



SEPTEMBER TRIAL EXAMINATION

GRADE 12

**COMPUTER APPLICATIONS TECHNOLOGY P1
SEPTEMBER 2015**

MARKS: 180

TIME: 3 hours

This exam paper consists of 15 pages (including the HTML tag sheet) and a separate information sheet.

INSTRUCTIONS AND INFORMATION

1. Owing to the nature of this three-hour examination, it is important to note that you will NOT be permitted to leave the examination room before the end of the examination period.
2. Type your examination number in the header of EVERY document that you create or save.
3. The invigilator will give you a disk containing all the files needed for the examination OR you will be told where the files can be found on the network or computer. If a disk has been issued to you, you must write your centre number and examination number on the disk. If you are working on the network, you must follow the instructions provided by the invigilator.
4. A copy of the master files will be available from the invigilator. Should there be any problems with a file, you may request another copy from the invigilator.
5. This question paper consists of SEVEN questions.
6. Answer ALL the questions.
7. Ensure that you save each document using the file name given in the question paper. Save your work at regular intervals as a precaution against possible power failures.
8. Read through each question before answering or solving the problem. Do NOT do more than is required by the question.
9. At the end of the examination you must hand in the disk given to you by the invigilator with ALL your answer files saved onto the disk, OR you should make sure that ALL the answer files are saved on the network/computer as explained to you by the invigilator/educator. Make absolutely sure that all files can be read. Do NOT save unnecessary files/folders and do NOT hand in duplicate answer files/folders.
10. The information sheet that has been provided with the question paper **MUST BE COMPLETED AFTER THE THREE-HOUR EXAMINATION SESSION.**
Hand it to the invigilator at the end of the examination.
11. During the examination you may use the help functions of the programs which you are using. You may NOT use any other resource material.
12. Unless instructed otherwise, you must use formulae and/or functions for ALL calculations in questions involving spreadsheets. Use absolute cell references only where necessary to ensure that formulae are correct when you copy them to other cells in a spreadsheet.
13. If data is derived from a previous question that you could not answer, you should still proceed with the questions that follow.
14. In all questions involving word processing, you should set the language to English (South Africa). The paper size is assumed to be A4 Portrait, unless stated otherwise.
15. Use centimetres as the unit of measurement when answering this question paper.
16. Generally, one mark is allocated per action; therefore a two-mark question would usually require TWO actions, et cetera.

17. The examination folder/data disk that you receive with this question paper contains the folders and files listed below. Ensure that you have all the files before you begin with this examination.

• 1 SA STEM	Word processing file
• 2MS Centre	Word processing file
• 3MS Performance	Spreadsheet file
• 4Maths2014	Spreadsheet file
• 5MandSData	Database file
• 6STEM	HTML file
• 6Maths	Image file
• 7Answers	Word processing file
• 7Letter	Word processing file
• 7Marks	CSV (text) file
• Prof Barry Dwolatsky	Image file

SCENARIO

The continued poor performance of South African learners in the subjects Mathematics and Physical Sciences is cause for concern.

Various documents have been prepared as part of an information campaign. You are required to edit and make changes to these documents.



SCIENCE



TECHNOLOGY



ENGINEERING



MATHEMATICS

QUESTION 1: WORD-PROCESSING

You are asked to edit and prepare some articles for the school newspaper.

Open **1SA STEM** document and insert your name in the header of the document. Do the following:

- 1.1 Set the top and right margins of the document to 2 cm. (1)
- 1.2 A cover page was inserted, but all the fields were not completed:
 - 1.2.1 Move the heading highlighted in green to the document title position. (1)
 - 1.2.2 Display today's date in the appropriate field on the cover page. (1)
- 1.3 Create an automatic table of contents on the second page as indicated. Do the following before inserting the table of contents:
 - 1.3.1 Apply the 'Heading 2' style to all headings highlighted in blue. (1)
 - 1.3.2 Modify all headings formatted as 'Heading 3' (highlighted in yellow) to display 7 pt before and 5 pt after each heading. (2)
 - 1.3.3 Create a new heading style by following the instructions below:
 - Base the new style on 'Heading 1'.
 - The new style is called 'STEM'.
 - The font must not be expanded. (3)
 - 1.3.4 Insert the table of contents to ONLY display headings to include level 2, as indicated in the example below:

Table of Contents

STEM Education as a Solution to Youth Unemployment	1
Maths and science need desperate boost	4
South Africa ICT Skills shortage starts in Matric	6
The 10 Skills Employers Most Want In 2015 Graduates	7

 (2)
- 1.4 Insert page numbers at the bottom of each page by following the instructions below:
 - Numbering starts at 1 on the third page. The cover page and table of contents page do therefore not contain any page numbers.
 - Odd numbers are displayed on the left hand side and even numbers are displayed on the right hand side of the page. (3)
- 1.5 Emphasise all occurrences of the abbreviation 'STEM' by changing the font to red and bold. (2)
- 1.6 Do the following to ensure easier navigation through the document:

1.6.1 Find the bookmark named 'youth' and insert a hyperlink from it to the last main heading ('*The 10 Skills Employers Most Want In 2015 Graduates*') in the document. (2)

1.6.2 Insert a cross reference after the heading '*The 10 Skills Employers Most Want In 2015 Graduates*' to create a hyperlink to the page number for the bookmark named 'Maths'. (2)

1.7 Insert the photo of Prof Barry Dwolatsky (found in your exam folder) into the square shape to the right of his name highlighted in pink. The lines of the square must be visible as a frame around the photo. (2)

1.8 Find the table in the under the heading '*South Africa ICT Skills shortage starts in Matric*'.

1.8.1 Modify the table to resemble the following example. Take note of the instructions below the table:

	Maths Lit	Maths	Science
% Change	14%	-21%	-20%
2009	284 174	296 164	224 902
2013	330 789	245 663	187 170
			<<function>>

- Use shading to fill the rows as indicated.
- Adjust the alignment of the main headings and numbers.
- Take note of the thickness of the lines in the table. (4)

1.8.2 Replace the word <<function>> in the last cell of the table with a calculated field to display the difference between the 2009 and 2013 totals for Science. (2)

1.8.3 Insert a caption below the table indicating the following:
'Table 1 Maths and Science: 2009 vs 2013'. (2)

1.9 Modify the list of skills (highlighted in red) below the heading '*Win At Work: An eBook From Forbes*' as follows:

1.9.1 Replace the manual line breaks at the end of each line with a paragraph mark. (1)

1.9.2 Apply bullets of your choice to the list of skills. (1)

1.9.3 Format the bullet position to be displayed at 1 cm from the left margin and the text 1.5 cm from the left margin. (2)

1.10 Change the text below the last subheading '*Include all skills in résumé*' into 3 columns of equal width. Change the spacing between the columns to 0.5 cm. (3)

1.11 Make the following changes to the document:

- 1.11.1 Add I. Pieterse as the author of the source 'Maths-and-science (2014)'. (1)
- 1.11.2 Add a citation after the last word ('...skills.') in the document to acknowledge the source 'The 10 Skills Employers Most Want In 2015 Graduates'. (1)
- 1.11.3 Insert a bibliography at the end of the document. Make sure the format is APA sixth edition. (2)

Save and close the **1SA STEM** document. [41]

QUESTION 2: WORD-PROCESSING

An application form is created to invite learners to the Maths and Science Centre.
Open **2MSCentre**.

- 2.1 Editing of the form is restricted. Stop the protection before you continuing with the following instructions. (1)
- 2.2 Track changes have been used to indicate spelling mistakes.
 - 2.2.1 Accept the correction made on 'facilities'. (1)
 - 2.2.2 Reject the separation of 'Skyblue'. (1)
- 2.3 Insert the following fields into the application form:
 - 2.3.1 A text field of the type Number next to Grade in which a maximum of only 2 digits can be entered. (3)
 - 2.3.2 A checkbox at the 4 cm tab to the left of 'Twice a week'. (2)
- 2.4 Use a tab with leader dots to position Cell phone at about 8 cm. Refer to the example below:

Landline: Cell phone:

 (2)
- 2.5 Insert a dropdown field next to "application" to enable the applicant to choose 'Yes' or 'No'. (2)
- 2.6 Insert a comment next to 'R125' to remind the teacher to confirm the amount. (2)
- 2.7 Correct the spelling mistake in the last paragraph. (1)

Save and close the **2MSCentre** form. It is **not** necessary to restrict editing again. [15]

QUESTION 3: SPREADSHEET

Open the **3MS Performance** spreadsheet.

Work In the **Combination** worksheet. Insert your name in the header of the worksheet.

- 3.1 Improve the appearance of the spreadsheet by making the following changes:
- 3.1.1 Merge and centre **rows A1 to S2**. (1)
 - 3.1.2 Change the font size of the heading 'Science and Mathematics Results' to 18 pt. (1)
 - 3.1.3 Change the height of **row 3** to 30 pt. (1)
 - 3.1.4 Without changing any column widths, ensure that all headings in **row 3** are visible. (1)
- 3.2 Set the page layout so that the worksheet will print in landscape on only ONE page. (2)
- 3.3 Insert a function in **cell F23** to show the total number of learners that achieved 30% and above in Science in the year 2012. (3)
- 3.4 The following colour codes are assigned where provinces show an improvement to the following pass percentages for Science:

Improvement in pass percentage at 30% from 2013 to 2014	Colour code
Less than 0%	RED
From 0% to less than 10%	YELLOW
10% or more	GREEN

Insert a function in **cell R17** to determine the colour code assigned to the North West province for Science.

Note: Your function should work if copied to other cells in the same column. (4)

- 3.5 Insert a suitable lookup function in **cell S20** to show the number of visits that must be made to schools offering *Maths* in the Northern Cape. Use the table on the **Lookup** worksheet. (5)
- 3.6 A drop down list has been used in **cell B26**. Edit the drop down list to show the options 'M' and 'F'. (1)
- 3.7 Continue working in the **Combination** worksheet and make use of the data on the **Gender** worksheet.
- Insert a function in **cell C27** to determine the total number of female learners that have passed Mathematics over the last three years (2012 to 2014). (3)

Save and close the **3MS Performance** spreadsheet.

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QUESTION 4: SPREADSHEET

The spreadsheet **4Maths2014** contains the 2014 National Senior Certificate results for Mathematics.

Open the spreadsheet **4Maths2014**.

Work in the **Mathematics 2014** worksheet.

- 4.1 Make use of conditional formatting to apply background shading to all those cells where learners were not resulted (**column X**). (3)
- 4.2 Format the data in columns Y, Z and AA so that all the numbers display correct to 1 decimal place. (1)
- 4.3 The data in **column E** is not needed. Hide this column. (1)
- 4.4 Format the worksheet so that **row 1** is always visible when you scroll down the page. (1)
- 4.5 Insert a code in **column C** consisting of the first four characters of the subject name in **column D**. The code must be displayed in upper case. Add a function to **cell C2** to display the code. Copy the function to the remaining cells in **column C**. (3)
- 4.6 Add a function to **cell Q14** to determine the total number of learners from Centre Number 1317717 who scored between 0% and 29%. (2)
- 4.7 Add a function to **cell AB6** to display the message 'Extra support needed' if the examination average percentage (column Z) is 15% or more **lower** than the raw SBA average (**column AA**). Otherwise display the message 'No support needed'. (4)

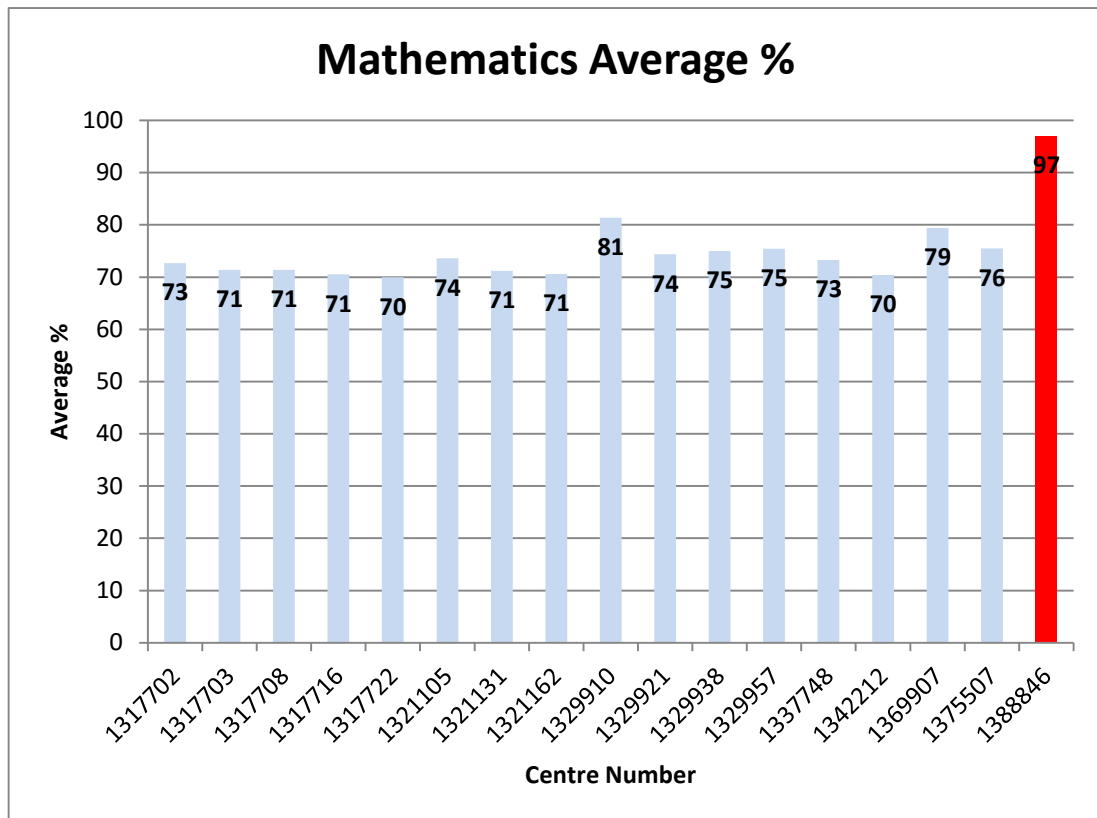
Work in the **Summary** worksheet.

- 4.8 Use the data in **column W** on the **Mathematics 2014** worksheet to add a function to **cell B1** to determine the largest number of learners who scored between 80 and 100% for Mathematics at a school. (1)
- 4.9 Insert a function in **cell B2** to find the number of schools that has an average percentage for Mathematics (**column Y** on the **Mathematics 2014** worksheet) of 70% or more. (3)
- 4.10 In **cell B3** determine the number of schools that have all their learners score a mark of 50% or more?
Note: Make use of the data in **column M** on the **Mathematics 2014** worksheet. (2)

Work in the **Top Performers** worksheet.

- 4.11 A graph/chart has been created in the **Top Performers** worksheet showing the average Mathematics percentage of the top performing schools in the province.

Edit the graph/chart to resemble the graph below.



Note:

- Add appropriate chart title and axis labels
- Format the vertical axis as indicated
- Display data labels as indicated
- Change the fill colour of the bars to a light blue shade.
- Change the fill colour of the bar corresponding to the highest average to a red shade.
- Align text on the horizontal axis at an angle of -45°

(10)

Save and close the **4Maths2014** spreadsheet.

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QUESTION 5: DATABASE

The 2014 Mathematics and Physical Science results has been stored in the database called **5MandSData**.

5.1 Work in the **WC NSC PHSC 2014** table.

5.1.1 Change the field size of the *District* field to 30. (1)

5.1.2 The *Centre No* field must be a required field. (1)

5.1.3 Create an input mask for the *ExamDate* field to only accept data as follows 200811. (2)

5.1.4 Change the *Circuit* field so that the user is allowed to choose the circuit number from a list. The list must include the following data 1, 2, 3, 4, 5, 6 and 7. (3)

5.2 Create a form called **frm5_2** based on the **WC_NSC MATH_2014** table.

5.2.1 Add only the *District*, *Centre No*, *Wrote* and *Passed at 30%* fields. (1)

5.2.2 Change the heading/title of the form to 'Pass at 30%'. (1)

5.2.3 Change the *District* field to a Combo Box where the user can make a selection from the different districts. (3)

5.2.4 Add your name and surname as a label in the Form Footer. (1)

Save and close the **frm5_2** form.

5.3 Open the **qry5_3** query which is based on the table **WC_NSC PHYSC_2014**.

Modify the query as follow:

- Only the *Cape Winelands* centres where more than a hundred candidates wrote must be displayed.
- Do not show the *Pass at 40%* column.

Save and close the **qry5_3** query. (3)

5.4 Create a query called **qry5_4** based on the **Maths and Phys 2013_2014** table.

- Display only the *District*, *Centre No*, *ShortAlphaCode*, *Wrote* and *0-29%* fields.
- Sort the data in ascending order according to the *District* Field.
- Show only the *Maths* learners that failed. (4)

5.5 A query **qry5_5** has been created, indicating the Maths result for 2013_2014. The pass % at 30 and 40 has been displayed, as well as the number of learners per centre who wrote and the number of learner who passed at 50%.

- 5.5.1 Insert a calculated field called **Pass % at 50**, which will calculate the percentage of learners per centre that passed at 50%. (4)
- 5.5.2 The format must be changed to percentage and only 1 decimal place needs to be displayed. (2)
- 5.6 Create a report **rpt5_6** based on the **WC NSC PHSC_2014** table as follows:
 - 5.6.1 Display only the *District*, *Centre No*, *ShortAlphaCode*, *Wrote* and *Pass % at 30%* fields. (1)
 - 5.6.2 Group the records in the report according to the *District* field. (1)
 - 5.6.3 Change the orientation of the report to landscape. (1)
 - 5.6.4 Change the report title to 'Learner pass percentage at 30%' and the font colour to orange. (3)
 - 5.6.5 Save the report as **rpt5_6**. (1)
- 5.7 A report **rpt5_7** has been created that shows the West Coast District Math results for 2014. Modify the report as follows:
 - 5.7.1 Change the background colour of the report header to a shade of green. (1)
 - 5.7.2 Choose a special effect with a shadow for the headings in the Page Header. (1)
 - 5.7.3 Remove the date from the Page footer. (1)
 - 5.7.4 Use a function to indicate the average number learners that passed at 30% and add a suitable title. (4)

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QUESTION 6: WEB DESIGN (HTML)

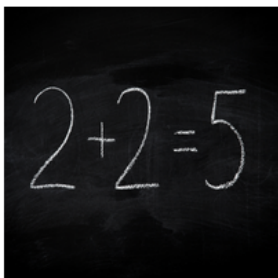
You must finalise and edit a web page about the STEM crisis.

Open the web page **6STEM** in a web browser as well as a text editor.

- Question numbers are inserted as coding guidelines to show approximately where the answer(s) should be inserted.
- An HTML tag sheet has been attached for reference.

Your final web page should look like the example below.

The root of the STEM crisis



During the week of 16 to 19 September 2014, more than 7,3 million learners in Grades 1-6 and Grade 9 wrote the Annual National Assessment tests in Numeracy and Literacy. The report on these assessments provides the education sector with valuable information on the performance of the system at the level of the school, district and province and also useful information on the performance of the individual learner, which in combination must be used to identify the critical areas of weakness and to subsequently develop relevant interventions for improving learning and teaching in schools.

The Annual National Assessment (ANA) results indicate that the problem with mathematics has its roots in primary school, where many learners fail to gain basic mathematical skills. The 2014 ANA results saw only 39% of grade six learners and 2% of grade nine learners scoring more than 50% in mathematics. The curriculum content and learning materials assume that by the senior phase learners have mastered basic mathematics concepts. Therefore, the basics are no longer taught in this phase. It follows that, for those learners who have failed to grasp the basics, their chances of success as they approach the exit point in schooling are considerably diminished.

MATHEMATICS AVERAGE PERCENTAGE MARK			
	2012	2013	2014
Grade 1	68	60	68
Grade 3	41	53	56
Grade 6	27	39	43
Grade 9	13	14	11

The significance of the dramatic dip in performance at grade nine level is therefore not that the education system is "unlearning" our learners, but is a direct consequence of compounding backlogs and increasingly inventive ways learners use to beat the system and dodge detection, with dire consequences for individual learners and the system.

Possible solutions to address performance in Mathematics include the following:

- i. Identify learners who lack foundational mathematical skills
- ii. Provide these learners with remedial assistance
- iii. Re-evaluation of conditions in classrooms
- iv. Introduce programmes to support mathematics education

[For more information:](#)

- 6.1 Add HTML code so that the text '*The STEM crisis in SA*' appear in the browser tab. (2)
- 6.2 Format the text '*The root of the STEM crisis*' so that it appears as a level 1 heading and is horizontally centred. (2)

- 6.3 Change the background colour of the web page to white. (1)
- 6.4 Insert the **6Maths** image (found in your data folder) below the heading. Set the height and width of the image to 200. (4)
- 6.5 The webpage includes a table containing five rows and four columns.
- 6.5.1
- Extend the table by adding a new row above the row containing the Grade 3 information.
 - Capture the following performance information for Grade 1 in this row: (see example)
2012 – 68
2013 – 60
2014- 68
 - Edit the cell 'MATHEMATICS AVERAGE PERCENTAGE MARK' so that the space between the cell's border and contents is set at '2'. (3)
- 6.5.2 Change the font of the entire table to Arial. (1)
- 6.6 Change the list to an numbered list using roman numerals i.e i, ii, iii, iv. (2)
- 6.7 Insert a horizontal line below the list with a height of 10. (1)
- 6.8 Add the text '*For more information:*' between the paragraph tags at the bottom of the web page and link it to the website 'http://www.education.gov.za'. (4)
- Save and close the web page.

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QUESTION 7: GENERAL

The Mathematics and Physical Science June Examination results of a number of learners are saved in a text file **7Marks.csv**.

Analyse the data in this text file using the most appropriate application.

- 7.1 Import the data in the **7Marks.csv** file into either a database or a spreadsheet.

Name the spreadsheet or database **7Marks_import**.

Now use the spreadsheet or database to determine the answers to the following questions. Type your answers in the appropriate spaces in the **7Answers** document.

- 7.1.1 How many records were imported into the database or spreadsheet? (1)

- 7.1.2 What is the average Physical Science mark of the 12A learners? (1)

- 7.1.3 What is the name of the learner who scored the highest average mark for Mathematics and Physical Science? (1)

- 7.1.4 Explain briefly how you obtained the answer to question 7.1.3 (2)

- 7.2 A letter will be sent to the parents of the learners who scored less than 30% for either Mathematics or Physical Science.

Work in the **7Letter** document.

Use the data you imported into a spreadsheet or database in question 7.1 and prepare a mail merge as follows:

- Sort the learners in ascending order according to their surnames.
- Replace all the text between '<< ... >>' with the appropriate fields.
- Only include learners who scored less than 30% for either Mathematics or Physical Science.
- Save the document.
- Complete the merge.
- Save the merged document as **7Letter_Merged**. (6)

[11]

GRAND TOTAL: 180

HTML TAG SHEET

Basic Tags	
Tag	Description
<body></body>	Defines the body of the web page
<body bgcolor="pink">	Sets the background colour of the web page
<body text="black">	Sets the colour of the body text
<head></head>	Contains information about the document
<html></html>	Creates an HTML document – starts and ends a web page
<title></title>	Defines a title for the document
<!-- -->	Comment
Text Tags	
Tag	Description
	Creates the largest heading
	Creates the smallest heading
	Creates bold text
<i></i>	Creates italic text
	Sets size of font, from "1" to "7"
	Sets font colour
	Sets font type
Links Tags	
Tag	Description
	Creates a hyperlink
	Creates an image link
	Creates a target location
	Links to a target location created somewhere else in the document
Formatting Tags	
Tag	Description
	Creates a new paragraph
<p align="left">	Aligns a paragraph to the "left" (default), can also be "right", or "center"
 	Inserts a line break
	Creates a numbered list
<ol type="A", "a", "I", "i", "1">	Defines the type of numbering used
	Creates a bulleted list
<ul type="disc", "square", "circle">	Defines the type of bullets used

Tag	Description
	Inserted before each list item, and adds a number or symbol depending upon the type of list selected
	Adds an image
	Aligns an image: can also be "right", "center", "bottom", "top", "middle"
	Sets size of border around an image
	Sets the height and width of an image
	Displays alternative text when the mouse hovers over the image or when the image is not found
	Inserts a horizontal line
<hr size="3"/>	Sets size (height) of line
<hr width="80%"/>	Sets width of line, in percentage or absolute value
<hr color="ff0000"/>	Sets the colour of the line
Table Tags	
Tag	Description
<table></table>	Creates a table
<tr></tr>	Creates a row in a table
<td></td>	Creates a cell in a table
<th></th>	Creates a table header (a cell with bold, centred text)
<table width="50">	Sets the width of the table
<table border="1">	Sets the width of the border around the table cells
<table cellpadding="1">	Sets the space between the table cells
<table cellspacing="1">	Sets the space between a cell border and its contents
<tr align="left">	Sets the alignment for cell(s) (can also be "center" or "right")
<tr valign="top">	Sets the vertical alignment for cell(s) (can also be "middle" or "bottom")
<td colspan="2">	Sets the number of columns a cell should span
<td rowspan="4">	Sets the number of rows a cell should span