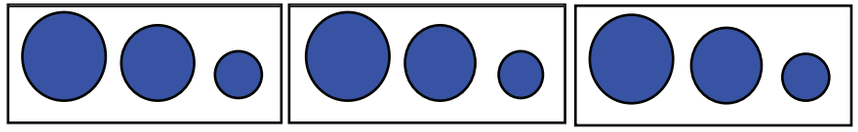
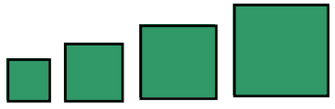
Isibonelo: Abafundi bangarekhoda abobili nabohlanu egreyidini yenomboro. Bangakhuluma ngokuthi ngiziphi iinomboro ezenzeka ngemathebuleni wokubuyelela kabili neyokubuyelela kahlanu.

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.16 limbalo zehloko	**Umqondonomboro: Irherho lama-99** • Ukurhemisa iinomboro ezikhethiweko ngokwesede enikeliweko. • Madanisa iinomboro ukufika ema-99 utjho bonyana ngiyiphi e-1, 2, 3, 4, 5 nakunengi nofana ngakuncani nge-10 **Ukukhumbula:** • Amaphuzu wokuhlukanisa nokukhupha ukufika ema-20 • hlanganisa nofana ukhuphe ukubuyelela kali-10 ukusuka e-0 ukufika 100 **Amaqhinga wokubala** Ukusebenzisa amaqhinga wokubalisa ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu ekuthomeni ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini • Ukubuyelela kabili nokuhafula phakathi • Ukwakha nokuphula • Sebenzisa ubudlelwano hlangana kokuhlanganisa nokukhupha	**Umqondonomboro: Irherho lama-20** • Ukurhemisa iinomboro ezikhethiweko ngokwesede enikeliweko. • Madanisa iinomboro ukufika e-100 utjho bonyana ngiyiphi e-1, 2, 3, 4, 5 nakunengi nofana ngakuncani nge-10 **Ukukhumbula:** khumbula ukuhlanganisa nokukhupha amaphuzu ukufika e-10 **Amaqhinga wokubala** Ukusebenzisa amaqhinga wokubalisa ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini • Ukubuyelela kabili nokuhafula phakathi • Ukwakha nokuphula • Sebenzisa ubudlelwano hlangana kokuhlanganisa nokukhupha	**Umqondonomboro:** Amaqhinga wokubala, umqondonomboro, ilwazi namaphuzu weenomboro aziwako ayathuthukiswa ngokurarulula imiraro nokubala. Lezi zijayeza ngesikhathi seembalo zehloko. Lokhu kusiza abafundi bonyana babajayele begodu bakghone ukuzisebenzisa ngobulula lokha nababala begodu nabararulula imiraro ngebujameni. **Isibonelo** semibuzo engabuzwa: **Amagama weenomboro namatshwayo** Phakamisa ikarada nofana utlole phasi igama lenomboro. Khetha umfundi ukutlola inyumerali emadanako. **Okunengi nofana okuncani** Khuyini oku? • okuncani nga-1 ema -50 • okunengi nga-1 ema -39 • okuncani ngaku-3 kunama -27 • okunengi ngali-10 kunama -20 Ngiyiphi iledere yesi-5 ye-alfabhethi? Ngiyiphi inyanga ye-9 enyakeni? **Ngaphambi nofana ngemuva** Ngiyiphi inomboro eza ngaphambi kwama-37? Ngiyiphi inomboro eza ngemuva kwama-39? **Ukuhlela nokumadanisa** Ngiyiphi enengi: ama-21 nofana ama-41? Nginikela inomboro hlangana kwama-37 nama-39. **Amaphuzu wokuhlanganisa nokukhupha:** Qala amanothi weThemu yoku-1	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.16 Iimbalo zehloko	**Umqondonomboro: Irherho lama-99** • Ukurhemisa iinomboro ezikhethiweko ngokwesede enikeliweko. • Madanisa iinomboro ukufika ema-99 utjho bonyana ngiyiphi e-1, 2, 3, 4, 5 nakunengi nofana ngakuncani nge-10 **Ukukhumbula:** • Amaphuzu wokuhlukanisa nokukhupha ukufika ema-20 • hlanganisa nofana ukhuphe ukubuyelela kali-10 ukususka e-0 ukufika 100 **Amaqhinga wokubala** Ukusebenzisa amaqhinga wokubalisa ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu ekuthomeni ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini • Ukubuyelela kabili nokuhafula phakathi • Ukwakha nokuphula • Sebenzisa ubudlelwano hlangana kokuhlanganisa nokukhupha	**Umqondonomboro: Irherho lama-20** • Ukurhemisa iinomboro ezikhethiweko ngokwesede enikeliweko. • Madanisa iinomboro ukufika e-100 utjho bonyana ngiyiphi e-1, 2, 3, 4, 5 nakunengi nofana ngakuncani nge-10 **Ukukhumbula:** khumbula ukuhlanganisa nokukhupha amaphuzu ukufika e-10 **Amaqhinga wokubala** Ukusebenzisa amaqhinga wokubalisa ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini • Ukubuyelela kabili nokuhafula phakathi • Ukwakha nokuphula • Sebenzisa ubudlelwano hlangana kokuhlanganisa nokukhupha	**Amaqhinga wokubala** Sebenzisa amaqhinga wokubala okuhlanganisa nokukhupha ngokuphumelela. Hlanganisa iinomboro ezimbalwa ngokusebenzisa amaqhinga anjengo: • Qala iimpara zeenomboro ezingenza i-10 uzisebenzise mantanzi 2 + 7 + 8 2 + 8 benza i- 10 hlanganisa ne-7 Beka inomboro ekulu ekuthomeni ukuze ubale uye phambili nofana bala uye emuva. • Thoma ngenomboro ekulu khulu 3 + 6 Yitjho godu umutjho wenomboro: 6 + 3 begodu ubale uye phambili ngesi-9 • Sebenzisa ukubuyelela kabili njengeqhinga lokubala ngehloko Bona ukubuyelela kabili okuseduze. **Isibonelo:** 5 + 4 = 9 hlathulula bonyana ukubuyelela kabili kwanga-4 naku-1 nofana ukubuyelela kabili kwanga-5 ukhupha ku-1 Khumbula bonyana lokha iinomboro ezimbili zitjhidelene ngobukhulu kulula ukuthola umehluko ngokubala uye phezulu kunokubala uye emuva. 8 – 6 = 2 begodu hlathulula bonyana ukubala uye phezulu ukususka esi-6 ukuya e-8 kukunikela oku-2 Ezinye iimbalo zehloko zingenziwa ngaphandle kweensetjenziswa, kodwana kuyasiza ukwenza i imbalo zehloko ngeensetjenziswa. Iinsetjenziswa eziphakamisiweko • Inambalayini (ehlelekileko nenganalitho) • Igridi yenomboro • amakarada wobukhulu beenomboro (amakarada wamaflardi) • Ukubala imincamo	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.17 Amafra-khtjhini	• Sebenzisa begodu utjho amafrakhtjhini okufaka hlangana iinquntu,/amahafu amakotara, iingcenye ezintathu neengcenye ezihlanu • Ukubona amafrakhtjhini ngendlela yedayagremu • Ukutlola amafrakhtjhini njengesiquntu si-1, iingcenye ezi-2 zobuthathu	• Sebenzisa bewutjho amafraktjhini okufaka hlangana amahafu, amakota, isithathu begodu nesihlanu • Ukubona amafraktjhini ebujameni obuyidayagremu • Tlola amafraktjhini njenge siquntu si-1 ubu-2 kobu-3	**IThemu le inqophise:** Ethemini le abafundi bathulwa emafraktjhinini. Abafundi bazothulwa emafraktjhinini ngokwabelana imiraro yamagama nemisetjenzana Nokho ke, umnqopho weengcenye zamafraktjhini uqakathekile bonyana kufanele ithuthukiswe ukuya phambili usebenzisa imisetjenzana efakiweko. • Ukwenza ubujamo besiquntu nekotara ngokubhinca nokuqunta. Abafundi bangabhinca iphepha ngesiquntu batjhoingcenye ngayinye. Kuqakathekile bonyana bazwisie bonyana lokha nawenza iingcenye ezifanako ngokhunye, ubiza iingcenye ngayinye isiquntu/ihafu. Bangabuyelela godu babhince isiquntu/ihafu sephepha. Okuqakathekile la ngukubhinca iphepha ngeendlela ezihlukeneko ukufumana isiquntu/ ihafu esihlukileko  nofana  Ngaso soke isikhathi bawa abafundi ukubikezela bonyana ziiinquntu ezingaki abazozithola begodu ukubavumela bonyana baphuthulule iphepha bahlole. Ukumadanisa iingcenye ezimbili ezingafaniko nofana ubujamo obubili obungafaniko bamakotara kungarholela eenkulumeni ezikarisako zobujamo nobukhulu.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.17 Amafra-khtjhini	• Sebenzisa begodu utjho amafrakhtjhini okufaka hlangana iinquntu,/amahafu amakotara, iingcenye ezintathu neengcenye ezihlanu • Ukubona amafrakhtjhini ngendlela yedayagremu • Ukutlola amafrakhtjhini njengesiquntu si-1, iingcenye ezi-2 zobuthathu	• Sebenzisa bewutjho amafraktjhini okufaka hlangana amahafu, amakota, isithathu begodu nesihlanu • Ukubona amafraktjhini ebujameni obuyidayagremu • Tlola amafraktjhini njenge siquntu si-1 ubu-2 kobu-3	Ungabuza abafundi: Ngingabiza ubujamo lobu obubili ngegama elifanako lenomboro, isiquntu esisodwa?   Ngitjengisa bonyana ngingabiza ubujamo lobu obubili ngegama lenomboro ikotara yinye. Abafundi kufanele batjho ingcenye ngayinye begodu lokhu kungenziwa ngokutlola amafrakthjini. Isibonelo: ikotara yinye  isiquntu sinye • Ukuhlanganisa ukwenza okupheleleko Abafundi abasebenzise amafraktjhini weendulungu nofana basike iindulungu emaphepheni ukuthola bonyana isiquntu nekotara kungahlanganiswa bunjani ukwenza okupheleleko godu. • Ukufaka umbala emafraktjhinini Imisetjenzana le ikhuthaza: • ukwazi bonyana amafraktjhini aziingcenye ezifanako; • ukubona iingcenye zamafrakthjini; nokutjho iingcenye zamafraktjhini. **Ukutlola amagama wamafraktjhini** Abafundi asibathuli ekutloleni amatshwayo wamafraktjhini. Abafundi bafunda ukulebula iingcenye zamafraktjhini ngokutlola isiquntu?ihafu sinye nofana ikotara yinye.	

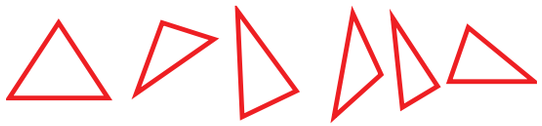
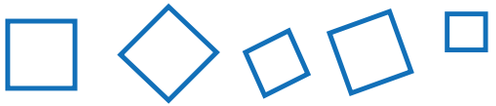
IGREYIDI YESI- 2 ITHEMU YESI- 2 2. AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.1 Amapheth-eni weJi-yomethri	**Kopa ,ungezelele bewuhlathulule** Kopa ,ungezelele bewuhlathulule ngamagama • Amaphetheni alula enziwe ngezinto eziphathekako • Amaphetheni alula enziwe ngemigwalo yemida,ubujamo nafana izinto . **Tlama begodu uhlathulule amaphetheni wakho** tlama amaphetheni weJiyomethri • Ngezinto eziphathekako • Ngokugwala imida, ubujamo nofana izinto **Amaphetheni asizombelezileko** Ukubona, ukuhlathulula ngamagama nokukopa amaphetheni weJiyomethri • Ngokwemvelo, • Kusukela epilweni yangamalanga yesimodeni, • kusukela kezamagugu nendabuko yethu.	**Kopa ,ungezelele bewuhlathulule** Kopa ,ungezelele bewuhlathulule ngamagama • Amaphetheni alula enziwe ngezinto eziphathekako • Amaphetheni alula enziwe ngemigwalo yemida,ubujamo nafana izinto . **Tlama begodu uhlathulule amaphetheni wakho** tlama amaphetheni weJiyomethri • Ngezinto eziphathekako • Ngokugwala imida, ubujamo nofana izinto	Egreyidini yoku-1 neyesi -2,eThemini yoku-1, kuphakamisiwe bonyana abafundi basebenzise amaphetheni anamalunga (ubujamo, imida nofana izinto) aphindwe ngendlela elinganako. Ethemini ye-2 yegreyidi ye-2 abafundi bangathoma ukusebenza ngamaphetheni lapho ubukhulu bamajamo nofana inomboro zamajamo zitjhuguluka ngendlela yokubonela phambili. Amaphetheni ambadlwana aneenqhema zobujamo ezifana khulu nofana izinto ezibuyelelweko, lapho ubukhulu bobujamo eengcenyeni ngayinye itjhuguluka ngendlela ejayelekileko yokubonela phambili. Isib. Ubujamo bubabuncani  Amanye amaphetheni enziwa ngomhlobo owodwa wobujamo, kodwana isibonelo ngasinye sobujamo siyanda nofana siyaphunguka ngobukhulu **Isibonelo:**  Amanye amaphetheni ambadlwana enziwa ngeenqhema lapho amajamo afanako wezinto avelako, kodwana inomboro yomhlobo yobujamo obuthile nofana into iyanda nofana iyaphunguka ngendlela ejayelekileko isib Ukukopa iphetheni kusiza abafundi ukubona ilojikhi yokuthi iphetheni yenzwe njani. Ukungezelela iphetheni kusiza abafundi ukubona bonyana bayizwisisile ilojikhi yephetheni. Ukuhlathulula amaphetheni kusiza abafundi ukuthuthukisa amakghono welimi nowokukhuluma. Isiza nawe ukubona bonyana abafundi bayihlathulule njani iphetheni. Kuvamile ukubalula bonyana abafundi bakhulume ngephetheni ngemuva kokuyenza. Ngalesisikhathi abafundi kufanele bakwazi ukuhlathulula amaphetheni ngaphandle kosizo lwemibuzo ekhokhelako. Ragela phambili ngomnqopho wokuthuthukisa ilimi abalitlhogako ukuhlathulula amaphetheni.	Isifundo esi-1

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.2 Amaphe-theni weenom-boro	**Ukukopa, ukungezelela nokuhlathulula** Ukukopa, ukungezelela nokuhlathulula ukulandelanisa kweenomboro ezilula ukufika ku-200 **Tlama begodu uhlathulule amaphetheni wakho** Tlama begodu uhlathulule amaphetheni weenomboro	**Ukukopa, ukungezelela nokuhlathulula** Ukukopa, ukungezelela nokuhlathulula ukulandelanisa kweenomboro ezilula ukufika ku-150. Ukulandelanisa kufanele kubonise ukubalela ukuya phambili nemuva nga: • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 ne-150 • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-150 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-150 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne -0 ne-150 • Ku-3 naku-4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne -0 ne-150	Qala amanothi eThemini 1, kodwana wandise irherho leenomboro ukuya e-150	Iimfundo ezi-3

IGREYIDI YESI-2 ITHEMU YESI-2 3. ISIKHALA NOBUJAMO (JIYOMETHRI)				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.1 **Ubujamo, ukuzijayeza nokubukela**	**Ilimi lobujamo** Ukuhlathulula ubujamo bento yinye ngokuhlobane nenye isib. ngaphezulu, ngaphambi kwe, ngemuva, esinceleni, ngesindleni, phezulu, phasi, eqadi kwe Ubujamo nokubukela Madanisa imibono ehlukeneko yezinto zangamalanga ezifanako **Indawo nekombatjhuba** Landela ilayelo ukukhambakhamba ngetlasini	**Ilimi lobujamo** Ukuhlathulula ubujamo bento yinye ngokuhlobane nenye isib. ngaphezulu, ngaphambi kwe, ngemuva, esinceleni, ngesindleni, phezulu, phasi, eqadi kwe **Indawo nekombatjhuba** Landela ilayelo ukukhambakhamba ngetlasini .	**Umnqopho ophakanyisiweko weThemu 2: ubujamo belimi endaweni, ukulandela ikombatjhuba** Umnqopho ethemini ye-2 ungaba sendaweni nasekuzijayezeni. NgeThemu yesi-3 abafundi bangasebenza ngemibono. Thoma ngokuhlola lokha abafundi abakwaziko begodu ukhumbule indawo nokuzijayeza. **Ngikuphi okuhlukileko kuneThemu yoku-1?** Egreyidini ye-2, abafundi bahlanganisa umsebenzi abawenze ngendawo, ukujayela nemibono egreyidini yo-1. **Ubujamo belimi endaweni** Ubujamo belimi endaweni kufanele kuthulwe begodu bujayezwe ngemisetjenzana eyenzekako ebandakanya abafundi emisikinyekweni ephathekako, kubalwa iingoma nemidunduzelo enemisikinyeko begodu nemidlalo enamagama anomsikinyeko. Lokhu kungenziwa ngesikhathi sokufundisa itlasi loke nofana ngesikhathi sokufundisa isiqhema esinqotjhiweko. Kuphakanyiswe bona usebensize iinfundo ezimbili zemisetjenzana yobujamo ethemini ye-2, kodwana ragela phambili ukuthula nokujayeza amagama wobujamo engcenyeni ezifitjhani zetlasi loke, isiqhema esinqotjhiweko nesikhathi somsebenzi sokuzijamela. Ubujamo belimi endaweniingajayeza ngesikhathi sesifundo seLimi namaKghono Wepilo. Ubujamo belimi endaweni bungahlanganiswa ngokurekhodwa okutloliweko njengokufaka umbala nofana ukumadanisa imigwalo ngamgama, ukugwala into nofana ubujamo nabatjhelwe ukuhlobana kobujamo nezinye izinto nofana ubujamo, ukufaka umbala nofana ukumadanisa imigwalo ngamagama. **Indawo nekombatjhuba** Ukufundisa abafundi ukulandela ikombandlela kufanele kwenziwe ngemisetjenzana eyenzekako lapho abafundi bazikhambela bona balandela imiyalelo. Egreyidini ye-2 abafundi banganikelwa nofana ngomlomo nofana ikombatjhuba etloliweko ukukhambakhamba ngetlasini, isib. “yiza phambili etlasini”; ‘jama eqadi kwesitulo”; “yeqa ngaphezu komgqomu weenzibi”.	Iimfundo ezi-2

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.2 **Izinto ezi-busontathu (3-D)**	**Imihlobohlobo yamajamo** Ukukhumbula nokutjho izinto ezi 3-D ezingetlasini neenthombeni • Ubujamo bebhola (indulungu) • Ubujamo bebhoksi (iphrizimu) • Amasilinda **Amatshwayo wezinto** Hlathulula, uhlele ngamananeko umadanise ubujamo be 3-D ngokuya nga: • Bukhulu • Izinto ezigedekako • Izinto ezitjhelelelako **Imisetjenzana enqotjhiweko** Ukuqala nokwakha izinto ze 3-D ezinikelweko ngokusebenzisa imethiriyeli ephathekako ezifana namajamo wabo 2-D asikiweko , amabhlogo wokwakha, ukubuyelela iberegise into esetjenzisiweko, ipahla esetjenziswa emsebenzini wokwakha, nezinye izinto zeJiyomethri ne 3-D.		Akunamnqopho onqophileko womsebenzi ophakanyisiweko weThemu ye-2. Kodwana, umsebenzi wobujamo-3-D ungahlanganiswa ngemisebenzi etlolwako. Abafundi bangaragela phambili ukwakha izinto zobujamo be 3-D ngemathiriyali ebuyelelwe yasetjenziswa godu nofana amakhidi wokwakha ngesikhathi sokusebenza ngokuzijamela.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.3 Amajamo abobusobu-bili (2-D)	**Amajamo ahlukahlukeneko** Ukubona nokutjho amajamo be 2-D • Indulungu • Uncantathu • Isikwere • Uncamane **Amatshwayo wamajamo** Hlathulula, uhlele ngemihlobo begodu umadanise amajamo abobusobubili (2-D) ngokuqala lokhu: • Ubukhulu • Umbala • ubujamo • amahlangothi anqophileko • amahlangothi aziindulungu	**Amajamo ahlukahlukeneko** Ukubona nokutjho amajamo be 2-D • Indulungu • Uncantathu • Isikwere • Uncamane **Amatshwayo wamajamo** Hlathulula, uhlele ngemihlobo begodu umadanise amajamo abobusobubili (2-D) ngokuqala lokhu: • Ubukhulu • Umbala • ubujamo • amahlangothi anqophileko • amahlangothi aziindulungu	**Ngikuphi okutjha ngegreyidini ysie-2** • aboncantathu Umsebenzi omnengi wobujamo egreyidini ye-2 wenziwa ngokwenza ngezinto eziphathekako. Woke umsebenzi kufanele uhlanganiswe ngemisebenzi etloliweko. Abafundi bathoma ngomdlalo otjhaphulukileko ngobujamo obuhlukahlukeneko kubalwa nokwenza iinthombe ngojamo obusikelwe futhi bejeyomethri. Lokhu kungenziwa ngesikhathi sokuzijamela. Lokhu kungenziwa godu ngesifundo samaKghono Wepilo. Abafundi bakhopha iinthombe ezenziwe ngobujamo bejeyomethri. Iinthombe lezi zinganikelwa botitjhere nofana incwadi yokufunisa. Lokhu kusiza abafundi bona bakghone ukufanisa. • iindulungu neenkwere zobukhulu obuhlukeneko; • iinkwere, aboncamane naboncantathu ebujameni obuhlukeneko • Aboncamane naboncantathu bobujamo obuhlukeneko. Lokhu kungenziwa ngesikhathi sokuzijamela. Lokhu kungenziwa godu ngesifundo samaKghono Wepilo.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.3 Amajamo abobusobu-bili (2-D)	**Amajamo ahlukahlukeneko** Ukubona nokutjho amajamo be 2-D • Indulungu • Uncantathu • Isikwere • Uncamane **Amatshwayo wamajamo** Hlathulula, uhlele ngemihlobo begodu umadanise amajamo abobusobubili (2-D) ngokuqala lokhu: • Ubukhulu • Umbala • ubujamo • amahlangothi anqophileko • amahlangothi aziindulungu	**Amajamo ahlukahlukeneko** Ukubona nokutjho amajamo be 2-D • Indulungu • Uncantathu • Isikwere • Uncamane **Amatshwayo wamajamo** Hlathulula, uhlele ngemihlobo begodu umadanise amajamo abobusobubili (2-D) ngokuqala lokhu: • Ubukhulu • Umbala • ubujamo • amahlangothi anqophileko • amahlangothi aziindulungu	**Ukumadanisa nokuhlathulula amajamo we-2-D: ubukhulu** Abafundi bamadanisa ubukhulu bobujamo obufanako isib. • hlela iindulungu ukusukela kwencani khulu ukuya kwekulu khulu, • beka zoke iinkwere nofana ubukhulu obufanako endaweni yinye, Sebenzisa ilimi lobukhulu ukumadanisa ubujamo obuhlukeneko isib. “ngigwale uncamane ngaphakathi kwesikwere, ngakho-ke uncantathu mncani kunesikwere. **Ukuhlathulula amajamo we-(2-D): umbala** Abafundi bakhuluma ngemibala yobujamo begodu bahlela ubujamo ngokuya ngombala. Ukufanisa nokutjho izinto nemibala yazo, begodu nokumadanisa ubukhulu bezinto, kungajayezwa ngesikhathi sokusebenza ngamaphetheni. **Ukukhumbula nokutjho iindulungu, aboncantathu, iinkwere naboncane.** Abafundi kufanele basebenze ngeendulungu nangeenkwere zobukhulu obuhlukeneko nangaboncantathu bobujamo obuhlukeneko. Kuqakathekile bona abafundi bangaboni isibonelo sinye sobujamo ngabunye. Amasede wobujamo amaninginwokurhweba anikela isibonelo sinye saboncantathu. Abafundi kufanele bakghone ukukhumbula. - Aboncantathu anamajamo ahlukahlukeneko begodu abekwa ngeendlela ezingafaniko. Lezi ngezinye zeembonelo zaboncantathu  - Iinkwere zobukhulu obuhlukeneko, zabekwa ngeendlela ezihlukeneko. Lezi ngezinye zeembonelo zeenkwere:  - Aboncamane bamajamo ahlukeneko, abekwe ngeendlela ezihlukeneko. Lezi ngezinye zeembonelo zaboncamane 	Iimfundo ezi-3

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3.3 Amajamo abobusobu-bili (2-D)	**Amajamo ahlukahlukeneko** Ukubona nokutjho amajamo be 2-D • Indulungu • Uncantathu • Isikwere • Uncamane **Amatshwayo wamajamo** Hlathulula, uhlele ngemihlobo begodu umadanise amajamo abobusobubili (2-D) ngokuqala lokhu: • Ubukhulu • Umbala • ubujamo • amahlangothi anqophileko • amahlangothi aziindulungu	**Amajamo ahlukahlukeneko** Ukubona nokutjho amajamo be 2-D • Indulungu • Uncantathu • Isikwere • Uncamane **Amatshwayo wamajamo** Hlathulula, uhlele ngemihlobo begodu umadanise amajamo abobusobubili (2-D) ngokuqala lokhu: • Ubukhulu • Umbala • ubujamo • amahlangothi anqophileko • amahlangothi aziindulungu	- Iiindulungu zobujamo obuhlukeneko. Lezi ngezinye zeembonelo zeendulungu: Kuqakathekile bona abafundi basebenze ngomfuziselo wamakhadibhodi asikiweko wobujamo.lokhu kuvumela abafundi bonyana babone aboncantathu abahlukeneko, iinkwere ezihlukeneko naboncamane abahlukeneko babekwe ngeendlela ezihlukeneko. Abafundi bahlela ubujamo ngokuya ngokuthi bunamahlangothi anqophileko nofana ayindulunga. Abafundi bahlela begodu babuthelele nobujamo ukuya ngokuthi aboncamane, iinkwere, nofana iindulungu. Umsebenzi uhlanganiswa ngemisebenzi etlolwako. Imisebenzi le ingafaka ukufaka umbala, ukumadanisa amagama ngobujamo njll.	Iimfundo ezi-3
3.4 Isimethri	**Isimethri** Ukukhumbula nokugwala umuda wesimethri ebujameni be 2-D obusebujameni obuyiJiyomethniki nobungasiyo iJiyomethniki.	**Isimethri** Ukukhumbula nokugwala umuda wesimethri ebujameni be 2-D obusebujameni obuyiJiyomethniki nobungasiyo iJiyomethniki. .	Abafundi kufanele baqale imida yesimethri ngezinto eziphathekako nangeenthombe. Iimisebenzi etlolwako - **AKUKAFANELI** bonyana ibe” gwala esinye isiquntu”; - Kufanele ifake iimbonelo lapho abafundi bagwala khona ngemudeni wesimethri. Umuda wesimethri akukafaneli bonyana soke isikhathi ube umuda oya phezulu, isib. Esithombeni senyoka umuda wesimethri kufanele ube ngothabalele; - Ungafaka iimbonelo ezingaphezu komuda munye wesimethri. Nangabe abafundi abanasiqiniseko sokuthi isithombe nofana ubujamo bunomuda wesimethri, bangalinga ngokubhinca isiquntu sephepha phakathi babone bonyana iinquntu lezo ezimbili zimadana patsi. Nazimadanako, bese umuda obhinciweko mumuda wesimethri.	Isifundo esi-1

IGREYIDI YESI-2 ITHEMU YESI-2 4. UKUMEDA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.1 Isikhathi	**Ukutjho isikhathi** • Ukwazi amalanga weveke • Ukwazi inyanga zonyaka • Ukubeka ekhalendeni amalanga wamabeletho, imigidingo yekolo, amalanga wamaholideyi, izehlakalo zomlando, izehlakalo zesikolo ekhalendeni • Ukutjho isikhathi ngama-iri ali-12, isiquntu se-iri nekotara ye-iri. **Ukubalisisa ubude besikhathi nokudlula kwesikhathi** Sebenzisa amakhalenda ukubalisisa nokuhlathulula ubude besikhathi ngamalanga nofana ngeenveke. Sebenzisa iwatjhi ukubalisisa ubude besikhathi ngama-iri nofana isigamu se-iri.	**Ukutjho isikhathi** • Ukwazi amalanga weveke • Ukwazi inyanga zonyaka • Ukubeka ekhalendeni amalanga wamabeletho, imigidingo yekolo, amalanga wamaholideyi, izehlakalo zomlando, izehlakalo zesikolo ekhalendeni • Ukutjho isikhathi ngama-iri ali-12 usebenzise ama-iri, nesigamu se-iri esisewatjhini ye-analogo. **Ukubalisisa ubude besikhathi nokudlula kwesikhathi** Sebenzisa iwatjhi ukubalisisa ubude besikhathi ngama-iri nofana isigamu se-iri.	Abafundi baragela phambili ukuzijayeza ukukhuluma ngobude besikhathi begodu nangokulandelana kwesikhathi. Ngesikhathi sokufundisa itlasi loke nangesikhathi sokunqophisa esiqhemeni, abafundi baragela phambili ngokukhuluma ngamalanga weveke neenyanga zonyaka begodu nelanga lamhlokho, begodu namalanga adlulileko nalawo asezako. Abafundi bajayela amakhalenda ngokuragela phambili babeka: • amalanga wamabeletho; • imigidingo yekolo; • izehlakalo zomlando; • izehlakalo zesikolo; begodu • amalanga wamaholideyi ekhalendeni Ngesikhathi sokusebenza ngokuzijamela abafundi baragela phambili ngokulandelanisa izehlakalo zamaphilo wabo wangemihla begodu balandelanise izehlakalo zeenthombe. Abafundi babuya basebenze ngemisebenzi ehlobene nokutjho isikhathi ngama-iri. **Ngikuphi okuhlukileko kuneThemu yoku-1?** Umnqopho ethemini yesi-2 ukubatjela isikhathi ngama-iri nangesiquntu se-iri usebenzisa iwatjhi ye-analogo. Lokhu kungaba mnqopho wesifundo. Kufanele kufake ukukhuluma ngokusebenzisa abo a.m nabo p.m nesikhathi sama-iri ali-12. Ukutjho isikhathi, kufanele kujayezwe ngethemini ngesisekelo esiragela phambili. Isibonelo, abafundi bangabawa bonyana batjho isikhathi sokuthoma kwesikolo, ngesikhathi sokudla nangesikhathi sekhaya, nofana nabaphuma kwesinye isifundo baya kwesinye. Ukukhetha isikhathi lokhja iwatjhi nayibonisa isikhathi esinqophe poro nofana isiquntu se-iri. Kuqakathekile bonyana kubekwe iwatjhi ekulu ngetlasini, ukuze abafundi bangqala kuyo. Abafundi bangenza imifuziselo yamawatjhi. Ungababawa bonyana babonise iinkhathi ezihlukeneko ufake neembalo isib. “Ngibonisa i-iri le-10.” “Ngibonisa bonyana kuzabe kusikhathi bani ngemuva kwesiquntu se-iri.”	Isifundo esi-1

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.2 Ubude	**Ukulinganisa okungakahleleki** • Linganisa, meda, madanisa, hlela bewurekhode ubude kusetjhenziswa izinto zokumeda ezingakalinganiswa isib. Ubude besandla, igadango, ubude bepensela, izinto zokubala njll. • Ukuhlathulula ubude bezinto ngokubala nokutjho bonyana mayunithi amangaki amadeangakahleleki • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. Edenyana, efitjhazana, ede, ebanzi **Ukwazisa /ukwethula iimedo ezihlelelweko** Linganisa, meda, madanisa, hlela bewurekhode ubude kusetjhenziswa amamitha (nofana iingojwana ezibubude bemitha nofana indambo enobude bemitha) njengemedo elihlelelweko lobude.	Ngethemini yoku-1 bekuphakanyiswe bonyana abafundi banqophise ekulinganiseni, ekumedeni nasekurekhodeni ubude, ububanzi nobude ngamayunithi angakahleleki kodwana yenza godu isilinganiso, ukumeda, ukumadanisa nokurekhoda iimedo ngamamitha. Zombili iindlela lezi zokumeda ubude zingazijayeza ngesikhathi sokusebenza esizijameleko iThemu yoke. Umsebenzi woke kufanele urekhodwe. Ngesikhathi esabelwe Iinomboro, ama-Opharetjhini noBudlelwana abafundi bangararulula imiraro esebenzisa ubujamo obu: • nobude besimedo esingakahleleki begodu • Ukumeda ubude ngamamitha. Tlhogomela irherho leenomboro elilungele iThemu, begodu nemiraro ehlukahlukeneko elungele iThemu.		

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4.3 Imasi/ Ubudisi	**Ukulinganisa okungakahlelelwa** • Linganisa, meda, madanisa, hlela bewurekhode ubudisi kusetjhenziswa isikala sokudzimelela nezinto zokumeda ezingakalinganiswa isib. Amabhlogo, iintina njll. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. Lula, kubudisi, kulula khulu, kubudisi khulu **Ukwazisa/ukwethula ukulinganisa okuhlelekileko** • Ukumadanisa, ukuhlela nokurekhoda ubudisa bezinto ezipakwe ngokwerhwebo okubonisa ubudisi butjhiwe ngamakhilogremu isib. Amakhilogremu ama-2 wereyisi nekhilogremu -1 yeflowuru • Bameda ubungako babo basebenzisa isikali sangendlini yokuhlambela.	**Ukulinganisa okungakahlelelwa** • Linganisa, meda, madanisa, hlela bewurekhode ubudisi kusetjhenziswa isikala sokudzimelela nezinto zokumeda ezingakalinganiswa isib. Amabhlogo, iintina njll. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. Lula, kubudisi, kulula khulu, kubudisi khulu **Ukwazisa/ ukwethula ukulinganisa okuhlelekileko** • Ukumadanisa, ukuhlela nokurekhoda ubudisa bezinto ezipakwe ngokwerhwebo okubonisa ubudisi butjhiwe ngamakhilogremu isib. Amakhilogremu ama-2 wereyisi nekhilogremu -1 yeflowuru • Lapho kunesikala sangendlini yokuhlambela, abafundi bangazilinganisa ubudisi babo ngamakhilogremu kusetjenziswa isikala. Kulindeleke bonyana abafundi bafunde kwaphela inomboro eseduzana nekombabudisi	**Ngikuphi okuhlukileko eGreyidini yesi-2?** EGreyidini yoku-1 bekuphakanyiswe bonyana abafundi banqophise ekusebenzeni nesimedo sokudzimelela uku • ukumadanida ngokunqophileko ubungako bezinto; • ukuhlela nokumadanisa ubungako bezinto ezi-3 nofana ezingaphezulu, ngokubeka amapara wezinto esidzimeleleni, bekufike lapho zoke izinto zilandelana kuhle khona. • thola ubungako bezinto usebenzisa amayunithi angakahleleki wobudisi Abafundi banqopha godu ekuthuthukiseni ilimi ukukhuluma ngobudisi Abafundi kufanele bathome ngokuhlanganisa abakwaziko ngokusebenzisa isidzimelelo namayunithi angakahleleki ukumeda ubudisi. Bangaveza epepeneneni ubudisi ngamakhilogremu. **Isimedo esingakahleleki sobudisi usebenzisa isidzimelelo namayunithi angakahleleki** Abafundi bangafunda ngeemedo neenkambiso lawulo nangokuzijayeza koke asebenzisa amayunithi angakahleleki.Ukumeda ngamayunithi angakahleleki akukafaneli bona ithatheleke phasi kunokumeda ngamayunithi ahlelekile. Iindimelelo zobudisi zerhwebo zingasetjenziswa. Nawunganasidzimelelo serhwebo, ungasenza ngokuhlanganisa ipara yakhunye okulandelako ehangereni: ikopi leyogadi, ingaphasi lebhodlela eliquntiweko, nengaphasi lebhodlela eliquntiweko lelith yebisi nofana ibhoksi leenselo ezimakhaza (iimumathi ezifanako zihlanganiswe ngemahlangothini womabili wehangere). Ukumeda ubudisi ngamayunithi angakahleleki kufaka ukubala bonyana mangaki amayunithi akhethiweko anobudisi obufana nezinto ezimediweko. Isibonelo irula inobudisi obufanako namabhlogo ali-9. Abafundi kufanele bamede izinto ezihlukeneko basebenzisa izinto ezihlukeneko njengamayunithi angakahleleki. Abafundi kufanele bafundiswe ukutjho iyunithi lokha nabanikela ubudisi isib. Incwadi le inobudisi obufanako namamabula ama-34. Lokha abafundi nabamede ngenye nenye iyunithi iinkhathi ezimbalwa, kufanele balinganise bonyana ngiyiphi ezoba nobudisi obufana naleyo emedwako. Ukulinganisa ngaphambi kokumeda kuqakathekile, kodwana kungenziwa kuphela lokha abafundi nabamedile ngaleyo yunithi. Abafundi kufanele bafundiswe bonyana ukuze bamadanise ubudisi bezinto ezihlukeneko iyunithi efanako kufanele isetjenziswe. Isibonelo nangabe irula inobudisi bamabhlogo ama-20 begodu iskere sinobudisi bamamabula ama-20, ngeze watjho bonyana zinobudisi obufanako nofana obungafaniko, nofana ngikuphi okubudisi khulu. **Ukurekhoda iimedo** Nanyana ukumeda kuyikghono lokwenziwako abafundi kufanele barekhode iimedo zabo ngaso soke isikhathi.	

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4.3 **Imasi/ Ubudisi**	**Ukulinganisa okungakahlelelwa** • Linganisa, meda, madanisa, hlela bewurekhode ubudisi kusetjhenziswa isikala sokudzimelela nezinto zokumeda ezingakalinganiswa isib. Amabhlogo, iintina njll. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. Lula, kubudisi, kulula khulu, kubudisi khulu **Ukwazisa/ukwethula ukulinganisa okuhlelekileko** • Ukumadanisa, ukuhlela nokurekhoda ubudisa bezinto ezipakwe ngokwerhwebo okubonisa ubudisi butjhiwe ngamakhilogremu isib. Amakhilogremu ama-2 wereyisi nekhilogremu -1 yeflowuru • Bameda ubungako babo basebenzisa isikali sangendlini yokuhlambela.	**Ukulinganisa okungakahlelelwa** • Linganisa, meda, madanisa, hlela bewurekhode ubudisi kusetjhenziswa isikala sokudzimelela nezinto zokumeda ezingakalinganiswa isib. Amabhlogo, iintina njll. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. Lula, kubudisi, kulula khulu, kubudisi khulu **Ukwazisa/ ukwethula ukulinganisa okuhlelekileko** • Ukumadanisa, ukuhlela nokurekhoda ubudisa bezinto ezipakwe ngokwerhwebo okubonisa ubudisi butjhiwe ngamakhilogremu isib. Amakhilogremu ama-2 wereyisi nekhilogremu -1 yeflowuru • Lapho kunesikala sangendlini yokuhlambela, abafundi bangazilinganisa ubudisi babo ngamakhilogremu kusetjenziswa isikala. Kulindeleke bonyana abafundi bafunde kwaphela inomboro eseduzana nekombabudisi	**Ukusebenza ngamakhilogremu** Abafundi bangathoma ukungeniswa emakhilogremini ngokusebenza izinto ezithengiswako ezithengiswa ngamakhilogremu, lapha amakhilogremu azobe atlolwe khona esimumathini. Isibonelo abafundi bangamadanisa ubudisi bamapakana wezinto ezihlukeneko (njegereyisi, iswigiri, ipuphu, iflowuru nofana isibha sokuvasa) ezithengiswa ngenani lekhilogremu-1. Bangazibeka phezu kwesidzimelelo ukubona bonyana nanyana ubungako bempakana bungahluka, zinobudisi obupheze bufane. Abafundi banganikelwa imihlobohlobo yeempakana zezinto ezihlukeneko ukuzilandelanisa nokusuka kwebudisi khulu ukuya kwelula khulu, lapho balandelanisa ngokuya ngobudisi obubhalwe empakaneni isib. Ireyisi ye-2kg, iswigiri ye1-kg, ipuphu ye-5kg, nestampa se-10kg. **Ukufunda isikali sangendlini yokuhlambela** Lokha isikali sangendlini yokuhlambela nasikhona abafundi bangasisebenzisa ukufunda ubudisi babo. Kunemihlobo emibili yobudisi bamamithara: kwedijithi ne-analogo. Iinkali zedijithali zilula ukufundwa ngombana ubudisi butlolwe ngeenomboro. Nawunesikali sedijithali sangendlini yokuhlambela hlola bonyana sitjho ubungako ngamakhilogremu kuphela. Ezinye iinkali ungazitjintja godu ukubonisa amakhilogremu apheleleko. Nawungakghoni ukuhlela bonyana ibonise amakhilogremu apheleleko, fundisa abafundi ukulisa iingcenye zamakhilogremu kwanje. Iinkali ezinengi zangendlini yokuhlambela zinenomboro i-10kg inomboriwe, ngomuda omude okhomba ubujamo ba-5kg. Imida yekhilogremu eli-1 ayikavami ukuboniswa lokhu kuyafana ngendlela imida neenomboro ziraga ngakhona eruleni. Abafundi abathome ngokubala ukubona bonyana kuneenkhala ezili-10 ngaphambi kwemaraga ye10kg, ukuze isikhala ngasinye sijamele ikhilogremu yi-1, umuda omude ujamele amakhilogremu ama-5kg. Abafundi bangafunda iimedo zeenkali zamambala zangendlini yokuhlambela begodu neenthombe zeenkali zangendlini yokuhlambela. Kulula ukufunda ubungako besithombe sesikali sangendlini yokuhlambela kunasesikalini samambala. **Ukurekhoda iimedo** Nanyana ukumeda kuyikghono lokwenziwako abafundi kufanele barekhode iimedo zabo ngaso soke isikhathi. **Ukumeda ubungako njengobujamo bokurarulula imiraro nokubalisia** Ngesikhathi esabelwe linomboro, ama-Opharetjhini noBudlelwana abafundi bagararulula imiraro esebenzisa ubujamo obu: iimedo zobude ezingakahleleki; **Isibonelo:** Idastara inobudisi bamamabula ali-11. Ibhoksi lamakhrayoni linobudisi bamamabula abu-8. Zizoke zizokwenza ubudisi bamamabula amangaki? • ukumeda ubungako ngamakhilogremu **Isibonelo:** UPuleka uthenge ipuphu yamakhilogremu ali-12kg, amakhilogremu ama-5kg wetjhukela begodu namakhilogremu ama-2kg wereyisi. Izinto azithengileko zikala kangangani nazizoke. Yelela irherho leenomboro elilungele iThemu, begodu nemihlobohlobo yemiraro elungele iThemu.	Iimfundo ezi-3

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.4 Umthamo / Ivolumu	**Ukulinganisa okungakahlelelwa** • Linganisa, meda, madanisa, hlela bewurekhode umthamo ongeemumathini (o.u. ubunengi isimumathi esikghona ukubuthatha nasizalisiweko) ngokusebenzisa izinto zokumeda ezingakahleleki isib. lingobho neenkomitji. • Ukuhlathulula umthamo wesimumathi ngokubala nookutjho bonyana mayunithi amangaki angakahleleki angazalisa isimumathi isib. Ibhodlelo linomthamo weenkomitji ezine. **Ukwazisa ukulinganisa okuhlelekileko** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela bewurekhode umthamo wezinto ngokumeda ngamalitha • Ukumadanisa, ukuhlela nokurekhoda umthamo wezinto ezipakwe ngokwerhwebo ukubonisa umthamo obutjhiwo ngamalitha isib. Amalitha ama-2 webisi, 1 ilitha yesiselo esimakhaza, amalitha ama-5 wepende		Ukulandela imilayelo yokupheka, ukufaka nokubhaga, bujamo obuqakathekile lapho abafundi bajayeza khona ukumeda. Khetha imilayelo yokupheka lapho iintlabagelo zinikelwa ngeenkopi, amathispuni nofana amayunithi angakahleleki. Ukufika nje lonyaka kuphakanyiswe bonyana abafundi banqophe uku: • thuthukisa ilimi lokukhuluma ngamavolumu ahlukeneko. • madanisa amavolumu ngemumathini ezimbili ezifanako, • madanisa amavolumu weemumathi ezimbili ezihlukeneko khulukhulu ezivulekileko nezivalekile. • meda amavolomu nomthamo ngensetjenziswa ezingakahleleki namayunithi Ngesikhathi sokusebenza esizijameleko abafundi bangalinganisa, bamede, bamadanise, bahlele begodu barekhode amavolomu nemithamo ngeensetjenziswa ezingakahleleki namayunithi womthamo angakahleleki. Ukupheka nokubhaga kuqakathekile ebujameni lapho abafundi bangazijayeza ukumeda umthamo. Khetha imilayelo yokupheka lapho iimedo zinikelwa ngeenkopi, amathispuni begodu namanye amayunithi angakahleleki. **Ukumeda umthamo njengobujamo bokurarulula imiraro nokubalisisa** Ngesikhathi esabelwe linomboro, ama-Opharetjhini noBudlelwana abafundi bangararulula imiraro esebenzisa ubujamo bokumeda obungakahleleki bomthamo/volomu isib. Ugogo usebenzisa iinkopi zebisi ezi-2 ukwenza iphudinghi. Nakabuyelela iimedo kabili ukwenza iphudinghi, uzofuna ibisi elingangani? Yelela irherho leenomboro ezihlukahlukeneko elilungele iThemu, begodu nemihlobo ehlukeneko yemiraro.	

IGREYIDI YESI- 2 ITHEMU YESI- 2 5. UKUPHATHA IDATHA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
5.4 Ukubuthelela nokuhlela idatha	**Ukubuthelela nokuhlela idatha** • Buthelela idatha yetlasi nofana yesikolo ukuphendula imibuzo ibuzwe ngutitjhere • Hlela idatha ngamathali			
5.5 Ukujamiselela idatha	**Ukujamiselela idatha** • Jamiselela idatha yegrafu yeenthombe			
5.6 Ukuhlaziya bewurhumutjhe idatha	**Ukuhlaziya bewurhumutjhe idatha** • Phendula imibuzo ngedatha esegrafini yeenthombe.	Hlaziya idatha kusuka ekujamiselelweni obunikelweko	Abafundi kufanele babenelemuko mazombe lokuphatha idatha eThemini yo-1, banganqopha ekuhlaziyeni ijamiselelo abanikelwe lona. Kuphakamisiwe bonyana eThemini ye-2 abafundi bahlaziye (ngokuphendula imibuzo) okungenani igrafu yinye yeenthombe. Abafundi baphendula imibuzo leyo oyibuzako ngegrafu yesithombe isib. “Ngiliphi ihlelo likamabonwakude elidumileko khulu ngetlasini yethu?” “Ngiliphi ihlelo elithandwa idlanzana labafundi ngetlasini?” “Abafundi abanengi bathanda.....nofana .....? “Bangaki abanye abafundi abakhetha ..... kune .....?	Isifundo si-1

IGREYIDI YESI-2 ITHEMU YESI-3 1. IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.1 Ukubala izinto	**Ukubala izinto eziphathekako** • Linganisa bewubale ngokuthembeka ukufika ema-200 ngamalanga. • Amaqhinga wokubuthelela ayakhuthazwa.	**Ukubala izinto eziphathekako** • Linganisa bewubale ngokuthembeka ukufika ema-180 ngamalanga. • Nikela ukulinganisa ngokuzwakalako izinto ezingahlolwa ngokubala	**Ngikuphi okuhlukileko eThemini yesi-2?** NgeThemu yesi-2 irherho leenomboro selandisiwe begodu abafundi kwanjesi babala izinto ezi-180. Ukubala izinto ngeThemu leli kuragela phambili nokulekelela: • amakghono wokubala atlhogekako ukuze uzwisise ubukhulu bedijithi • ukubala okungakahlelwa • ukutjho amagama weenomboro • ukubona amatshwayo weenomboro, • amakghono wokubala atlogekako wokubala Umnqopho usese sekubaleni ngesiqhema kusetjenziswa imihlobohlobo yama-apharathasi angakahleleki nofana ama-apharathasi ahlelelwe ngaphambili. Kulisizo ukusebenzisa amanye wama-apharathasi nakwenziwa ubukhulu bedijithi. Isibonelo: Abafundi bangasebenzisa isisekelo samabhlogo alitjhumi ukubala ngamatjhumi abe atjengise iinqhema zangali-10. Imibuzo elisizo engabuzwa abafundi nababala izinto ngile: • Wazi bunjani bonyana uyibalile inomboro leyo? • Ungayihlola bunjani ipendulo yakho?	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.2 Ukubala uye phambili nemuva	**Ukubala uye phambili nemuva nga:** • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 na-200 • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 na-200 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 na-200 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne-0 na-200 • Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne-0 na-200 • Ku- 4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne-0 na-	**Ukubala uye phambili nemuva nga:** • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 ne-180 • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-180 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-180 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne-0 ne-180 • Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne-0 ne-180 • Ku- 4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne-0 ne-180	**Ngikuphi okuhlukileko kune Themu yesi-2?** Irherho leenomboro ngeThemu yesi-3 iyakhula kusuka e-150 ukuya 180 Nowenza ukubala okungakahlelwa nofana ukubala ngomlomo kuqakathekile bonyana kunqophiswe, abafundi eenomborweni abazibalako. Isibonelo: Lokha nasibala ngakubili ukusuka e-120 ukufika e-140 sizokuyibala inomboro i-121 na? Kungani singayibali? Kusaqakathekile bonyana inambalayini negridi yeenomboro ye-100 kusetjenziswe ukubona bonyana amagama abawasebenzisako ahlangana nesakhiwo nehlelo leenomboro. Qala amanothi weThemu yesi- 2.	
UKUJAMISELELA IINOMBORO EZIPHELELEKO				
1.3 Amat-shwayo weenom-boro namagama weenom-boro	Ukukhumbula, ukubona nokufunda iinomboro • Ukwazi nokufunda amatshwayo wenomboro kusukela ku- 0 ukufika ku-200 • Ukutlola amatshwayo weenomboro ukusukela ku -0 ukufika ku-200 • Ukwazi nokufunda amabizo wenomboro kusuka e-0 ukufika-100 • Ukutlola amabizo wenomboro kusukela e- 0 ukufika ku-100	Ukukhumbula, ukubona nokufunda iinomboro nokufunda iinomboro • Ukwazi nokufunda amatshwayo wenomboro kusukela ku- 0 ukufika ku-180 • Ukutlola amatshwayo weenomboro ukusukela ku -0 ukufika ku 180 • Ukwazi nokufunda amabizo wenomboro kusuka e-0 ukufika-75 • Ukutlola amabizo wenomboro kusukela e- 0 ukufika ku-75	**Ngikuphi okuhlukileko kune Themu yesi-2?** Irherho leenomboro lo: Ukwazi, ukufunda nokutlola amatshwayo weenomboro ziyakhula ukuya e-180 begodu Ukwazi, ukufunda nokutlola ukufika e-75. Abafundi kufanele bakghone ukubona iinomboro bebathome ukuhlathulula umahluko ngamagama okungewabo. Isibonelo: bafanele baqale amakarada weenomboro alandelako begodu bakghone nokutjho umehluko phakathi kwananyana ngiziphi izinto ezimbili. **16** **11** **16** **13** **16** Qala amanothi weThemu yesi-2	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.4 **Ukuhlathu-lula, uku-madanisa, nokuhlela iinomboro**	**Ukuhlela nokumadanisa iinomboro kufika e- 99** • **Ukuhlela** iinomboro eziphelelekо. Kusukela kencani khulu kufikela kekulu khulu begodu kusukela kekulu khulu kuya kencani khulu • **Ukumadanisa** iinomboro kufika e-99 ngokusebenzisa ngokunengi khulu, ngokuncani khulu, okunengi kuna, okuncani kuna, okulinganako. **Sebenzisa iinomborosikhundla ukutjengisa ukulandelana ,indawo namkha ubujamo** Beka izinto emudeni ngokulandelana kusukela keyokuthoma ukufika keyamatjhumi namkha keyokuthoma ukuya keyokugcina, Isib. Yokuthoma, yesibili, yesithathu, ematjhumini amabili	**Ukuhlela nokumadanisa iinomboro kufika iinomboro kufika e- 75** • **Ukuhlela** iinomboro eziphelelekо. Kusukela kencani khulu kufikela kekulu khulu begodu kusukela kekulu khulu kuya kencani khulu • **Ukumadanisa** iinomboro kufika e-99 ngokusebenzisa ngokunengi khulu, ngokuncani khulu, okunengi kuna, okuncani kuna, okulinganako. **Ukusebenzisa iinomboro eziodinali ukutjengisa ukuhlela,indawo nofana indawo** Beka izinto emudeni kusukela keyokuthoma ukuya keyesitjhumi nofana keyokuthoma ukuya keyokugcina isib.kokuthoma, kwesibili, kwesithathu ... keyetjhumi.	**Ngikuphi okuhlukileko kuneThemu yesi-2?** Ethemeni leli abafundi bahlela bebamadanise ukufika e-75 Kuze kube nje abafundi bebasoloku bamadanisa begodu bahlela iinomboro ukuze kuthuthukiswe umuzwa wobukhulu beenomboro ngobudlelwana bazo. Imibuzo ephathelene neenomboro kufanele ikhethwe ngokuyelela ukulekelela abafundi bonyana bathuthukise amakghono wokucabanga asezingeni eliphezulu ngobujamo benomboro. Abafundi badinga ukuphoselwa iselele ngemihlobo yemibuzo ebuzwako. Begodu lekelela abafundi ukuthuthukanisa ilimi lokuhlathulula ukucabanga kwabo. Iimbonelo zemibuzo ingafaka hlangana : • Nginikela inomboro ephakathi kwa-50 na-60. Ingabe inomboro leyo iseduzane kwa-50 nofana ama-60? Hlathulula ipendulo yakho ngokusebenzisa inambalayini. • Abafundi bafanele bafundiswe bonyana bangacabanga bunjani ngokuhlela iinomboro. Abafundi bahlathulule bonyana kungani i-15 lincani kunama-50. Iinhlathululo zingalekelelwa ngokusebenzisa ama-apharathasi aphathekako. Ekupheleni kweThemu bafanele, isibonelo: Bazi bonyana ngiziphi iinomboro ezincani kunama-50, ezinengi kuna-50, begodu • Bakwazi ukutjengisa ubujamo bazo iinomboro ema-30, 40, njll, ngokusebenzisa igridi yeenomboro • Kunokubanyana njalo unikele abafundi imitjho yeenomboro kobana bayiqedelele, ngesinye isikhathi babawe bonyana bazenzele yabo imitjho yeenomboro, ukubonisa ukuhlobana kobukhulu beenomboro. Isibonelo: Ukwenza imitjho elandelako ibe liqiniso: • ☐ nengi kuna nga-1 • ☐ ncani kuna nga-1 • ☐ nengi kuna nge-10 • ☐ ncani kuna nge-10 Qala amanothi weThemu yesi-2	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.5 Ubukhulu bedijithi	**Thoma ukulemuka ubukhulu bedijithi okungenani iinomboro zamadijithi ama-2 ukufika ema-99** • Ukwazi bonyana idijithi ngayinye ijameleni • Ukuphula iinomboro zamadijithi amabili ukufika e-99 ukuya ngamatjhumi nangakunye • Bona bewutjho ubukhulu bedijithi ngayinye	**Thoma ukulemuka ubukhulu bedijithi okungenani iinomboro zamadijithi ama-2 ukufika ema-75** • Ukwazi bonyana idijithi ngayinye ijameleni • Ukuphula iinomboro zamadijithi amabili ukuya ngamatjhumi nangakunye • Bona bewutjho ubukhulu bedijithi ngayinye	**Ngikuphi okuhlukileko kune Themu yesi-2?** NgeThemu leli abafundi baragela phambili nokuthuthukisa ukuzwisisa kwabo imiqondo yobukhulu bedijithi ukufika e-75. NgeThemu leli abafundi baragela phambili uku: • babala bebabuthelele ukutjengisa amatjhumi nangakunye ngeendlela ezihlukenekkko; • Babala ama-apharathasi abuthelelwe ngaphambili/ukuhlelwa okungaphambili; • Ukusebenzisa amakarada wobukhulu bedijithi ukubonisa inani elibuthelelweko bezabalwa, begodu • Tjengisa ukuhlela okuhlukeneko beenomboro. Isibonelo ama-35 ezikhamba ngakunye, amatjhumi a-3 nokuhlukeneko oku-5 begodu neenqhema ezimbili zamatjhumi begodu ne-15 yokukhamba ngakhunye. Umsebenzi ongehla esikhathini esinengi wenziwa eenqhemeni ezinqophiweko begodu ngesikhathi sokuzijamela abafundi bakghone ukurekhoda okulandelako: 68 = iinqhema ezi-6 zetjhumi nemivo -8 68 = ama-60 na 8 Lokhu kungasekelwa ngokusebenzisa amafladi karada nofana amakarada wobukhulu bedijithi. Abafundi bafanele baphendule imibuzo neenlayelo ezifana no: • Ngiyiphi inomboro efana nama-50 ne-7? • Ngitjengisa ama-75 ngokusebenzisa amakarada wobukhulu bedijithi. • Ngitjengisa ama-75 ku-abhakhasi • Ngitjengisa ama-75 ngokusenzisa ibhlogo le-base ten • Ngitjengisa ama-75 ngokusebenzisa amakhyubhu we unifix • Ngitjengisa ama-75 ngokusebenzisa imincamo esentanjeni • Bala iingojwana zomlilo ezima-70 ngokusebenzisa iinyanda za-10, uthole iinyanda za-10 ezingaki Ukurekhoda ngencwadini yokusebenzela iragela phambili ngesikhathi sokuzijamela.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
UKURARULULA IMIRARO ESEBUJAMENI				
1.6 Amathek-hiniki wok-urarulula imiraro	Sebenzisa amathekhiniki alandelako nawurarulula imiraro uhlathulule neensombululo zemiraro: • Ama-apharethasi aphathekako isib. izinto zokubala • Ukwakha nokuphula iinomboro • Ukubuyelela nokuhafula phakathi • Amanambalayini	Sebenzisa amathekhiniki alandelako nawurarulula imiraro uhlathulule neensombululo zemiraro: • Ama-apharethasi aphathekako isib. izinto zokubala • Ukwakha nokuphula iinomboro • Ukubuyelela nokuhafula phakathi • Amanambalayini	Abafundi balindeleke bonyana basombulule imiraro yamagama ngokusebenzisa amathekhiniki: • Imigwalo nofana ama-apharathasi aphathekako isib. Izinto zokubala • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhlukanisa phakathi • inambalayini Qala amanothi weThemu yesi-2	
1.7 Ukuh-langanisa, nokukhupha	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-99.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-75.	**Ngikuphi okuhlukileko eThemini yesi-2?** Abafundi baragela phambili ngokusebenza ngemihlobo ehlukeneko yemiraro yamagama okulinganiswe esahlukweni 2 kodwana irherho leenomboro likhuliselwe e-75 Qala amanothi weThemu yesi-2	
1.8 Ukuh-langanisa okubuyele-lweko kurholela ekubuy-abuyeleleni	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukuhlanganisa okubuyelelweko okurholela ekubuyabuyeleleni okunempendulo ufikela e-50	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukuhlanganisa okubuyelelweko okurholela ekubuyabuyeleleni okunempendulo ufikela e-40	**Ngikuphi okuhlukileko eThemini yesi-2?** Abafundi baragela phambili ngokusebenza ngemihlobo ehlukeneko yemiraro yamagama okulinganiswe esahlukweni 2 kodwana irherho leenomboro likhuliselwe e -40 Qala amanothi weThemu yesi-2	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.9 Ukubuthele-la nok-wabelana okurholela ekuhlu-kaniseni	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqhema kweenomboro eziphelelekо ukufika e-50 kanye nempendulo ezingahle zifaka iinsalela	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqhema kweenomboro eziphelelekо ukufika e-40 kanye nempendulo ezingahle zifaka iinsalela	NgeThemu leli abafundi baragela phambili nokusebenzisa imigwalo nama-apharathasi aphathekako ukubonisa iinsombuluso zabo. Imitjho yeenomboro ifanele isetjenziswe abafundi bazokusebenzisa ukukhupha okubuyelelwe ukubonisa bonyana bafike bunjani empendulweni. Qala amanothi weThemu yesi-2	
1.10 Ukwabelana okurholela emafrak-tjhinini	Ukurarulula bewuhlathulule iinsombululo zemiraro ezisebujameni efaka hlangana ukwabelana ngokulingana erholela empendulweni zamafraktjhini wohlavu olulodwa Isib. $\frac{1}{2}, \frac{1}{4}, \frac{1}{5}$ njll	Ukurarulula bewuhlathulule iinsombululo zemiraro ezisebujameni efaka hlangana ukwabelana ngokulingana erholela empendulweni zamafraktjhini wohlavu olulodwa Isib. $\frac{1}{2}, \frac{1}{4}, \frac{1}{5}$ njll.	Umnqopho wemiraro yamafrakhtjhini wamagama ethemeni leli iragela phambili nokuvumela abafundi uku: • kwaba nokubuthelela izinto ngokulinganako; • kutjho amagama weengcezu zamafrakhtjhini; • ukubona bonyana ifrakhtjhini liyingcenye yokupheleleko, • kutlola amafrakhtjhini njengengcenye yokuthathu; begodu • ukuthola iingcenye zezinto eziphelelekо; NgeThemu leli abafundi batjho okuthathu nokuhlanu. Kuqakathekile bonyana abafundi bavezelwe epepeneneni amafrakhtjhini ngaphandle kwengcenye eyodwa nekota eyodwa. **limbonelo zemiraro engenziwa ngeThemu leli:** • Abangani abali-7 babelana zamaswidi ngokulinganako, Gwala isithombe ubonise ipendulo yakho, madanisa ipendulo yakho, naleyo yomngani wakho. • Abangani ababunani babelana iingojwana zamaswidi ezi-9 ngokulinganako. Gwala iinthombe ukubonisa ipendulo yakho. Qala amanothi weThemu yesi-2	
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.11 Imali	• Khumbula bewufanise imali eziinhlavu zeSewula Afrika : (5c, 10c, 20, 50c, R1, R2; R5) kunye nemali yemaphepha (R10, R20, R50). • Sombulula imiraro efaka hlangana amanani wemali netjhentjii yama R99 neyamasende ukufika e-90c	• Khumbula bewufanise imali eziinhlavu zeSewula Afrika : (5c, 10c, 20, 50c, R1, R2; R5) kunye nemali yemaphepha (R10, R20, R50). • Sombulula imiraro efaka hlangana amanani wemali netjhentjii yama R75 neyamasende ukufika e-75c	**limbonelo zemiraro ezingenziwa:** • Abafundi aba-35 notitjhere 0-1 baya evakatjhweni lesikolo esiqiwini seembandana. Isikolo sibhadela R1.20 umfundi ngamunye yokungena esiqiwini seembandanda. Yimalini okufanele ibhadalwe? • UMahewu uthengela umndeni wakhe amapani amabili woburotho ngamalanga. Ipani eyodwa yoburotho Ibiza R4, 99. Usebenzisa yimalini ngamalanga ama-5? Qala amanothi weThemu yesi-2	

	R99 neyamasende ukufika e-90c	R75 neyamasende ukufika e-75c		
UKUBALA OKUSEBUJAMENI OBUTJHAPHULUKILEKO				
1.12 Amathekh-iniki (iindlela namaqh-inga)	Sebenzisa amathekhiniki alandelayo nawubalako • Ama-apharethasi aphathekako njengezinto zokubala • Ukwakha bewuphadhle iinomboro • Ukubuyelela nokuhafula phakathi • Amanambalayini	Sebenzisa amathekhiniki alandelayo nawubalako • Ama-apharethasi aphathekako njengezinto zokubala • Ukwakha bewuphadhle iinomboro • Ukubuyelela nokuhafula phakathi • Amanambalayini	Abafundi balindeleke ukusombulula ukubala ebujameni obutjhaphulukileko ngokusebenzisa amathekhiniki alandelako: • Ukwakha bewuphadhle iinomboro • Ukubuyelela nokuhafula phakathi • Amanambalayini Qala amanothi weThemu yesi-2	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.13 Ukuh-langanisa nokukhupha	• Hlanganisa ukufika e-99 • Khupha ukufika e- 99 • Sebenzisa amatshwayo afaneleko • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-20	• Hlanganisa ukufika e-75 • Khupha ukufika e- 75 • Sebenzisa amatshwayo afaneleko • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-20	Qala amanothi weThemu yesi-2 Abafundi baragela phambili nokuphula iinomboro begodu babe nokuzethemba emaqhingeni wokurekhoda. Iindlela ezingakatjenziswa ukutjengisa ukubala ngokuhlanganisa nokukhupha: **Ukuphula inomboro ibe ziingcenye ezincani ukwenza ukubala kubelula.** **Ukusebenzisa ilwazi lobukhulu bedijithi ukuphula iinomboro zibe matjhumi namayunithi/ngakunye** Ukuhlanganisa iinomboro ezinamadijithi amabili ngokuphula iinomboro zombili 33 + 36 = □ 33 + 36 = (30 + 3) + (30 + 6) = (30 + 30) + (3 + 6) = 60 + 9 = 69 **Ukuhlanganisa ngokuphula inomboro yinye** 33 + 36 = □ 33 + (30 + 6) 33 + 30 → 63 + 6 = 69 Abafundi bangahle baphule inomboro ngendlela ephathekako. Lokhu kutjho bonyana bazokwenza ngeendlela ezihlukeneko. 33 + 36 = □ 33 + (10 + 10 + 10 + 6) 33 + 10 → 43 + 10 → 53 + 10 → 63 + 6 = 69 Ukukhupha Ukukhupha iinomboro zombili 75 – 54 = □ 75 – 54 = (70 + 7) – (50 + 4) = (70 – 50) + (7 – 4) = 20 + 3 = 23 Ukukhupha ngokuphula inomboro yinye 75 – 54 = □ 75 – (50 + 4) 75 – 50 → 27 – 4 = 23	

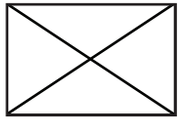
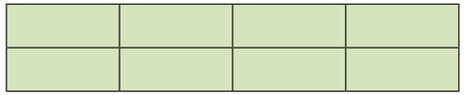
IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.13 Ukuh-langanisa nokukhupha	• Hlanganisa ukufika e-99 • Khupha ukufika e- 99 • Sebenzisa amatshwayo afaneleko • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-20	• Hlanganisa ukufika e-75 • Khupha ukufika e- 75 • Sebenzisa amatshwayo afaneleko • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-20	Lindela bonyana abafundi bangahle baphule iinomboro ngeendlela ezihlukeneko ukwenza lula: 75- 54 = □ 75- (20 + 20 + 10 + 6) 75- 20 → 57 – 20 → 37- 10 → 27- 4 = 23 Ukusebenzisa ukuhlukanisa phakathi ukuphula inomboro 59 + 12 59 + (6 + 6) 59 + 6 → 65 + 6 = 71 **Ukusebenzisa ilwazi elidlulileko njengethekhniki** Amathekhiniki atjengiswe ngenzasi kuvumela abafundi bonyana benze ngokomthetho ukubala kwabo nomqondonomboro. Ukuzijayeza amathekhiniki angenzasi azakugqugquzela abafundi ukubona ubudlelwana obuphakathi kweenomboro begodu kufundisa abafundi bonyana basebenzise ulwazi labo ukubasiza bonyana babale. Ukubala uye phambili nemuva: 68 – 59 = □ Ukubala uye phambili ngakunye ukusuka ema-59 kuliqhinga elifaneleko ngombana iinomboro ziseduzana kwenye nenye. Ukubona ukubuyelela kabili okuseduze 34 + 35 hlathulula bonyana kubuyelela kabili ama-34 uhlanganise na-1 nofana buyelela kabili ama-35 ukhiphe 1. 34 + 34 + 1 Abafundi bangahle barekhode amaqhinga wabo ngokusebenzisa abonotjhobi. 34 + (30 + 4) + 1 34 + 30 → 64 + 4 → 68 + 1 = 69 **Ukutjhugulula inomboro ibe sibuyabuyelelo setjhumi begodu ukhuphe nofana uhlanganise okukodwa.** Ukubala uye phambili nofana uye phasi ekutjhidezeni e-10 58 + 19 = □ Lapha abafundi bafanele bathi kibo ngokwabo babenemandla wokuzikhethela amabili. Ukutjhugulula ama-58 nofana i-19 ekutjhideleni okuseduze kwesibuyabuyelelo ze-10. banokuzikhethela Isibalo singatlolwa ngalendlela le 58 + 19 = 58 + 20 - 1 58 + 20 → 78 – 1 = 77 Abanye babafundi bangaphula ama-20 kube ziinqhema ezi-2 ze -10 ukubala ngokunembako.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.14 Ukuh-langanisa okubuyele-lweko kurholela ekubuy-abuyeleleni	• Buyabuyelela iinomboro kusuka ku-1 kufika e-10 ngo 1, 2, 5, 3 begodu nge-4 • Sebenzisa amatshwayo afaneleko (+, -, =, □)	• Buyabuyelela iinomboro kusuka ku-1 kufika e-10 ngo 2, 5, begodu nge-4 • Sebenzisa amatshwayo afaneleko (+, -, =, □)	**Ngikuphi okuhlukileko kune Themu yesi-2?** NgeThemu leli abafundi bahlala bazijayeza ukuzwisisa kwabo kokubuyabuyelela kwegreyidi kokuthoma. Baragela phambili noku: • Rekhoda ngendlela elandelako: Isiqhema esi- 1 saku-2 zi -2 nofana 1 buyelela 2 ngu 2 nofana 1 x 2 = 2 Iinqhema ezi-2 zaku-2 zi-4 nofana 2 buyelela 2 ngu 4 nofana 2 x 2 = 4 Iinqhema ezi-3 zaku-2 zi-6 nofana 3 buyelela 2 ngu 6 nofana 3 x 2 = 6 NgeThemu leli abafundi bathoma ngokubuyelela nga-4, ngokubuyelela nga-2 ne kuragela phambili nokuzijayeza Imifanekiso ebuyabuyelelweko iragela phambili nokurhekhoda okunengi kufanele kwenziwe emisetjenzaneni yetlasini. Ukuzwisisa kungenziwa ngokuhlanganiswa encwadini zokusebenzela. Inambalayini, itjhadi naneko namathebula zingasethenziswa ukwakha ukuzwisisa kombalo. Abafundi bafanele banikelwe imitjho yeenomboro bonyana bayiqedelele efana na: 6 x 2 = □ 5 x 7 = □ 4 x 6 = □ Abafundi bafanele basebenzise igridi yokubuyabuyelela ukuthola iimpendulo. Lokhu kuzobasiza bonyana bafunde begodu bazwisise ithebula bazi ngokupheleleko amaphuzu wamambala wokubuyabuyelela.	

×	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
4	4	8	12	14	20	24	28	32	26	40
5	5	10	15	20	25	30	35	40	45	50

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.16 limbalo zehloko	**Umnqopho wenomboro: irherho 99** • Hlela isethi enikelweko leenomboro ezikhethiweko • Madanisa iinomboro ema-99 bewutjho bonyana ngiyiphi enengi nofana encani nga-1, 2, 3, 4, 5 ne-10 **Ukukhumbula masinyana:** • Ukukhumbula amaphuzu wokuhlanganisa nowokukhupha kufika e- 20 • Hlanganisa nofana ukhuphe imbuyeleli ze-10 kusuka e-0 kuya e-100 **Amaqhinga wokubala** Ukusebenzisa amaqhinga wokubala ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini. • Ukubuyelela kabili nokuhafulaphakathi • Ukwakha nokuphhula • Sebenzisa ubudlelwano phakathi kokuhlanganisa nokukhupha	**Umnqopho wenomboro: irherho 75** • Hlela isethi enikelweko leenomboro ezikhethiweko • Madanisa iinomboro ema- 75 bewutjho bonyana ngiyiphi enengi nofana encani nga-1, 2, 3, 4, 5 ne-10 **Ukukhumbula masinyana:** • Ukukhumbula amaphuzu wokuhlanganisa nowokukhupha kufika e- 15 • Hlanganisa nofana ukhuphe imbuyeleli ze-10 kusuka e-0 kuya e-50 **Amaqhinga wokubala** Ukusebenzisa amaqhinga wokubala ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini. • Ukubuyelela kabili nokuhafulaphakathi • Ukwakha nokuphhula • Sebenzisa ubudlelwano phakathi kokuhlanganisa nokukhupha	**limbonelo zemibuzo engabuzwa:** **Umqondo wenomboro:** **Amagama weenomboro namatshwayo** Ukuphakisa ikarada nofana ukutlola igama lenomboro. Khetha umfundi bonyana atlole inumerali elimetjhako. **Okunengi nofana okuncani** khuyini • Okuncani e-45 nga-1 • Okunengi e-69 nga-1 • Okuncani ku-36 nga-5 • Okunengi e-30 nga-10 Ngiliphi iledere lesi-5 lama alfabethi? Ngiyiphi inyanga ye-9 yonyaka? **Ukuhlela nokumadanisa** Ngiyiphi enokunengi: 21 nofana 171? Nginikela inomboro ehlangana ne-154 ne 159. **Amaphuzu aliqiniso ngokuhlanganisa nokukhupha:** • Ukwazi ngenhliziyo koke ukuhlanganisa nokukhupha iinomboro zebhodi ukufika e-20 □ + △ = 20 □ + △ = 16 18 = □ - △ Amaphuzu aliqiniso ngokuhlanganisa nokukhupha kufika e-15 Isibonelo 1 + 14 = 15 14 + 1 = 15 2 + 13 = 12 13 + 2 = 15 3 + 12 = 15 3 + 12 = 15 15 – 4 = 11 15 – 11 = 4 15 – 5 = 10 15 – 10 = 5 15 – 6 = 9 15 – 9 = 6	

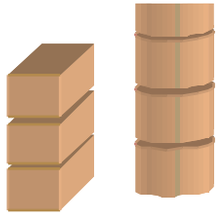
IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.16 limbalo zehloko	**Umnqopho wenomboro: irherho 99** • Hlela isethi enikelweko leenomboro ezikhethiweko • Madanisa iinomboro ema-99 bewutjho bonyana ngiyiphi enengi nofana encani nga-1, 2, 3, 4, 5 ne-10 **Ukukhumbula masinyana:** • Ukukhumbula amaphuzu wokuhlanganisa nowokukhupha kufika e- 20 • Hlanganisa nofana ukhuphe imbuyeleli ze-10 kusuka e-0 kuya e-100 **Amaqhinga wokubala** Ukusebenzisa amaqhinga wokubala ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini. • Ukubuyelela kabili nokuhafulaphakathi • Ukwakha nokuphhula • Sebenzisa ubudlelwano phakathi kokuhlanganisa nokukhupha	**Umnqopho wenomboro: irherho 75** • Hlela isethi enikelweko leenomboro ezikhethiweko • Madanisa iinomboro ema- 75 bewutjho bonyana ngiyiphi enengi nofana encani nga-1, 2, 3, 4, 5 ne-10 **Ukukhumbula masinyana:** • Ukukhumbula amaphuzu wokuhlanganisa nowokukhupha kufika e- 15 • Hlanganisa nofana ukhuphe imbuyeleli ze-10 kusuka e-0 kuya e-50 **Amaqhinga wokubala** Ukusebenzisa amaqhinga wokubala ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini. • Ukubuyelela kabili nokuhafulaphakathi • Ukwakha nokuphhula • Sebenzisa ubudlelwano phakathi kokuhlanganisa nokukhupha	Ukukhumbula ngokurhabako ukuhlanganisa ukubuyelela kabili ukufika -15. • 1 + 1 = 2 • 2 + 2 = 4 • 3 + 3 = 6 • 4 + 4 = 8 • 5 + 5 = 10 • 6 + 6 = 12 7 + 7 + 14 Ngitjengisa inomboro okufanele uyihlanganise nalezi ezilandelako ukwenza i-15 (ngokutlola nofana kusetjenziswe ubukhulu bedijithi namkha amakarada wefladi) • 8 • 2 • 9 Ngitjengise inomboro ezokusala nange u_____akhitjhwa e-15 (ngokutlola nofana kusetjenziswe ubukhulu bedijithi namkha amakarada wefladi) • 5 • 13 • 0 **Amaqhinga wokubala:** Qala amanothi weThemu yesi-2	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.17 Amafrak-tjhini	• Sebenzisa begodu utjho amafraktjhini afaka hlangana amahafu, ikotara, kobunani, kobuthathu, kwesithandathu, kwesihlanu • Ukukhumbula amafraktjhini asebujameni bedayagremu • Tlola amafraktjhini njenge ingcenye eyodwa, izingcezu ezimbili zobuthathu	• Sebenzisa begodu utjho amafraktjhini afaka hlangana amahafu, ikotara, kobunani, kobuthathu, kwesithandathu, kwesihlanu • Ukukhumbula amafraktjhini asebujameni bedayagremu • Tlola amafraktjhini njenge ingcenye eyodwa, izingcezu ezimbili zobuthathu	**Ngikuphi okuhlukileko kune Themu yesi -2?** NgeThemu leli ukutjheja kwabafundi kunqotjhiswe ekubeni amagama wamafraktjhini ahlanganiswa bunjani nenomboro yeengcenye ezilinganako zalokho okuzeleko zihlukaniswe ngayo. Imihlobohlobo ehlukeneko yamadayagremu ingasetjenziswa ukwakha ukuzwisisa okuya phambili. **Isibonelo:**  Imihlobo yemibuzo elandelako ingabuzwa: Kuneengcezu ezilinganako ezingaki? Siyibizani ingcezu elilodwa? Kuneengcezu ezilinganako ezingaki? Siyibizani ingcezu elilodwa?  Kuneengcezu ezilinganako ezingaki? Siyibizani ingcezu eyodwa? Imihlobo le yemisetjenzana igqugquzela: • Ukwazi bonyana amafraktjhini ayiingcenye ezilinganako; • Ukubona iingcenye zamafrakhtjhini; begodu • Ukutjho iingcenye zamafraktjhini **Ukutlola** Abafundi abaziswa ukutlola amatshwayo wamafraktjhini. Abafundi bafunda bonyana bangalebula bunjani iingcenye zamafrakhtjhini njenge kota yi-1, isihlanu si-1.	

IGREYIDI YESI-2 ITHEMU YESI-3 2. AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.1 Amapheth-eni weJi-yomethri	**Ukukopa , ungezelele bewuhlathulule** Ukukopa ,ungezelele bewuhlathulule ngamagama • Amaphetheni alula enziwe ngezinto eziphathekako • Amaphetheni alula enziwe ngemigwalo yemida, ubujamo nafana izinto. **Tlama amaphetheni wakho** Yenza amaphetheni weJiyomethri • Ngezinto eziphathekako • Ngokugwala imida, ubujamo nofana izinto **Amaphetheni asizombelezileko** Ukubona, ukuhlathulula ngamagama nokukopa amaphetheni weJiyomethri • Ngokwemvelo, • Kusukela epilweni yangamalanga yesimodeni, • Kusukela kezamagugu nendabuko yethu.	**Ukukopa , ungezelele bewuhlathulule** Ukukopa ,ungezelele bewuhlathulule ngamagama • Amaphetheni alula enziwe ngezinto eziphathekako • Amaphetheni alula enziwe ngemigwalo yemida, ubujamo nafana izinto. **Tlama amaphetheni wakho** Yenza amaphetheni weJiyomethri • Ngezinto eziphathekako • Ngokugwala imida, ubujamo nofana izinto	Ragela phambili unikele abafundi irherho elifanako lamaphetheni eThemini yesi-2. Qala amanothi weThemu yesi-2 Vumela abafundi bathome ngokukopa, bangezelele ekugcineni bahlathulule amaphetheni. Ngalesisikhathi kufanele bazi ukuhlathulula amaphetheni ngaphandle kosizo lwemibuzo ebakhokhelako. Ragela phambili unqophise ekuthuthukiseni ilimi abalithlogako ukuhlathulula amaphetheni	Isifundo esi-1

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.2 Amaphe-theni weenom-boro	**Ukukopa, ukungezelela nokuhlathulula** Ukukopa, ukungezelele nokuhlathulula ukulandelanisa kwenomboro elula ukufika ku-200 **Tlama begodu uhlathulule amaphetheni wakho** Yenza bewuhlathulule amaphetheni weenomboro	**Ukukopa, ukungezelele nokuhlathulula** Ukukopa, ukungezelele nokuhlathulula ukulandelanisa kwenomboro elula ukufika e-180 ukulandelanisa kufanele kutjengise Ukubala uye phambili nemuva nga: • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 ne-180 • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-180 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-180 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne -0 ne-180 • Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne -0 ne-180 • Ku-4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne -0 ne-180 **Tlama amaphetheni wakho**	Qala amanothi weThemu yoku-1, kodwana ungezelele irherho leenomboro kuya e-180	Iimfundo ezi-3

IGREYIDI YESI-2 ITHEMU YESI- 3 3. ISIKHALA NOBUJAMO (JIYOMETHRI)				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.1 **Ubujamo, ukuzijayeza nokubukela**	**Ilimi lobujamo** Hlathulula ubujamo bento eyodwa lokha nawuyimadanisa nenye isib. Phezu kwe, phambi kwe, emuva kwe, ngesinceleni, ngesidleni, phezulu, phasi, eqadi kwe. **Ubujamo nokubukela** Ukumadanisa ukuqaleka okungafaniko kwento eyodwa ngamalanga. **Ubujamo neenkombatjhuba** Landela iinlayelo ukukhamba khamba ngetlasini.	**Ubujamo nokubukela** • Ukumadanisa ukuqaleka okungafaniko kwento eyodwa ngamalanga. **Ubujamo neenkombatjhuba** • Landela iinlayelo ukukhamba khamba ngetlasini.	**Iminqopho etjhukunyisiweko yeThemu yesi-3:Ubujamo nokubukela** **Ngikuphi okuhlukileko eGreyidini yoku-1?** EGreyidini yesi-2 abafundi bazijayeza begodu banzinzise lokho abafunde ngakho okukumadanisa ukuqaleka okungafaniko kwento eyodwa ngamalanga. **Ubujamo nokubukela** Anbafundi Esigabeni Esisissekelo kufanele bazwisise bonyana izinto ziqaleka zingafanilokha nawuziqalako kusukela emahlangothini ahlukahlukeneko. Abafundi bangahle bathathe sakudlala bonyana izinto ezifana neemodoro ziqaleka zizincani lokha zikude. Njengoba abafundi basebenza khulu ngeencwadi neemboniso eencwadini, kufanele bazwisise bonyana kubangelwa yini bonyana into etjengiswa ngaphambili iqaleka iyikulu kunento engemuva. Ngesikhathi sokunqophana nesiqhemaabafundi bangenza umsebenzi wokulinga ngokubeka izandla zabo phambi kwabo, ukusitha ukuqaleka kwezinto ezikuluto ezikudanyana. EGreyidini yesi-2 abafundi kufanele banikelwe imisetjenzana lapho bazakumadanisa khona ukuqaleka okungafaniko (ukubona ungaphezulu, ukubona useqadi, ukubona ungaphambili) yezinto ezihlukahlukeneko zangamalanga. Ekugcineni lokhu kuzakusiza abafundi bona barhumutjhe imigwalo yezinto zeJiyomethri ezenziwe ngendlela ezihlukahlukeneko.	Isifundo esi-1

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.2 **Izinto ezi-busontathu (3-D)**	**Izinto ezihlukahlukeneko** Ukukhumbula nokutjho izinto ezibusontathu (3-D) ngetlasini neenthombeni • Ubujamo bebholo, (iindulungu) • Ubujamo bebhoksi (amaphrizimu) • amasilinda **Amatshwayo wezinto** Ukuhlathulula, ukuhlela ngeengaba noku madanisa (3-D) izinto ngokuqala okulandelako: • isayizi • izinto ezigedekako • izinto ezitjhelelako **Imisetjenzana enqotjhiweko** Tjheja begodu wakhe ubujamo babobusontathu (3-D) onikelwe bona usebenzise izinto eziphathekako okufana nokusika ubujamo obubusobubili (2-D), amabhlogo wokwakha, izinto ezingabuye zisetjenziswe godu, amakhithi wokwakha, ezinye izinto ezinobujamo obubusontathu (3-D) zeJiyomethri.	**Izinto ezihlukahlukeneko** Ukukhumbula nokutjho izinto ezibusontathu (3-D) ngetlasini neenthombeni • Ubujamo bebholo, (iindulungu) • Ubujamo bebhoksi (amaphrizimu) • amasilinda **Amatshwayo wezinto** Ukuhlathulula, ukuhlela ngeengaba noku madanisa (3-D) izinto ngokuqala okulandelako: • isayizi • izinto ezigedekako • izinto ezitjhelelako.	**Ngikuphi okutjha eThemini yesi 3:** Amasilinda nawo ayafakwa ezintweni okusetjenzwa ngazo. **Amabumbeko abobusontathu (3-D) eGreyidini 2** Abafundi basebenza nge • iimbholo nezinto ezibumbeke njengeembholo; • amasilinda nezinto ezibumbeke njengama silinda; na • mabhoksi ahlukahlukeneko nezinye izinto ezibumbeke p0hrizimu aboncamanenofana amakhiyubhu. **Ukunqophisa ematshwayweni wezinto ezibusontathu(3-D): Ezigedekako nezitjhelelako** Lokhu liragelo phambili lalokhu abakwenze eGreyidini 1 neThemini 1, kodwana njenga nje, amasilinda nawo afakiwe. Abafundi bangafunisisa ukiuthi bangakghona na ukupakelanisanofana imibhotjhongo basebenzise amabholo kuphela, nofana amabhoksi kuphela amasilinda kuphela. 	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.2 Izinto ezi-busontathu (3-D)	**Izinto ezihlukahlukeneko** Ukukhumbula nokutjho izinto ezibusontathu (3-D) ngetlasini neenthombeni • Ubujamo bebholo, (iindulungu) • Ubujamo bebhoksi (amaphrizimu) • amasilinda **Amatshwayo wezinto** Ukuhlathulula, ukuhlela ngeengaba noku madanisa (3-D) izinto ngokuqala okulandelako: • isayizi • izinto ezigedekako • izinto ezitjhelelako **Imisetjenzana enqotjhiweko** Tjheja begodu wakhe ubujamo babobusontathu (3-D) onikelwe bona usebenzise izinto eziphathekako okufana nokusika ubujamo obubusobubili (2-D), amabhlogo wokwakha, izinto ezingabuye zisetjenziswe godu, amakhithi wokwakha, ezinye izinto ezinobujamo obubusontathu (3-D) zeJiyomethri.	**Izinto ezihlukahlukeneko** Ukukhumbula nokutjho izinto ezibusontathu (3-D) ngetlasini neenthombeni • Ubujamo bebholo, (iindulungu) • Ubujamo bebhoksi (amaphrizimu) • amasilinda **Amatshwayo wezinto** Ukuhlathulula, ukuhlela ngeengaba noku madanisa (3-D) izinto ngokuqala okulandelako: • isayizi • izinto ezigedekako • izinto ezitjhelelako.	**Ukukhumbula nokutjho iimbholo (iindulungu) namabhoksi (amaphrizimu) namasilinda** Abafundi baragela phambili nokutjho, ukuhlela ngeengaba nokubuthelela izinto, kodwana njenganje amasilinda akhona nawo. Abafundi kufanele banikelwe Izinto ezihlukahlukenekookufanele basebenze ngazo ezinobujamo obufana nalokhu: • iindulungu ,isib iimbholo zamasayizi angalinganiko nofana abomabula, amalamune njll.; • amaphrizimu isib amabhlogo , amabhoksi wamasayizi ahlukahlukeneko, isib. Amabhoksi womlilo, amabhoksi wamasiriyeli, amabhoksi wetiye, amabhoksi wesibha samazinyo. Nama • silinda okufaka hlangana woke amade namatsikana isib. Iinquntwana zamaphayiphu anobujamo bamasilinda, ingaphakathi kwe khadi bhoksi wamathawula agedwako, nofana ingaphakathi lephepha langendlini yangasese, namasinda amafitjhani, navulekileko isib amabhloegana wephoritjhi yamanyathelo, amabhlegana wesineyifu, njll. Abafundi bangathola izinto ezibumbeke njenge bholo (iindulungu), nofana okubumbeke njenge bhoksi (amaphrizimu) nofanaokubumbeke njengamasilinda lokha nawu nikelwe ibuthelelo lezinto. Abafundi bangathola nofana batjengise izintro ezibumbeke njengamabhoksi (amaphrizimu) ngetlasini isib “ibhlegana lekofi leli libumbeke njenge silinda”. Ngesikhathi sokufunda ngokuzijamela abafundi bangaragela phambili no • kwacha ngezinto ;no • kwenza iimbholo , amasilinda namabumbeko wamabhoksi (amaphrizimu) ngedaka nofana ihlama yokudlala. **Imisetjenzana etlolwako** Nanyana umsebenzi omnengi wezinto ezibusontathu (3-D) yenziwa ngokwenza, umsebenzi kufanele unzinziswe ngomsebenzi otlolwako. **Ilimi** Ukuragela phambili nokuthuthukisa ikghono labafundi loku khuluma ngezinto ezibusontathu (3-D) Qala amanothi weThemu yoku-1	Iimfundo ezi-2

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.3 Amajamo abobusobu-bili (2-D)	**Izinto ezihlukahlukeneko** Ukukhumbula nokutjho amajamo abobusobubili (2-D) • iindulungu • aboncantathu • iinkwere • aboncamane **amatshwayo wamajamo** Hlathulula , hlela ngemihlobo begodu umadanise izinto ezinobujamo babobusobubili (2-D) ngokuqala lokhu: • isayizi • umbala • ubjamo • amahlangoth/ amaqadi anqophileko • amahlangothi /amaqadi /aziindulungu		Awukho umnqopho onqophileko wamajamo abobusobubili (2-D) etjhukunyisiweko eThemini yesi 2. Nanyana kunjalo, umsebenzi wamajamo abobusobubili (2-D) unganzinziswa ngomsebenzi otlolwako ngesikhathi sokusebenza ngokuzijamela. Abafundi bangaragela phambili nokwenza iinrhombe ngamabumbeko abobusobubili (2-D) weJiyomethri ngesikhathi sokusebenza ngokuzijamela nangesikhathi sobuKghwari namaSiko.	

IGREYIDI YESI-2 ITHEMU YESI-3 4. UKUMEDA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.1 Isikhathi	**Ukutjho isikhathi** • Ukutjho begodu ulandelanise amalanga weveke • Ukutjho begodu ulandelanise iinyanga zonyaka • Ukubeka amalanga wamabeletho, amafestivali wezekolo, amaholideyi womphakathi, iminyanya wezomlando, izehlakalo zesikolo ezisekhalendeni. • Ukutjho isikhathi ukufika e-irini le-12 ngama-iri, ngesiquntu • se-iri begodu nangekota ye-iri **Ukubala ubude besikhathi nokudlula kwesikhathi** • Ukusebenzisa amakhalenda ukubala nokuhlathulula ubude besikhathi ngamalanga nofana ngeemveke. • Ukusebenzisa amawatjhi ukubala ubude besikhathi ngama-iri, ngesiquntu se-iri nofana ngekotara yama-iri.	**Ukutjho isikhathi** • Ukutjho begodu ulandelanise amalanga weveke • Ukutjho begodu ulandelanise iinyanga zonyaka • Ukubeka amalanga wamabeletho, amafestivali wezekolo, amaholideyi womphakathi, iminyanya wezomlando, izehlakalo zesikolo ezisekhalendeni. • Ukutjho isikhathi sama-iri ali-12 ngama-iri,ngesiquntu se-iri begodu nangekota ye-iri **Ukubala ubude besikhathi nokudlula kwesikhathi** • Ukusebenzisa amakhalenda ukubala nokuhlathulula ubude besikhathi ngamalanga nofana ngeemveke. • Ukusebenzisa amawatjhi ukubala ubude besikhathi ngama-iri, ngesiquntu se-iri nofana ngekotara yama-iri.	Abafundi baragela phambili ukuzijayeza ukukhuluma ngobude besikhathi begodu nangokulandelanisa isikhathi. Ngesikhathi sokufundisa itlasi loke nesikhathi sokufundisa ngeenqhema ezinqotjhiweko, abafundi baragela phambili ngokukhuluma ngamalanga weveke, ngeenyanga zonyaka begodu nangelanga lamhlokho, nangamalanga adlulileko begodu nangamalanga asezako. Abafundi bajayela amakhalenda ngokuragela phambili ngokubeka: • amalanga wamabeletho; • amafestivali wezekolo, • iminyanya wezomlando, • izehlakalo zesikolo; • amaholideyi womphakathi, ezisekhalendeni. Ngesikhathi sokusebenza ngokuzijamela abafundi baragela phambili nokulandelanisa izehlakalo zepilo yabo begodu balandelanisa iinthombe zezehlakalo ngefanelo.Abafundi basebenza godu ngemisebenzi ehlobene nama-iri begodu nesinquntu sama-iri **Ngikuphi okuhlukileko eGreyidini yesi-2?** • Ukutjho isikhathi ngama-iri, ngeenquntu zama-iri nangamakotara wama-iri iminqopho yethemu yesi-3 usitjela ngesikhathi ngama-iri nangesiquntu sama-iri begodu nangamakotara wama-iri ngokusebenzisa iwatjhi ye-analogo.Lokhu kuzokuba mnqopho weemfundo ezimbili. Ukutjho isikhathi kufanele kujayezwe njalo ngeThemu. Isibonelo, abafundi bangabawiwa batjho bonyana isikolo singena sikhathi bani, isikhathi sokudla sinini begodu isikolo siphuma nini, nofana batjhintja nini ukusuka kesinye isifundo nabaya kesinye. Khetha iinkhathi lapho iwatjhi itjengisa isikhathi poro. Kufanelekile bonyana kube newatjhi esebenzako ebekwa ngetlasini, ukuze abafundi baqale kiyo. Abafundi bangenza iimfaniso zamawatjhi. Ungababawa bonyana bakutjengise iinkhathi ezihlukileko, isib. Ngitjengisa i-iri le-10 ehloko. Ngitjengise bonyana bekusikhathi bani ngaphambi kwekotara ye-iri.	

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4.1 Isikhathi	**Ukutjho isikhathi** • Ukutjho begodu ulandelanise amalanga weveke • Ukutjho begodu ulandelanise iinyanga zonyaka • Ukubeka amalanga wamabeletho, amafestivali wezekolo, amaholideyi womphakathi, iminyanya wezomlando, izehlakalo zesikolo ezisekhalendeni. • Ukutjho isikhathi ukufika e-irini le-12 ngama-iri, ngesiquntu • se-iri begodu nangekota ye-iri **Ukubala ubude besikhathi nokudlula kwesikhathi** • Ukusebenzisa amakhalenda ukubala nokuhlathulula ubude besikhathi ngamalanga nofana ngeemveke. • Ukusebenzisa amawatjhi ukubala ubude besikhathi ngama-iri, ngesiquntu se-iri nofana ngekotara yama-iri.	**Ukutjho isikhathi** • Ukutjho begodu ulandelanise amalanga weveke • Ukutjho begodu ulandelanise iinyanga zonyaka • Ukubeka amalanga wamabeletho, amafestivali wezekolo, amaholideyi womphakathi, iminyanya wezomlando, izehlakalo zesikolo ezisekhalendeni. • Ukutjho isikhathi sama-iri ali-12 ngama-iri,ngesiquntu se-iri begodu nangekota ye-iri **Ukubala ubude besikhathi nokudlula kwesikhathi** • Ukusebenzisa amakhalenda ukubala nokuhlathulula ubude besikhathi ngamalanga nofana ngeemveke. • Ukusebenzisa amawatjhi ukubala ubude besikhathi ngama-iri, ngesiquntu se-iri nofana ngekotara yama-iri.	Abafundi bafanele babale basebenzisa iwatjhi, isib. Batjengisa bonyana isikhathi sithi ma-iri ama-12 emini; babawe bonyana kuzabe kusikhathi bani ema-irini ama-3 ezako.Bakhambisa izandla eemfanisweni zamawatjhi (nofana baqala iwatjhi yangetlasini, nofana esithombeni sewatjhi ukubala ipendulo yabo Abafundi abakalindeleki bonyana babale ubude Besikhathi ngama-awara nofana isiquntu se-awa ngaphandle kokufunyana ubuso bewatjhi • Sebenzisa amakhalenda ukubala nokuhlathulula ubude besikhathi ngamalanga nofana ngeemveke Abafundi banqopha ekufundeni ngamakhalenda. Bafunda ukuthola nokunikela amalanga anqophileko. Abafundi babala ubude besikhathi ngamalanga nofana iimveke, ngesikhathi baqala ikhalenda. **Abafundi abakalindekeki bonyana batjhugulule hlangana kweemveke namalanga.** **Abafundi abakalindeleki bonyana benze iimbalo ezifaka ukubala isikhathi hlangana namalanga nangabe abakwazi ukufunyana amakhalenda**	Iimfundo ezi-3

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.2 Ubude	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu urekhode ubudeusebenzise iimedo ezingakahleleki isib. Ubude besandla, amagadango,ubude bamapensela, izinto zokubala, njll. • Ukuhlathulula ubude bezinto ngokubala begodu nokutjho bonyana zinobude obungangani bamayunithi angakahleleki • Ukusebenzisa ilimi ukukhuluma ngokumadanisa, isib. ubude, ubufitjhani, mude khulu, banzi khulu. **Ukwethula ukumeda okuhlelekileko** Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu urekhode ubudengokusebenzisa amamitha (iintonga ezimamitha nofana iintambo ezinobude bemitha) njengomuvosimedo ojayelekileko.		EThemini yokuthoma kuphakanyiswe bonyana abafundi banqophe ekulinganiseni, ekumedeni, ekumadaniseni nekurekhodeni ubude, ubungako, ububanzi ngamayunithi ahlelekileko kodwana benze ukulinganisa, ukumeda, akumadanisa nokurekhoda iimedo ngamamitha. Yomibili imihlobo yokumeda ubude ingajayezwa ngesikhathi sokusebenza ngokuzijamela ethemini yoke. Yoke imisebenzi ifanele ukurekhodwa. **Ukumeda ubube njengobujamo bokurarulula imiraro nokubala** Ngesikhathi esibekelwe *linomboro, imiSebenzi noBudlelwana*, abafundi bangararulula imiraro esebenzisa ubujamo • bobude besimedo esingakahleleki, isib. Kumagadango ama-27 ukuya e-ofisini. Kumagadango ama-36 ukuya ehegeni yesikolo. Kukude kangangani ukuya ehegeni yesikolo. • Ukumeda ubude ngamamitha Yelela irherho leenomboro ezifanele iThemu, nanyana imihlobo ehlukahlukeneko yemiraro efaneleko yeThemu.	

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4.3 Ubungako/ Ubudisi	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela, bekurekhodwe ubungako, ngokusetjenzisa iimedo ezingakahleleki begodu nesikala sokudzimelela isib. Amabhulogo, iintina njll. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib.elula, ebudisi, elula-khulu, ebudisi-khulu. **Ukwethula ukumeda okuhlelekileko** • Ukumadanisa, ukuhlela nokurekhoda ubungako bezinto ezipakelwe ukuthengiswae-zinobungako obutjengiswe ngamakhilogremu, isib. amakhilogremu ama-2 wereyisi nekhiligremu li-1 leflowuru • Ukumeda ubungako babo ngokusebenzisa isikala sokumeda sangendlini yokuhlambela		Abafundi bangaragela phambili ukuzijayeza ukulinganisa, ukumeda, ukumadanisa nokurekhoda ubingako kusetjenziswa iimedo ezihlelekileko begodu nokumeda ukudzimelela ngesikhathi sokusebenza ngokuzijamela. **Ukumeda umthamo njengobujamo bokurarulula imiraro nokubala** Ngesikhathi esibekelwe Iinomboro, imiSebenzi noBudlelwana, abafundi bangararulula imiraro esebenzisa ubujamo • bobungako bokumeda okungakahleleki, • Ukumeda ubungako ngamakhilogremu Yelela irherho leenomboro ezihlukahlukeneko ezifanele iThemu, nanyana imihlobo ehlukahlukeneko yemiraro efaneleko yeThemu.	

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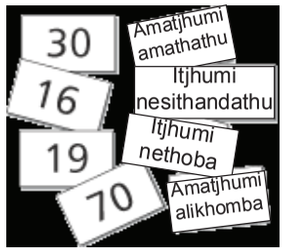
4.4 Umthamo/ Ivolumu	**Ukumeda okungakahleleki** • Ukulinganisa nokumeda; Ukumadanisa nokuhlela Isib. Umthamo ongamumathwa simumathii nasizeleko ngokusebenzisa iimedo ezingakahleleki isib. Iingobho namakopi. • Ukuhlathulula umthamo besimumathi ngokubala nokutjho bonyana mangaki amayunihi angakahleleki angazalisa isimumathi, isib. Ibhodlelo linobungako bamakopi amane **Ukwethulwa kokumeda okuhlelekileko** • Ukulinganisa, ukumeda; ukumadanisa nokuhlela nokurekhoda umthamo wezinto ngokumeda amalitha. • Ukumadanisa, ukuhlela nokurekhoda umthamo wezinto ezipakelwe ukuthengiswa, ubungako bazo butlolwa ngamalitha, isib. Amalitha ama-2 webisi, ilitha li-1 lesiselo esimakhaza, amalitha ama-5 wepende	**Ukumeda okungakahleleki** • Ukulinganisa nokumeda; Ukumadanisa nokuhlela Isib. Umthamo ongamumathwa simumathii nasizeleko ngokusebenzisa iimedo ezingakahleleki isib. Iingobho namakopi. • Ukuhlathulula umthamo besimumathi ngokubala nokutjho bonyana mangaki amayunihi angakahleleki angazalisa isimumathi, isib. Ibhodlelo linobungako bamakopi amane **Ukwethulwa kokumeda okuhlelekileko** • Ukulinganisa, ukumeda; ukumadanisa nokuhlela nokurekhoda umthamo wezinto ngokumeda amalitha. • Ukumadanisa, ukuhlela nokurekhoda umthamo wezinto ezipakelwe ukuthengiswa, ubungako bazo butlolwa ngamalitha, isib. Amalitha ama-2 webisi, ilitha li-1 lesiselo esimakhaza, amalitha ama-5 wepende	Zoke iimedo egreyidini yoku-1 azikahleleki. Akukafaneli bonyana kwenziwe ukumeda okuhlelekileko bobungako kusetjenziswa imivosimedo ejayelekileko. **Ngikuphi okuhlukileko eThemini yesi-4?** EThemini yoku-1 kuphakanyiswe bonyana abafundi banqophe • ekuthuthuseni ilimi lokukhuluma ngemehluko yamavolumu; • ekumadaniseni amavolumu weemumathi ezimbili ezifanako • ekumadaniseni amavolumu eemumathini ezimbili ezingafani EThemini yesi-4 abafundi banganqopha ekwenzeni ukumeda okungakahleleki ngokusebenzisa ubungako bamayunithi obungakahleleki. Uyini umthamo? Iyini ivolumu? Ibhodlelo lingaba nomthamo wamakopi amane, kodwana ngekhelazaliswaswi, isibonelo, ingamumatha nevolumu yekopi elilodwa lamanzi ngesikhathi esithileko. umthamo ubungakobento engamumathwa simumathi, Ivolumu bungako besikhala esithathwa simumathi(soke isikhala esingaphakathi kwento). Ivolumu bungako besikhala esithathwa simumathi Kesinye isikhathi abafundi bazokumeda bonyana lingangani iketjezi elingesimumathini. Lokhu kumeda ivolumu yento engesimumathini. Kesinye isikhathi abafundi bazokumeda bonyana isimumathi singamumatha kangangani nasizeleko swi. **Ukumeda ubude obungakahleleki ngokusebenzisa amayunithi wobude angakahleleki** Abafundi bangafunda zoke iinkambisolawulo neenkambiso zokumeda ngokusebenzisa amayunithi angakahleleki. Ukumeda ngamayunithi angakahleleki kufanele bonyana zingaqaleka kwanga azikaqakatheki kunokumeda ngamayunuthi ahlelekileko. Abafundi bafanele bathole ithuba lokumeda ivolumu/ umthamo ngokusebenzisa izinto ezihlukahlukeneko njengamayunithi ahlelekileko, isib. Amakopi (kodwana ingasi amakopi wokumeda), iingobho,(kodwana ingasi amathispuni wokumeda),iimvalo zamabhodlelo njengeemuvalo zamabhodlelo webisi wamalitha ama-2, Amabhlegana amancani, amabhodlelo amancani ,njll. Ukumeda ivolumu/umthamo ngamayunithi angakahleleki kufana ukubala bonyana kukangaki lapho umuntu azalisa begodu athela khona eyunithini ekhethiweko bekufike lapho umuntu afinyelela khona ebungakweni nofana evolumini efunekako.	

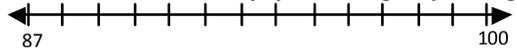
IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.4 Umthamo/ Ivolumu	**Ukumeda okungakahleleki** • Ukulinganisa nokumeda; Ukumadanisa nokuhlela Isib. Umthamo ongamumathwa simumathii nasizeleko ngokusebenzisa iimedo ezingakahleleki isib. Iingobho namakopi. • Ukuhlathulula umthamo besimumathi ngokubala nokutjho bonyana mangaki amayunihi angakahleleki angazalisa isimumathi, isib. Ibhodlelo linobungako bamakopi amane **Ukwethulwa kokumeda okuhlelekileko** • Ukulinganisa, ukumeda; ukumadanisa nokuhlela nokurekhoda umthamo wezinto ngokumeda amalitha. • Ukumadanisa, ukuhlela nokurekhoda umthamo wezinto ezipakelwe ukuthengiswa, ubungako bazo butlolwa ngamalitha, isib. Amalitha ama-2 webisi, ilitha li-1 lesiselo esimakhaza, amalitha ama-5 wepende	**Ukumeda okungakahleleki** • Ukulinganisa nokumeda; Ukumadanisa nokuhlela Isib. Umthamo ongamumathwa simumathii nasizeleko ngokusebenzisa iimedo ezingakahleleki isib. Iingobho namakopi. • Ukuhlathulula umthamo besimumathi ngokubala nokutjho bonyana mangaki amayunihi angakahleleki angazalisa isimumathi, isib. Ibhodlelo linobungako bamakopi amane **Ukwethulwa kokumeda okuhlelekileko** • Ukulinganisa, ukumeda; ukumadanisa nokuhlela nokurekhoda umthamo wezinto ngokumeda amalitha. • Ukumadanisa, ukuhlela nokurekhoda umthamo wezinto ezipakelwe ukuthengiswa, ubungako bazo butlolwa ngamalitha, isib. Amalitha ama-2 webisi, ilitha li-1 lesiselo esimakhaza, amalitha ama-5 wepende	Abafundi bafanele bafundiswe ngaso soke isikhathi ukutjho iyunithi, isib. Kuneengobho ezi-48 eziphelelekо zamanzi ngebhodlelweni nofana kunamanzi angaphasi kwekopi ngebhodlelweni. Lokha abafundi nasele bameda nanyana ngiyiphi iyunithi amahlandla ambalwa,bafanele balinganise umthamo/ ivolumu ngokusebenzisa iyunithi leyo. Ukulinganisa ngaphambi kokumeda kuqakathekile, kodwana kungenziwa kwaphela lokha abafundi nabameda ngeyunithi leyo. Abafundi bafanele bafundiswe bonyana ukuze bamadanise amavolumu nofana imithamo, iyunithi efana patsi ifanele isetjenziswe. Isib.nangabe irhalasi Limimatha amathispuni ama-20 wamanzi begodu ikopi Limimatha iingobho zamanzi ezi-10, umuntu angekhe atjho bonyana irhalasi Limimatha amanzi amanengi. Abafundi bafanele bamede ngamayunithi angakahleleki ahlukahlukeneko, ukuze bakghone • ukuthoma ukuzwisisa bonyana iyunithi nayiyincani , izokusetjenziswa amahlandla amanengana ,isib. ivolumu engebhodlelweni ingaba ziingobho ezi-20 kodwana lilingane nekopi li-1; begodu. • ukuthoma ukusebenzisa amayunithi afanele lokho abakumedako, isib. Ukumeda amalitha amabili wamabhodlelo azeleko ngethispuni kukumotjha isikhathi. **Ukurekhoda iimedo** Nanyana ukumeda kulikghono lokuzijayeza ukwenza, abafundi bafanele ukurekhoda iimedo zabo ngaso soke isikhathi,okufaka hlangana koke ukumeda okungakahleleki nokulhelekileko. **Ukumeda umthamo njengobujamo bokurarulula imiraro neembalo** Ngesikhathi esibekelwe Iinomboro, imiSebenzi noBudlelwana,abafundi bangararulula imiraro esebenzisa • ubujamo bobungako / ivolumu besimedo ezingakahleleki, isibonelo, uGogo usebenzisa amakopi amabili wetiye ukwenza ipudinghi. Nakawabuyelela kabili , uzokusebenzisa ibisi elingangani? • Amaliotha Yelela irhelo leenomboro elifanako leThemu leyo, begodu nemihlobo yemiraro ehlukahlukeneko.	Iimfundo ezi-3

IGREYIDI YESI-2 ITHEMU YESI-3 5. UKUPHATHA IDATHA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
5.4 Ukubuthelela nokuhlela idatha	**Buthelela begodu uhlele idatha** • Buthelela idatha ngetlasi nofana isikolo ukwenzela ukuphendula imibuzo ebuzwa ngutitjhere. • Hlela idatha ngamathali	**Buthelela begodu uhlele idatha** • Buthelela idatha ngetlasi nofana isikolo ukwenzela ukuphendula imibuzo ebuzwa ngutitjhere.	**Hlela idatha** Bekutjhukunyiswe bona abafundi basebenze ngawowoke umzombe wedatha ngeThemu yoku-1. Kutjhukunyiswe bona ngeThemu yesi-3, abafundi bazenzele amagrafu weenthombe umfundi ngamunye ngokusebenzisa idatha abnokelwe yona ngeenthombe nofana ngamathebula. **Jamisela idatha** Njengoba abafundi bazabe bagwala zoke iinthombe ezise / ezenza igrafu yeenthombe, kuqakathekile ukukhetha iinhloko ezineengaba okulula bona abafundi bazigwale isib. Imihlobo yeenselo abazithandako, njengoba kulula ukugwala ibhlegana ukujamisela isiseloesimakhaza esinye nesinye; iinthelo nazo kulula ukuzigwala, ngakho ke isithelo esithadwako naso singagwalwa. Ukugwala iinthombe ukutjengisa imidlalo abayithandako, amahlelo wakamabonakude abawathandako njll. Kungahle kube nzima khulu ebafundini abanengi bamaGreyidi we-2. Kulula ebafundini ukugwala amagrafu lokha nabanikelwe amaphepha anamabhlogo. Khumbuza abafundi ngobujamo obuqakathekileko begrafu yeenthombe (bona iThemu yoku-1). **Hlaziya begodu urhumutjhe idatha** Abafundi kufanele baphendule imibuzo obabuza yona ngamagrafu weenthombe: Bona iThemu 1 ukuthola ihlobo lemibuzo efaneleko.	Iimfundo ezi-3
5.5 Ukujamisela idatha	**Ukujamisela idatha** • Jamisela idatha ngegrafu yeenthombe	**Ukujamisela idatha** • Jamisela idatha ngegrafu yeenthombe		
5.6 Ukuhlaziya begodu urhumutjhe idatha	**Ukuhlaziya begodu urhumutjhe idatha** • Phendula imibuzo ngedatha ethulwe nge:	**Ukuhlaziya begodu urhumutjhe idatha** • Phendula imibuzo ngedatha yegrafu yeenthombe.		

IGREYIDI YESI-2 ITHEMU YESI- 4 1. IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.1 Ukubala izinto	**Ukubala izinto eziphathekako** Linganisa begodu ubale ngokuthembeka izinto zangamalanga ukuya okungaseneni ema-200. Amaqhinga wokubuthelela ayakhuthazwa.	**Ukubala izinto eziphathekako** Linganisa begodu ubale ngokuthembeka izinto zangamalanga ukuya okungaseneni ema-200. Amaqhinga wokubuthelela ayakhuthazwa.	**Ngikuphi okuhlukileko kune Themu yesi-3?** NgeThemu le abafundi babala izinto ezima-200. Ekupheleni kweThemu le abafundi babe sebabone, bakghwatha/bathinta bebatjhidisa izinto ezima-200. Bafanele babe nomuzwa “wobunengi’ obuma-200. Ragela phambili nomnqopho wokubuthelela izinto. Ekupheleni kweThemu bafanele bakghone ukuphendula imihlobo yemibuzo neenlayelo ezilandelako: • Ukubala izinto zokubala ngeenqhema zangakuhlanu, nangalitjhumi. Buyelela uhlele begodu ubale. Usese nezinto zokubala ezilinganako? • Nazi izinto zokubala ezima-200. Zibale ngokuzibuthelela ngeenqhema zangalitjhumi. Ukubala izinto zokubala ezi-200 sezizoke, ungakhetha ukuzibala ngeenqhema zama-20 nofana ngama 25? Kungebanga lani? • Thatha isiqunto bonyana ngiyiphi indlela engabalula ukubala ibuthelelo lamapensela. • Nazi izinto zokubala ezima-80. Nange singabala ngaku-2 nofana ngali-10, izinto zokubala zizokuhlala zinesamba esilinganako na? • Bala izinto zokubala ezima-46 ngokuzibeka ngeenqhema ezingaku -2. Ingabe kumasinya ukubala ngakubili kunokubala ngakunye na? • Ziinqhema ezingaki zangali-10 ozibalileko lokha ubala izinto zokubala ezili-120?	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.2 Ukubala uye phambili nemuva	Ukubala uye phambili nemuva nga: • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 na-200 • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 na -200 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 na-200 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne -0 na-200 • Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne -0 na-200 • Ku-4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne -0 na-200	Ukubala uye phambili nemuva nga: • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 na-200 • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 na -200 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 na-200 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne -0 na-200 • Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne -0 na-200 • Ku-4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne -0 na-200	**Ngikuphi okuhlukileko kuneThemu yesi- 3?** NgeThemu le abafundi babala ukuya phambili nemuva ukufika ema-200. Ngokuya ekupheleni kweThemu abafundi bafanele baqinise ukubala kwabo, ngokuhlanganisa ukubala ngokweqa ethebuleni yokubuyabuyelela. Abafundi bafanele bahlathulule lokho abakutjhejileko ethebuleni lokubala ngokubuyabuyelela bebakghone ukubona lokhu nabenza ukubala ngokweqa. Bafanele bathome ngokusebenzisa ikghono lokubonela phambili iinomboro ezizokubalwa. **Isibonelo:** Buza abafundi: Lokha nasibala ngakubili, sizoyisebenzisa inomboro ama-20? Ingabe inomboro ama-20 ikhona na ethebuleni lakaku-2? Ekupheleni kweThemu abafundi bafanele bakghone ukuphendula imihlobo yemibuzo neenlayelo ezifana nokuthi: • Bala ngamatjhumi ukusuka e-170 ukuya ema-200 • Bala uye emuva ngamatjhumi ukusuka e-180 ukuya e-140 • Bala ngakuhlanu ukusuka e-115 ukuya e-145 • Bala uye emuva ngakuhlanu ukusuka e-135 ukuya e-110 • Bala ngakuthathu ukusuka ema-66 ukuya e-81 • Bala uye emuva ngakuthathu ukusuka e-190 ukuya e-169 • Bala ngakune ukusuka e-120 ukuya e-140 • Bala uye emuva ngakune ukusuka e-180 ukuya e-160 Abafundi bangasebenzisa igridi yenomboro, inambalayini, umkhondo wenomboro, i-abhakhasi begodu nemincamo yokusekela ukubala.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.3 Amat-shwayo weenom-boro namagama weenom-boro	**Ukukhumbula, ukubona nokufunda iinomboro** • Ukwazi nokufunda amatshwayo wenomboro ukusukela e-0 ukufika ema-200 • Ukutlola amatshwayo weenomboro ukusuka e-0 ukufika ema-200 • Ukwazi nokufunda amabizo wenomboro ukusuka e-0 ukufika e-100 utlola amabizo wenomboro ukusukela eli-0 ukufika e-100		**Ngikuphi okuhlukileko kuneThemu yesi- 3?** NgeThemu le abafundi kwanjesi babona, bafunde begodu nokutlola amatshwayo weenomboro ukufika ema-200. Ilwazi lamatshwayo weenomboro ukuqinisekisa lokha nakubalwa ngokuya phambili nokuya emuva. Ekupheleni kweThemu abafundi bafanele bakghone ukuphendula imihlobo yemibuzo nofana iinlayelo: Ukutlola itshwayo lenomboro: Amatjhumi amabili nantathu Amatjhumi amahlanu nekhomba Amatjhumi alithoba nakubili Ikhulu nethoba Ikhulu netjhumi nanye Ikhulu namatjhumi amabili nekhomba Madanisa amatshwayo negama lenomboro 66 — Amatjhumi alithoba nanye 8 — Amatjhumi amahlanu nantathu 172 — Amatjhumi amane 109 — Amatjhumi amathathu nobunane 91 — Ikhulu namatjhumi alikhomba nambili 40 — Amatjhumi asithandathu nathandathu 53 — Bunane 38 — Ikhulu nethoba  Ukufundela phezulu iinomboro kelinye nelinye ikarada: 198 67	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.4 Ukuhlathu-lula, ukumadani-sa, nokuhlela iinomboro	Ukuhlela nokumadanisa iinomboro 4kufika ema-99 • Ukuhlela iinomboro ezipheleleko ukufika ema-99. Ukusukela kencani khulu ukuya kwekulu khulu begodu nakusukela kekulu khulu ukuya kwencani khulu • Ukumadanisa iinomboro ezipheleleko ukufika ema-99 usebenzise okuncani kuna, okukhulu kuna, okunengi kuna, okuncani kuna, okulingana na. **Sebenzisa iinomborosikhundla ukutjengisa ukuhlela, iindawo nofana ubujamo** Beka izinto emudeni ngokulandelana ukusuka kweyokuthoma ukuya kweyetjhumi nofana keyokuthoma ukuya keyokugcina, Isib. Yokuthoma, yesibili, yesithathu, ematjhumini amabili		**Ngikuphi okuhlukileko kuneThemu yesi-3?** Irherho leenomboro lingezelelwe ukufika ema-99. **Ekupheleni kweThemu abafundi kufanele bakghone :** Ukusebenzisa, ukufunda nokutlola. Kokuthoma, kwesibili, kwesithathu, kwesine, kwesihlanu, kwesithandathu.....begodu neenrhunyezo: 1-thoma-, 2- bili, 3-thathu-, 4-ne, Ukusebenzisa, ukufunda nokutlola ilimi lokuhlela nokumadanisa okulandelako • Zingaki..... • Okunengi kangange, inomboro efana na • Ilingana na, okunengi kuna, okuncani kuna, okumbadlwana kuna, okukhulu khulu kuna, okuyimbijana kuna, ekulu kuna • Enengi, ncani khulu, mbijana, okukhulu khulu • Hlela, kokuthoma,kokugcina, ngaphambi, ngemuva, okulandelako, hlangana, okuphakathi hlangana Sebenzisa itshwayo = ukujamiselela ukulingana Abafundi bafanele bakghone ukuphendula imibuzo efana nokuthi: Ngubani osebujameni besibili emjejeni? Ngiyiphi ipensela efitjhani khulu? Hlela iinomboro ukufika okungasenani e-100 begodu uzibeke enambalayinini nofana usebenzise igridi yesikwere. Zaliselela iinomboro ezitjhiyiweko engcenyeni zegridi ye-100  Tlola bonyana iinomboro lezi zizokuya kuphi: 88, 90, 92... Zaliselela ngenomboro etjhiyiweko: **115** | | **117** **139** | | **141** **187** | | **185** Phendula imibuzo elandelako ngokukhuluma: Ngiziphi iinomboro ezihlangana kwama-82 nama- 87? Ngiziphi iinomboro ezihlangana kwama -45 nama 50? Ngiziphi iinomboro ezihlangana kwama -69 nama 75? Tlola iinomboro ngokuzihlela kusukela kwekulu khulu ukuya kwencani khulu 127, 132, 165, 111, 189, 173, 156 Tlola iinomboro ngokuzihlela kusukela kwencani khulu ukuya kwekulu khulu 89, 62, 56, 72, 45, 39, 17 Tjengisa, funda begodu utlole inomborosikhundla.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
UBUKHULU BEDIJITHI				
1.5 Ubukhulu bedijithi	Ukulemuka ubukhulu bedijithi okungenani iinomboro zamadijithi amabili ukufika ema-99 • Ukulemuka bonyana idijithi ngayinye lijamele ini • Ukuphula iinomboro zamadijithi amabili ukufika ema-99 zibe ziiimbuyeleli zetjhumi nemivo(TM) • Bona bewutjho ubungako bedijithi ngalinye		**Ekupheleni kweThemu abafundi bafanele bakghone uku:** • Zwisisa nokusebenzisa ilwazimagama lobukhulu bedijithi: Ukusebenzisa, ukufunda nokuthoma ukutlola: Ngakunye nofana imivo, amatjhumi, idijithi, inomboro yedijithi elilodwa, inomboro yamadijithi amabili, ubukhulu bedijithi..... • Ukuhlukanisa phakathi iinomboro ezinamadijithi amabili ngesibuyabuyelelo setjhumi nemivo Tlola inomboro: Amatjhumi asi-6 nemivo emi-3 _____ Amatjhumi ama-2 nemivo emi -5_____ Amatjhumi ali-12 nemivo ebu -8 _____ Amatjhumi lia-18 nemivo emi-4 _____ • Ukusebenzisa ama-apharathasi: Tjengisa amatjhumi ama-4 nemivo emi-5 ngokusebenzisa i-abhakhasi. Tjengisa amatjhumi ali-7 nemivo esi-6 ngokusebenzisa i-abhakhasi Yitjho bonyana idijithi bu-8 ema -28 lijamele ini? Begodu noku-2? Yitjho bonyana ngiyiphi inomboro elingana nofana efana na: - Amatjhumi asi-6 - Amatjhumi alithoba nemivo emithathu - Amatjhumi amahlanu nemivo elithoba Ngiyiphi inomboro okufanele ingene ngebhoksini ngalinye? 34 = □ + 4 78 = 70 + □ **Iinsetjenziswa** Izinto ezingabuthelelwa: • Iingojwana zokubala • Izinto zokubala ezingathungwa • Iinthoro zomlilo • Iingojwana ze-ayisikhrimu • Amakhyubsi angenelelanako	

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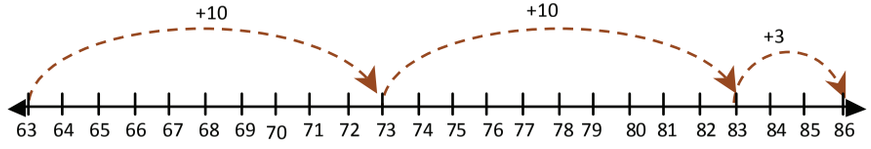
UKURARULULA IMIRARO ESEBUJAMENI				
1.6 Amathek-hiniki wok-urarulula imiraro	Sebenzisa amathekhiniki alandelako lokha nawurarulula imiraro begodu uhlathulule iinsombululo zemiraro: • Imigwalo nofana ama- aparethasi aphathekako isib. izinto zokubala • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Amanambalayini		Abafundi balindeke bonyana basombulule imiraro yamagama ngokusebenzisa amathekhiniki alandelako: • Ukwakha nofana ukuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Amanambalayini Qala amanothi weThemu yoku-1 neyesi- 2 ukwenzela: • Imigwalo nofana ama- aparethasi aphathekako • Ukwakha nokuphula • Ukubuyelela kabili nokuhafula phakathi **Amanambalayini** Ukusebenzisa amanambalayini ukuze abarhelebhe ukubala, azakuvumela abafundi bonyana barekhode ukucabanga kwabo begodu balandelele umkhondo wokucabanga kwabo. Avumela abafundi bonyana babe nomfanekiso abangawusebenzisa ukuhlathulula bonyana bawusombulule bunjani umraro. Abafundi bebasebenzisa amanambalayini kusukela eGreyidini yoku-1. Ethemini yesi-4 bafanele bakghone ukukwakha amanambalayini anganalitho lapho bazafaka khona inomboro yokuthoma bese babone bonyana basuka bunjani enomborweni yinye ukuya kwenye. Isibonelo bonisa bonyana abafundi bangayisebenzisa bunjani inambalayini: Abantwana abama-23 bathatha ikhambo lesikolo namhlanje. Kusele abantwana abama-63 esikolweni. Bekuna abantwana abangaki kwasekuthomeni?  Vumela abafundi bonyana bakhethe ithekhiniki abazizwa batjhaphulukile ngayo. Nanyana kunjalo lokha abafundi basebenzisa amathekhiniki lawa angabasiziko kufanele bonyana bakhokhelwe ekusebenziseni azabasiza. Yelela bonyana abafundi esikhathi esinengi basebenzise indlela ezihlukeneko zokusombulula imiraro okungahle kungabi ngilezo ebezilindelwe ngutitjhere. Isibonelo, umraro wokuhlukanisa ungasonjululwa ngokubuyelela ukukhupha, ukuhlanganisa nofana ukubuyabuyelela. Iindlela zabafundi zizokutjhuguluka ngokukhamba njengombana ilemuko nokujayela imihlobo yemiraro ikhula, begodu njengombana umqondo nomboro wabo uthuthuka.	

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1.7 Ukuh-langanisa nokukhupha	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-99.		Iimbonelo zemiraro okufanele abafundi bakghone ukuyisombulula ekupheleni kweThemu. Ukuhlanganisa nokukhupha Kunemihlobo okungasenani emithathu esisekelo yemiraro yokuhlanganisa nokukhupha begodu omunye nomunye umhlobo ungabuzwa ngeendlela ezahlukahlukeneko. Imihlobo esisekelo ngile: **Itjhentjhi** • UNoluthando bekanamaswidi ama-25.USilo umuphe amaswidi ali-18. Sekanamaswidi amangaki njenganje? • UNoluthando bekanamaswidi ama-53. Wanikela uSilo amaswidi ama-32. Sekanamaswidi amangaki njenganje? **Hlanganisa** • Itlasi leGreyidi yesi- 2 linaboncantathu abahlaza satjani abama-37 begodu naboncantathu abahlaza sasibhakabhaka abali-19. Bangaki aboncantathu abanabo? • Baneendulungu ezima-63; ezima-27 zihlaza satjani begodu ezinye zihlaza sasibhakabhaka. Baneendulungu ezingaki ezihlaza sasibhakabhaka abanazo? **Ukumadanisa** UNosisi unamabhanana ali-13. UThemba unamabhanana a-5. UNosisi unamabhanana amanengi ngamangaki kunoThemba? Ukubeka omunye nomuye umraro ngendlela ezihlukileko. Imiraro ifanele ibekwe ngeendlela ezihlukeneko. Isibonelo, yomibili imiraro ngeyetjhentjhi nokho “okungaziwa” kusendaweni ezahlukahlukeneko zemiraro. • UNoluthando unamaswidi. USilo umupha amanye amaswidi ama-18. Kwanje sele anamaswidi ama-43. UNoluthando bekanamaswidi amangaki ekuthomeni? • UNoluthando bekanamahabhula ama-25. USilo wamupha amanye amahabhula. Kwanje sele amahabhula ama- 43.USilo umuphe amahabhula amangaki?	

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1.8 Ukuh-langanisa okubuyele-lweko okurholela ekubuy-abuyeleleni	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukuhlanganisa okubuyelelweko okurholela ekubuyabuyeleleni okunempendulo ufikela e-50.		**Iimbonelo zemiraro okufanele abafundi bakwazi ukuyisombulula ekupheleni kweThemu.** **Ukuhlanganisa okubuyelelweko** • Imilelenjana ema-20 inamavilo amangaki? **Isilinganiso** • UThami ukhamba amabhlogo asi-6 ngelanga. Mabhlogo amangaki awakhambako ngeveke? **Amagridi** • UMnu. Khumalo utjala amareyi ali-7 wekhabitjhi. Kunamakhabitjhi ebu-8 ereyini. Mangaki amakhabitjhi sele awoke?	
1.9 Ukubuthele-la nok-wabelana okurholela ekuhlu-kaniseni	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqema kweenomboro eziphele leko ukufika e-50 kanye nempendulo ezingahle zifaka iinsalela		Iimbonelo zemiraro okufanele abafundi bakghone ukuyisombulula ekupheleni kweThemu. **Ukubuthelela** Ukubuthelela,ukulahla isalela • UStella uthengisa amahabhula ngeenkhwanyana ezifaka amahabhula ali-10 sisinye. Unamahabhula ama-80. Angenza iinkhwanyana ezifaka amahabhula ali-10 ezingaki? Ukubuthelela okufaka hlangana isalela ependulweni • Umlimi unamaqanda ama-47. Mabhoksi wamaqanda amangaki athatha amaqanda asi-6 lilinye azowatlhoga ukupaka woke amaqanda? **Ukwabelana** Ukwabelana , ukulahla isalela • Yabela abangani abali-7 amaswidi ama-54 ukuze boke bathole inani elilinganako lamaswidi.	

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1.10 Ukwabelana okurholela emafrak-tjhinini	Ukurarulula bewuhlathulule iinsombululo zemiraro ezisebujameni efaka hlangana ukwabelana ngokulingana erholela empendulweni zamafraktjhini wohlavu olulodwa isib. $\frac{1}{2}, \frac{1}{4}, \frac{1}{3}, \frac{1}{5}$ njll		Umnqopho wemiraro yamagama wamafraktjhini weThemu le uragela phambili ukuvumela abafundi : • Ukwaba begodu babuthelele ngokweenqhema izinto ngokulinganako; • ukutjho iingcenye zamafraktjhini; • Ukuthola amafraktjhini wezinto eziphelelekо; • Ukulemuka bonyana ifraktjhini yingcenye yokuphelelekо; • Ukutlola ifraktjhini njengakunye kokuthathu Ethemini le abafundi batjho amafratjhini amanengi. Kubalulekile bonyana abafundi bavezelwe epepeneneni amafraktjhini ngaphandle kwehafu yinye nekotara yinye. **limbonelo zemiraro engenziwa:** Ukwabelana, okurholela emafraktjhinini • Yabela abangani aba-3 iintina ezili-7 zetjhokoledi ukuze boke bathole inani elilinganako kungasali litho. • Abangani abane babelana amapanekuku ama-3 ngokulinganako. Munye uzothola mangaki? Ekupheleni kweThemu abafundi bafanele bazi imiqondo elandelako: Lokha nawuhlukanisa into phakathi: • Iingcenye ezimbili ezilinganako, kubizwa ukuhafula; ingcenye yinye ibizwa ihafu. • Iingcenye ezintathu ezilinganako, yinye ibizwa kunye kokuthathu; • Iingcenye ezine ezilinganako, yinye ibizwa ikota; • Iingcenye ezihlanu ezilinganako, yinye ibizwa kunye kokuhlanu; • Iingcenye ezisithupha ezilinganako, yinye ibizwa kunye kwesithandathu; • Iimbonelo zemiraro abafundi abafanele bayenze ekupheleni kweThemu. **Ukwabelana, okurholela emafraktjhinini** Yabela abangani aba-4 iintina eziyi-11 zetjhokoledi ukuze boke bathole inani elilinganako ukuze kungasali litho. **Ifraktjhini lebuthelelo** Ugogo unikela uKiki amalamune ali-12. UKiki wenza ijuzi ngakunye kokuthathu ngamalamune. Usebenzise amalume amangaki? Imihlobo le yemiraro kufanele ibuzwe kwaphela lokha abafundi sele bararulule imiraro emine namkha emihlanu yokwabelana, erholela emihlobeni yamafraktjhini begodu bazi amagama weengcenye zamafraktjhini. **Ukubeka amafraktjhini ndawonye** Umbanduli webholo yezandla unikela umdlali ngamunye ihafu yelamune. Kunabadlali aba-14. Uthloga amalumune amangaki? Imihlobo le yemiraro kufanele ibuzwe kwaphela lokha abafundi sele bararulule imiraro emine namkha emihlanu yokwabelana, erholela emihlobeni yamafraktjhini begodu bazi amagama weengcenye zamafraktjhini.	

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1.11 Imali	• Ukulemuka nokubona iinhlavu zemali zeSewula Afrika : (5c, 10c, 20, 50c, R1, R2; R5) kunye nemali yemaphepha (R10, R20, R50). • Sombulula imiraro yemali efaka hlangana amanani netjhentji ngamasende ukufika ema-99c nofana ngamaranda ukufika ema-R99		Iimbonelo zemiraro okufanele abafundi bakghone ukuyisombulula ekupheleni kweThemu. Ubujamo bemiraro enoBudlelwana obusebenzako obuhlukeneko UHeila uthengisa amahotdogo ngama R4 ngayinye. Yenza ithebula lokumsiza athole inani yama-oda amanengi. Inani lama hotdogi | | | | | | | | | | | Inani ngamaranda R | | | | | | | | | | | Sebenzisa ithebula ukuthola inani lama hotdogo ali-7 nali-15. USkhumbuzo ubhadelisa ama-R20 imali yokukhamba, abhadelise ama-R5 nge-iri ukuthlogomela umntwana. Mzalisele ithebula leli. Inomboro yama-iri | 1 | 2 | 3 | 4 | 5 | 10 Inani ngamaranda R | 25 | 30 | | | | | Yelela bonyana umraro ka Heila noka Skhumbuzo usetjenzwa ngokuhlukileko.	
UKUBALA OKUSEBUJAMENI OBUTJHAPHULUKILEKO				
1.12 Amathekh-iniki (iindlela namaqh-inga)	Sebenzisa amathekhiniki alandelako nawubalako • Imigwalo nofana ama-apharethasi aphathekako njengezinto zokubala • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Amanambalayini	Sebenzisa amathekhiniki alandelako nawubalako • Imigwalo nofana ama-apharethasi aphathekako njengezinto zokubala • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Amanambalayini	Abafundi balindeke bonyana bararulule iimbalo ezisebujameni obutjhaphulukileko ngokusebenzisa amathekhiniki alandelako: • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Amanambalayini Qala amanothi weThemu yoku-1 neyesi-2	

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1.13 Ukuh-langanisa nokukhupha	• Hlanganisa ukufika ema-99 • Khupha ukusuka ema-99 • Sebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuphrakhthisa ukulumbana kweenomboro ukufika ema-20	• Hlanganisa ukufika e-99 • Khupha ukufika e- 99 • Sebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuphrakhthisa ukulumbana kweenomboro ukufika ema-20	NgeThemu le abafundi baragela phambili ngokuphula iinomboro ukuze babale. Iindlela ezinokwenzeka ukubonisa iimbalo zokuhlanganisa nokukhupha **Ukuphula inomboro ibe zingcezu ezincane ukwenzela ukubalisisa kube lula** **Ukusebenzisa ilwazi lobukhulu bedijithi, ukuphula iinomboro zibe matjhumi nemivo** Hlanganisa amadijithi amabili ngokuphula iinomboro zombili 43 + 36 = □ 43 + 36 = (40 + 3) + (30 + 6) = (40 + 30) + (3 + 6) = 70 + 9 = 79 **Hlanganisa ngokuphula inomboro yinye** 43 + 36 = □ 43 + (30 + 6) 43 + 30 → 73 + 6 = 79 Abafundi bangahle baphule inomboro ngezindlela abazikghonako. Lokhu kutjho bonyana bazozenza ngeendlela ezahlukeneko. 43 + 36 = □ 43 + (10 + 10 + 10 + 6) 43 + 10 → 53 + 10 → 63 + 10 → 73 + 6 = 79 **Ukukhupha** Ukuphula iinomboro zombili 87 – 56 = □ 87 – 56 = (80 + 7) - (50 + 6) = (80 - 50) + (7 - 6) = 30 + 1 = 31	

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1.13 Ukuh-langanisa nokukhupha	• Hlanganisa ukufika ema-99 • Khupha ukusuka ema-99 • Sebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuphrakhthisa ukulumbana kweenomboro ukufika ema-20	• Hlanganisa ukufika e-99 • Khupha ukufika e- 99 • Sebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuphrakhthisa ukulumbana kweenomboro ukufika ema-20	• Ukukhupha ngophula inomboro yinye 87 - 56 = □ 87 - (50 + 6) 87 - 50 → 37 - 6 = 31 Lindela bonyana abanye abafundi bangahle baphule inomboro ngendlela ezihlukileko ukwenzela bonyana babale lula: 87 - 56 = □ 87 - (20 + 20 + 10 + 6) 87 - 20 → 67 - 20 → 47 - 10 = 37 - 6 = 31 **Ukusebenzisa ihafu ukuphula inomboro** 69 + 12 69 + (6 + 6) 69 + 6 → 75 + 6 = 81 Ukubala uye phambili nemuva: 78 - 69 = □ Ukubala uye phambili ngakunye ukusuka ema-69 kuliqhinga elifaneleko ngombana iinomboro ziseduzana kwenye nenye. **Ukubona ukubuyelela kabili okuseduze** 34 + 35 hlathulula bonyana kubuyelela kabili ama-34 uhlanganise na-1 nofana buyelela kabili ama-35 ukhuphe ku-1. 34 + 34 + 1 Abafundi bangahle barekhode amaqhinga wabo ngokusebenzisa abonotjhobi. 34 + (30 + 4) + 1 34 + 30 □ 64 + 4 → 68 + 1 = 69 **Ukutjhugulula inomboro ibe sibuyabuyelelo setjhumi begodu ukhuphe nofana uhlanganise imivo.** Ukubala uye phambili nofana uye phasi ekutjhideleni eduze ne-10 58 + 19 = □ Lapha abafundi bafanele batjho kibo ngokwabo bonyana banamathuba amabili wokuzikhethela. Ukutjhugulula ama-58 nofana i-19 ekutjhideleni eduze kwesibuyabuyelelo ze-10. Banokuzikhethela Isibalo singatlolwa ngendlela le: 58 + 19 = 58 + 20 - 1 58 + 20 → 78 - 1 = 77 Abanye abafundi bangaphula ama-20 ngeenqhema ezi-2 ze -10 ukubala ngokunembako.	

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1.13 Ukuh-langanisa nokukhupha	• Hlanganisa ukufika ema-99 • Khupha ukusuka ema-99 • Sebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuphrakhthisa ukulumbana kweenomboro ukufika ema-20	• Hlanganisa ukufika e-99 • Khupha ukufika e- 99 • Sebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuphrakhthisa ukulumbana kweenomboro ukufika ema-20	**Ekupheleni konyaka abafundi bafanele bakghone:** Ukusebenzisa nokuzwisisa ilimi lokuhlanganisa Ukuzwisisa bonyana ukuhlanganisa ilize kutjhiya inomboro ingakatjhuguluki 75 + 0 = 75 0 + 75 = 75 75 = 75 + 0 75 = 0 + 75 Ukuphendula imibuzo etloliweko ebekwe ngeendlela ezahlukahlukeneko: • ukuhlanganisa ndawonye ama-43 ne-9 • ngezelela itjhumi ema-67 • 11 hlanganisa nama-83 • 80 = 62 + 8 + □ • Ngiyiphi inomboro edlula ama-60 ngama-30 • Thola isamba sama-56 neli-14 • Hlanganisa itjhumi nambili namatjhumi alikhomba nahlanu • Ngiyiphi inomboro edlula ama-83 ngetjhumi? • Ngiyiphi inomboro ongayihlanganisa nama-45 ukuthola ama-78? • Amatjhumi amane uhlanganise namatjhumi ama-3 • Amatjhumi ali-12 uhlanganise nemivo ebu-8 • 45 + 10 = □ 45 + 20 = □ 45 + 30 = □ **Ukwazi bonyana** **Ukwazi bonyana ¨ lijamele inomboro engaziwako.** 42 + 44 = □ 5 + 7 + □ = 80 57 + □ = 95 □ + 15 = 81 Ngesizo lama-apharathasi: hlanganisa iinomboro ezintathu ndawonye 26 + □ + □ = 72 Khetha iinomboro ezintathu kulezi:15, 19, 22, 25 Zihlanganise zoke. Mihlobo emingaki ehlukahlukeneko yamanani ongayenza?	

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1.13 Ukuh-langanisa nokukhupha	• Hlanganisa ukufika ema-99 • Khupha ukusuka ema-99 • Sebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuphrakhthisa ukulumbana kweenomboro ukufika ema-20	• Hlanganisa ukufika e-99 • Khupha ukufika e- 99 • Sebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuphrakhthisa ukulumbana kweenomboro ukufika ema-20	**Baphendula imibuzo etloliweko begodu hlathulula bonyana bafike njani eempendulweni zabo:** • Hlanganisa - 6, 12 ne -14. • Yini inani le- 10, 5 ne-19. **Ukuzwisisa ukukhupha ekupheleni konyaka.** Ekupheleni konyaka abafundi bafanele bakghone: Ukuzwisisa begodu basebenzise ilwazimagama lokukhupha: Khupha, khupha, kusele mangaki, yincani kangangani.....kune....., umehluko hlangana, yikulu kangangani .....kune....., kufuneka kwenziwe okunengi kangangani .....begodu ufunde bewutlole itshwayo lokukhupha (-) Ragela phambili ngokuthuthukisa ukuzwisisisa ukukhupha njengoku: • khupha • thola umehluko hlangana Ukuzwisisa bonyana nawukhupha ilize kutjhiya inomboro ingakatjintji: 92 – 0 = 92 92 = 92 – 0 Ukuphendula imibuzo etloliweko ebekwe ngeendlela ezahlukahlukeneko: • Ama-37 khupha ku-3 • Khupha ama- 40 ema-80 • Ama-62 khupha ama- 42 • Khupha ama-45 ema-90 • Ngimuphi umehluko okhona hlangana nama-38 nama-57? • Lincani kangangani i-17 kunama-49 • Ngiyiphi inomboro ongayikhupha ema-56 ukuthola ama -22? • Ngiyiphi inomboro ongayikhupha -56 ukuthola ama– 32? • Ngiyiphi inomboro ongayikhupha ama-56 ukuthola ama– 42? • Thola iinomboro ezikhamba ngazimbili ezinomehluko we-10 Yazi bonyana □ sijamele inomboro engaziwako. 57 – 34 = □ 80 – 30 = □ 62 - □ = 48 98 – 42 = □ 87 - □ = 75 13 – 6 = 15 - □ □ - 18 = 24	

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1.13 Ukuh-langanisa nokukhupha	• Hlanganisa ukufika ema-99 • Khupha ukusuka ema-99 • Sebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuphrakhthisa ukulumbana kweenomboro ukufika ema-20	• Hlanganisa ukufika e-99 • Khupha ukufika e- 99 • Sebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuphrakhthisa ukulumbana kweenomboro ukufika ema-20	Ukuthoma ukuzwisisa bonyana: 25 – 10 kuhlukile ku 10 – 25 Ukusebenzisa ubudlelwana obuphakathi kokuhlanganisa nokukhupha Yitjho bewutlole ukukhambelana kwamaphuzu wokukhupha ekuhlanganiseni amaphuzu anikelweko begodu uwahlanekezele. Isibonelo: 73 + 17 =90 kutjho bonyana 90 – 17 = 73 17 + 73 = 90 kutjho bonyana 90 – 73 = 17 42 – 18 = 24 kutjho bonyana 24 + 18 = 42 42 – 24 = 18 kutjho bonyana 18 + 24 = 42 Ngaphandle kokusebenzisa ama-apharathasi phendula okulandelako: Nawazi bonyana 62 + 29 = 91. Ayini ama-: 29 + 62 91 – 29 91 – 62 Nawazi bonyana 66 – 50 = 16 Ayini ama- : 66 – 16 50 + 16 16 + 50 Tlola bewuphendule okulandelako: 57 - 34 = 23 □ + 23 = 57 □ - 23 = 34 34 + 23 = □ 12 + 46 = 58 12 + □ = 58 58 - □ = 12 □ - 46 = 12 Tlola imihlobo emine yemitjho yeenomboro ehlukeneko usebenzise iinomboro ezi-3. Isibonelo: 20, 30 and 50 20 + 30 = 50 30 + 20 = 50 50 – 30 = 20 50 - 20 = 30	

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1.14 Ukuh-langanisa okubuyele-lweko kurholela ekubuy-abuyeleleni	• Buyabuyelela iinomboro ukusuka ku-1 ukufika e-10 ngo 1, 2, 5, 3, 4 ukufika ema-50 • Sebenzisa amatshwayo afaneleko (+, x, =, □)	• Buyabuyelela iinomboro ukusuka ku-1ukufika e-10 ngo 1, 2, 5, 3, 4 ukufika ema-50 • Sebenzisa amatshwayo afaneleko (+, x, =, □)	**Ngikuphi okuhlukileko eThemeni yesi-4?** NgeThemu le abafundi bazabe babuyababuyelela ngakuthathu kokuthoma. Qala amanothi asethemini yoku-1 ukwazisa umqondo omutjha. **Ekupheleni kweThemu abafundi bafanele bakghone:** Ukusebenzisa ilimi lokubuyabuyelela ebujameni obuphathekako: Buyelela kabili, buyabuyelela, buyabuyelela nga,okubuyabuyelelo nga, isibuyabuyeleli sa, okunengi kwa, iinqhema za....., ukubuyabuyelela njenga (ubukhulu, ubude, ububanzi....), kabili, buyelela kathathu ngobunengi obungange, bafunde bebatlole itshwayo lokubuyabuyelela (x) Sebenzisa ilimi leli ukwenza iimbalo zokubuyabuyelela Ukuzwisisa ukubuyabuyelela njengokuhlanganisa okubuyelelweko 6 esihlanganiswe ndawonye ka-3 zilingana na: 6 + 6 + 6 = 18 6 ngokubuyelelwa ka-3 = 18 ukubuyabuyelela isi- 6 ngaku-3 = 18 6 x 3 = 18 3 x 6 = 18 Ukuzwisisa ukubuyabuyelela njengokuhlathulula ukurhemisa into. ◎ ◎ ◎ ◎ ◎ ◎ ◎ ◎ ◎ ◎ ◎ ◎ 5 x 3 =15 ◎ ◎ ◎ ◎ ◎ ◎ 3 x 5 = 15 Ukuphendula imibuzo efana na: Abokuhlanu abane Ukubuyelela kabili isi-6 6 sibuyabuyelelwa ka-5	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.14 Ukuh-langanisa okubuyele-lweko kurholela ekubuy-abuyeleleni	• Buyabuyelela iinomboro ukusuka ku-1 ukufika e-10 ngo 1, 2, 5, 3, 4 ukufika ema-50 • Sebenzisa amatshwayo afaneleko (+, x, =, □)	• Buyabuyelela iinomboro ukusuka ku-1ukufika e-10 ngo 1, 2, 5, 3, 4 ukufika ema-50 • Sebenzisa amatshwayo afaneleko (+, x, =, □)	Izinto zokubala ezintathu ereyini. Kunamareyi amane. Kunezinto zokubala ezingangani sezizoke? 2 kubuyabuyelelwa ngaku-4 8 bubuyabuyelelwa ka-2 **Ukulemuka ukusetjenziswa kwesibambelindawo □ ukujamela inomboro engaziwako.** Iinqhema ezi-3 za-2 zi-6 nofana ku-3 kubuyabuyelela ka- 2 yisi- 6 nofana 3 x 2 = □ Iinqhema ezi-4 za-3 zi-12 nofana 4 kubuyabuyelela ka- 3 yi- 12 nofana 4 x 3 = □ Iinqhema ezi-6 za-3 zi-18 nofana 6 kubuyabuyelela ka- 3 yi- 18 nofana 6 x □ = 18 7 + □ = 14 Iinqhema ezi-2 za-7= □ 2 + □ + □ + □ + □ + □ + □ = 14 □ x 7 = 14 1 x 2 = □ 2 x 2 = □ 3 x 2 = □ 1 x 5 = □ 2 x 5 = □ 3 x 5 = □	

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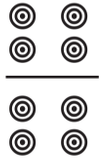
1.16 limbalo zehloko	**Umnqondo wenomboro: irherho ukufika ema-99** • Hlela isethi yeenomboro ezikhethiweko onikelwe yona • Madanisa iinomboro ukufika ema-99 bewutjho bonyana ngiyiphi enengi nofana encani nga-1, 2, 3, 4, 5 ne-10 **Ukukhumbula masinyana:** • Ukukhumbula amaphuzu wokuhlanganisa newokukhupha ukufika ema- 20 • Hlanganisa nofana ukhuphe iimbuyeleli ze-10 ukusuka eli-0 ukuya e-100 **Amaqhinga ngengqondo** Ukusebenzisa amaqhinga wokubala ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukwenzela ukubalela uye phambili nofana emuva • Sebenzisa ubudlelwano phakathi kokuhlanganisa nokukhupha • Inambalayini. • Ukubuyelela kabili nokuhafula • Ukwakha nokuphula		Iimbonelo zemibuzo engabuzwa: **Umqondo nomboro:** **Amagama weenomboro namatshwayo** Phakamisa ikarada nofana utlole igama lenomboro. Khetha umfundi uzokutlola inomboro ekhambelanako. **Okunengi nofana okuncani** Kuyini o- • Kuncani ngaku-1 ema-70 • Kunengi ngaku-1 kunama-80 • Kuncani ngaku-3 kunama-51 • Kuncani ngaku-4 kunama-67 • Kuncani ngaku-5 kunama-85 • Kunengi ngali-10 kunama-90 • Kuncani ngali- 10 kunama-80 Ngiliphi iledere lesi-5 lama alfabethini Ngiyiphi inyanga yobu-9 yomnyaka? **Ukuhlela nokumadanisa** Ngikuphi okunengi: 21 nofana 171? Nginikela inomboro ehlangana kwe- 154 ne-159. **Amaphuzu wokuhlanganisa nokukhupha:** • Ukwazi ngehliziyo ukulumbana kweenomboro ngokuhlanganisa nokukhupha ukuya ema-20. □ + △ = 20 □ + △ = 16 19 = □ - △ Ukuhlanganisa nokukhupha amaphuzu wazo zoke iinomboro ukufika nokufaka hlangana ama-20. 1 + 11 = 12 11 + 1 = 12 2 + 10 = 12 10 + 2 = 12 3 + 9 = 12 9 + 3 = 12 18 – 4 = 14 18 – 14 = 4 18 – 5 = 13 18 – 13 = 5 18 – 6 = 12 18 – 12 = 6	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.16 limbalo zehloko	**Umnqondo wenomboro: irherho ukufika ema-99** • Hlela isethi yeenomboro ezikhethiweko onikelwe yona • Madanisa iinomboro ukufika ema-99 bewutjho bonyana ngiyiphi enengi nofana encani nga-1, 2, 3, 4, 5 ne-10 **Ukukhumbula masinyana:** • Ukukhumbula amaphuzu wokuhlanganisa newokukhupha ukufika ema- 20 • Hlanganisa nofana ukhuphe iimbuyeleli ze-10 ukusuka eli-0 ukuya e-100 **Amaqhinga ngengqondo** Ukusebenzisa amaqhinga wokubala ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukwenzela ukubalela uye phambili nofana emuva • Sebenzisa ubudlelwano phakathi kokuhlanganisa nokukhupha • Inambalayini. • Ukubuyelela kabili nokuhafula • Ukwakha nokuphula		Ngokurhabako khumbula ukuhlanganisa okubuyelelwa kabili ukufika-20. Lokhu kufanele kufake hlangana amaphuzu wokukhupha akhambelanako. • 1 + 1 = 2 • 2 + 2 = 4 • 3 + 3 = 6 • 4 + 4 = 8 • 5 + 5 = 10 • 6 + 6 = 12 • 7 + 7 = 14 • 8 + 8 = 16 • 9 + 9 = 18 • 10 + 10 = 20 Ngitjengise inomboro ongayihlanganisa ukwenza ama-20 (ukutlola phasi nofana usebenzise isijameli sikhundla nofana amakarada wamaFladi) • 8 • 2 • 9 • 15 • 3 Ngitjengisa inomboro esalako lokha ..... suswa ema -20 (ukutlola phasi nofana ukusebenzisa isijameli sikhundla nofana amakarada wamaFladi) • 5 • 18 • 0 • 14 • 7 **Amaqhinga wokubala:** Qala amanothi weThemu yesi- 2	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.17 Amafrak-tjhini	• Sebenzisa begodu utjho amafraktjhini ukufaka hlangana amahafu,amakota, kunye kokuthathu, kunye kokuhlanu • Ukulemuka amafraktjhini asebujameni bedayagramu • Ukutlola amafraktjhini njengehafu eyodwa, okubili kokuthathu	• Sebenzisa begodu utjho amafraktjhini ukufaka hlangana amahafu,amakota, kunye kokuthathu, kunye kokuhlanu • Ukulemuka amafraktjhini asebujameni bedayagramu • Ukutlola amafraktjhini njengehafu yi-1 kokuthathu	**Ngikuphi okuhlukileko ethemini yesi-4?** NgeThemu yesi- 3 ukulalelisisa kwabafunda bekunqotjhiswe ekubeni amagama wamafraktjhini ahlanganiswe neenomboro zeengcenye ezilinganako lapho okuzeleko kuhlukanisweko. Imihlobohlobo yamadayagramu asetjenziswa ukwakha ukuzwisisa okuragela phambili. Abafundi baragela phambili nokutjho amafraktjhini emadagramini ngeThemu le, begodu batjho iingcenye zamafraktjhini nabenza iimbalo zamagama. Iingcenye zamafraktjhini eziboniweko zitlolwa njengehafu yi-1, ku- 1 kokuthathu, ikota yi-1. Umnqopho ngeThemu le ufanele ube kokuzeleko. Abafundi bafanele bakghone: Ukuqedelele imitjho: Amahafu amabili alingana na _____okuzeleko Okuthathu kokuthathu kulingana na _____okuzeleko Amakota amane alingana na _____okuzeleko NgeThemu le abafundi bazokuthola amafraktjhini wesiqhema sezinto. **Isibonelo:** Ukusebenzisa izinto zokubala ezirhemisiweko abafundi bazokuthola: Ihafu yi-1 yezinto zokubala ezibu-8 Abafundi bangahlukanisa izinto zokubala ezibu-8 ngeenqhema ezi-2 zangaku-4  Vumela abafundi basebenzise ama-apharathasi aphathekako ukwenza lokhu begodu bahlele izinto zokubala ngokuzirhemisa. Ekupheleni kweThemu le abafundi bafanele bakwazi ukuthola: Ihafu yi-1 yezinto ezibuthelelweko; Ikota yi-1 yezinto ezibuthelelweko; Kunye kokuthathu bezinto ezibuthelelweko; na Kunye kokuhlanu bezinto ezibuthelelweko.	

IGREYIDI YESI-2 ITHEMU YESI-4 2.AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.1 Amapheth-eni weJi-yomethri	**Ukukopa ,ungezelele bewuhlathulule** Ukukopa, ungezelele bewuhlathulule ngamagama • Amaphetheni alula enziwe ngezinto ezibonakalako; begodu • Amaphetheni alula enziwe ngemigwalo yemida,ubujamo nofana izinto **Tlama bewuhlathulule amaphetheni okungawakho** Ukwakha amaphetheni okungewakho wejiyomethri • Ngezinto ezibonakalako • Ngokugwala imida, ubujamo nofana izinto **Amaphetheni asizombelezileko** Ukubona, ukuhlathulula ngamagama nokukopa amaphetheniwe Jiyomethri • Ngokwemvelo • Kusukela epilweni yangamalanga yesimodeni, • kusukela kezamagugu nendabuko yethu.	**Amaphetheni asizombelezileko** Ukubona, ukuhlathulula ngamagama nokukopa amaphetheni weJiyomethri • Ngokwemvelo, • Kusukela epilweni yangamalanga yesimodeni, • Kusukela elifeni lamasiko wethu.	Abafundi bazokusebenza ngamaphetheni ukusukela kewemvelo, wepilweni yangamalanga yesimodeni, naselifeni lamasiko wethu ukusukela kugreyidi yoku-1ukufika kugreyidi yesi- 6. Lokhu kutjho bonyana akukafaneli uthathe isikhathi esinengi kilesihloko. Kufanele bonyana ukhethe imisetjenzana namaphetheni alungele leyo naleyo greyidi. Enye yemihlobo yamaphetheni abafundi abangayifuna yisimethri, isib: ubunengi bamakari nobuso beembandana bunobujamo besimethri. Zinjalo neenunwana ezinengi nazibukelwako ukusukela ngaphezulu namaphetheni weenyoni ezinengi nazibukelwako ukusuka ngaphasi: Abafundi bangaqala amaphetheni ase: • Mafensini (weendrada,weengodo nofana wevayibrakhrithi); • msebenzini weentina nasemathayilisini wefluru; • ephahleni; • zambathweni nasematjhileni; • mabhorodweni,enkopini nasemapiringhini; • embholweni ezirarhwako; • embandaneni njengeenkomo,amaviyaviyani webusuku newemini,iduba, idlulamithi,iingwenya,iinyoni, • iinunwana; • mathuthumbeni nasemakarini; • maphepheni abekwa emabodeni weepakana ezigwaliweko aneenthombe atholakala emikhukhwini nasezindlini ezingakahleleki. • imincamo yamasiko neyesimodeni; nase • mpotweni zamasiko zomdaka nofana iimantjana ezilukiweko. **Abafundi bangawahlathulula njani amaphetheni abawabonako abazombelezileko?** Kunendlela ezihlukeneko zokuhlathulula amaphetheni esiwabonako asizombelezileko, Amaphetheni amanengi esiwabonako enziwe ngemida, ngobujamo nangezinto.Ubujamo nofana izinto azikuthlogi ukuhlanganiswa nobujamo beJiyomethri obububuso bubili (2-D) nezinto ezibubuso buthathu (3-D) okusetjenzwe ngazo egreyidini yesi-2. Into okukuphela kwayo eqalwe bafundi yi: • Lokho okubuyelelwako isib. Amaqatjhazi, imida, omunye nomunye umhlobo wobujamo begodu nokuthi • Zibuyelelwe njani.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.1 Amapheth-eni weJi-yomethri	**Ukukopa ,ungezelele bewuhlathulule** Ukukopa, ungezelele bewuhlathulule ngamagama • Amaphetheni alula enziwe ngezinto ezibonakalako; begodu • Amaphetheni alula enziwe ngemigwalo yemida,ubujamo nofana izinto **Tlama bewuhlathulule amaphetheni okungawakho** Ukwakha amaphetheni okungewakho wejiyomethri • Ngezinto ezibonakalako • Ngokugwala imida, ubujamo nofana izinto **Amaphetheni asizombelezileko** Ukubona, ukuhlathulula ngamagama nokukopa amaphetheniwe Jiyomethri • Ngokwemvelo • Kusukela epilweni yangamalanga yesimodeni, • kusukela kezamagugu nendabuko yethu.	**Amaphetheni asizombelezileko** Ukubona, ukuhlathulula ngamagama nokukopa amaphetheni weJiyomethri • Ngokwemvelo, • Kusukela epilweni yangamalanga yesimodeni, • Kusukela elifeni lamasiko wethu.	**Isibonelo :** - Imida enqophileko evundlako (njengemida yetjhila loku hlanza iinkotlelo / ifadugu), imida ekhamba magega nomqoqo wetjhila nofana buvundla erhembeni , imida ekhuphuka nemilenze yamabhrugu, - Imida egobeneko njengaleyo esiyithola lokha nasisika i- eyiye buvundla - Imida engalinganiko njengeyemino egadangisiweko njengaleyo yamadube nemida etshwabeneko endhlovini, kubhejane nasebantwini abadala - Imida ephenyezelako ongayithola lokha usika - ikhabitjhi buvundla nofana ngileyo ongayithola eenajaneni zesanda - Amachatjhaza alinganako, amachatjhaza arhatjhwe ngokulingana - Ubujamo obulinganako isb.iphetheni yeentina ebodeni nofana epheyivini - Ubujamo bemibala efanako - Amaphetheni enziwa ngobujamo obufanako obuqale endaweni ezihlukeneko, isib. aboncantathu abaqale phezulu nofana phasi emisebenzini yemincamo yamasiko, iintina zokupheyiva eziqale eendaweni ezihlukeneko - Amaphetheni enziwe ngobujamo obuhlukeneko njengalawo weendlulamithi	Isifundo esi-1

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.2 Amaphe-theni weenom-boro	**Ukukopa, ungezelele bewuhlathulule** Ukukopa, ungezelele bewuhlathulule ukulandelana kweenomboro ezilula ukufika okungasenani ema-200. **Tlama amaphetheni angawakho** Tlama amaphetheni angawakho.	**Ukukopa, ungezelele bewuhlathulule** Ukukopa, ungezelele bewuhlathulule ukulandelana kweenomboro ezilula ukufika okungasenani ema- 200. Ukulandelana kweenomboro kufanele kutjengise ukubala uye phambili nemuva nga: • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 na-200 • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 na -200 • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 na-200 • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku- 2 hlangana ne -0 na-200 • Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne -0 na-200 • Ku-4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne -0 na-200	Qala amanothi weThemu yoku-1, kodwana ngezelela irherho leenomboro ukufika kuma-200	limfundo ezi-3

IGREYIDI YESI-2 ITHEMU YESI-4 3. ISIKHALA NOBUJAMO (JIYOMETHRI)				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.2 **Izinto ezi-busontathu (3-D)**	**Izinto ezihlukahlukeneko** Ukulemuka nokutjho izinto ezibusontathu (3-D) ngetlasini neenthombeni • Ubujamo bebholo, (iindulungu) • Ubujamo bebhoksi (amaphrizimu) • amasilinda **Amatshwayo wezinto** Ukuhlathulula, ukuhlela ngeengaba nokumadanisa Izinto ezibusontathu (3-D) ngokuqala okulandelako: • ubukhulu • izinto ezigedekako • izinto ezitjhelelako **Imisetjenzana enqotjhiweko** Tjheja begodu wakhe izinto ezibusontathu • (3-D) onikelwe zona usebenzise izinto eziphathekako okufana nokusika ubujamo obubusobubili (2-D), amabhlogo wokwakha, izinto ezingabuye zisetjenziswe godu, amakhithi wokwakha ,ezinye izinto zeJiyomethri ezibobusontath (3-D).	**Izinto ezihlukahlukeneko** Ukulemuka nokutjho izinto ezibusontathu (3-D) ngetlasini neenthombeni • Ubujamo bebholo, (iindulungu) • Ubujamo bebhoksi (amaphrizimu) • amasilinda **Amatshwayo wezinto** Ukuhlathulula, ukuhlela ngeengaba nokumadanisa Izinto ezibusontathu (3-D) ngokuqala okulandelako: • ubukhulu • izinto ezigedekako • izinto ezitjhelelako	**Umqopho ophakanyisiweko weThemu yesi- 4** Umsebenzi uhlanganiswa ndawonye ngokwenza imisetjenzana etlolwako.	Isifundo esi-1

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.3 **Ubujamo obubusobu-bili (2-D)**	**Irherho lamajamo** Ukulemuka nokutjho amajamo abobusobubili (2-D) • iindulungu • aboncantathu • iinkwere • aboncamane Amatshwayo wamajamo Hlathulula , hlela ngemihlobo begodu umadanise amajamo abobusobubili (2-D) ngokuqala lokhu: • ubukhulu • umbala • ubujamo • amahlangothi/ amaqadi anqophileko • amahlangothi /amaqadi aziindulungu	**Irherho lamajamo** Ukulemuka nokutjho amajamo abobusobubili (2-D) • iindulungu • aboncantathu • iinkwere • aboncamane Amatshwayo wamajamo Hlathulula , hlela ngemihlobo begodu umadanise amajamo abobusobubili (2-D) ngokuqala lokhu: • ubukhulu • umbala • ubujamo • amahlangothi/ amaqadi anqophileko • amahlangothi /amaqadi aziindulungu	Qala amanothi weThemu yesi-2. EThemini le ungazijayeza, ubuyekeze begodu uhlanganise ndawonye umsebenzi wamajamo abobusobubili (2-D). Kunqotjhiswe ekulemukeni nokutjho iindulungu, iinkwere, aboncamane, naboncantathu begodu kukhulunywe ngokuthi amahlangothi wabo anqophile nofana aziindulungu na. Yenza imisebenzi ehlukileko kunaleyo eseThemini yesi- 2, kodwana nqophisa kumatshwayo wamajamo nama bizo wamajamo.	Iimfundo ezi-3
3.4 **Isimethri**	**Isimethri** Ukukhumbula nokugwala umuda wesimethri ebujameni beJiyomethri nalobo obungasi ngobeJiyomethri bamajamo wobusobubili (2-D)	**Isimethri** Ukukhumbula nokugwala umuda wesimethri ebujameni beJiyomethri nalobo obungasi ngobeJiyomethri bamajamo wobusobubili (2-D)	Qala amanothi we Themu yesi-2.	Isifundo esi-1

IGREYIDI YESI-2 ITHEMU YESI-4 4. UKUMEDA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.1 Isikhathi	**Ukutjho isikhathi** • Ukutjho begodu ulandelanise amalanga weveke • Ukutjho begodu ulandelanise iinyanga zonyaka • Ukubeka amalanga wamabeletho, amafestivali wezekolo, amaholideyi womphakathi, iminyanya wezomlando, izehlakalo zesikolo ezisekhalendeni. • Ukutjho isikhathi ukufika e-irini le-12 ngama-iri, ngesiquntu • se-iri begodu nangekota ye-iri **Ukubala ubude besikhathi nokudlula kwesikhathi** • Ukusebenzisa amakhalenda ukubala nokuhlathulula ubude besikhathi ngamalanga nofana ngeemveke. • Ukusebenzisa amawatjhi ukubala ubude besikhathi ngama-iri, ngesiquntu se-iri nofana ngekotara yama-iri.	**Ukutjho isikhathi** • Ukutjho isikhathi ukufika e-irini le-12 ngama-iri, ngesiquntu se-iri begodu nangekota ye-iri **Ukubala ubude nokudlula kwesikhathi** • Ukusebenzisa amawatjhi ukubala ubude besikhathi ngama-iri, ngesiquntu se-iri nofana ngekota yama-iri.	Abafundi baragela phambili ukuzijayeza ukukhuluma ngobude besikhathi begodu nangokulandelanisa isikhathi. Ngesikhathi sokufundisa itlasi loke nesikhathi sokufundisa ngeenqhema ezinqotjhiweko, abafundi baragela phambili ngokukhuluma ngamalanga weveke, ngeenyanga zonyaka begodu nangelanga lamhlokho, nangamalanga adlulileko begodu nangamalanga asezako. Abafundi bajayela amakhalenda ngokuragela phambili ngokubeka: • amalanga wamabeletho; • amafestivali wezekolo, • iminyanya yezomlando, • izehlakalo zesikolo; • amaholideyi womphakathi, ezisekhalendeni. **Ukutjho isikhathi ngama-iri, isiquntu se-iri begodu nangekota ye-iri** Ukutjho isikhathi ngama-iri, ngeenquntu zama-iri nangamakotara wama-iri Qala amanothi weThemu yesi-3	Isifundo esi-1

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.2 Ubude	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela, begodu kurekhodwe ubungako, ngokusebenzisa iimedo ezingakahleleki, isib. Ubude besandla, amagadango, ubude bamapensela, izinto zokubala, njll. • Ukuhlathulula ubude bezinto ngokubala begodu nokutjho bonyana zibubude bamayunithi angangani angakahleleki. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. ede khulu, efitjhani khulu, mude khulu, banzi khulu. **Ukwethula ukumeda okuhlelekileko** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela nokurekhoda ubude ngokusebenzisa amamitha (iintongamamitha nofana iintambo ezinobude bemitha) njengeyunithi ehlelekileko yobude.	Ukulinganisa, ukumeda, ukumadanisa, ukuhlela nokurekhoda ubude ngokusebenzisa amamitha (iintongamamitha nofana iintambo ezinobude bemitha) njengeyunithi ehlelekileko yobude.	**Ngikuphi okuhlukileko eThemini yoku-1?** EThemini yoku-1 kuphakanyiswe bonyana abafundi banqophe ekulinganiseni, ekumedeni, ekumadaniseni nekurekhodeni ubude, ububanzi, ukuphakama ngamayunithi angakahleleki kodwana abafundi bathoma godu ukumeda ngamamitha. EThemini yesi-4 umnqopho ungaba sekulinganiseni, ekumedeni, ekumadaniseni nekurekhodeni ubude, ukuphakama, ububanzi ngamamitha Qala amanothi weThemu yoku-1. Ukuhlanganisa kungaba ngendlela yemisebenzi etlolwako.	Isifundo esi-1

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.3 Ubungako/ Ubudisi	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela, bekurekhodwe ubungako, ngokusetjenzisa iimedo ezingakahleleki begodu nesikala sokudzimelela isib. Amabhlogo, iintina njll. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. elula,ebudisi, elula khulu, ebudisi-khulu **Ukwethula ukumeda okuhlelekileko** • Ukumadanisa, ukuhlela nokurekhoda ubungako bezinto ezipakelwe ukuthengiswa ezinobungako obutjengiswe ngamakhilogramu, isib. amakhilogramu ama-2 wereyisi nekhilogramu li-1 leflowuru • Ukumeda ubungako babo ngokusebenzisa isikala sokumeda sangendlini yokuhlambela	**Ukwethula ukumeda okuhlelekileko** Abafundi batlola amathaski ukuhlanganisa okulandelako, ukufaka hlangana ukufunda iinthombe ze: • mikhiqizo ezinobudisi obutlolwe kizo • iinthombe zobudisi eziseenkala zangendlini yokuhlambela lapho inalidi ikhomba ikhilogremu ezeleko.	Ethemini yesi-2 abafundi - bameda ubungako obungakahleleki ngokusebenzisa isikala sokudzimelela; - bahlela imikhiqizo ngokuya ngobungako obutlolwe ephaketheni; begodu - bafunda iinkala zangendlini yokuhlambela (iinkala zombili zamambala begodu neenthombe) Qala amanothi aseThemini yesi-2 EThemini yesi-4 abafundi bafanele bahlanganise amakghono wabo wokufunda iinkala zangendlini yokuhlambela begodu neenthombe zeenkala zangendlini yokuhlambela ezinekhilogremu eseduzana ezeleko. Ukuhlanganisa lokhu, kungaba ngendlela yemisetjenzana etlolwako.	Isifundo esi-1

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.4 Umthamo/ Ivolumu	**Ukumeda okungakahleleki** • Ukulinganisa nokumeda; Ukumadanisa nokuhlela (isib. umthamo ongamumathwa simumathi nasizeleko) nofana ivolomu emumathini ngokusebenzisa iimedo ezingakahleleki isib. lingobho namakopi. • Ukuhlathulula umthamo wesimumathi ngokubala nokutjho bonyana mangaki amayunithi angakahleleki angazalisa isimumathi, isib. Ibhodlelo linobungako bamakopi ama-4 **Ukwethulwa kokumeda okuhlelekileko** • Ukulinganisa, ukumeda; ukumadanisa ukuhlela nokurekhoda umthamo wezinto ngokumeda ngamalitha. • Ukumadanisa, ukuhlela nokurekhoda umthamo wezinto ezipakelwe ukuthengiswa, ubungako bazo butlolwa ngamalitha, isib. Amalitha ama-2 webisi, ilitha li-1 lesiselo esimakhaza, amalitha ama-5 wepende	**Ukwethulwa kokumeda okuhlelekileko** Abafundi benza amathaski atlolwako ukuhlanganisa okulandelako, ukufaka hlangana ukufunda iinthombe • Zemikhiqizo enobungako obutlolwe kizo ukuze zilandeleniswe kuhle • Iinthombe zeenjege lapho ivolumu iseduze nenomboro elilitha eli-1 nofana amalitha ama-2 womuda wegradatjhini. Kulindeleke bonyana abafundi bafunde kwaphela kufikela emudeni wegradetjhini oseduzana. Bahlathulula ivolumu njengokuthi pheze, eduze /okunengana/ pheze kube/ nofana inomboro poro (yelitha) bafunda ejegeni	Ngesikhathi sokusebenza ngokuzijamela abafundi bafanele baragele phambili: - Ukulinganisa nokumeda, ukumadanisa, ukuhlela begodu nokurekhoda ubungako beemumathi nofana ivolumu eseemumathini ngokusebenzisa iimedo ezingakahleleki. Amaresibhi alandeleko, okufaka hlangana ukubhaga, abujamo obulisizo lapho abafundi bangazijayeza ukumeda. Khetha amaresibhi lapho iintlabagelo zinikelwa ngamakopi, amathispuni nofana amayunithi ahlelekileko; - Ukumadanisa begodu nokuhlela umthamo wamabhodlelo ahlukahlukeneko begodu izinto ezithengwa ngesitolo lapho ivolumu litlolwe emaphaketheni. - Ukusebenzisa amabhodlela welitha li-1 nofana amajege welitha li-1 ukulinganisa nokumeda, ukumadanisa ukuhlela begodu nokurekhoda umthamo weemumathi nofana ivolumu eliseemumathini zamalitha. Qala amanothi weThemu yesi- 3 Abafundi bafanele banikelwe amathaski atlolwako ukuze bahlanganise okulandelako, okufaka hlangana ukufunda iinthombe: Zemikhiqizo enobungako obutlolwe kizo ukuze zilandeleniswe kuhle; begodu • Iinthombe zeenjege lapho ivolumu iseduze nenomboro emeregiweko elilitha eli-1 nofana amalitha ama-2 womuda onenomboro ezihlelekileko (umuda wegradetjhini). • Kulindeleke bonyana abafundi bafunde kwaphela inomboro eseduze nomuda onenomboro ehlelekileko. Bahlathulula ivolumu njengokuthi pheze /eduze kwe/okudlula lokho kancani/ khulu nofana ncani/ nofana inomboro poro (yelitha) bafunda ejegeni	Isifundo si-1

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.4 Umthamo/ Ivolumu	**Ukumeda okungakahleleki** • Ukulinganisa nokumeda; Ukumadanisa nokuhlela (isib. umthamo ongamumathwa simumathi nasizeleko) nofana ivolomu emumathini ngokusebenzisa iimedo ezingakahleleki isib. lingobho namakopi. • Ukuhlathulula umthamo wesimumathi ngokubala nokutjho bonyana mangaki amayunithi angakahleleki angazalisa isimumathi, isib. Ibhodlelo linobungako bamakopi ama-4 **Ukwethulwa kokumeda okuhlelekileko** • Ukulinganisa, ukumeda; ukumadanisa ukuhlela nokurekhoda umthamo wezinto ngokumeda ngamalitha. • Ukumadanisa, ukuhlela nokurekhoda umthamo wezinto ezipakelwe ukuthengiswa, ubungako bazo butlolwa ngamalitha, isib. Amalitha ama-2 webisi, ilitha li-1 lesiselo esimakhaza, amalitha ama-5 wepende	**Ukwethulwa kokumeda okuhlelekileko** Abafundi benza amathaski atlolwako ukuhlanganisa okulandelako, ukufaka hlangana ukufunda iinthombe • Zemikhiqizo enobungako obutlolwe kizo ukuze zilandeleniswe kuhle • Iinthombe zeenjege lapho ivolumu iseduze nenomboro elilitha eli-1 nofana amalitha ama-2 womuda wegradatjhini. Kulindeleke bonyana abafundi bafunde kwaphela kufikela emudeni wegradetjhini oseduzana. Bahlathulula ivolumu njengokuthi pheze, eduze /okunengana/ pheze kube/ nofana inomboro poro (yelitha) bafunda ejegeni	**Ukumeda umthamo njengobujamo bokurarulula imiraro neembalo** Ngesikhathi esibekelwe Iinomboro, ama-Opheretjhini noBudlelwana, abafundi bangararulula imiraro esebenzisa ubujamo Ukumeda okungakahleleki komthamo / ivolumu, isib. UGogo usebenzisa amakopi amabili webisi ukwenza ipudinghi. Nakabuyelela iresibhi kabili uzokudinga ibisi elingangani? bamalitha Yelela irherho leenomboro ezifanele iThemu, nanyana imihlobo ehlukahlukeneko yemiraro.	

IGREYIDI YESI-2 ITHEMU YESI-4 5. UKUPHATHA IDATHA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
5.4 Ukubuthelela begodu nokuhlele idatha	**Ukubuthelela begodu nokuhlela idatha** • Buthelela idatha ngetlasi nofana isikolo ukwenzela ukuphendula imibuzo ebuzwa ngutitjhere. • Hlela idatha ngamathali			
5.5 Jamisela idatha	**Jamisela idatha** Jamisela idatha ngegrafu yeenthombe			
5.6 Hlaziya begodu urhumutjhe idatha	**Hlaziya begodu urhumutjhe idatha** Phendula imibuzo ngedatha yegrafu yeenthombe.	**Hlaziya begodu urhumutjhe idatha** Hlaziya idatha esuselwe eenjamelini ezinikelweko.	**Hlaziya begodu urhumutjhe idatha enikelweko.** Ngalesisikhathi sonyaka, abafundi kufanele bona sebawajayele amagrafu weenthombe. Kuphakanyiswe bonyana eThemini yesi-4 abafundi banqopha ekuhlaziyeni idatha. Nikela abafundi idatha bonyana bahlaziye okungasenani igrafu yi-1yeenthombe. Abafundi kufanele baphendule imibuzo obabuza yona ngegrafu nethebula: Qala iThemu yoku-1 ukuthola imibuzo efaneleko ongayibuza.	Isifundo si-1

3.5.3 Itlhadlhulo lokumumethweko eGreyidini yesi-3

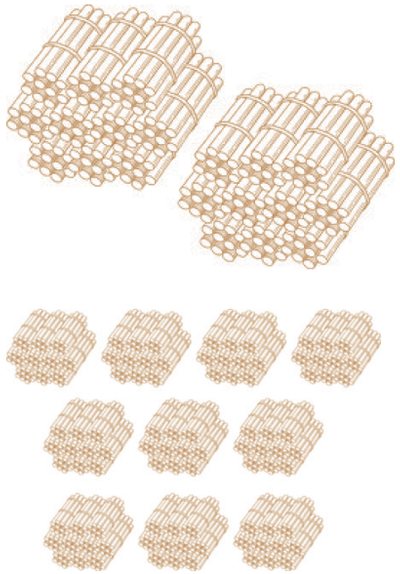
IGREYIDI YESI-3 ITHEMU YOKU- 1

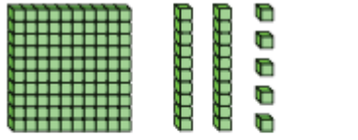
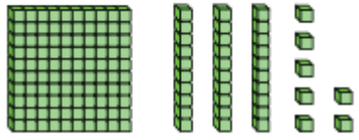
1. IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA

Abafundi beGreyidi yesi 3 bazokuhlanganisa koke abakufunde eGreyidini yesi 2 begodu basebenzise amakghono lawo ukusebenza ngeenomboro ezihlangana kwe- nama

Abafundi abaseGreyidini yesi -3, njenganje bazo:

- Funda bebatlole iinomboro ematshwayweni nemagameni ukufika e-
- Baragela phambili nokubona bebabeke iinomboro;
- Basebenzisa ilwazi labo lobukhulu bedijithi ukuthola amakhulu, amatjhumi nemivo bebahlathulule nobudlelwana bazo;
- Hlukanisa iinomboro zamadijithi amathathu, bazokusebenzisa ilwazi labo lobukhulo bedijithi ukumadanisa nokuhlela iinomboro begodu bafanele banikele iizathu zalokho abazikhethele khona;
- Ragela phambili nokubala baye phambili nemva, kwanjesi ngamakhefu wangama nange kwanjesi bazokuthoma ukubona ubudlelwana obuphakathi kokubala ngaku - nanga ku ;
- Kwazi ukubala izinto ezinengi ezibuthelelweko ngokuzibeka ngeenqhema. Njenganje, babala ngokuhlelekileko, ngokunembako bebakwazi ukunikela indlela yokuhlola umphumela;
- Hlanganisa nokukhupha iinomboro ngehloko ukufika ema- ;
- Sombulula imihlobo ehlukahlukeneko yemiraro begodu bazokufunda indlela yokuhlela iimpendulo zabo ezitloliweko ngendlela ehlelekileko;
- Khetha itshwayo elifaneleko lokha basenza ukusombulula umraro osebujamweni;
- Rekhoda ukubala kwabo ngokusebenzisa amatshwayo wokuhlanganisa (+), ukukhupha (-) ukulingana (=). Bangahlathulula iimpendulo zabo bebahlathulule iindlela zabo zokwenza;
- Sebenza ngeendlela ezisemthethweni zokurekhoda ukubala ngokuhlanganisa nangokukhupha; isibonelo bazokuphula inomboro yinye nofana zimbili ukuhlanganisa nokukhupha; begodu
- Kghona ukukhetha emilandelaneni yamaqhinga wokusombulula umraro. Isibonelo ukukhupha: abafundi bazokwazi ukukhupha ngokubala uye phambili nofan emva.
- Ikharikhyulami ilindele bonyana abafundi beGreyidi yesi-3 basebenzisa ama-apharathasi aphathekako ngokuphasi khulu ukujamisela ukuhlanganisa nokukhupha. Ekupheleni konyaka abafundi kufanele bonyana bakghone ukuhlanganisa nokukhupha kusetjenziswa iindlela yepensela nephepha.
- Abafundi abangena eGreyidini yesi- 3 bafanele bakghone ukuzwisisa ubungako beenomboro nokuphula iinomboro ukuze bakwazi ukubala. Abafundi sebathoma ukuzwisisa ama-njengemivo ema- begodu nanjengamatjhumi ali- nemivo ebu- . Umfundi akasatlhogi ama-apharathasi aphathekako ukusiza ukuzwisisa lokhu. EGreyidini 3 abafundi bazokuragela phambili nokutlhoga amathuba wokuzijayeza ukuphula iinomboro ukwenzela ukuzwisisa ubungako beenomboro begodu nokusebenzisa ilwazi leli ukwenzela ukuphula iinomboro nakuhlanganiswako nalokha kukhutjhwa.

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.1 Ukubala izinto	**Ukubala izinto eziphathekako** Linganisa begodu ubale izinto ngokuthembeka ukufika e-1000. Amaqhinga wokubuthelela ayakhuthazwa.	• Buthelela okungenani izinto ezi-200 ukulinganisa nokubala ngokuthembeka • Nikela ukulinganisa okuzwakalako kwenani lezinto ezingahlolwa ngokubala	EGreyidini yesi-3 abafundi baragela phambili nokubala izintozangamalanga. Irherho lenomboro lizokukhula kufika e-1000 ekupheleni konyaka. Lokhu kutjho bonyana ukutjheja ngokuyelela kufanele kunikelwe imihlobo yama-apharathasi asetjenzisiweko: • Amabhlogo weDienes • Amakarada wobukhulu bedijithi NgeThemu yokuthoma abafundi bazijayeza bebahlanganise izinto zokubala kufika ema-200. Umnqopho usekubutheleleni izinto. Abafundi bafanele babe nomuzwa oqinileko ozokubangcono, urhelebhe khulu begodu kube msinyana ukubala ngeenqhema zangamatjhumi, ngamatjhumi amabili, ngamatjhumi amahlanu nangamakhulu kunokubala ngakunye. Bathoma ukubala ngamakhulu, ukuya phamblili nemva ngeThemu yokuthoma. Ukusekela ukubala okungakahlelwa, abafundi bangahlela izinto ngeenqhema zama-100. **Isibonelo:** Esinye nesinye isiqhema sibonisa ikhulu. 	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.1 Ukubala izinto	**Ukubala izinto eziphathekako** Linganisa begodu ubale izinto ngokuthembeka ukufika e-1000. Amaqhinga wokubuthelela ayakhuthazwa.	• Buthelela okungenani izinto ezi-200 ukulinganisa nokubala ngokuthembeka • Nikela ukulinganisa okuzwakalako kwenani lezinto ezingahlolwa ngokubala	NgeThemu le begodu nonyaka woke abafundi bafanele balemukiswe bonyana ukubala izinto kuzabasiza njani ekubaleni. **Isibonelo:** Ukubala izinto ngokuzihlukanisa zibe ziinqhema zangamatjhumi, ngama-20, ngama-50 nofana nangamakhulu kuzakuvumela abafundi bona bakwazi ukuphula iinomboro lokha nabahlanganisako nofana bakhupha. Ukuhlanganisa ama- 362 + 527, abafundi bangaphula iinomboro zibe ziingcezu zobukhulu bedijithi o.u 362 + 527 = (300 + 60 + 2) + (500 + 20 + 7). Abafundi bangabala amakhulu woke ngombana bakwenzile lokhu nababala izinto ezibuthelelwe gamakhulu. Abafundi gadesi babala amatjhumi (bakwenzile lokho kusukela eGreyidini yoku-1) bese kuba mimivo. Abafundi bafanele bazwisise bonyana kungani bacitha isikhathi sabo ngokubala izinto. Ukuhlangana/hlobana kufanele kwenziwe kabanzi. NgeThemu le abafundi bangajamisela iinomboro ngokusebenzisa amabhlogo weDienes nofana amabhlogo anesisikelo setjhumi. Abafundi bawasebenzisile ama-apharathasi la eGreyidini yesi-2.   Abafundi bafanele bakghone ukuqedelela isitatimende esilandelako: Inani lamabhlogo anesisekelo setjhumi yi_____ Abafundi bangasebenzisa amakarada wobukhulu bedijithi ukubonisa ubukhulu belinye nelinye idijithi. Umnqopho wemihlobo yemisebenzi le, asikho ukubala izinto kwaphela: Ngesikhathi leso abafundi ba: • Ukuzwisisa inanil edijithi • Ukuphula nokwakha iinomboro, begodu • Nokufunda amatshwayo weenomboro	`

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.2 Ukubala uye phambili nemuva	Ukubala uye phambili nemuva nga: • makhefu anqotjhiswe eGreyidini yesi-2 ngerherho leenomboro eliphakamako kusukela kunanyana ngiyiphi inomboro • ngama- 20, 25, 50,100 ukufikela okungasenani e-1 000	Ukubala uye phambili nemuva nga: • makhefu anqotjhiswe eGreyidini yesi-2 ngerherho leenomboro eliphakamako. • ngama 100 ukufikela okungasenani ema-500.	**Ngikuphi okuhlukileko eGreyidini yesi-2?** Abafundi babala ngama- 100 kokuthoma. Benza lokhu kufika ema-500. Abafundi batlhoga isekelo lama apharathasi wamabhlogo anesisekelo setjhumi okufana ne : • Imincamo yokubala • Amabhlogo we Dienes • Amanambalayini • Igridi yeenomboro Ukubala ngokweqa kufanele kuhlobaniswe nethebula yokubuyabuyelela. Ukubala ngaku -4 kuzakusiza abafundi lokha ba: • Ukune mu-1 ngu-4 • Abokune aba-2 bu-8 • Abokune aba-3 li-12 Ukubala ngokweqa godu kusekela ukuziwisisa ukubuyabuyelela begodu kuzokusiza abafundi nabaqedelela ukulandelana kweenomboro.	
1.3 Amat-shwayo weenom-boro namagama weenom-boro	Ukubona, ukukhumbula nokufunda iinomboro • Ukubona, ukukhumbula nokufunda amatshwayo wenomboro ukusuka eli- 0 ukufika e-1000 • Ukutlola amatshwayo weenomboro ukusuka eli -0 ukufika e-1000 • Ukubona, ukukhumbula nokufunda amabizo wenomboro ukusuka eli-0 ukufika e-1000 • Ukutlola amabizo wenomboro ukusuka eli- 0 ukufika e-1000	Ukubona, ukukhumbula nokufunda iinomboro • Ukubona, ukukhumbula nokufunda amatshwayo wenomboro ukusuka eli- 0 ukufika ema-500 • Ukutlola amatshwayo weenomboro ukusuka eli -0 ukufika ema- • Ukubona, ukukhumbula nokufunda amabizo wenomboro ukusuka eli-0 ukufika ema-250 • Ukutlola amabizo wenomboro ukusuka eli- 0 ukufika e	**Ngikuphi okuhlukileko eGreyidini yesi-2?** NgeThemu le abafundi bayabona, bafunde bebatlole amatshwayo weenomboro ukufika ema-500. Bafunda amagama weenomboro ukufika ema-250 bebatlole amagama weenomboro ukufika e-100 Ukufunda nokutlola amatshwayo weenomboro kuyajayezwa naku: • kubalwa izinto • kubalwa ukuya phambili nemuva • kuqedelelwa ukulandelana kweenomboro; begodu • kuhlelwa begodu kumadaniswa iinomboro Kufanele kuyelelwe ukutjhiwo kweenomboro ngefanelo; umuntu ufanele “athi 323 njengokuthi makhulu amathathu namatjhumi amabili nantathu”, INGASI njenge “323” Nakutlolwa iinomboro ezinamadijithi amathathu, iinomboro eziphakathi kwe-100 ne 110; 200 nama 210; 300 nama 310; 400 nama 410, idijithi elisebujameni bamatjhumi lilize. Abanye abafundi bathola ubudisi bokutlola iinomboro lezi ngamatshwayolokha nabanikelwe inomboro ngamagama. Isibonelo: Kungahle kube budisi kabanye abafundi ukutlola ‘amakhulu amathathu nakune’ ngamatshwayo. Bangahle batlole 3004. Amakarada wobukhulu bedijithi aqakathekile khulukhulu ukusiza abafundi bazwisise bonyana bangajamiselela bunjani iinomboro lezi ngefanelo. Abafundi kufanele godu banikelwe isikhathi esinengi sokuzijayeza ukutlola iinomboro lezi.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.4 Hlathulula, madanisa, begodu uhlele iinomboro	**Hlathulula, madanisa, begodu uhlele iinomboro kufika ema-999** Ukuhlathulula nokumadanisa • iinomboro eziphelelekо ukufika ema- 999, ngokusebenzisa okuncani kuna, okukhulu kuna, okunengi kuna, okuncani kuna begodu kulingana na. • **Ukuhlathulula nokuhlela** iinomboro eziphelelekо ukufika ema- 999, ukusuka kencani khulu ukufika kekulu khulu begodu ukusuka kekulu khulu ukuya kencani khulu **Sebenzisa iinomboro sikhundla ukutjengisa ukuhlela, indawo namkha ubujamo** Sebenzisa, ufunde bewutlole iinomborosikhundla, okufaka hlangana indlela erhunyeziweko kufikela ema-31	**Ukuhlathulula, ukumadanisa** • nokuhlela iinomboro ukufika ema- 99 • **Ukuhlathulula nokumadanisa** iinomboro eziphelelekо ukufika ema- 99, ngokusebenzisa okuncani kuna, okukhulu kuna, okunengi kuna, okuncani kuna begodu kulingana na. • **Ukuhlathulula nokuhlela** iinomboro eziphelelekо kufika ema- 99, kusukela kencani khulu kufikela kekulu khulu begodu nakusukela kekulu khulu ukuya kencani khulu **Sebenzisa iinomborosikhundla ukutjengisa ukulandelana, indawo namkha ubujamo** Sebenzisa, ufunde bewutlole iinomborosikhundla, okufaka hlangana indlela erhunyeziweko ukufika ema-31	**Ngikuphi okuhlukileko eGreyidini yesi- 2?** NgeThemu le abafundi bahlanganisa ukuhlela nokumadanisa iinomboro ukufika ema-99 begodu kufanele bakghone ukunikela iinzathu zokobana kubayini enye inomboro iyikulu kunenye. Vumela abafundi bonyana basebenzise inambalayini, umkhondo wenomboro, amagridi weenomboro nofana ilwazi labo lokuphula iinomboro ngamatjhumi nangemivo ukutjhengisa ukuzwisisa kwabo. Lokha nabahlela iinomboro abafundi bafanele bakwazi ukutjho bonyana kubayini inomboro iyikulu kunenye ngokusebenzisa ubungako bedijithi ukuzihlathulula bona ngokwabo. **Isibonelo:** Ama - mancani kunama - ngombana: Ngiyazi bonyana ne, begodu ne. Begodu ziinyanda ezintathu zangalitjhumi begodu ama-ziinyanda ezihlanu zangalitjhumi. Kuneenyanda ezinengi zamatjhumi ema-50 kunema -30. Ukusebenza ngeenomborosikhundla, ikhalenda ibalulekile ngombana ivumela umfundi bonyana akhulume ngelanga lama-23 nofana ilanga lama-31 lenyanga. Abafundi bafanele bazijayeze ukufunda nokutlola indlela erhunyeziweko.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.5 Ubukhulu bedijithi	**Ukukhumbula ubukhulu bedijithi eenomborweni ezinamadijithi amathathu ukufika ema-999** • Ukukhumbula bonyana idijithi ngalinye lijamele ini. • Ukuphula iinomboro zamadijithi amathathu ukufika e-999 zibe zimbuyabuyeleli ze-100, iimbuyabuyeleli zamatjhumi nangakunye. • Ukubona bewutjho ubukhulu bedijithi ngayinye.	**Ukukhumbula ubukhulu bedijithi eenomborweni ezinamadijithi amathathu ukufika ema-99** • Ukukhumbula bonyana idijithi ngalinye lijameleni. • Ukuphula iinomboro zamadijithi amabili ukufika ema-99 zibe zimbuyabuyeleli zetjhumi nangakunye. • Ukubona bewutjho ubukhulu bedijithi ngayinye.	**Ngikuphi okuhlukileko eGreyidini yesi-2?** IThemu le imayelana nokuhlanganisa ukuzwisisa ubukhulu bedijithi obufundwe eGreyidini 2. Abafundi baragela phambili nokwenza imihlobo efanako yemisetjenzana efana neyeGreyidini yesi-2 ngeThemu yesi-4: **Ukuzwisisa nokusebenzisa ilwazi magama lobukhulu bedijithi:** Ukusebenzisa, ukufunda nokuthoma ukutlola: Abokunye nofana imivo, amatjhumi, idijithi, inomboro enedijithi elilodwa, inomboro enamadijithi amabili.....ubukhulu bedijithi..... **Ukuphula iinomboro ezinamadijithi amabili zibe ziimbuyabuyeleli zamatjhumi nangakunye.** Abafundi bakghona ukuphula iinomboro nga: Ubungako bamatjhumi nobungako bemivo isib. 73 = 70 + 3 (amakarada wobukhulu bedijithi angabalisizo ukwenza lokhu) Imbuyabuyelelo zamatjhumi nemivo isib. 73 = 7 yamatjhumi + 3 yemivo **Ukwakha iinomboro ezinamadijithi amabili ukusuka eengcenyeni zobukhulu bedijithi lazo.** **Isibonelo** Tlola inomboro: a) Amatjhumi asi-6 nemivo emi-3 _____ b) Amatjhumi ama-2 nemivo emi-5 _____ c) Amatjhumi ali-12 nemivo ebu-8 _____ d) Amatjhumi ali-18 nemivo emi-4 _____ **Ukusebenzisa ama-apharathasi ukutjengisa ukuhlukaniswa kweenomboro:** • **I-Abhakhasi** a) Tjengis amatjhumi ama-4 nemivo emi-5 ngokusebenzisa i-abhakhasi b) Tjengisa amatjhumi ama-47nemivo esi-6 ngokusebenzisa i-abhakhasi Amakarada wobukhulu bedijithi 	

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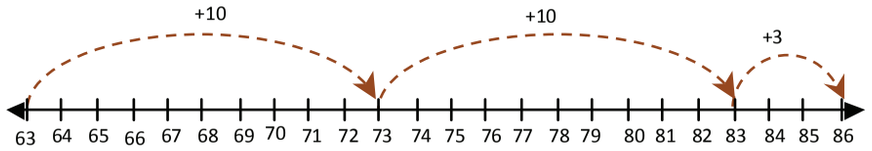
1.5 Ubukhulu bedijithi	**Ukukhumbula ubukhulu bedijithi eenomborweni ezinamadijithi amathathu ukufika ema-999** • Ukukhumbula bonyana idijithi ngalinye lijamele ini. • Ukuphula iinomboro zamadijithi amathathu ukufika e-999 zibe zimbuyabuyeleli ze-100, iimbuyabuyeleli zamatjhumi nangakunye. • Ukubona bewutjho ubukhulu bedijithi ngayinye.	**Ukukhumbula ubukhulu bedijithi eenomborweni ezinamadijithi amathathu ukufika ema-99** • Ukukhumbula bonyana idijithi ngalinye lijameleni. • Ukuphula iinomboro zamadijithi amabili ukufika ema-99 zibe zimbuyabuyeleli zetjhumi nangakunye. • Ukubona bewutjho ubukhulu bedijithi ngayinye.	• Abafundi basebenzisa amakarada wobukhulu bedijithi ukubonisa iingcenye zenomboro. **Isibonelo:** **Imihlobo yemibuzo elandelako ingabuzwa:** - Tjengisa bonyana idijithi bu-8 ema-28 lijamele ini? Begodu no ku-2 ujamele ini? - Tjengisa bonyana ngiyiphi inomboro elingana nofana efana na: a) Amatjhumi asi-6 b) Amatjhumi alithoba nemivo emithathu. c) Amatjhumi amahlanu nemivo elithoba.	
UKURARULULA IMIRARO ESEBUJAMENI OBUTHIZE				
1.6 Amathekini-ki wokuraru-lula imiraro	Sebenzisa amathekiniki alandelako ukurarulula imiraro nokuhlathulula iinsombululo zemiraro: • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Amanambalayini • Ukutjhideza eduze ngamatjhumi	Sebenzisa amathekhniki alandelako ukurarulula imiraro. • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Amanambalayini	**Ngikuphi okuhlukileko eGreyidini yesi-2?** Abafundi balindeleke bona bararulule imiraro yamagama ngokusebenzisa amathekiniki alandelako: • Ukwakha nofana ukuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Amanambalayini Ukugwala izinto ngayinye kufike ema-99 akusiwo umbono omuhle begodu kufanele ungakhuthazwa. Khuthaza ukungeniswa kwamatshwayo weenomboro ekurekhodeni kwabo, okufaka hlangana iinjamiselo zeenthombe. Abafundi begodu bangakhuthazwa bonyana batlole imitjho yeenomboro. Vumela abafundi bonyan bakhethe ithekniki leyo abazigedlileko ngayo. Irherho leenomboro nomhlobo womraro kuzakutjhobonyana ngiyiphi ithekniki ezokusetjenziswa. Nanyana kunjalo, lokha abafundi basebenzisa amathekiniki anagabarhelebhiko, kufanele balulekwe bonyana basebenzise iindlela zokwenza ezizabasiza. **Ukwakha nokuphula** Le ngenye yamathekiniki aqakatheke khulu Esigabeni Esisisekelo. Ukusebenzisa ithekniki le kuvumela abafundi ukuhlukanisa (ukuphula) nokuhlanganisa iinomboro ukusiza ukwenza ukubala kubelula. Bazabe basebenzisa ithekniki le ngobunengi Esigabeni Esiphakathi nakhona.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.6 Amathekiniki wokuraru-lula imiraro	Sebenzisa amathekiniki alandelako ukurarulula imiraro nokuhlathulula iinsombululo zemiraro: • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Amanambalayini • Ukutjhideza eduze ngamatjhumi	Sebenzisa amathekhniki alandelako ukurarulula imiraro. • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Amanambalayini	**Ukubuyelela kabili nokuhafula phakathi** Ithekniki le isezingeni eliphezulu begodu ithloga umqondo weenomboro onamandla. Abafundi abakghonako ukukhetha ithekniki le batjhaphulukile emaqhingeni abawasebenzisako. Ukwazi ukubuyelela kabili, kuzokuvumela abafundi ukusebenzisa amaqhinga wokuseduze nokubuyelela kabili. **Isibonelo:** Umraro wamagama: Ngelinye ilanga etlinigi bahlaba abantwana abama -45 umjovo womkhuhlani. Ngelanga elilandelako bajova abantwana abama-46. Bantwana abangaki abajovwako nasele baboke? Umraro ungasombululwa ngokusebenzisa ukubuyelela kabili. Umfundi angahle athi nowubuyelela kabili ama-45 bese uhlanganisa naku-1 nofana ukubuyelela ama-46 kabili bese ukhuphe1. **Amanambalayini** Ukusebenzisa amanambalayini ukwenzela ukubasiza ukubala azakunikela abafundi indlela yokurekhoda ukucabanga kwabo begodu balandelele umkhondo wokucabanga kwabo. Begodu kuvumela abafundi bonyana babe nomfanekiso wokurekhoda abangawusebenzisa ukuhlathulula bonyana bawusombulule bunjani umraro. Abafundi bebasebenzisa amanambalayini kusukela eGreyidini yoku-1. Abafundi bafanele bakghone ukwakha amanambalayini anganalitho lapho bafaka khona inomboro yokuthoma, bese bathole bonyana bangasuka bunjani enomborweni yinye ukuya kwenye. **Isibonelo** sokobana abafundi bangayisebenzisa bunjani inambalayini: Abantwana abama-23 bathatha ikhambo lesikolo namhlanjesi. Kusele abantwana abama-63 esikolweni. Bekunabantwana abangaki kwasekuthomeni?  	
1.7 Ukuh-langanisa nokukhupha	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-999.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-99.	**limbonelo zemiraro engenziwa ethemini le.** Ethemini leli abafundi bahlanganisa umsebenzi owenziwa eGreyidini yesi-2. Qala amanothi wemihlobo yensombululo zemiraro eziseGreyidini yesi-2, Isahluko sesi-2.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.8 Ukuh-langanisa okubuyele-lweko kurholela ekubuy-abuyeleleni	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukubuyabuyelela okunempendulo ufikela e-100.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukubuyabuyelela okunempendulo ufikela e-50.	**Iimbonelo zemiraro engenziwa ethemini le.** • Umakhi uthloga bonyana abeke amareyi asi-6 weentina zokupheyiva, kube neentina ezibu-8 kelinye nelinye ireyi. Uzokuthloga iintina ezingaki? • UMarilina unemigodla emi-4 yamaswidi. Umgodla ngamunye uphethe amaswidi asi-6. Kunamaswidi amangaki nasele awoke? • Umma ufuna ukubhaga amakhekhe ali-12. Lokha ikhekhe elilodwa lifuna amaqanda ama-2, umma kufanele athenge amaqanda amangaki? • Lokha umfundi ngamunye afunda iincwadi ezi-3 ngoVelabahlinze, ziincwadi ezingaki ezingafundwa litlasi labantwana abama-20? **Umhlobo womraro : Ukurhemisa** • Isivande semirorho sinamareyi ali-12 weentjalo. Ireyi ngalinye lineentjalo ezili-7. Kuneentjalo ezingaki esivandeni? • Isivande semirorho sinamareyi ali-12 weentjalo. Elinye nelinye ireyi lineentjalo ezilinganako. Lokha kuneentjalo ezima-48 sezizoke, kuneentjalo ezingaki ereyini ngalinye? • Isivande semirorho sineetjalo ezima-48 ezitjalwe emareyini. Kuneentjalo ezili-7 ereyini ngayinye. Kunamareyi amangaki nasele awoke? **Ukusebenzisa ukubuyelela kabili ukusombulula imiraro** • UJustini uneminyaka ebu-8 ubudala • Umfowabo omdala unobudala obubuyelwe kabili kunoJustini. • Uyise unobudala obubuyelelwe kane kunoJustini. • Ubamkhulu kaJustini mdala okubuyelelwe kabili kunoyise kaJustin. • Buyini ubudala bomunye nomunye? • Incwadi kaTjhepi inamakhasi ama-48 ubude. Sele asekhasini lama-26, ingabe sele afunde ngaphezulu kwengcenye yencwadi? EGreyidini yesi-3 abafundi balindeleke bonyana babone ukubuyabuyelela kweembalo zamagama. Abafundi kufanele bakhuthazwe bonyana basebenzise iinomboro nangeenthombe, kunokobanyana basebenzise ama-apharathasi nofana iinthombe ngokwabo.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.9 Ukubuthele-la nok-wabelana okurholela ekuhlu-kaniseni	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqhema kweenomboro ezipheleleko ukufika e-100 kanye nempendulo ezingahle zifake iinsalela	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqema kweenomboro ezipheleleko ukufika e-50 kanye nempendulo ezingahle zifake iinsalela	NgeThemu le kuthulwa itshwayo lokuhlukanisa. Kuqakathekile bonyana abafundi bazwisise imiqondo elandelako yokuhlukanisa ngaphambi kobana kusetjenziswe itshwayo: Imiraro efaka hlangana ukwabelana kanengi imayelana no: Kwabelana ngokulinganako, begodu • Munye uthola okungangani? • Imiraro efaka hlangana ukwabelana kanengi imayelana : **Ziinqhema ezingaki ezingenziwa?** • Iimbonelo zemiraro engenziwa ngeThemu le. • Lokha kunabafundi abama-44 nabotitjhere aba-3 bafanele baye ekhonsadini, kodwana iteksi ikhweza abantu abali-11 kwaphela, iteksi ezokubuyela kangaki ukuyothatha abafundi, ngaphambi kobana boke abafundi baphelele ekhonsadini? • UMongezi upaka izinto zokubala ezima-47 uzibeka ngamareyi ali-9. Kunezinto zokubala ezingaki ereyini? • Abantazana aba-35 bafuna ukudlala ibhola yezandla. Ziinqhema ezingaki ezinabantazana abali-7 ezingabakhona? • Linganisa maqangi: • Kuzokuba kunengi nofana kuncani kune-10? • Kuzokuba kunengi nofana kuncani kunama-20? • UMarlina uthenga amaswidi ama-44. Uwahlukanisa ngokulinganako emaphaketheni ama-4 azowathengisa. Kunamaswidi amangaki ngemgodleni? • UMarlina uthenga amaswidi ama-48. Ufuna ukuwahlukanisa ngemigodla enamaswidi asithandathu ngemgodleni ngamuny. Uthloga imigodla emingaki?	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.10 Ukwabelana okurholela emafrak-tjhinini.	Ukurarulula bewuhlathulule iinsombululo zemiraro ephathekako efaka hlangana ukwabelana ngokulingana erholela empendulweni zamafraktjhini wohlavu olulodwa nalayo angenahlavu eyodwa. isib. $\frac{1}{2}, \frac{1}{4}, \frac{1}{3}, \frac{1}{5}$ njll.	Ukurarulula bewuhlathulule iinsombululo zemiraro ephathekako efaka hlangana ukwabelana ngokulingana erholela empendulweni zamafraktjhini wohlavu olulodwa nalayo angenahlavu eyodwa. isib. $\frac{1}{2}, \frac{1}{4}, \frac{1}{3}, \frac{1}{5}$ njll.	EGreyidini yesi-2 abafundi bathulwe emafraktjhinini begodu; • Babelana begodu babuthelela izinto ngokulinganako; • Batjho iingcenye zefraktjhini; • Babona amafraktjhini ebujameni obuhlukeneko • Batlola amagama wamafraktjhini njenge 1 yesithathu, 1 yesihlanu • Ukuthola amafraktjhini wokupheleleko; begodu • Ukuthola amafraktjhini webuthelelo lezinto. **Ngikuphi okuhlukileko kune Greyidini yesi- 2?** NgeThemu le, abafundi baragela phambili nokusenza ngamafraktjhini anehlavu elilodwa afana na: 1 isiquntu , 1 kokuthathu, 1 ikota, 1 kokuhlanu. Abafundi bathulwa emafraktjhinini anganahlavu elilodwa. Isib. 3 amakota nofana o 2 kokuthathu. Abafundi akutlhogeki bonyana basebenzise amagama athi *anehlavu elilodwa* nelithi *anganahlavu elilodwa* **Iimbonelo zemiraro engenziwa ngeThemu le.** • Ukwabelana okurholela emafraktjhinini. Yabela abangani aba-3 iintina zetjhokolethi ezi-8 wenze bona boke bathole iintina ezilinganako zetjhokolethi begodu kungasali litho. • Ifraktjhini yebuthelelo a) Thola ikota e-1 yamaswidi ali-16. b) Amaswidi abu-8 alifraktjhini liphi lamaswidi ama-24? c) Ugogo unikela uKiki R12, uKiki ufuna ukonga okuthathu kwemali. ufanele onge malini? d) Umhlobo lo womraro ufanele ubuzwe ngemva kobana abafundi basombulule imiraro emine nofana emihlanu “yokwabelana, okurholela emafraktjhinini” babe bazi umhlobo namagama weengcezu zamafraktjhini. **Ukutlola amafraktjhini** Akuthlogeki bona abafundi batlole amatshwayo wamafraktjhini. Abafundi bafundile bonyana bangazilebula bunjani iingcenye zamafraktjhini njengo 1 kokuhlanu, 3 yamakota nofana 3 kokusithandathu. Lokhu kubasiza kokuthoma ngokuzwisisa bonyana amagama wamafraktjhini ahlathulula bonyana kuneengcezu ezingaki ezilinganako zokupheleleko. Isibonelo isiquntu, kokuthathu, amakota njll. Kwesibili ziingcezu ezingaki ezitjhejwako, isib. 2 kokuthathu.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.10 Ukwabelana okurholela emafrak-tjhinini.	Ukurarulula bewuhlathulule iinsombululo zemiraro ephathekako efaka hlangana ukwabelana ngokulingana erholela empendulweni zamafraktjhini wohlavu olulodwa nalayo angenahlavu eyodwa. isib. $\frac{1}{2}, \frac{1}{4}, \frac{1}{3}, \frac{1}{5}$ njll.	Ukurarulula bewuhlathulule iinsombululo zemiraro ephathekako efaka hlangana ukwabelana ngokulingana erholela empendulweni zamafraktjhini wohlavu olulodwa nalayo angenahlavu eyodwa. isib. $\frac{1}{2}, \frac{1}{4}, \frac{1}{3}, \frac{1}{5}$ njll.	**Ukujamiselela imiraro yamagama yamafraktjhini.** Abafundi bafanele bagwale iimpendulo zabo ukubonisa bonyana bayawuzwisisa umraro. Lindela bonyana abanye abafundi bangathala ifraktjhini ngendlela okungiyo kodwana banganikeli igama ekungilo lengcenye yefraktjhini. Siza abafundi laba bonyana batjho ingcenye yefraktjhini ngendlela okungiyo (Qala amanothi ahlobana nokubizwa kwamafraktjhini angaphasi kobujamo obutjhaphulukileko bokubala) Abafundi bafanele batjho iingcezu ezabiweko ngokuzitlola njenge 2 yokuthathu.	
1.11 Imali	• Ukukhumbula nokubona iinhlavu nemali yephepha yeSewula Afrika • Sombulula imiraro yemali efaka hlangana amanani wemali netjhentjii ngamaranda nofana ngamasende • Tjhugulula hlangana namaranda namasende	• Ukukhumbula nokubona iinhlavu nemali yephepha yeSewula Afrika • Sombulula imiraro yemali efaka hlangana amanani wemali netjhentjii ngamaranda nofana ngamasende.	NgeThemu le abafundi baragela phambili nokurarulula imiraro yemali. **Isibonelo:** • Abafundi beGreyidi yesi-3 batlhoga R759 yekampa yetlasi. Babuthelele R250. Basatlhoga malini? • Tlola 325c ngamaranda namasende. • Ziindlela ezingaki ezihlukileko ongazenza ngazo i R400 usebenzisa imali yamaphepha kwaphela? Wazi bunjani bonyana unazo zoke iinsombululo? • USiyabonga unehlavu le 50c neenhlamvu ezine za-20c. Amathofi abiza R1, 20. Uzokuthola itjhentjhi yamalini? • Nange itreksudu yesikolo ibiza R150, amatreksudu ama-2 azokubiza malini? **Imiraro yokuthenga nokuthengisa** **Isibonelo** • Ugogo ka Pitrosi umnikele iR5. Ngimaphi amaswidi ama-3 angawathenga? Itjhoku tjhakile ibiza R2,70; amatjhapisi abiza R1,80; umzoka osiri R1,40; amaswidi weperegisi R1,60; amaminthi R2,20; ithofi libiza R1,20. • UDamon wathenga iincwadi ezintathu nge R80 incwadi ngayinye. Yimalini itjhentjhi azoyithola nange aphethe R300? • Amaphakethe wamaminti ama-5 abiza 44c ngalinye. Umnumzana King utlhoga 88 yamaminthi. Kufanele athenge amaphakethe amangaki? Uzokubhadela malini?	

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IIMBALO EZISEBUJAMENI OBUTJHAPHULUKILEKO				
1.12 Amathek-iniki (iindlela zokwenza namaqh-inga)	Sebenzisa amathekhniki alandelako lokha nawenza ukubalisisa: • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Amanambalayini • Ukutjhideza eduze kwetjhumi	Sebenzisa amathekhniki alandelako lokha nawuwenza ukubalisisa: • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Amanambalayini	Amathekhniki la azokusetjenziswa kikho kokubili ekusombululeni imiraro nasekubaleni okusebujameni obutjhaphulukileko: **Ukwakha nokuphula** Le ngenye yamathekhniki aqakatheke khulu eSigabeni eSisisekelo. Ukusetjenziswa kwethekhniki le kuvumela abafundi ukuhlukanisa (ukuphula) nokubuye bahlanganise iinomboro ukubasiza ukwenza ukubala kubelula. Bazokusebenzisa ithekhniki le neSigabeni eSiphakathi. Kuqakathekile bonyana abafundi basebenzisa ilwazi elaziwako nabaphula iinomboro. Isib. • Ukuphula ngokusebenzisa ubukhulu bedijithi • Ukuphula ngokusetjenziswa ukubuyabuyelela kwe-10; begodu • Ukuphula ngokuya kwenomboro zangakubili (iimpara). **Amanambalayini** Abafundi bazokuragela phambili nokusebenzisa nokwakha amanambalayini okungewabo ukwezela ukubala. Kunekghonakalo yokobana inambalayini izokusetjenziswa kanengi ekubaleni kokuhlanganisa nokukhupha. **Ukuhlanganisa nokukhupha** Abafundi bafanele bakhe inambalayini okungeyabo begodu baphule iinomboro ngeengcenye elawulekako. **Isibonelo:** 45 + 27 Inambalayini ifanele ithome ema-45 begodu abafundi bangatlama imeqo emi -2 yangali-10 begodu nomeqo owodwa otjengise uli-7. **Ukubuyabuyelela** Amanambalayini kufanele kuragelwe phambili nokuwasebenzisa ukusekela ukuhlanganisa okubuyelelako. Ukweqa okulinganako kurekhodwa enambalayini begodu imitjho esekelako nayo ingarekhodwa.	

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1.13 Ukuh-langanisa nokukhupha	• Hlanganisa ukufika ema-999 • Khupha ukusuka ema-999 • Sebenzisa amathswayo afaneleko (+, –, =, □) • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-30	• Hlanganisa ukufika ema-99 • Khupha ukusuka ema-99 • Sebenzisa amathswayo afaneleko (+, –, =, □) • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-20	NgeThemu le abafundi bazijayeza beba hlanganise umsebenzi owenziwa eGreyidini yesi-2. Lokha abafundi: • Basebenza ngezinto zokubala ezihlukeneko kuphela; • Gwala imifanekiso yanga 1 kwaphela; begodu • Bala koke ngaku-1 Lokha nawusebenza ngesamba esingaphezulu kwama-30, kubakhambisa buthaka, begodu kwandisa amathuba wabo wokwenza amaphutha wokubala. Lokhu kwenza kuqakatheke kibo ukuthuthukisa amaqhinga asiza khulu. Ukwakha nokuphula iinomboro kuba ngelinye lamaqhinga aqakathekileko abafundi abazo wasebenzisa ngeThemu le. Iindlela ezingakghonakala ukutjengisa ukubala kokuhlanganisa nokukhupha. **Ukuphula inomboro ibe ziingcenye ezincani ukwenza ukubala kube lula.** Abafundi bangahle baphule inomboro ngeendlela zabo ezilawulekako. Lokhu kutjho bonyana bazokwenza ngeendlela ezihlukileko. **Ukusebenzisa ilwazi lobukhulu bedijithi ukuphula iinomboro zibe matjhumi nemivo** • Ukuhlanganisa iinomboro zamadijithi amabili ngokuphula iinomboro zombili 43 + 36 = □ 43 + 36 = (40 + 3) + (30 + 6) = (40 + 30) + (3 + 6) = 70 + 9 = 79 • Ukuhlanganisa ngokuphula inomboro yinye 43 + 36 = □ 43 + (30 + 6) 43 + 30 → 73 + 6 = 79 • Ukuphula ngeeqhema zangalitjhumi 43 + 36 = □ 43 + (10 + 10 + 10 + 6) 43 + 10 → 53 + 10 → 63 + 10 → 73 + 6 = 79	

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1.13 Ukuh-langanisa nokukhupha	• Hlanganisa ukufika ema-999 • Khupha ukusuka ema-999 • Sebenzisa amathswayo afaneleko (+, –, =, □) • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-30	• Hlanganisa ukufika ema-99 • Khupha ukusuka ema-99 • Sebenzisa amathswayo afaneleko (+, –, =, □) • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-20	**Ukukhupha** • Ukukhupha ngokuphula iinomboro zombili 87– 56 = □ 87– 56 = (80 + 7) – (50 + 6) = (80– 50) + (7– 6) = 30 + 1 = 31 • Ukukhupha ngokuphula inomboro yinye 87–56 = □ 87– (50 + 6) 87– 50 → 37 – 6 = 1 Lindela bonyana abanye abafundi bangaphula inomboro ngeendlela ezihlukileko ukwenza ukubala kubelula: • Ukuphula ngeeqhema zangalitjhumi 87– 56 = □ 87– (20 + 20 + 10 + 6) 87– 20 → 67–20 → 47– 10 → 37– 6 → 31 Ukusebenzisa ilwazi elidlulileko njengethekhniki • Ukusebenzisa ukuqunta phakathi ukuphula inomboro 69 + 12 69 + (6 + 6) 69 + 6 → 75 + 6 = 81 • Ukubala uye phambili nokuya emva 78 – 69 = □ Ukubala ngakunye uye phezulu kusuka ema- 69 kuliqhinga elifaneleko ngombana iinomboro ziseduze enye kwenye. • Ukubona ukubuyelela kabili okuseduze 34 + 35 hlathulula bonyana kubuyelela kabili ama-34 hlanganisa naku- 1 nofana ukubuyelela kabili ama-35 ukhupha ku-1. 34 + 35 + 1	

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1.13 Ukuh-langanisa nokukhupha	• Hlanganisa ukufika ema-999 • Khupha ukusuka ema-999 • Sebenzisa amathswayo afaneleko (+, –, =, □) • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-30	• Hlanganisa ukufika ema-99 • Khupha ukusuka ema-99 • Sebenzisa amathswayo afaneleko (+, –, =, □) • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-20	Abafundi bangahle barekhode amaqhinga wabo ngokusenzisa inothetjheni yabotjhobi ukulandela ukubala kwabo 34 + (30 + 4) + 1 34 + 30 → 64 + 4 → 68 + 1 → 69 • Ukutjhugulula inomboro ibe sibuyabuyelelo setjhumi bese bakhupha nofana bahlanganise imivo **Ukubala uyephezulu nofana uye phasi eduze kwetjhumi** 58 + 19 = □ Lapha abafundi kufanele bonyana bazitjele bona banamathuba wokukhetha amabili. Ukutjhugulula ama-58 nofana i-19 eduze kwesibuyelelo se- 10. Ukuzikhethela kungekwabo. Isibalo singatlolwa bunjesi: 58 + 19 = 58 + 20 – 1 58 + 20 → 78 – 1 = 77 Abanye abafundi bangahle baphule ama-20 kube ziinqhema ezimbili ze-10 ngokunembako. **Ukuzijayeza amabhondi ukufika ema-20** Amabhondi afika ema-20 kufanele enziwe ngokusebenzisa imihlohlobo yemifanekiso esekelelako. **Ukuthuthukisa nokuzijayeza amakghono wokuhlanganisa nokukhupha** Abafundi kufanele bazijayeza eminye imihlobo yokuhlanganisa namakghono wokukhupha. • Hlanganisa nofana ukhuphe inomboro ezinedijithi elilodwa kunanoma ngiziphi iinomboro ezinamadijithi amabili ngaphandle kokweqela ematjhumini: Isibonelo: a) 65 + 4 b) 89 – 3 • Ukuhlanganisa inomboro yedijithi elilodwa esibuyelelweni se-10. Isibonelo: a) 70 + 5 b) 90 + 3 • Ukukhupha inomboro yedijithi elilodwa esibuyelelweni se-10. Isibonelo: a) 80 – 6 b) 50 – 3	

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1.13 Ukuh-langanisa nokukhupha	• Hlanganisa ukufika ema-999 • Khupha ukusuka ema-999 • Sebenzisa amathswayo afaneleko (+, –, =, □) • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-30	• Hlanganisa ukufika ema-99 • Khupha ukusuka ema-99 • Sebenzisa amathswayo afaneleko (+, –, =, □) • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-20	• Ukuhlanganisa nofana ukukhupha i-10 kunanoma ngiyiphi inomboro enamadijithi amabili Isibonelo: a) 56 + 10 b) 68 + 10 c) 79 – 10 d) 57 – 10 • Ukuhlanganisa nofana ukukhupha okukhamba ngakubili kwembuyeleli ze-10 ngaphandle kokweqela e-100. a) 40 + 30 b) 80 – 50 **Ukuhlola umphumela wokubalisisa** Ukujaja ngokuzwakalako iinsombululo. Abafundi bafanele babandulwe ngokujaja okuzwakalako iinsombululo. Enye yeendlela yokwenza lokho kulinganisa iimpendulo zabo ngaphambili kokubala. Lokha uhlanganisa iinomboro ezimbili ezitjhideleneko enye kenye isib. 45 na 46, abafundi bangasebenzisa ukubuyelela kabili njengendlela yokulinganisa iimpendulo zabo. Ukuhlola iinsombululo Abafundi bafanele bazi bonyana banga: • hlola isibalo sokuhlanganisa ngokukhupha. Isibonelo: nange 36 + 18 = 54; bese 54- 18 = 36 • hlola isibalo sokukhupha ngokuhlanganisa Isibonelo 84- 48 = 36, bese 36 + 48 = 84 Ukusebenzisa itshwayo lokubala lokuphekguka ukuhlola iinsombululo kungesinye isizathu sokufundisa ukuhlanganisa nokukhupha ngokuhlangeneko.	

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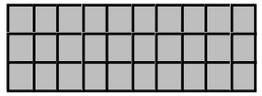
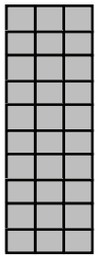
1.14 Ukuh-langanisa okubuyele-lweko okurholela ekubuy-abuyeleleni	• Buyabuyelela iinomboro ukususka ku-1 ukufika e-10 ngaku 2, 3, 4, 5, 10 ukufika enanini lama-99 • Sebenzisa amatshwayo afaneleko (x, =, □)	• Buyabuyelela iinomboro ukususka-1 ukufika e-10 ngaku 2, 5, 3, 4 • Sebenzisa amatshwayo afaneleko (x, =, □)	EGreyidini yesi -2 abafundi babuyabuyelele iinomboro kusuka ku- kuya e- nga na ukufika ema- . Bathulwa etshwayweni begodu balisebenzise emitjhweni yeenomboro. Abafundi eGreyidini yesi-3 bafanele baragele phambili nokuzijayeza bebasebenzise ilimi lokubuyabuyelela eensombululweni eziphathekako, ukubuyelela kabili, kabili, buyabuyelela, ukubuyabuyelela nga, okunengi kwa, iinqhema zaku, buyelela, ukubuyelela kathathu ngokunengi. Ilimi nalo kufanele lisetjenziswe nakwenziwa ukubalisisa okubuyabuyelelako. NgeThemu le abafundi bazobe bathoma ukubuyabuyelela ngakuthathu. Abafundi abangena eGreyidiniyesi-3 bafanele bakghone ukujamiselela ukuhlanganisa okubuyelelweko basebenzisa itshwayo lokubuyabuyelela. Abafundi bakghona ukuhlathulula ukubuyabuyelela ngendlela ezihlukileko. Bazwisisa bonyana iinqhema ezi- 3 zezinto ezisi-6 nofana iinqhema ezi-3 zika-6 zingatlolwa njenge 6 + 6 + 6. Kunokuzwisisa bonyana ukubuyabuyelela uku-3 kasi -6 kungatlolwa njenge Ilwazi leli liragela phambili nokuthuthukiswa eGreyidini yesi-3. Abafundi bazokuragela phambili ukusebenzisa ama-apharathasi aphathekako, ukurhemisa nenambalayini ukuzwisisa nokujamiselela ukubuyabuyelela. Kusuka eGreyidini yesi - 3 abafundi kufanele balemuka bonyana ukubuyabuyelela kungenziwa nanyana ngayiphi indlela. **Isibonelo:** Abafundi bafanele bakghone ukuzwisisa begodu batlole okulandelako: 3 × 10 = □ 10 × 3 = □ 30 = 10 × □ 30 = 3 × □ Iintatimende ezingehla kufanele zisekelwe ngokusebenzisa imifanekiso evamileko evumela abafundi bonyana babone bona u 3 × 10 ne 10 × 3 no kunikela ipendulo efanako. **Isibonelo:**  **ne** 	

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1.14 Ukuh-langanisa okubuyele-lweko okurholela ekubuy-abuyeleleni	• Buyabuyelela iinomboro ukusuka ku-1 ukufika e-10 ngaku 2, 3, 4, 5, 10 ukufika enanini lama-99 • Sebenzisa amatshwayo afaneleko (x, =, □)	• Buyabuyelela iinomboro ukusuka-1 ukufika e-10 ngaku 2, 5, 3, 4 • Sebenzisa amatshwayo afaneleko (x, =, □)	Ekupheleni kweThemu abafundi bafanele bathome ukuzwisisa bonyana ukubuyabuyelela kungenziwa nanyana ngayiphi indlela. Umqondo lo ufanele uragele phambili nokujayezwa unyaka woke. Abafundi bangasebenzisa itjhadinaneko ukurekhoda amaphuzu wokubuyabuyelela. Isibonelo **okungeniswako** **umphumela** 1 3 5 7 9 **umthetho** × 3	
1.15 Ukuhlu-kanisa	• Hlukanisa iinomboro ukufika ema-99 ngaku-2, • Sebenzisa amatshwayo afaneleko (÷,=, □)	• Hlukanisa iinomboro ukufika ema-50 ngaku-2, • Sebenzisa amatshwayo afaneleko (÷,=, □)	Itshwayo lokkuhlukanisa lithulwa eGreyidini yesi-3. Eminyakeni emibili umqondo wokwabelana nokubithelela bayijayezwa kwanjesi sekusikhathi sokuhlanganisa/ sokuhlobanisa imiqondo emibili le. Itshwayo lokuhlukanisa lingaziswa/lingathulwa abafundi nabenza imiraro yamagama. Ukwaziswa/ukwethulwa kwetshwayo kungasekelwa ngemifanekiso engenzasi elandelako. Kuqakathekile ukusebenzisa imifanekiso ejayelekileko. **Isibonelo:** **12 ubuthelelwe iinqhema za 3 kukunikela 4 yeenqhema** **4 × 3 = 12** **12 ahlukaniselwa 4 kukunikela 3 ngamunye** **12 ubuthelelwe iinqhema ezi- 4 kukunikela 3 yeenqhema** **3 × 4 = 12** **12 ahlukaniselwa aba-3 kunikela oku-4 ngamunye** **4 x 3 = 12** **i-12 lihlukaniselwa aba-4 kunikela oku-3 ngamunye** **12 ÷ 3 = 4:** Kutjho bonyana 12 abuthelelwe ngaku- 3 kukunikela iinqhema ezi-4 begodu i-12 nalabiwa hlangana naba- 3 kukunikela iinqhema ezi-4 ngasinye.	

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1.16 limbalo zehloko	**Umnqopho wenomboro: irherho 999** • Hlela isede enikelweko yeenomboro ezikhethiweko • Madanisa iinomboro kufika ema-999 begodu utjho bonyana ngiyiphi enengi nofana encani nga-1, 2, 3, 4, 5 ne-10. **Ukukhumbula masinyana:** • Amaphuzu wokuhlanganisa nawokukhupha kufika ema- 20 • Hlanganisa nofana ukhuphe imbuyeleli ze-10 kusuka e-0 kufika e-100 • Amaphuzu wokubuyabuyelela nowokuhlukanisa we : • thebula laku-2 kufika ku • thebula le-10 kufika e- **Amaqhinga wokubala** Ukusebenzisa amaqhinga wokubala alandelako : • Beka inomboro ekulu maqangi ukwenzela ukubala uye phambili nofana ubale uye emuva • Inambalayini. • Ukubuyelela kabili nokuhafulaphakathi • Ukwakha nokuphula • Ukusebenzisa ubudlelwano phakathi kokuhlanganisa nokukhupha • Ukusebenzisa ubudlelwano phakathi kokubuyabuyelela nokuhlukanisa	**Umnqopho wenomboro: irherho 200** • Hlela isede onikelweyona yeenomboro ezikhethiweko • Madanisa iinomboro ukufika ema-200 begodu utjho bonyana ngiyiphi enengi nofana encani nga-1, 2, 3, 4, 5 ne-10 **Ukukhumbula masinyana:** • Ukukhumbula amaphuzu wokuhlanganisa nowokukhupha kufika ema- 20 • Hlanganisa nofana ukhuphe imbuyeleli ze-10 kusuka e-0 kufika e-100 **Amaqhinga wembalo zehloko** Ukusebenzisa amaqhinga wokubala: • Beka inomboro ekulu maqangi ukuwenzela ukubala uye phambili nofana ubale uye emuva. • Inambalayini. • Ukubuyelela kabili nokuhafulaphakathi • Ukwakha nokuphula • Ukusebenzisa ubudlelwano phakathi kokuhlanganisa nokukhupha	Amaqhinga wokubala, umqondo wenomboro, ilwazi nokwazi amaphuzu wenomboro athuthukiswe ngokusombulula umraro nokubalisisa. Lokhu kujayezwa ngesikhathi sezembalo zehloko. Lokho kusiza abafundi bonyana bazijayeze zona bebakghone ukuzisebenzisa ngobulula nababalako begodu basomulula imiraro esebujameni. NgeThemu leli abafundi baragela phambili nekghono lokusebenza batjhaphulukile ngeenomboro. Amaqhinga wokubala ngehloko lawe abafundi abawathuthukisako azabasiza ngokubala okutloliweko begodu kuzokusiza abafundi lokha nabalinganisa. Iimbonelo zemibuzo engabuzwa: Umqondo wenomboro: Amagama weenomboro namatshwayo Phakamisa ikarada nofana tlola phasi igama lenomboro. Khetha umfundi bonyana atlole inumerali emetjhako. **Ukunengi nofana okuncani** Khuyini • Okuncani ema-200 ngaku-1 • Okunengi e-199 ngalu-1 • Okunengi e-102 ngaku-2 • Okuncani e-105 ngaku-2 • Okunengi ema-77 ngaku-3 • Okuncani ema-51 ngaku-3 • Okunengi ema-68 ngaku-4 • Okuncani e-167 ngaku-4 • Okunengi e-129 ngaku-5 • Okuncani e-185 ngaku-5 • Okunengi ema-90 nge-10 • Okuncani e-160 nge-10 Ngiliphi iledere lesi-5 lama -alfabethi? Ngiyiphi inyanga ye-9 yonyaka? **Ukuhlela nokumadanisa** Ngikuphi okunengi: 21 nofana i-171? Nginikela inomboro ehlangana i-154 ne -159.	

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1.16 limbalo zehloko	**Umnqopho wenomboro: irherho 999** • Hlela isede enikelweko yeenomboro ezikhethiweko • Madanisa iinomboro kufika ema-999 begodu utjho bonyana ngiyiphi enengi nofana encani nga-1, 2, 3, 4, 5 ne-10. **Ukukhumbula masinyana:** • Amaphuzu wokuhlanganisa nawokukhupha kufika ema- 20 • Hlanganisa nofana ukhuphe imbuyeleli ze-10 kusuka e-0 kufika e-100 • Amaphuzu wokubuyabuyelela nowokuhlukanisa we : • thebula laku-2 kufika ku • thebula le-10 kufika e- **Amaqhinga wokubala** Ukusebenzisa amaqhinga wokubala alandelako : • Beka inomboro ekulu maqangi ukwenzela ukubala uye phambili nofana ubale uye emuva • Inambalayini. • Ukubuyelela kabili nokuhafulaphakathi • Ukwakha nokuphula • Ukusebenzisa ubudlelwano phakathi kokuhlanganisa nokukhupha • Ukusebenzisa ubudlelwano phakathi kokubuyabuyelela nokuhlukanisa	**Umnqopho wenomboro: irherho 200** • Hlela isede onikelweyona yeenomboro ezikhethiweko • Madanisa iinomboro ukufika ema-200 begodu utjho bonyana ngiyiphi enengi nofana encani nga-1, 2, 3, 4, 5 ne-10 **Ukukhumbula masinyana:** • Ukukhumbula amaphuzu wokuhlanganisa nowokukhupha kufika ema- 20 • Hlanganisa nofana ukhuphe imbuyeleli ze-10 kusuka e-0 kufika e-100 **Amaqhinga wembalo zehloko** Ukusebenzisa amaqhinga wokubala: • Beka inomboro ekulu maqangi ukuwenzela ukubala uye phambili nofana ubale uye emuva. • Inambalayini. • Ukubuyelela kabili nokuhafulaphakathi • Ukwakha nokuphula • Ukusebenzisa ubudlelwano phakathi kokuhlanganisa nokukhupha	**Ukukhumbula ngokurhabako** Amaphuzu wokuhlanganisa nokukhupha: • Ukwazi ngenhloko koke ukuhlanganisa nokukhupha kokulumbana kweenomboro ukufika e-20 **Isibonelo** a) _____+ △ = 20 b) _____+ △ = 16 Hlanganisa begodu ukhuphe amaphuzu wazozoke iinomboro ukufika nokufaka hlangana nama-20 **limbonelo** a) 1 + 11 = 12 b) 18 – 4 = 14 c) 11 + 1 = 12 d) 18 – 14 = 4 e) 2 + 10 = 12 f) 18 – 5 = 13 g) 10 + 2 = 12 h) 18 – 13 = 5 i) 3 + 9 = 12 j) 18 – 6 = 12 k) 9 + 3 = 12 l) 18 – 12 = 6 Ukukhumbula ngokurhabako ukuhlanganisa okubuyelela kabili ukufika ema-. Lokhu kufanelekufake hlangana amaphuzu akhambelanako wokukhupha. **limbonelo:** a) 1 + 1 = 2 b) 6 + 6 = 12 c) 2 + 2 = 4 d) 7 + 7 = 14 e) 3 + 3 = 6 f) 8 + 8 = 16 g) 4 + 4 = 8 h) 9 + 9 = 18 i) 5 + 5 = 10 j) 10 + 10 = 20 **limbonelo:** Ngitjengisa inomboro okufanele uyihlanganise no.... ukukunikela inani lama-(ngokutlola phasi nofana ukusebenzisa ubukhulu bedijithi nofana amaFlardi karada) a) 8 b) 2 c) 9 d) 15 e) 3	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.16 limbalo zehloko	**Umnqopho wenomboro: irherho 999** • Hlela isede enikelweko yeenomboro ezikhethiweko • Madanisa iinomboro kufika ema-999 begodu utjho bonyana ngiyiphi enengi nofana encani nga-1, 2, 3, 4, 5 ne-10. **Ukukhumbula masinyana:** • Amaphuzu wokuhlanganisa nawokukhupha kufika ema- 20 • Hlanganisa nofana ukhuphe imbuyeleli ze-10 kusuka e-0 kufika e-100 • Amaphuzu wokubuyabuyelela nowokuhlukanisa we : • thebula laku-2 kufika ku • thebula le-10 kufika e- **Amaqhinga wokubala** Ukusebenzisa amaqhinga wokubala alandelako : • Beka inomboro ekulu maqangi ukwenzela ukubala uye phambili nofana ubale uye emuva • Inambalayini. • Ukubuyelela kabili nokuhafulaphakathi • Ukwakha nokuphula • Ukusebenzisa ubudlelwano phakathi kokuhlanganisa nokukhupha • Ukusebenzisa ubudlelwano phakathi kokubuyabuyelela nokuhlukanisa	**Umnqopho wenomboro: irherho 200** • Hlela isede onikelweyona yeenomboro ezikhethiweko • Madanisa iinomboro ukufika ema-200 begodu utjho bonyana ngiyiphi enengi nofana encani nga-1, 2, 3, 4, 5 ne-10 **Ukukhumbula masinyana:** • Ukukhumbula amaphuzu wokuhlanganisa nowokukhupha kufika ema- 20 • Hlanganisa nofana ukhuphe imbuyeleli ze-10 kusuka e-0 kufika e-100 **Amaqhinga wembalo zehloko** Ukusebenzisa amaqhinga wokubala: • Beka inomboro ekulu maqangi ukuwenzela ukubala uye phambili nofana ubale uye emuva. • Inambalayini. • Ukubuyelela kabili nokuhafulaphakathi • Ukwakha nokuphula • Ukusebenzisa ubudlelwano phakathi kokuhlanganisa nokukhupha	**limbonelo:** Ngitjengise inomboro ezokusala lokha u_____akhutjhwa ema-20 (ngokutlola phasi nofana ukusebenzisa ubukhulu bedijithi nofana amaFlardi karada) a) 5 b) 18 c) 0 d) 14 e) 7 Hlanganisa nofana ukhuphe imbuyabuyeleli ze-10 kusuka e-100 **limbonelo:** a) Yitjho bonyana magadango amangaki okufanele athathwe enambalayinini ukusuka ema-30 ukuya e-100 nofana kusuka e-100 ukuya ema-50. b) Thola amakarada amabili enza i-100 c) Faka iinomboro ngemabhokhsini zenze i-100: □ + 70 = 100 20 + □ = 100 100 – □ = 90 100 – 40 = □ **Amaqhinga wokubalisisa:** Sebenzisa amaqhinga wokubala ukuhlanganisa nokukhupha ngokuphumelela. Hlanganisa iinomboro ezimbalwa ngokusebenzisa amaqhinga afana nokuthi: • Funa iinomboro ezimbili ezenza i-10 begodu usebenzise zona kokuthoma 2 + 7 + 8 2 + 8 kwenza 10 bese uhlanganise ne- 7 • Beka inomboro ekulu kokuthoma ukwenzela bona ukwazi ukubala uye phambili nofana ubale uye emva. 5 + 15 Ukutjho godu umutjho wenomboro: 15 + 5 nokubala uye phambili ukufika ema- 20	

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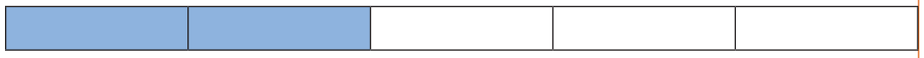
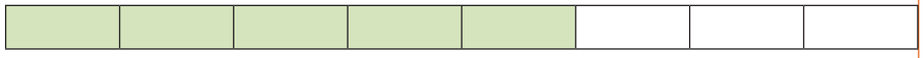
IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.17 Amafrak-tjhini	• Sebenzisa begodu utjho amafraktjhini ebujameni obujayelekileko afaka hlangana amahafu, iinkotara, kobunani, kobuthathu, kwesithandathu, kwesihlanu • Ukukhumbula amafraktjhini asebujameni bedayagramu • Ukuthoma ukukhumbula bonyana amahafu amabili nofana ubuthathu obuthathu benza kunye okuphelelekо, ingcenye yinye yehafu neenkotara ezimbili ziyalingana • Tlola amafraktjhini njenge, 1- yehafu, 2-kokuthathu	• Sebenzisa begodu utjho amafraktjhini ebujameni obujayelekileko afaka hlangana amahafu, iinkotara, kobunane, kobuthathu, kwesithandathu, kwesihlanu. • Ukukhumbula amafraktjhini asebujameni bedayagramu • Ukuthoma ukukhumbula bonyana amahafu amabili nofana ubuthathu obuthathu benza kunye okuphelelekо, ingcenye yinye yehafu neenkotara ezimbili ziyalingana	EGreyidini yesi-2 abafundi bathulwa emafraktjhinini. Ba: • belana begodu babuthelela izinto ngokulinganako; • tjho iingcezu zamafraktjhini ebujameni obunehlavu elilodwa; • bona amafraktjhini ebujameni obuhlukeneko; • tlola amagama wefraktjhini njenge 1 yokuthathu, 1 yokuhlanu; • thola ifraktjhini wezinto eziphelelekо ; begodu • thola amafraktjhini wezinto ezibuthelelweko NgeThemu le abafundi bathulwa emafraktjhinini anganahlavu elilodwa, isib. Amakotara ama -3 nofana ku-2 kokuthathu. Baragela phambili ngokusebenzisa ngamafraktjhini anehlavu elilodwa. Basenza godu ngokobunane nokwesithandathu. **limbonelo zemibuzo:** Ubujamo ngabunye buhlukaniswe izingcezu/iingcenye ezingaki ezilinganako? Ngiyiphi ifraktjhini/ingcenye yobujamo ngabunye ehlikihliweko Ngiyiphi ifraktjhini/ ingcenye yobujamo ngabunye engakahlikihlwa? A. B C  D  Abafundi bafanele banikelwe ithuba lokufaka umbala/lokuhlikihla ubujamo bona ngokwabo	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
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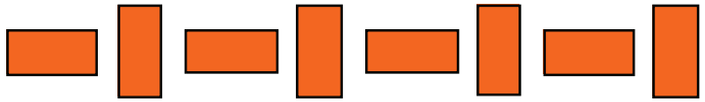
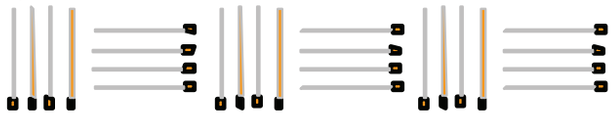
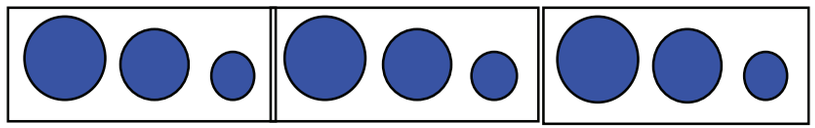
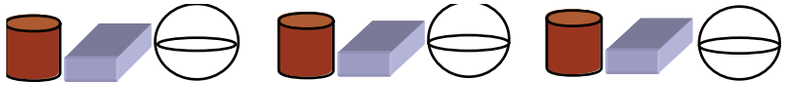
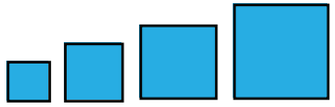
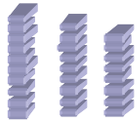
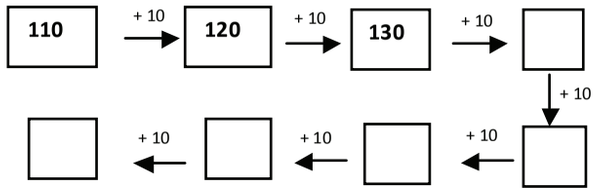
IGREYIDI YESI-3 ITHEMU YOKU-1 2. AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.1 Amapheth-eni weJi-yomethri.	**Kopulula, ngezelela begodu uhlathulule** Kopulula, ngezelela begodu uhlathulule ngawakho amagama • amaphetheni alula enziwe ngezinto eziphathekako • amaphetheni alula enziwe ngokugwala imida, ubujamo nofana izinto. **Ukuzakhela amaphetheni wakho.** Ukuzakhela amaphetheni wakho weJiyomethri • ngezinto eziphathekako • ngokugwala imida,ubujamo nofana izinto **Amaphetheni asizungelezileko** Ukubona , ukuhlathulula ngamagama nokukopulula amaphetheni weJiyomethri • eemvelweni • ebuphilweni bangamalanga banamhlanje • elifeni lamasiko wethu	**Kopulula, ngezelela begodu uhlathulule.** Kopulula, ngezelela begodu uhlathulule ngamagama • amaphetheni alula enziwe ngezinto eziphathekako • amaphetheni alula enziwe ngokugwala imida, ubujamo nofana izinto. **Irherho lamaphetheni**: Amaphetheni alula lapho ubujamo, nofana iinqhema zobujamo zibuyelelwe ngendlela efana poro. **Ukuzakhela amaphetheni wakho.** • Ukuzakhela amaphetheni weJiyomethri • ngezinto eziphathekako • ngokugwala imida,ubujamo nofana izinto.	EGreyidini yesi-3 abafundi bangasebenza ngamaphetheni lapho: • ilunga/ ama-elemende abuyelelwa khona ngendlela efanako; • isayizi yobujamo itjhuguluka ngeendlela ezinikela ibonelo phambili; begodu • inani lobujamo nofana lezinto litkjhuguluka ngendlela enikela ibonelo phambili. Amaphetheni angenziwa ngokusebenzisa ubujamo obubodwa kodwana umbala wobujamo lobo utjhuguluke njalo njalo/ ngendlela ejayelekileko isib. Amaphetheni angenziwa ngokusebenzisa ubujamo nofana into eyodwa kodwana indawo yobujamo nofana into leyo itjhuguluke njalo njalo/ ngendlela ejayelekileko **Isibonelo:** a)  b)  Amanye amaphetheni aneenqhema ezifananko zobujamo nofana izinto ezibuyelelweko, lapho ubukhulu bobujamo esiqhemenei ngasinye butjhuguluka ngendlela ejayelekileko, ngendlela enikela ibonelo phambili isib. Ubukhulu bobujamo buba bukhudlwana nofana buncazana. **Isibonelo**: Ubukhulu bobujamo bubabukhudlwana **Isibonelo**: Ubukhulu bobujamo buba buncazana 	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.1 Amapheth-eni weJi-yomethri.	**Kopulula, ngezelela begodu uhlathulule** Kopulula, ngezelela begodu uhlathulule ngawakho amagama • amaphetheni alula enziwe ngezinto eziphathekako • amaphetheni alula enziwe ngokugwala imida, ubujamo nofana izinto. **Ukuzakhela amaphetheni wakho.** Ukuzakhela amaphetheni wakho weJiyomethri • ngezinto eziphathekako • ngokugwala imida,ubujamo nofana izinto **Amaphetheni asizungelezileko** Ukubona , ukuhlathulula ngamagama nokukopulula amaphetheni weJiyomethri • eemvelweni • ebuphilweni bangamalanga banamhlanje • elifeni lamasiko wethu	**Kopulula, ngezelela begodu uhlathulule.** Kopulula, ngezelela begodu uhlathulule ngamagama • amaphetheni alula enziwe ngezinto eziphathekako • amaphetheni alula enziwe ngokugwala imida, ubujamo nofana izinto. **Irherho lamaphetheni**: Amaphetheni alula lapho ubujamo, nofana iinqhema zobujamo zibuyelelwe ngendlela efana poro. **Ukuzakhela amaphetheni wakho.** • Ukuzakhela amaphetheni weJiyomethri • ngezinto eziphathekako • ngokugwala imida,ubujamo nofana izinto.	Amaphetheni angenziwa ngokuthi kwenziwe iinqhema ezifanako, lapho isiqhema ngasinye sinomhlobo owodwa kodwana indawo yezinto esiqhemeni iyatjhuguluka. Iinqhema ezifanako ziyabuyelelwa. **Isibonelo:**  Amanye amaphetheni enziwe ngobujamo bomhlobo owodwa, kodwana isibonelo sobujamo ngabuye Siyanda nofana siyehla ngobukhulu. Isibonelo:  Amanye amaphetheni enziwe ngeenqhema lapho kwenzeka khona ubujamo obufanako bezintokodwana inani lomhlobo ngamunye wobujamo nofana izinto liyakhula nofana linciphe ngendlela ejayelekileko. Isibonelo:  • Ukukopa iphetheni kusiza abafundi bonyana babone ilojikhi yokuthi amaphetehni enziwe bunjani. • Ukungezelela amaphetheni kusiza abafundi ukuhlola bonyana bayizwisise kuhle ilojikhi yephetheni. • Ukuhlathulula amaphetheni kusiza abafundi bonyana bathuthukise ilimi namakghono wabo wokukhuluma. Begodu kukusiza bonyana ubone bonyana abafundi bayihlathulule bunjani iphetheni. Kuba lula bonyana abafundi bakhulume ngephetheni ngemva kokobana bayenzile. Ngalesi sikhathi abafundi kufanele bakwazi ukuhlathulula amaphetheni ngaphandle kokusebenzisa iinsiza zemibuzo ekhokhelako. Ragela phambili ngomnqopho wokuthuthukisa ilimi abalitlhogako bonyana bahlathulule ngalo amaphetheni.	Isifundo esi-1

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.2 Amaphe-theni Weenom-boro	**Kopulula, ngezelela begodu uhlathulule** Kopulula, ngezelela begodu uhlathulule ukulandelana kweenomboro okulula ukufika okungasenani e-1 000. **Ukuzakhela nokuhlathulula amaphetheni wakho** Ukuzakhela amaphetheni wakho weenomboro.	**Kopulula, ngezelela begodu uhlathulule** Kopulula, ngezelela begodu uhlathulule ukulandelana kweenomboro okulula ukufika okungasenani e-100. • Ukulandelana kufanele kubonise ukubala uye phambili nemuva nga: - Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 ne-1000. - Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-1000. - Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-1000. - Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku-2 hlangana ne -0 ne-1000. - Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne-0 ne-1000 - Ku-4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne-0 ne-1000 - Ma-20, 25, 50, 100 okungasenani ukufika e-1000.	Ukulandelana kweenomboro kungahlanganiswa begodu kusekele ukubala. Lokha amakghono wabafundi wokubala atjhuguluka begodu athuthuka, nemihlobo yokulandela kweenomboro abafundi abasebenza ngazo kungathuthuka. Ukulandelana kufanele kubonise ukubala uye phambili nasemuva ngaku: • ngabo ku-1 kusuka kunanyana ngiyiphi inomboro phakathi kwe- 0 nama- 200 • ngali- 10 kusuka kunanyana ngikuphi ukubuyabuyelela kwe- 10 phakathi kwe- 0 nama- 200 • ngaku 5 kusuka kunanyana ngikuphi ukubuyabuyelela kwaku- 5 phakathi kwe- 0 nama- 200. • Ngaku- 2 kusuka kunanyana ngikuphi ukubuyabuyelela kwaka ku- 2 phakathi kwe- 0 nama- 200 • Ngaku- 3 kusuka kunanyana ngikuphi ukubuyabuyelela kwaka- 3 phakathi kwe- 0 nama- 200 • Ngaku- 4 kusuka kunanyana ngikuphi ukubuyabuyelela kwa kaku- 4 phakathi kwe- 0 nama- 200 • Ngali-100 kusuka kunanyana ngikuphi ukubuyabuyelela kwe-100 kufika okungasenani ema-500. Abafundi bangakhomba iinomboro lokha nababalako. Kyasiza ukunikela abafundi iinomboro ezilandelanako eenjamiselelweni ezihlukahlukeneko Isibonelo: • Ukulandelana kweenomboro okutloliweko • Amanambalayini - Lapho kutjengiswa khona inomboro ebaliweko kuphela. - Iingcenye zamanambalayini isib. • Amagridi weenomboro • Iinketani zeenomboro Abafundi bangavala, banga faka umbala, nofana bazungulezele iinomboro njengombana babala emanambalayinini nasemagridini weenomboro. Abafundi bangazalisa iinomboro ezingekho emanambalayini, nemagridini weenomboro, emitjhweni yeenombo etlolweko, begodu neenketanini zeenomboro. Isibonelo 	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
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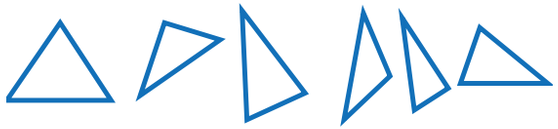
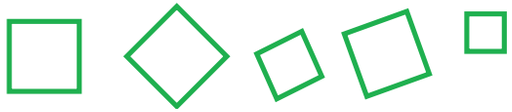
Iinhlavu za	1	2	3	4	5	6	7	8	9
Isamba semali	R5	R10	R15	R20	R25	R30	R35	R40	R45

IGREYIDI YESI-3 ITHEMU YOKU-1 3. ISIKHALA NOBUJAMO (JIYOMETHRI)				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.3 **Amajamo abusobubili 2-D**	**Irherho lamajamo** • iindulungu • aboncantathu • iinkwere • aboncande **Ubujamo bamabumbeko** Hlathulula, uhlele begodu umadanise amajamo abusobubili 2-D ngokuya nge: • bumbeko • amaqadi anqophileko • amaqadi aziindulungu **Gwala ubujamo** • iindulungu • aboncantathu • iinkwere • aboncande	**Irherho lamajamo** • iindulungu • aboncantathu • iinkwere • aboncande **Ubujamo bamabumbeko** Hlathulula, uhlele begodu umadanise amajamo abusobubili 2-D ngokuya nge: • bumbeko • amqadi anqophileko • amaqadi azindulungu	**Ngikuphi okuhlukileko eGreyidini yesi-2?** Egreyidini yesi-3 abafundi banzizisa umsebenzi owenziwe kubusobubili 2-D eGreyidini yesi- 2, kodwana banganqophi emasayizini nofana embaleni lokha kusetjenziswa ngamabumbeko. Lokhu kuvumela abafundi bonyana babe nesikhathi esaneleko ukunqophana nomsebenzi omutjha wezinto ezibuso buthathu 3-D, ubujamo, ukujayeza umsebenzi nokubukela kanye nesimethri. Umsebenzi omunengi wamabumbeko eGreyidi yesi-3 wenziwa ngokuphathekako ngezinto eziphathekako. Woke umsebenzi kufanele undzindziswe ngemisetjenzana etlolwako. **Ukukhumbula nukutjho amagama weendulungu,aboncantathu,iinkwere naboncande** Abafundi kufanele basebenze ngeendulungu neenkwere zamasayizi ahlukeneko begodu nangaboncantathu bobujamo obuhlukahlukeneko. Kuqakathekile bonyana abafundi bangaboni isibonelo sinye kwaphela samajamo wamabumbeko. Amasede amanengi wamabumbeko aphathelene nezorhwebo anikela za isibonelo sinye kwaphela sakancantathu. Abafundi bafanele bonyana bakhumbule • Iindulungu ezihlukeneko ngamasayisi Isibonelo: • Aboncantathu ababumbeke ngokuhlukana babekwa ezindaweni ezihlukahlukeneko Isibonelo:  Iinkwere ezihlukene ngamasayisi nezibekwe eendaweni ezihlukeneko Isibonelo: 	

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IGREYIDI YESI- 3 ITHEMU YOKU-1 4. UKUMEDA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.1 Isikhathi	**Ukutjho isikhathi** • Ukufunda idadamu / umuhla ekhalendeni. • Ukubeka amalanga wamabeletho, amafestivali wezekolo, amaholideyi womphakathi, iminyanya yezomlando, izehlakalo zesikolo ezisekhalendeni. • Ukutjho isikhathi sama-iri ali-12 ngama- - -iri, - ngesiquntu se-iri - ngekotara ye-iri - minithi ewatjhini le-analogo nemawatjhini wedijithali begodu nezinye iintlabagelo zedijithali ezitjengisa isikhathi, isib. abomaliledinini Ukubala ubude besikhathi nokudlula kwesikhathi Ukusebenzisa amakhalenda ukubala nokuhlathulula ubude besikhathi ngamalanga nofana ngeemveke nofana iinyanga ukufaka hlangana • ukutjhugulula hlangana kwamalanga neemveke • ukutjhugulula hlangana kweemveke neenyanga Sebenzisa amawatjhi ukubala ubude besikhathi ngama-iri nofana isiquntu se-iri.	**Ukutjho isikhathi** • Ukufunda idadamu / umuhla ekhalendeni. • Ukubeka amalanga wamabeletho, amafestivali wezekolo, amaholideyi womphakathi, iminyanya wezomlando, izehlakalo zesikolo ezisekhalendeni. • Ukutjho isikhathi sama-iri ali-12 ngama- - -iri, - ngesiquntu se-iri - ngekotara ye-iri - minithi ewatjhini le-analogo nemawatjhini wedijithali begodu nezinye iintlabagelo zedijithali ezitjengisa isikhathi, isib. abomaliledinini	**Ngikuphi okuhlukileko eGreyidini yesi-2?** Iintlabagelo zedijithali ziyethulwa Egreyidini yesi-2 abafundi bafunda isikhathi ngama-iri, isiquntu se-iri begodu nekotara ye-iri ewatjhini ye-analogo. Egreyini yesi-3 abafundi basebenza ngeentlabagelo zedijithali kokuthoma. Basagcina isakhiwo se-iri le-12 begodu basebenzisa ekuseni nantambama nakutlhogekako. Abafundi baragela phambili ukuzijayeza ukukhuluma ngobude besikhathi begodu nangokulandelana kwesikhathi. Ngesikhathi sokufundisa itlasi loke begodu nesikhathi sokunqopha esiqhemeni, abafundi baragela phambili nokukhuluma ngelanga leveke, iinyanga zonyaka begodu idadamu / ilanga lamhlokho, namalanga angaphambili begodu namalanga ezako. • amalanga wamabeletho • amafestivali wezekolo • iminyanya yezomlando, • izehlakalo zesikolo • amaholideyi womphakathi, Ragela phambili ngokubawa abafundi bonyana batjho isikhathi ngokuya ngama-iri, iinquntu zama-iri begodu nekotara ye-iri ewatjhini ye-analogo njalo njalo. Isibonelo, abafundi bangabawiwa bonyana batjho isikhathi sokungena kwesikolo, isikhathi sokudla begodu nangesikhathi sokuphuma kwesikolo, nofana nabatjhintjha ukusuka kesinye isifundo ukuya kwesinye. Khetha isikhathi lapho iwatjhi litjengisa khona isikhathi poro phezu kwe iri , nofana isiquntu se-iri nofana ikotara ye-iri. Kuqakathekile ukuba newatjhi ekulu, esebenzako ebekwa ngeklasini, ukuze abafundi baqale kiyo. Abafundi bangazenzela imifanekiso yamawatjhi. Ungabawa abafundi batjengise iinkhathi ezihlukileko begodu bafake hlangana nezinye iimbalo. ‘Ngitjengisa i-iri le-10. Bekusikhathi bani ikotara ye-awara ngaphambi kwe-iri le-10? Ngesikhathi sokusebenza ngokuzijamela abafundi baragela phambili nokwenza imisebenzi ehlobene nokutjho isikhathi ngama-iri, ngesiquntu se-iri begodu nekotara ye-iri emawatjhini we-analogo. Abafundi bangabala ngeemveke nofana ngamalanga nangabe banikelwe ikhalenda nofana ihlangothi lekhalenda, isib. Ukuthola amalanga nokubala umehluko wesikhathi hlangana nazo.	

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4.2 **Ubude**	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela ngemihlobo begodu urekhode ubude ngokusebenzisa iimedo ezingakahleleki isib. Ubude besandla, amagadango, ubude bamapensela, izinto zokubala, njll. • Ukuhlathulula ubude bezinto ngokubala begodu nokutjho bonyana zinobude obungangani bamayunithi angakahleleki • Ukusebenzisa ilimi ukukhuluma ngokumadanisa, isib. okudanyana okufitjhazana, okude khulu, okubanzi khulu. **Ukwethula ukumeda okuhlelekileko** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu urekhode ubude ngokusebenzisa amamitha (amamitha stiki nofana iintambo ezinobude bemitha) njengomuvosimedo ojayelekileko. • Ukulinganisa nokumeda ubude ngamasenthimitha ngokusebenzisa irula. Akuthlogeki ukwenza itjhuguluko hlangana kwamamitha namasenthimitha.		Egreyidini yesi-2 kuphakanyiswe bonyana abafundi banqophe ekulinganiseni, ekumedeni, ekumadaniseni begodu nokurekhoda ubude, ububanzi begodu nokuphakama. • ngamayunithi ahlelekileko; begodu • ukumeda ngamamitha usebenzisa intongamamitha nofana intambo enobude bemitha li-1 Ngesikhathi sokusebenza ngokuzijamela abafundi bangazijayeza amakghono lawa wokumeda. **Ukumeda ubude njengobujamo bokurarulula imiraro begodu nokubala** Ngesikhathi esibekelwe linomboro, imiSebenzi noBudlelwana, abafundi bangararulula imiraro esebenzisa ubujamo bo • kumeda ubude obungakahleleki; begodu • kumeda ubude ngamamitha Yelela irherho leenomboro zeThemu, nomihlobo ehlukahlukeneko yemiraro efanele iThemu. Iimfundo ezinqophe ekumedeni ubude zizokuthoma ethemini yesi-2	

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4.3 **Imasi/ Ubudisi**	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela, bekurekhodwe ubungako / imasi ngokusetjenzisa iimedo ezingakahleleki begodu nesikala sokudzimelela isib. Amabhlogo, iintina njll. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. elula, ebudisi, elula-khulu, ebudisi-khulu. **Ukwethula ukumeda okuhlelekileko** • Ukumadanisa, ukuhlela nokurekhoda ubudisi bezinto ezipakelwe ukuthengiswa ezinobungako obutjengiswe ngamakhilogremu, isib. amakhilogremu ama-2 wereyisi nekhiligremu eli-1 leflowuru nofana amakhilogremu ama-500 wetswayi • Ukumeda ubudisi / imasi yabo ngamakhilogremu ngokusebenzisa isikala sokumeda sangendlini yokuhlambela Akuthlogeki ukwenza itjhuguluko hlangana kwamamilimitha namalitha.	EGreyidini yesi-2 abafundi • bameda ubudisi/ imasi ngokungakahleleki ngokusebenzisa isikala sokudzimelela; • hlela imikhiqizo ngokuya ngemasi etlolwe eempakaneni; begodu • ukufunda iinkala zangendlini yokuhlambela (zombili iinkala zamambala neseenthombe). Ngesikhathi sokusebenza ngokuzijamela abafundi bazijayela amakghono lawa wokumeda **Ukumeda ubudisi / imasi njengobujamo bokurarulula imiraro begodu nokubala** Ngesikhathi esibekelwe linomboro, imiSebenzi noBudlelwana, abafundi bangararulula imiraro esebenzisa ubujamo boku • meda ubungako/imasi obungakahleleki; begodu • meda ubungako ngamakhilogremu Yelela irherho leenomboro ezifaneleko zeThemu, nemihlobo ehlukahlukeneko yemiraro efaneleko yeThemu. Iimfundo ezinqotjhiswe ekumedeni ubungako/ imasi zizokuthonywa eThemini yesi-2.		

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4.4 **Umthamo/ Ivolumu**	**Ukumeda okungakahleleki** • Ukulinganisa nokumeda, ukumadanisa nokuhlela (isib. umthamo ongamumathwa simumathii nasizeleko) ngokusebenzisa iimedo ezingakahleleki isib. Iingobho namakopi. • Ukuhlathulula umthamo wesimumathi ngokubala nokutjho bonyana mangaki amayunithi angakahleleki angazalisa isimumathi, isib. Ibhodlelo linobungako bamakopi amane **Ukwethulwa kokumeda okuhlelekileko** • Ukulinganisa, ukumeda; ukumadanisa nokuhlela nokurekhoda umthamo wezinto ngokumeda ngamalitha, iinqunto zamalitha begodu nangamakotara wamalitha. • Ukumadanisa, ukuhlela nokurekhoda umthamo wezinto ezipakelwe ukuthengiswa, ubungako bazo butlolwa ngamalitha, isib. Amalitha ama-2 webisi, ilitha li-1 lesiselo esimakhaza, amalitha ama-5 wepende nofana ngamamilimitha, isib. Amamililitha ama-500 webisi, • Amamililitha ama-340 wesiselo esimakhaza, amamilimitha amamililitha ama-750 we-oli • Ukwazi bonyana ikopi elisezingeni elifaneleko limamililitha ama-250 • Ukwazi bonyana ithispuni limamililitha ama-5 Akuthlogeki bonyana kube netjhuguluko hlangana kwamamilimitha namalitha	**Ukumeda okungakahleleki** • Ukulinganisa nokumeda; ukumadanisa nokuhlela umthamo wesimumathii (o.u. umthamo ongamumathwa simumathi nasizeleko) ngokusebenzisa iimedo ezingakahleleki isib. Iingobho namakopi. • Ukuhlathulula umthamo wesimumathi ngokubala nokutjho bonyana mangaki amayunithi angakahleleki angazalisa isimumathi, isib. Ibhodlelo linobungako bamakopi amane **Ukwethulwa kokumeda okuhlelekileko** • Ukulinganisa, ukumeda; ukumadanisa nokuhlela nokurekhoda umthamo wezinto ngokumeda ngamalitha, iinqunto zamalitha begodu nangamakotara wamalitha. - Ukusebenzisa amabhodlelo anomthamo welitha li-1, nofana iimumathi ezinomthamo otlolwe ngamamilimitha, isib. amabhlegana wesiselo esimakhaza. - Amajege wokumeda anemida etjengisa amalitha, isiquntu samalitha begodu namakotara wamalitha - Amajege wokumeda anemida etjengisa amamililitha. Abafundi abakalindeleki bonyana bafunde amavolumu angakameregwa emudeni. - Amakopi wokumeda namathispuni atjengisa umthamo wawo. - Ukumadanisa, ukuhlela nokurekhoda umthamo wezinto ezipakelwe ukuthengiswa, ubungako bazo butlolwa ngamalitha, isib. Amalitha ama-2 webisi, ilitha li-1 lesiselo esimakhaza, amalitha ama-5 wepende nofana ngamamilimitha, isib. Amamililitha ama-500 webisi, • Amamililitha ama-340 wesiselo esimakhaza, amamilimitha amamililitha ama-750 we-oli • Ukwazi bonyana ikopi elisezingeni elifaneleko limamililitha ama-250 • Ukwazi bonyana ithispuni limamililitha ama-5 Akuthlogeki bonyana kube netjhuguluko hlangana kwamamilimitha namalitha	**Ngikuphi okuhlukileko eGreyidini yesi-2?** EGreyidini yesi-2 abafundi • balinganise bebameda, bamadanise, bahlela begodu barekhoda umthamo weemumathi nofana ivolumu engeemumathini ngokusebenzisa iimedo ezingakahleleki; • bamadanisa begodu bahlele umthamo werherho lamabhodlelo begodu nezinto ezithengiswa esitolo sokudla / igrozari nezinye iintwanyana zangekhaya lapho ivolumu itjengiswe khona eempakaneni • basebenzisa ilitha li-1 lamabhodlelo nofana amajege welitha li-1 ukulinganisa nokumeda, ukumadanisa, ukuhlela begodu nokurekhoda umthamo weemumathi nofana ivolumu eemumathini ngamalitha. EGreyidini yesi-3 abafundi bethulwa kumamilimitha **Uyini umthamo? Iyini ivolumu** Ibhodlelo lingaba nomthamo welitha li-1, kodwana ngeze lazaliswa swi, isibonelo, lingamumatha kwaphela ivolumu lekopi elilodwa lamanzi. Umthamo bungako bento engamumathwa simumathi (nofana ubungako besikhala esingaphakathi kwento). Ivolumu bungako besikhala esithathwa simumathwa/ liketjezi. Kesinye isikhathi abafundi bazokumeda bonyana lingangani iketjezi (nofanaisanda nofana okhunye nje) elingesimumathini. Lokhu kukumeda ivolumu yento engesimumathini. Kezinye iinkhathi abafundi bazokumeda bonyana isimumathi singamumatha kangangani lokha nasizele swi. Abafundi bafanele baragele phambili ngokumeda basebenzisa amayunithi womthamo angakahleleki. **Ukumeda umthamo ongakahleleki ngokusebenzisa amayunithi womthamo angakahleleki** Abafundi bangafunda zoke iinkambisolawulo neenkambiso zokumeda ngokusebenzisa amayunithi angakahleleki. Ukumeda ngamayunithi angakahleleki kufanele bonyana kungaqaleki kwanga akukaqakatheki kunokumeda ngamayunithi ahlelekileko. Abafundi bafanele bathole ithuba lokumeda ivolumu/ umthamo ngokusebenzisa izinto ezihlukahlukeneko njengamayunithi ahlelekileko, isib. Amakopi (kodwana ingasi amakopi wokumeda), iingobho, (kodwana ingasi amathispuni wokumeda), iimvalo zamabhodlelo njengeemvalo zamabhodlelo webisi lamalitha ama-2, amabhlegana amancani, amabhodlelo amancani, njll. Ukumeda ivolumu/umthamo ngamayunithi angakahleleki kufana ukubala bonyana kukangaki lapho umuntu azalisa begodu athela khona eyunithini ekhethiweko ivolumu yakhona emedwako. Abafundi bafanele bafundiswe ngaso soke isikhathi ukutjho iyunithi, isib. Kuneengobho ezi-48 ezipheleleko zamanzi ngebhodlelweni nofana kunamanzi angaphasi kwekopi ngebhodlelweni.	Iimfundo ezi-2

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4.4 Umthamo/ Ivolumu	**Ukumeda okungakahleleki** • Ukulinganisa nokumeda, ukumadanisa nokuhlela (isib. umthamo ongamumathwa simumathii nasizeleko) ngokusebenzisa iimedo ezingakahleleki isib. lingobho namakopi. • Ukuhlathulula umthamo wesimumathi ngokubala nokutjho bonyana mangaki amayunithi angakahleleki angazalisa isimumathi, isib. Ibhodlelo linobungako bamakopi amane **Ukwethulwa kokumeda okuhlelekileko** • Ukulinganisa, ukumeda; ukumadanisa nokuhlela nokurekhoda umthamo wezinto ngokumeda ngamalitha, iinqunto zamalitha begodu nangamakotara wamalitha. • Ukumadanisa, ukuhlela nokurekhoda umthamo wezinto ezipakelwe ukuthengiswa, ubungako bazo butlolwa ngamalitha, isib. Amalitha ama-2 webisi, ilitha li-1 lesiselo esimakhaza, amalitha ama-5 wepende nofana ngamamilimitha, isib. Amamililitha ama-500 webisi, • Amamililitha ama-340 wesiselo esimakhaza, amamilimitha amamililitha ama-750 we-oli • Ukwazi bonyana ikopi elisezingeni elifaneleko limamililitha ama-250 • Ukwazi bonyana ithispuni limamililitha ama-5 Akuthlogeki bonyana kube netjhuguluko hlangana kwamamilimitha namalith	**Ukumeda okungakahleleki** • Ukulinganisa nokumeda; ukumadanisa nokuhlela umthamo wesimumathii (o.u. umthamo ongamumathwa simumathi nasizeleko) ngokusebenzisa iimedo ezingakahleleki isib. lingobho namakopi. • Ukuhlathulula umthamo wesimumathi ngokubala nokutjho bonyana mangaki amayunithi angakahleleki angazalisa isimumathi, isib. Ibhodlelo linobungako bamakopi amane **Ukwethulwa kokumeda okuhlelekileko** • Ukulinganisa, ukumeda; ukumadanisa nokuhlela nokurekhoda umthamo wezinto ngokumeda ngamalitha, iinqunto zamalitha begodu nangamakotara wamalitha. - Ukusebenzisa amabhodlelo anomthamo welitha li-1, nofana iimumathi ezinomthamo otlolwe ngamamilimitha, isib. amabhlegana wesiselo esimakhaza. - Amajege wokumeda anemida etjengisa amalitha, isiquntu samalitha begodu namakotara wamalitha - Amajege wokumeda anemida etjengisa amamililitha. Abafundi abakalindeleki bonyana bafunde amavolumu angakameregwa emudeni. - Amakopi wokumeda namathispuni atjengisa umthamo wawo. - Ukumadanisa, ukuhlela nokurekhoda umthamo wezinto ezipakelwe ukuthengiswa, ubungako bazo butlolwa ngamalitha, isib. Amalitha ama-2 webisi, ilitha li-1 lesiselo esimakhaza, amalitha ama-5 wepende nofana ngamamilimitha, isib. Amamililitha ama-500 webisi, • Amamililitha ama-340 wesiselo esimakhaza, amamilimitha amamililitha ama-750 we-oli • Ukwazi bonyana ikopi elisezingeni elifaneleko limamililitha ama-250 • Ukwazi bonyana ithispuni limamililitha ama-5 Akuthlogeki bonyana kube netjhuguluko hlangana kwamamilimitha namalitha	Lokha abafundi nasele bamede nanyana ngiyiphi iyunithi amahlandla ambalwa, bafanele balinganise umthamo/ ivolumu ngokusebenzisa iyunithi leyo. Ukulinganisa ngaphambi kokumeda kuqakathekile, kodwana kungenziwa kwaphela lokha abafundi nabasele bamede ngeyunithi leyo. Abafundi bafanele bafundiswe bonyana ukuze bamadanise ivolumu nofana umthamo, iyunithi efana patsi ifanele isetjenziswe. Isib.nangabe irhalasi Limimatha amathispuni ama-20 wamanzi begodu ikopi Limimatha amathispuni wamanzi ali-10, umuntu angekhe atjho bonyana irhalasi Limimatha amanzi amanengi kunekopi. Abafundi bafanele bamede ngamayunithi angakahleleki ahlukahlukeneko, ukuze bakghone • ukuthoma ukuzwisisa bonyana lokha iyunithi nayiyincani , izokusetjenziswa amahlandla amanengana ukuzalisa isimumathi, Isib. ivolumu engebhodlelweni ingaba ziingobho ezmai-20, kodwana ilingane nekopi yi-1; • ukuthoma ukusebenzisa amayunithi afaneleko kilokho abakumedako, isib. Ukumeda amalitha ama-2 wamabhodlelo azeleko ngethispuni kukumotjha isikhathi. **Ukwethula ukumeda okuhlelekileko** • Linganisa, meda, madanisa, hlela begodu urekhode amavolumu begodu nemithamo ngamalitha. Khumbuza abafundi bonyana amalitha mayunithi ajayelekileko asezingeni elifaneleko wokumeda umthamo begodu nevolumu. Indlela yokurhunyeza (I) iyasetjenziswa emajegeni wokumeda nezintweni zokurhweba ezithengiswa ngamavolumu. Hlolisisa bonyana abafundi bakhumbula isirhunyezo samalitha. Abafundi bameda ngamalitha basebenzisa : • Iimumathi ezimalitha li-1 njengamabhodlelo weenselo ezimakhaza, amabhodlelo webisi, amakhathuni webisi, amakhathuni wejuzi; begodu • Amajege wokumeda etjengisa ilitha yi-1 yemida yekhalibhratjhini. Bayalinganisa begodu bameda umthamo ohlukahlukeneko weemumathi njengeembhigiri ezikulu zeyogathi, iimbhigirana ze-ayisikhrimi, amabhoksi wokudla kwemini, amajege amakhulu, amabhodlelo amakhulu, amabhlege wepende angenalitho, amabhakede njll. Izinto ezinomthamo ohlukahlukeneko zifanele zikhethwe. Abafundi bahlathulula umthamo njengo “ngaphasi kwelitha li-1, amalitha ama-2, hlangana kwelitha li-1 nama-2, amalitha ama-5, njll. • Abafundi bamadanisa, bahlela begodu barekhoda umthamo wezinto zerhwebo ezipakelwako, umthamo wabo otlolwe ngamalitha, isib. amalitha ama-2 webisi, ilitha li-1 leeselo esimakhaza, amalitha ama-5 wepende. Ukulinganisa, ukumeda, ukumadanisa, ukuhlela nokurekhoda amavolumu begodu nomthamo ngamamilimitha.	Iimfundo ezi-2

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.4 Umthamo/ Ivolumu	**Ukumeda okungakahleleki** • Ukulinganisa nokumeda, ukumadanisa nokuhlela (isib. umthamo ongamumathwa simumathii nasizeleko) ngokusebenzisa iimedo ezingakahleleki isib. Iingobho namakopi. • Ukuhlathulula umthamo wesimumathi ngokubala nokutjho bonyana mangaki amayunithi angakahleleki angazalisa isimumathi, isib. Ibhodlelo linobungako bamakopi amane **Ukwethulwa kokumeda okuhlelekileko** • Ukulinganisa, ukumeda; ukumadanisa nokuhlela nokurekhoda umthamo wezinto ngokumeda ngamalitha, iinqunto zamalitha begodu nangamakotara wamalitha. • Ukumadanisa, ukuhlela nokurekhoda umthamo wezinto ezipakelwe ukuthengiswa, ubungako bazo butlolwa ngamalitha, isib. Amalitha ama-2 webisi, ilitha li-1 lesiselo esimakhaza, amalitha ama-5 wepende nofana ngamamilimitha, isib. Amamililitha ama-500 webisi, • Amamililitha ama-340 wesiselo esimakhaza, amamilimitha amamililitha ama-750 we-oli • Ukwazi bonyana ikopi elisezingeni elifaneleko limamililitha ama-250 • Ukwazi bonyana ithispuni limamililitha ama-5 Akuthlogeki bonyana kube netjhuguluko hlangana kwamamilimitha namalitha	**Ukumeda okungakahleleki** • Ukulinganisa nokumeda; ukumadanisa nokuhlela umthamo wesimumathii (o.u. umthamo ongamumathwa simumathi nasizeleko) ngokusebenzisa iimedo ezingakahleleki isib. Iingobho namakopi. • Ukuhlathulula umthamo wesimumathi ngokubala nokutjho bonyana mangaki amayunithi angakahleleki angazalisa isimumathi, isib. Ibhodlelo linobungako bamakopi amane **Ukwethulwa kokumeda okuhlelekileko** • Ukulinganisa, ukumeda; ukumadanisa nokuhlela nokurekhoda umthamo wezinto ngokumeda ngamalitha, iinqunto zamalitha begodu nangamakotara wamalitha. - Ukusebenzisa amabhodlelo anomthamo welitha li-1, nofana iimumathi ezinomthamo otlolwe ngamamilimitha, isib. amabhlegana wesiselo esimakhaza. - Amajege wokumeda anemida etjengisa amalitha, isiquntu samalitha begodu namakotara wamalitha - Amajege wokumeda anemida etjengisa amamililitha. Abafundi abakalindeleki bonyana bafunde amavolumu angakameregwa emudeni. - Amakopi wokumeda namathispuni atjengisa umthamo wawo. - Ukumadanisa, ukuhlela nokurekhoda umthamo wezinto ezipakelwe ukuthengiswa, ubungako bazo butlolwa ngamalitha, isib. Amalitha ama-2 webisi, ilitha li-1 lesiselo esimakhaza, amalitha ama-5 wepende nofana ngamamilimitha, isib. Amamililitha ama-500 webisi, • Amamililitha ama-340 wesiselo esimakhaza, amamilimitha amamililitha ama-750 we-oli • Ukwazi bonyana ikopi elisezingeni elifaneleko limamililitha ama-250 • Ukwazi bonyana ithispuni limamililitha ama-5 Akuthlogeki bonyana kube netjhuguluko hlangana kwamamilimitha namalitha	Coca nabafundi bonyana amamililitha amayunithi wokumeda ahlelekileko ajayelekileko womthamo begodu nevolumu. Hlathulula bonyana amamilimitha mancani kunamalitha. Bafanele bafunde igama begodu nesirhunyezo, ngombana iimumathi ezinengi zerhwebo begodu neenjege ezinengi zokumeda zineenrhunyezo zamagama. Abafundi bafanele bamadanise, bahlele begogu barekhode umthamo wezinto ezipakelwe irhwebo, umthamo wazo otloleke ngamamilimitha, isib. Amamilimitha webisi ama-500ml, ama-750ml weviniga, ama-330ml weenselo ezimakhaza, ama-400ml weporitjhi yaphasi, njll. Abafundi bafanele bamede njalo njalo ngokwaneleko nga: • makopi wokumeda asezingeni elifaneleko ukuthoma ukwazi bonyana mangaki amamilimitha ama-250; • mathispuni wokumeda ukuthoma ukwazi bonyana mangaki amamilimitha ama-5; • majege wokumeda amedwe ngamamilimitha- lapha kulindeleke bonyana abafundi bafunde kwaphela imida etjengiswe ngeenomboro-bazokunqopha ekufundeni imida engakanomborwa esiGabeni esiPhakathi. Ukulandela amaresibhi, ukufaka hlangana ukubhaga, kubujamo obulisizo lapho abantwana bangazijayeza khona ukumeda Abafundi ABAKALINDELEKI bonyana • bazi bona ama-1 000 ml = 1 ilitha • ukwenza itjhuguluko hlangana kwamamilimitha namalitha, nofana • bafunde imida engakanomborwa emajegeni amedako (lokhu kwenziwa ukusuka eGreyidini yesi-4). **Ukurekhoda ukumeda / iimedo** Nanyana ukumeda kulikghono eliphathekako, abafundi bafanele barekhode ukumeda kwabo ngaso soke isikhathi, ukufaka hlangana koke ukumeda okuhlelekileko nokungakahleleki. **Ukumeda umthamo/ ivolumu njengobujamo bokurarulula imiraro nokubala** Ngesikhathi esibekelwe linomboro, imiSebenzi noBudlelwana, abafundi bangararulula imiraro ngokusebenzisa ubujamo. • ukumeda okungakahleleki komthamo / ivolumu besimedo, isibonelo, uGogo usebenzisa amakopi amabili webisi ukwenza iphudinghi. Lokha nakangabuyelela kabili iresebhele le, uzokuthloga ibisi elingangani? • amalitha • amamililitha Yelela irherho leenomboro elifanako leThemu leyo, begodu nerherho lemihlobo yemiraro ehlukahlukeneko.	Iimfundo ezi-2

IGREYIDI YESI-3 ITHEMU YOKU-1 5. UKUPHATHA IDATHA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
5.4 **Buthelela begodu uhlele idatha**	Buthelela begodu uhlele idatha • Buthelela idatha ngetlasi nofana isikolo ukwenzela ukuphendula imibuzo ebuzwa ngutitjhere. • Hlela idatha oyinikelwe ngutitjhere nofana yincwadi • Hlela idatha ngama: - Rhelo - Thali - Thebula	**Buthelela begodu uhlele idatha** Buthelela idatha ngetlasi nofana isikolo ukwenzela ukuphendula imibuzo ebuzwa ngutitjhere. Sebenzisa amathali ukurekhoda idatha ngeengaba onikelwe zona. **Jamisela idatha** Jamisela idatha nge: • Thebula • Bha grafu **Hlaziya begodu urhumutjhe idatha** Phendula imibuzo ngedatha ethulwe kumabha grafu.	**Yini umehluko kune Greyidini yesi - 2?** • Abafundi bahlela idatha ngama rhelo, thali, thebula • Abafundi bathulwa kuma bha- grafu • Abafundi baragela phambili nokusebenza ngama grafu weenthombe – kokubili ukuwakha njenge ngcenye yomzombe wedatha nokuhlaziya igrafu yeenthombe abanikelwe yona. **Umzombe wedatha opheleleko** Emzombeni wokuphatha idatha, • abafundi babuthelela ilwaziukwenzela ukuphendule imibuzo. Esigabeni Esisisekelo nesiGabeni Esiphakathi umbuzo lo unikelwa ngutitjhere nofana yincwadi; • abafundi bahlela ngamananeko begodu bajamisele ilwazi ngezindlela ezenza bona kube lula ukuhlaziya. Iindlela zokutjengisa okusetjenzwa ngazo eGreyidini yesi-3 ngileszi: amarhelo, amathali, amathebula, amagrafu weenthombe nama bha grafu; begodu • abafundi bahlaziya ilwazi ngokuphendula imibuzo ebuzwa ngutitjhere. Ibha grafu yetlasi Kuphakanyiswa bona abafundi beGreyidi yesi-3, basebenze ngawowoke umzombe wedatha okungasenani kanye ngonyaka: Ukusebenza baboke njenge tlasi kusiza abafundi bona bazibandakanye kizozoke iinteji ngaphandle kokuthi baduke ngemininingwana yesinye seenteji. Ukwenza ibha grafu yetlasi kukuvumela bona unqophise abafundi emaphuzwini aqakathekileko wokuphatha idatha nokuthula abafundi ezakhiweni eziqakathekileko ze bha grafu. • Igrafu uyilebula kuphi begodu njani (isihloko segrafu) • Ama-eksisi uwalebula kuphi begodu njani (iinhloko se-eksisi) • Ama-bha agwalwa bunjani - Gwala ama-bha, ubude obufaneleko ukutjengisa idatha - Yenza ama-bha abe nobubanzi obulinganako - Tjhiya isikhala hlangana nama-bha - Lebula ibha ngalinye ngokucacileko • Uyifunda njani igrafu	
5.5 **Jamisela idatha**	**Jamisela idatha** Jamisela idatha nge: • Grafu yeenthombe • Bha grafu			
5.6 **Hlaziya begodu uhlathulule idatha**	**Hlaziya begodu urhumutjhe idatha** Phendula imibuzo ngedatha ethulwe nge: • Grafu yeenthombe • Bha grafu.			

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
5.6 **Hlaziya begodu uhlathulule idatha**	**Hlaziya begodu urhumutjhe idatha** Phendula imibuzo ngedatha ethulwe nge: • Grafu yeenthombe • Bha grafu.		Abafundi kufanele bazi bona kuqakathekile ukufunda isihloko segrafu mantanzi, ukwenzela bona bazi bonyana idatha iphathelene nani. Kufanele bafunde neenhloko kuma eksisi athabaleleko nama eksisis anqophe poro. Akuthlogeki bona abafundi bazi amaThemu asetjenzisiweko ukuhlathulula iingcenye zegrafu, okufanele bakwazi ngokuse ''eksisini ethabaleleko / ephasi'' nalokho okuse ''ekzisini enqophe poro / eseqadi'' ukubona bona igrafu ikhuluma ngani. Ngokujayelekileko, sifunda kusuka ngakwesesincele ukuya ngakwesokudla, kodwana lokha abafundi bafunda igrafu, kufanele bafunde kusuka ngakwesesincele ukuya ngakwesokudla begodu nakusuka phasi ukuya phezulu. Lokhu kufanele kuhlathululelwe abafundi. Nabo kufanele bawa phrakthise amakghono la. Ukusebenza ngawowoke umzombe wedatha kungathatha iimfundo ezi 3. **Buthelela begodu uhlele idatha** EGreyidini 3 kufanele ubuze imibuzo ovumela abafundi bona babuthewlele idatha isib "Ngimiphi imibala ethandwa litlasi lethu?" Abotitjhere esigabeni lesi kufanele bona baqinisekise bona iinhloko ezihlukahlukeneko zokubuthelela nokuhlaziya idatha ziyakhethwa kwenye nenye igreyidini. Iinhloko ezifaneleko kufaka hlangana imidlalo ethandwako , iinselo ezimakhaza ezithandwako, imibala ethandwako, isikhathi sokuledlha abasithandako, ukudla abakuthandako , amahlelo abawathandako wakamabonwakude , njll Abafundi bangathoma ngokumemezela lokho abakucabangako. Nasele bathole ilwazi lerherho leempendulo, kufanele ubeke ihlelo/ isigaba okufanele bakhethe kizo. Abafundi kufanele baphrakthise koke "okungasi yigrafu" izinto ezizinjamiselo o.u. amarhelo, amathali nama thebula, isib. - Rhemisa amagama wabafundi ngamunye ngaphasi kwe hlelo / kwesigaba abasikhethe njengabasithandako; - Tjengisa abafundi bona bangayenza njani ithebula yamathali kususela erhelweni (ukufundisa abafundi bona bangathaliya bunjani kungathatha isifundo soke); no - Kwenza ithebula ngeenomboro abazithethe ethebuleni yamathali. Lokha idatha sele isethebuleni, tjengisa abafundi bona bangayigwala njani ibha grafu (bona umhlahlandlela ongehla). **Hlaziya begodu urhumutjhe idatha** Abafundi baphendula imibuzo oyibuzako ngegrafu yeenthombe Isibonelo: a) "Ngimuphi umbala othandwa khulu ngetlasini lethu?" b) "Ngimuphi umbala othandwa bafundi abambalwa ngetlasini?" c) "Kgani abafundi abanengi bathanda …. nofana … ?" d) "Banengi kangangani abafundi abakhetha … kuna … ?"	iimfundo ezi-3

IGREYIDI YESI-3 ITHEMU YESI-2 1. IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.1 Ukubala izinto	**Bala izinto eziphathekako** Linganisa begodu ubale ngokuthembeka okungasenani ukufika e-1000 izinto zangamalanga. Iqhinga lokubuthelela liyakhuthazwa.	Buthelela okungasenani izinto zangamalanga ezima 500 ukulinganisa begodu nokubala ngokuthembeka. Nikela isilinganiso esizwakalako senani lezinto ezingahlolwa ngokubala.	**Ngikuphi okuhlukileko eThemini yoku-1?** Irherho leenomboro liyangezeleleka ukufika ema-500. Ukungezelela kurherho leenomboro kucabangela bonyana abafundi banga: • buthelela izinto ukwenzela ukubala; • bala ngalitjhumi ukufika ema-500 begodu utjho amagama seenomboro ngokulandelana kwabo; begodu • madanisa itshwayo enanini elibaliweko ngokutlola inomboro nofana ngokubonisa inomboro ngamakarada wobukhulu bedijithi. Qala amanothi weThemu yoku-1	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.2 **Bala uye phambili nemuva**	**Ukubala uye phambili nemuva nga:** • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 ne-1000. • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-1000. • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-1000. • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku-2 hlangana ne -0 ne-1000. • Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne-0 ne-1000 • Ku-4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne-0 ne-1000 • Ma-20, 25, 50, 100 okungasenani ukufika e-1000.	**Ukubala uye phambili nemuva nga:** • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 ne-500. • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-500. • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-500. • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku-2 hlangana ne -0 ne-500. • Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne-0 ne-500 • Ku-4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne-0 ne-500 • Ma-20, 25, 50, 100 okungasenani ukufika e-500.	**Ngikuphi okuhlukileko eThemini yoku-1?** Ethemini le abafundi bathoma ukubala ngama-50. Irherho lenomboro njenganje liyangezeleleka ukufika e-1 000. Ethemini le abafundi baragela phambili ukusebenzisa ukubala ngokweqa ethebuleni lokubuyabuyelela begodu kulandelaneni kweenomboro. Qala amanothi weThemu yoku-1	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.3 Amat-shwayo weenom-boro begodu namgama weenom-boro	• Ukukhumbula, ukubona begodu nokufunda amatshwayo iinomboro • Khumbula, ubone begodu ufunde amatshwayo wenomboro ukusuka ku-0 ukufika ku-1000. • Tlola amatshwayo wenomboro ukusuka ku-0 ukufika ku-1000 • Khumbula, ubone begodu ufunde amagama weenomboro ukusuka ku-0 ukufika ku-1000. • Tlola amagama weenomboro ukusuka ku-0 ukufika ku-1000	• Ukukhumbula, ukubona nokufunda iinomboro • Khumbula, ubone begodu ufunde amatshwayo wenomboro ukusuka ku-0 ukufika ku-1000. • Tlola amatshwayo wenomboro ukusuka ku-0 ukufika ku-1000 • Khumbula, ubone begodu ufunde amagama weenomboro ukusuka eli-0 ukufika ku-250. • Tlola amagama weenomboro ukusuka ku-0 ukufika ku-250	Amatshwayo weenomboro wokufunda nokutlola aragela phambili ngokujayezwa lokha naka: • bala izinto; • bala aye phambili nemuva; • qedelela ukulandelana kweenomboro; • hlela begodu amadanisa iinomboro Qala amanithi weThemu yoku-1	
1.4 Hlathulula, umadanise begodu uhlele iinomboro	**Ukuhlathulula, ukumadanisa nokuhlela iinomboro ukufika ema-999.** • Ukuhlathulula nokumadanisa iinomboro ezipheleleko ukufika ema- 999 ngokusebenzisa okuncani kuna, okukhulu kuna, okunengi kuna, okungaphasi kuna begodu nokulinganako. • Ukuhlathulula nokuhlela iinomboro ezipheleleko ukufika ema-999 ukusuka kencani ukuya kekulu, kunye nokusuka kekulu uye kenca ni **Ukusebenzisa inomborosikhundla ukutjengisa ukuhleleka, indawo namkha ubujamo** • Ukusebenzisa, ukufunda nokutlola iinomborosikhundla, ukufaka hlangana nezirhunyeziweko ezifika ema-31.	**Ukuhlathulula, ukumadanisa nokuhlela iinomboro ukufika ema-500** • Ukuhlathulula begodu nokumadanisa iinomboro ezipheleleko ukufika ema-500 ngokusebenzisa okuncani kuna, okukhulu kuna, okunengi kuna, okumbadlwana kuna begodu nokulinganako. • Ukuhlathulula begodu nokuhlela iinomboro ezipheleleko ukufika ema 500 ukusuka kwencani khulu ukuya kwekulu khulu, nokusuka kwekulu khulu ukuya kwencani khulu. **Ukusebenzisa inomborosikhundla ukutjengisa ukuhleleka, indawo namkha ubujamo** • Ukusebenzisa, ukufunda nokutlola iinomborosikhundla, ukufaka hlangana nezirhunyeziweko ezifika ema-31.	Ethemini le irherho leenomboro liyangezeleleka ukusuka ema-99 ukufika ema-500. Abafundi kwanje bahlela iinomboro zamadijithi amathathu. Ukuhlela iinomboro zamadijithi amathathu, abafundi batlhoga uku: • tjho igama lenomboro; • tlola inomboro; begodu • Khumbula ubungako bedijithi ngayinye Vumela abafundi ukusebenzisa inambalayini, umkhondo wenomboro, amagridi wenomboro nofana ilwazi labo lokuphula iinomboro ngamakhulu, ngamatjhumi nangakunye ukutjengisa ukuzwisia kwabo. Lokha nawuhlela iinomboro abafundi kufanele bakghone ukutjho bonyana kungani inomboro iyikulu ukudlula enye usebenzisa ubungako bedijithi ukuzihlathulula. Isibonelo: ama-239 mancani kuna-339 ngombana Umfundi kufanele akghone ukuhlathulula bonyana ama-300 manengi kunama-200 ngokusebenzisa izinto ezibuthelelweko ukubonisa inomboro 100 enomborweni ngayinye. Abafundi bangakghona ukuthola ubujamo benomboro emdeni ngokutjho bonyana ama-339 eza emva kwama-239, ngakho-ke ngiyazi bonyana yikulu.	

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1.5 Ubukhulu bedijithi	**Ukulemuka ubukhulu beenomboro zamadijithi ama-3 ukufika ema-999** • Ukwazi bonyana inomboro yedijithi yinye ijamele ini • Ukuphula iinomboro zamadijithi ama-3 ukufika e-999 ukuya ngokubuyebuyelela kwe-100, ukubuyebuyelela kwe-10 begodu nemivo • Ukubona begodu nokutjho ubungako bedijithi ngayinye	**Ukulemuka ubukhulu bedijithi beenomboro ukufikela ema 500** • Ukwazi bonyana inomboro yedijithi ngayinye ijamele ini • Ukuphula iinomboro zamadijithi amathathu ukufika ema-500 ngokubuyabuyelela ngamakhulu, ngamatjhumi nangemivo (KTU) • Ukubona begodu nokutjho ubungako bedijithi ngayinye	**Ngikuphi okuhlukileko kunethemini yoku-1?** Ethemini yesibili abafundi baphula iinomboro zamadijithi amathathu kokuthoma. Umthetho wobukhulu bedijithi ukhulisiwe ukufaka hlangana amakhulu. Ukuzwisisa kwabafundi kobukhulu bedijithi kungathuthukiswa ngokuza imibuzo, enjengokuthola okunengi ngalitjhumi nofana okuncani kunenomboro. Ngesizathu samalemuko wanjalonjalo ekuthuthukiseni umqondo wobukhulu bedijithi, abafundi kufanele bakghone ukubala nokuzithemba ngama-100, bavumbulule amaphetheni ahlobene nobukhulu bedijithi begodu nokwakha nokuphula iinomboro zamadijithi amabili namathathu. Abafundi kufanele banikelwe ithuba elaneleko ukwakha iinomboro zamadijithi amathathu ngamabhlogo weDienes nofana isisekelo samabhlogo ali-10. Kuqakathekile bonyana bakhe ukwenza i-100 begodu bathome ukubona i-100 njengento ezijameleko. Abafundi kufuze babuzwe bonyana ziiqhema ezingaki zama-100 abanazo. Amakarada wobukhulu bedijithi kufuze busetjenziswe ukutjengisa iinomboro. Ukusebenzisa amaDienes nofana isisekelo samabhlogo ali-10, imibuzo nofana iinyalelo ezilandelako zingabuzwa nofana zinikelwle: • Ma-100 amangaki ange: 300, 400, 500? • Yakha iinomboro ezilandelako: 256, 378, 499 Ethemini le abafundi bafunda ukutjho begodu nokutlola phasi ubungako bedijithi enomborweni. Ema-452, ubungako bo-5 matjhumi amahlanu. Ema 325, ubungako bo-5 si-5. Kuqakathekile ukuhlobanisa ilemuko lama-50 nebuthelelo eli5 lamatjhumi begodu oku-5 nabokunye abahlanu abatjhaphulukileko. Amakarada wobukhulu bedijithi aqakatheke ngokulinganako. Amakarada wobukhulu bedijithi asetjenziselwa ukuphula iinomboro ukutjengisa ubungako bedijithi ngayinye Abafundi bangenza amasede wabo wamakarada wobukhulu bedijithi. Imvilobhu ingananyatheliswa emuva kwencwadi zabo zomsebenzi begodu namakarada ahlale lapho. Amakarada angasetjenziswa lokha nabenza ukuhlanganisa begodu kungaba ngenye indlela abayisebenzisako ukuhlola iimpendulo zabo.	

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1.5 Ubukhulu bedijithi	**Ukulemuka ubukhulu beenomboro zamadijithi ama-3 ukufika ema-999** • Ukwazi bonyana inomboro yedijithi yinye ijamele ini • Ukuphula iinomboro zamadijithi ama-3 ukufika e-999 ukuya ngokubuyebuyelela kwe-100, ukubuyebuyelela kwe-10 begodu nemivo • Ukubona begodu nokutjho ubungako bedijithi ngayinye	**Ukulemuka ubukhulu bedijithi beenomboro ukufikela ema 500** • Ukwazi bonyana inomboro yedijithi ngayinye ijamele ini • Ukuphula iinomboro zamadijithi amathathu ukufika ema-500 ngokubuyabuyelela ngamakhulu, ngamatjhumi nangemivo (KTU) • Ukubona begodu nokutjho ubungako bedijithi ngayinye	Basebenzisa amakarada wabo wamafardi ukutjengisa lokhu: **Ukuphula iinomboro zamadijithi amabili ngokubuyabuyelela ngamakhulu, ngamatjhumi nangamivo.** Abafundi bangaphula iinomboro nge: • Ubungako bamakhulu, bamatjhumi nemivo isib. 273 = 200 + 70 + 3 (amakarada wobukhulu bedijithi alisizo ekwenzeni lokhu) • Ukubuyabuyelela ngalitjhumi nangakakunye isib. 273 = 2 amakhulu, 7 amatjhumi + 3 emiveni **Ukwakha iinomboro zamadijithi amabili eengcenyeni zobukhulu bedijithi** Isibonelo: Tlola inomboro: • ikhulu eli 1 namatjhumi ama- 3 • amakhulu ama-2 namatjhumi ama-4 begodu nemivo emi-5 • amakhulu ama-3 namatjhumi ali-9 begodu nemivo emi-2 • amakhulu ama-4 namatjhumi ama-5 begodu nemivo eli-7 Isibonelo: Zalisa: a) 346 = 300 + ☐ + 6 b) 400 + 20 + 8 = ☐	

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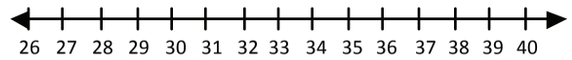
UKURARULULA IMIRARO EBUJAMENI OBUTHILEKO.				
1.6 Amathek-hiniki wok-urarulula imiraro	Ukusebenzisa amathekhiniki alandelako nakurarululwa imiraro begodu kuhlathululwa iinsombululo zemiraro: • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Inambalayini • Ukutjhideza etjhumini	Ukusebenzisa amathekhiniki alandelako nakurarululwa imiraro: • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Inambalayini • Ukutjhideza etjhumini	Abafundi baragela phambili ngokurarulula imiraro yamagama basebenzisa amathekhiniki alandelako: • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Amanambalayini Qala amanothi ethemini yoku-1 **Ngikuphi okuhlukileko kunethemini yoku-1** **Ukutjhideza** Ethemini le abafundi bathoma ukutjhideza iinomboro eziseduze kwe-10. Ukutjhideza kumhlobo wokulinganisa ojayeleke khulu. Nangabe umfundi naka umlinganisi omuhle ikghono lakhe lokutjhideza lifanele libe ngelitjhugulukako begodu nelizwisiseka kuhle. Ngaphambi kobana abafundi basebenzise ukutjhideza njengethekhniki nabahlanganisa nofana bakhupha, badinga bathome ngozijayeza ithekhniki. Lokhu kungenziwa ngokusebenzisa inambalayini. **Isibonelo:**  Ama-33 aseduze kwama 30 nofana kwama 40? Ama 37 aseduze kwama 30 nofana 37? Abafundi kufuze bazwisise bonyana: Ama-35 ahlangana kwama-30 begodu nama-40. Sithi i-10 eliseduze nama-35 ma-40 ngombana sitjhideza eduze netjhumi lokha inomboro ihlangana namatjhumi amabili. Qala amanothi ethemini yesi-2.	

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1.7 Ukuh-langanisa nokukhupha	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-99.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-400.	**Iimbonelo zemiraro engenziwa ngeThemu le** Imiraro yokuhlanganisa nokukhupha • UBuyaphi ubuthelele iimvalo zamabhodlela ezima-413. USolani nakangamnikela iimvalo zamabhodlela ezima 29, uzakuba nenani ezifanako noBuyaphi. - Bazakuba nemuvalo zamabhodlela ezingaki bobabili? - Bekade aneemvalo zamabhodlela ezingaki uSolani ekuthomeni? • UKsk.Masimula uboleke amaranda ama-R80.00 kuKsk. Msiza. UKsk. Masimula usele ngamaranda ama-R366.00. Bekanamalini uKsk. Masimula ekuthomeni? • UMsongelwa ufunda amakhasi ali-115. UTjhejeni ufunda amakhasi ali-126. Ufunde amakhasi amangaki uTjhejeni ukudlula uMsongelwa? • UMbalekwa unamamabula ama-218. Unamamabula ama-97 ngaphasi kewaka-Anna. Unamamabula amangaki u-Anna?	
1.8 Ukuh-langanisa okubuyele-lwako okurholela ekubuy-abuyeleleni	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukubuyabuyelela okunempendulo ufikela e-100.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukubuyabuyelela okunempendulo ufikela e-75.	**Iimbonelo zemiraro engenziwa ethemini le** Qala ezinye iimbonelo zeThemu yoku-1 begodu utjhugulule irherho lenomboro ngefanelo • Umenenjari kufanele a-ode amatayere webhesi abu-8. Nakube ibhesi ngayinye itlhoga amatayere asithandathu nespere, matayere amangaki okufuze bonyana umenenjara awa-ode? • Idanyana lokududa lesikolo libubude bamamithara ali-10. Umenzi ududa ubude beengaba ezisithandathu. Udude wafika kuphi? **Umhlobo womraro : Irhemo** • Isivande somrorho sinamareyi ali-12 weentjalo. Ireyi ngayinye ineentjalo ezi-7. Ziintjalo ezingaki ezikhona ngesivandeni? • Isivande somrorho sinamareyi ali-12 weentjalo. Ireyi ngayinye inenani elifanako leentjalo. Nakube kunenani leentjalo eli- 48, kuneentjalo ezingaki ereyini ngayinye? • Isivande somrorho sineentjalo ezi-48 ezitjalwe ngereyi. Ireyi ngayinye ineentjalo ezi-7. Kunamareyi amangaki? **Ukumadanisa/Iretjhiyo** • UDzubhana unamaswidi asi 6. UDzubhana unamaswidi abuyelelwe kathathu kunewaka uLindokuhle. UMoeketsi unamaswidi amangaki? • UKunubhe unamswidi ali-18. Lokhu kunengi ngokubuyelelwe kathathu ukudlula uDzubhana anakho. UDzubhana unamaswidi amangaki? Umhlobo lo womraro uthulwa kokuthoma ethemini yesi 2. Abafundi bangathatha isikhathi eside ukurarulula imiraro yemihlobo le.	

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1.9 **Uku-buthelela nokukwaba okurholela ekuhlukaniseni**	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqema kweenomboro eziphelelekо ukufika e-100 kanye nempendulo ezingahle zifaka iinsalela	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqema kweenomboro eziphelelekо ukufika e-75 kanye nempendulo ezingahle zifaka iinsalela	**limbonelo zemiraro engenziwa ethemini le** Ziinkoloyi ezingaki ezizotlhogeka ukukhambisa abafundi aba-24 nakube abane bangalingana ekoloyini yinye? Kunamakowusu ama 65 ngelayini. Kunamapara wamakowusu amangaki? **Ukubuthelela** Ukuhlanganisa iinomboro ezinamadijithi amal-3 ngeenye ezinamadijithi ama-3 Ugijimani uthengisa imigodla enamalamune alitjhumi unamal-3 ngodla ngamunye. Unamalamune ama 40. Angazalisa imigodla mingaki? UMsongelwa unamaswidi ama-66. Udla amaswidi ama-3 ngelanga. Uzakudla amaswidi amalanga amangaki?	
1.10 **Ukwabelana okurholela ekuhlu-kaniseni**	Ukurarulula bewuhlathulule iinsombululo zemiraro ephathekako efaka hlangana ukwabelana ngokulingana erholela empendulweni zamafraktjhini wohlavu olulodwa nalayo angenahlavu eyodwa. isib. $\frac{1}{2}, \frac{1}{4}, \frac{1}{5}, \frac{2}{4}, \frac{2}{5}$ njll.	Ukurarulula bewuhlathulule iinsombululo zemiraro ephathekako efaka hlangana ukwabelana ngokulingana erholela empendulweni zamafraktjhini wohlavu olulodwa nalayo angenahlavu eyodwa. isib. $\frac{1}{2}, \frac{1}{4}, \frac{1}{5}, \frac{2}{4}, \frac{2}{5}$ njll.	Ethemini yoku-1 abafundi bathulelwa amafrakhtjhini angakahleleki isib. Amakotara ama-3 nofana uku-2 kokuthathu. **limbonelo zemiraro engenziwa ethemini le** a) Ukwabelana, okurholela emafrakhtjhinini b) Ukwaba amaqa weentina zetjhokoledi abu-8 hlangana kwabangani aba-3 ukuze boke bathole inani elilinganako lamaqa weentina zetjhokoledi begodu akukasali litho c) Ifraktjhini yokubuthelela d) Thola ikotara yi-1 yamaswidi ama-20. e) Amaswidi asi-6 ayifraktjhini yiphi yamaswidi ama-24 f) Ugogo unikela uKiki amaranda ali-R12. Ukiki ufuna ukubulunga okuthathu kwemali. Yimalini okufuze ayibulunge? Umhlobo lo womraro kufuze ibuzwe kuphela ngemuva kokuba abafundi bararulule imiraro emine nofana emihlanu yokwabelana, ukurholela emihlobeni yamafrakhtjhini nokwazi amagama wengcenye zamafrakhtjhini. **Ukutlola** Abafundi akukafuneki bonyana batlole itshwayo lefrakhtjhini. Abafundi baragela phambili ngokulebula ingcenye zamafrakhtjhini njengo 1 kokuhlanu, amakotara ama-3 nofana oku-3 kwesithandathu. **Ukujamela amafrakhtjhini wemiraro yamagama** Abafundi kufanele bagwale iimpendulo zabo ukutjengisa bonyana bazwisisa imiraro. Lindela bonyana abanye abafundi bangagwala kuhle kodwana bahluleka ukubiza ingcenye yefrakhtjhini. Siza abafundi laba ukubiza kuhle amafrakhtjhini ngefanelo (qala amanothi wokutjho amafrakhtjhini ngaphasi kokubala zobujamo obutjhaphulukileko) Abafundi bafanele batjho iingcenye ezabiweko ngokuzitlola njenga- 2 kobuthathu.	

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1.11 Imali	• Ukukhumbula nokubona iinhlavu nemali yamaphepha yeSewula Afrika • Ukurarulula imiraro yemali efaka hlangana inani loke begodu netjhentjhi emaranda namasende • Ukutjhugulula amaRandi namasende	• Ukukhumbula nokubona iinhlavu nemali yamaphepha yeSewula Afrika • Ukurarulula imiraro yemali efaka hlangana inani loke begodu netjhentjhi ngamaranda nofana ngamasende	**Iimbonelo zemiraro engenziwa ethemini le:** • Ubungako bemali nokwenza amanani woke isib. - Ukutlola ama-525c ngamaranda nangamasende. - Kungeendlela ezihlukeneko ezingaki ongenza amaranda ama-R400 usebenzisa imali yamaphepha yodwa? Wazi bunjani bonyana unazo zoke iisombululo? - UThabo una-50c begodu nama-20c amane. Amathofi abiza i-R1,20. uzothola itjhentjhi yamalini? • UMandla ubhadela ama-R2,50 ukukhwela iteksi eya esikoleni. - Kumbiza malini ukuya nokubuya esikoleni ilanga ngalinye? - Isitimela sibiza amaranda asi R6 ukuya nokubuya. Ngiyiphi engabiziko, sitimela nofana yiteksi? • Imiraro yokuthenga nokuthengisa - Ugogo kaPendulo umnikele amaranda ama-R5. Amakuke wetjhokoladi ma-R2,70, amatjhungamu a-R1,80; amaswidi weemzobe amunyu a-R1,40; amaswidi wamaperegisi a-R1,60; amaminti womlingo ama-R2,20; amathofi a-R1,20. Angathenga amaswidi maphi ama 3? - UZumnandi uthenge iincwadi ezintathu ngama-R80 incwadi ngayinye; uzothola itjhentjhi yamalini ma-R300? - Amaphakethe wamaminti ama-5 abiza ama-44c lilinye. UMnu. uMthimunye uthloga amaminti ama-88. Kufanele athenge amaphakethe amangaki? Uzobhadela malini? • Iimbhesi ezintathu zikhamba endleleni ekulu ebhadalelwako begodu zibhadale amaranda ama-R40 ibhesi ngayinye. Babhadela malini nasele zizoke? (kulindeleke bonyana abafundi bazosebenzisa imiraro yokuhlanganisa okubuyelelweko lapho ubungako beranda bubukhulu khona)	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
UBUJAMO BOKUBALA OBUTJHAPHULUKILEKO.				
1.12 Amathek-niki (lindlela nofana am-athekniki)	Ukusebenzisa amathekniki alandelako nakwenziwa iimbalo: • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Amanambalayini • Ukutjhideza ngamatjhumi	Ukusebenzisa amathekniki alandelako nakwenziwa iimbalo: • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Amanambalayini • Ukutjhideza ngamatjhumi	Abafundi balindeleke ukusebenzisa amathekniki alandelako nabenza iimbalo zobujamo obutjhaphulukile: • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Amanambalayini • Ukutjhideza ngamatjhumi Vumela abafundi bona bakhethe ithekiniki ezokwanelisa bona. Noma kunjalo, lokha abafundi basebenzisa amathekhiniki angabanikeli ikghono, kufaneke bayeleliswe ngeendlela zokwenza ezingaba lirhelebho kibo. Qala amanothi wethemini yoku 1 aphathelene no • kwakha nokuphula iinomboro • kubuyelela kabili nokuhafula phakathi; begodu • Amanambalayini **Ukutjhideza ngamatjhumi** Qala ihlathululo esigabeni sokurarulula imiraro sethemini yesi-2.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.13 Ukuh-langanisa nokukhupha	• Ukuhlanganisa ukufikela ema -999 • Ukukhupha ukusuka ema -999 • Ukusebenzisa amatshwayo afaneleko (+, –, =, ☐) • Ukuzijayeza ukulumbana kweenomboro ukufika ema-30	• Ukuhlanganisa ukufikela ema -400 • Ukukhupha ukusuka ema -40 • Ukusebenzisa amatshwayo afaneleko (+, –, =, ☐) • Ukuzijayeza ukulumbana kweenomboro ukufika ema 30	**Ngikuphi okuhlukileko eThemini yesi-2?** Ethemini le abafundi babala ngeenomboro zamadijithi amathathu kokuthoma. Ukuze ubale ngeenomboro zamadijithi amathathu ngokuzithemba, kufanele ukuba sebakghona uku: • Funda nokutlola amatshwayo weenomboro ukufika ema-400; • Hlela begodu umadanise iinomboro ukufika okungasenani ema-400; • bala ngeenqhema ukufika ema-400; begodu • Bala ngeenkhewu zanga 2, 3, 4, 5, 10, 50 begodu ne-100 ukufika ema-400. Ethemini le abafundi baragela phambili ukuphula iinomboro ukuze babale. Ukwakha nokuphula iinomboro kuhlala kungelinye lamaqhinga aqakathekile abafundi abazowasebenzisa ngeThemu le. **Iindlela zamakghono ezenzekako zokutjengisa iimbalo zokuhlanganisa nokukhupha.** • Ukuphula inomboro ngeengcenye ezincani ukwenza ukubala kube lula. Amaqhinga amanengi asetjenziswa bafundi afaka hlangana ukuphula iinomboro. Baragela phambili ukwenza njalo ngeenomboro zamadijithi amathathu. • Ukuhlanganisa ngokuphula inomboro yinye Ukuhlanganisa amadijithi amathathu namadijithi amabili Isibonelo: 324 + 82 = □ 324 + 82 = (300 + 20 + 4) + (80 + 2) = 300 + (20 + 80)+ (4 + 2) = (300 + 100) + 6 = 400 + 6 = 406 **Isibonelo:** Ukuhlanganisa iinomboro ezinamadijithi amathathu nezinye ezinamadiji amathathu Ukuphula iinomboro zombili 323 + 136 = □ 323 + 136 =(300 + 20 + 3) + (100 + 30 + 6) = (300 + 100) + (20 + 30) + (3 + 6) = 400 + 50 + 9 = 459	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.13 Ukuh-langanisa nokukhupha	• Ukuhlanganisa ukufikela ema -999 • Ukukhupha ukusuka ema -999 • Ukusebenzisa amatshwayo afaneleko (+, –, =, ☐) • Ukuzijayeza ukulumbana kweenomboro ukufika ema-30	• Ukuhlanganisa ukufikela ema -400 • Ukukhupha ukusuka ema -40 • Ukusebenzisa amatshwayo afaneleko (+, –, =, ☐) • Ukuzijayeza ukulumbana kweenomboro ukufika ema 30	• Ukuhlanganisa (ngokuphula inomboro ezohlanganiswa) Abafundi bazophula inomboro ngeendlela ezilawulekako kibo. Lokhu kutjho bonyana bazokwenza ngeendlela ezihlukahlukeneko. **Isibonelo** 324 + 82 = ☐ 324 + (40 + 40 + 2) 324 + 40 → 364 + 40 → 404 + 2 = 406 **Isibonelo** 323 + 136 = ☐ 323 + 136 = 323 + (100 + 30 + 6) = (323 + 100) + 30 + 6 = (423 + 30) + 6 = 453 + 6 = 459 Ukubala ngama-40 ukusukela ema-324 kungenziwa ngokubala ngali-10. • Ukukhupha • Ukuphula iinomboro zombili Iinomboro zamadijithi amathathu ukhuphe zamadijithi amabili Isibonelo: 389 – 137 = ☐ 389 – 137 = (300 + 80 + 9) – (100 + 30 + 7) = (300 – 100) + (80 – 30) + (9 – 7) = 200 + 50 + 2 = 252 Ukukhupha ngokuphula inomboro yinye Isibonelo: 389- 137 = ☐ 389 – (100 + 30 + 7) 389- 100 → 289- 30 → 259- 7 = 252 Ukusebenzisa ukuhafula phakathi ukuphula inomboro Isibonelo: 225 + 16 = 225 + 8 +8 = (225 + 8) + 8 = 233 + 8 = 241	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.13 Ukuh-langanisa nokukhupha	• Ukuhlanganisa ukufikela ema -999 • Ukukhupha ukusuka ema -999 • Ukusebenzisa amatshwayo afaneleko (+, –, =, ☐) • Ukuzijayeza ukulumbana kweenomboro ukufika ema-30	• Ukuhlanganisa ukufikela ema -400 • Ukukhupha ukusuka ema -40 • Ukusebenzisa amatshwayo afaneleko (+, –, =, ☐) • Ukuzijayeza ukulumbana kweenomboro ukufika ema 30	• Bala uye phambili begodu nemuva 305 + 298 = ☐ Ukubala uye phezulu ngakunye ukusuka ema-298 kuliqhinga elifaneleko ngombana iinomboro zitjhidelene. • Ukubona Ukubuyelela kabili okuseduze Isibonelo: 145 + 146 = 191 ukuhlathulula bonyana kubuyabuyelela kabili kwe-145 hlanganisa na- 1 nofana ukubuyabuyelela kabili kwe-145 khupha ku-1. 145 + 145 + 1 (100 + 40 + 5) + (100 + 40 + 5) + 1 (100 + 100) + (40 + 40) + (5 + 5 + 1) 200 + 80 + 11 280 + 11 280 + 10 + 1 290 + 1 291 • Tjhugululela inomboro ekubuyabuyeleni ngetjhumi begodu ukhuphe nofana uhlanganise kanye. Bala uye phezulu nofana ubale uye phansi eduze ne 10 Isibonelo: 288 + 11 288 + 10 = 298 298 – 1 = 297 Isibonelo: 188 + 19 188 + 20 = 208 208 – 1 = 207 **Ukuthuthukisa nokujayeza amakghono wokuhlanganisa nokukhupha.** Abafundi kufanele bajayeze imihlobo eminye yamakghono wokuhlanganisa nokukhupha. • Ukujayeza amabhondi ukufika ema 30 • Hlangansa begodu ukhuphe ukubuyabuyelela nge 10 Abafundi kufanele babe namathuba wokwenza imihlobo elandelako yokubala ngeenomboro ezifika ema 400:	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.13 Ukuh-langanisa nokukhupha	• Ukuhlanganisa ukufikela ema -999 • Ukukhupha ukusuka ema -999 • Ukusebenzisa amatshwayo afaneleko (+, –, =, ☐) • Ukuzijayeza ukulumbana kweenomboro ukufika ema-30	• Ukuhlanganisa ukufikela ema -400 • Ukukhupha ukusuka ema -40 • Ukusebenzisa amatshwayo afaneleko (+, –, =, ☐) • Ukuzijayeza ukulumbana kweenomboro ukufika ema 30	Hlanganisa nofa ukhuphe ipara yokubuyabuyelela nge 10, uvkweqela ema- 100 40 + 70 70 + 80 120 – 30 150 – 60 Hlanganisa nofana ukhuphe i-10 ukuya nofana ukusuka kwenye nenye inomboro yamadijithi amabili nofana amathathu, kufaka hlangana ukweqela ema 100.. Isibonelo: 65 + 10 124 + 10 326 - 10 358 - 10 Hlanganisa nofana ukhuphe inomboro enedijithi yinye nofana enomborweni enamadijithi amathathu ngaphandle kokweqela ngematjhumini. Isibonelo: 234 +5 475 + ☐ = 479 768 – 4 Hlanganisa begodu uhlukanise inomboro enedijithi yinye ukuya nokusuka ekubuyabuyeleni nge 100. Isibonelo: 200 + 4 300 + 3 300 - 6 400 - 5 Thoma ukuhlanganisa nokukhupha ipara yokubuyabuyelela nge 100 100 + 100 100 + 200 Abafundi kufanele banikelwe amathuba wokuzijayeza amaphetheni ekuhlanganiseni nekukhupheni. Nangazi bonyana 1+ 1 = 2 Ngakho-ke yini i: 10 + 10 100 + 100	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.13 Ukuh-langanisa nokukhupha	• Ukuhlanganisa ukufikela ema -999 • Ukukhupha ukusuka ema -999 • Ukusebenzisa amatshwayo afaneleko (+, –, =, ☐) • Ukuzijayeza ukulumbana kweenomboro ukufika ema-30	• Ukuhlanganisa ukufikela ema -400 • Ukukhupha ukusuka ema -40 • Ukusebenzisa amatshwayo afaneleko (+, –, =, ☐) • Ukuzijayeza ukulumbana kweenomboro ukufika ema 30	**Ukuhlola imiphumela yokubala** Ukuhlola ukuzwakala kweensombululo Abafundi kufanele babandulwe ukuhlola ukuzwakala kweensombululo. Enye indlela yokwenza lokhu kulinganisa iimpendulo zabo ngaphambi kokubala. Lokha uhlanganisa iinomboro ezimbili ezitjhideleneko isib. i-145 ne-146, abafundi bangasebenzisa ukubuyelela kabili njengendlela yokulinganisa iimpendulo zabo. **Ukuhlola iinsombululo** Abafundi kufanele bazi bonyana banga • Hlola isibalo sokuhlanganisa ngokukhupha. Isibonelo: Nangabe 236 + 18 = 254; bese ama 254 – 18 = 236; begodu • Hlola isibalo sokukhupha ngokuhlanganisa. Isibonelo: 384 – 48 = 336, bese 336 + 48 = 384. Ukusebenzisa itshwayo lokubala eliphekghukileko ukuhlola iinsombululo ngesinye seenzathu zokufundisa ukuhlanganisa nokukhupha ndawonye.	

<table>
<tr><th>IINHLOKO</th><th>IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA</th><th>IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2</th><th>AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA</th><th>UBUDE BESIKHATHI
(eemfundweni ze-iri -1 begodu namaminithi ama -24)</th></tr>
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<td>1.13
Ukuh-langanisa nokukhupha</td>
<td>• Ukuhlanganisa ukufikela ema -999
• Ukukhupha ukusuka ema -999
• Ukusebenzisa amatshwayo afaneleko (+, –, =, ☐)
• Ukuzijayeza ukulumbana kweenomboro ukufika ema-30</td>
<td>• Ukuhlanganisa ukufikela ema -400
• Ukukhupha ukusuka ema -40
• Ukusebenzisa amatshwayo afaneleko (+, –, =, ☐)
• Ukuzijayeza ukulumbana kweenomboro ukufika ema 30</td>
<td>Ethemini le abafundi baragela phambili ngoku:
• sebenzisa nokuzwisisa ilimi lokubuyabuyelela;
• jamela ukubuyabuyelela njengerhemo;
• sebenzisa amatshwayo afaneleko ukurhumutjha imitjho yeenomboro;
• zwisisa bonyana ukuhlanganisa okubuyelweko kungajanyelwa ngokusebenzisa itshwayo lokubuyabuyelela;
• jayeza begodu uzwisise bonyana ukubuyabuyelela kungenziwa ngenye nenye indlela (umthetho nofana ihlelo elihlanakelekako); begodu
• sebenzisa inambalayini ukubonisa iimbalo zokubuyabuyelela begodu ukghone ukuhlathulula ukujanyelwa (imeqo ikhomba bunjani ukuhlanganisa okubuyelelweko)
Abafundi bangaragela phambili ukusebenzisa amarhemo ukutlola ukuhlanganisa okubuyelelweko nemitjho yokubuyabuyelela yeenomboro.
Isibonelo:
Tlola imitjho yeenomboro yokuhlanganisa kabili nokubuyabuye

Imifanekiso esetjenziswe ukuhlathulula ukubuyabuyelela ingavulwa.
Ithebula yokubuyabuyelela ingathulwa. Isibonelo:
<table>
<tr><td>×</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr>
<tr><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
Ukuvuma/ukurhwelela amathebula kungenziwa. Abafundi abakafaneli ukwazi amathebula eGreyidini yesi-3. Umnqopho uselimini, elivumela isithombe sehloko kwesiqhema.</td>
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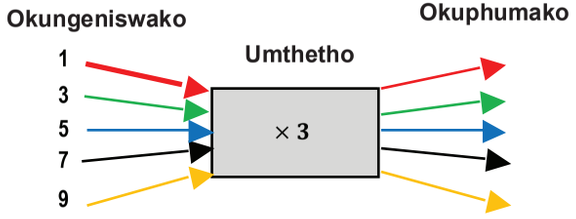
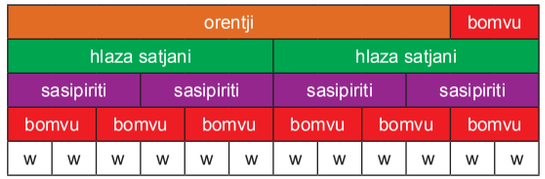
IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.14 Ukuh-langanisa okubuyele-lwako okurholela ekubuy-abuyeleleni	• Buyabuyelela iinomboro ukuya nga-2, 3, 4, 5, 10 kunani le-100. • Ukusebenzisa amatshwayo afaneleko (x, =, ☐)	• Buyabuyelela ukuya nga-2, 4, 5, 10 kunani lama-50 • Ukusebenzisa amatshwayo afaneleko (x, =, ☐)	**Isibonelo:** • okubili ngakunye kubili • okubili ngakubili kune • okubili ngakuthathu sithandathu • okubili ngakune bunane • okubili ngakuhlanu litjhumi • okubili ngasithandathu litjhumi nambili • okubili ngakhomba litjhumi elinakune • okubili ngobunane litjhumi nesithandathu • okubili ngalithoba litjhumi nobunane • okubili ngetjhumi matjhumi amabili Ukukutjho ngalendlela kusekela ilwazi elithuthukiswe ekuhlanganiseni ngokubuyelela. Ukuvuma/ukurhwelela kufanele kusekelwe ngokukhomba ekubaleni ngokulandelana nofana inambalayini. Abafundi bangasebenzisa amatjhadi naneko ukurekhoda amaphuzu wokubuyabuyelela isib. isibonelo  	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.15 Ukuhlu-kanisa	• Ukuhlukanisa iinomboro ukufika kuma-99 nga-1,2,3,4,5,10 • Ukusebenzisa amatshwayo ngefanel (÷, =, ☐)	• Ukuhlukanisa iinomboro ukufika kuma-50 nga-,2,4,5,10 • Ukusebenzisa amatshwayo ngefanelo. (÷, =, ☐)	Ethemini yesibili abafundi baragela phambili ukujayeza nokuhlanganisa ndawonye basebenzisa itshwayo lokuhlukanisa. Kufanele bazwisise bonyana umutjho wokuhlukanisa wenomboro ungahlathulula isimo esifaka hlangana ukubuthelela nofana ukwabelana. **Ngikuphi okuhlukileko kunethemini yoku-1?** Ethemini le abafundi bafanele bakghone ukutlola nokuhlathulula imitjho yokuhlukanisa ekhambelanako: Abafundi bafanele bakghone ukurekhoda okulandelako: 30 ÷ 6 = ☐ begodu ama- 30 ÷ 5 = ☐ Abafundi kufuze godu bathuthukise amaqhinga wokutlola iimbalo zokuhlukanisa. Isibonelo: **Ukukhupha okubuyelelweko** Ukuze babale 12 ÷ 4 = ☐ Abafundi kufuze basebenzise iinthombe ukubonisa iinqhema nokuwabelana. **Isiqhema sinye sanga-4** **Isiqhema sinye sanga-4** **Isiqhema sinye sanga-4** Abela isiqhema sinye sanga-4 godu isiqhema sesibili sanga-4 begodu nesiqhema sesithathu sanga-4. 12- 4 → 8 – 4 → 4- 4 = 0 Njengalokha isiqhema sinye sanga-4 sibekwa ngeqadi abafundi bangakhupha oku-4 kokuthoma begodu babale bonyana banazingaki eziseleko. Baragela phambili ngokwenza lokhu babe bakhuphe koke. Ukugandelela egreyidini yesi-3 kufanele kube sesiqhemeni kunokwabelana. Ukwenza ukukhupha okubuyelelweko ngerherho lenomboro kulungile. Abafundi kuzofanele banikelwe imitjho yokuhlukanisa yeenomboro ukuzalisa evumela ukwenza ukukhupha okubuyelelweko. Ukwenza ukukhupha okubuyelelwe kwa 96 ÷ 3 akusiliqhinga elilungile nofana iqhinga elisebenzako ngombana irherho leenomboro liphezulu khulu. Ekuthomeni kungaba budisi ebafundini ukubona bonyana ngimiphi imitjho yeenomboro (ngiliphi irherho leenomboro) elifaneleko ukwenza ukukhupha okubuyelelweko.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.16 limbalo zehloko	**Umqondo nomboro: Irherho ukufika 999** • Hlela isede enikelweko yeenomboro ezikhethiweko • Madanisa iinomboro ukufika ema-999 begodu utjho bonyana ngiyiphi enengi nofana encani nga 1, 2, 3, 4, 5, begodu ne- 10 **Ukukhumbula msinyana:** • Amaphuzu wokuhlanganisa nokukhupha ukufikela ema-20 • Ukubuyabuyelela nge-10 ngokuhlanganisa nofana ngokukhupha ukusuka e-0 ukufika e-100. • Amaphuzu wokubuyabuyelela begodu nokuhlukanisawoku: • Ithebula lokubuyabuyelela ngaku-2 ukufika ku-2 x 10 • Ithebula lokubuyabuyelengali-10 ukufika ku-10 x 10 **Amaqhinga wokubala** Ukusebenzisa amaqhinga wokubala alandelako: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana uye emuva • Inambalayini • Ukubuyelela nokuhafula • Ukwakha nokuphula • Ukusebenzisa ubudlelwana obuphakathi kokuhlanganisa nokukhupha. • sebenzisa ubudlelwano hlangana kokubuyabuyelela nokuhlukanisa	**Umqondo nomboro: Irherho ukufika e-500** • Hlela isede enikelweko yeenomboro ezikhethiweko. Irherho ukufika ema-500 • Madanisa iinomboro ukufika ema-500 begodu utjho bonyana ngiyiphi enengi nofana encani nga-1, 2, 3, 4, 5, ne 10 **Ukukhumbula msinyana:** • Ukukhumbula amaphuzu wokuhlanganisa nokukhupha ukufika e- 20 • Hlanganisa nofana ukhuphe iimbuyabuyeleli ze-10 ukusukela e-0 ukuya e-100 **Amaqhinga wokubala** Sebenzisa amaqhinga wokubala alandelako: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana uye emuva • Inambalayini. • Ukubuyelela nokuhafula • Ukwakha nokuphula • Ukusebenzisa ubudlelwana hlangana kokuhlanganisa nokukhupha.	**Umqondonomboro** limbonelo zemibuzo engabuzwa: **Amabizo weenomboro namatshwayo** Phakamisa ikarada nofana utlole phasi ibizo lenomboro. Khetha umfundi atlole ukumadaniswa kweenomboro. **Okunengi nofana okumbadlwana** Khuyini: • okuncani ngaku-1 kunama-500 • okunengi ngaku-1 kunama-499 • okunengi ngaku-2 kunama-502 • okumbadlwana ngaku-2 kunama-405 • okunengi ngaku-3 kunama-477 • okumbadlwana ngaku-3 kunama-251 • okumbadlwana ngaku-4 kune-185 • okunengi nge-10 ngama-490 • okumbadlwana nge-10 ngama-660 Ngiyiphi iledere yesi-5 ye-alfabhethi? Ngiyiphi inyanga ye-9 enyakeni? **Ukuhlela nokumadanisa** Ngiyiphi enengi: 621 nofana 671? Nikela inomboro ehlangana ne-154 ne-159. Amaphuzu wokuhlanganisa nokukhupha: Qala amanothi weThemi yoku-1. Hlanganisa nofana ukhuphe ukubuyabuyelela ngali-10 ukusuka e 100. Magadango amangaki okufanele athathwe enambalayini ukusuka e-30 ukufika e-100 nofana ukusuka e-100 ukufika e-50. Thola amapara wamakarada ukwenza i -100. Faka iinomboro ngemabhoksini ukwenza i-100. □ + 70 = 100 20 + □ = 100 100 – □ = 90 100 – 40 = □ **Amaqhinga weembalo** Qala amanothi eThemu yoku-1	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.17 Amafrak-tjhini	• Sebenzisa bewutjho amafraktjhini ajayelekileko akufaka hlangana iinquntu, amakota, iingcenye zangobunane, iingcenye zangobuthathu, iingcenye zangasithandathu, iingcenye zangahlanu • Ukubona amafraktjhini ebujameni obuyidayagremu • Thoma ukubona bonyana iinquntu ezi-2 nofana ubuthathu obu-3 benza kunye okuzeleko nokuthi ihafu yinye namakotara ma-2 ayalingana. Tlola amafraktjhini njengehafu yi-1, ku-2 kwethathu		Ethemini le abafundi baragela phambili uku: • funda amabizo weengcenye zamafraktjhini; • sebenzisa amabizo ngebujameni obuhlukeneko; • fanisa ingcenye yefraktjhini; • thoma ukuzwisisa okuhlobene ngobukhulu; • thola amafraktjhini wezinto; begodu • Funda ngokulingana kwamafraktjhini. Ethemini le abafundi bamadanisa amafraktjhini. • Ukusebenzisa imitletle yamafraktjhini nofana neenlinganiso zeCuisenaire. Isibonelo: Imifuziselo le ilungele ukufundisa abafundi ukutjho amafraktjhini nokuwamadanisa. Isibonelo:  Bonisa itjhadi lamafraktjhini akhombisa oku-1 okupheleko, iinquntu, ubuthathu, amakotara, ubuhlanu, ubuthandathu, ububunane, ubulitjhumi. Kuqakathekile bonyana abafundi basebenze ngensetjenziswa eziphathekako bangamadanisi amafrakhtjhini basebenzisa itjhadi lamafrakhtjhini elineenthombe. Abafundi kufuze basebenzise izinto ngokuzimeda bazimadanise nezinye. Imibuzo elandelako ingabuzwa: • Mangaki amahafu alingana nokupheleleko? • Makotara amangaki alingana okupheleleko? • Makotara amangaki asehafini eyodwa? Vumela abafundi babeke imitletlana magega nayo ukuthola iimpendulo. • Kukunye kwesithathau okungaki okulingana nokuphelelekko? • Kukunye kwesithandathu okungaki okulingana nakunye kwesithathu? • Kukunye kwesithandathu okungaki okulingana nehafu? • Buthandathu obungaki obulungana isiquntu? • Ngiyiphi ekulu, ku-1 kwesithathu nofana ihafu yi-1? • Ngiyiphi ekulu ku-2 kwesithathu nofana amakotara ama-3?	

IGREYIDI YESI-3 ITHEMU YESI-2 2. AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.1 Amapheth-eni weJi-yomethri	**Kopulula, ngezelela begodu uhlathulule** Kopulula, ungezelela begodu uhlathulule ngamagama • amaphetheni alula enziwe ngezinto eziphathekako • amaphetheni alula enziwe ngemigwalo yemida, amajamo nofana izinto **Ukuzakhela amaphetheni wakhe** Ukuzakhela amaphetheni wakhe weJiyomethri ngezinto eziphathekako ngokugwala imida, amajamo nofana izinto **Amaphetheni asizungelezileko** Ukubona , ukuhlathulula ngamagama nokukopulula amaphetheni wejiyomethri • eemvelweni • ebuphilweni bangamalanga banamhlanje • elifeni lamasiko wethu	**Kopulula, ngezelela begodu uhlathulule.** Kopulula, ungezelela begodu uhlathulule ngamagama • amaphetheni alula enziwe ngezinto eziphathekako • amaphetheni alula enziwe ngemigwalo yemida, amajamo nofana izinto **Ukuzakhela amaphetheni wakhe** Amaphetheni alula lapho ubujamo, nofana iinqhema zobujamo zibuyelelwe ngendlela efana poro Amaphetheni lapho inomboro nofana isayizi yamajamo ezingeni ngalinye itjhuguluka ngendlela enebonelo phambili o.u. amaphetheni akhula ngendlela eqhelileko **Ukuzakhela amaphetheni wakhe** Ukuzakhela amaphetheni wakhe wejiyomethri : • ngezinto eziphathekako • ngokugwala imida, amajamo nofana izinto	Ragela phambili ngokunikela abafundi irherho elifanako lamaphetheni njengalawo aseThemini yoku-1, kodwana ufake hlangana woke amajamo amatjha begodu nezinto emaphethenini njengombana kusetjenzwa ngawo kusiKhala nobuJamo. Qala amanothi wamaphetheni weThemu yoku-1 namanothi weSikhala Nobujamo eThemini yesi-2. Vumela abafundi bonyana bakopulule mantanzi, bese bayangezelele emaswapheleni bahlathulule amaphetheni. Njenganje, bafanele bakwazi ukuhlathulula amaphetheni ngaphandle kokurhelejwa imibuzo ebarholako. Ragela phambili nokunqophisa ekuthuthukiseni ilimi abalitlhogako ukuhlathulula amaphetheni.	Isifundo esi-1

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.2 Amaphe-theni weenom-boro **Ukulandela-na kufanele kutjengise ukubala uye phambili ne-muva nga**	**Kopulula, ngezelela begodu uhlathulule** Kopulula, ngezelela begodu uhlathulule ukulandelana kweenomboro okulula ukufika okungasenani e-1 000 **Ukuzakhela amaphetheni** Ukuzakhela amaphetheni weenomboro.	**Kopulula, ngezelela begodu uhlathulule** Kopulula, ngezelela begodu uhlathulule ukulandelana kweenomboro okulula ukufika okungasenani e-150. • **Ukubala uye phambili nemuva nga:** • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 ne-500. • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-500. • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-500. • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku-2 hlangana ne -0 ne-500. • Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne-0 ne-500 • Ku-4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne-0 ne-500 • Ma-20, 25, 50, 100 okungasenani ukufika e-500.	Qala amanothi we Themu yoku- 1, Ngezelela irherho leenomboro nokulandelana kokubala ngendlela elandelako • ngabo ku-1 ukusuka kunanyana ngiyiphi inomboro phakathi kwe-0 nama-500 • ngali-10 ukusuka kunanyana ngikuphi ukubuyabuyelela kwe-10 hlangana kwe -0 nama-500 • ngaku-5 ukusuka kunanyana ngikuphi ukubuyabuyelela kwaka-5 hlangana kwe-0 nama-500. • Ngaku-2 ukusuka kunanyana ngikuphi ukubuyabuyelela kwaka ku-2 hlangana kwe-0 nama-500 • Nge-100 ukusuka kunanyana ngikuphi ukubuyabuyelela ukufika okungasenani e-1000 • Ngama-50 ukusuka kunanyana ngikuphi ukubuyabuyelela kwama-50 ukufika okungasenani e-1000 • Ngaku-3 ukusuka kunanyana ngikuphi ukubuyabuyelela kwaka-3 hlangana kwe -0 nama-500 • ngaku 4 ukusuka kunanyana ngikuphi ukubuyabuyelela kwaka-4 hlangana kwe-0 nama-500 Ukusebenzisa izinto, iinthombe, amathebula namatjhadi naneko ukusekela abafundi ekutjhugulukeni ukusukela ekubaleni ngokweqa begodu nokulandelana ukuya ekubuyabuyeleleni ngali-10, 5, 2, 4. Ukusiza abafundi ukusebenzisa amaphetheni abawaziko njengesisekelo sokuzijayeza begodu nokufunda amanye amaphetheni isib. • Ukulandelana kwabo ku-2 ukubeka isisekelo sokulandelana kwabo ku-4; begodu • Ukulandelana kwabo ku-5 njengesisekelo sokulandelana ngama-50.	Iimfundo ezi-3

IGREYIDI YESI-3 ITHEMU YESI-2 ISIKHALA NOBUJAMO (JIYOMETHRI)				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YOKU-1**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.1 **Ubujamo, ukuzijayeza nokubukela**	**Ubujamo nokubukela** • Madanisa imibono ehlukeneko yezinto ezifanako zangamalanga • Yitjho into yangamalanga lokha nawutjengiswe ihlangothi elingakajayeleki layo. • Funda, rhumutjha begodu ugwale imebhe engakahleleki nofana ukubukeka izinto eziphezulu ezibuthelelweko • Thola izinto emebheni **Ubujamo nekombatjhuba** • Landela iinlayelo ukukhambakhamba ngetlasini nasesikolweni. • Nikela ilayelo zokukhambakhamba ngetlasini nesikolweni • Landela iinlayelo ukususka endaweni enye ukuya kwenye emebheni engakahleleki	**Ubujamo nokubukela** • Madanisa iimbono ehlukahlukeneko yezinto ezifanako zangamalanga • Itjho into yangamalanga lokha nakuvezwa ihlangothi elingakajayeleki layo. **Ubujamo nekombatjhuba** • Landela ikombatjhuba ukukhamabakhamba ngetlasini begodu nesikolweni Nikela ilayelo lokukhambakhamba ngetlasini nesikolweni	**Ngikuphi okuhlukileko eGreyidini yesi-2?** • Akunamnqopho onqophileko wokuthuthukisa ilimi lobujamo, njengombana lokhu kwenziwe eGreyidini yoku-1 neyesi-2. • Landela iinkombatjhuba ezinabako ngokungezelelweko isib.ukukhambakhamba ngesikolweni, kunangetlasini nje. • Nikela iinkombatjhuba zendawo engetlasini nesikolweni. • Imimebhe nokubukelwa okungaphezulu kwezinto ezibuthelelweko, lokhu kIMINQOPHO YETHEMU YESI-3. **Umnqopho ophakanyisiweko weThemu yesi-2** KuThemu yesi-2, kutjhukunyiswa bonyana kubuyekezwe umsebenzi weGreyidi yesi-2 begodu kuhlanganiswe, • Ukubona izinto eziseenthonjeni ezitjengisa ihlangothi elingakajayeleki noku: • Ukulandela iinkombatjhuba zeendawo ezihlukahlukeneko ngaphandle kwetlasi. Thoma ngokuhlola lokho abafundi abakwaziko begodu ukhumbule ubujamo nokuzijayeza **Ubujamo neenkombatjhuba** • Ukulandela iinkombatjhuba Lokhu kufanele kwenziwe ngemisetjenzana ephathekako lapho abafundi bakhambakhamba ngokwabo ngokuya ngeenlayelo. Egreyidini yesi-3 abafundi banganikelwa nofana iinlayelo ngamagama nofana zitlolwe. - Ukukhambakhamba ngetlasini isib.” iza ngaphambili kwetlasi”, “jama hlanu kwesitulo sakho”, “yeqa ngehla komgqomu wenzibi”; begodu - Ukhambakhambe ngetlasini nofana ngesikolweni, o.u: inkombatjhuba ezide, “Khamba uphume emnyango, jikela ngesinceleni, ragela phambili wehlele ngephasitjhi, yeqa itatawu, sewukuphi kwanjesi?	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.1 **Ubujamo, ukuzijayeza nokubukela**	**Ubujamo nokubukela** • Madanisa imibono ehlukeneko yezinto ezifanako zangamalanga • Yitjho into yangamalanga lokha nawutjengiswe ihlangothi elingakajayeleki layo. • Funda, rhumutjha begodu ugwale imebhe engakahleleki nofana ukubukeka izinto eziphezulu ezibuthelelweko • Thola izinto emebheni **Ubujamo nekombatjhuba** • Landela iinlayelo ukukhambakhamba ngetlasini nasesikolweni. • Nikela ilayelo zokukhambakhamba ngetlasini nesikolweni • Landela iinlayelo ukusuka endaweni enye ukuya kwenye emebheni engakahleleki	**Ubujamo nokubukela** • Madanisa iimbono ehlukahlukeneko yezinto ezifanako zangamalanga • Itjho into yangamalanga lokha nakuvezwa ihlangothi elingakajayeleki layo. **Ubujamo nekombatjhuba** • Landela ikombatjhuba ukukhamabakhamba ngetlasini begodu nesikolweni Nikela ilayelo lokukhambakhamba ngetlasini nesikolweni	• Ukunikela iinlayelo. Abanye abafundi bafumana kulula ukunikela iinlayelo ngokutjengisa lokho abakutjhoko. Kwabanye abafundi kuyasiza ukunikela iinkombandlela zemininingwana eqakathekileko. • Yitjho nanyana uragela phambili nofana ukhamba ngekomba oqalane nayo nofana uyajika. • Yitjho nanyana ukhamba bunqopha, ujikela ngesinceleni nofana ujikela ngesidleni. • Yipha iimmerego zalapho ufanele ujike khona isib. Nawuya e-ofisini lakamabhalana ujikela ngesinceleni; begodu itjho bonyana usazokukhamba kangangani. • Yitjho bonyana ukude kangangani.Kuneendlela ezihlukahlukeneko zokutjho bonyana kufanele ukhambe kangangani isib. o Khamba amatriya ama- 30 nofana khamba amamitha ali-10 o Khamba udlula amatlasi ama- 3, nofana bewudlule itlasi likaMnumzana uRhadebe nofana o Khamba isikhathi esingaba mzuzu mu-1. **Ubujamo nokubukela** KuGreyidi yesi-3 abafundi bafanele banikelwe imisetjenzana lapho bangamadanisa khona ukubukelwa okuhlukahlukeneko (bukela ukusukela phezulu, bukela ukusuka emaqadi, bukela ukusuka ngaphambili) kwezinto ezihlukahlukeneko zangamalanga. Ekugcineni lokhu kuzokusiza abafundi bonyana barhumutjhe imigwalo yezinto zeJiyomethri ezenziwe ngemibono ehlukahlukeneko. Abafundi kufanele begodi banikelwe imisetjenzana lapho bazokubona izinto eenthombeni ezigwalweko, nofana ezithethwe ebujameni obungakajayeleki, isib. ukubukeka kwelingaphezulu lekomo, nofana ingaphambili lebhorsolo yamazinyo.	limfundo ezi-2

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.2 **Izinto ezi-busontathu (3-D)**	**Irherho lezinto** Ukubona nokutjho izinto ezi 3-D ezingetlasini neenthombeni • Amajamo webhola (iindulungu) • Amajamo webhoksi (amaphrizimu) • Amasilinda • Iphiramidi • Iinkurwana (Amakhowuni) **Amatshwayo wezinto** Ukuhlathulula, ukubeka ngeengaba nokumadanisa izinto ezi 3-D ngokuya: • amajamo we 2-D enza ubuso bezinto za3-D • ilingaphandle elithabaleleko nofana eligobeneko **Imisetjenzana enqotjhiweko** • Tjheja begodu wakhe izinto za 3-D ezinikelweko ngokusebenzisa amamathiriyeli aphathekako njengamajamo wa 2-D asikiweko, umdaka/ibumba, iimbangulimazinyo, iphayiphi lokusela nezinye izinto za 3-D zeJiyomethri	**Irherho lezinto** Ukubona nokutjho izinto ezi 3-D ezingetlasini neenthombeni • Amajamo webhola (iindulungu) • Amajamo webhoksi (amaphrizimu) • Amasilinda **Amatshwayo wezinto** Ukuhlathulula, ukubeka ngeengaba nokumadanisa izinto ezi 3-D ngokuya: • amajamo we 2-D enza ubuso bezinto za3-D • ilingaphandle elithabaleleko nofana eligobeneko **Imisetjenzana enqophiweko** • Tjheja begodu wakhe izinto za 3-D ezinikelweko ngokusebenzisa amamathiriyeli aphathekako njengamajamo wa 2-D asikiweko, umdaka/ibumba, iimbangulimazinyo, iphayiphi lokusela nezinye izinto za 3-D zeJiyomethri **Irherho lamajamo** • Iindulungu • Abocantathu • Iinkwere • Aboncande **Amatshwayo wamajamo** Ukuhlathulula,ukubeka ngeengaba nokumadanisa izinto ezinamajamo abobusobubili 2-D ngokuya nga: • Amajamo • Amahlangothi anqophileko Amahlangthi andulungeleko	**Ngikuphi okuhlukileko kuneGreyidi yesi-2?** • Abafundi abasaqali bonyana izinto zingagedeka nofana zingatjhelela; baqala bonyana ingaphezulu nofana ilingaphandle lithabalele nofana ligobeneko. • Lapho okunezinto ezinelingaphandle ngaphezulu elithabaleleko neligobeneko, abafundi baqala kobana ilingaphandle leli lizinkwere, liboncantathu, liboncande nofana liyindulungu. • Amakhowuni nama phiramidi ayathulwa (Lokhu kungaba mnqopho weThemu yesi-3 begodu neye-4). **Umnqopho ophakanyisiweko weThemu yesi-2** Abafundi basebenza ngezinto ezifanako njengombana bebenza eGreyidini yesi-2 o.u. • Iimbholo nezinto ezibumbeke njengembholo; • Amasilinda nezinto ezinobujamo bebumbeko lamasilinda; • Amabhoksi ahlukahlukeneko begodu nezinye izinto ezinobujamo obufana nobukancande, ncantathu, phrizimu nofana amakhyubhu. Abafundi banganqopha ezintweni ezitjha (amaphiramidi namakhowuni) kuThemu yesi-3 begodu ne-4. **Ukukhumbula nokutjho amagama weembholo (indulungu) namabhoksi (iphrizimu) namasilinda** • Abafundi baragela phambili nokutjho amagama, nokuhlela neengaba, nokubuthelela izinto. Abafundi bafanele banikelwe izinto ezihlukahlukeneko abazokusebenza ngazo: • Ezinobujamo obufana neendulungu, isib. iimbholo ezihlukahlukeneko ngamasayisi, amamabula, amalamune njll. nofano • Ezinobujamo obufana nephrizimu isib. amabhlogo, iintina, amabhoksi ahlukahlukeneko ngamasayizi, amabhoksi womlilo,amabhoksi wamaseriyeli, amabhoksi weentiye, amabhoksi weensibha zamazinyo; begodu • Ezinobujamo obufana namasilinda, ukufaka hlangana namasilinda amade namatsikana isib.intokana zamaphayiphi anobujamo besilinda, amabhoksi wamathawula agedekako wangekhwitjhini namkha amaphepha wangendlini yokuphumela, isib amabhlegana wephortjhi yamanyathelo, amabhlegana weeneyifu. Abafundi bangathola izinto ezinobujamo beembholo (indulungu), nofana ezinobujamo bebhoksi (iphrizimu) nofana ezinobujamo obufana nebesilinda nebanikelwe izinto ezibuthelelweko ukukhombisa ubujamo bazo. Abafundi bangathola nofana bakhombise izinto ezinobujamo bamabhoksi (iphrizimu) ezingatlasini isib. “Lokho zingaba njengamatamati nofana ezizindulungu nfana ezinobujamo besilinda”. Ngesikhathi sabafundi sokuzijamela bangaragela phambili benze iimbholo namasilinda begodu namajamo wamabhoksi (amaphrizimu) avela emdakeni nofana emdakeni wokudlala.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.2 **Izinto ezi-busontathu (3-D)**	**Irherho lezinto** Ukubona nokutjho izinto ezi 3-D ezingetlasini neenthombeni • Amajamo webhola (iindulungu) • Amajamo webhoksi (amaphrizimu) • Amasilinda • Iphiramidi • Iinkurwana (Amakhowuni) **Amatshwayo wezinto** Ukuhlathulula, ukubeka ngeengaba nokumadanisa izinto ezi 3-D ngokuya: • amajamo we 2-D enza ubuso bezinto za3-D • ilingaphandle elithabaleleko nofana eligobeneko **Imisetjenzana enqotjhiweko** • Tjheja begodu wakhe izinto za 3-D ezinikelweko ngokusebenzisa amamathiriyeli aphathekako njengamajamo wa 2-D asikiweko, umdaka/ibumba, iimbangulimazinyo, iphayiphi lokusela nezinye izinto za 3-D zeJiyomethri	**Irherho lezinto** Ukubona nokutjho izinto ezi 3-D ezingetlasini neenthombeni • Amajamo webhola (iindulungu) • Amajamo webhoksi (amaphrizimu) • Amasilinda **Amatshwayo wezinto** Ukuhlathulula, ukubeka ngeengaba nokumadanisa izinto ezi 3-D ngokuya: • amajamo we 2-D enza ubuso bezinto za3-D • ilingaphandle elithabaleleko nofana eligobeneko **Imisetjenzana enqophiweko** • Tjheja begodu wakhe izinto za 3-D ezinikelweko ngokusebenzisa amamathiriyeli aphathekako njengamajamo wa 2-D asikiweko, umdaka/ibumba, iimbangulimazinyo, iphayiphi lokusela nezinye izinto za 3-D zeJiyomethri **Irherho lamajamo** • Iindulungu • Abocantathu • Iinkwere • Aboncande **Amatshwayo wamajamo** Ukuhlathulula,ukubeka ngeengaba nokumadanisa izinto ezinamajamo abobusobubili 2-D ngokuya nga: • Amajamo • Amahlangothi anqophileko Amahlangthi andulungeleko	**Umnqopho wamatshwayo wezinto zaka 3-D : ingaphezulu elithabaleleko nofana ingaphandle eligobekileko** • Yakha amabumbeko wezinto ezinobujamo ba 3-D. Abafundi basebenzisa amabhoksi weenkwere nofana aboncande, aboncantathu, ukwenza ibhoksi. Lokhu kwenza abafundi banqophe emajameni wengaphezulu elithabaleleko. Abafundi baqala amajamo welingaphezulu elithabaleleko nofana eligobeneko isb. Iindulungu (iphrizimu) namasilinda bahlathulule ubujamo bazo ngokuya ngokuthi yindulungu, lisikwere, nguncantathu nofana nguncande. • Iingaphezulu nofana iingaphandle elithabaleleko nofana eligobeneko. Ukwakha ibhoksi (iphrizimu) kusiza abafundi bonyana banqophe kulingaphezulu elithabaleleko lezinto. Abafundi bangaqala bonyana ngabe zoke izinto eziyiJiyomethri zinelingaphezulu elithabaleleko kwaphela na? KuGreyidi yoku-1 neGreyidi yesi-2, abafundi bahlukanisa izinto zeJiyomethri ezigedekako nalezo ezitjhelelako. Lokhu kulingiselela abafundi ukubona banqophe ekuthini ilingaphezulu lithabaleleko (izinto ezitjhelelako) nofana ezigobeneko (izinto ezigedekako). Amasilinda anelingaphezulu elithabaleleko begodu anelingaphezulu eligobeneko. **Imisetjenzana etlolwako** Nanyana imisebenzi eminengi yezinto zabo 3-D zenziwe ngokuphathekako, umsebenzi ufanele uhlanganiswe ngokutlola imisetjenzana. Umnqopho we-Greyidi 3 ufanele ube sekubizeni izinto ngamagama begodu kucoca bonyana ingaphezulu lazo nofana ingaphandle lazo libunjani. Akukalindeleki bonyana abafundi babale nofana bazi inani leenkwere, laboncande, laboncantathu, leendulungu nofana ilingaphezulu nelingemaqadi elinazo. **ILimi** Ikghono elisetjenziswako zelimi ukucoca ngezinto zabo 3-D: Ilingaphezulu elithabaleleko, eligobeneko, amabhoksi, iimbholo, amasilinda.	limfundo ezi-3

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.3 **Amajamo abobusobu-bili (2-D)**	**Irhemo lobujamo** • Iindulungu • Aboncantathu • Iinkwere • Aboncande **Amatshwayo wobujamo** Ukuhlathulula, ukubeka ngeengaba, nokumadanisa amajamo abo 2-D ngokuya nga: • majamo • mahlangothi anqophileko • mahlangothi andulungileko **Gwala amajamo** • iindulungu • aboncantathu • iinkwere • aboncande		Awukho umnqopho otjhukunyisiweko onqophe emajameni we 2-D kuThemu yesi-2. Nanyana abafundi bangahlanganisa lokho abakufundileko ngokutjheja nokutjho amagama wamajamo wa 2-D eThemini yesi-2, ngokwenza imisetjenzana etlolwako ngesikhathi sabafundu sokuzijamela.	
3.4 **Isimethri**	**Isimethri** • Tjheja begodu ugwale umuda wesimethri ngamajamo we 2-D wejiyomethri naleyo okungasiyo yeJiyomethri • Khetha nofana jamisa umuda wesimethri abhincwako iphepha nangokubonisa godu.	**Isimethri** • Khetha umuda wesimethri ngokubhinca amaphepha nokubonisa	**Ngikuphi okutjha eGreyidini yesi-3?** • Thola umuda wesimethri ngokubhinca amaphepha nokubonisa. Umsetjenzana wokubhinca amaphepha othuthukisa ukuzwisisa kwesimethri kufaka hlangana: • imisetjenzana lapho kuthelwa ipende emanzi ephepheni ngaphambi kokuba libhincwe; begodu • imisetjenzana lapho iphepha lisikwa nofana lidatjulwa emudeni obhinciweko Lemisetjenzana ingenziwa esifundweni seeMbalo nezifundweni zamakghono wepilo. Bawa abafundi babonela bonyana phambili ngimaphi amajamo abazowathola nabangathabulula nofana baqunta iphepha. Lokhu kusiza ukubabandula ekghonweni labo lokubona ngelihlo lengqondo amajamo wesimethri.	limfundo ezi-2

IGREYIDI YESI- 3 ITHEMU YESI- 2 4. UKUMEDA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.1 Isikhathi	**Ukutjho isikhathi** • Ukufunda amalanga emakhalendeni • Ukubeka amalanga wamabeletho, amafestivali wezekolo, amaholideyi womphakathi, iminyanya yezomlando, izehlakalo zesikolo ezisekhalendeni. • Ukutjho isikhathi sama-iri ali-12 ngama - -iri, - ngesiquntu sama-iri - ngekotara yama-iri - amaminithi ewatjhini ze-analogo neenwatjhi zedijithali begodu nezinye iintlabagelo zedijithali ezitjengisa isikhathi, isib. abomaliledinini **Ukubala ubude besikhathi nokudlula kwesikhathi** Ukusebenzisa amakhalenda ukubala nokuhlathulula ubude besikhathi ngamalanga nofana ngeemveke nofana iinyanga ukufaka hlangana - ukutjhugulula hlangana kwamalanga neemveke - ukutjhugulula hlangana kweemveke neenyanga Sebenzisa amawatjhi ukubala ubude besikhathi ngama-iri nofana isiquntu sama-iri.	**Ukutjho isikhathi** • Ukufunda amalanga emakhalendeni • Ukubeka amalanga wamabeletho, amafestivali wezekolo, amaholideyi womphakathi, iminyanya yezomlando, izehlakalo zesikolo ezisekhalendeni. • Ukutjho isikhathi sama-iri ali-12 ngama - -iri, - ngesiquntu sama-iri - ngekotara yama-iri - amaminithi ewatjhini ze-analogo neenwatjhi zedijithali begodu nezinye iintlabagelo zedijithali ezitjengisa isikhathi, isib. abomaliledinini **Ukubala ubude besikhathi nokudlula kwesikhathi** Ukusebenzisa amakhalenda ukubala begodu nokuhlathulula ubude besikhathi ngamalanga nofana ngeemveke nofana iinyanga ukufaka hlangana • Ukusebenzisa amawatjhi ukubala ubude besikhathi ngama-iri nofana isiquntu se-iri	Abafundi baragela phambili ukuzijayeza ukukhuluma ngobude besikhathi begodu nangokulandelana kwesikhathi. Ngesikhathi sokufundisa itlasi loke begodu nesikhathi sokunqopha esiqhemeni, abafundi baragela phambili nokukhuluma ngamalanga weveke, iinyanga zonyaka begodu nelanga lamhloko, nangamalanga angaphambili begodu namalanga ezako. Abafundi baragela phambili ngokubeka okulandelako ekhalendeni njengombana izehlakalo zivela • amalanga wamabeletho • amafestivali wezekolo • iminyanya yezomlando, • izehlakalo zesikolo • amaholideyi womphakathi Ragela phambili ngokubawa abafundi bonyana batjho isikhathi ngokuya ngama-iri, iinquntu zama-iri begodu nekotara yama-iri ewatjhini ye-analogo njalo ngesikhathi sokuphumula ngamalanga.Qala amanothi aseThemini yoku-1. **Isikhathi sedijithali** Sebenzisa okungasenani iimfundo ezi-2 ubuyekeza ukufunda isikhathi ewatjhini yedijithali. Qala amanothi weThemu yoku-1. Ngesikhathi sokusebenza ngokuzijamela abantwana baragela phambili nokwenza umsebenzi ophathelene nokutjho isikhathi: • ngama-iri, isiquntu sama-iri begodu nekotara yama-iri asewatjhini ye-analogo; begodu • ngama-iri begodu nangamaminithi ewatjhini yedijithali. Abafundi bangabala ngeemveke nofana ngamalanga nabanganikelwa ikhalenda nofana isigaba sekhalenda, isib. Ukufunyana amalanga begodu nokubala umahluko wesikhathi ohlangana naso.	limfundo ezi-2

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.2 Ubude	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu nokurekhoda ubude ngokusebenzisa iimedo ezingakahleleki, isib. ubude besandla, amagadango, ubude bamapensela, izinto zokubala, njll • Ukuhlathulula ubude bezinto ngokubala begodu nokutjho bonyana zinobude obungangani bamayunithi angakahleleki • Ukusebenzisa ilimi ukukhuluma ngokumadanisa, isib. ubude, ubufitjhani, mude khulu , banzi khulu **Ukwethula ukumeda okuhlelekileko** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu nokurekhoda ubudengokusebenzisa amamitha (iintonga ezimamitha nofana iintambo ezinobude bemitha) njengomuvosimedo ojayelekileko. • Ukulinganisa nokumeda ubude ngamasenthimitha ngokusebenzisa irula. Alikho itjhuguluko elenzeka hlangana kwamamitha namasenthimitha	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu nokurekhoda ubude ngokusebenzisa iimedo ezingakahleleki, isib. ubude besandla, amagadango, ubude bamapensela, izinto zokubala, njll • Ukuhlathulula ubude bezinto ngokubala begodu nokutjho bonyana zinobude obungangani bamayunithi angakahleleki • Ukusebenzisa ilimi ukukhuluma ngokumadanisa, isib.ubude, ubufitjhani, mude khulu , banzi khulu **Ukwethula ukumeda okuhlelekileko** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu nokurekhoda ubudengokusebenzisa amamitha (iintonga ezimamitha nofana iintambo ezinobude bemitha) njengomuvosimedo ojayelekileko.	**Ngikuphi okuhlukileko kuneGreyidini yesi-2?** EGreyidini yesi-2 abafundi • banqopha ekumedeni okungakahleleki ngamayunithi wobude obungakahleleki; begodu • bathulelwa ukumeda ngamamitha. EThemini yesi-2 yeGreyidi yesi-3 abafundi bangaragele phambili ngokumeda okungakahleleki ngokusebenzisa amayunithi angakahleleki begodu nokumeda ngamamitha. EThemini yesi-3 bangathoma ukumeda ngamasenthimitha ngokusebenzisa irula. **Ukulinganisa, ukumeda, ukumadanisa nokurekhoda ubude, ukuphakama begodu nobubanzi ngokusebenzisa amayunithi angakahleleki wobude.** Abafundi bangafunda zoke iinkambisolawulo neenkambiso zokumeda ngokusebenzisa amayunithi angakahleleki. Ukumeda ngamayunithi angakahleleki kufanele bonyana kungaqaleki kwanga akukaqakatheki kunokumeda ngamayununthi ahlelekileko. Ukumeda ubude ngamayunithi angakahleleki kufaka ukubala bonyana mangaki amayunithi akhethiweko anobude obufana nezinto ezimedwako. Isib, Ubude bedeski bububude bezandla ezi-8. Abafundi bafanele bamede izinto ezihlukahlukeneko ngokusebenzisa Izinto ezihlukahlukenekonjengamayunithi angakahleleki. Kuneendlela ezintathu zokusebenzisa amayunithi angakahleleki: • Ukubeka ngereyi buvundla into emedwako, izinto ezinengi zobude obulinganako, njengamabhoksana womlilo, iimvadlwana zamabhodlela ezinobujamo obufana patsi nofana izinto zokubala, amapensela amatjha, njll. Isibonelo, ukumeda ububanzi bedeski, amapensela amatjha angabekwa ngokulandelana ukusuka ekuthomeni ukufika ekugcineni avundle itafula. Lapha kuqakathekile bonyana - zoke izinto zinobude obulinganako. Angekhe utjho bonyana incwadi yakho ibubanzi beemuvalo zamabhodlelo webisi ali-12 nangabe iimvalo zamabhodlelo zinobukhulu obungalinganiko, isib. Iimvalo zamabhodlelo webisi ezimalitha ama-2, iimvalo zamabhodlelo wenamaneyidi weplastiki, iimvalo zamabhodlelo wesimbi, njll; begodu - Akunaankhala ezitjhiywa hlangana nezinto : zifanele zipakelwe ngokulandelana ukuze zithintane	

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4.2 Ubude	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu nokurekhoda ubude ngokusebenzisa iimedo ezingakahleleki, isib. ubude besandla, amagadango, ubude bamapensela, izinto zokubala, njll • Ukuhlathulula ubude bezinto ngokubala begodu nokutjho bonyana zinobude obungangani bamayunithi angakahleleki • Ukusebenzisa ilimi ukukhuluma ngokumadanisa, isib. ubude, ubufitjhani, mude khulu , banzi khulu **Ukwethula ukumeda okuhlelekileko** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu nokurekhoda ubudengokusebenzisa amamitha (iintonga ezimamitha nofana iintambo ezinobude bemitha) njengomuvosimedo ojayelekileko. • Ukulinganisa nokumeda ubude ngamasenthimitha ngokusebenzisa irula. Alikho itjhuguluko elenzeka hlangana kwamamitha namasenthimitha	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu nokurekhoda ubude ngokusebenzisa iimedo ezingakahleleki, isib. ubude besandla, amagadango, ubude bamapensela, izinto zokubala, njll • Ukuhlathulula ubude bezinto ngokubala begodu nokutjho bonyana zinobude obungangani bamayunithi angakahleleki • Ukusebenzisa ilimi ukukhuluma ngokumadanisa, isib.ubude, ubufitjhani, mude khulu , banzi khulu **Ukwethula ukumeda okuhlelekileko** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu nokurekhoda ubudengokusebenzisa amamitha (iintonga ezimamitha nofana iintambo ezinobude bemitha) njengomuvosimedo ojayelekileko.	• Sebenzisa izinto ezimbili ezifana poro njengamayunithi angakahleleki. Beka into hlanu kwenye, begodu ubeka yokuthoma ngale kweyesibili. Lokhu kwenziwa nakusimedwa ngobude bezandla, ubude benyawo nofana amagadango. • Sebenzisa izinto ezimbili ezifana poro njengamayunithi angakahleleki. Beka yinye hlanu kwenye, bese ukhambisa yokuthoma uyise kelinye ihlangothi lesibili. Lokhu kwenziwa nakumedwa ngobude besandla, ubude benyawo nofana amagadango Ukusebenzisa into eyodwa kwaphela njengesimedo esingasisezingeni begodu ngokuyigeda nofana ukumerega lapho iphelela khona ngaphambi kokuyitjhelelisa. Abafundi bafanele bafundiswe ukutjho iyunithi, isib. Incwadi inobubanzi beemuvalo zebhodlelo ezi-12, ikumba yokufundela inobude obumagadango ama-38. Lokha abafundi nasele bamede ngananyana ngiyiphi iyunithi amahlandla ambala, bafanele balinganise bonyana ingaba nobude obungangani beyunithi into efanele imedwe. Ukulinganisa ngaphambi kokumeda kuqakathekile, kodwana kungenziwa kwaphela lokha abafundi nabenze ukumeda ngeyunithi leyo. Abafundi bafanele bafundiswe bonyana ukuze bakwazi ukumadanisa ubude, ukuphakama nanyana ububanzi iyunithi efana poro ifanele isetjenziswe. Isib.nangabe ububanzi bomnyango omedweko bububude besandla obu-20 begodu ububanzi bedeski bububude bamapensela a-8, angekhe utjho bonyana umnyango ubanzi kunedeski. Abafundi bafanele bamede ngamayunithi angakahleleki ahlukahlukeneko, ukuze bakghone • ukuthoma ukuzwisisa bonyana lokha iyunithi nayiyincani , izokusetjenziswa amahlandla amanengana ,isib. ububanzi bekumba yokufundela bungaba magadango ama-20 kodwana kube bubude beenyawo obuma-48. • Thoma ukusebenzisa amayunithi afanele lokho abakumedako, isib. ukumeda ububanzi bekumba yokufundela ngeemuvalo zamabhodlelo kukumorosa isikhathi.	

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4.2 Ubude	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu nokurekhoda ubude ngokusebenzisa iimedo ezingakahleleki, isib. ubude besandla, amagadango, ubude bamapensela, izinto zokubala, njll • Ukuhlathulula ubude bezinto ngokubala begodu nokutjho bonyana zinobude obungangani bamayunithi angakahleleki • Ukusebenzisa ilimi ukukhuluma ngokumadanisa, isib. ubude, ubufitjhani, mude khulu , banzi khulu **Ukwethula ukumeda okuhlelekileko** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu nokurekhoda ubudengokusebenzisa amamitha (iintonga ezimamitha nofana iintambo ezinobude bemitha) njengomuvosimedo ojayelekileko. • Ukulinganisa nokumeda ubude ngamasenthimitha ngokusebenzisa irula. Alikho itjhuguluko elenzeka hlangana kwamamitha namasenthimitha	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu nokurekhoda ubude ngokusebenzisa iimedo ezingakahleleki, isib. ubude besandla, amagadango, ubude bamapensela, izinto zokubala, njll • Ukuhlathulula ubude bezinto ngokubala begodu nokutjho bonyana zinobude obungangani bamayunithi angakahleleki • Ukusebenzisa ilimi ukukhuluma ngokumadanisa, isib.ubude, ubufitjhani, mude khulu , banzi khulu **Ukwethula ukumeda okuhlelekileko** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu nokurekhoda ubudengokusebenzisa amamitha (iintonga ezimamitha nofana iintambo ezinobude bemitha) njengomuvosimedo ojayelekileko.	**Ukulinganisa, ukumeda, ukumadanisa begodu nokurekhoda ubude, ububanzi begodu nokuphakama ngokusebenzisa amamitha.** Abafundi bafanele bahlanganise ukuzwisisa kwabo kobude bemitha yi-1, begodu basebenzise ubude bemitha ukumeda okuthileko. Lokhu kwenzeka kuhle khulu nangabe abafundi bameda ngesitlabagelo esinobude bemitha yi-1 (njengemitha yerula; isigodo esiquntwe saba yimitha yi-1 nofana intambo enobude bemitha). Ukubona imitha yi-1 isiza abafundi ukwakha umfanekiso wokobana singangani isilinganisa semitha. Kuyakghonakala ukumeda ubude bamamitha ngevilo elitjhovwako eliyithrendlili, kodwana akusilula ukubona ubude bemitha. Abafundi bangathola izinto ezinobude bemitha yi-1 tere. Kuyasiza ukuba nezinto ongaqala kizo njengeemadanisi, isib. ububanzi bomnyango begodu nokuphakama wefesidere kanengi kuba yimithayi-1. Lokhu kusiza abafundi bonyana basebenzise ubude/ ububanzi lobu abangabubona ukulinganisa ubude nezine izinto abazimedako. Abafundi bafanele balinganise ngaphambi kwaleso naleso isimedo. Abafundi bangathola izinto ezingaba zide nofana zifitjhani kunemitha e-1. Abafundi bangameda imihlobo ehlukahlukeneko yobude ngamamitha. Kufanele kumadaniswe ubude obuhlukahlukeneko. **Ukurekhoda iimedo** Nanyana ukumeda kulikghono lokuzijayeza ukwenza, abafundi bafanele barekhode iimedo zabo ngaso soke isikhathi(ngawo womabili amayunithi angakahleleki begodu na mamitha) **Ukumeda ubude njengobujamo bokurarulula imiraro begodu nokubala** Ngesikhathi esibekelwe linomboro, ama-Opheratjhini noBudlelwana, abafundi bangararulula imiraro esebenzisa ubujamo: • bobude besimedo esingakahleleki, begodu • bokumeda amamitha ngobude Yelela irherho lenomboro elifaneleko leThemu, nemihlobo yemiraro ehlukahlukeneko efaneleko yeThemu.	Iinfundo ezi-2

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4.3 Ubungako/ Ubudisi	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela, begodu nokurekhoda ubungako, ngokusebenzisa iimedo ezingakahleleki begodu nesikala sokudzimelela isib. amabhlogo, iintina njll. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib.lula, budisi, lula-khulu, budisi-khulu. **Ukwethula ukumeda okuhlelekileko** • Ukumadanisa, ukuhlela begodu nokurekhoda ubungako bezinto ezipakelwa ukuthengiswa ezinobungako obutjengiswe ngamakhilogremu, isib. amakhilogremu ama-2 wereyisi begodu nekhiligremu li-1 leflowuru nofana amagremu isib. ama-500 wamagremu wetswayi • Ukumeda ubungako babo ngamakhilogremu ngokusebenzisa isikala sokumeda sangendlini yokuhlambela • Alikho itjhuguluko elenzeka hlangana kwamamilimitha namalitha	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu nokurekhoda ubungako, ngokusebenzisa iimedo ezingakahleleki begodu nesikala sokudzimelela isib. amabhlogo, iintina njll. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib.lula, budisi, lula-khulu, budisi-khulu. **Ukwethula ukumeda okuhlelekileko** • Ukumadanisa, ukuhlela begodu nokurekhoda ubungako bezinto ezipakelwa ukuthengiswa ezinobungako obutjengiswe ngamakhilogremu, isib. amakhilogremu ama-2 wereyisi begodu nekhilogremu li-1 leflowuru nofana ngamagremu, isib. amagremu ama-500 wetswayi • Lapho okuneenkala zangeendlini yokuhlambela abafundi bangameda ubungako babo ngamakhilogremu ngokusebenzisa sona • Lapho okuneenkala zangendlini yokuhlambela, abafundi bangameda ubungako babo ngamakhilogremu kusetjenziswa isikala sangendlini yokuhlambela. Okulindelekileko kukobana abafundi bafunde kwaphela ukufikela emudeni omediweko oseduzana • Bahlathulula ubungako babo njengokuthi pheze, / eduze / okutjhideleneko/okunengana kuna/ pheze kube/ nofana inomboro poro (yamakhilogremu) bafunda ubungako bamamitha. • Lapho okuneenkala zokudzimelelisa ubungako beengcezu ezithalelwe ngamagremu, abafundi bangameda ubungako bezinto ezihlukahlukeneko Alikho itjhuguluko elenzeka hlangana kwamagremu namakhilogremu	**Ngikuphi okuhlukileko egreyidini yesi-2?** EGreyidini yesi-2 abafundi banqopha ekumedeni okungakahleleki ngamayunithi angakahleleki wobungako. Abafundi basebenzisa isikala sokumeda ukwenza lokhu. Bathome ngokusebenza ngamakhilogremu. Bahlela imikhiqizo yangamalanga enobungako obutlolwe ngamakhilogremu. Bafunda ubungako bayo eenkaleni zangendlini yokuhlambela. **Ukumeda ubudisi obungakahleleki ngokusebenzisa isikala sokumeda begodu amayunithi wokumeda angakahleleki.** Abafundi bangafunda zoke iinkambisolawulo begodu nekambiso yokumeda ngokusebenzisa amayunithi angakahleleki. Ukumeda ngamayunithi angakahleleki kufanele kungathathwa njengokunyazekako kunokumeda ngamayunidi ahlelekileko.Abafundi bangahlanganisa amakghono wabo wokumeda ngokwenza obunye ubungako bokumeda obungakahleleki ngamayunidi angakahleleki. Isikala sokuthengwa singasetjenziswa. Nawunganaso isikala sokuthengwa, ungazenzela ngokuhlanganisa kubili kwalokhu okulandelako ehenghereni yejasi: ikopi leyogathi, ingaphasi lebodlelo eliquntiweko limalitha ama-2, ingaphasi lebhodlelo eliquntiweko lelitha yi-1 yebisi nofana ibhoksi lesiselo esimakhaza (iimumathi ezifanako zibotjhelelwa emahlangothini wehanghera yejasi). Ukumeda ubungako ngamayunithi angakahleleki kufaka hlangana ukubala bonyana mangaki amayunithi akhethiweko afanako ngobujamo njengento emedweko. Isib : irula inobungako obulingana namabhulogo ali-9. Abafundi bafanele bamede izinto ezihlukahlukeneko ngokusebenzisa izinto ezihlukeneko njengamayunidi angakahleleki. Abafundi bafanele bafundiswe ngaso soke isikhathi ukutjho iyunidi nabanikele ubungako, isib. Incwadi inobungako bamamabula ama-34. Lokha abafundi nasele bamede ngananyana ngiyiphi iyunidi amahllandla ambalwa, bafanele balinganise bonyana mayunidi angaba mangaki angaba nobungako obulinganako nento emedwako. Ukulinganisa ngaphambi kukumeda kuqakathekile, kodwana kungenziwa nangabe abafundi bakhe bameda ngeyunidi leyo. Abafundi badinga ukufundiswa bonyana ukuze umadanise ubungako bezinto ezihlukahlukeneko,kusetjenziswa iyunidi efanako. Isibonelo, nangabe irula inobungako bamabhulogo ama-20 begodu isikere sinobungako bamamabula ama-20, ngeze satjho bonyana zinobungako obufanako nofana obungafaniko, nofana ngikuphi okubudisi.	

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IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.4 **Umthamo/ Ivolumu**	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, kumadanisa begodu nokuhlela (isib. umthamo ongamumathwa simumathii nasizeleko) ngokusebenzisa iimedo ezingakahleleki isib. Iingobho namakopi. • Ukuhlathulula umthamo wesimumathi ngokubala nokutjho bonyana mangaki amayunithi angakahleleki angazalisa isimumathi, isib. Ibhodlelo linobungako bamakopi ama-4 **Ukwethulwa kokumeda okuhlelekileko** • Ukulinganisa, ukumeda; ukumadanisa nokuhlela begodu nokurekhoda umthamo wezinto ngokumeda ngamalitha, iinqunto zamalitha begodu nangamakotara wamalitha. • Ukumadanisa, ukuhlela begodu nokurekhoda umthamo wezinto ezipakelwe ukuthengiswa, ubungako bazo butlolwa ngamalitha, isib. amalitha ama-2 webisi, ilitha li-1 lesiselo esimakhaza, amalitha ama-5 wepende nofana ngamamilimitha, isib. ama-500 ml webisi, • amamililitha ama-340 wesiselo esimakhaza, amamilimitha ama-750 we-oli • Ukwazi bonyana ikopi elihlelekileko limamililitha ama-250 • Ukwazi bonyana ithispuni imamililitha ama-5 Akukalindeleki bonyana kube netjhugululko hlangana kwamamilimitha namalitha	Ngesikhathi sokusebenza ngokuzijamela abafundi bafanele baragele phambili noku: Linganisa, meda, madanisa, hlela nokurekhoda umthamo weemumathi nofana ivolumu engeemumathini ngokusebenzisa iimedo ezingakahleleki, Ukulandela amaresibhi, ukufaka hlangana ukubhaga kubujamo obusiza abafundi bonyana bazijayeze ukumeda. Khetha amaresibhi lapho iintlabagelo zakhona zinikelwa ngamakopi ngamathispuni nofana ngamayunithi angakahleleki. • Ukumadanisa begodu nokuhlela umthamo wamabhodlelo ahlukahlukeneko begodu nezinto zegrozari lapho umthamo otlolwe khona ezintweni eziphakethelwako. • Sebenzisa nanyana amabhodlelo welitha li-1 nofana amajege welitha li-1 ukulinganisa begodu nokumeda, ukumadanisa, ukuhlela begodu nokurekhoda umthamo weemumathi nofana ivolumu engeemumathini ngamalitha. Qala amanothi weThemu yesi-3 Abafundi bafanele banikelwe amathaski ukuhlanganisa okulandelako, ukufaka hlangana iinthombe zokufunda: • imikhiqizo enomthamo otlolwe kiwo ukuze ilandelaniswe ngefanelo, begodu • iinthombe eziseenjegeni lapho ivolumu iseduze nalapho okunomborwe khona ilitha li-1 nofana izinga lomuda elimalitha ama-2. Kulindeleke bonyana abafundi bafunde kwaphela izinga lomuda eliseduze nenomboro .Bahlathulula ivolumu yabo njengokuthi pheze, / eduze /okunengana/ pheze kube/ nofana inomboro poro (yamalitha) abawafunda ejegeni **Ukumeda umthamo njengobujamo bokurarulula iinkinga begodu nokubala** Ngesikhathi esibekelwe Iinomboro, ama-Opharetjhini noBudlelwana,abafundi bangararulula imiraro esebenzisa ubujamo: • bokumeda okungakahleleki komthamo/ivolumu; isib. uGogo usebenzisa amakopi amabili webisi ukwenza ipudinghi. Nakayibuyelela kabili iresibhi, uzokusebenzisa ibisi elingangani? • bamalitha Yelela irherho lenomboro elifaneleko leThemu, nemihlobo yeenkinga ezihlukahlukeneko	

IGREYIDI YESI-3 ITHEMU YESI-2 5. UKUPHATHA IDATHA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-2**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
5.4 **Ukubuthelela nokuhlela idatha**	**Ukubuthelela nokuhlela idatha** • Buthelela idatha yetlasi nofana yesikolo ukwenzela ukuphendula imibuzo ebuzwa ngutitjhere. • Hlela idatha oyinikelwe ngutitjhere nofana etholakala encwadini Hlela idatha ngama: o Rhelo o Thali o Thebula			
5.5 **Jamisela idatha**	**Jamisela idatha** Jamisela idatha nge: • Grafu yeenthombe • Bha grafu			
5.6 **Hlaziya begodu urhumutjhe idatha**	**Hlaziya begodu urhumutjhe idatha** Phendula imibuzo ngedatha ethulwe nge: • Grafu yeenthombve • Bha- grafu.	Hlaziya idatha kusukela esijamiselweni esinikelweko.	Nangabe abafundi bawenze woke umzombe wedatha eThemini yoku-1, ukuhlaziya iinjamiselo zedatha ezihlukahlukeneko kuzakwenza umqondo ozwakalako. Kuphakanyisiwe bona eThemini yesi-2 unikele abafundi idatha bona bayihlaziye okungasenani • Yi-1 igrafu yeenthombe • ithebula Abafundi kufanele baphendule imibuzo obabuza yona ngegrafu begodu nethebula; qala iThemu yoku-1 ukuthola imibuzo efaneleko	1isifundoq

IGREYIDI YESI-3 ITHEMU YESI-3 1. IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANE				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.1 Ukubala izinto	**Ukubala izinto eziphathekako** Linganisa begodu ngokuthembeka izinto zangamalanga okungenani kufika e-1000.Iqhinga leenqhema liyakhuthazwa.	Buthelela ngeenqhema ukufika okungasenani ema 700 izinto zangamalanga ukulinganisa begodu nokubala ngokuthembeka. Nikela ukulinganisa okuzwakalako kwenomboro yezinto ezingahlolwa ngokubala.	**Ngikuphi okuhlukileko kuneThemini yesi 2?** Irherho leenomboro lingezelelekile begodu abafundi bafanele banikelwe ithuba lokuthinta, ukukhambakhamba begodu nokubala izinto ezibuthelelweko ezihlukeneko ezima- 700 ngeenqhema. Qala amanothi ethemini yoku-1 neye-2	

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1.2 Ukubala uye phambili nemuva	Ukubala uye phambili nemuva nga: • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 ne-1000. • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-1000. • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-1000. • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku-2 hlangana ne -0 ne-1000. • Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne-0 ne-1000 • Ku-4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne-0 ne-1000 • Ma-20, 25, 50, 100 okungasenani ukufika e-1000.	Ukubala uye phambili nemuva nga: • Ku-1 ukusuka kwenye nenye inomboro hlangana ne-0 ne-700. • Li-10 ukusuka kesinye nesinye isibuyabuyelelo se-10 hlangana ne-0 ne-700. • Ku-5 ukusuka kesinye nesinye isibuyabuyelelo saka ku-5 hlangana ne-0 ne-700. • Ku-2 ukusuka kesinye nesinye isibuyabuyelelo saka ku-2 hlangana ne -0 ne-700. • Ku-3 ukusuka kesinye nesinye isibuyabuyelelo saka ku-3 hlangana ne-0 ne-700 • Ku-4 ukusuka kesinye nesinye isibuyabuyelelo saka ku-4 hlangana ne-0 ne-700 • Ma-20, 25, 50, 100 okungasenani ukufika e-700.	**Ngikuphi okuhlukileko kuneThemini yesi 2?** Irherho leenomboro liyangezeleleka ukufika ema 700. **Qala amanothi weThemini yoku-1 neye-2**	

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1.3 Amat-shwayo weenom-boro namagama weenom-boro.	Ukukhumbula ukubona begodu nokufunda iinomboro. • Khumbula,ubone begodu ufunde amatshwayo wenomboro kusuka e-10 ukufika e-1000. • Tlola amatshwayo wenomboro ukusuka ku-0 ukufika ku-1000 • Khumbula, ubone begodu ufunde amagama weenomboro ukusuka ku- 0 ukufika e-1000. • Tlola amagama weenomboro ukusuka ku- 0 ukufika e-1000	Ukukhumbula ukubona begodu nokufunda iinomboro. • Khumbula,ubone begodu ufunde amatshwayo wenomboro kusuka e-10 ukufika e-1000. • Tlola amatshwayo wenomboro kusuka ku-0 ukufika ku-1000 • Khumbula, ubone begodu ufunde amagama weenomboro ukusuka ku-0 ukufika ku-500. • Tlola amagama weenomboro ukusuka ku-0 ukufika ema-500	**Ngikuphi okuhlukileko eThemini yesi-2?** Abafundi babona, bafunde begodu batlole: • Amatshwayo weenomboro ukufika e-1 000; begodu • Amabizo weenomboro ukufika ema- 500. Qala amanothi weThemini yesi- 2	
1.4 Ukuhlathu-lula, uku-madanisa nokuhlela iinomboro	**Hlela begodu umadanise iinomboro ukufika ema 999** • Hlela iinomboro ezipheleleko ukufika ema 999 ukusuka kwencani khulu ukuya kwekulu khulu, begodu ukusuka kwekulu khulu ukuya kwencani khulu • Madanisa iinomboro ezipheleleko ukufika ema 999 usebenzisa okuncani kuna, okukhulu kuna, okunengi kuna, okumbadlwana kuna nokulinganako. **Sebenzisa inomborosikhundla ukutjengisa ukuhlela ,indawo namkha ubujamo** • Sebenzisa ,funda nokutlola iinomborosikhundla ukufaka hlangana ezirhunyezwako ukufika ema-31.	**Hlela begodu umadanise iinomboro ukufika ema 500** • Hlela iinomboro ezipheleleko ukufika ema 500 ukusukela kwencani khulu ukuya kwekulu khulu, begodu ukusuka kwekulu khulu ukuya kwencani khulu • Madanisa iinomboro ezipheleleko ukufika ema- 500 usebenzisa okuncani kuna, okukhulu kuna, okunengi kuna, okumbadlwana kuna nokulinganako. **Sebenzisa inomborosikhundla ukutjengisa ukulandelana ,indawo namkha ubujamo** • Sebenzisa ,funda nokutlola iinomborosikhundla ukufaka hlangana indlela erhunyezwako ukufika ema-31.	**Ngikuphi okuhlukileko kuneThemini yesi 2?** Abafundi bahlela begodu bamadanisa iinomboro ukufika ema-500 begodu baragela phambili ukusebenzisa indlela erhunyeziweko yokutlola inomborosikhundla..... Qala amanothi weThemini yesi- 2	

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1.5 Ubukhulu bedijithi	**Ukukhumbula ubukhulu bedijithi beenomboro ezintathu zedijithi ukufika ema-999.** • Ukwazi bonyana idijithi ngayinye ijamele ini. • Hlukanisa iinomboro zamadijithi amathathu ukufika ema- 999 ngeembuyabuyeleli zangali-100, iimbuyabuyeleli zalitjhumi begodu nemivo. • Ukubona begodu fanisa nokutjho ubukhulu bedijithi ngayinye.	**Ukukhumbula ubukhulu bedijithi beenomboro ukufika ema-750.** • Ukwazi bonyana idijithi ngayinye ijamele ini. • Hlukanisa iinomboro zamadijithi amathathu ukufika ema-750 ngeembuyabuyeleli • zangali-100, iimbuyabuyeleli zalitjhumi begodu nemivo. • Ukufanisa nokutjho ubukhulu benye nenye idijithi.	**Ngikuphi okuhlukileko kuneThemini yesi-3?** Imihlobo efanako yemibuzo neenyalelo inikelwe eThemini yesi-3. Irherho leenomboro lingezelelekile kodwana abafundi basasebenza ngeenomboro zamadijithi amathathu. Umnqopho weThemini le ufanele uragele phambili ngo: bungako benomboro; kuhlukanisa iinomboro ngamakhulu, ngamatjhumi begodu nangemivo ngokusebenzisa amakarada wobukhulu bedijithi begodu nenomborosisekelo ezilitjhumi zamabhlogo; begodu kutlola umhlobo weenomboro ezinabileko. Qala amanothi weThemini yesi- 2.	
IMIRARO YEENOMBORO				
1.6 Amaqhinga wokuraru-lula imiraro	Sebenzisa amathekniki alandelako nawurarulula imiraro begodu uhlathulule iinsombululo zemiraro: • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula. • Amanambalayini • Ukutjhideza e-10	Sebenzisa amathekniki alandelako nawurarulula imiraro: • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula. • Amanambalayini • Ukutjhideza e-10	Abafundi kulindeleke bonyana bararulule imiraro yamagama ngokusebenzisa amathekniki alandelako: • Ukwakha nofana ukuphula iinomboro • Ukubuyelela kabili nokuhafula. • Amanambalayini • Ukutjhideza eduze. Qala amanothi weThemini yesi-2.	

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1.7 Ukuh-langanisa nokukhupha	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-999.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ezifaka ukuhlanganisa nokukhupha nempendulo ukufika e-800.	Iimbonelo zemihlobo yemiraro engenziwa ngeThemu le • Imiraro yokuhlanganisa begodu nokukhupha • UPhephelaphi ubuthelele iimvalo zamabhodlela ezima-413. UKunubhe nakangamnikela iimvalo zamabhodlela ezima 29, uzakuba nenani elifanako nelakaPhephelaphi. - Bazokuba nemvalo zamabhodlela ezingaki babobabili? - UKunubhe bekaneemvalo zamabhodlela ezingaki kwasekuthomeni? • Abafundi beGreyidi yesi-2 banebuthelelo lamamabula ama-500. Abafundi beGreyidi yesi 3 banamamabula ambadlwana ngali-170 kunabafundi beGreyidi yesi-2. Banamamabula amangaki abafundi beGreyidi yesi-3? • ULingiwe noVamuhle babuthelele izinto zokunamathelisa ezi-250. UMark uthola ezili 160. ULingiwe uthole izinto zokunamathelisa ezingaki?	
1.8 Ukuh-langanisa okubuyele-lweko okurholela ekubuy-abuyeleleni	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukubuyabuyelela okunempendulo ufikela e-100.	Rarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ezifaka ukubuyabuyelela okunempendulo ufikela e-75.	**Iimbonelo zemihlobo yemiraro engenziwa ngeThemu le.** **Umhlobo womraro we-9: Irhemo** • Isivande somrorho sinamareyi ali-12 weentjalo. Ireyi ngayinye ineentjalo ezi-7. Ziintjalo ezingaki ezikhona ngesivandeni? • Isivande somrorho sinamareyi ali 12 weentjalo. Ireyi ngayinye inenani elifanako leentjalo. Nakunenani leentjalo elima- 48, kuneentjalo ezingaki ereyini ngalinye? • Isivande somrorho sineentjalo ezima-48 ezitjalwe ngereyi. Ireyi ngayinye ineentjalo ezi-7. Kunamareyi amangaki? **Ukumadanisa/Iretjhiyo** USalelani unamaswidi asi 6. USalelani unamaswidi abuyelelwe kathathu ukudlula kaMongezi. UMongezi unamaswidi amangaki? UMavela unamswidi ali-18. Lokhu kunengi kathathu ukudlula lokha uSalelani. USalelani unamaswidi amangaki? Isilinganiso Amaperegisi athengiswa ngamaranda abu- R8 ikhilogremu ngalinye. Lokha nangithenga amakhilogremu amane, kuzokubiza malini? Amaperegisi abiza amaranda abu-R8 ikhilogremu ngayinye. Lokha nangina nama-R32, ngingathenga amakhilogremu amangaki? Ngithenga amakhilogremu ama-4 wamaperegisi begodu kungibiza amaranda ama-R32. Ikhilogremu eyodwa ithengwa ngamalini? **Ukusebenzisa ukutjhideza** Iteksi ikhweza abakhweli abayi-15. Abantu abama-73 banganela emateksini ama-5?	

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1.9 Ukubuthele-la nok-wabelana okurholela ekuhlu-kaniseni. .	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqhema kweenomboro ezipheleleko ukufika e-100 kanye nempendulo ezingahle zifaka iinsalela	Ukurarulula imiraro yamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela ngeenqhema kweenomboro ezipheleleko ukufika e-75 kanye nempendulo ezingahle zifaka iinsalela	**Iimbonelo zemihlobo yemiraro engenziwa ngeThemu le** • UKosikazi Matjhiga upaka amamafini ama 66 ngeempakaneni ngasi-6. Uneempakana ezingaki? • USizani uthola imali ema-R72 ngokuthengisa amathikithi werafula ngamaranda ali-R9. Mangaki amathikithi awathengisileko? • Umphakathi usiza imindeni eli-9 eyaloba izinto zayo ngebanga lomlilo. Kuneengubo ezima-75 okufuze zabelwe imindeni ngokulinganako. a) Umndeni ngamunye uzokuthola iingubo ezingaki? b) Zingaki eziseleko? **Isilinganiso** • Amaperegisi abiza ama-R8 ikhilogremu ngayinye. Lokha nanginama- R32, ngingathenga amakhilogremu amangaki? • Ngithenga amakhilogremu ama-4 wamaperegisi begodu angibiza ama-R32. Ikhilogremu yinye ithengwa ngamalini? Imiraro yesilinganiso imihlobo emitjha yemiraro yeThemu yesi-3. Abafundi bangatlhoga isikhathi esinengi nabararulula imiraro.	
1.10 Ukwabelana okurholela emafrak-tjhinini.	Ukurarulula bewuhlathulule iinsombululo zemiraro ephathekako efaka hlangana ukwabelana ngokulingana erholela empendulweni zamafraktjhini wohlavu olulodwa nalayo angenahlavu eyodwa. isib. $\frac{1}{2}, \frac{1}{4}, \frac{3}{4}$ njll.	Ukurarulula bewuhlathulule iinsombululo zemiraro ephathekako efaka hlangana ukwabelana ngokulingana erholela empendulweni zamafraktjhini wohlavu olulodwa nalayo angenahlavu eyodwa. isib. $\frac{1}{2}, \frac{1}{4}, \frac{3}{4}$ njll.	**Iimbonelo zemiraro engenziwa ngeThemu le.** Ukwabelana, okurholela emafraktjhinini • Abela abangani bakho aba- 3 iintinyana zetjhokolede ezili- 7 ukuze boke bathole ngokulingana kungasali litho. • Abela abantwana aba-4 iintinyana zetjhokolede ezili-13 ngokulinganako. Munye uthola iintina ezingaki? Ifraktjhini yokubuthelela • Ugogo unikela uKiki ama- R12. UKiki ufuna ukubulunga isithathu semali. Yimalini okufuze ayibulunge? • Kunamakuke ali 12 ngesitjeni. UNomonde uthatha ikotara yinye yamakuke. Kusele mangaki? **Ukutlola** Abafundi akukafuneki bonyana batlole itshwayo lefraktjhini. Abafundi bafunda ukulebula iingcenye zamafraktjhini njenga kunye kokuhlanu, amakotara ama 3 nofana okuthathu kokusithandathu. Lokhu kubasiza kokuthoma ukuzwisisa bonyana amagama wamafraktjhini ahlathulula bonyana ziingcenye ezingaki ezilinganako okupheleleko okuhlukaniswe ngakho, isibonelo, amahafu, ubuthathu, amakotara, njll begodu okwesibili ziingcenye ezingaki zalokho eziqaliweko, isib. Ubu 2 obuthathu. **Ukujamela imiraro yamagama yamafraktjhini** Abafundi kufuze bagwale iimpendulo zabo ukutjengisa bonyana bazwisisa umraro. Lindela bonyana abanye abafundi bangagwala kuhle kodwana balebule kumbi ingcenye yefraktjhini. Abafundi kufuze batjho iingcenye ezabelenweko ngokuzitlola njengobu 2 bobuthathu.	

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1.11 Imali	• Ukukhumbula nokubona imali yeSewula Afrika eziinhlamvu begodu nemali yamaphepha • Ukurarulula imiraro yemali efaka hlangana inani netjhentjhi kufikela emaranda namasende • Tjhugulula hlangana kwamaranda namasende	• Ukukhumbula nokubona imali yeSewula Afrika eziinhlamvu begodu nemali yamaphepha • Ukurarulula imiraro yemali efaka hlangana inani netjhentjhi kufikela emaranda namasende • Tjhugulula hlangana kwamaranda namasende	**Iimbonelo zemiraro engenziwa ngeThemu le** Ubungako bemali nokwenza amanani isib. Tlola ama 325c njengamaranda namsende. Kungezindlela ezihlukileko ezingaki ongenza ngazo amaranda ama R400 usebenzisa imali yamaphepha yodwana? Wazi bunjani bonyana uneensombululo zoke? UMnu. Lebethe umumakhi begodu uthola ibhonasi ngokuqeda umsebenzi ngesikhathi. Uqunta ukwaba ibhonasi le hlangana kwakhe nombazi. Umuntu munye uthola amaranda ama R400. Each person receives R400. Buyini ubungako bebhonasi? UNina nabangani bakhe abathathu babelana amaranda ama R20-60. Munye uthole malini?	
UKUBALA OBUSEBUJAMENI OBUTJHAPHULUKILEKO				
1.12 Amathekniki (iindlela namkha amaqhinga)	Sebenzisa amaqhinga alandelako lokha nakubalwako • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Amanambalayini • Ukutjhideza etjhumini	Sebenzisa amaqhinga alandelako lokha nakubalwako • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Amanambalayini • Ukutjhideza etjhumini	Abafundi balindeleke bonyana babale imiraro yamagama basebenzisa akathekniki alandelako: • Ukwakha nokuphula iinomboro • Ukubuyelela kabili nokuhafula phakathi • Amanambalayini • Ukutjhideza etjhumini Qala amanothi weThemu yoku 1	

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1.13 Ukuh-langanisa nofana uku-khupha	• Ukuhlanganisa ukufikela ku-999 • Ukukhupha ku-999 • Ukusebenzisa amatshwayo afaneleko (+, -, =, □) • Ukujayeza ukuhlangana kweenomboro ukufikela ema-30	• Ukuhlanganisa ukufikela ku-999 • Ukukhupha ku-999 • Ukusebenzisa amatshwayo afaneleko (+, -, =, □) • Ukujayeza ukuhlangana kweenomboro ukufika ema-30	Ethemini le abafundi baragela phambili ngokubala iinomboro zamadijithi amathathu ukufika ema-800. Ukuze abale ngeenomboro zamadijithi amathathu abafundi bafanele bakghone uku: • funda nokutlole amatshwayo weenomboro ukufikela ema-800 ngokuzithemba; • hlela amadanise iinomboro ukufika okungasenani ema-800 ngokuzithemba; • bala ngeenqhema ukufika ema 800 ngokuzithemba; begodu • bala ngokuzithemba ngeenkhewu zanga ku 2, 3, 4, 5, 10, 50 ne 100 ukufika ema 800. **lindlela ezinokwenzeka zokubonisa ukuhlanganisa neembalo zokukhupha.** • Ukuhlanganisa ngokuphula iinomboro zombili. Ukuhlanganisa amadijithi amathathu namadijithi amabili. 524 + 82 = □ = (500 + 20 + 4) + (80 + 2) = 500 + (20 + 80+ (4 + 2) = (500 + 100) + 6 = 600 + 6 = 606 Ukuhlanganisa amadijithi amathathu begodu namadijithi amathathu. 323 + 436 = □ 323 + 436 = (300 + 20 + 3) + (400 + 30 + 6) = (300 + 400) + (20 + 30) + (3 + 6) = 700 + 50 + 9 = 759 • Ukuhlanganisa (ngokuphula iinomboro ezokuhlanganiswa) Abafundi bazokuphula inomboro ngeendlela zabo ezilawulekako kibo. Lokhu kutjho bonyana bazokwenza ngeendlela ezihlukeneko. 524 + 82 = □ 524 + (40 + 40 + 2) 524 + 40 564 + 40 604 + 2 = 606 Ukubala uye phambili ukusuka ema 40 ukufika ema 524 kungenziwa ngokubala nge 10. Ukuhlanganisa iinomboro zamadijithi amathathu nezinye iinomboro zamadijithi amathathu 323 + 436 = □ = 323 + (400 + 20 + 6) = (323 + 400) + 20 + 6 = (723 + 20) + 6 = 743 + 6 = 749	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.13 Ukuh-langanisa nofana uku-khupha	• Ukuhlanganisa ukufikela ku-999 • Ukukhupha ku-999 • Ukusebenzisa amatshwayo afaneleko (+, -, =, □) • Ukujayeza ukuhlangana kweenomboro ukufikela ema-30	• Ukuhlanganisa ukufikela ku-999 • Ukukhupha ku-999 • Ukusebenzisa amatshwayo afaneleko (+, -, =, □) • Ukujayeza ukuhlangana kweenomboro ukufika ema-30	• Ukukhupha ngokuphula iinomboro zombili Khupha inomboro enamadijithi amabili enomborweni enamadijithi amathathu 889 – 137 = □ 889 – 137 = (800 + 80 + 9) – (100 + 30 + 7) = (800 – 100) + (80 – 30) + (9 – 7) = 700 + 50 + 2 = 752 • Ukukhupha ngokuphula inomboro yinye 889 – 137 = □ 889 – (100 + 30 + 7) 889 – 100 789 – 30 759 – 7 = 752 • Usebenzisa ukuhafula kabili ukuphula inomboro 525 + 16 = 525 + 8 + 8 = (525 + 8) + 8 = 533 + 8 = 541 • Bala uye phambili begodu nemuva 805 = 798 = □ Ukubala uye phezulu ngakunye ukusuka ema 798 kuliqhinga elifaneleko ngombana iinomboro zitjhidelene. • ukubona ukubuyabuyelana okuseduze 245 + 246 kungatjhiwo bonyana isibalo esingehla singaba kubuyelela kabili kwama 245 + 1 kubuyelela kabili kwama 246 – 1 245 + 245 + 1 = (200 + 40 + 5) + (200 + 40 + 5) + 1 = (200 + 200) + (40 + 40) + (5 + 5) + 1 = 400 + 80 + 10 + 1 = 400 + (80 + 10) + 1 = 400 + 90 + 1 = 491	

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1.13 Ukuh-langanisa nofana uku-khupha	• Ukuhlanganisa ukufikela ku-999 • Ukukhupha ku-999 • Ukusebenzisa amatshwayo afaneleko (+, -, =, □) • Ukujayeza ukuhlangana kweenomboro ukufikela ema-30	• Ukuhlanganisa ukufikela ku-999 • Ukukhupha ku-999 • Ukusebenzisa amatshwayo afaneleko (+, -, =, □) • Ukujayeza ukuhlangana kweenomboro ukufika ema-30	• Tjhugululela inomboro esibuyabuyelelo setjhumi begodu ukhuphe nofana uhlanganise imivo. Bala uye phambili nofana uye emuva ufike na-10 588 + 9 588 + 10 = 598 598 – 1 = 597 588 + 19 588 + 20 = 608 608 – 1 = 607 **Ukuthuthukisa nokujayeza amakghono wokuhlanganisa nokukhupha** Abafundi batlhoga ukuzijayeza ukwenza imihlobo eminye yamakghono wokuhlanganisa nokukhupha. Abafundi bafanele babe namathuba wokwenza imihlobo elandelako yeembalo ngeenomboro ukufika ema 800: Hlanganisa nofana ukhuphe ipara yesibuyabuyelelo se-10, ukudlulela ngale kwe-100. • 40 + 70 • 70 + 80 • 120 – 30 • 150 – 60 Hlanganisa nofana ukhuphe i-10 kunanyana ngiyiphi inomboro enamadijithi amabili nofana amathathu ukufaka hlangana ema-100. Isibonelo: • 65 + 10 • 124 + 10 • 326 – 10 • 358 - 10 Hlanganisa nofana ukhuphe idijithi yinye enomborweni enamadijithi amathathu ngaphandle kokweqela ngale kwetjhumi. Isibonelo: • 634 + 5 • 775 + □ = 779 • 768 – 4 Hlanganisa begodu ukhuphe idijithi yinye ekubuyabuyeleni kwali 100. Add and subtract a single digit to and from a multiple of 100	

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1.13 Ukuh-langanisa nofana uku-khupha	• Ukuhlanganisa ukufikela ku-999 • Ukukhupha ku-999 • Ukusebenzisa amatshwayo afaneleko (+, -, =, □) • Ukujayeza ukuhlangana kweenomboro ukufikela ema-30	• Ukuhlanganisa ukufikela ku-999 • Ukukhupha ku-999 • Ukusebenzisa amatshwayo afaneleko (+, -, =, □) • Ukujayeza ukuhlangana kweenomboro ukufika ema-30	Isibonelo: • 600 + 4 • 500 + 3 • 700 - 6 • 800 - 5 Thoma ngokuhlanganisa nokukhupha ipara yokubuyabuyelela kwali 100. • 100 + 100 • 100 + 200 • 200 + 200 • 300 + 400 Abafundi bafanele banikelwe amathuba wokuzijayeza amaphetheni wokuhlanganisa nokukhupha. Nangazi bonyana u-1+ 1 = 2 Bese liyini: 10 + 10 100 + 100 Thoma ukuhlanganisa nofana ukukhupha ipara yesibuyabuyelelo nofana ngiyiphi inomboro enamadijithi amathathu. Isibonelo: 675 + 100 762 – 100 **Ukuhlola imiphumela yeembalo** Ukujaja ukuzwisiseka kweensombululo Abafundi bafanele babandulwe ukujaja ukuzwisiseka kweensombululo. Indlela enye yokwenza lokhu ngukulinganisa iimpendulo zabo ngaphambi kobana babale. Lokha nawuhlanganisa iinomboro ezimbili ezitjhideleneko, isib. i-145 begodu ne 146, abafundi bangasebenzisa ukubuyelela kabil njengendlela yokulinganisa iimpendulo zabo. **Ukuhlola iinsombululo** Abafundi bafanele bazi bonyana banga: • Hlola isibalo sokuhlanganisa ngokukhupha. **Isibonelo**: lokha ama-436 + 118 = 454; bese 454 – 118 = 436 • Hlola isibalo sokukhupha ngokuhlanganisa. **Isibonelo:** 684 – 248 = 436, bese 436 + 248 = 684 Ukusebenzisa umbalopherhuko ukuhlola iinsombululo ngesinye seenzathu zokufundisa ukuhlanganisa nokukhupha ndawonye.	

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1.14 Ukuh-langanisa okubuyele-lweko okurholela ekubuy-abuyeleleni	• Buyabuyelela iinomboro ngeye 2,3,4,5,10 ukuhlanganisa ukufika ema 99 • Ukusebenzisa amatshwayo ngokufaneleko(x, =, □)	• Buyabuyelela iinomboro ngeye 2,3,4,5,10 ukuhlanganisa ukufika ema 99 • Ukusebenzisa amatshwayo ngokufaneleko(x, =, □)	Ethemini le abafundi baragela phambili ngoku: • Sebenzisa begodu nokuzwisisa ilimi lokubuyabuyelela; • Jamela ukubuyabuyelela njengerhemo; • Sebenzisa amatshwayo afaneleko ukurhumutjha imitjho yeenomboro; • Zwisisa bonyana ukuhlanganisa okubuyelelwako kungajanyelwa ngokusebenzisa itshwayo lokubuyabuyelela; • Jayeza begodu nokuzwisisa bonyana ukubuyabuyelela kungenziwa nanyana kungayiphi indlela (umthetho nofana ihlelo elihlanakelekako); • Sebenzisa inambalayini ukubonisa iimbalo zokubuyabuyelela begodu ukghone ukuhlathulula ukujanyelwa (iindlela imeqo ebonisa ngayo ukuhlanganisa okubuyelelweko); begodu • Thoma ukuzwisia ihlelo elabiweko lokubuyabuyelela. Abafundi baragela phambili ukusebenzisa imihlobohlobo yemifanekiso ukuzwisisa ukubuyabuyelela. Qala amanothi eThemini yesi -2. Amaqhinga wokubuyabuyelela alisizo Ukusebenzisa ukubuyelela kabili **Isibonelo:** Zalisa ithebula lokubuyelela ngakahlanu. Ngimaphi amaphetheni owabonako?	

	1	2	3	4	5	6	7	8	9	10
× 5										
× 10										

Buyabuyelela iinomboro ethebuleni yokubuyabuyelela ngahlanu ukuthola iinomboro ereyini yethebula yangetjhumi. Ubona amaphetheni maphi?

Zalisa ithebula lokubuyelela ngakubili.

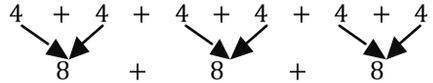
	1	2	3	4	5	6	7	8	9	10
× 2										
× 4										

Buyabuyelela iinomboro ngethebuleni lokubuyabuyelela ngakubili ukuthola iinomboro ethebuleni lokubuyelela ngakune. Ngimaphi amaphetheni owabonako?

• Ukusebenzisa ukuhafula kabili

Iinqhema ezintathu obu-8 zilingana nama-24

Iinqhema ezisithandathu zanga-4 zilingana nama 24



Ngebanga lalokho:

Iinqhema zangasi-6 ezi-4 zifana neenqhema ezi 3 zango 8.

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1.14 Ukuh-langanisa okubuyele-lweko okurholela ekubuy-abuyeleleni	• Buyabuyelela iinomboro ngeye 2,3,4,5,10 ukuhlanganisa ukufika ema 99 • Ukusebenzisa amatshwayo ngokufaneleko(x, =, □)	• Buyabuyelela iinomboro ngeye 2,3,4,5,10 ukuhlanganisa ukufika ema 99 • Ukusebenzisa amatshwayo ngokufaneleko(x, =, □)	**Ngikuphi okuhlukileko kunethemini yesi 2?** Ethemini le irherho leenomboro abafundi abazosebenza ngazo lingezeleleke ukufika ema 99. Ukusebenza ngerherho leenomboro ezingezelelweko kutjho bonyana abafundi kufuze bathome ukusebenza ngamaqhinga wokubala afaneleko begodu nangamarekhodi atloliweko ukufika eempendulweni zabo. **Amaqhinga wokurekhoda** Ethemini yesi- 3 neye- 4 abafundi bazozijayeza ukurekhoda ukuhlukanisa basebenzisa iinomboro begodu bangabambeleleli emigwaleni. Amaqhinga wokurekhoda ngeze asafumaneka ebafundini lokha nabangazwisisi ukusebenza. Nabalinga ukusebenzisa indlela abangayizwisisiko kuzogcina kunemitjhapho abafundi ngokwabo abangeze baba nekghono lokuyibona. Kuqakathekile bonyana abafundi bakghona ukubona ukuhlobana hlangana kokubuyabuyelela begodu nokuhlukanisa. Umnqopho wamarekhodi atlolwako ufanele uthuthukise ukuzwisisa kwabafundi kokuhlobana kweenomboro. **Ukusebenzisa ukubuyabuyelela** Abafundi bafanele bakwazi ukusebenzisa ilwazi labo lokubuyabuyelela. Bafanele bathome ukutjho bonyana: “ Ngazini ngokubuyabuyelela ukuze ngithole ipendulo?” 96 ÷ 3 = □ Ngiyazi bonyana: 10 x 3 = 30 Bese: 96 – 30 = 66 Ngiyazi bonyana: 10 x 3 = 30 Bese: 66 – 30 = 36 Ngiyazi bonyana: 10 x 3 = 30 Bese: 36 – 30 = 6 6 ÷ 3 = 2 Ngendlela engaphezulu, abafundi basebenzisa ukubuyabuyelela begodu bakhupha ngokubuyelela ema 96. Bese babala bonyana bakhuphe amahlandla amangaki : 2 + 10 + 10 + 10 = 32 **Ukuphula iinomboro** Abafundi bangahlukanisa ama- 96 ngeenomboro ezikhambisana noku 3. Abafundi godu basebenzisa ilwazi labo lokubuyabuyelela ukuze benze ukuhlukanisa kokubuyelela.	

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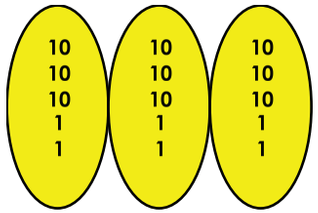
1.15 Ukuhlu-kanisa	• Hlukanisa iinomboro ukufika ema-99 ngaku 2, 3, 4, 5, 10 • Ukusebenzisa amatshwayo afaneleko (÷, =, □)	• Hlukanisa iinomboro ukufika ema-99 ngaku 2, 4, 5, 10, 3, • Ukusebenzisa amatshwayo afaneleko (÷, =, □)	96 ÷ 3 = □ 96 = 30 + 30 + 30 + 6 ↓ ↓ ↓ ↓ iinqhema ezi10 iinqhema ezi10 iinqhema ezi10 iinqhema ezi 2 zanga 3 zanga 3 zanga 3 zanga 3 Lokho abafundi abakwenzako eembonelweni zombili basebenzisa ukukhupha okubuyelelweko “ngeentokatokana”. Njengalokha ukubuyabuyelela “kwakha iinomboro”, ukuhlukanisa kungabonwa “njengokuphulwa kweenomboro”. Ngalendlela ukuzwisiseka kokuhlukanisa kuyaqiniswa njengompherhuko wokubuyabuyelela.. Abafundi bangasebenzisa ukukhupha okubuyelelweko njengentoka tokana , begodu barekhode kuyo iindlela ezifana nalokha okuvezwe ngenzasi.  96 ÷ 3 = □ 96 ÷ 3 = 32 **Ukusebenza ngeensalela** Abafundi bazakube basebenze ngeensalela nabenza ukubuthelela nokwabelana imiraro yamagama. Kuqakathekile bonyana bathulelwe ngemitjho yeenomboro yokuhlukanisa (ubujamo obutjhaphulukileko) evumela iinsalelo. Isibonelo: Hlathululela abafundi bonyana: Lokha nabazi bonyana 28 ÷ 7 = 4. Azakuba yini **29** ÷ 7 = 4? Kulindeleke bonyana abafundi barekhode iimpendulo zabo ngendlela elandelako:29 ÷ 7 = 4 isalela yi-1. Sifuna abafundi bakghone ukutjho bonyana ngimaphi amaphuzu wokuhlukanisa abawaziko, isib. 25 ÷ 5 = 5 ngebanga lalokho ama 26 ÷ 5 = 5 isalela yi-1	

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1.16 limbalo zehloko.	**Umqondonomboro: irherho lama 999** • Ukuhlela iinomboro ezikhethiweko ngokwesede enikeliweko. • Ukumadanisa iinomboro ukufika ku-999 begodu utjho bonyana ngiyiphi enengi nofana encani • Ukwazi bonyana ngiyiphi inomboro: • enengi nga-1 nofana encani nga-1 • Ukwazi bonyana ngiyiphi inomboro: • enengi nga-2 nofana encani nga-2 • Ukwazi bonyana ngiyiphi inomboro: • enengi nga-3 nofana encani nga-3 • Ukwazi bonyana ngiyiphi inomboro: • enengi nga-4 nofana encani nga-4 • Ukwazi bonyana ngiyiphi inomboro: • enengi nga-5 nofana encani nga-5 • Ukwazi bonyana ngiyiphi inomboro: • enengi nge-10 nofana encani nge-10 **Ukukhumbula msinyana** • Ukuhlanganisa nokukhupha ukufika ema 20 • Hlanganisa nofana ukhuphe ukubuyabuyelela nge 10 ukusuka eli 0 ukufika e 100 • Amaphuzu wokubuyabuyelela nokuhlukanisa ngokwe: • ithebula yangakubili ukufika ku 2 x 10 • ithebula yangalitjhumi ukufika ku10 x 10 **Amaqhinga wokubala** • Ukusebenzisa amaqhinga wokubala alandelako.: • Ukubeka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini. • Ukubuyelela kabili nokuhafula phakathi • Ukwakha nokuphula • Ukusebenzisa ubudlelwana hlangana nokuhlanganisa begodu nokukhupha. • Ukusebenzisa ubudlelwana hlangana nokubuyelela nokuhlukanisa.	**Umqondonomboro: irherho lama 700** • Ukuhlela iinomboro ezikhethiweko ngokwesede enikeliweko. • Ukumadanisa iinomboro ukufika ku-200 begodu utjho bonyana ngiyiphi enengi nofana encani • Ukwazi bonyana ngiyiphi inomboro: • enengi nga-1 nofana encani nga-1 • Ukwazi bonyana ngiyiphi inomboro: • enengi nga-2 nofana encani nga-2 • Ukwazi bonyana ngiyiphi inomboro: • enengi nga-3 nofana encani nga-3 • Ukwazi bonyana ngiyiphi inomboro: • enengi nga-4 nofana encani nga-4 • Ukwazi bonyana ngiyiphi inomboro: • enengi nga-5 nofana encani nga-5 • Ukwazi bonyana ngiyiphi inomboro: • enengi nge-10 nofana encani nge-10 **Ukukhumbula msinyana** • Khumbula amaphuzu wokuhlanganisa nokukhupha ukufika ema 20 • Ukuhlanganisa nofana ukhuphe ukubuyabuyelela nge 10 ukusuka eli 0 ukufika e 100 **Amaqhinga wokubala ngehloko** Ukusebenzisa amaqhinga wokubala alandelako. • Ukubeka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini. • Ukubuyelela begodu nohafula phakathi • Ukwakha nokuphula • Ukusebenzisa ubudlelwana hlangana nokuhlanganisa begodu nokukhupha. • Ukusebenzisa ubudlelwana hlangana nokubuyelela nokuhlukanisa.	**limbalo zehloko** Qala amanothi weThemu yesi 2, kodwana sebenzisa irherho leenomboro eziphezulu ezinqiphisiweko ethemini yesi 3	

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1.17 Amafraktjhini ajayelekileko	• Sebenzisa begodu utjho amafraktjhini ukufaka hlangana amahafu, amakotara, kobunane,kwesithathu, kwesithandathu begodu nokwesihlanu • Ukubona amafraktjhini wesakhiwo sesifaniso • Ukuthoma ukulemuka bonyana amahafu amabili namkha kuthathu kwesithathu begodu nokuthi zenza into yinye epheleleko begodu nokuthi ihafu yinye namakota amabili ayalingana. • Ukutlola amafraktjhini njengehafu yi-1 na 2 kwesithathu		Ethemini le abafundi baragela phambili noku: • Funda amagama weengcenye zamafraktjhini; • Sebenzisa amagama ngebujameni ahlukeneko; • bona ingcenye yamafraktjhini; • Thoma ukuzwisisa bungako bamafraktjhini; • Thola amafraktjhini wezinto; • Funda ngokulingana kwamafraktjhini; begodu • Madanisa amafraktjhini. Ethemini le abafundi bathoma **ukubala iingcenye zamafraktjhini** begodu bafunde amagama amatjha wamafraktjhini. Ukubala iingcenye zamafraktjhini kuvumela abafundi ukubona iingcenye zokubuyabuyelela begodu ibanikela ilimi lamafraktjhini avangeneko nangasisezingeni. Amafraktjhini weendulungu alungile ukusebenzisa umqondo lo. Khuthaza abafundi ukubala ngombana bazoku bala ibuthelelo lezinto, isib. kunye kwesine, okubili kwesine, okuthathu kwesinje, okuhlanu kwesine ...ungabawa abafundi ukwenza kunye okupheleleko ngokusebenzisa abokune e begodu ubuze bonyana “lokha nasinakuhlanu kwesine, ngabe lokho kunengi kunokupheleleko, kuncani kunokupheleleko, nofana kulingana nokupheleleko?” Thatha ithuba leli ukulungiselela umsebenzi osisekelo wamafraktjhini avangeneko ngokubuza bonyana: “thatha okulikhomba kwesithathu. Ungenza okuzeleko okungaki? Ziingcenye ezingaki eziseleko?” Sifuna abafundi batjho bonyana : “kunokupheleleko okubili begodu kusele kunye kokuthathu” Umhlobo lo womsebenzi ukhuthaza: • Ukuzwisisa inani lamahafu / leenquntu kokupheleleko • Iindlela ezihlukahlukeneko zokukhuluma ngokubuyabuyelela iinomboro ngamahafu / neenquntu.	

IGREYIDI YESI-3 ITHEMU YESI- 3 2. AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.1 Amapheth-eni weJi-yomethri	**Ukukopulula, ukungezelela begodu nokuhlathulula** Kopulula, ngezelela begodu uhlathulule ngamagama • amaphetheni alula enziwe ngezinto eziphathekako • amaphetheni alula enziwe ngemigwalo yemida, yamabujamo nofana ngezinto **Ukuzakhela wakhe amaphetheni** Ukuzakhela wakhe amaphetheni weJiyomethri • ngezinto eziphathekako • ngokugwala imida,ubujamo nofana izinto **Amaphetheni asizungelezileko** Ukubona , ukuhlathulula ngamagama nokukopulula amaphetheni weJiyomethri • weemveleni • ebuphilweni bangamalanga banamhlanje • elifeni lamasiko wethu	**Ukukopulula, ukungezelela begodu nokuhlathulula.** Kopulula, ngezelela begodu uhlathulule ngamagama • amaphetheni alula enziwe ngezinto eziphathekako • amaphetheni alula enziwe ngemigwalo yemida, yamajamo nofana ngezinto Amaphetheni lapho inomboro nofana ubukhulu wesinye nesinye isigaba itjhuguluka ngendlela abonela phambili esigabeni esinye nesinye o.u. amaphetheni akhula ngendlela ehlelekileko eqelekileko **Irherho lamaphetheni**: Amaphetheni lapho inani lamajamo kesinye nesinye esigabaeni ngasinye itjhuguluka ngendlela enebonelophambili o.u. amaphetheni akhula ngendlela eqakathekileko. **Ukuzakhela wakhe amaphetheni** Ukuzakhela wakhe amaphetheni weJiyomethri : • ngezinto eziphathekako • ngokugwala imida,amajamo nofana izinto	Ragela phambili nokunikela abafundi irherho elifanako lamaphetheni njengalawo aku Themu yoku-1, kodwana faka hlangana woke amajamo amatjha begodu emaphethenini njengoba kusetjenzwa ngawo eSikhaleni Nobujamo. Qala amanothi wamaphetheni we Themu yoku-1 begodu namanothi weSikhala Nobujamo eThemini yesi-2. Vumela abafundi bakopulule mantanzi , bese bayangezelela begodu emaswapheleni bahlathulule amaphetheni. Njenga nje,bafanele bonyana sebayakwazi ukuhlathulula amaphetheni ngaphandle kokurhelejwa mibuzo ebarholako. Ragela phambili nokuqopha ekuthuthukiseni ilimi abalitlhogako lokuhlathulula amaphetheni.	isifundo si-1

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2.2 Amaphethe-ni weenom-boro	**Ukukopulula,uku ngezelela begodu uhlathulule** Ukukopulula, ukungezelela begodu nokuhlathulula ukulandelana kweenomboro nokulula ukufika okungasenani ema-700 **Ukuzakhela wakhe amaphetheni** Ukuzakhela amaphetheni weenomboro.	**Ukukopulula,ukungezelela begodu uhlathulule** Ukukopulula, ukungezelela begodu nokuhlathululea ukulandelana kweenomboro okulula kufika okungasenani e-180 Ukulandelana kufanele kutjengise ukubala uye phambili nemuva nga: • ku-1 ukusuka kunanyana ngiyiphi inomboro hlangana ne-0 ne-750. • Li-10 ukusuka kunanyana ngikuphi ukubuyabuyelela se-10 hlangana ne-0 ne-750. • Ku-5 ukusuka kunanyana ngikuphi ukubuyabuyelela kwaku ku-5 hlangana ne-0 ne-750. • Ku-2 ukusuka kunanyana ngikuphi ukubuyabuyelela saka ku-2 hlangana ne -0 ne-750. • Ku-3 ukusuka kunanyana ngikuphi esinye nesinye ukubuyabuyelela kwaku ku-3 hlangana ne-0 ne750 • Ku-4 ukusuka ukusuka nanyana ngikuphi kesinye nesinye ukubuyabuyelela kwaku-4 hlangana ne-0 ne-750 • Ma-20, 25, 50, 100 okungasenani ukufika e-1000. **Ukutlama nokuhlathulula amaphetheni wakho** Tlama begodu uhlathulule amaphetheni wakho weenomboro	Qala amanothi weThemu yoku-1 Ngezelela ukulandelana ufake hlangana abo: • ngabo ku-1 ukusuka kunanyana ngiyiphi inomboro pha hlangana kwe- 0 nama-750 • ngali-10 ukusuka kunanyana ngikuphi ukubuyabuyelela kwe-10 hlangana kwe-0 nama-750 • ngaku-5 ukusuka kunanyana ngikuphi ukubuyabuyelela kwaku-5 hlangana kwe-0 nama-750. • Ngaku-2 ukusuka kunanyana ngikuphi ukubuyabuyelela kwaka ku-2 hlangana kwe-0 nama -750 • Nge-100 ukusuka kunanyana ngikuphi ukubuyabuyelela kwe-100 ukufika okungasenani e-1000 • ngama-50 ukusuka kunanyana ngikuphi ukubuyabuyelela kwama-50 ukufika okungasenani e-1000 • ngama-25 ukusuka kunanyana ngikuphi ukubuyabuyelela kwama-25 ukufika okungasenani e-1000 • Ngama-20 ukusuka kunanyana ngikuphi ukubuyabuyelela kwama-20 ukufika okungasenani e-1000 • Ngaku-3 ukusuka kunanyana ngikuphi ukubuyabuyelela kwaka 3 hlangana kwe-0 nama-750 • ngaku -4 ukusuka kunanyana ngikuphi ukubuyabuyelela kwa ka 4 hlangana kwe-0 nama-750 Sebenzisa izinto, iinthombe, amathebula netjhadi naneko ukusekela abafundi ekutjhugulukeni kusukela ekubaleni ngokweqa begodu nokulandelandelana ukuya ekubuyabuyeleleni nga 10, 5, 2, 4, 3. Ukusiza abafundi basebenzise amaphetheni abawaziko njengesisekelo sokuzijayeza begodu nokufunda amanye amaphetheni isib. Ukulandelana kwabo ku 2 ukubeka isisekelo sokulandelana kwabo ma 20.	3 lessons

IGREYIDI YESI-3 ITHEMU YESI-3 3. ISIKHALA NOBUJAMO (JIYOMETHRI)				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.1 **Ubujamo, ukuzijayeza nokubukela**	**Ubujamo nokubukela** • Ukumadanisa ukuqaleka okuhlukahlukeneko kwezinto ezifanako zangamalanga. • Yitjho igama lento yangamalanga lokha nawuyitjengiswe ihlangothini elingakajayeleki. • Ukufunda, ukurhumutjha begodu ugwale imimebhe engakahleleki, nofana ilingaphezulu lebuthelelo lezinto. • Ukuthola izinto emebheni • Ubujamo neenkombatjhuba • Landela ikombatjhuba yokukhambakhamba ngetlasini begodu nesikolweni. • Ukunikela iinlayelo zokukhambakhamba ngetlasini begodu nasesikolweni . • Landela ikombatjhuba ukusuka endaweni eyodwa ukuya kwenye emebheni ongakahleki	**Ubujamo nokubukela** • Ukufunda, ukurhumutjha begodu nokugwala imimmebhe engakahleleki nofana ilingaphezulu lebuthelelo lezinto . • Ukuthola izinto emimebheni. **Ubujamo neenkombatjhuba** Landela iinkombatjhuba ukusukela endaweni eyodwa ukuya kwenye emebheni ongakahleleki.	**Ngikuphi okutjha eGreyidini yesi-3** • Imimebhe, iimplani begodu nelingaphezulu lezinto ezibuthelelweko. - Ukuthola izinto emimebheni. - Ukulandela iinkombatjhuba emimebheni - Ukugwala imimebhe engakahleleki,iimplani nelingaphezulu lezinto zibuthelelweko **Ukufunda nokurhumutjha imimebhe** Imimebhe isitayela esithize sokubona into kusukela ngehla kwendawo. Egreyidini 3 abafundi basebenza ngemimebhe angakahleleki kuphela, Lokhu akufaki hlangana imimebhe yendlela evamileko nofana imimebhe avamileko wejiyografi. Kungasiza abafundi ukuthoma ngeemplani nofana ukubukela ngehla kwendawana ezincani isib.ithreyi yezinto nofana iplani yeetlasini ngaphambi kokubaqala imimebhe yendawo ezikudlwana. Ithemu yesi- 2 iphathelene nokumadanisa kokubukelwa ilingaphezulu, ilingeqadi begodu nelingaphambili .Ukubona into ehlangothini eliyi obhligi kutjho ukubona ingcenye yayo kusukela ngaphezulu begodu uyibone ingenye yayo ukusukela ngehlangothini, Abantwana abancani babona iobhligi yomhlaba kanengi khulu kunokubona ilingaphezulu. Kungasiza abafundi ukuthoma ukumadanisa amahlangothi wendawo aqaleka ayi-obhligi nemimebhe yendawo lezo. Nangabe kokubili okubonakalako (ukuqaleka kwe obhligi nokubona ilingaphezulu) anikelwe , abafundi bangamadanisa lokho abakubona kelinye ihlangothi nalokho okhunye abakubonako. Thoma ngokusiza abafundi bonyana bazwisise imimebhe begodu namaplani bese uyababawa bonyana bafunyane iindawo emimebheni isib. “fumana iklinigi; kuyini okuseduze nayo?” Nasele abafundi bakgona ukuthola lula l ngokuzijamela emebheni, thoma ngokubanikela iinkombadlela zokusuka endaweni enye ukuya kwenye emebheni. **Gwala ilingaphezulu lezinto ezibuthelelweko begodu nemimebhe engakahleleki** Kulula bonyana abafundi bagwale ilingaphezulu lento ethize abangayiqalela phasi kunokuba bagwale umebhe ngehloko nofana ngengqondo. Indawo ongathoma ngayo ukugwala ilingaphezulu, ukuvumela abafundi ukuqalela phasi izinto ezibuthelelweko isib. izinto ezisedeskeni lakatitjhere, nofana ithreyi yezinto ezibekwe ehlabathini, begodu ubawe abafundi bayigwale kusukela ngaphezulu. Abafundi bangaragela phambili ngokugwala iimplani ezingakahleleki begodu nemimebhe yeendawana ezincani isib.itlasi lokufundela, ibala lesikolo.	limfundo ezi-3

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3.2 **Izinto ezibo-busontathu (3-D)**	**Irherho lezinto** Ukukhumbula begodu nokutjho amagama wezinto za- 3-D ezingetlasini begodu neenthombeni • Amajamo webhola (indulungu) • Amajamo bebhoksi (amaphrizimu) • Amasilinda • Amaphiramidi • Iinkurwana (Amakhoni) **Amatshwayo wezinto** Ukuhlathululula, ukuhlela begodu nokumadanisa izinto ezi 3-D ngokuya nga/ngo: • majamo we 2-D ezenza ubuso bezinto ze 3-D • phezulu elisipara nofana eligobeneko **Imisetjenzana enqophiweko** Tjheja godu wak he izinto za 3-D ezinikelweko ngokusebenzisa amamathiriyeli aphathekako afana namajamo we 2-D asikiweko umdaka/ibumba, iimbangulimazinyo, amaphayiphi wokusela nezinye izinto eziyi 3-D zeJiyomethri	**Irherho lezinto** Ukukhumbula begodu nokutjho amaga wezinto za-3-D ezingetlasini begodu neethombeni • Amajamo webhola (indulungu) • Amajamo bebhoksi (amaphrizimu) • Amasilinda • Amaphiramidi • Iinkurwana (Amakhoni) **Amatshwayo wezinto** Ukuhlathululula, ukuhlela begodu nokumadanisa izinto ezi 3-D ngokuya nga/ngo: • majamo we 2-D ezenza ubuso bezinto ze 3-D • phezulu elisipara nofana eligobeneko **Imisetjanzana enqotjhiweko** **Imisetjenzana** Tjheja goduwak he izinto za 3-D ezinikelweko ngokusebenzisa amamathiriyeli aphathekako afana namajamo we 2-D asikiweko umdaka/ibumba, iimbangulimazinyo, amaphayiphi wokusela nezinye izinto eziyi 3-D zeJiyomethri	**Isitjhukumiso somnqopho weThemu yesi-3** - Abafundi banganqopha ezintweni ezitja eGreyidini yesi-3, o.u.amaphiramidi begodu neenkurwana/amakhowuni - Abafundi bakha izinto ngamathunjana wokusela iinselo ezimakhaza nofana amaphayiphu wokuhlwengisa nofana ngeembali mazinyo nofana ngamathunjana wamaphepha aphuthelweko. Yethula kubafundi amakhoni namaphiramidi. **Ukunqopha ematshwayeni wezinto za (3-D): zelingaphezulu elithabaleleko nofana eligobeneko, ubujamo belingaphezulu elithabaleleko** • Ingaphezulu elithabaleleko nofana eligobeneko EThemini yesi- 2 • Abafundi banqopha ekuthini izinto zinelingaphezulu elithabaleleko nofana eligobeneko. • Abafundi bahlathula amajamo welingaphezulu elingemaqadi ngukutjho bonyana; iindulungu, aboncantathu, iinkwere nofana aboncande. Abafundi baragela phambili nokwenza lokhu eThemini yesi-3 , kodwana kwanje baqala nama phiramidi neenkurwana (amakhowuni). • Ukwakha izinto ezi 3-D ezikhamba ngayinye . Abafundi basebenzisa iimbangulimazinyo, namathunjana wamaphepha aphuthelweko, amathunjana wokusela iinselo ezimakhaza nofana amphayiphu wokuhlwengisa ukwenza iphiramidi. Lokhu kwenza abafundi banqophe emaphethelweni wephiramidi. Abafundi abakalindeleki bonyana babale inani lomiphetho nofana umakhona wephiramidi (lokhu kwenziwa eGreyidini yesi-6). **Ukukhumbula nokutjho amagama wezinto** Abafundi bafanele banikelwe Izinto ezihlukahlukenekoabazokusebenza ngazo : - Okujame njenge ndulungu, isib. iimbholo nofana ubukhulu bomabul , amalamune njll. ; - Okujame onjenge phrizimu, isib. Amabhlogo , iintina , amabhoksi ahlukahlukeneko ngobukhulu , isib.amabhoksi womlilo ,amabhoksi wesiriyeli ,amabhoksi wetiye ,amabhoksi wenhlamba mazinyo ; - Okujame njenge silinda, okufaka hlangana amade namatsikana, isib. inquntwana zamaphayiphi ezinobujamo besilinda , - Ikhadibhodi elingaphakathi lephepha lefoyili nofana iphepha lokuya ngendlwaneni begodu namasilinda amafithjani, adage, isib amabhlegana wephoritjhi yamanyathelo, amabhlegana wesineyifu njll. - Okujamo njeenkurwana (amakhowuni); begodu - Okujame njengephiramidi.	

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3.2 **Izinto ezibo-busontathu (3-D)**	**Irherho lezinto** Ukukhumbula begodu nokutjho amagama wezinto za- 3-D ezingetlasini begodu neenthombeni • Amajamo webhola (indulungu) • Amajamo bebhoksi (amaphrizimu) • Amasilinda • Amaphiramidi • Iinkurwana (Amakhoni) **Amatshwayo wezinto** Ukuhlathulula, ukuhlela begodu nokumadanisa izinto ezi 3-D ngokuya nga/ngo: • majamo we 2-D ezenza ubuso bezinto ze 3-D • phezulu elisipara nofana eligobeneko **Imisetjenzana enqophiweko** Tjheja godu wak he izinto za 3-D ezinikelweko ngokusebenzisa amamathiriyeli aphathekako afana namajamo we 2-D asikiweko umdaka/ibumba, iimbangulimazinyo, amaphayiphi wokusela nezinye izinto eziyi 3-D zeJiyomethri	**Irherho lezinto** Ukukhumbula begodu nokutjho amaga wezinto za-3-D ezingetlasini begodu neethombeni • Amajamo webhola (indulungu) • Amajamo bebhoksi (amaphrizimu) • Amasilinda • Amaphiramidi • Iinkurwana (Amakhoni) **Amatshwayo wezinto** Ukuhlathulula, ukuhlela begodu nokumadanisa izinto ezi 3-D ngokuya nga/ngo: • majamo we 2-D ezenza ubuso bezinto ze 3-D • phezulu elisipara nofana eligobeneko **Imisetjanzana enqotjhiweko** **Imisetjenzana** Tjheja goduwak he izinto za 3-D ezinikelweko ngokusebenzisa amamathiriyeli aphathekako afana namajamo we 2-D asikiweko umdaka/ibumba, iimbangulimazinyo, amaphayiphi wokusela nezinye izinto eziyi 3-D zeJiyomethri	Abafundi bafanele babawiwe batjengise izinto ezijame njengebholo (indulungu), nofana okujame njengebhoksi (phrizimu) , nofanaokujame njenge (isilinda) , okujame njengephiramidi, nonfana okujamw njengesikurwana . - Lokha nabanikelwe ibuthelelo lezinto ; nofana - Ngetlasini, isib. Isitina lesi sinobujamo obufana nebebhoksi nofana ilamune leli linobujamo obufana nebholo. Ngesikhathi sabafundi sokujamela bangenza iimbholo, bebodu namasilinda begodu nobujama bamabhoksi, (amaphrizimu),amphiramidi ,begodu neenkurwana ngedaka nofana ihlama yokudlala. **Umsetjenzana otlolwako** Nanyana umsebenzi omnengi wezinto za-3-D wenziwa ngokuphathekako, kufanele uhlanganiswe noku tlola .Umnqopho weGreyidi yesi-3 ufanele ube sekutjhweni amagama wezinto begodu nokukhuluma ngobujamo belingaphezulu lento. . Akukalindeleki bonyana abafundi babale nofana bazi inani nomboro leenkwere, laboncande, aboncantathu nofana izinto ezinelingaphezulu eliyidulungu, nofana amawugu atholakala entweni leyo. izin **ILimi** ILimi elisebenzisekako lokha nawukhuluma ngezinto za-3-D: Ingaphezulu elithabaleleko , eligobeneko , amabhoksi , iimbholo , amasilinda , amaphiramidi , iinkurwana .	Iimfundo

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3.3 **Amajamo wa- (2-D)**	**Irherho lamajamo** • iindulungu • aboncantathu • iinkwere • aboncande **Amatshwayo wamajamo** Ukuhlathulula,ukuhlela nokubeka begodu nokumadanisa izinto ezi- (2-D) ngokuya ngo: • bujamo • amahlangothi anqophe thwi • amahlangothi azindulungu . **Gwala amajamo** • iindulungu • aboncantathu • iinkwere • aboncande	**Irherho lamajamo** • iindulungu • aboncantathu • iinkwere • aboncande **Amatshwayo wamajamo** Ukuhlathulula,ukuhlela nokubeka begodu nokumadanisa izinto ezi- (2-D) ngokuya ngo: • bujamo • amahlangothi anqophe thwi. • amahlangothi aziindulungu/arondo **Gwala ubujamo** • iindulungu • aboncantathu • iinkwere • aboncande	Qala amanothi weThemu yoku-1. Abafundi bafanele bagcine nomnqopho ofanako , kodwana benze imisetjenzana ehlukahlukeneko. Abafundi basebenza ngendulungu nangeenkwere ezinesayizi /ubukhulu obuhlukahlukeneko begodu nangabo ncatathu naboncande abanobujamo obuhlukahlukeneko. Bazihlela ngokuthi zinamahlangothi anqophileko / athabaleleko nofana amahlangothi azindulungu. Abafundi bahlela begodu babuthelele amajamo ngokuya ngokuthi aboncantathu, aziinkwere, aboncande nofana azindulungu. Umsebenzi uyahlanganiswa ngemisetjenzana otlolwako ofaka hlangana imigwalo yamajamo woke afunekako.	Iimfundo ezi-2

IGREYIDI YESI -3 ITHEMU YESI- 3 4. UKUMEDA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.1 Isikhathi	**Ukutjho isikhathi** • Ukufunda amalanga emakhalendeni • Ukubeka amalanga wamabeletho, amafestivali wezekolo, amaholideyi womphakathi, iminyanya yezomlando, izehlakalo zesikolo ezisekhalendeni. • Ukutjho isikhathi sama-iri ali-12 ngama - -iri, - ngesiquntu se-iri - ngekotara ye-iri - amaminithi wewatjhi le-analogo neenwatjhi zedijithali begodu nezinye iinsetjenziswa zedijithali ezitjengisa isikhathi, isib. abomaliledinini **Ukubala ubude besikhathi begodu nokudlula kwesikhathi** Ukusebenzisa amakhalenda ukubala begodu nokuhlathulula ubude besikhathi ngokuya ngamalanga nofana ngeemveke nofana ngeenyanga ukufaka hlangana • ukutjhugulula hlangana kwamalanga neemveke • ukutjhugulula hlangana kweemveke neenyanga Sebenzisa amawatjhi ukubala ubude besikhathi ngokuya ngama-iri nofana iinquntu zama-iri	**Ukutjho isikhathi** • Ukufunda amalanga emakhalendeni • Ukubeka amalanga wamabeletho, amafestivali wezekolo, amaholideyi womphakathi, iminyanya yezomlando, izehlakalo zesikolo ezisekhalendeni. • Ukutjho isikhathi sama-iri ali-12 ngama - -iri, - ngesiquntu se-iri - ngekotara ye-iri - amaminithi wewatjhi le-analogo neenwatjhi zedijithali begodu nezinye iinsetjenziswa zedijithali ezitjengisa isikhathi, isib. abomaliledinini **Ukubala ubude besikhathi begodu nokudlula kwesikhathi** Ukusebenzisa amakhalenda ukubala begodu nokuhlathulula ubude besikhathi ngokuya ngamalanga nofana ngeemveke nofana ngeenyanga ukufaka hlangana • ukutjhugulula hlangana kwamalanga neemveke • ukutjhugulula hlangana kweemveke neenyanga Sebenzisa amawatjhi ukubala ubude besikhathi ngokuya ngama-iri nofana iinquntu zama-iri	Abafundi baragela phambili ukuzijayeza ukukhuluma ngobude besikhathi begodu nangokulandelana kwesikhathi. Ngesikhathi sokufundisa itlasi loke begodu nangesikhathi sokunqopha esiqhemeni, abafundi baragela phambili nokukhuluma ngamalanga weveke, inyanga yonyaka begodu nedadamu yelanga lamhlokho , nangamalanga angaphambili begodu namalanga asezako. Abafundi baragela phambili nokubeka okulandelako ekhalendeni njengombana izehlakalo zivela • amalanga wamabeletho ; • amafestivali wezekolo ; • iminyanya yezomlando ; • izehlakalo zesikolo ; begodu • amaholideyi womphakathi. Ragela phambili ngokutjela abafundi bonyana batjho isikhathi ngamakhefu avamileko. - ngama-iri begodu nangamaminithi wewatjhini ye-analogo; begodu - ngama-iri, iinquntu zama-iri, begodu nangamakotara wama-iri ngokusebenzisa amawatjhi we analogo . Isibonelo, abafundi bangabawiwa bonyana batjho iskhathi sokungena kwesikolo , isikhathi sokudla begodu nesikhathi sokuphuma kwesikolo , nofana batjhintja basuka kesinye isifundo baya kwesinye. Khetha iinkhathi lapho iwatjhi litjengisa isikhathi poro nofana isiquntu se-iri nofana ikotara ye-iri. Kuyarhelebha ukuba newatjhi elikhulu, elisebenzako libekwe ngetlasini, fanelekile bonyana kube newatjhi esebenzako ebekwa ngetlasini, uukwenzela bonyana abafundi baqale kilo isikhathi. Abafundi bangenza imifaniso yamawatjhi. Ungababawa bonyana bakutjengise iinkhathi ezihlukileko begodu nokufaka hlangana nokhunye ukubalisisa , isib. “Ngitjengisa i-iri le-10 ehloko . Bekusukhathi bani ikotara ye-iri ngaphambi kwe –iri letjhumi ?” Qala amanothi weThemu yoku-1 Ngesikhathi sokusebenza ngokuzijamela , abafundi baragela phambili nokwenza imisebenzi ephathelene nokutjho isikhathi: - ngama-iri, iinquntu zama-iri, begodu nangamakotara wama-iri ewatjhini ye-analogo; begodu - ngama-iri begodu nangamaminithi ewatjhini ye-dijithali	

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4.1 **Isikhathi**	**Ukutjho isikhathi** • Ukufunda amalanga emakhalendeni • Ukubeka amalanga wamabeletho, amafestivali wezekolo, amaholideyi womphakathi, iminyanya yezomlando, izehlakalo zesikolo ezisekhalendeni. • Ukutjho isikhathi sama-iri ali-12 ngama - -iri, - ngesiquntu se-iri - ngekotara ye-iri - amaminithi wewatjhi le-analogo neenwatjhi zedijithali begodu nezinye iinsetjenziswa zedijithali ezitjengisa isikhathi, isib. abomaliledinini **Ukubala ubude besikhathi begodu nokudlula kwesikhathi** Ukusebenzisa amakhalenda ukubala begodu nokuhlathulula ubude besikhathi ngokuya ngamalanga nofana ngeemveke nofana ngeenyanga ukufaka hlangana • ukutjhugulula hlangana kwamalanga neemveke • ukutjhugulula hlangana kweemveke neenyanga Sebenzisa amawatjhi ukubala ubude besikhathi ngokuya ngama-iri nofana iinquntu zama-iri	**Ukutjho isikhathi** • Ukufunda amalanga emakhalendeni • Ukubeka amalanga wamabeletho, amafestivali wezekolo, amaholideyi womphakathi, iminyanya yezomlando, izehlakalo zesikolo ezisekhalendeni. • Ukutjho isikhathi sama-iri ali-12 ngama - -iri, - ngesiquntu se-iri - ngekotara ye-iri - amaminithi wewatjhi le-analogo neenwatjhi zedijithali begodu nezinye iinsetjenziswa zedijithali ezitjengisa isikhathi, isib. abomaliledinini **Ukubala ubude besikhathi begodu nokudlula kwesikhathi** Ukusebenzisa amakhalenda ukubala begodu nokuhlathulula ubude besikhathi ngokuya ngamalanga nofana ngeemveke nofana ngeenyanga ukufaka hlangana • ukutjhugulula hlangana kwamalanga neemveke • ukutjhugulula hlangana kweemveke neenyanga Sebenzisa amawatjhi ukubala ubude besikhathi ngokuya ngama-iri nofana iinquntu zama-iri	Abafundi bangabala ngeemveke nofana ngamalanga nabanganikelwa ikhalenda nofana iingcenye zekhalenda , isib. Ukuthola idadamu begodu nokubala umahluko hlangana nawo **Ukufunda isikhathi se-analogo ngamaminithi** Sebenzisa okungasenani iimfundo ezi-3 unqophise abafundi emakghonweni afunekako bonyana bafunde isikhathi se-analogo ngamaminithi. - Khumbuza abafundi ngehlathululo yekuseni (a.m) begodu neyentambama (p.m.) - Khumbuza abafundi bonyana kunamaminithi ama-60 e-irini linye; ngakho-ke kunamaminithi ama-30 esinquntwini se-iri begodu kunamaminithi ali-15 ekotareni ye-iri. Bavumele babale ngaku-5 nawukhomba iinomboro ewatjhini ye-analogo. - Hlathulula imithetho yesikhathi “ukudlula” begodu “nokuya” - Nikela abafundi isikhathi esinengi sokuzijayeza ukufunda isikhathi se-analogo ngamaninithi Bawa abafundi bonyana batjho isikhathi qho emini umnyaka woke. Abafundi bangahlola ewatjhini ye-analogo bonyana banikele isikhathi esifaneleko nabafunda iwatjhi ye-analogo. Vumela abafundi benze amawatjhi wemifanekiso abangawasebenzisa ukutjho isikhathi begodu nokubala ukuhluka kweekhathi	iimfundo ezi-4

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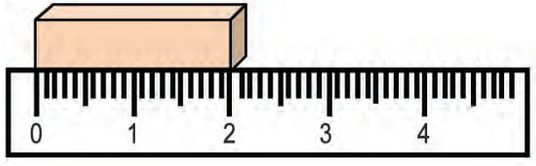
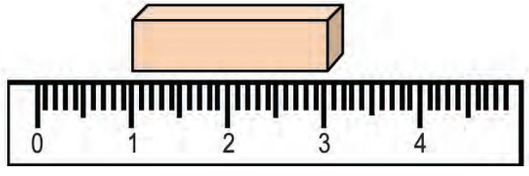
4.2 Ubude	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu urekhode ubudengokusebenzisa iimedo ezingakahleleki, isib. Ubude besandla, amagadango, ubude bamapensela, izinto zokubala, njll • Ukuhlathulula ubude bezinto ngokubala begodu nokutjho bonyana zinobude obungangani bamayunithi angakahleleki • Ukusebenzisa ilimi ukukhuluma ngokumadanisa, isib. ubude, ubufitjhani, mude khulu , banzi khulu **Ukwethula ukumeda okuhlelekileko** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu urekhode ubude ngokusebenzisa amamitha (iintonga ezimamitha nofana iintambo ezinobude bemitha) njengomuvosimedo ohlelekileko. • Ukulinganisa nokumeda ubude ngamasenthimitha ngokusebenzisa irula. Alikho itjhuguluko elifuneka hlangana kwamamitha namasenthimitha.	**Ukwethula ukumeda okuhlelekileko** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu urekhode ubude ngokusebenzisa amamitha (iintonga ezimamitha nofana iintambo ezinobude bemitha) njengomuvosimedo ohlelekileko. • Ukulinganisa nokumeda ubude ngamasenthimitha ngokusebenzisa irula. • Alikho itjhuguluko elifuneka hlangana kwamamitha namasenthimitha.	**Ngikuphi okuhlukileko eThemini yesi-2** EThemini yesi-2 abafundi banqopha • Ekumedeni okungakahleleki ngokusebenzisa amayunithi wobude angakahleleki : begodu • Nokumeda ngamamitha EThemini yesi-3 abafundi bangathoma ukumeda ngamasenthimitha basebenzisa irula. Lokhu kuzokuba sisetjenziswa sokuthoma sokumeda esisetjenziswa bafundi lokha nabatlhoga ukufunda iimedo emideni enomboriweko yeemedo. **Ukulinganisa, ukumeda, ukumadanisa begodu nokurekhoda ubude, ukuphakama begodu nobubanzi ngokusebenzisa amamitha** • Abafundi bafanele bahlanganise ukuzwisisa kwabo kobude bemitha yi-1 begodu basebenzise ubude bemitha ukumeda into ethileko. Qala amanothi weThemu yesi-2 **Ukulinganisa, ukumeda, ukumadanisa begodu nokurekhoda ubude, ukuphakama begodu nobubanzi ngamasenthimitha ngokusebenzisa irula.** • Ukusebenzisa irula Tjengisa abafundi bonyana kuthonywa njani ukumeda ukusuka kulize. Lokha abafundi nabasebenzisa amayunithi angakahleleki , bathoma ukubeka izinto ezisetjenziswa njengamayunithi ekuthomeni kwento emedwako. Nawumeda ngamasenthimitha, awubeki ekuthomeni kwerula into emedwako Ubeka into emedwako elizeni lerula.  Iraba inobude bama-2 cm Kuyakghonakala bonyana unqophise into emedwako ngekuthomeni kwayo nenye inomboro eseruleni begodu ukhuphe inomboro esekuthomeni kwento emedwako enomborweni esekugcineni kwento emedwako.  Iraba inobude obuma- (3cm- 1cm) =2 cm	

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4.2 **Ubude**	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu urekhode ubudengokusebenzisa iimedo ezingakahleleki, isib. Ubude besandla, amagadango, ubude bamapensela, izinto zokubala, njll • Ukuhlathulula ubude bezinto ngokubala begodu nokutjho bonyana zinobude obungangani bamayunithi angakahleleki • Ukusebenzisa ilimi ukukhuluma ngokumadanisa, isib. ubude, ubufitjhani, mude khulu , banzi khulu **Ukwethula ukumeda okuhlelekileko** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu urekhode ubude ngokusebenzisa amamitha (iintonga ezimamitha nofana iintambo ezinobude bemitha) njengomuvosimedo ohlelekileko. • Ukulinganisa nokumeda ubude ngamasenthimitha ngokusebenzisa irula. Alikho itjhuguluko elifuneka hlangana kwamamitha namasenthimitha.	**Ukwethula ukumeda okuhlelekileko** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu urekhode ubude ngokusebenzisa amamitha (iintonga ezimamitha nofana iintambo ezinobude bemitha) njengomuvosimedo ohlelekileko. • Ukulinganisa nokumeda ubude ngamasenthimitha ngokusebenzisa irula. • Alikho itjhuguluko elifuneka hlangana kwamamitha namasenthimitha.	Ngaphandle kobana abafundi babuze ngayo, nofana bazitholele ngokwabo, ingaliselelwa iGreyidi yesi-4. • Ukulinganisa ngamasenthimitha Abafundi bafanele bathole izinto ezinobude besenthimitha yi-1 tere. Mhlamunye munye wemino ububanzi be-1 cm. lokhu kungasetjenziswa njengendawo esitjengiso yokulinganisa ubude, ubudege, begodu nokuphakamangamasentimitha. Lokha abafundi nasele banekghono lokumeda ngamasentimitha, kufanele balinganise ngaphambi kokumeda okhunye nokhunye. • Imida , imigwalo begodu nezinto Vumela abafundi bathome ukumeda imida. Kulula ukumeda ubude bemida eyenza ubude, ukuphakama nofana ububanzi bemigwalo yezinto nakusetjenziswa irula. Kubudisi khulu ukumeda ubude, ukuphakama nofana ububanzi bezinto eziphathekako ngokusebenzisa irula. EGreyidini yesi-4 abafundi bazakumeda ngamasenthimitha nangamamilimitha. EGreyidini yesi-3 abakalindeleki bonyana Basebenzise amamilimitha. • Ukumadanisa iimedo ngamasenthimitha Abafundi bafanele bamadanise ubude, ububanzi begodu nokuphakama kwezinto ezimedwako ngamasenthimitha. • Ukurekhoda iimedo Nanyana ukumeda kulikghono lokuzijayeza, abafundi bafanele barekhode iimedo zabo (ngawo womabili amayunithi angakahleleki begodu ngamamitha) ngaso soke isikhathi. **Ukumeda ubude njengobujamo bokurarulula imiraro begodu nokubala** Ngesikhathi esibekelwe linomboro, ama- Oparetjhiniimi noBudlelwana, abafundi bangararulula imiraro esebenzisa ubujamo • Bokumeda okungakahleleki kobude • Ukumeda ngobude amamitha ;begodu • Ukumeda ubude ngamasenthimitha Yelela irherho lenomboro elifaneleko leThemu, nemihlobo yeenkinga ezihlukahlukeneko ezifaneleko zeThemu. Abafundi ABAKALINDELEKI bonyana • bazi bonyana i-100cm= 1 m; • ukwenza itjhuguluko hlangana namasenthimitha namamitha; • bafunde ubude ngamamilimitha (lokhu kwenziwa ukusuka eGreyidini ye-4) • bazi bonyana i-10 mm = 1 cm; nofana • benze itjhuguluko hlangana namasenthimitha namamilimitha. Ukubala ngamasenthimitha kungakhethwa ukuze bangeqeli ngale kwe-100 cm.	lessons

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4.3 Imasi / Ubudisi	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela, begodu kurekhodwe ubungako, ngokusetjenzisa iimedo ezingakahleleki begodu nesikala sokudzimelela isib. amabhulogo, iintina njll. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib.elula, ebudisi, elula-khulu, ebudisi-khulu. **Ukwethula ukumeda okuhlelekileko** • Ukumadanisa, ukuhlela nokurekhoda ubungako bezinto ezipakelwe ukuthengiswa ezinobungako obutjengiswe ngamakhilogremu, isib. amakhilogremu ama-2 wereyisi begodu nekhilogremu li-1 leflowuru nofana amagremu ama-500 wetswayi • Ukumeda ubungako babo ngamakhilogremu ngokusebenzisa isikala sokumeda sangendlini yokuhlambela Alikho itjhuguluko elifunekako hlangana kwamamilimitha namalitha		Ngesikhathi sokusebenza ngokuzijamela abafundi bangaragela phambili noku: • Linganisa, ukumeda, ukuhlela, ukumadanisa begodu nokurekhoda ubungako bezinto ngokusebenzisa isikala sokudzimelela ngamayunithi wokumeda angakahleleki. • Madanisa, uhlele begodu urekhoda abakufumeneko. - izinto ezithengiswa esitolo sokudla nezinye izintwanyana zangekhaya ngobungako obutlolwe ngamakhilogremu - izinto ezithengiswa esitolo esitolo sokudla nezinye izintwanyana zangekhaya ngobungako obutlolwe ngamagremu Qala amanothi weThemu yesi-2. **Ukumeda ubungako njengobujamo bokuraralula imiraro nokubala** Ngesikhathi esabelwe linomboro, amaFanktjhini noBudlelwana, abafundi bangararulula imiraro esebenzisa ubujamo • Bokumeda obungakahleleki bobungako • bobungako ngamakhilogremu • bobungako ngamagremu Yelela irherho lenomboro elifaneleko leThemu, nemihlobo yeenkinga ezihlukahlukeneko ezifaneleko zeThemu.	

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4.4 **Umthamo/ Ivolumu**	**Ukumeda okungakahleleki** • Ukulinganisa ,nokumeda , Ukumadanisa nokuhlela umthamo weemumathi (o.u. umthamo ongamumathwa simumathii nasizeleko) ngokusebenzisa iimedo ezingakahleleki zokumeda isib. lingobho namakopi. • Ukuhlathulula umthamo wesimumathi ngokubalabegodu nokutjho bonyana mangaki amayunithi angakahleleki angazalisa isimumathi, isib. Ibhodlelo linobungako bamakopi ama-4 **Ukwethulwa kokumeda okuhlelekileko** • Ukulinganisa, ukumeda; ukumadanisa ukuhlela begodu nokurekhoda umthamo wezinto ngokumeda ngamalitha, iinqunto zamalitha, ngamahafu wamalitha begodu nangamakotara wamalitha. • Ukumadanisa, ukuhlela begodu nokurekhoda umthamo wezinto ezipakelwe ukuthengiswa, ubungako bazo butlolwa ngamalitha, isib. Amalitha ama-2 webisi, ilitha li-1 lesiselo esimakhaza, amalitha ama-5 wepende nofana ngamamilimitha isib. ama-500 ml yebisi, • amamililitha ama-340 wesiselo esimakhaza, amamilimitha ama-750 we-oli. • Ukwazi bonyana ikopi elisezingeni elifaneleko limamililitha ama-250. Ukwazi bonyana ithispuni imamililitha ama-5 Akukalindeleki bonyana kube netjhugululko hlangana kwamamililitha namalitha		Ngesikhathi sokusebenza ngokuzijamela abafundi bafanele baragele phambili ngoku Linganisa nokumeda, ukumadanisa, ukuhlela begodu nokurekhoda umthamo weemumathi nofana ivolumu yeemumathi ngokusebenzisa iimedo ezingakahleleki. Ukulandela amaresibhi, ukufaka hlangana ukubhaga , kubujamo obusibuzako lapho abafundi bangazijayeza khona ukumeda. Khetha amaresibhi lapho iinthako zakhona ziphiwa ngamakopi, amathispuni nofana ngamayunithi angakahleleki. • Madanisa begodu uhlele umthamo wamabhodlelo ahlukahlukeneko begodu nangezinto ezithengiswa esitolo sokudla (igrozari) nezinye intwanyana zangekhaya lapho umthamo utlolwe khona entweni eziphakethelweko. • Sebenzisa nanyana mabhodlelo welitha li-1 nanyana majege welitha li-1 ukulinganisa begodu nokumeda, ukumadanisa, ukuhlela begodu nokurekhoda umthamo weemumathi nofana ivolumu engesimumathini ngamalitha. • Sebenzisa iimumathi ezimeregwe ngamamililitha, isib. 200 ml, 330 ml, 500 ml, 750 ml, nofana 250 ml yamakopi wokumeda, nofana 5ml yeengobho zokumeda nofana amajege anemida yamamilimitha ameregwe kiwo ukumeda ivolumu nofana imithamo yeemumathi ezingakalebulwa. Qala amanothi weThemu yoku-1. Abafundi bafanelwe banikelwe amathaski atlolwako ukuhlanganisa okulandelako, ukufaka hlangana ukufunda iinthombe ze: • mikhiqizo imithamo yazo etlolwe ngamalitha ukuze zilandelaniswe ngendlela efaneleko. • iinthombe zamajege lapho ivolumu iseduze nomuda onomborwe ilith li-1 nofana amalitha ama-2. Kulindeleke bonyana abafundi bafunde kwaphela umuda onomboriweko oseduze nomthamo. Bahlathulula ivolumu njengokuthi pheze, / eduze /okunengana kuna/ pheze kube/ nofana inomboro poro (yelitha) abayifunda ejegeni. • Imikhiqizo enomthamo otlolwe kiwo ngamamilimitha ukuze kulandelaniswe ngendlela efaneleko. • Iinthombe zamajege lapho ivolumu iseduze nomuda wamamililitha womthamo onomboriweko. Kulindeleke bonyana abafundi bafunde kwaphela umuda oseduze omeregiweko.	

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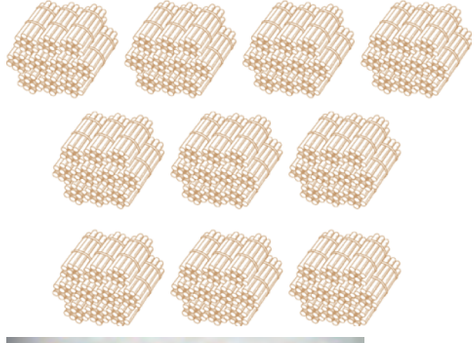
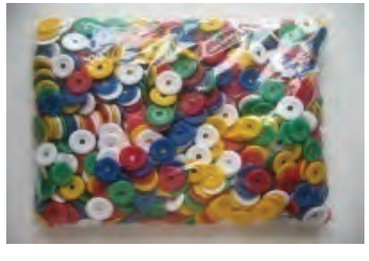
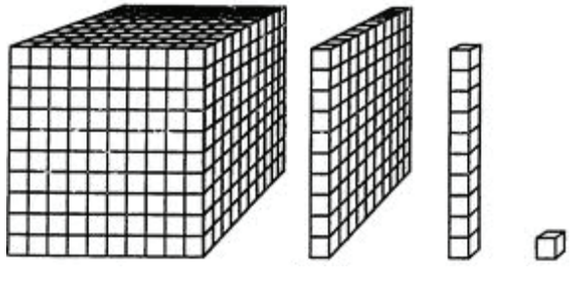
4.4 Umthamo/ Ivolumu			**Ukumeda umthamo njengobujamo bokurarulula imiraro begodu nokubala** Ngesikhathi esabelwe Iinomboro, ama-opharetjhini noBudlelwana, abafundi bangararulula imiraro ngokusebenzisa ubujamo be /bo • bobungako / bevolumu yesimedo esingakahleleki, isibonelo, uGogo usebenzisa amakopi amabili webisi ukwenza ipudinghi. Nakayibuyelela kabili iresibhi yakhe, uzakutlhoga ibisi elingangani? • Amalitha • amamililitha Yelela irherho lenomboro elifaneleko leThemu, nemihlobo yeenkinga ezihlukahlukeneko ezifaneleko zeThemu.	
4.5 Ipherimitha ne-eriya	**Ipherimitha** • Phenya/rhubhulula ibanga elizombeleze amajamo we- (2D) begodu nezinto ezi - (3D) ngokusebenzisa intambo **I-eriya** • Phenya/rhubhulula I –eriya ngokusebenzisa ukuthayela	**Ipherimitha** • Phenya ibanga elizombeleze amajamo we- (2D) begodu nezinto ezi - (3D) ngokusebenzisa intambo	**Ukumeda izinto mazombe nofana ukumeda ipherimitha kuyinto etjha eGreyidini yesi-3** Ipherimitha imedwa ngokungakahleleki kwaphela eGreyidini yesi-3 Nikela abafundi isikhathi esinengi sokuzijayeza ukusebenzisa iinquntu zentambo ukumeda buzombeleza izinto ezinengi ezihlukahlukeneko njengeenhloko, amabhodlelo (okufaka hlangan amabhodlelo amade aqaleka amatsikana begodu namabhodlelo amafitjhani aqaleka abanzi) amabhlege, iimbhigiri, amabhoksi, njll. Vumela abafundi balinganise maqangi bonyana ngiziphi izinto abacabanga bonyana zinepherimitha ekudlwana bese uhlola ngokumerega ubude eentokaneni zeeentanjana begodu nokuzimadanise. Abafundi bangameda ipherimitha yamajamo wa- (2D) ngokusebenzisa isitokana sentambo. Abafundi bangameda amapherimitha ngokusebenzisa amayunuthi angakahleleki wokumeda okufana neemvalo zamabhodlelo, amabhoksi womlilo, njll.	

IGREYIDI YESI-3 ITHEMU YESI-3 5. UKUPHATHA IDATHA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-3**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
5.4 Buthelela begodu uhlele idatha	**Buthelela begodu uhlele idatha** • Buthelela idatha ngetlasi nofana isikolo ukuphendula imibuzo ebuzwa ngutitjhere. • Hlela idatha oyinikelwe ngutitjhere nofana incwadi • Hlela idatha ngama: - Rhelo - Thali - Thebula	**Buthelela begodu uhlele idatha** Buthelela idatha ngetlasi nofana isikolo ukuphendula imibuzo ebuzwa ngutitjhere. **Jamisela idatha** Jamisela idatha ngama bha. **Hlaziya begodu urhumutjhe idatha** Phendula imibuzo ngedatha ethulwe ngamabha	Kuphakanyisiwe bonyana eThemini yoku 1 abafundi benze ibha grafu yetlasi ,nokuthi eThemini yesi- 2 bahlaziya amagrafu weenthombe namathebula obanikela wona. EThemini yesi-3 abafundi bangasebenza ngawowoke umzombe wedatha (Qala amanothi weThemu yoku- 1) nofana bathome ngedatha ethulwe ngerhelo nofana ngamathali nofana ngethebula begodu babuye bahlele koke lokhu nge- bha grafu. Kulula khulu ebafundini ukugwala ama-bha grafu ngokusebenzisa amaphepha wesikotjhi. Kuzakuthlogeka bonyana ukhumbuze abafundi ngamatshwayo aqakathekileko we- bha grafu (Qala amanothi weThemu yoku-1). Abafundi bafanele baphendule imibuzo obabuza yona ngama grafu; qala iThemu yoku-1 ukuthola imihlobo efaneleko yemibuzo	3 lessons
5.5 Jamisela idatha	**Jamisela idatha** Jamisela idatha nge: • Grafu yeenthombve • Bha grafu			
5.6 Tsenga begodu uhlathulule idatha	**Hlaziya begodu urhumutjhe idatha** Phendula imibuzo ngedatha ethulwe nge: • Grafu yeenthombve • Bha grafu.			

IGREYIDI YESI-3 ITHEMU YESI- 4 1. IINOMBORO , AMA-OPHARETJHINI NOBUDLELWANA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.1 Ukubala izinto	**Ukubala izinto eziphathekako** Linganisa bewubale ngokuthembeka ukufika e-1000 izinto zangamalanga. Amaqhinga wokubuthelela ayakhuthazwa.	**Ukubala izinto eziphathekako** Linganisa bewubale ngokuthembeka ukufika e-1000 izinto zangamalanga. Amaqhinga wokubuthelela ayakhuthazwa.	Ekupheleni kweThemu le, abafandi bafanele bonyana sele babone, bathinta, bebatjhidisa izinto e-1000. Bafanele bonyana sele 'banomuzwa wobunengi' be-1000. Iqhinga lokubuthelelwa ngeenqhema lifanele ligqugquzelwe.Ekupheleni kweThemu bafanele bakghone ukuphendula imihlobo yemibuzo elandelako neenlayelo:    Iinkulungwane Amakhulu Amatjhumi Imivo	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.1 Ukubala izinto	**Ukubala izinto eziphathekako** Linganisa bewubale ngokuthembeka ukufika e-1000 izinto zangamalanga. Amaqhinga wokubuthelela ayakhuthazwa.	**Ukubala izinto eziphathekako** Linganisa bewubale ngokuthembeka ukufika e-1000 izinto zangamalanga. Amaqhinga wokubuthelela ayakhuthazwa.	Bala izinto zokubala ngeenqhema zangakuhlanu, namatjhumi. Babuyelele babuhlele begod babubale godu. Usese nezinto zobukubala ezisalingana naleza ogade unazo? • Nazi izinto zokubala ezima-200. Zibale ngokuzibuthelela ngeenqhema zangalitjhumi. Ukubala zoke izinto zokubala ezima-200, unganyula ukuzibala ngeenqhema zama-20 nofana -25? Kubayini? • Thatha isiqunto bonyana ngiyiphi indlela elula khulu ukubala ibuthelelo leempensela. • Nanzi izinto zokubala ezima-80. Nange sibala ngakubili nofana ngamatjhumi, ingabe isamba yezinto zokubala zisazokulingana nasekuthomeni? • Bala izinto zokubala ezi-46 ngokuzibuthelela ngeenqhema zangakubili. Kumasinya ukubala ngakubili kunokubala ngakhunye.	
1.2 Ukubala uye phambili nemuva	Ukubala uye phambili nemuva nga: • Ku-1 kusuka kwenye nenye inomboro hlangana ne-0 na-1000 • Li-10 kusukela kwenye nenye inomboro ebala nga- li-10 ehlangana ne -0 na 1000 • Ku-5 kusukele kwenye nenye inomboro ebala nga ku-5 ehlangana ne - 0 na 1000 • Ku-2 kusukela kwenye nenye inomboro ebala nga- 2 ehlangana ne-0 na 1000 • Ku-3 kusukela kwenye nenye inomboro ebala nga- 3 ehlangana ne - 0 na 1000 • Ku-4 kusukela kwenye nenye inomboro ebala nga- 4 ehlangana ne - 0 na 1000 • Ma- 20, 25, 50,100 okungenani ukufikela e-1 000	Ukubala uye phambili nemuva nga: • Ku-1 kusuka kwenye nenye inomboro hlangana ne-0 na-1000 • Li-10 kusukela kwenye nenye inomboro ebala nga- li-10 ehlangana ne -0 na 1000 • Ku-5 kusukele kwenye nenye inomboro ebala nga ku-5 ehlangana ne - 0 na 1000 • Ku-2 kusukela kwenye nenye inomboro ebala nga- 2 ehlangana ne-0 na 1000 • Ku-3 kusukela kwenye nenye inomboro ebala nga- 3 ehlangana ne - 0 na 1000 • Ku-4 kusukela kwenye nenye inomboro ebala nga- 4 ehlangana ne - 0 na 1000 • Ma- 20, 25, 50,100 okungenani ukufikela e-1 000	**Ekupheleni kweThemu leli abafundi bafanele bakghone uku:** Babala ngokuzethemba, ngokukhuluma ngakhunye, ngalitjhumi, ngakuhlanu, ngakubili, ngamatjhumi amabili, ngamatjhumi amabili nahlanu, amatjhumi amahlanu begodu nangamakhulu ukufika e-1000. Ukuphendula imbuzo efana na: Ukubala ngamatjhumi ukusuka ema-400 ukuya -500. Manjesi bala ubuyele emuva godu. Ukubala nga-2 ukusuka 564 ukuya 580. Manjesi bala ubuyele emuva godu. Ukubala uye emuva ngamatjhumi ukusuka ema-200 ukuya -40, Ukubala ngamatjhumi amahlanu ukusuka e-600 ukuya 800. Amatjhumi amahlanu amangaki owabalileko? Ukubala uye emuva ngama-100 ukufika ema-620. Makhulu amangaki owabalileko? Ukubala uye emuva ngakhunye ukusuka e-876 ukuya e-866. Ubale abokunye abangaki? Ungaqinisekisa bunjani bonyana ulungile? Ukubala uye phambili amagadango a-15 nga-5 ukusuka e-305. Ukuphi njenga nje? Lokha ubala nga-25 ukusuka 525 ukuya 850 uzosebenzisa inomboro 725? Bala bewu hlole. Ngiyiphi inomboro elandelako? 467, 468, 469, 725, 750, 775, 420, 440, 460 820, 800, 780 Bala usebenzise inambalayini. Gwala inambambalayini enganalitho ukubonisa inomboro ezilandelako phezu kwayo: 602, 604, 610. Kwanjesi ungawabeka kuphi ama-606? Bala usebenzise inambalayini yakho ukusuka ema-602 ukufika 610. Bala ngamatjhumi ukusuka e-314 ukuya e-344. Ngimaphi amadijithi atjhugulako? Ngimaphi amadijithi angatjhugulukiko? Kungani amakhulu angatjhuguluki? Nawubala ubuyela emuva, khuyini okwenzekako?	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.3 Amat-shwayo weenom-boro namagama weenom-boro	**Ukubona nokufunda iinomboro** • **Ukubona** nokufunda amatshwayo wenomboro kusukela ku- 0 ukufika e-1000 • Ukutlola amatshwayo weenomboro ukusukela ku -0 ukufika e-1000 • **Ukubona** nokufunda amabizo wenomboro kusuka e-0 ukufika e-1000 • Ukutlola amabizo wenomboro kusukela e- 0 ukufika e-1000	**Ukubona nokufunda iinomboro** • **Ukubona** nokufunda amatshwayo wenomboro kusukela ku- 0 ukufika e-1000 • Ukutlola amatshwayo weenomboro ukusukela ku -0 ukufika e-1000 • **Ukubona** nokufunda amabizo wenomboro kusuka e-0 ukufika e-1000 • Ukutlola amabizo wenomboro kusukela e- 0 ukufika e-1000	**Ekupheleni kweThemu abafundi bafanele bakghone ukwenza okulandela:** Ukufunda nokutlola iinomboro okungasenani e-1000 Ukuphendula imibuzo efana na: • Ngiyiphi inomboro esekaradeni leli? **642** • Thola ikarada elinenomboro 738 nofana amakhulu alikhomba namatjhumi amathathu nobunane Fundela phezulu iinomboro ezilandelako: 534, 947, 974, 345 Funda amagama lawa: • Amakhulu amathathu namatjhumi amane nambili • Amakhulu amane namtjhumi asithandathu nethoba • Ikulungwane • Amatjhumi amabili nethoba Tlola ngamatshwayo weenomboro • Amakhulu amahlanu namatjhumi alikhomba • Amakhulu amane • Amakhulu asithandathu namatjhumi abunane nahlanu	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.4 Ukuhlathu-lula, uku-madanisa, nokuhlela iinomboro	**Ukumadanisa nokuhlela iinomboro kufika e- 999** • **Ukuhlathulula nokumadanisa** iinomboro kufika e-999 ngokusebenzisa ngokunengi khulu, ngokuncani khulu, okunengi kuna, okuncani kuna, okulinganako. • **Hlathulula bewuhlele** iinomboro kufika e- 999 ezipheleleko. Kusukela kencani khulu kufikela kekulu khulu begodu kusukela kekulu khulu kuya kencani khulu **Ukusebenzisa iinomboro eziodinali ukutjengisa ukuhlela,indawo nofana ubujamo** • Ukusebenzisa, ukufunda nokutlola iinomboro, ukufaka hlangana ibumbeko elirhunyeziweko ukufika ku 31	**Ukumadanisa nokuhlela iinomboro kufika e- 999** • **Ukuhlathulula nokumadanisa** iinomboro kufika e-999 ngokusebenzisa ngokunengi khulu, ngokuncani khulu, okunengi kuna, okuncani kuna, okulinganako. • **Hlathulula bewuhlele** iinomboro kufika e- 999 ezipheleleko. Kusukela kencani khulu kufikela kekulu khulu begodu kusukela kekulu khulu kuya kencani khulu **Ukusebenzisa iinomboro eziodinali ukutjengisa ukuhlela,indawo nofana ubujamo** • Ukusebenzisa, ukufunda nokutlola iinomboro, ukufaka hlangana ibumbeko elirhunyeziweko ukufika ku 31	**Ekupheleni kweThemu leli abafundi bafanele bakghone ukwenza okulandelako:** Ukuhlela iinomboro okungasenani kufika e-1000 Ukuphendula imibuzo ebuzwe ngeendlela ezihlukeneko: Funda inambalayini. Ama-450 avela kuphi? Ama-700 avela kuphi? Ama-350 avela kuphi? Kwanjesi zalisa zoke iinomboro. Tlola iinomboro kusukela kekhulu khulu ukuya kencani khulu. 345, 428, 389, 561, 600, 739, 620, 824 **Madanisa iinomboro ukuya e-999** • Ngiyiphi inomboro enengi nga-1 kuna -563? • Ngiyiphi inomboro eza ngemuva kwa-768? • Ngiyiphi inomboro embadlwana nga-1 kuna-431 • Ngiyiphi inomboro enengi nge-10 kuna-620 • Ngiyiphi inomboro embadlwana nga-10 kuna-650 • Ngiyiphi inomboro enengi nga-20 kuna-480 • Ngiyiphi inomboro embadlwana nga-20 kuna-740 • Ngiyiphi inomboro enengi nga-25 kuna-625 • Ngiyiphi inomboro enengi nga-50 kuna-250 • Ngiyiphi inomboro embadlwana nga-50 kuna-700 • Ngiyiphi inomboro enengi nge-100 kuna-300 Phendula ngokuthi liqiniso nofana mamanga. Nikela izizathu zempendulo zakho Ama-220 useduzana nama- 200 kuna- 250 Ama-403 awasiseduze ema- 400 kuna- 420 i-15 liseduzana e- 0 kune -30 Zaliselela ngo-nengi kuna nofana no-mbadlwana kuna. I-145 li _____ 154 Ama-823 ma/a _____ 789 Ama-466 ma/a_____ 664A Sebenzisa amadijithi 9, 0, 6 ukwenza inomboro ekulu kazi ongayikghona. Ngiyiphi inomboro encani khulu ongayenza?	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.5 Ubukhulu bedijithi	**Thoma ukulemuka ubukhulu bedijithi okungenani iinomboro zamadijithi ama-3 ukufika ema-999** • Ukwazi bonyana idijithi ngayinye ijameleni • Ukuphula iinomboro zamadijithi amathathu ukufika e-999 ukuya ngamatjhumi nangakunye (KTV) • Bona bewutjho ubukhulu bedijithi ngayinye	**Thoma ukulemuka ubukhulu bedijithi okungenani iinomboro zamadijithi ama-3 ukufika ema-999** • Ukwazi bonyana idijithi ngayinye ijameleni • Ukuphula iinomboro zamadijithi amathathu ukufika e-999 ukuya ngamatjhumi nangakunye (KTV) • Bona bewutjho ubukhulu bedijithi ngayinye	NgeThemu leli ukuhlanganiswa kwemiqondo elandelako kufanele aqinisekiswe bewagqugquzelwe: • Iinomboro zingaphulwa zibe makhulu, matjhumi nemivo • Ukuzwisisa bonyana ama-51 makhulu kune-15 ngombana ama-51 uphethe iinqhema/ iinyanda ezi-5 zamatjhumi bese i-15 linesiqhema/inyanda sinye/yinye setjhumi/yetjhumi. • Newubala ngamatjhumi, abafundi nebafika e-40 bayazi bonyana sebabale amatjhumi a-4. **Ekupheleni kweThemu leli abafundi bafanele bakghone uku**: **Sebenzisa, ukufunda nokutlola ilimi leli lokusebenza ngobukhulu bedijithi nokulizwisisisa.** Amayunithi nofana imivo, amatjhumi, amakhulu, idijithi, idijithi elilodwa, amadijithi amabili, amadijithi amathathu, ubukhulu bedijithi..... 60 305 720 **Ukuphula inomboro ukubonisa ubukhulu belinye nelinye idijithi** 637 = 600 + 30 + 7 Basebenzisa amakarada wabo wefladi ukutjengisa lokho **600** **30** **7** Basebenzisa amabhlogo weDienes ukutjengisa ubukhulu bedijithi yenomboro. **Ukuphendula imibuzo efana na:** Yitjho bonyana idijithi li-7 lijamele ini e-127? Bese u-2? No-1? Makhulu amangaki kenye nenye inomboro elandelako: 300, 500, 700, 412, 568 Ziinyanda ezingaki zangalitjhumi ezikhona kuleyo naleyo nomboro elandelako? 50, 80, 100, 200, 700, 120 **Tlola iinomboro:** Ikhulu linye nahlanu Amakhulu asithandathu namatjhumi amabili nahlanu Amakhulu amane amatjhumi abunane nethoba Amakhulu amathathu nantathu	

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1.5 Ubukhulu bedijithi	**Thoma ukulemuka ubukhulu bedijithi okungenani iinomboro zamadijithi ama-3 ukufika ema-999** • Ukwazi bonyana idijithi ngayinye ijameleni • Ukuphula iinomboro zamadijithi amathathu ukufika e-999 ukuya ngamatjhumi nangakunye (KTV) • Bona bewutjho ubukhulu bedijithi ngayinye	**Thoma ukulemuka ubukhulu bedijithi okungenani iinomboro zamadijithi ama-3 ukufika ema-999** • Ukwazi bonyana idijithi ngayinye ijameleni • Ukuphula iinomboro zamadijithi amathathu ukufika e-999 ukuya ngamatjhumi nangakunye (KTV) • Bona bewutjho ubukhulu bedijithi ngayinye	**Tlola iinomboro:** Ikhulu elilodwa + namatjhumi -2 Amakhulu amabili + amatjhumi -3 + imivo -7 Amakhulu amane + amatjhumi -9 + imivo -3 Hlathulula bonyana ngiyiphi inomboro efanele ingene kelinye nelinye ibhoksi 872 = □ + 70 + 2 129 = 100 + □ + 20 + 9 346 = 300 + 40 + □ Tlola phasi ubungakho nedijithi ngayinye e-762.	
UKURARULULA IMIRARO ESEBUJAMENI				

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.6 Amathek-hiniki wok-ururalula imiraro	Sebenzisa amathekhiniki alandelako nawururalula imiraro uhlathulule neensombululo zemiraro: • Ukwakha nokuphula iinomboro • Ukubuyelela nokuhafula phakathi • Amanambalayini • Ukutjhideza etjhumini		Abafundi balindeleke ukusombulula imiraro yamagama kusetjenziswa amathekhiniki alandelako: • Ukwakha nokuphula iinomboro • Ukubuyelela nokuhafula phakathi • Amanambalayini • Tjhideza ematjhumini Qala amanothi aseThemini 2 emaqhingeni alandelako • Ukwakha nokuphula iinomboro • Ukubuyelela nokuhafula phakathi • Amanambalayini **Ukutjhideza ematjhumini** NgeThemu leli abafundi bangenza amathekhiniki wokutjhideza nabenza imiraro yamagama. Isibonelo: UNowa una-R48, 00. Ipakana yamakarada awabuthelelako abiza R5, 00. Angathenga iimpaka ezingaki zamakarada? Umfundi angatjhideza eduze kwetjhumi, okutjho bonyana yi R50, 00. Lokhu kutjho bonyana angathenga 'cithe' iimpakana ezi-10. Abafundi bazokusebenza ukubalisa bese basebenza ipendulo yabo bayitjhideza ngokuzwakalako eduze kwenani. Vumela abafundi bakhethe ithekhniki abazigedla ngayo. Nanyana kunjalo nange abafundi basebenzisa amathekhiniki lawo angaba phumelelisiko badinga ukukhokhelwa ukukhetha amathekhiniki abaphumelelisako. Akutlhogeki bonyana abafundi batjhelele emathekhniki lawo. Bazokukghona ukuwasebenzisa godu eZingeni Eliphakathi.	

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1.7 Ukuh-langanisa, nokukhupha	Rarulula iimbalo zamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ukufaka hlangana ukuhlanganisa nokukhupha okuneempendulo ukufiika ku-999.	Rarulula iimbalo zamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro, ukufaka hlangana ukuhlanganisa nokukhupha okuneempendulo ukufiika ku-999.	**Ekupheleni kweThemu abafundi bafanele bakghone ukwenza imihlobo ehlukahlukeneko yemihlobo yemiraro elandelako.** **Ukuhlanganisa nokukhupha** Kunemihlobo okungenani emithathu esisekelo yokuhlanganisa nokukhupha omunye nomunye umhlobo ungabuzwa ngendlela ehlukileko. Imihlobo esisekelo yi: Itjhentjhi UNoluthando ubuthelele 234 yamastikha .USilo umnikela ezinye ezi- 80 ngaphezulu. Sele amastikha amangaki nasele awoke? Kunabakhweli abama-500 ngesitimeleni. Abakhweli aba-176 bayehla. Kusele abakhweli abangaki ngesitimeleni? Ukuhlanganisiweko UNosisi ubuthelelela iphrojekthi yesikolo izinto ezisetjenzisiwe zabuye zasetjenziswe godu. Ubuthelele 124 yamabhodlela weplastiki, namabhlege a-268. Ubuthelele izinto ezingaki nasele zizoke? Esitolo kuneempakana zamatjhipsi ezima 368, ezi-82 zimatjhiposi, aseleko maziksnacks. Zimpakana ezingaki zamaziksnak ezilapho? Ukumadanisa AmaGreyidi 2 abuthelela R446. IGreyidi 3 ibuthelele R729. Yimali enengi kangangani ebuthelelwe yiGreyidi 3? **Ukubuza omunye nomunye umraro ngendlela ehlukileko:** Imiraro ifanele ibuzwe ngeendlela ezihlukeneko. Isibonelo, yombili imiraro le ngefuna itjhenthi kodwana “okungaziwako” kusendaweni ezihlukeneko emirarweni Esitolo kuneempakana zepuphu, ezinye ezi-55 za-odwa ngaphezulu, manjesi sekuneempakana zepuphu ezi-170. Bekuneempakana ezingaki ekuthomeni? Esitolo kuneempakana ezi-500 zetjhukela, ngemuva kokuthengisa ezinye iimpakana, basala neempakana ezi-324, bathengise iimpakana ezingaki?	

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1.8 Ukuh-langanisa okubuyele-lweko kurholela ekubuy-abuyeleleni	Rarulula iimbalo zamagama ezisebujameni bewuhlathulule iinsombululo zakho zemiraro ngo kubuyabuyelela okuneempendulo ukufika e-99.		**Iimbonelo zemiraro ezingenziwa ngeThemu le** **Ukuhlanganisa kokubuyelela** Iinkoloyi ezi-36 zinamavili amangaki? **Isilinganiso** UThami wonga 35c ngeveke, Wonga imalini ngemveke ezi-8? **AmaGridi** Umnumzana Khumalo utjala amareyi ama-20 wemithi yama lamula. Kunemithi eyi-12 ereyini ngalinye. Kunemithi emingaki nasele awoke? **Ubujamo bemiraro enobudlelwana obuhlukahlukeneko beeMbalo** UHeila uthengisa amahotdogo nge R4 ngayinye. Yenza ithebula ukumlekelela ukuthola inani le-oda ekulu.	

Inani lamahotdogo	1	2	3	4	5	10	20
Imali ngama R	4	8					

Sebenzisa ithebula ukuthola inani lama hotdogo alikhomba namahotdogo ama-23.

USello uthlogomela abentwana. Ubhadelisa R20 imali yokukhamba, abhadelise R5 imali yokuhlala nabantwana. Qedelela ithebula.

1.9 Ukubuthele-la nok-wabelana okurholela ekuhlu-kaniseni	Rarulula iimbalo zamagama ezisebujameni bewuhlathulule iinsombululo zakho ufake ukwabelana ngokulingana nokubuthelela kwenomboro eziphele-leko ukufika e-100 begodu nangempendulo ezingafaka hlangana okuseleko/ isalela		**Iimbonelo zemiraro ezingenziwa ngeThemu leli** **Ukubuthelela ngeeqhema** Ukubuthelela, ukulahla isalela Umbhagi uthengisa amakuke ngomgodla ona 12. Banamakuke ali-118. Migodla emingaki yamakuke a 12 ngamunye abangawenza? **Ukubuthelela, okufaka isalela ependulweni** Umlimi unamaqanda ama-227. Udinga amabhokhsi amangaki azokufaka amaqanda a-6 ngebhokhsini ngalinye? **Ukwabelana** Ukwebelana , ukulahla isalela Abangani abahlanu babelana amaswidi ama-84 ukuze boke bathole inani elillinganako lamaswidi. Umngani ngamunye uzokuthola amaswidi amangaki?	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.10 Ukwabelana okurholela emafrak-tjhinini	Rarulula begodu uhlathulule iinsombululo zemiraro ephathekako efaka hlangana ukwabelana ngokulingana ezirholela eensombululweni ezifaka hlangana amafraktjhini wohlavu olulodwa isib. nalawo angenahlavu olulodwa $, \frac{1}{2}, \frac{1}{4}, \frac{3}{4}, \frac{2}{5}$		**limbonelo zemiraro ezingenziwa ngeThemu leli** Ukwabelana okurholela emafraktjhinini. Yaba iintina zetjhokolethi ezi-15 wabele abangani aba-6 wenze boke bathole ngokulinganako ukuze boke bathole inani elilinganako leentina zetjhokolethi bekungabi nesalela. Yaba iintina zetjhokolethi ezi-7 wabele abangani aba-3 wenze boke bathole ngokulinganako ukuze boke bathole inani elilinganako leentina zetjhokolethi bekungabi nesalela. **Ifraktjhini yebuthelelo** Ugogo unikela uKiki R12, uKiki ufuna ukonga okuthathu kwemali ufanele onge malini yemali anayo? Umhlobo lo womraro ufanele ubuzwe ngemuva kobana basombulule imiraro emine nofana emihlanu yokwabelana okurholela emafraktjhinini abe azi amagama weengcezu zamafraktjhini. **Ukubeka amafraktjhini ndawonye** Umbanduli webhodla lezandla unikela umdlali ngamunye ingcenye yelamune. Kunabadlali aba-14. Udinga amalamune amangaki? Umhlobo lo womraro ufanele ubuzwe ngemuva kobana basombulule imiraro emine nofana emihlanu yokwabelana okurholela emafraktjhinini abe azi amagama weengcezu zamafraktjhini **Ukutlola amafraktjhini** Abafundi abakalindelwa bonyana batlole amatshwayo wamafraktjhini. Abafundi bafundile bonyana bangawalebula bunjani amafraktjhini njengo 1 esihlanwini, 3 yamakota nofana 3 kokusithandathu. Lokhu kubasiza okukuthoma ngokuzwisisa bonyana amagama wamafraktjhini ahlathulula bonyana kuneengcezu ezingaki ezilinganako zokupheleleko ezihlukanisiweko ukwenza. Isibonelo isiquntu, kokuthathu, amakota njll. Begodu ziingcezu ezingaki eziqalekako, isib. 2 kokuthathu. **Ukujamiselela amafraktjhini wemiraro yamagama.** Abafundi bafanele bagwale iimpendulo ubonisa bonyana bayazwisisa umraro. Lindela bonyana abanye babafundi bangagwala ifraktjhini ngendlela okungiyo kodwana banganikeli igama ekungilo. Lekelela abafundi bonyana batjho ifraktjhini ngendlela okungiyo (Qala amanothi ahlobana nokubizwa kwamafraktjhini angaphasi kobujamo obutjhaphulukileko) Abafundi bafanele batjho iingcezu ezabiweko ngokuzitlola njenge 2 yokwesithathu.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.11 Imali	Khumbula bewufanise imali yeSewula Afrika eziinhlavu kunye nemali yamaphepha Sombulula imiraro efaka hlangana amanani wemali netjhentjii yamaranda neyamasende Tjhugulula hlangana namaranda namasende		**Iimbonelo zemiraro ezingenziwa ngeThemu leli** • Ubungako bemali nokwenza inani, Isibonelo - Tlola 325c ngamaranda namasende. - Ziindlela ezingaki ezihlukileko ongazenza nga R400 usebenzisa imali yamaphepha kwaphela? Wazi bunjani bonyana inazo zoke iinsombululo? - UTravis une 50c neenhlamvu ezine za-20c. Amathofi abiza R1, 20. Uzokuthola itjhentjhi yemalini? • UMandla ubhadela R5, 50 ukukhamba ngetekhsi ukuya esikoleni. - Kumbiza malini ukuya nokubuya esikoleni ngamalanga? Imiraro yokuthenga nokuthengisa • Ugogo ka Pedro umnikele iR5. Ngimaphi amaswidi a-3 angawathenga? Itjhoku tjhakile Ibiza R2,70; amatjhapisi abiza R1,80; umzoka osiri R1,40; amaswidi weperegisi R1,60; amaminthi R2,20; ithofi libiza R1,20. • UDamon wathenga iincwadi ezintathu nge R80 incwadi ngayinye. Yimalini itjhentjhi azoyithola nange aphethe R300? • Amaphakethe wamaminti ayi-5 abiza 44c ngalinye. Umnumzana King udinga 88 yamaminti. Kufanele athenge amaphakethe okufanele amathenge? Uzokubhadela imalini?	
UKUBALA OKUSEBUJAMEN				
1.12 Amathekh-iniki (iindlela namkha amaqhinga)	Sebenzisa amathekhiniki alandelayo nawubalako • Ukwakha bewuphadhle iinomboro • Ukubuyelela nokuhafula phakathi • Amanambalayini • Ukutjhideza etjhumini		Qala amanothi weThemu yesi-3.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.13 Ukuh-langanisa nokukhupha	• Hlanganisa ukufika e-999 • Khupha ukufika e- 999 • Sebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-30		NgeThemu leli abafundi baragela phambili ngokuphula iinomboro ukuze babale. Iindlela ezingakghonakala ukutjengisa ukubala kokuhlanganisa nokukhupha. **Ukuphula iinomboro zibe ziingcenye ezincani ukwenza ukubala kube lula.** **Ukusebenzisa ilwazi lobukhulu bedijithi ngokuphula ngamakhulu, ngamatjhumi nemivo** • Ukuhlanganisa ngokuphula iinomboro zombili Ukuhlanganisa iinomboro zamadijithi amathathu nezamadijithi amabili ngokuphula iinomboro zombili 524 + 82 = □ = (500 + 20 + 4) + (80 + 2) = 500 + (20 + 80+ (4 + 2) = (500 + 100) + 6 = 600 + 6 = 606 Ukuhlanganisa iinomboro zamadijithi amathathu nezinye zamadijithi amathathu 323 + 436 = □ 323 + 436 = (300 + 20 + 3) + (400 + 30 + 6) = (300 + 400) + (20 + 30) + (3 + 6) = 700 + 50 + 9 = 759 • Ukuhlanganisa (ngokuphula iinomboro ezizohlanganiswa) Abafundi bazophula iinomboro ngendlela ezingaphathekako. Lokhu kutjho bonyana bazo kwenza ngeendlela ezihlukeneko. 524 + 82 = □ 524 + (40 + 40 + 2) 524 + 40 → 564 + 40 → 604 + 2 = 606 Ukuhlanganisa iinomboro zamadijithi amathathu nezamadijithi amathathu 323 + 436 = □ = 323 + (400 + 20 + 6) = (323 + 400) + 20 + 6 = (723 + 20) + 6 = 743 + 6 = 749	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.13 Ukuh-langanisa nokukhupha	• Hlanganisa ukufika e-999 • Khupha ukufika e- 999 • Sebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-30		• Ukukhupha ngokuphula iinomboro zombili Ukukhupha inomboro enamadijithi amathathu kenamadijithi amathathu 889 – 137 = □ 889 – 137 = (800 + 80 + 9) – (100 + 30 + 7) = (800 – 100) + (80 – 30) + (9 – 7) = 700 + 50 + 2 = 752 • Ukukhupha ngokuphula inomboro yinye Ukukhupha inomboro enamadijithi amathathu kenamadijithi amathathu 889 – 137 = □ 889 – (100 + 30 + 7) 889 – 100 → 789 – 30 → 759 – 7 = 752 Ukusebenzisa ukuqunta/ukuhafula phakathi ukuphula inomboro 525 + 16 = 525 + 8 + 8 = (525 + 8) + 8 = 533 + 8 = 541 • Ukubala uye phambili nokuya emuva 805 = 798 = □ Ukubala ngakunye kusuka ema 798 kuliqhinga elifaneleko ngombana iinomboro ziseduze enye kenye • Ukubona ukubuyelela kabili okuseduze 245 + 246 Omunye umuntu angatjho bonyana isibalo esingehla sibuyelela kabili ama-245 + 1 nofana 246 - 1 245 + 245 + 1 = (200 + 40 + 5) + (200 + 40 + 5) + 1 = (200 + 200) + (40 + 40) + (5 + 5) + 1 = 400 + 80 + 10 + 1 = 400 + (80 + 10) + 1 = 400 + 90 + 1 = 491	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.13 Ukuh-langanisa nokukhupha	• Hlanganisa ukufika e-999 • Khupha ukufika e- 999 • Sebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-30		**Ukuthuthukisa nokuzijayeza amakghono wokuhlanganisa nokukhupha** Abafundi bafanele bazijayeze imihlobo ethize yamakghono wokuhlanganisa nokukhupha **Ukubala uye phezulu nofana uye phasi ngokuseduze netjhumi** 588 + 9 588 + 10 = 598 598 - 1 = 597 588 + 19 588 + 20 = 608 608 – 1 = 607 Abafundi banamathuba wokwenza imihlobo elandelako yokubala ngeenomboro ukufika e-800: Ukuhlanganisa nokukhupha okukhamba ngakubili kwembuyeleli ze-10 ngaphandle kokweqela e-100. 40 + 70 70 + 80 120 – 30 150 – 60 Ukuhlanganisa nokukhupha -10 ukuya nofana kusuka kunanoma kuyiphi inomboro ezinamadijithi amabili nofana amathathu efaka hlangana ukweqela e-100. Isibonelo: 65 + 10 124 + 10 326 – 10 358 - 10 Ukuhlanganisa nokukhupha inomboro yedijithi elilodwa ukuya nofana kusuka enomborweni yamadijithi amathathu ngaphandle kokweqela e-10. Isibonelo: 634 +5 775 + □ = 779 768 – 4	

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1.13 Ukuh-langanisa nokukhupha	• Hlanganisa ukufika e-999 • Khupha ukufika e- 999 • Sebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-30		Ukuhlanganisa inomboro yedijithi elilodwa ukuya nofana kusuka esibuyelelweni se-100. Isibonelo: 600 + 4 500 + 3 700 - 6 800 - 5 Ukuhlanganisa nokukhupha okukhamba ngakubili kwembuyeleli ze-100 100 + 100 100 + 200 200 + 200 300 + 400 Abafundi kufanele banikelwe amathuba wokuzijayeza amaphetheni wokuhlanganisa nokukhupa. Lokha nangazi bonyana u 1+ 1 = 2 Kwanjesi khuyini i: 10 + 10 100 + 100 Ukuthoma ukuhlanganisa nokukhupha okukhamba ngakubili kusuka kunoma ngiyiphi inomboro enamadijithi amathathu. Isibonelo: 675 + 100 762 - 100 **Ukuzwisisisa ukuhlanganisa ekupheleni konyaka** Ekupheleni konyaka abafundi bafanele bakghone uku: Ukusebenzisa nokuzwisisa ilimi lokuhlanganisa: Okunengi, hlanganisa, isamba, inani, sekuhlangene, itshwayo lokulingana.....bekufundwe kutlolwe itshwayo lokuhlanganisa (+) netshwayo lokulingana (=) Ragela phambili nokuthuthukisa ukuzwisisa kokuhlanganisa kobala uye phambili bakhambe magega nenambalayini Isibonelo, Phendula imibuzo. Ngithloga ini ukuhlanganisa ku- 67 ukwenza- 85? Lo mumutjho wenomboro wombuzo wami: 67 + □ = 85.	

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1.13 Ukuh-langanisa nokukhupha	• Hlanganisa ukufika e-999 • Khupha ukufika e- 999 • Sebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-30		Phendula imihlobo yemibuzo elandelako: • ukuhlanganisa ndawonye a-43 ne-19 • ngezelela itjhumi e-167 • 51 hlanganisa na-83 • Hlanganisa amatjyumi ali-70 na-50 • 280 = 120 + 80 + □ • Ngiyiphi inomboro edlula a-160 nga-30 • Thola isamba se-156 ne-14 • Hlanganisa itjhumi nambili ekhulwini namatjhumi alikhomba nahlanu • Ngiyiphi inomboro edlula a-483 ngetjhumi? • Ngiyiphi inomboro ongayihlanganisa na-45 ukwenza i-178? • Ngiyiphi inomboro ongayihlanganisa na-25 ukwenza a-178? • Ngiyiphi inomboro ekufanele ngiyihlanganise na-56 ukwenza a-170? • Amakhulu amathathu uhlanganise namatjhumi amane uhlanganise nemivo emi-3 • Amatjhumi a-12 uhlanganise nemivo -8 • 245 + 10 = □ 245 + 20 = □ 245 + 30 = □ Yazi bonyana □ ijamele inomboro engaziwako. 45 + 81 = □ 67 + □ = 125 47 + 32 + 8 = □ 31 + □ + 20 = 160 □ + △ = 100 □ + △ = 120 □ + △ = 450 Ukuzwisisa nokusebenzisa ilwazi lokobana ukuhlanganisa bungenziwa nanyana ngaliphi ihlelo: 178 + 12 = 190 ngakhoke 12 + 178 = 190	

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1.13 Ukuh-langanisa nokukhupha	• Hlanganisa ukufika e-999 • Khupha ukufika e- 999 • Sebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-30		**Ukuzwisisa ukukhupha ekupheleni konyaka** Sebenzisa bewuzwisise ilimi lokukhupha: Khupha, khupha, kusele mangaki, yincani kangangani.....kune....., umehluko hlangana, yikulu kangangani .....kune....., kufuneka okungangani okunengi ukwenza .....begodu ufunde utlole itshwayo lokukhupha (-) Ragela phambili ukuthuthukisa ukuzwisisisa kokukhupha njenge: • Ukukhupha • Ukuthola umehluko hlangana Ukuzwisisa bonyana nawukhupha ilize kutjhiya inomboro ingakatjhintjhi: 192 – 0 = 192 192 = 192 – 0 Ukuphendula imibuzo etloliweko ebuzwe ngeendlela ezitloliweko okufana nokuthi: • 37 khupha 13 • Khupha 40 ema-80 • 162 khupha 42 • Khupha 45 e-390 • Ngimuphi umehluko okhona hlangana na-738 ne-157? • Lincani kangangani i-117 kuna-449 • Ngiyiphi inomboro ongayikhupha -56 ukuthola -122? • Ngiyiphi inomboro ongayikhupha -56 ukuthola – 132? • Ngiyiphi inomboro ongayikhupha -56 ukuthola – 142? • Thola okukhamba ngabubili okunomehluko we-10 • Kunempensela e-45 ngelayini katitjhere. Ubanikela iimpensela e-17. Kusele ezingaki? Thola iinomboro ezikhamba ngambili ezinomehluko wama-20. Yazi bonyana □ ijamele inomboro engaziwa. 557 – 134 = □ 800 – 530 = □ 762 - □ = 448 598 – 42 = □ 687 - □ = 375 13 – 6 = 15 - □ □ - 18 = 24 174 – 14 = □ 199 - □ = 25	

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1.13 Ukuh-langanisa nokukhupha	• Hlanganisa ukufika e-999 • Khupha ukufika e- 999 • Sebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-30		Ukuthoma ukuzwisisa bonyana: 125 – 10 kuhlukile ku 10 - 125 Ukuzwisisa ubudlelwana obuphakathi kokuhlanganisa nokukhupha. Yitjho bewutlole ukukhambelana okuliqiniso kokukhupha ekuhlanganiseni okulliqiniso okunikelweko begodu bahlanekezele. isibonelo: 25 + 68 = 93 kutjho bonyana 93 – 68 = 25 68 + 25 = 93 kutjho bonyana 93 – 25 = 68 122 – 104 = 18 kutjho bonyana 18 + 104 = 122 Ngaphandle kokusebenzisa ama-apharathasi phendula okulandelako: Nangabe uyazi bonyana 145 + 120 = 265 Uyini u : 120 + 145 265 – 120 265 – 145 Nangabe uyazi bonyana 154 – 38 = 116 Uyini u : 154 – 116 116 + 38 38 + 116 Tlola bewuphendule okulandelako: 64 – 37 = □ ngakho ke 37 + □ = 64 137 – 17 = □ ngakho ke □ + r = 137 200 - 100 = □ ngakho ke □ + 100 = 200 89 – 38 = 51 ; 51 ngumehluko ngombanyana □ + r = 89 Tlola inomboro mitjho emine usebenzise iinomboro lezi160, 35, 125 **Ukuhlola imiphumela yokubala** **Ukwahlulela iinsombuluko ngokuzwisiseka** Abafundi kufanele babandulwe ukwahlulela iinsombululo ngokuzwakalako. Enye yeendlela yokwenza lokhu ukulinganisa iimpendulo ngaphambi kokubala. Lokha uhlanganisa iinomboro ezimbili eziseduze kwenye nenye, isib. 45 na 46, abafundi bangasebenzisa ukubuyelela kabili njengendlela yokulinganisa iimpendulo zabo.	

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1.13 Ukuh-langanisa nokukhupha	• Hlanganisa ukufika e-999 • Khupha ukufika e- 999 • Sebenzisa amatshwayo afaneleko (+, -, =, □) • Ukuphrakhthisa ukulumbana kwenomboro ukufika e-30		**Ukuhlola imiphumela** Abafundi kufanele bazi bonyana bangakghona uku: Hlola isibalo sokuhlangania ngokukhupha.Isibonelo: If 36 + 18 = 54; then 54 – 18 = 36 Hlola isibalo sokukhupha ngokuhlanganisa. Isibonelo 84 – 48 = 36, then 36 + 48 = 84 Ukusebenzisa itshwayo eliphekgukayo ukuhlola iinsombululo ngenye yesizathu sokufundisa ukuhlanganisa nokukhupha ndawonye	
1.14 Ukuh-langanisa okubuyele-lweko kurholela ekubuy-abuyeleleni	• Buyabuyelela iinomboro kusuka ku-1 kufika e-10 ngo 1, 2, 3, 4, 5, 10 • Sebenzisa amatshwayo afaneleko (x, =, □)		NgeThemu le abafundi baragela phambili ngoku: • Sebenzisa bewuzwisise ilimi lokubuyabuyelela; • Jamiselela ukubuyabuyelela njengerhemiso; • Sebenzisa amatshwayo alungileko ukuhlathulula imitjho yenomboro; • Ukuzwisisa bonyana ukuhlanganisa okubuyelelweko kungajamiselwa ngokusebenzisa itshwayo lokubuyabuyelela; • Ukuzijayeza nokuzwisisia bonyana ukubuyabuyelela kungenziwa nanoma ngiyiphi indlela (umthetho wecommutative nofana weprophathi); • Sebenzisa inambalayini ukutjengisa iimbalo zokubuyabuyelela begodu bakghone ukuhlathuthula ukujanyelwa (iimeqo ebonisa ukuhlanganisa okubuyelelweko); • Bavuma ithebula lokubuyabuyelela Ekupheleni kweThemu leli abafundi bafanele bakghone uku: Ukusebenzisa ilimi lokubuyabuyelela ebujameni obuphathekako: Kabili, buyabuyelela, buyabuyelela nga, isibuyabuyelelo sika, okunengi kwa, iinqhema za, ukubuyabuyelela (ubukhulu, ubude, ububanzi....) kabili, buyelela kathathu ngobunengi obungange, bafunde batlole itshwayo lokubuyabuyelela (x) Sebenzisa ilimi leli ukwenza ukubala kokubuyabuyelela	

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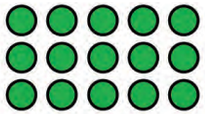
1.14 Ukuh-langanisa okubuyele-lweko kurholela ekubuy-abuyeleleni	• Buyabuyelela iinomboro kusuka ku-1 kufika e-10 ngo 1, 2, 3, 4, 5, 10 • Sebenzisa amatshwayo afaneleko (x, =, □)		**Ukuzwisisa ukubuyabuyelela njengokuhlanganisa okubuyelelweko** 6 bahlanganiswe ndawonye ka-3 kulingana na: 6 + 6 + 6 = 18 3 kanengi kwe 6 = 18 3 buyabuyelela 6 = 18 6 x 3 = 18 3 x 6 = 18  $5 \times 3 = 15$ $3 \times 5 = 15$ Thoma ukukhumbula bonyana ukubuyabuyelela kungenziwa nanoma ngiyiphi indlela. **Ukuphendula imibuzo ebuzwe ngeendlela ezihlukeneko:** Abokuhlanu ababili Ukubuyelela kabili i- 5 3 buyelela 5 Izinto zokubala ezintathu ereyini ngalinye. Kunamareyi amane. Kunezinto zokubala ezingangani sezizoke? 2 ubuyabuyelelwa nga-7 16 buyelela ka 2 **Understanding the commutative law of multiplication** 3 x 4 = 12 ilingana na 4 x 3 = 12 **Ukubona ukusebenziswa kwesibambelindawo □ ukujamela inomboro engaziwako** 2 + 2 + 2 = □ 2 x □ = 6 5 + 5 +5 + 5 + 5 ngakhoke 5 x r = 25 4 + 4 + 4 ngakhoke 4 x 3 = □ 10 + 10 + 10 + 10 + 10 ngakhoke 10 x □ = 50 5 x £ = □ x 5 = 45 4 x 8 = □ x 4 8 + 8 + 8 = abobunane-3 = 8 x □ = 24	

<table>
<tr><th>IINHLOKO</th><th>IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA</th><th>IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4</th><th>AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA</th><th>UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)</th></tr>
<tr><td>1.14
Ukuh-langanisa okubuyele-lweko kurholela ekubuy-abuyeleleni</td><td>• Buyabuyelela iinomboro kusuka ku-1 kufika e-10 ngo 1, 2, 3, 4, 5, 10
• Sebenzisa amatshwayo afaneleko (x, =, □)</td><td></td><td>Ukuzwisisa ubudlelwano hlangana nokubuyelela nokubuyabuyelela kabili
Kopa ithebula elingezasi. Zalisa ireyi lokubuyelela nga-4
<table><tr><td></td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>4s</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2s</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>
Ukusebenzisa imihlobo ehlukahlukeneko yemifanekiso yokubuyelela
• Igridi yokubuyabuyelela
• Itjhadi naneko
• Amathebula</td><td></td></tr>
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IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.15 Ukuhlu-kanisa	• Hlukanisa iinomboro ukufika e-99 ngo 1, 2, 3, 4, 5, 10 • Sebenzisa amatshwayo (÷, =, □)	• Hlukanisa iinomboro ukufika e-99 ngo 1, 2, 3, 4, 5, 10 • Sebenzisa amatshwayo (÷, =, □)	**Ngikuphi okuhlukileko kune Themu yesi-3?** Ekupheleni kweThemu kufanele kuqinisekiswe bonyana abafundi bakghona: • Ukuzwisisa bonyana ukuqunta phakathi liphekguko lokubuyelela kabili bebakhumbule ukubuyelelwa kabili kweziinomboro ukufika e-20; • Ukulemuka ukuhlukaniswa kabili njengebuthelelo; • Ukuzwisisa bebajabulele ubudlelwano hlangana kokubuyabuyelela nokuhlukanisa begodu ziyaphekgukelelana; • Ukusebenzisa iindlela zokutlolwa zokwenza nezingakahleleki ukwenza ukuhlukanisa iinomboro ezinamadijithi amabili ngenomboro yedijithi elilodwa; • Basebenzisa ilwazi labo lobukhulu baedijithi ukwenza ukubala kokubuyelela nokuhlukanisa. • Bahluthulule bonyana ngikuphi ukubala abakwenzileko nokuthi kubayini; • Bacocisana ngeempendulo zabo bebahlathulule ngokucanga kwabo; • Ukusebenzisa ilwazi lamatshwayo wenomboro nokuhlobana kwephekguko, okufaka hlangana ukubuyelela kabili nokuhlukanisa phakathi ukulinganisa nokuhlola. **Amaqhinga wokurekhoda** Kunamaqhinga athile wokurekhoda okufanele abafundi abangawasebenzise eGreyidini 3. Abafundi angeke batjhelele kuwo woke amaqhinga. Badinga ukukhokhelwa nakuqalwa emutjhweni wenomboro wokuhlukanisa bebathathe isiqunto seqhinga elifaneleko, kufanele kulindeleke bonyana abafundi angekhe basabambelela ekugwaleni iinthombe begodu bazokusebenzisa iinomboro ukuhlathulula ukucabanga kwabo. **Ukukhupha okubuyelelweko** Iqhinga leli lizokusetjenziswa nakusombululwa imiraro yamagama begodu abafundi badinga ukukhokhelwa ekuqaleni irherho leenomboro bebathate isiqunto sokubana ukubala kungenziwa ngokusebenzisa ukukhupha okubuyelelweko. 40 ÷ 8 = □ 40 – 8 → 32 – 8 → 24 – 8 → 16 – 8 → 8 – 8 = 0 Abafundi babala inomboro yeenkhathi abakhuphe u-8 ngaso ukuthola i-0 **Ukuhlanganisa okubuyelelweko** Abanye abafundi bangahle basebenzise iqhinga leli bazwisisa ubudlelwana obuphakathi bokubuyabuyelela nokuhlukanisa. Msinyana ngemuva kwalokho irherho lenomboro bazokukhetha bonyana iqhinga lifanele nofana awa. 40 ÷ 8 = □ 8 + 8 → 16 + 8 → 24+ 8 → 32 + 8 → 40 Abafundi babala inkhathi abahlanganise u-8 ukuthola ama-40.	

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1.15 Ukuhlu-kanisa	• Hlukanisa iinomboro ukufika e-99 ngo 1, 2, 3, 4, 5, 10 • Sebenzisa amatshwayo (÷, =, □)	• Hlukanisa iinomboro ukufika e-99 ngo 1, 2, 3, 4, 5, 10 • Sebenzisa amatshwayo (÷, =, □)	**Ukusebenzisa ukubuyelela** Abafundi bafanele bakghone bonyana “(ngazi ini ngokubuyabuyelela okungangisiza bonyana ngibale ukuhlukanisa?)” Abafundi bakwazi ukkutlola phasi amaqiniso wokubuyabuyelela okusebhodini yesinamathelisi, ukubalekelela ukuhlukanisa. Ibhodi yomtlhala Ngiyazi: 10 x 3 = 30 Ngiyazi: 4 x 3 = 12 72 ÷ 3 = □ 10 x 3 = 30 10 x 3 = 30 30 + 30 = 60 72 – 60 = 12. 4 x 3 = 12 10 + 10 + 4 = 24 Ngakhoke 72 ÷ 3 = 24 **Ihlelo elabiweko** Ihlelo elabiwako lokuhlukanisa phezulu kokuhlanganisa okutjho bonyana inomboro ingaphulwa ibe ziingcezu ezibaleka lula: 39 ÷ 3 = □ = (30 + 9) ÷ 3 = (30 ÷ 3) + (9 ÷ 3) = 10 + 3 = 13	

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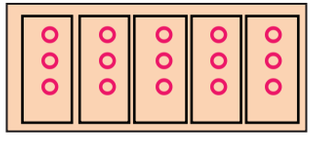
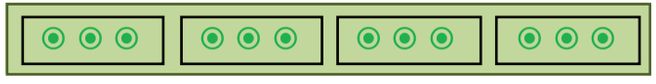
1.15 Ukuhlu-kanisa	• Hlukanisa iinomboro ukufika e-99 ngo 1, 2, 3, 4, 5, 10 • Sebenzisa amatshwayo (÷, =, □)	• Hlukanisa iinomboro ukufika e-99 ngo 1, 2, 3, 4, 5, 10 • Sebenzisa amatshwayo (÷, =, □)	UAnnina uthi ufunda amagama amatjha ama-5 ngamalanga. Uthatha □ amalanga ukufunda 40 yamagama. Amatjhumi a-6 ÷ 3 = □ amatjhumi Ukubona ukusetjenziswa kwamatshwayo afana na □ weenomboro ezingaziwako. Qala izinto zokubala ezingenzasi bese uqedelele umtjho weenomboro  kune □ zeenqhema zanga- 3 15 – 3 – 3 - □ - □ - □ = 0 15 ÷ 3 = □ Qala umgwalo bese uqedelela umutjho:  Kuna £ znazizoke bekuna r yeenqhema- 3 zngalinye nelinye. ngakhoke: £ ÷ 3 = □ Kuna £ znazizoke bekuna begodu kuneenqhema ezi-4 ezinamathosi-3 elinye nelinye. . ngakhoke : £ ÷ 4 = □ Kopa bewuqedelele: 20 ÷ 2 = □ 20 ÷ □ = 10 20 ÷ □ = 2 21 ÷ 3 = □ 21 ÷ □ = 7 21 ÷ 7 = □ Ukuzwisisa umthetho wokuhlukanisa ngo-1 ne-0 6 ÷1 = □ 8 ÷ 1 = □ 12 ÷ □ = 12 6 ÷ 0 = □ □ ÷ 4 = 0 1 ÷ 1 = □ 0 ÷ 7 = □	

<table>
<tr><th>IINHLOKO</th><th>IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA</th><th>IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4</th><th>AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA</th><th>UBUDE BESIKHATHI
(eemfundweni ze-iri -1 begodu namaminithi ama -24)</th></tr>
<tr><td>1.15
Ukuhlu-kanisa</td><td>• Hlukanisa iinomboro ukufika e-99 ngo 1, 2, 3, 4, 5, 10
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• Sebenzisa amatshwayo (÷, =, □)</td><td>Sebenza, funda begodu bathoma ukutlola:
Iinsalela....
Bala iinsalela nawenza ukubala kokuhlukanisa:
12 ÷ 5 ngu 2 isalela ngu-2
23 ÷ 7 ngu 3 isalela ngu-2
Ukuzwisisa ubudlelwana obuphakathi kokubuyelela nokuqunta phakathi
Phendula imihlobo yemibuzo:
Kopa ithebula elingenzasi.

Zaliselela ngokubuyelela kwaka -4 ereyini. Ngiyiphi oyibonako?
<table><tr><td></td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>4s</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2s</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>
Qunta iinomboro ezisereyini lesibuyabuyeleli -4 ukuthola iinomboro ezisereyini lesibuyabuyeleli -2.
Ngiyiphi iphetheni oyibonako?
Ukuzwisisa bonyanya ukuhkiukanisa kuliphekguka lesibuyabuyeleli
Tjengisa imitjho yenomboro ngemigwalo
4 x 5 = □ 20 ÷ 5 = □
12 x 4 = □ 48 ÷ 4 = □</td><td></td></tr>
</table>

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1.16 limbalo zehloko	**Umnqopho wenomboro: irherho 999** • Hlela isethi enikelweko leenomboro ezikhethiweko • Madanisa iinomboro ema-999 bewutjho bonyana ngiyiphi enengi nofana encani nga-1, 2, 3, 4, 5 ne-10 **Ukukhumbula masinyana:** • Ukukhumbula amaphuzu wokuhlanganisa nowokukhupha kufika e- 20 • Hlanganisa nofana ukhuphe imbuyeleli ze-10 kusuka e-0 kuya e-100 • Amaqiniso wokubuyabuyelela nokuhlukanisa: - Ithebula lika-2 ukufika 2 x 10 - Ithebula le-10 ukufika 10 x 10 **Amaqhinga wokubala** Ukusebenzisa amaqhinga wokubala ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini. • Ukubuyelela kabili nokuhafulaphakathi • Ukwakha nokuphhula • Sebenzisa ubudlelwano phakathi kokuhlanganisa nokukhupha • Sebenzisa ubudlelwano phakathi kokubuyabuyelela nokuhlukanisa		**Iimbonelo zemibuzo engabuzwa:** **Umqondo nomboro:** **Ibizo lenomboro namatshwayo** Phakamisa ikarada nofana tlola phasi ibizo lenomboro. Khetha umfundi ukutlola inomboro emetjhako. **Okunengi nofana okumbadlwana** khuyini okumbalwa nga-1 kuna 900 okunengi nga-1 kuna 899 Okunengi nga-2 kuna 702 Okuncani nga-2 kuna 405 Okunengi nga-3 kuna 477 Okuncani nga-3 kuna 251 Okunengi nga-4 kuna 868 Okuncani nga-4 kuna 967 Okunengi nga-5 kuna 729 Okuncani nga-5 kuna 685 Okunengi nga10 kuna 490 Okuncani nga-10 kuna 660 Ngiliphi iledere lesi-5 alfabethi? Ngiyiphi inyanga ye-9 yonyaka? **Ukuhlela nokumadanisa** Ngiyphi enokunengi: 621 nofana 671? Nginikela inomboro ehlangana 154 ne 159.	

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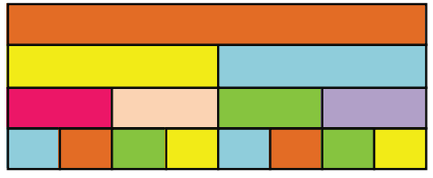
1.16 limbalo zehloko	**Umnqopho wenomboro: irherho 999** • Hlela isethi enikelweko leenomboro ezikhethiweko • Madanisa iinomboro ema-999 bewutjho bonyana ngiyiphi enengi nofana encani nga-1, 2, 3, 4, 5 ne-10 **Ukukhumbula masinyana:** • Ukukhumbula amaphuzu wokuhlanganisa nowokukhupha kufika e- 20 • Hlanganisa nofana ukhuphe imbuyeleli ze-10 kusuka e-0 kuya e-100 • Amaqiniso wokubuyabuyelela nokuhlukanisa: - Ithebula lika-2 ukufika 2 x 10 - Ithebula le-10 ukufika 10 x 10 **Amaqhinga wokubala** Ukusebenzisa amaqhinga wokubala ukuhlanganisa nokukhupha ngekghono elifaneleko: • Beka inomboro ekulu maqangi ukuze ubale uye phambili nofana ubale uye emuva • Inambalayini. • Ukubuyelela kabili nokuhafulaphakathi • Ukwakha nokuphhula • Sebenzisa ubudlelwano phakathi kokuhlanganisa nokukhupha • Sebenzisa ubudlelwano phakathi kokubuyabuyelela nokuhlukanisa		• Sebenzisa ukubuyelela kabili njengeqhinga lokubala ngehloko Ukubona ukutjhideza eduze kokubuyelela kabili. Isibonelo: 8 + 7 = 15 hlathulula bonyana ukubuyelela kabili i- 7uhlanganise na-1 nofana ukubuyelela kabili u-8 ukhuphe- 1 Ukubona bonyana nange iinomboro ezimbili zitjhidelene ngobukhulu enye kenye kulula ukuthola umehluko ngokubala uye phezulu ingasi ukubala uye emuva. 17- 13 = 4 bewuhlathulule bonyana ukubala uye phezulu kusuka- 13 ukuya-17 kukunikela- 4 Ezinye iimbalo zehloko zingenziwa ngaphandle kokusenzisa ama-aapharathasi, nokho kanengi kkulisizo ukwenza imbalo zehloko ngama-aplharathasi. **Ama-apharathasi aphakanyisiweko** • Inambalayini (ehlelekileko begodu engenalitho) • Igridi yeenomboro • Amakarada wobukhulu bedijithi (amafladi karada) • Imincamo yokubala	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
1.17 Amafrak-tjhini	• Sebenzisa begodu utjho amafraktjhini ajayelekileko afaka hlangana amahafu, ikotara, kobunani, kobuthathu, kwesithandathu, kwesihlanu • Ukukhumbula amafraktjhini asebujameni bedayagremu • Ukuthoma ukukhumbula bonyana amahafu amabili nofana ubuthathu obuthathu benza kunye okupheleleko, ingcenye yinye yehafu nenkota ezimbili ziyalingana • Tlola amafraktjhini njenge, ingcenye yinye yehafu, izingcezu ezimbili zobuthathu		Ekupheleni kweThemu leli abafundi bafanele bakghone uku: • Ukubona amafraktjhini wobujamo begodu baqinise ukuzwisisa bonyana iingcenye kufanele zibe bukhulu obulinganako; • Ukwazi bonyana amakotara amane enza okuzeleko okupheleleko, begodu ikotara enye nenye ifanele ibe nobukhulu obulinganako; • Thola amafraktjhini wesiqhema sezinto; • Funda bewutlole amagama wamafraktjhini; • Bewuhlele, uhlathulule bewumadanise amafraktjhini. Ekupheleni kweThemu abafundi bazwisise amafraktjhini njenge ngcenye yukupheleleko bebakghone ukuphendula imibuzo efanako • □ zeenquntu = okupheleleko okukodwa • □ yamakota = okupheleleko okukodwa • □ kwesithathu = okupheleleko okukodwa • □ zeenquntu = okupheleleko okukodwa • □ kwesihlanu = okupheleleko okukodwa • □ kwesithandathu = okupheleleko okukodwa Ukuphendula imibuzo efana na: Nange ubujamo buhlukaniswa bube ezimbili, sizibiza Nange ubujamo buhlukaniswa bube ziingcenye ezi-2 ezilinganako, sizibiza ___ Nange ubujamo buhlukaniswa bube ziingcenye ezi- 3 ezilinganako, sizibiza____ Lokha ubujamo buhlukaniswe ngeengcenye ezilinganako_____ sizibiza amakota. **Bakghona ukumadanisa ubukhulu bamafratjhini**  Ihafu -1 ikulu nofana incani kunamakota-3? Makota amangaki alingana noku-1 okupheleleko? Bobunane abangaki abalingana noku-1 okupheleleko? Ngabe amakota amibili alingana nehafu yi-1na? Thola ifraktjhini yebuthelelo lezinto. Kunemincamo e-12, e-8 ngepinki ne-4 emhlophe. Yifraktjhini yiphi yomncaamo omhlophe?	

IGREYIDI YESI-3 ITHEMU YESI- 4 2. AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.1 Amapheth-eni weJi-yomethri	**Kopulula, ngezelela begodu uhlathulule** Kopulula, ngezelela begodu uhlathulule ngawakho amagama • amaphetheni alula enziwe ngezinto eziphathekako • amaphetheni alula enziwe ngokugwala imida, ubujamo nofana izinto **Ukuzakhela amaphetheni** Ukuzakhela amaphetheni weJiyomethri • ngezinto eziphathekako • ngokugwala imida,ubujamo nofana izinto **Amaphetheni asizungelezileko** Ukubona , ukuhlathulula ngamagama nokukopulula amaphetheni weJiyomethri • eemvelweni • ebuphilweni bangamalanga banamhlanje • elifeni lamasiko wethu	**Amaphetheni asizungelezileko** Ukubona , ukuhlathulula ngamagama nokukopulula amaphetheni weJiyomethri • eemvelweni • ebuphilweni bangamalanga banamhlanje • elifeni lamasiko wethu	Abafundi bazakusebenza ngamaphetheni wokwemvelo, zesimanjemanje zobuphilo bangamalanga ngamafa wamasiko wethu kusukela eGreyidini yoku-1 ukuya eGreyidini 6. Lokhu kutjho bonyana akutlhogeki bona uthathe isikhathi esinengi esihlokweni lesi. Kufanele godu ukhethe imisebenzi namaphetheni afaneleko egreyidini ngayinye. Omunye umhlobo wamaphetheni abafundi abangawuqala yisimethri, isib. Amakari amanengi neenlwana ziyi simethril. Zinjalo neenunwana ezinengi lokha uzibona kusukela ngaphezulu namaphetheni weenyoni ezinengi lokha uziqala kusukela ngaphasi. EGreyidini 3 kunomqopho wokuthola umuda wesimethri ngokubhinca iphepha nesitjengiso. Abafundi bangenza amaphetheni ngokusika ubujamo emaphepheni abhinciweko. Lokhu kungafaka hlangana ukwenza amadoyili namaphepha wamasiko anamaphetheni ongawasika. Abafundi bangaqala begodu bakhulume ngamaphetheni emadoyilini akorotjhiweko neenthombe zamaphetheni ezisikwe zaba maphepha wamasiko anamaphetheni. Abafundi bangafuna amaphetheni godu e : • emafensini(idrada, okwenziwe ngekhuni nofana vibra krete); • umsebenzki weentina nama thayela wefluru; • imifulelo; • amatjhila nomunye umateriyali; • amapleyiti, iinkomitji neempiringi; • amabholo webholo yeenyawo; • iinlwana ezifana neenkomo, iviyaviyani lebusuku, idube, ijirafi, izingwe, iinyoni, iinunwana; • amathuthumbo namakari; • iphepha lebodeni, okufaka hlangana amaphepha webodeni atloliweko avamise ukutholakala emikhukhwini neendaweni lapho abantu bakhe khona ngokungasisemthethweni; • umsebenzi womncamo wangokwesiko nofana wesimanjemanje; begodu • neempoto zebumba/ zomdaka zemandulo / zangokwesiko nofana imimatjhi ethungiweko.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.1 Amapheth-eni weJi-yomethri	**Kopulula, ngezelela begodu uhlathulule** Kopulula, ngezelela begodu uhlathulule ngawakho amagama • amaphetheni alula enziwe ngezinto eziphathekako • amaphetheni alula enziwe ngokugwala imida, ubujamo nofana izinto **Ukuzakhela amaphetheni** Ukuzakhela amaphetheni weJiyomethri • ngezinto eziphathekako • ngokugwala imida,ubujamo nofana izinto **Amaphetheni asizungelezileko** Ukubona , ukuhlathulula ngamagama nokukopulula amaphetheni weJiyomethri • eemvelweni • ebuphilweni bangamalanga banamhlanje • elifeni lamasiko wethu	**Amaphetheni asizungelezileko** Ukubona , ukuhlathulula ngamagama nokukopulula amaphetheni weJiyomethri • eemvelweni • ebuphilweni bangamalanga banamhlanje • elifeni lamasiko wethu	**Abafundi bangawa hlathulula bunjani amaphetheni abawabonako abazombelezileko?** Kuneendlela ezahlukahlukeneko zokuhlathulula amaphetheni esiwabonako asizombelezileko. Amaphetheni amanengi asizombelezileko enziwe ngemida, ubujamo nofana izinto. Ubujamo nofana izinto akuthlogeki bona zihlobaniswe nobujamo babobusobubili 2-D beJiyomethri namabumbeko wabosobusontathu 3-D weJiyomethri okusetjenzwe ngawo eGreyidini yesi 2. Kuphela kwento okufanele bona abafundi bayicale yi : • lokho okubuyelelwako isib.amadothi, imida, umhlobo omunye nomunye wobujamo; nokuthi • bubuyelelwe njani isib. • Imida enqophileko evundlanako (njenge fadugwini), imida emagegana nehlangothi eliphasi lomatheriyali nofana buvundla erhembheni, imida egega nemilenze yamabrhugu; • Imida egobeneko njenge mida ezindulungu oyibona lokha usika i-eyi; • Imida engalinganiko , njengemida yemino yesandla nemida yamadube nemifinqo etholakala eendlovini, ubhejane nomuntu olupheleko; • Imida esamagagasi oyitholako lokha usika ikhabitjhi buvundla, nofana oyithola emagagasini wehlabathi; • Amadothi alinganako ngesayizi, amadothi ahlukaniswe ngokulinganako; • amajamo alinganako ngesayizi; • amajamo afanako ngemibala; nofana • amaphetheni enziwe ngobujamo obungafaniko boke :ubujamo obenza amaphetheni asesikhumbeni sejirafe woke akafani.	isifundo esi-1

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
2.2 Amaphe-theni weenom-boro	**Kopulula, ngezelela begodu uhlathulule** Kopulula, ngezelela begodu uhlathulule ukulandelana kweenomboro okulula ukufika okungasenani ema 200. **Ukuzakhela amaphetheni** Ukuzakhela nokuhlathulula amaphetheni weenomboro.	**Kopulula, ngezelela begodu uhlathulule** Kopulula, ngezelela begodu uhlathulule ukulandelana kweenomboro okulula ukufika okungasenani e 1000. Ukulandelana kufanele kutjengise ukubala uye phambili nemuva nga: • ngabo ku1 kusuka kunanyana ngiyiphi inomboro phakathi kwe 0 nama 1000 • ngali 10 kusuka kunanyana ngikuphi ukubuyabuyelela kwe 10 phakathi kwe 0 nama 1000 • ngaku 5 kusuka kunanyana ngikuphi ukubuyabuyelela kwaku 5 phakathi kwe 0 nama 1000. • Ngaku 2 kusuka kunanyana ngikuphi ukubuyabuyelela kwaka ku 2 phakathi kwe 0 nama 1000 • nge100 kusuka kunanyana ngikuphi ukubuyabuyelela kwe100 kufika okungasenani e- 1 000 • ngama 50 kusuka kunanyana ngikuphi ukubuyabuyelelakwama 50 kufika okungasenani e 1 000 • ngama 25 kusuka kunanyana ngikuphi ukubuyabuyelela kwama 25 kufika okungasenani e 1 000 • ngama 20 kusuka kunanyana ngikuphi ukubuyabuyelela kwama 20 kufika okungasenani e 1 000 **Ukwakha nokuhlathulula amaphetheni wakho** • Ukwakha nokuhlathulula amaphetheni wakho weenomboro • ngamakhefu anqotjhiswe / enziwe egreyidini 2 ngerherho leenomboro elingezelelweko • ngama 20,25, 50,100 to ukufika okungasenani e 1000	Qala amanothi weThemu yoku-1. Ngezelela amaphetheni bona afake okulandelako • ngabo ku1 kusuka kunanyana ngiyiphi inomboro phakathi kwe 0 nama 1000 • ngali 10 kusuka kunanyana ngikuphi ukubuyabuyelela kwe 10 phakathi kwe 0 nama 1000 • ngaku 5 kusuka kunanyana ngikuphi ukubuyabuyelela kwaku 5 phakathi kwe 0 nama 1000. • Ngaku 2 kusuka kunanyana ngikuphi ukubuyabuyelela kwaka ku 2 phakathi kwe 0 nama 1000 • nge100 kusuka kunanyana ngikuphi ukubuyabuyelela kwe100 kufika okungasenani e 1 000 • ngama 50 kusuka kunanyana ngikuphi ukubuyabuyelelakwama 50 kufika okungasenani e 1 000 • ngama 25 kusuka kunanyana ngikuphi ukubuyabuyelela kwama 25 kufika okungasenani e 1 000 • ngama 20 kusuka kunanyana ngikuphi ukubuyabuyelela kwama 20 kufika okungasenani e 1 000 Sebenzisa izinto , iinthombe, amathebula netjhadi naneko ukusekela ukutjhuguluka kwabafundi kusuka ekubaleni ngokweqa nokulandelanisa ukuya ekubuyabuyeleleni ngali: 10, 5, 2, 4, 3.	Iimfundo ezi-3

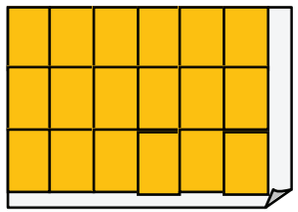
IGREYIDI YESI-3 ITHEMU YESI- 4 3. ISIKHALA NOBUJAMO (JIYOMETHRI)				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
3.2 **Izinto ezi-busontathu (3-D)**	**Irherho lezinto** Ukukhumbula nokutjho ngamagama izinto ezibusontathu (3-D) ngetlasini neenthombeni • Ubujamo obuziimbholo, (iindulungu) • Ubujamo obumabhoksi (amaphrizimu) • amasilinda • amaphiramidi • iinkurwana **Ubujamo bezinto** Hlathulula, hlela ngamananeko begodu umadanise izinto ezibusontathu (3-D) mayelana ne: • ubujamo obubusobubili (2-D) obenza ubuso bezinto ezibusontathu (3-D) • ilingaphezulu elithabaleleko nofana ilingaphezulu eligobeneko **Imisetjenzana enqotjhiweko** • Tjheja begodu wakhe ubujamo babobusontathu (3-D)onikelwe bona usebenzise izinto eziphathekako okufana nokusika ubujamo obubusobubili (2-D), imdaka, iingojwana zokukhupha ukudla emazinyweni, ithunjana okuselwa ngalo iinselo, nezinye izinto ezinobujamo obubusontathu (3-D) zeJiyomethri.	**Irherho lezinto** Ukukhumbula nokutjho ngamagama izinto ezibusontathu (3-D) ngetlasini neenthombeni • Ubujamo obuziimbholo, (iindulungu) • Ubujamo obumabhoksi (amaphrizimu) • amasilinda • amaphiramidi • iinkurwana **Ubujamo bezinto** Hlathulula, hlela ngamananeko begodu umadanise izinto ezibusontathu (3-D) mayelana ne: • ubujamo obubusobubili (2-D) obenza ubuso bezinto ezibusontathu (3-D) • ilingaphezulu elithabaleleko nofana ilingaphezulu eligobeneko	Qala amanothi weThemu yesi-2. NgeThemu le, ningazijayeza nibuyekeze begodu ninzinzise umsebenzi wezinto ezibusontathu (3-D) ngomsebenzi otlolwako. • Ukunqopha ekukhumbuleni nokutjho ngamagama: • Ubujamo obuziimbholo, (iindulungu); • Ubujamo obumabhoksi (amaphrizimu); • Amasilinda; • Amaphiramidi; nee • Iinkurwana lokha nababoniswe iinthombe zeJiyomethri nofana izinto ezisetjenziswa ngamalanga . imibuzo kufanele inqophise abafundi e: • Kghani ingaphezulu lento ligobene nofana lithabalele; nokuthi • Kghani ilingaphezulu elithabaleleko lezinto zibo ncantathu, ncamane, iinkwere nofana iindulungu.	Isifundo esi-1
3.4 **Isimethri**	**Isimethri** • Ukukhumbula nokugwala imida yesimethri ebujameni beJiyomethri nebujameni obungasibo beJiyomethri emabumbekweni wabobusobubili (2-D) • Yenza umuda wesimethri ngokugoqa iphepha nokutjengisa godu.	**Isimethri** • Ukukhumbula nokugwala imida yesimethri ebujameni beJiyomethri nebujameni obungasibo beJiyomethri emabumbekweni wabobusobubili (2-D).	Umsebenzi wesimethri wokubhinca iphepha owenziwe eThemini yesi – 2 kufanele irhelebhe abafundi ukubona imida yesimethri emigwalweni yezinto zejiyomethri nalezo ezingasi ngezejiyomethri. Imisetjenzana etlolwako kufanele ifake hlangana iimbonelo lapho • umuda wesimethri kungasimumuda ojame rwe; begodu • kube nemida yesimethri edlula kowodwa ebujameni nofana entweni.	1 lesson

IGREYIDI YESI- 3 ITHEMU YESI-4 4. UKUMEDA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.1 Isikhathi	**Ukutjho isikhathi** • Ukufunda amalanga ekhalendeni • Ukubeka amalanga wamabeletho, amafestivali wezekolo, amaholide womphakathi, iminyanya wezomlando, izehlakalo zesikolo ezisekhalendeni. • Ukutjho isikhathi sama-iri ali-12 ngama o -iri, o ngesiquntu se-iri o ngekotara ye-iri o amaminithi wewatjhi le-analogo neenwatjhi zedijithali begodu nezinye iintlabagelo ezitjengisa isikhathi, isib. abomaliledinini **Ukubala ubude nokudlula kwesikhathi** Sebenzisa ikhalenda ukubalanokuhlathulula ubude besikhathi ngamalanga nofana iimveke nofana iinyanga okufaka hlangana • ukutjhuguluia hlangana kwamalanga neemveke. • Ukutjhiugulula hlangana kweemveke neenyanag. Sebenzisa amawatjhi ukubala ubude besikhathi ngama-iri nofana isiquntu se-iri	**Ukutjho isikhathi** • Ukufunda amalanga ekhalendeni • Ukubeka amalanga wamabeletho, amafestivali wezekolo, amaholide womphakathi, iminyanya wezomlando, izehlakalo zesikolo ezisekhalendeni. • Ukutjho isikhathi sama-iri ali-12 ngama o -iri, o ngesiquntu se-iri o ngekotara ye-iri o amaminithi wewatjhi le-analogo neenwatjhi zedijithali begodu nezinye iintlabagelo ezitjengisa isikhathi, isib. abomaliledinini **Ukubala ubude besikhathi nokudlula kwesikhathi** Sebenzisa amakhalenda ukubala nokuhlathulula ubude besikhathi ngamalanga nofana ngeemveke nofana iinyanga ukufaka hlangana • ukutjhugulula hlangana kwamalanga neemveke • ukutjhugulula hlangana kweemveke neenyanga Sebenzisa amawatjhi ukubala ubude besikhathi ngama-iri nofana isiquntu se-iri	Abafundi baragela phambili ukuzijayeza ukukhuluma ngobude besikhathi begodu nangokulandelana kwesikhathi. Ngesikhathi sokufundisa itlasi loke begodu nesikhathi sokunqopha esiqhemeni, abafundi baragela phambili nokukhuluma ngamalanga weveke, iinyanga zonyaka begodu nelanga lamhloko, nangamalanga angaphambili begodu namalanga ezako. Abafundi baragela phambili nokubeka okulandelako ekhalendeni njengombana izehlakalo zivela • amalanga wamabeletho ; • amafestivali wezekolo ; • iminyanya wezomlando ; • izehlakalo zesikolo ; begodu • amaholideyi womphakathi . Ragela phambili ngokutjela abafundi bonyana batjho isikhathi ngaso soke isikhathi pheze ngamalanga o ngama-iri begodu nangamaminithi wewatjhini ye-analogo; begodu o ngama-iri, iinquntu zama-iri, begodu nangamakotara wama-iri ngokusebenzisa amawatjhi wedijithali. Isibonelo, abafundi bangabawiwa bonyana batjho bonyana isikolo singena sikhathi bani, isikhathi sokudla sinini begodu isikolo siphuma nini, nofana batjhintja nini ukusuka kesinye isifundo nabaya kwesinye. Khetha iinkhathi lapho iwatjhi itjengisa isikhathi poro. Kufanelekile bonyana kube newatjhi esebenzako ebekwa ngetlasini, ukuze abafundi baqale kiyo. Abafundi bangenza iimfaniso zamawatjhi. Ungababawa bonyana bakutjengise iinkhathi ezihlukileko, isib. Ngitjengisa i-iri le-10 ehloko. Ngitjengise bonyana bekusikhathi bani ngephambi kwekotara ye-iri. Ngesikhathi sokusebenza ngokuzijamela , abafundi baragela phambili nokwenza imisebenzi ephathelene nokutjho isikhathi: o ngama-iri, iinquntu zama-iri, begodu nangamakotara wama-iri ewatjhini ye-analogo; begodu o ngama-iri begodu nangamaminithi ewatjhini ye-dijithali Abafundi bangabala ngokuya ngeemveke nofana amalanga nangabe banikelwe ikhalenda nofana isigaba sekhalenda, ukuthola amalanga begodu nokubala ukuhluka kwesikhathi esihlangana nazo. **Ukufunda isikhathi se-analogo ngamaminithi** Sebenzisa pheze iimfundo ezimbili unqophe ekuhlanganise abafundi ekghonweni lokufunda isikhathi se-analogo ngamaminithi. Qala amanothi weThemu yesi-3	Iimfundo ezi-2

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.2 Ubude	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu urekhode ubudengokusebenzisa iimedo ezingakahleleki, isib. Ubude besandla, amagadango, ubude bamapensela, izinto zokubala, njll • Ukuhlathulula ubude bezinto ngokubala begodu nokutjho bonyana zinobude obungangani bamayunithi angakahleleki • Ukusebenzisa ilimi ukukhuluma ngokumadanisa, isib. ubude, ubufitjhani, mude khulu , banzi khulu **Ukwethula ukumeda okuhlelekileko** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu urekhode ubude ngokusebenzisa amamitha (iintonga eziyimitha nofana iintambo ezinobude bemitha) njengomuvosimedo ojayelekileko. • Ukulinganisa nokumeda ubude ngamasenthimitha ngokusebenzisa irula. Alikho itjhuguluko elenzeka hlangana kwamamitha namasenthimitha		Yoke imihlobo yokumeda ubude eerhenyiswa magega nekholomu ingajayezwa ngesikhathi sekusebenza ngokuzijamela ethemini yoke. Yoke imisebenzi ifanele irekhodwe.	

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.3 Ubungako	**Ukumeda okungakahleleki** • Ukulinganisa, ukumeda, ukumadanisa, ukuhlela, begodu urekhode ubungako, ngokusetjenzisa iimedo ezingakahleleki begodu nesikala sokudzimelelisa isib.amabhulogo, iintina njll. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib. elula,ebudisi, elula-khulu,ebudisi-khulu **Ukwethula ukumeda okuhlelekileko** • Ukumadanisa, ukuhlela nokurekhoda ubungako bezinto ezipakelwe ukuthengiswae-zinobungako obutjengiswe ngamakhilogremu, isib. amakhilogremu ama-2 wereyisi nekhiligremu li-1 leflowuru nofana amakhilogremu ama-500 wetswayi • Ukumeda ubungako babo ngamakhilogremu ngokusebenzisa isikala sokumeda sangendlini yokuhlambela Alikho itjhuguluko elifunekako hlangana kwamamilimitha namalitha	**Ukwethula ukumeda okuhlelekileko** Abafundi benza amathaski atlolwako ukuhlanganisa okulandelako, ukufaka hlangana ukufunda iinthombe ze: • mikhiqizo yobungako bento etlolwe kiyo. • Iinthombe zobungako beenkala zangendlini yokuhlambela lapho ivolumu iseduze khona nomuda inalidi ekhombe khona umuda onenomboro emeregiweko	Ukuhlanganisa umsebenzi owenziwe ngobungako emnyakeni woke, abafundi bafanele benze imisebenzi etlolwako lapho bazoku: • ukufunda iinthombe ezibavumela bonyana bamadanise ubungako bezinto ezitjengiswe esikaleni sokumeda • ukufunda iinthombe ezibavumela bonyana batjho ubungako bezinto esikaleni sokumeda ngamayunithi angakahleleki wokumeda. • Ukumadanisa,ukuhlela begodu nokurekhoda abakufunyeneko o Iinthombe zezinto ezithengiswa esitolo sokudla nezinye izintwanyana zangekhaya ezinobungako obutlolwe ngamakhilogremu; begodu o Iinthombe zezinto ezithengiswa esitolo sokudla nezinye izintwanyana zangekhaya ezinobungako obutlolwe ngamagremu • Ukufunda iinthombe zesikala sangendlini yokuhlambela lapho ubungako butjengisa ukuba sedeze nekhilogremu ezeleko. Qala amanothi weThemu yesi-2 **Ukumeda ubungako njengobujamo bokurarulula imiraro begodu nokubala** Ngesikhathi esibekelwe linomboro, imiSebenzi noBudlelwana,abafundi bangararulula imiraro ngokusebenzisa ubujamo • bokumeda okungakahleleki kobungako • ubungako ngamakhilogremu Ubungako ngamagremu Yelela irherho lenomboro elifaneleko leThemu, nemihlobo yeenkinga ezihlukahlukeneko ezifaneleko zeThemu.	1 lessons

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.4 Umthamo/ ivolumu	**Ukumeda okungakahleleki** • Ukulinganisa nokumeda; Ukumadanisa nokuhlela (isib. umthamo ongamumathwa simumathi nasizeleko) ngokusebenzisa iimedo ezingakahleleki isib. Iingobho namakopi. • Ukuhlathulula umthamo wesimumathi ngokubala nokutjho bonyana mangaki amayunithi angakahleleki angazalisa isimumathi, isib. Ibhodlelo linobungako bamakopi amane **Ukwethula ukumeda okuhlelekileko** • Ukulinganisa, ukumeda; ukumadanisa nokuhlela nokurekhoda umthamo wezinto ngokumeda ngamalitha, iinqunto zamalitha begodu nangamakotara wamalitha. • Ukumadanisa, ukuhlela nokurekhoda umthamo wezinto ezipakelwe ukuthengiswa, ubungako bazo butlolwa ngamalitha, isib. Amalitha ama-2 webisi, ilitha li-1 lesiselo esimakhaza, ama-5 l wepende nafana ngamamilimitha, isib. ama-500 ml webisi, • Amamililitha ama-340 wesiselo esimakhaza, amamilimitha ama-750 we-oli • Ukwazi bonyana ikopi elisezingeni limamililitha ama-250 • Ukwazi bonyana ithispuni limamililitha ama-5 akukalindeleki bonyana kube netjhuguluko hlangana kwamamilimitha namalitha	**Ukwethula ukumeda okuhlelekileko** Abafundi benza amathaski atlolwako ukuhlanganisa okulandeleko, ukufaka hlangana ukufunda iinthombe • zemikhiqizo yobungako bento etlolwe kiyo ukuze kulandelaniswe ngendlela efeneleko. • Iinthombe zamajege lapho ivolumu iseduze nelitha li-1 elinomboriweko nofana umuda omeregweko otjengisa amalitha ama-2 nofana isiquntu samalitha nofana ikotara yelitha. • Iinthombe zamajege lapho ivolumu iseduze nemida emeregiweko yamamilimitha. Kulindeleke bonyana abafundi bafunde kwaphela umuda oseduze emeregiweko yamamilimitha. Bahlathulula ivolumu yabo njengokuthi pheze, / eduze /okunengana kuna/ pheze kube/ nofana inomboro poro (yelitha) abayifunda ejegeni. Alikho itjhuguluko elifuneka hlangana kwamamitha namasenthimitha	Ngesikhathi sokusebenza ngokuzijamela abafundi bafanele baragele phambili noku: • Ukulinganisa nokumeda; ukumadanisa, ukuhlela begodu nokurekhoda umthamo weemumathi nofana ivolumu yeemumathi ngokusebenzisa iimedo ezingakahleleki. • Ukumadanisa begodu nokuhlela umthamo wamabhodlelo ahlukahlukeneko begodu nezinto zesitolo sokudla nezinye izintwanyana zangekhaya lapho umthamo wakhona utlolwe ezintweni eziphakethelwako. • Sebenzisa nanyana amabhodlelo welitha li-1 nofana amajege welitha li-1 ukulinganisa nokumeda, ukumadanisa,ukuhlela begodu nokurekhoda umthamo weemumathi nofana ivolumu engeemumathini ezingamalitha. Qala amanothi weThemu yesi-3 Abafundi bafanele banikelwe amathaski atlolwako ukuhlanganisa okulandeleko, ukufaka hlangana ukufunda iinthombe • zemikhiqizo yobungako bento etlolwe kiyo ukuze kulandelaniswe ngendlela efaneleko. • Iinthombe zamajege lapho ivolumu iseduze nelitha li-1 elinomboriweko nofana umuda omeregweko otjengisa amalitha ama-2 nofana isiquntu samalitha nofana ikotara yelitha. Iinthombe zamajege lapho ivolumu iseduze nemida emeregiweko yamamilimitha. Kulindeleke bonyana abafundi bafunde kwaphela umuda oseduze emeregiweko yamamilimitha. Bahlathulula ivolumu yabo njengokuthi pheze, / eduze /okunengana kuna/ pheze kube/ nofana inomboro poro (yelitha) abayifunda ejegeni. Alikho itjhuguluko elifuneka hlangana kwamamitha namasenthimitha **Ukumeda ubungako njengobujamo bokurarulula imiraro begodu nokubala** Ngesikhathi esibekelwe Iinomboro, imiSebenzi noBudlelwana,abafundi bangararulula imiraro ngokusebenzisa ubujamo • bobungako / ivolumu besimedo ezingakahleleki, isibonelo, uGogo usebenzisa amakopi amabili webisi ukwenza ipudinghi. Nakawabuyelela kabili, uzokusebenzisa ibisi elingangani? • amalitha • amamililitha Yelela irherho lenomboro elifaneleko leThemu, nemihlobo yeenkinga ezihlukahlukeneko ezifaneleko zeThemu.	Isifundo esi-1

IINHLOKO	IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA	IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4	AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA	UBUDE BESIKHATHI (eemfundweni ze-iri -1 begodu namaminithi ama -24)
4.5 **Ipherimitha nobukhulu bendawo**	**IPherimitha** • Rhubhulula ibanga lobujamo uzombelezele boke abobusobubili (2D) begodu nezinto zabosobusontathu (3D) ngokusebenzisa intambo **Ubungako bendawo** • Rhubhulula ubungako bendawo ngokusebenzisa ukuthayela	**Ubukhulu bendawo** Rhubhulula ubukhulu bendawo ngokusebenzisa ukuthayela	Abafundi bangeniswa ekumedeni ubungako bendawo kokuthoma egreyidini yesi-3. Egreyidini yesi-3 begodu nesikhathi esinengi sesiGabeni esisiSekelo ubungako bendawo bumedwa kwaphela ngokungakahleleki. Abafundi bathola bonyana mangaki amajamo nofana izinto ezivala ilingaphandle. Bapakela amajamo nofana izinto ngaphandle kokutjhiya iinkhala hlangana namajamo nofana izinto. Bese babala bonyana mangaki amajamo avala ilingaphandle. Isib. Abafundi bangapakela iinkwere nofana aboncamane ekhasini; babala bonyana nangaki amajamo avala ikhasi. Abafundi bafanele batjho ubungako bendawo ngokuya ngamajamo, isib. Ikhasi lami linobungako bendawo obuboncamane abali-16. Kulindelekile bonyana amajamo angavali ikhasi ngokupheleleko, njengesibonelweni esingenzasi.  Abafundi bafanele batjho ubungako bekhasi ngokuyelela lokhu, isib. Ikhasi lami linobungako bendawo obungaphezu kwaboncamane abali-18 kodwana mbadlwana kunaboncamane abama-28. Vumela abafundi bafake amathayela endaweni enamajamo ahlukahlukeneko begodu namajamo afanako wobungako obuhlukahlukeneko. Lokhu kuzokuvumela abafundi babone bonyana. • ijamo nalilincani, lenza bonyana abe manengi amajamo azokulingana ilingaphandle, begodu • ijamo olikhethako lizokuthinta iimpendulo zokubala ozitholako Abafundi abakalindeleki banyana babale ubungako bendawo ngokubala iinkwere ezisegridini yeenkwere; lokhu kuzokwenziwa esiGabeni esisiSekelo.	Iimfundo ezi-2

IGREYIDI YESI-3 ITHEMU YESI-4 5. UKUPHATHA IDATHA				
IINHLOKO	**IMIQONDO NAMAKGHONO : IIMFUNEKO ZOKUPHELA KONYAKA**	**IMIQONDO NAMAKGHONO : IMINQOPHO YETHEMU YESI-4**	**AMANYE AMANOTHI WOKUTLHADLHULA NOFANA IMIHLAHLANDLELA YOKUFUNDISA**	**UBUDE BESIKHATHI** (eemfundweni ze-iri -1 begodu namaminithi ama -24)
5.4 Ukubuthelela begodu uhlele idastha	**Ukubuthelela begodu uhlele idatha** • Buthelela idatha ngetlasi nofana isikolo ukwenzela ukuphendula imibuzo ebuzwa ngutitjhere. • Hlela idatha oyinikelwe ngutitjhere nofana incwadi • Hlela idatha ngama: - Amarhelo - Amathali - Amathebula			
5.5 Ukujamisela idatha	**Ukujamisela idatha** Jamisela idatha nge: • Grafu yeenthombve • Bha grafu			
5.6 Ukutsenga begodu uhlathulule idatha	**Ukuhlaziya begodu urhumutjhe idatha** Phendula imibuzo ngedatha ethulwe nge: • Grafu yeenthombve • Bha grafu.	Ukuhlaziya idatha kusukela eenjamisweni onikelwe zona.	Ngalesi isikhathi sonyaka, kufanele bona abafundi sele babandakanywe kiyoyoke imihlobo yokubuthelela idatha efunekako eGreyidini 3 (amarhelo, amathali, amathebula, amagrafu weenthombe, amabha grafu). Kuphakanyisiwe bona ngeThyemu yesi 4 abafundi banqophe ekuhlaziyeni idatha. Unikela abafundi idatha bona bayihlaziye okungasenani ema: • Ibha grafu eyodwa; nase • Thebuleni eyodwa Abafundi kufanele baphendule imibuzo obabuza yona ngama grafu nama thebula; bona iThemu 1ukufumana imihlobo yemibuzo efaneleko.	Isifundo esi-1

ISAHLUKO 4: UKUHLOLA

4.1 ISINGENISO

Ukuhlola yikambiso eragela phambili ehleliweko yokubona, ukubuthelela begodu nokurhumutjha ilwazi elimayelana nokusebenza kwabafundi, ngokusebenzisa iindlela ezihlukeneko zokuhlola. Kufaka hlangana amagadango amane:

- ukukhiqiza begodu nokubuthelela ubufakazi bokuzuza,
- ukuhlola ubufakazi lobu:
- ukurekhoda lokho okutholakeleko begodu
- kusetjenziswa ilwazi leli ukuzwisisa begodu nokusiza ekuthuthukiseni umfundi ukuze kwenziwe ngcono ikambiso yokufunda nokufundisa.

Ukuhlola kufanele kwenziwe ngazo zombili iindlela kube ngokungakahleleki (Ukuhlola mayelana nokufunda) nangokuhlelekileko (Ukuhlola kokufunda). Kizo zombili iindlela zokuhlola umbiko obuyako kufanele unikelwe abafundi ukuthuthukisa ilemuko lokufunda.

EsiGabeni esisiSekelo, amathekhiniki aqakathekileko wokuhlola okuhlelekileko begodu nokungakahlelekiko kutjhejwa ngutitjhere, ukucocisana ngokomlomo, ukutjengisa wokwenzekako, begodu nerekhodi elitloliweko. Ukuhlola kweGreyidi R kufanele kube ngokomlomo begodu nangokwenzeka

4.2 UKUHLOLA OKUNGAKAHLELEKI NANYANA UKUHLOLA KWANGAMALANGA

Ukuhlola kokufunda kuyikambiso yokuragela phambili yokubuthelela ilwazi ngalokho umfundi akuzuzileko okungasetjenziswa ukwenza ngcono ukufunda kwakhe. Lokhu kubizwa ukuhlola okungakahleleki..Kuyindlela yangamalanga yokutjheja iragelo phambili labafundi. Lokhu kwenziwa ngendlela yokuqala, ukucocisana, ukutjengisa okwenzekako, ukukhulumisana ngendlela engakahleleki ngetlasini, njll. Akukafaneli kubonakale njengento ehlukileko kunemisebenzi efundwako leyo efundwa ngetlasini. Ukuhlola okungakahleleki kusiza utitjhere ukutjheja ituthuko yomfundi nokwenza imiyalelo ngesiqunto sangamalanga woke. Ukuhlola okuhlelekileko kusetjenziseswa:

- ukunikela umbiko obuyako ebafundini
- ukwazisa ukutlamela ukufundisa

Kesinye isikhathi utitjhere angalondoloza irhelo lokuhlola nofana asebenzise itjhejuli yokuqala njengendlela yokurekhoda iragelo phambili lomfundi. Kesinye isikhathi abafundi nofana utitjhere angatshwaya umsebenzi. Nanyana kunjalo, ukuhlola okungahleleki akubi yingcenye yerekhodi elihlelekileko lomfundi. Imiphumela yemisebenzi yokuhlola okungakahleleki kwangamalanga ayitjhejwa nakukhutjhulwa abafundi begodu nalokha nakunehloso yokunikela iintifikeyidi.

4.3 UKUHLOLA OKUHLELEKILEKO.

Yoke imisebenzi ehlolwako/amathaski abumba ihlelo elihlelekileko lokuhlola lomnyaka woke lithathwa njengokuHlola okuHlelekileko. Amathaski/Imisebenzi yokuhlola okuhlelekileko iyatshwaywa begodu irekhodwe phasi ngutitjhere ngendlela ehlelekileko mayelana neragelo phambili kanye nomnqophowokunmikelwa kwesitifikeyidi. Ukuhlola okuhlelekile kunikela abotitjhere indllela yerherho yokuhlunga bonyana abafundi bathuthuka bunjani ngegreyidini ngayinye begodu nasesifundweni esithize.

Utitjhere angaqala kwaphela abafundi abangaba li 10 ngesikhathi sinye, ngakho ke imisebenzi yokuhlola okuhlelekileko izokwenzeka khulu ekuhlanganeni okunqotjhiweko kweenqhema ezincani begodu kuzothatha amalanga ukuhlola ikumba yoke yokufunda. Yoke imethiriyali neensetjenziswa lezo abafundi abanokuziberegisa kufanele zibe khona njengasemihleni, (izinto zokubala, amatjhadi weenomboro,njll)

Iindlela zokuhlola ezisetjenziswako kufanele zilingane neminyaka begodu nezinga letuthuko elifaneleko. Ukuhlola

okuhlelekileko kufanele kuvumele amazing ahlukahlukeneko wokufunda namakghono wabafundi, nobujamo bemisebenzi le kufanele bulingane nokumumethweko kwesifundo ngeendlela ezihlukeneko.

Imihlobo ehlukeneko yokuhlola (ukuqala, komlomo, okwenziwako nokutlolwako) kufanele kuberegiswe ukunikela umfundi ngamunye ithuba lokutjengisa abangakwenza. Lokhu kungombana abanye abafundi bakghona masinyana ukubonisa lokhu abakwaziko kokhunye ukuhlola okuhlelekileko. Isibonelo,

- Abanye abafundi abathola bonyana ukufunda kubudisi bayazazi iimBalo.
- Abanye abafundi ngeze babe sezingeni elamukelekileko lokukghona ngelimini lokufunda nokufundisa.

Imisebenzi yokuhlola eemBalweni kufanele ifake imisebenzi begodu nemisetjenjana engakasekelwa elimini, begodu engakasimi ekufundeni, ukuveza amakghono wamambala wabafundi laba.

Nanyana kunjalo, iyalelo lalokho okuhlolwako lifanele liqalwe. Ilwazi elithileko begodu, amakghono ahloleka kuhle ngeendlela ezithileko zokuhlola. Imihlobo ehlukeneko yokuhlola ilungele amakghono begodu nemiqondo etlhogekako eenhlokwaneni ezihlukahlukene neenqhema zeminyaka ezihlukeneko. Kuyasiza ukusebenzisa irhelo lokuhlola ukuhlola ukulinganisa abafundi emagreyidini aphasi.

Irubrikhi ingaberegiswa ukuhlola ikghono lomfundi ekurarululweni kwemiraro.

4.4 IHLELO LOKUHLOLA OKUHLELEKILEKO

Iimfuneko zokuhlola okuhlelekileko eemBalweni emaGreyidini 1-3 zirhenyiswe ethebuleni engenzasi:

	ITHEMU 1	ITHEMU 2	ITHEMU 3	ITHEMU 4	INANI
IGreyidi 1	2	2	2	1	7
IGreyidi 2	2	2	2	2	8
IGreyidi 3	2	3	3	2	10

Abotitjhere bakhuthazwa bonyana benze ukuhlola okusisekelo ethemini yokuthoma. Imiphumela yabafundi ekuhlolweni okusisekelo akukafaneli bonyana isetjenziselwe ukulebula ikghono labo, kodwana ukuthatha isiquntu sokobana imisetjenzana yokuthoma ibekwe kiliphi izinga begodu nokuhlola nokobana ngiziphi iingcenye zomsebenzi ezitlhoga itjhejo elinengi. Abafundi bathuthuka ngamazinga ahlukahlukeneko. Abanye abafundi bathoma buthaka, kodwana baye ngokurhaba eeMbalweni lokha nakukhamba isikhathi.

Umsebenzi wokuhlola okuhlelekile eemBalweni ufaka hlangana iinhloko ezidlula kwesisodwa eemBalweni. Ukuhlola konyaka woke kufanele kumumathe zoke iingaba zokumumethweko neenhloko, kodwana akusingiyo yoke into ekukharikhyulamu okufanele ihlolwe ngokuhlelekileko nofana kubikwe ngakho. Iinomboro ,Ama-opharetjhini no Budlelwano kuthatha 60 % eemBalweni emaGreyidini 1-3. Lokhu kutjho bonyana amaphesende ama-60% yokuhlola okuhlelekileko ethemini ngayinye begodu nenyakeni kufanele unqotjhiswe Eenomborweni, Ama-opharetjhini no-Budlelwano

Umsebenzi wokuhlola okuhlelekileko ngamunye akukafaneli bonyana kubonwe njengesehlakalo esihlukileko nofana ukulingwa. Ezinye iinquntu zesilinganiso zingahlolwa ngasikhathi sinye, kodwana ezinye zizakuhlolwa enkathini esihlukile. Isibonelo lokha ikghono labafundi lokubala ngokweqa lihlolwa, ikghono labo ukwenza okulandelako lingahlolwa emsebenzini ofanako nofana isehlakalo:

- Ukuqedelela ilandelano lokubala
- Ukufunda nokuatlola amatshwayo weenomboro
- Ukubala

Nanyana kunjalo, uma umsebenzi wokuhlola umumethe kokubili ukurarululwa kwemiraro ngokweenqhema/ nofana ukwabelana.

nangokuhlanganyela, begodu nokuhlola ikghono labafundi lokulinganisa umthamo;kuvamile bonyana amahlangothi wobujamo weemBalo azokuhlolwa eenkathini ezihlukeneko begodu ngeendlela ezahlukeneko.

4.5. UKUREKHODA NOKUBIKA

Ukurekhoda yikambiso lapha utitjhere atlola phasi khona amazinga wokusebenza komfundi ekuhloleni umsebenzi onqotjhiweko. Kutjengisa iragelo phambili lomfundi mayelana nokuzuza ilwazi njengombana kuquntwe ngakhona esiTatimendeni somThetho-kambiso weKharikhyulamu nokuHlola. Amarekhodi wokusebenza komfundi kufanele anikele ubufakazi beragelo phambili lemiqondo hlangana negreyidi nokulungela kwakhe ukuragela phambili nanyana ukudluliselwa kugreyidi elandelako. Ukurekhodwa kokusebenza komfundi kufanele kusetjenziswe ukuqinisekisa iragelo phambili elenziwa botitjhere nabafundi ekambisweni yokufunda kanye nokufundisa.

Ukubika yikambiso yokukhulumisana ngokusebenza komfundi kubafundi, kubabelethi, eenkolweni begodu nabanye abahlanganyeli. Ukusebenza komfundi kungabikwa ngeendlela ezinengi. Lokhu kufaka hlangana amakarada wemibiko, imihlangano yababelethi, amalanga wokuvakatjhela iinkolo, amakhonferensi wabafundi nabotitjhere, imitato, iincwadi, iincwadi zetlasi nanyana zesikolo, njll. Abotitjhere kiwo woke amagreyidi babika ngamaphesende kuneemfundo. Amazinga ahlukeneko wokuzuza kanye namazinga wamaphesende akhambisana nawo atjengisiwe kilethebula engenzasi.

AMAKHOWUDU NAMAPHESENDE WOKUREKHODA NOKUBIKA

IKHOWUDU YAMANANI	UKUHLATHULULWA KWEKGHONO	AMAPHESENDE
7	Uphumelele kuhle tle	80 – 100
6	Uphumelele ngendlela ethokozisako	70 – 79
5	Uphumelele ngamandla	60 – 69
4	Uphumelele ngokwaneleko	50 – 59
3	Uphumelele ngokulingeneko	40 – 49
2	Uphumelele ngendlela ephasi	30 – 39
1	Akakaphumeleli	0 - 29

4.6 UKULINGANISA UKUHLOLA

Ukulinganisa kutjho ikambiso eqinisekisa bonyana ukuhlola umsebenzi kwenziwa ngendlela efaneleko, esemthethweni nethembekileko. Ukulinganisa kufanele kwenziwe emazingeni wesikolweni , kudistrki, kusiyingi kuphrovinsi kanye nezingeni lelizwe loke. Iindlela zokwenza zokullinganisa ezipheleleko nezifaneleko kufanele zibe khona mayelana nokuqinisekiswa kwakho koke ukuhlola iimfundo.

4.7 OKUVAMILEKO

Umtlolo lo kufanele ufundwe ngokukhambisana nalokhu:

4.7.1 IKambiso yokuHlola yeliZwe loke, Imihlahlandlela yeenhlahlubo ezithileko zesifundo njengombana simunyethwe emtlameni wetlhatlha lomgomo: Umgomo weliZwe loke ophathelene nehlelo kanye neendingo zokuthuthukiswa kwesiTatimende seKharikhyulamu yeliZwe loke, kumaGreyidi R-12

4.7.2 Iimfuneko zokuRagela Phambili nokuKhutjhulwa Amagreyidi 1-12.

4.7.3 Umhlahlandlela wokuhlola onqotjhiswe esifundweni okhutjhwa njalo ngonyaka.

4.8 IIMBONELO ZAMATHASKI WOKUHLOLA ZAMAGREYIDI WOKU-1 UKUYA KU-3

Isibonelo samarhelo wokuhlola ukuhlola anikelwe ngenzasi. Umnqopho kusiza abotitjhere ngokutlama nokwenza ukuhlola okuhlelekileko ngendlela eragako.

IGREYIDI 1				
Irherho lokutjheja lomthamo/ivolumu				
Isigaba soku-mumethweko	Isihloko	Isilinganiso	✓ nofana ×	Imibono
ukumeda	**Umthamo / Ivolumu**	Hlela begodu umadanise inani lokusaketjezi (ivolumu) eemumathini ezimbili ezibekwe esinye eqadi kwesinye.		
		Madanisa ivolumu yeemumathi ezimbili nofana ngaphezulu eziqaleka zihlukile ngokuthela ngesimumathini sesithathu.		
		Rekhoda umthamo weemumathi ngokusebenzisa izinto zokumeda ezingakahleleki, isib. Iingobho namakomitji.		
		Phendula imibuzo emayelana nokuthi ngisiphi isimumathi esithatha iketjezi elinengi.		
		Sebenzisa ilimi ukukhuluma ngokumadanisa, isib. Nengi kuna, ncani kuna, kuzele, akunalitho.		

IGREYIDI 1				
Irherho lokutjheja lemasi				
Isigaba soku-mumethweko	Isihloko	Isilinganiso	✓ nofana ×	Imibono
Ukumeda	**Imasi**	Hlela begodu umadanise imasi yezinto ezintathu nofana ngaphezulu, ngokubeka izinto ngazimbili esikalini sokudzimelelisa, kufikela lapho zoke izinto sele zilandelanisiwe.		
		Yitjho iyunidi lokha nawunikela imasi, isib. Incwadi inemasi elingana namamabula ama-34.		
		Sebenzisa ilimi ukukhuluma ngokumadanisa, isib. Okulula, okubudisi, okuludlana, okubudisana.		
		Ikghono lokurekhoda ukumeda.		

Ukusebenzisa irubhrikhi ukuhlola / ukulinganisa ukurarulula imiraro

Ukurarulula imiraro kungahlolwa ngokusebenzisa irubhrikhi.

Okuthathwa njengendlela elungileko yokurarulula imiraro,

- kuyatjhuguluka lokha abafundi bathuthuka begodu bakhula ngokuzwisisa umqondo wenomboro begodu nekghono lokusebenza kwabo; begodu
- kudzimelele kikho kokubili irherho lenomboro emrarweni begodu nehlobo lomraro.

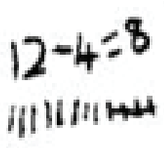
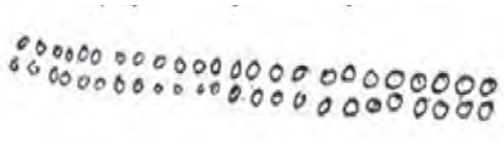
IGREYIDI 1	
Irubhrikhi yokurarulula imiraro	
Akazi bonyana athome kuphi nofana wenza into eseqadi.	1
Uzwisisa umraro begodu uyawuthoma kodwana akakghoni ukuwuqedelela kuhle.	2 - 3
Uzwisisa umraro begodu uyawurarulula ngokusebenzisa imigwalo (immeregi) nofana izinto zokubala. Ukghona ukuhlathulula. Angahle enze iimphoso ezincani.	4 - 5
Uqedelela umraro ngefanelo. Angahlathulula ukucabanga kwakhe nokwabanye ngokuzethemba.	6 - 7

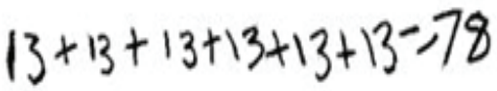
IGREYIDI 2	
Irubhrikhi yokurarulula imiraro	
Akazi bonyana athome kuphi nofana wenza into eseqadi.	1
Uzwisisa umraro begodu uyawuthoma kodwana akakghoni ukuwuqedelela kuhle. nofana Uzwisisa umraro begodu uyawurarulula ngokusebenzisa imigwalo (immeregi) nofana izinto zokubala kuphela. *	2 - 3
Uzwisisa umraro begodu uyawurarulula ngokusebenzisa iinomboro, kodwana wenza iimphoso ezincani. Ukghona ukuhlathulula.	4 - 5
Uqedelela umraro ngefanelongokusebenzisa ilwazi lenomboro begodu namaqhinga afana nokuthi aphule begodu abuyelele ahlanganise iinomboro, ukubuyelela kabili, ukuqunta phakathi, amanamba layini, njll. Angahlathulula ukucabanga kwakhe nokwabanye ngokuzethemba.	6 - 7

* Irherho leenomboro ezisebenza ngabafundi beGreyidi yesi-2, lithoma ukwenza bonyana kube budisi/ kungakghoneki ukubala ngokugwala iinthombe bese uyazibala. Umqondo weenomboro wabafundi kutlhogeka bonyana uthuthuke ngokuzeleko ukwenzela bonyana bakghone ukusebenzisa iinomboro ukurarulula imiraro nokubala.

IGREYIDI 3	
Irubhrikhi yokurarulula imiraro	
Akazi bonyana athome kuphi nofana wenza into eseqadi.	1
Uzwisisa umraro begodu uyawuthoma kodwana akakghoni ukuwuqedelela kuhle, nofana usebenzisa immeregi (imigwalo) nofana izinto zokubala.	2 - 3
Uzwisisa umraro begodu uyawurarulula ngokusebenzisa iinomboro. Ukghona ukuhlathulula.	4 - 5
Uqedelela umraro ngefanelo ngokusebenzisa ilwazi lenomboro begodu namaqhinga afana nokuthi aphule begodu abuyelele ahlanganise iinomboro, ukubuyelela kabili, ukutjhideza eduze nokujamiselela , amanamba layini, njll ngefanelo. Angahlathulula ukucabanga kwakhe nokwabanye ngokuzethemba.	6 - 7

Iimbonelo zokuthi ungayisebenzisa bunjani irubhrikhi le emirarweni erarululwe bafundi bamaGreyidi 1 – 3.

Inja inemilenze emi-4. Izinja ezili -12 zinemilenze emingaki?	
	**IGreyidi 1: Isilinganiso 1.** Umfundi akawuzwisisi umraro, yekeke usebenzisa iqhinga eliseqadi nofana itshwayo okungasingilo.
inja eyodwa ineenyawo ezi 4 izinja ezili 12 zineenyawo ezingaki? 48 	**IGreyidi 1: Isilinganiso 6** Umfundi uwuzwisisile umraro, urarulule umraro ngendlela efaneleko eGreyidini yoku 1 begodu ukghona ukuhlathulula umraro. **IGreyidi 2: Isilinganiso 4** Umfundi uwuzwisisisle begodu wawurarulula umraro. Nanyana kunjalo, umfundi wegreyidi yesi 2 kufanele asebenzise iinomboro namatshwayo ukuhlanganisa ngokubuyelela (nofana ukubuyabuyelela, kuye ngokuthi ngisiphi isikhathi sonyaka).
Umlimi utjala amareyi asi 6 wemithi. Ireyi ngalinye linemithi eli- 13. Utjala imithi emingaki nasele iyoke?	

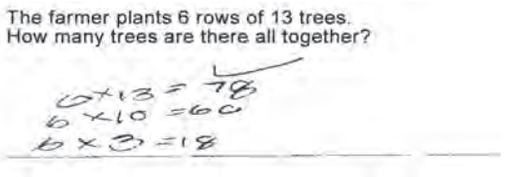


Umfundi weGreyidi 2 , Isilinganiso 6

Umfundi uwuzwisisisle begodu wawurarulula umraro, ngokusebenzisa inomboro efaneleko namatshwayo afaneleko eGreyidini yesi 2.

Abafundi beGreyidi 3: Isilinganiso 4

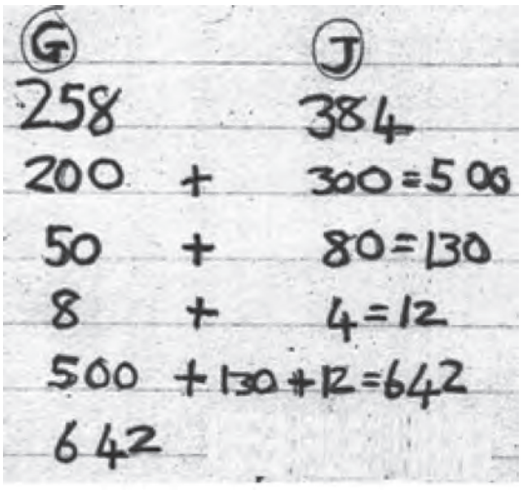
Abafundi bawuzwisisisle begodu bawurarulula umraro ngendlela elingeneko. Nanyana kunjalo, abatholi imaraga lokusebenza ngokudluleleko ngombana abakatjengisi amaqhinga akhona ebafundini beGreyidi yesi 3 o.u. ukubuyabuyelela ngokusebenzisa ukuphula begodu nokubuye uhlanganiseiinomboro : bona ngenzasi.



Umfundi weGreyidi 3: Isilinganiso 5

Uqedelela umraro ngefanelo ngokusebenzisa inomboro namatshwayo afaneleko namaqhinga afana nokuthi aphule begodu abuye ahlanganise iinomboro. Angahlathulula ukucabanga kwakhe nokwabanye ngokuzethemba.

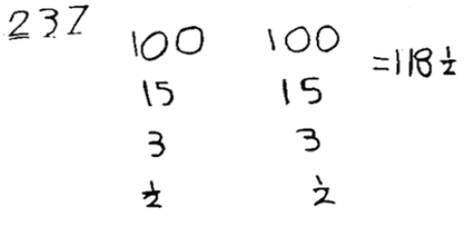
UJabu uneentikara ezima 258 begodu uJonasi uneentikara ezima 384. Baneentikara ezingaki nasele zihlangene zoke?



IGreyidi 3: Isilinganiso 5

Uqedelela umraro ngefanelo ngokusebenzisa ilwazi lenomboro begodu namaqhinga afana nokuthi aphule begodu abuyelele ahlanganise iinomboro, ukubuyelela kabili, ukutjhideza eduze nokujamiselela , amanamba layini, njll ngefanelo. Angahlathulula ukucabanga kwakhe nokwabanye ngokuzethemba.

Iyini ihafu yama 237?



IGreyidi 3. Isilinganiso 5

Urarulula umraro ngefanelo ngokusebenzisa ilwazi lenomboro namathekiniki afana nokuphula ubuye godu uhlanganise inomboro, ukubuyelela kabili, ukutjhideza eduze nokujamiselela, amanamba layini. Angahlathulula ukucabanga kwakhe nokwabanye ngokuzethemba.

IGREYIDI YOKU-1:

ITHEMU YOKU-1: Isibonelo esisisekelo sethaski yokuhlola

Imihlobo yemisebenzi	Umbandela wokulinganisa	✓ nofana ×	limbono
Zomlomo	Umfundi uyakghona uku: • ukubala izinto ukufikela e-10 • tjho bonyana ngiliphi ibuthelelo lezinto elincani khulu/elikhulu khulu. • Ukufunda amatshwayo weenomboro ukufika ku- 5?		
Okwenziwako	Umfundi uyakghona uku: • Ukulandelanisa izinto? • Ukukopa amaphetheni? • Ukubeka izinto ngaphambi kwakhe? • Ukubeka izinto ngemuva kwakhe? • Ukuhlukanisa izinto ngokuya ngakunye okuphawulekako?. • Ukuzibandakanya emrarweni ukwenzela ukuthola isisombululo?		

IGreyidi yoku-1

IThemu yoku-1: Isibonelo somsebenzi wokuhlola ithaski yoku-1

ISIGABA SOKUMUMETHWEKO	ISIHLOKO	ISILINGANISO SOMSEBENZI WOKJULINGA
IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA	Umqondo nomboro	Bala izinto ezi-10 ngokuthembeka,ngokutjho amagama ngokulandelana.
		Ukutlola nokufunda amatshwayo wenomboro ukusuka keyoku-1 ukufika keye-5
		Ukuhlela iinomboro ukusuka keyoku-1 ukufika keye -5 Ukusuka kencani ukufika kokukhulu.
		Ukusebenzisa ilimi ukuhlathulula ubudlelwana bobukhulu beenomboro: ngaphambili, ngemuva, nahlangana.
	Ukurarulula imiraro	Ukusombulula imiraro yamagama asebujameni okufaka ukuhlanganisa, ukukhupha kube neempendulo ukufikela keyesi-5 Ngokusebenzisa ama-apharethasi nofana imigwalo begodu nokuhlathulula iinsombululo zakhe emirarweni.
		Ukusombulula imiraro eyenzekako efaka ukwabelana ngokulinganako begodu nokuhlela ngeenqhema iinomboro eziphelelekо ukufika keye-5 nangeempendulo ezingafaka iinsalela ngokusebenzisa ama-apharethasi nofana imigwalo,
	Ukubalisisa	Ukuhlanganisa ukufikela ku- 5 ngokusebenzisa ama-apharethasi nofana imigwalo
		Ukukhupha kusukela keye-5 nofana ezimbadlwana ngokusebenzisa ama-apharethasi nofana imigwalo
AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA	Amaphetheni weenomboro	Ukuqedelela ukulandelana kwenomboro nawubala ngakunye ukufikela e-10. isib.1, 2, 3, 4, __, __, __, __, 9, 10

ISIKHALA NOBUJAMO (JIYOMETHRI)	Indawo	Ukulandela iinlayelo ukubeka into yinye ehlobana nenye isib. faka ipensela ngaphakathi kwebhoksi, faka ipensela ngesandleni sokudla sebhoksi.
	Izinto Ezi- 3D	Ukubona nokutjho • ubujamo bebhola (indulungu) • ibhoksi (iphrizimimu)
UKUMEDA	Isikhathi	Ukuhlathulula lokha nakwenzeka okuthileko ngokusebenzisa ilimi isib. ekuseni, ngemuva kwedina, ebesuku ngamasa, ngamarhwalala.
	Ubude	Ukumeda ubude, ububanzi, nofana ukuphakama ngokusebenzisa iimedo ezingakahleleki. Itjho ukulinganisa ngamayunithi angakahleleki.
	Ubudisi/imasi	Ukumeda nokumadanisa ubudisi bezinto ezintathu nezinengi kusetjenziswa isikala esidzimeleleko kusetjenziswa isilinganiso esingakahleleki. Hlela izinto ngokuya ngobudisi. Hlathulula ukuhleleka ngokusebenzisa okulula, okubudisi nokubudisi khulu.
UKUPHATHA IDATHA	Ukuhlukanisa ibuthelelo lezinto	Ukubuthelela nokuhlela ngeengaba izinto ezibonakalako zangamalanga ngokuya ngombandela wesilinganiso esinikelwe ngutitjhere. Ukugwala isithombe sezinto ezihleliweko nofana ukuhlathulula ibuthelelo elihleliweko.

IGreyidi yoku-1 IThemu yesi-2: Isibonelo sokuhlola Ithaski yoku-1

ISIGABA SOKUMUMETHWEKO	ISIHLOKO	UMBANDELA WESILINGANISO
IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA	Umqondonomboro	Ukubala izinto ezima-20 ngokuthembeka, ngokutjho amagama ngokulandelana.
		Ukutjho bonyana ngiyiphi into kulezo ezimbili ezibuthelelweko enokunengi nofana okumbalwa lapho amabuthelelo womabili ana-10 nofana okumbalwa.
		Ukufunda amatshwayo wenomboro ukufika ema-30
		Ukutlola amatshwayo wenomboro ukufika e-10
	Ukusombululula imiraro	Ukusombululula imiraro yamagama ngobujamo obufaka ukuhlanganisa, ukukhupha okuneempendulo ukufika e-10 ngokusebenzisa kunye kwalokhu okulandelako: • Ama-apharethasi • Imigwalo • Ukwakha nokuphula iinomboro • Amanambalayini • Ukubuyelela nokuhlukanisa begodu bahlathulule impendulo zemiraro yabo.
	Ukubalisisa	Ukuhlanganisa kufikela e-10. ngokusebenzisa kunye kwalokhu okulandelako: • Ama-apharethasi • Imigwalo • Ukwakha nokuphula iinomboro • Amanambalayini • Ukubuyelela nokuhlukanisa Ukutlola umutjho wenomboro ngokusebenzisa u +
		Ukukhupha kusukela e-10 nofana ngaphasi. Ngokusebenzisa kunye kwalokhu okulandelako. • Ama-apharethasi. • Imigwalo • Ukwakha nokuphula iinomboro • Amanambalayini • Ukubuyelela nokuhlukanisa Ukutlola umutjho wenomboro ngokusebenzisa u -
AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA	Amaphetheni wenomboro	Ukuqedelela ukulandelana kweenomboro zokubala ukufika ema-30 • Ngakunye isib. 20, 21, 22, 23, __, __, __, __, 28; __; 30. • Ngakuhlanu isib. 5, 10, 15, __, __, 30,
	Amaphetheni weJiyomethri	Ukukopa nokwandisa iphetheni • Kwenziwa ngokusebenzisa into eyodwa kodwana imibala yezinto itjhugululwe ngendlela ejayelekileko nofana. • Yenziwe ngokusebenzisa izinto ezifanako zobukhulu obuhlukeneko.
ISIKHALA NOBUJAMO (JIYOMETHRI)	Ama 2-D	Ukubona nokutjho amagama Weendulungu Iinkwere aboncantathu

IGreyidi yoku-1 iThemu yesi-2:Isibonelo sokuhlola ithaski 2

ISIGABA SOKUMUMETHWEKO	ISIHLOKO	UMBANDELA WESILINGANISO
IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA	Umqondonomboro	Ukubala uye phambili nemuva ngaku-1 hlangana nakunye-1 ukufika ema-50
		Ukubala uye phambili ngaku-5, ku-2 ukufika ema-50
		Ukusebenzisa ilimi ukuhlathulula ukuhlobana kobukhulu benomboro: ngaphambili, ngemuva, nahlangana
		Ukumadanisa ubukhulu beenomboro ukufika e-10 ngokusebenzisa ilimi isib. Okunengi kuna, okumbalwa kuna njll.
		Ukusebenzisa ilimi ukuhlathulula ubukhulu beenomboro: ngaphambili, ngemuva,nahlangana
		Ukuhlela iinomboro ukusukela keyoku-1-10 ukusukela kencani khulu ukuya kekhulu khulu.
		Ukufunda amatshwayo wenomboro ukufika ema-50.
	Ukusombulula imiraro	Ukusombulula imiraro yokwenziwako efaka ukwabelana ngokulinganako begodu nokubuthelelwa kweenomboro eziphelelelo ukufika e-10 begodu neempendulo ezingafaka hlangana iinsalela. Ngokukodwa okulandelako • Ama-apharethasi. • Imigwalo • Amanambalayini Bahlathulule iinsombululo
	Ukusombulula imiraro	Ukusombulula imiraro yamagama asebujameni efaka hlangana ukuhlanganisa kokubuyelela, okuneempendulo ukufika e-10 ngokusebenzisa kunye kwalokhu okulandelako: • Ama-apharethasi. • Imigwalo • Ukwakha nokuphula iinomboro • Inambalayini • Ukubuyelela nokuhafula begodu Bahlathulule iinsombululo zemiraro okungeyabo.
	Imali	Ukubona imali yeSewula Afrika amasende 5c, 10c, 20, 50c, R1, R2; R5
		Ukusombulula imiraro yemali efaka inani liloke netjhentjhi ya- R10 namasende ukufika ema -20c
	Ukubalisisa	Ukuhlanganisa okubuyabuyelweko ukufika e- 10 Ngokusebenzisa okukodwa okulandelako: • Ama-apharethasi. • Imigwalo • Ukwakha nokuphula iinomboro • Amanambalayini • Ukubuyelela nokuhafula begodu Ukutlola umutjho wenomboro kusetjenziswa u +
AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA	Amaphetheni weenomboro	Ukuqedelela ukulandelana kweenomboro zokubala • Ngakunye kubuyelwa emuva ukusukela e- 50 isib. 50, 49, 48, __, __, 45, __, __, 42; __; 40. • Ngalitjhumi ukufika ema- 50 isib.10, 20, 30, __, __,
UKUMEDA	Umthamo/ivolumu	Ukulinganisa, ukumeda, ukumadanisa, ukuhlela begodu nokurekhoda umthamo weemumathi ngokusebenzisa iinlinganiso ezingakahleleki isib. lingobho namakopi.
UKUPHATHA IDATHA	Ukuhlela ngemihlobo ibuthelelo lezinto	Ukubuthelela begodu nokuhlela ngamananeko izinto ezibonakalako zangamalanga ngokuya ngemibandela yokulinganisa enikelwe ngutitjhere. Ukugwala isithombe sezinto ezihlelwe ngemihlobo nofana ukuhlathulula ibuthelelo elihlelwe ngokweengaba.

IGreyidi yoku-1 iThemu yesi-3:Isibonelo sokuhlola Ithaski yoku-1

OKUMUMETHWEKO ISIGABA	ISIHLOKO	UMBANDELA WESILINGANISO
IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA	Umqondonomboro	Ukubala izinto ezi-40 ngokuthembeka, utjho namagama ngokulandelana.
		Ukutjho bonyana ngiyiphi yezinto ezimbili ezinikelweko enengi nofana encani nangabe zombili zilibuthelelo le-15 nofana zincani.
		Funda amatshwayo weenomboro ukufika e-70.
		Tlola amatshwayo weenomboro ukufika e- 20
	Ukusombulula imiraro	Ukusombulula imiraro yamagama asebujameni efaka hlangana ukuhlanganisa ,ukukhupha okuneempendulo ukufika e-15. Ngokusebenzisa kunye kwalokhu okulandelako • Ama-apharethasi • iimigwalo • ukwakha nokuphula iinomboro • Amanambalayini • ukubuyelela nokuhafula. bebahlathulule nensombululo zemiraro yabo
	Ukubala	Yenza ukuhlanganisa ukufika e-15 nofana ngaphasi Sebenzisa kunye kwalokhu okulandelako • Ama-apharethasi • Imigwalo • ukwakha nokuphula iinomboro • iinamba-layini • ukubuyelela nokuhafula Tlola umutjho weenomboro usebenzise +,=
		Yenza ukukhupha kenye nenye inomboro ye-15 nofana encani Sebenzisa kunye kwalokhu okulandelayo • Ama-apharethasi. • Imigwalo. • ukwakha nokuphula iinomboro • Amanambalayini • ukubuyelela nokuhafula. Tlola umutjho weenomboron ngokusebenzisa -,=
AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA	Amaphetheni weenomboro	Qedelela ukubala ukulandelana kweenomboro nga: • yinye .ubalele emuva ukususka e-60 isib. 60, 59, 58, __, __, __, 54, __, __, 51. • ngakubili, isib. 44, 46, 48, __, __, __,56; __, 60
	Amaphetheni weJiyomethriki	Ukukopa, ukungezelela nokuhlathulula amaphetheni lokhana kusetjenziswa amajamo ahlukahlukeneko ukwenza ukwakha isiqhema ,kodwana iinqhema zezinto ziyabuyelelwa ngokunemba ngendlela efanako.
ISIKHALA NOBUJAMO (JIYOMETHRI)	Ama-3-D	Ukubona begodu nokutjho • ubujamo bendulungu (indulungu) • ubujamo bebhoksi (iphrizimu)
		Hlela izinto ngokuya ngokugedeka nofana ngokutjhelela kwazo.

IGreyidi yoku-1 iThemu yesi-3 isibonelo sokuhlola ithaski yesi-2

ISIGABA SOKUMUMETHWEKO	ISIHLOKO	UMBANDELA WESILINGANISO
IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA	Umqondonomboro	Balela phambili nga:-10, 5, 2, kufika ku-80
		Sebenzisa ilimi ukuhlathulula ukuhlobana kobukhulu kwenomboro: ngaphambi,ngemuva, hlangana
		Madanisa ubukhulu beenomboro ukufika e-15 ngokusebenzisa ilimi isib. kunengi-kune, kumbalwa kuna njll.
		Rhatjha iinomboro ye- 11 – 15 nga- 10 + kunye isib. 12 = 10 + 2
	Sombulula imiraro	Ukusombulula imiraro yamagama asebujameni efaka hlangana ukuhlanganisa okubuyelelwako, okuneempendulo ukufika e-15. Ngokusebenzisa kunye kokulandelako. • Ama-apharethasi. • Imigwalo. • ukwakha nokuphula iinomboro • Amanambalayini • ukubuyelela nokuhafula begodu bewuhlathulula iinsombuluko zemiraro ekungeyakho.
		Sombulula imiraro yokwenziwako efaka ukwabelana ngokulingana nokubuthelela ngeenomboro eziphelelekо ukufika e-15 zifake begodu ezineempendulo ezingafaka iinsalelo. Ngakunye kwalokhu okulandelako. • Ama-apharethasi. • Imigwalo. • Amanambalayini Hlathulula iinsombululo
	Imali	Bona imali yesewula Afrika emasende 5c, 10c, 20, 50c, R1, R2; R5
		Sombulula imiraro yemali inani loke netjhentjhi ukufika e- R20 namasende ukufika emasendeni ama -20
	Ukubalisisa	Ukwenza ukuhlanganisa okubuyelelweko ukufika -15 ngokusebenzisa kunye kokulandelako • Ama-apharethasi • Imigwalo. • ukwakha nokuphula iinomboro. • ukubuyelela nokuhafula. Ukutlola umutjho wenomboro ngokusebenzisa +,=
AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA	Amaphetheni weeNomboro	Qedelela ukulandelana kweenomboro zokubala. • ngaku- 1 ubalela emuva ukusuka 80 isib. 80, 79, 78, __, __, __, __, 73, ___; __; 70. • ngali – 10 ukufika 80 isib.10, 20, 30, __, __,__, __, __, • nga-5 isib .5, 10, 15, __, __, 30, __, __.45, __, __, 60, __, __, __, 80
ISIKHALA NOBUJAMO (JIYOMETHRI)	isimethri	Ukubona begodu ugwale umuda wesimethri wamajamo we 2D weJiyomethri nekungasiyo yejiyomethri yobujamo.
UKUMEDA	Ubude	Linganisa, meda, madanisa, hlela,begodu bewurekhode ubude ngokusebenzisa isimedo esingakahleleki isib.izandla, igadango, ubude bepensela, izinto zokubala njll.
UKUPHATHA IDATHA	Idatha	Ukuphendula imibuzo ngedatha yephikthografi

IGreyidi yoku-1 iThemu yesi-4: isibonelo sokuhlola Ithaski yoku-1

ISIGABA SOKUMU-METHWE	ISIHLOKO	UMBANDELA WESILINGANISO
IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA	Umqondonomboro	Ukubala izinto ezi-50 ngokuthembeka, utjho amagama ngokulandelana..
		Utjho bonyana ngiliphi ibuthelelo lezinto ezinengi nofana ezimbalwa lapho amabuthelelo ama-20 nofana ambalwa.
		Ukufunda amatshwayo wenomboro kufikela ema-80
	Ukusombulula imiraro	Ukusombulula imiraro yamagama asebujameni okufaka, ukuhlanganisa, ukukhupha okuneempendulo ukufika ku-20. Ukusebenzisa khunye kwalokhu okulandlayo • Ama-apharethasi • Imigwalo • ukwakha nokuphula iinomboro • Amanambalayini • ukubuyelela noku hafula Ukuhlathulula iinsombululo zemiraro okungezabo
	Ukubalisisa	Ukuhlanganisa ukufika ngo-20 Ngokusebenzisa kunye kwalokhu okulandelako • Ama-apharethasi. • imigwalo • Ukwakha nokuphula iinomboro • Anambalayini • Ukubuyelela nokuhafula. Ukutlola umutjho ngokusebenzisa +, =
		Susa ukufika ema-20 nofana ngaphasi Ngokusebenzisa kunye kwalokhu. • Ama-apharethasi • Imigwalo • Ukwakha nokuphula iinomboro • Amanambalayini • Ukubuyelele noku hafula Ukutlola umutjho ngokusebenzisa +, =
AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA	Amaphetheni weenmboro	Ukuqedelela ukulandelana kokubala iinomboro • Ngaku-1 isib. Ubalela emuva ukusuka 80: 80, 79, 78, __, __, __, 74, __, __, 71. • Ngaku-2 isib. 64, 66, 68, __, __, __,76; __, 80
ISIKHALA NOBUJAMO (JIYOMETHRI)	Amajamo abusobubili (2-D)	Ukubona begodu utjho. • Iindulungu • Uncantathu • Iinkwere Ukuhlela ngokuya ngokuthi ziyindulungu nofana mahlangothi anqophileko.
UKUMEDA	Ubudisi/imasi	• Ukulinganisa,ukumeda,ukumadanisa, ukuhlela nokurekhoda ubudisi ngesimedo esingakahleleki isib.iintina,amabhlogo njll. • Ukusebenzisa ilimi ukukhuluma ngokumadanisa isib.elula,ebudisi,ebul udlana,ebudisana njll.

IGreyidi yoku-1 iThemu yesi-4: isibonelo sokuhlola ithaski 2

ISIGABA SOKUMU-METHWEKO	ISIHLOKO	UMBANDELA WESILINGANISO
IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA	Umqondonomboro	Ukubala ukuya phambili nga-10, 5, 2 ukuya e-100
		Ukusebenzisa ilimi ukuhlathulula, ukukhambelena kobukhulu beenomboro ngaphambili, nangemuva nahlangana
		Ukumadanisa ubukhulu beenomboro ukufika ema-20 ngokusebenzisa ilimi isib. Khulu kuna, kumbalwa kuna, njll.
		Ukuhlela iinomboro ukusuka keyoku-1- 20 ukusuka kwekulu ukuya kwencani
		Ungahlukanisa iinomboro ukusuka -11-20 kube 11- 10 kube 10+ imivo ,isib. 14=10+ 4
		Ukufunda amatshwayo wenomboro ukufika e- 100.
		Ukutlola amatshwayo wenomboro ukufika ku-20
	Ukurarulula imibala	Ukurarulula imiraro yamagama kummongo ofaka hlangana ukubala okubuyelelwako neempendulo ukufika ema -20 Ngokusebenzisa kunye kwalokhu okulandelako • Ama apharethasi • imigwalo • ukwakha nokuhlephula iinomboro • Amanambalayini ukubuyelela kabili nokuhafula begodu nokuhlathulula isisombululo semiraro
		Ukusombulula imiraro yokwenziwako efaka hlangana ukwabelana ngokulinganako nokubuthelela ngeenomboro eziphelelekо ukuya ema-20 eneempendulo ezingafaka iinsalela ngalokhu okulandelako: • Ama-apharathasi • imigwalo • Amanambalayini Ukuhlathulula iinsombululo
	Imali	Ukukhumbula iinhlavu zemali yeSewula Afrika 5c, 10c, 20c, 50c, R1,R2,R5
		Ukusombulula imiraro yemali ukufaka hlangana amanani begodu netjhentjhi ukufika ema-R20 begodu nangamasende ukuya emasendeni ema-50c
	Ukubalisisa / Ukubala	Ukwenza ukuhlanganisa okubuyabuyelelako ukufika ema- 20 usebenzisa kunye kwalokhu • i-apharathasi • imigwalo • Ukwakha nokuphula iinomboro • amanambalayini • Ukubuyelelakabili begodu nokuqunta phakathi Ukutlola umutjho weenomboro ngokusebenzisa +, =
AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA	Amaphetheni wenomboro	Ukuqedelela ukulandelana kweenomboro zokubala • Ngabo kunye ukuya emuva, isib. 99, 98, __, 96, __, __, __, 92, ___; __; 89. • ngalitjhumi ukuya e-100 , isib.10, 20, 30, __, __, __, __, __, 90, __. ngakuhlanu isib. 20, 25, 30, __, __.45, __, __, 60, __, 70__, __,__, 90
ISIKHALA NOBUJAMO (JIYOMETHRI)	Ubujamo	Ukusebenzisa ilimi lobujamo ukulandela iinkombatjhuba ukukhamba uzombeleza ikumba yokufundela
		ukumetjhisa ukuqalela okuhlukahlukeneko kwento efaneleko
UKUMEDA	Isikhathi	Ukwazi amalanga weveke Ukwazi iinyanga zonyaka
UKUPHATHA IDATHA	Idatha	Ukuphendula imibuzo ngedatha esegrafini yeenthombe

IGreyidi yesi-2 iThemu yoku-1: Ukuhlola 1

ISIGABA SOKUMU-METHWEKO	ISIHLOKO	ISILINGANISO SESIQUNTO
IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA	Umqondo wenomboro	Ukubuthelela nokubala ukufika ezintweni ezi-100
		Ukumadanisa nokuhlela iinomboro eziphelelekо ukufika ema-25
		Ukuhlahlela iinomboro ezinamadijithi amabili ukufika ema-25 ngamatjhumi begodu nangakunye, isib. 23= 20+3
		Ukufunda nokutlola amatshwayo weenomboro ukusuka eli-0 ukuya e-100
	Ukurarulula imiraro	Ukurarulula imiraro yamagama ebujameni okufaka hlangana ukuhlanganisa , ukukhupha ,neempendulo ukufika ema -20 usebenzisa kunye kwalokhu okulandelako • ama-apharathasi • imigwalo • ukwakha nokuphula iinomboro • amanabalayini ukubuyelela kabili nokuqunta phakathi begodu uhlathulule iinsombululo zakho semiraro
	Imali	Ukukhumbula iinhlavu zemali yeSewula Afrika 5c, 10c, 20c, 50c, R1,R2,R5 begodu nemali yamaphepha R10, R20, R50
		Ukusombulula imiraro yemali ukufaka hlangana amanani begodu netjhentjhi ukufika ema-R20 begodu nangamasende ukuya emasendeni ema-50c
	Ukubala	Ukwenza ukuhlanganisa ukufika ema- 20 ngokusebenzisa kunye kokulandelako • ama-apharathasi • imigwalo • Ukwakha nokuphula iinomboro • amanambalayini • ukubuyelela kabili nokuqunta phakathi Ukutlola umutjho weenomboro ngokusebenzisa +, =
AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA	Amaphetheni weenomboro	Ukuqedelela ukulandelana kweenomboro zokubala ukuya phambili begodu nokuya emuva • Ngabokunye ukusuka ku-0- 100, isib. 99, 98, 97 __, __, __,93, __, 91, 90. • ngamatjhumi ukusuka ku-0 -i00 , isib.10, 20, 30, __, __, __, 70__, __, 100. • ngabokubili ukusuka ku -0-100, isib. 80 82, 84, __, __, 90, _, __, __, ___, 100
ISIKHALA NOBUJAMO (JIYOMETHRI)	Izintho ezi (3-D)	ukukhumbula nokutjho • Amajamo webholo (iindulungu) • Amajamo webhoksi(amaphrizimu)
	Amajamo we (2-D)	Ukukhumbula nokutjho iindulungu, aobncantathu, iinkwere begodu naboncamane
UKUMEDA	Isikhathi	Ukutjho /ukutjela isikhathi ewatjhini ye-analogo ngama-iri
	Ubude	Linganisa, meda, madanisa, hlela begodu urekhode ubude, ububanzi nofana ukuphakama ngamamitha

IGreyidi yesi-2 iThemu yesi-2: Ukuhlola 1

ISIGABA SOKUMU-METHWEKO	ISIHLOKO	ISILINGANISO SESIQUNTO
IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA	Umqondo wenomboro	Ukubala iinthombe zezinto ezibuthelelweko ukufika e-150
		ukumadanisa iinomboro ukufika e-50
		Ukufunda nokutlola iinomboro kusuka e-0- 150
		ukubala uye phambili nemuva nga-10, 2, 5 ukuya e- 150
	Ukurarulula imiraro	Ukurarulula imiraro ephathekako okufaka hlangana ukwabelana ngokulinganako begodu nokubuthelela ngeenomboro ezipheleleko ukufika e-50 usebenzisa kunye kokulandelako • ama-apharathasi • imigwalo • ukwakha nokphula iinomboro • amanambalayini • ukubuyelela kabili nokuqunta phakathi begodu nokuhlathulula iinsombululo zemiraro
AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA	Amaphetheni weenomboro	Ukuqedelela ukulandelana kweenomboro zokubala ukuya phambili begodu nokuya emuva ngabo kunye ukusukela eli-0 -150 isib.131,132,133,_,_,_,137,_,_,_,14111 in ones from 0 - 150 e.g.131, 132, 133, __, __, __, 137, __, ___, ___, 141 • Ngamatjhumi hlangana ne-0 &200 isib.150, 140, 130, __, __, 100, __, __.70, __, __, 40 • Ukubala ngabokubili isib. 150, 148, 146, 144, __, __, 138, __, __, 132. • Ukubala ngabo kuhlanu ukusuka e-0 – 150 isib. 105, 110, 115, __, __, __, 135, __, __, 150
		Kopulula ,ngezelala begodu uhlathululeamphetheni lapho amajamo ahlukahlukeneko asetjenziswa khona ukwenza isiqhema ,kodwana iin qhema zamajamo zibuyelelwa ngendlela efana poro
UKUMEDA	Isikhathi	Yitjho /tjela isikhathi ewatjhini ye-analogo ngama-iri begodu nangeenquntu zama-iri

IGreyidi yesi-2 iThemu yesi-2: Ukuhlola 2

ISIGABA SOKUMU-METHWEKO	ISIHLOKO	ISILINGANISO SESIQUNTO
IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA	Imqondo nomboro	Bala uye phambili ngaku- 3, 4
	Ukurarulula imiraro	Ukurarulula nokuhlathulula iinsombululo zemirao efaka hlangana ukwabelena ngokulingana okurholela emafraktjhini
	Amafraktjhini	Ukukhumbula nokusebenzisa amahafu ,kukothathu,a makotara, kokuhlanu ebujameni obujayelekileko
		Ukukhumbula amafraktjhini asebujameni bamadayagramu
		Ukutlola amafraktjhini ngendlela yehafu yi-1, ku-1 kokuthathu, ,njll
	Ukubala	Ukuhlanganisa ukufika ema-50 usebenzisa kunye kokulandelako Ukukhupha ukufika ema-50 usebenzisa kunye kokulandelako • ama-apharathasi • imigwalo • ukwakha nokphula iinomboro • amanambalayini • ukubuyelela kabili nokuqunta phakathi Ukutlola umutjho weenomboro ngokusebenzisa +,=
		Ukukhupha ukufika ema-50 usebenzisa kunye kokulandelako • ama-apharathasi • imigwalo • ukwakha nokphula iinomboro • amanambalayini • ukubuyelela kabili nokuqunta phakathi Ukutlola umutjho wenomboro uberegisa _ ,=
AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA	Amaphetheni weenomboro	ukuqedelela ukulandelana kweenomboro hlangana kwe-0 ne 150 • ukubala ngokunye • ukubala ngabokune, isib..4, 8, 12 __, __, 24, __, 32, __, __, __, 48 • . ukubala ngabokuthathu ,isib. 3, 6, 9, __, __,21, __, __,__, 33, 36.
UKUMEDA	Ubungako/imasi	Linganisa, meda, madanisa, hlela begodu ukurekhode imasi ngokusebenzisa iimedo ezingakahleleki begodu nesikala sokudzimelela , isib. Amablogo, iintini, njll
		ukuhlela imikhiqizo lapho imasi itlolwe ngamakhilogremu

IGreyidi yesi-2 iThemu yesi-3: Ukuhlola 1

ISIGABA SOKUMU-METHWEKO	ISIHLOKO	ISILINGANISO SESIQUNTO
IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA	Umqondonomboro	Ubala iinthombe zeenqhema zezinto ukufika ema-180
		Umadanisa abuye ahlele iinomboro ukufikela ema-75
		Ufunda atlole amatshwayo weenomboro ukufikela ema-180
		Ubalela phambili nasemuva ngaku-2, ngali-10, ngaku 5 hlangana ne-0 nama-180
		Uphula iinomboro ezinamdijithi amabili ukufikela ema-75 ngalitjhumi nangakunye isib. 48=40 + 8
	Rarulula Imiraro	Urarulula imibuzo yemitjho ngobujamo okubandakanya ukuhlanganyela okubuyelelwako erholela ekubuyabuyeleleni ukufika ema-40 • aberegisa kunye kokulandelako • iinsetjenziswa • imigwalo • ukwakha nokuphula iinomboro • inambalayini ukubuyelela kabili nokuqunta begodu ahlathulule isisombululo sakhe emirarweni
	Ukubalisisa	Angabuyabuyelela iinomboro ukusukela kwe-1 ukuya e-10 ngaku-5, 4 uberegisa okulandelako • iinsetjenziswa • imigwalo • inambalayini Tlola umutjho weenomboro usebenzisa u- x, =
AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA	Iphetheni yeenomboro	Uqedelela ukulandelana kweenomboro ze • Ukubala uye phambili nasemuva ngakunye hlangana kwe-0 nama-180 • 180, 170, 160, __, __, 120, __,__ 90, • ukubala ngakubili isib. 150, 152, 154, __, 156, __, 160, __, __, 166 • ukubala ngakuhlanu ukusuka eli-0 ukuya ema – 150 isib.120, 125, 130, 135, __, __, __, 155, __, __, 170, __, 180
ISIKHALA NOBUJAMO (JIYOMETHRI)	Ubujamo	Usebenzisa ilimi yobujamo ukulandela ikombatjhuba ukukhambakhamba ngekombeni

IGreyidi yesi-2 iThemu yesi-3: Ukuhlola 2

ISIGABA SOKUMU-METHWEKO	ISIHLOKO	ISILINGANISO SESIQUNTO
IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA	Umqondonomboro	Ubalela phambili ngaku-4, nangaku-3
	Rarulula Imiraro	Urarulula abuye ahlathulule iinsombululo zemibuzo ebandakanya ukuhlukaniselana ngokulinganako okurholela emafraktjhinini
	Amafraktjhini	Ulemuka asebenzise iinquntu, ubuthathu,iinkota, kokuhlanu ebujameni obujayelekile
		Ulemuka amafraktjhini ngendlela yemifanekiso
		Utlola amafraktjhini ngendlela yesiquntu 1, isithathu si-1 njll.
AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA	Amaphetheni weenomboro	Uqedelela ukulandelana kweenomboro hlangana kwe-0 nama-180 • ukubala ngakunye • ukubala ngakune isib. 104,108, 112 __, __, 124, __, 132, __, __, __, 148 • ukubala ngakuthathu isib. 103, 106, 109, __, __,121, __, __,__, 133, 136.
	Amaphetheni wejiyomethri	Ukhopha, angezelele begodu ahlathulule amaphetheni wejeomethri lapho kuvela khona ubujamo obufanako, kodwana inani lobujamo ngabunye buyangezeleleka nofana buphunguleke ngendlela ejayelekile.
ISIKHALA NOBUJAMO (JIYOMETHRI)	Ubujamo	Ukumetjhisa imibono ehlukahlukeneko yezinto ezifanako
	Ubujamo obubusobubili (2-D)	Ulemuka atjho amabizoi indulungu, aboncantathu, iinkwere, aboncamane
		Uhlukanisa ubujamo ngamahlangothi athe thwi nalawo anamahlangothi ayindulungu
UKUMEDA	Umthamo	Ulinganisa, meda, madanisa, hlela begodu urekhode umthamo wesimumathi ngokusebenzisa iimedo ezingakahleleki isib. Iingobho neenkomitji
	Isikhathi	Ufunda isikhathi sama-analogo nge-iri, ngesiquntu se-iri, ngekotara ye-iri
		Usebenzisa ikhalenda ukubala ubude besikhathi ngamalanga nofana ngeenveke
UKUPHATHA IDATHA	Idatha	Wakha igrafu yesithombe ngephepheni elinamabhogo nakanikelwa idatha

IGreyidi yesi-2 iThemu yesi-4: Ukuhlola 1

ISIGABA SOKUMU-METHWEKO	ISIHLOKO	ISILINGANISO SESIQUNTO
IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA	Umqondonomboro	Ubala iinthombe zezinto ezingeenqhemeni ukjufikela ema-200
		Uhlela amadanise iinomboro ukufikela ema-99
	Rarula Imiraro	Urarulula imibuzo yemitjho ngebujameni obuhlanganisa ukwenza iinqhema nofana ukuhlukaniselana ukufikela ema-99 nezipendulo ezifaka ukusalela e • aberegisa kunye kokulandelako • iinsetjenziswa • imigwalo • ukwakha nokuphula iinomboro • inambalayini ukubuyelela kabili nokuqunta begodu ahlathulule isisombululo sakhe emirarweni
	Imali	Ulemuka imali yangeSewula Afrika ezinhlamvu zama -5c, 10c, 20c, 50c, R1, R2, R5nemali yamaphepha R10, R20, R50
		Urarulula imiraro yemali efaka amanani netjhentji ukya ema-99 begodu namasende afika ema-95c wamasende
AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA	Amaphetheni weenomboro	Uqedelela ukulandelana kweenomboro zokubalela emuva naphambili ngakunye hlangana kwe-0 nama-200 ngalitjhumi hlangana kwe-0 nama-200 isib. 130, 140, 150, -__, ___, ___, __, 200
ISIKHALA NOBUJAMO (JIYOMETHRI)	Obubusobubili (2-D)	Ulemuka atjho amagama • iindulungu • aboncantathu • iinkwere • Aboncamane Uhlukanisa ngokuya ngokuthi ihlangothi lithwi nofana liyindulungu
UKUMEDA	Isikhathi	Usebenisa iwatjhi ukubala ubude besikhathi ukudlula ama-iri, ama-iri nesiquntu nofana ikotara yama-iri aberegisa kunye kokulandelako • iinsetjenziswa • imigwalo • ukwakha nokuphula iinomboro • inambalayini • ukubuyelela kabili nokuqunta begodu ahlathulule isisombululo sakhe emirarweni

IGreyidi yesi-2 IThemu yesi-4: Ukuhlola 2

ISIGABA SOKUMU-METHWEKO	ISIHLOKO	ISILINGANISO SESIQUNTO
IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA.	Umqondonomboro.	Ukubala uye phambili nemuva ngaku 2, 5, ukufika ema-200
		Ukufunda nokutlola amatshwayo weenomboro ukufoka ema200
	Ukubalisisa	Ukwenza ukubalisisa ukufika ema 99 Ngokusebenzisa kunye kwalokhu okulandelako • ama-apharathasi • imigwalo • ukwakha nokuphula iinomboro • amanamba layini • ukubuyelela kabili nokuqunta phakathi Ukutlola umutjho wenomboro ngokusebenzisa +, =
		Ukususa ukufika ema 99 Ngokusebenzisa kunye kwalokhu okulandelako • ama-apharathasi • imigwalo • ukwakha nokuphula iinomboro • amanamba layini • ukubuyelela kabili nokuqunta phakathi Ukutlola umutjho wenomboro ngokusebenzisa -, =
AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA	Amaphetheni weenomboro	Ukuqedelela ukulandelana kweenomboro hlangana kwe 0 nama 200 • ukubala ngakubili isib. 160, 162, 164, _, 166,_, 170, _, _, 176,_, 180 • ukubala ngakuhlanu kusukela e 0-200 isib. 160, 165, 170, _,_,_,190, _, 200
UKUPHATHA IDATHA	Idatha	Ukuphendula imibuzo ngedatha esesithombeni

IGreyidi yesi-2 IThemu yesi-4: Ukuhlola 3

ISIGABA SOKUMU-METHWEKO	IINHLOKO	ISILINGANISO ESISQUNTU.
IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA	Imiqondonomboro	Balela phambili ngaku 4,3
	Rarulula imiraro.	Ukurarulula imibuzo yemitjho ebujameni obufaka ukuhlanganisa okubuyelelweko ekurholela ekubuyebuyeleleni ngeempendulo ukufika ema-50. • Ngokusebenzisa kunye kwalokhu okulandelako. • iintlabagelo • imigwalo • ukwakha nokuphula iinomboro • inambalayini Ukubuyelela kabili nokuqunta begodu ahlathulule iinsombululo zakhe emirarweni.
	Ukubala	Angabuyebuyelela iinomboro 1-10 ngaku 3 ngokusebenzisa kunye kwalokhu okulandelako. • iintlabagelo • imigwalo • inambalayini • ukubuyelela kabili Tlola imitjho embalwa ngokusebenzisa x,=
AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA	Amaphetheni weenomboro	Qedelela ukulamana kweenomboro ezihlangana kwe 0 ne-180 • Bala ngakunye. • Balela emuva ngakune Isib .48,44, 40 __, __, 28, __, __, 16, __, __, 0 • Balela emuva ngakuthathu.Isib . 36, 33, 30, __, __, 21, 18, __,__, 9, __, __, 0.
ISIKHALA NOBUJAMO (JIYOMETHRI)	Abobusontathu (3-D)	Ukulemuka namabizo • ubujamo bebholo(ndulungu) • Ubujamo bebhoksi (phrizimu) • Isilinda
		Ukuhlela izinto ukuya ngalezo ezigedekako nalezo ezitjhelelako
	Isimethri	Ukulemuka nokugwala imida yesimethri yobujamo obubusobubili beJiyomethri nalezo ezingasizo zeJiyomethri.
UKUMEDA	Umthamo/ Ivolumu	Ukuhlela imikhiqizo yangamalanga yemithamo etlolwe phezu kwazo ngamalitha.
		Ukufunda umthamo wamalitha eenthombeni ezilinganiswe ngamajege.

IGreyidi yesi-3 IThemu yoku-1: Ukuhlola 1

ISIGABA SOKUMU-METHWEKO	IINHLOKO	ISILINGANISO ESISQUNTU
IINOMBORO,AMA-OPHARETJHINI NOBUDLELWANA	umqondonomboro	Ukukhetha nokubala ukufika ezintweni ezima-200
		Ukumadanisa nokuhlela iinomboro ngokupheleleko ukufika ema-99
		Ukufunda nokutlola amatshwayo weenomboro ukusuka e-0 ukufika ema-500.
		Ukuhlahlela iinomboro zamadijithi amabili ukufika ema-99 ngalisumi begodu ngakunye Isib. 78 = 70 + 8
	Rarulula imibuzo	Rarulula imibuzo yemitjho ebujameni ebufaka ukuhlanganisa , ukukhupha ngeempendulo ukufika ema-99 ngokusebenzisa kunye kwalokhu okulandelako. • Ukwakha nokuphula iinomboro. • Inambalayini. • Ukubuyelela ngakubili nokuqunta/nokuhafula • Ukutjhideza e-10 Begodu ahlathulule iinsombululo zakhe emibuzweni.
	Imali	Rarulula imibuzo yemali efaka hlangana inani loke begodu netjhentjhi yamaranda namasende.
	Ukubala	Ukubala ukufika ema-99 ngokusebenzisa kunye kwalokhu okulandelako. • Ukwakha nokuphula iinomboro. • Inambalayini. • Ukubuyelela ngakubili nokuqunta. • Ukutjhideza e-10 Tlola umutjho wenomboro ngokusebenzisa +, =
		Ukukhupha ukufika ema-99 ngokusebenzisa kunye kwalokhu okulandelako. • Ukwakha nokuphula iinomboro. • Inambalayini. • Ukubuyelela ngakubili nokuqunta. • Ukutjhideza e-10 Tlola umutjho wenomboro ngokusebenzisa +, =
AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA	Amaphetheni weenomboro	Qedelela ukulamana kweenomboro kukubala uye phambili nemuva. • Ngakunye hlangana kwe 0 nama 200 Isib 199,1 98, 197, __, __, __, 13, __, 191, 190 • Ngalisumi hlangana kwe 0 nama 200 Isib. 110, 120, 130, __, __, __, 170__, __, 200 • Ngamakhulu hlangana kwe 0 nama 500 Isib 100, 200, 300, __, __, • Ngakuhlanu hlangana kwe 0 nama 200 Isib 150, 155, 160, __, __, __, 180, __, __, 195, __ • Ngakubili hlangana kwe 0 nama 200 Isib 180,182, 184, __, __, 190, _, __, __, ____, 200
ISIKHALA NOBUJAMO (JIYOMETHRI)	Abobusobubili (2-D)	Ukulemuka nokunikela amabizo lindulungu, aboncantathu, iinkwere naboncamane.
		Ukuhlela ubujamo bezinto lezo ezinamahlangothi athwi kunye nalezo ezizombelezako.
UKUMEDA	Isikhathi	Ukufunda amalanga ekhalendeni
		Ukutjela isikhathi ewatjhini ye-analogo ngama iri,ngeenquntu ze- iri nangamakota we-iri
	Umthamo	Ukulinganisa, isilinganiso, ukumadanisa,ukuhlela nokurekhoda imithamo yeemumathi ngokusebenzisa iinlinganiso ezingakahleleki Isib isigobho nekomitji.
		Ukuhlela imikhiqizo yangamalanga leyo imithamo yayo itlolwe nagamamililitha phezu kwayo.

IGreyidi yesi-3 IThemu yesi-2: Ukuhlola 1

ISIGABA SOKUMU-METHWEKO	IINHLOKO	ISILINGANISO ESISQUNTU
IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA	Umqondonomboro	Ukubala iinthombe zezinto ezikhetheke ngeenqhema (Isib. iinqhema nga-10,25,50 namkha 100) ukufika ema 500
		Ukuhlela nokumadanisa iinomboro ukufika ema 500
		Ukufunda nokutlola iinomboro ukusuka e 0 – 1 000
	Rarulula imibuzo	Uku rarulula imibuzo ebonakalako efaka hlangana ukwabelana ngokulingana nokwenza iinqhema zeenomboro ngokupheleleko ukufika ema 75 ngokusebenzisa kunye kwalokhu okulandelako. • Ukwakha nokuphula iinomboro. • Inambalayini. • Ukubuyelela ngakubili nokuquntа. • Ukutjhideza e-10 Begodu ahlathulule iinsombululo zakhe zemibuzo
	Ukubala	Hlukanisa iinomboro ema 50 ngaku 2,5,10
AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA	Amaphetheni weenomboro	Qedelela ukulandelana kweenomboro kokubalela phambili nemuva • Ngakunye hlangana kwe 0 nama 500 Isib 389, 399, 400, , __, __, __, 404, __, ___, ___, 408 • Ngalisumi hlangana kwe 0 nama 500 Isib 300, 310, 320, __, __, 350, __, __.370, __, __, 400 • Ngamakhulu hlangana kwe 0 ne 1000 Isib 1000, 900, 800, __, __, 500, __, __.200, __, 0
ISIKHALA NOBUJAMO (JIYOMETHRI)	Izinto Ezibusontathu (3-D)	Ukulemuka nokunikela amabizo • ubujamo bebholo (indulungu) • Ubujamo bebhoksi (phrizimu) • Isilinda
		Ukuhlela izinto ukuya ngalezo ezizombelezako begodu nalezo ezinebala eliparaleleko.
UKUMEDA	Ubude	Ukulinganisa, isilinganiso ,ukuhlela nokumadanisa ubude, ubungako nobubanzi i ngokusebenzisa iinlinganiso ezingakahleleki
		Ukulinganisa ,isilinganiso,ukuhlela nokumadanisa ubude ngosebenzisa amamitha.

IGreyidi yesi-3 iThemu yesi-2: Ukuhlola 2

ISIGABA SOKUMU-METHWEKO	IINHLOKO	ISILINGANISO SESIQUNTU
IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA	Umqomdonomboro	Balela phambili nemuva ngaku 2,4 namkha ku-3 ukufika ema-500
	Ukubala	Ukwenza ukubala ukufika ema-400 ngokusebenzisa kunye kwalokhu okulandelako • Ukwakha nokuphula iinomboro. • Inambalayini. • Ukubuyelela ngakubili nokuqunta/nokuhafula • Ukutjhideza e-10 Tlola umutjho wenomboro ngokusebenzisa +, =
		Ukukhupha ukusuka ema 400 namkha okumbalwa ngokusebenzisa kunye kwalokhu • Ukwakha nokuphula iinomboro. • Inambalayini. • Ukubuyelela ngakubili nokuqunta/nokuhafula. • rounding off to 10 Tlola umutjho wenomboro ngokusebenzisa _, =
AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA	Amaphetheni weenomboro	Qedelela ukulandelana kweenomboro • kokubala ngakubili hlangana kwe 0 nama-500 Isib. 450, 448, 446, 444, __, __, 438, __, __, 432. • Ngokubala ngakune hlangana kwe 0 nama 500 Isib. 404, 408, 412 __, __, 424, __, 432, __, __, __, 448 • Ngokubala ngakuthathu kwe 0 nama 500 Isib. 403,406, 409, __, __,421, __, __,__, 433, 436.
	Amaphetheni weJiyomethri	Ukukopa , ukungezelela nokuhlathulula amaphetheni wobujamo obuhlukeneko ayasetjenziswa ukwenza iinqhema ,kodwana iinqhema zobujamo ziyabuyelelwa ngendlela efanako.

IGreyidi yesi-3 iThemu yesi-2: Ukuhlola 3

ISIGABA SOKUMU-METHWEKO	IINHLOKO	ISILINGANISO SESIQUNTU
IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA.	Umqomdonomboro	Bala uye phambili ngaku 5, 50, 100, hlangana ne-0 nama-500
		Ukuphula iinomboro ezinamadijithi amathathu zibe makhulu, amatjhumi begodu nangabokunye, isib. 247= 200+40+7
	Ukurarulula imiraro	Ukurarulula begodu nokuhlathulula iinsombululo zemiraro efakahlangana ukwabelana ngokulinganako okurholela emafraktjhinini.
	Amafraktjhini	Ukukhumbula nokusebenzisa amahafu, amakota, kobunane, kwesithathu, kwesihlanu ebujamweni obujayelekileko.
		Ukukhumbula amafraktjhini asebujamweni bedayagramu.
		Ukutlola amafraktjhini ngendlela yokuthi ihafu yi-1, ku-2 kokuthathu, njll.
AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA.	Amaphetheni weenomboro	Qedelela ukulandelana kweenomboro • Ukubala ngakuhlanu hlangana ne 0-500, isib. 105, 110, 115, _,_,_,135, _,_,150 • Ukubala ngamatjhumi amahlanu hlangana ne 0-1000, isib. 550, 600, 650, _,_,800,_,_,_,1000
ISIKHALA NOBUJAMO (JIYOMETHRI).	Ubujamo nekombatjhuba	Ukulandela indlela/ilayelo lokukhamba khamba esikolweni.
		Nikela indlela/ilayelo yokukhamba khamba esikolweni.
UKUMEDA	Imasi	Linganisa, meda, madanisa hlela ngemihlobo begodu urekhode imasi ngokusebenzisa iimedo ezingakahleleki nesikala sokudzimelelisa isib. Amabhlogo, iintina, njll.
		Ukuhlela imikhiqizo enobudisi /imasi etlolwe ngamagremu.

IGreyidi yesi-3 iThemu yesi-3: Ukuhlola 1

ISIGABA SOKUMU-METHWEKO	IINHLOKO	ISILINGANISO SESIQUNTU
IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA.	Umqomdonomboro	Ukubala iinthombe zezinto ezibuthelelweko ukufika ema- 750 (isib. Ezibuthelelwe ngama 20, 25, 50, nofana i- 100)
		Ukumadanisa nokuhlela iinomboro ukufika ema-750.
		Ukufunda nokutlola amatshwayo weenomboro ukufika ema-100.
	Ukurarulula imiraro.	Ukurarulula imiraro yamagama ebujameni okufaka hlangana ukubuyabuyelela ukufika ema75 usebenzisa okukodwa kwalokhu • Ukwakha nokuphula iinomboro. • Inambalayini. • Ukubuyelela ngakubili nokuqunta/nokuhafula • Ukutjhideza eduze ne 10 begodu bahlathulule iinsombululo zabo zemiraro.
	Ukubalisisa	Bangakghona ukubuyabuyelela ngaku 2, 5, 10 ukufika enanini lama 99 ngokusebenzisa kunye kwalokhu okulandelako • iintlabagelo / ama-apharathasi • imigwalo • amanambalayini Ukutlola umutjho weenomboro ngokusebenzisa x, =
AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA.	Amaphetheni weenomboro	Ukuqedelela ukulandelanakweenomboro zokubala uye phambili nemuva • ngakunye hlangana ne 0 nama 750 isb. 665, 666, 667, _ ,_, _, 671, _, _, _, 675, _, _, 678 • ngalitjhumi hlangana ne 0 nama 750 isib. 650, 660, 670, ___, _, 700, _, _, 730, _, _, 760 • ngekhulu hlangana ne 0 ne 1000 isib. 0, 100, 200, _, _, 500, _, _, 800, _, 1000

IGreyidi yesi-3 iThemu yesi-3: Ukuhlola 2

ISIGABA SOKUMU-METHWEKO	IINHLOKO	ISILINGANISO SESIQUNTU
IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA.	Umqomdonomboro	Ukubala uyephambili nemuva ngaku 2, 20, 4, 3, ukufika ema- 750
		Ukuphula iinomboro ezinamadijithi amathathu ukufika ema750 zibe makhulu, matjhumi, begodu nabo kunye isib. 648= 600+40+8
	Ukubalisisa	Bangabuyabuyelela ngaku 3, 4, ukufika enanini lama 99 ngokusebenzisa okukodwa kwalokhu • iintlabagelo / ama-apharathasi • imigwalo • amanambalayini • ukubuyelela kabili ukutlola umutjho weenomboro ngokusebenzisa x, +
AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA.	Amaphetheni weenomboro	Ukuqedelela ukulandelana kweenomboro zaku • ukubala ngakubili hlangana ne 0 nama750 isib. 750, 749, 748, _, _, 445,_, _, 742 • ukubala ngamatjhumi amabili hlangana ne 0 ne 1000 isib. 800, 820,840, 860, _, _, 920, _, _, 980 • ukubala ngakune hlangana ne 0 nama 750 isib. 704, 708, 712, _, _, 724, _, 732, _, _, _, 748 • ukubala ngakuthathu hlangana ne 0 nama 750 isib, 630, 633, 639, 641, _, _, 650, _, _, _, 661
	Amaphetheni wejiyomethri	Ukukopulula, ukungezelela nokuhlathulula iphetheni yejiyomethri lapho kwenzeka khona ubujamo obufanako, kodwana inani lobujamo ngabunye buyanda nofana buya ncipha ngendlela efanako
ISIKHALA NOBUJAMO (JIYOMETHRI	Ubujamo obubusobubili 2 D	Ukukhumbula nokutjho ngegama lindulungu, aboncantathu, iinkwere, naboncamane.
		Ukugwala iindulungu, iinkwere, aboncamane, aboncantathu
UKUPHATHA IDATHA	Idatha	Yakha ibha-grafu ephepheni elinamabhlogo lokha nawunikelwe idatha.

IGreyidi yesi-3 iThemu yesi-3: Ukuhlola 3.

ISIGABA SOKUMU-METHWEKO	IINHLOKO	ISILINGANISO SESIQUNTU
IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA.	Umqomdonomboro.	Ukubala uye phambili ngaku 5, 50, 25, ukufika ema- 750
	Ukurarulula imiraro	Ukurarulula nokuhlathulula iinsombululo zemiraro efakahlangana ukwabelana ngokulinganako okurholela emafraktjhinini.
	Amafraktjhini	Ukukhumbula nokusebenzisa amahafu, amakota, kobunane, kwesithathu, kwesithandathu, kwesihlanu ebujameni obujayelekileko
		Ukukhumbula amafraktjhinio asebujamweni bedayagramu
		Ukukhumbula bonyana amahafu ama 2 enza okuzeleko
		Ukutlola amafraktjhini ngendlela yokuthi ihafu yi 1, kunye kokuthathu, njll.
AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA.	Amaphetheni weenomboro	Ukuqedelela ukulandelana kweenomboro • ukubala ngakuhlanu hlangana ne 0-750 isib. 705, 710, 715, _, _, _, 735, _, _, 750 • ukubala ngakuhlanu hlangana ne 0-1000 isib. 1000, 950, 800, _, _, 650, _, _, _, 750 • ukubala ngamatjhumi amabili nakuhlanu hlangana ne 0-1000 iosib. 525, 550, 575, _, _, 650, _, _, _, 750
ISIKHALA NOBUJAMO (JIYOMETHRI	Ubujamo	Ukulandela indlela/ilayelo lokukhamba ukusuka endaweni enye ukuya kwenye.
Ukmeda	Isikhathi	Ukutjho isikhathi ewatjhini ledijithali
		Ukusebenzisa ikhalenda ukubala ubude besikhathi nga,malanga nofana iimveke

IGreyidi yesi-3 iThemu yesi-4: Ukuhlola 1.

ISIGABA SOKUMU-METHWEKO	IINHLOKO	ISILINGANISO SESIQUNTU
IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA	Umqomdonomboro.	Ukubala iinthombe zezinto ezibuthelelweko ukufika ema- 1000
		Ukuhlela nokumadanisa iinomboro ukufika ema -99
	Ukurarulula imiraro.	Ukurarulula imiraro efaka hlangana ukubuthelela nofana ukwabelana ngokulinganako ebujameni ukufika e-100 neempendulo ezifaka hlangana iinsalela ngokusebenzisa kunye kwalokhu • ukwakha nokuphula iinomboro • amanamba layini • ukubuyelela kabili nokuqunta/nokuhafula phakathi • ukutjhideza eduze ne10 begodu nokuhlathulula iinsombululo zemiraro
	Ukubalisisa .	Hlukanisa iinomboro ukufika ema-99 ngaku 2, 4, 5, 10, 3
	Imali	Ukurarulula imiraro yemali efaka hlangana amanani netjhentjhi ngamaranda nofana ngamasende.
AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA	Amaphetheni weenomboro	Ukuqedelela ukulandelana kweenomboro zokubalela phambili nemuva • ngakunye hlangana ne 0 ne 1000 isib. 889, 890, 891, _, _, _, 892 • ngamatjhumi hlangana ne 0 ne 1000 isib. 1000, 990, 980, _, _, 950, _, _, 920, _, _, 890
Ukumeda	Isikhathi	Sebenzisa iwatjhi ukubala ubude besikhathi esidlulako ngama iri namaminithi

IGreyidi yesi-3 iThemu yesi-4: Ukuhlola 2

ISIGABA SOKUMU-METHWEKO	ISIHLOKO	ISILINGANISO SESIQUNTO
IINOMBORO, AMA-OPHARETJHINI N OBUDLELWANA	Umqondonomboro	Ubala uyaphambili nemuva ngaku-2,ngaku-4, ngaku 3, ukuya e-1000
		Ufunda abuye atlole amatshwayo weenomboro ukufikela e-1 000
	ukubala	Ukuhlanganisa ukufika e-999 uberegisa okunye kwalokhu • ukwakha nokuhlephula iinomboro • inamabalayini • Ukubuyelela kabili nokuqunta • Ukutjhideza e-10 Ukutlola umutjho wenomboro +,=
		Ukhupha kunanoma ngiyiphi inomboro ema-999 nofana ngaphasi aberegisa kunye kwalokhu okulandelako • Ukwakha nokuphula iinomboro • Inamabalayini • Ukubuyelela kabili nokuqunta • Ukutjhideza e-10 utlola inomboro yomutjho aberegisa -, =
AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA	Amaphetheni weenomboro	Uqedelela ukulandelana kweenomboro ko • Ukubala ngakubili hlangana kwe- 0 ne-1 000 e.g. 1000, 998, 996, __, __, 990, __, __, 984 • Ukubala ngakune hlangana kwe- 0 ne-1 000 e.g. 840, 844, 852 __, __, 864, __, 872, __, __, __, 894 • Ukubala ngakuthathu hlangana kwe- 0 ne-1 000 e.g. 960,963, 966, 969, 971, • __, __,980, __, __,__, 691
ISIKHALA NOBUJAMO (JIYOMETHRI)	Isimethri	Ulemuka begodu agwale imida yesimethri ngobubusobubili bejeometri nobujamo obungasibo bejeomethri
UKUPHATHA IDATHA	Idatha	Uphendula imibuzo ngedatha ngamagrafu weenthombe

IGreyidi yesi-3 IThemu yesi-4: Ukuhlola 3

ISIGABA SOKUMU-METHWEKO	ISIHLOKO	ISILINGANISO SESIQUNTO
IINOMBORO, AMA-OPHARETJHINI NOBUDLELWANA	umqondonomboro	Ubalela phambili nga- 5s, 50s, 25s hlangana kwe-0 ne-1 000
	Ukurarulula imiraro	Urarulula imibuzo yemitjho ngobujamo okubandakanya ukuhlanganyela okubuyelelwako erholela ekubuyabuyeleleni ngeenpendulo ezifika ema-50 • iinsetjenziswa • imigwalo • ukwakha nokuhlephula iinomboro • inamabalayini • ukubuyelela kabili begodu ahlathulule isisombululo sakhe emirarweni
	Ukubala	Angabuyabuyelela ngantathu ukufikela ema-99 uberegisa kunye kokulandelako • iinsetjenziswa • imigwalo • inamabalayini • ukubuyelela kabili utlola inomboro yomutjho aberegisa x, =
AMAPHETHENI, AMAFANKTJHINI NE-ALJIBHRA	Amaphetheni weenomboro	Uqedelela ukulandelana kweenomboro • ukubala ngakuhlanu hlangana kwe- 0 – 1000 e.g. 1 000, 995, 990, 985, __, __, __, 965, __, __, 950 • ukubala ngamasumi amahlanu hlangana kwe- 0 – 1000 isib.600, 650, 700, __, __, 850, __, __, __, • ukubala ngamasumi amahlanu hlangana kwe- 0 – 1000 isib.1 000, 975, 950, __, __, 875, __, __, __, 775
ISIKHALA NOBUJAMO (JIYOMETHRI)	Abobusontathu (3-D)	Ulemuka atjho negama • ubujamo bebholo (iindulungu) • ubujamo obusabhoksi • amasilinda • umgolojo • iinkurwana
		Uhlukanisa izinto ukuya ngalezi eziparaleleko nalezo ezinobujamo obuzombelezako
		Ufanisa ubujamo obubusobubili (2-D) obenza nengaphezulu eliparaleleko ezintweni ezibusontathu (3-D) ezitjhiwo ngaphezulu
UKUMEDA	Umthamo	Ufunda umthamo ngamalitha eenthombeni zamajege wokumeda
		Ufunda umthamo ngamamilimitha enthombeni zamajege wokumeda