

A Guide to using




Newcastle ICT Centre - P.H.E.D.C. - 2001

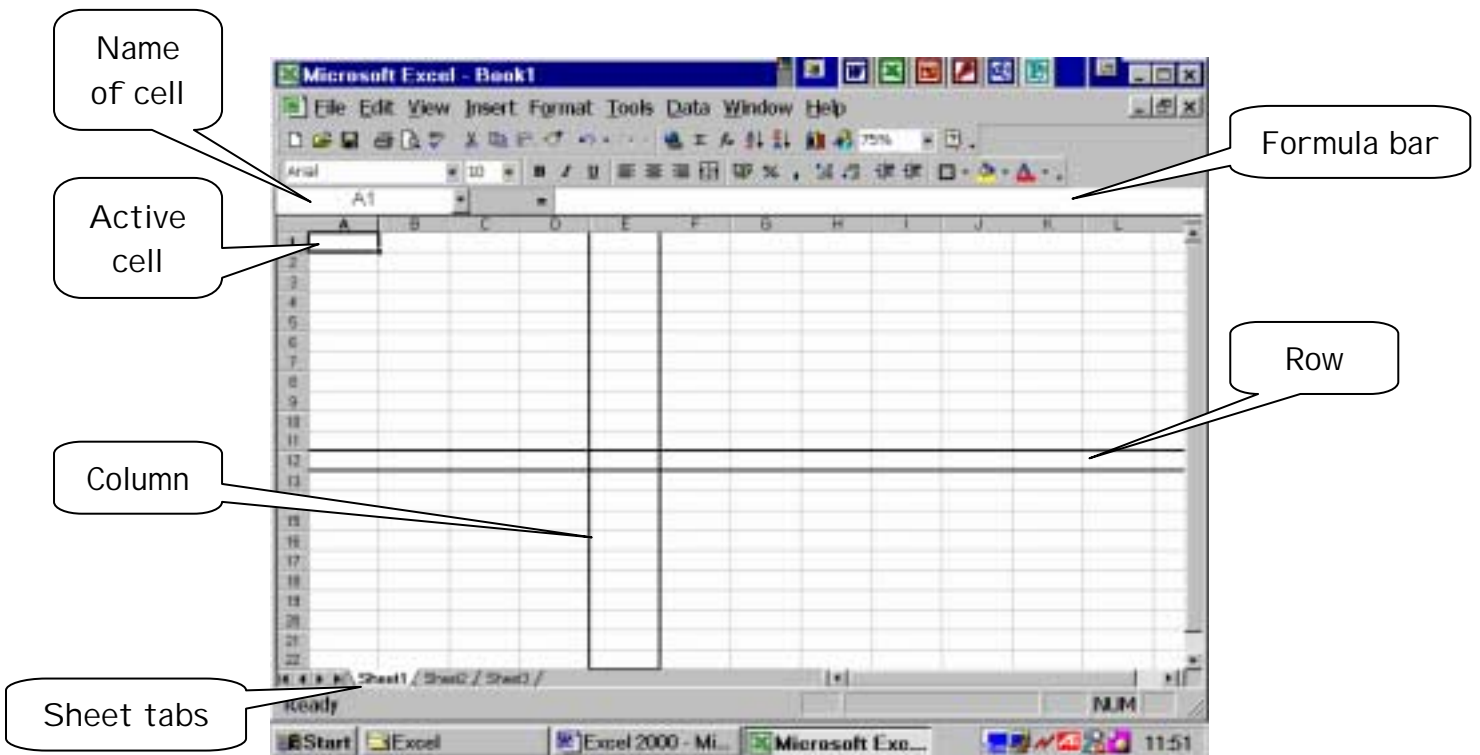
Introduction

Microsoft Excel is an example of spreadsheet software. A spreadsheet is used to store information in columns and rows, which can then be organised and/or processed. Spreadsheets are designed to work well with numbers but often include text. They are used in thousands of applications for doing calculations and creating charts for example:

- Recording marks for a class of pupils and tracking progress;
- Planning budgets and working with financial data;
- Calculating daily or monthly average temperatures of a city;

Getting Started

- Click the **Excel** icon  on the shortcut bar or go to **Excel** via **Start** and **Programs**.
- A spreadsheet page appears. In Excel, spreadsheets are referred as **workbooks**. A **workbook** can contain several **worksheets** named Sheet 1, Sheet 2, Sheet 3 etc.
- A **worksheet** is made up of **cells** arranged in **columns** (256) and **rows** (16,384). You can only see a few of these.
- The **columns** are labelled A, B, C.... The **rows** are labelled 1, 2, 3...



- This arrangement may look daunting to children so it may be better if a page is set up first by the teacher with a limited number of cells.

- To do this highlight the cells that you want to make up your page e.g. click in cell A1 and drag across the page to I 30.
- Go to **File** and slide to **Print Area**. Follow the arrow and click on **Set Print Area**. The area set up remains black. Go to **View** and slide to **Page Break View**. The area you have highlighted is the only part of the page in view. To revert to the whole page go to **View** and slide to **Normal**.
- Go to the **Zoom** window and scroll to 100% so that the page is big enough to work in.

Inputting Data

When you open a new workbook, cell A1 will be highlighted, showing that it is the **Active cell**. When you start typing the letters or numbers will appear in this cell and into the **Formula bar** at the top of the spreadsheet.

To move between cells you can either:

- Move the pointer using the **Mouse** and left click in the cell you want.
- Use the **Arrow keys** to go up, down, left or right.
- Use the **Tab key** to move to the cell immediately to the right.
- The **Return key** will take you to the cell beneath the current cell.
- Use the **Page Up** or **Page Down keys**.

NB by pressing **Ctrl-Home** you can return to cell A1.

Editing Data

To edit data click on the cell, the data appears in the formula bar. Click in the formula bar and alter the data. If you are entering new data you can simply type over the text in the cell.

Deleting Data

- To delete the contents of a cell, click in the cell and then press the Delete key.
- To delete a whole column, **right-click** on the **column header** and select delete from the shortcut menu that appears.
- To delete a row, **right-click** on the **row number** and select delete from the shortcut menu.

NB. In the same way you can choose to insert columns or rows. From the shortcut menu select Insert.

Using Excel to calculate

Using a formula Excel will perform calculations for you automatically.

The following symbols are used:

- + add
- subtract
- * multiply
- / divide
- % percentage
- () brackets are used whenever necessary

Excel requires that EVERY formula begin with an equal sign (=). If you just type without this symbol, Excel treats the entry as text.

Formulae are entered using cell references.

For example to do a simply addition

- Enter the data.
- Click in cell A4.
- Type an **equals** sign to tell Excel that you are about to enter a formula.
- Type **a2+a3** so that the formula appears as shown above.
- Press **Enter** (Return key). The answer appears.

The screenshot shows an Excel spreadsheet with columns A, B, C, and D, and rows 1 through 5. The formula bar at the top shows the formula `=a2+a3`. The spreadsheet content is as follows:

	A	B	C	D
1	Add			
2	345			
3	567			
4	=a2+a3			
5				

Subtraction

The screenshot shows an Excel spreadsheet with columns A, B, C, and D, and rows 1 through 5. The formula bar at the top shows the formula `=c2-c3`. The spreadsheet content is as follows:

	A	B	C	D
1	Add		Subtract	
2	345		4567	
3	567		3241	
4	912		=c2-c3	
5				

Division

The screenshot shows an Excel spreadsheet with columns A, B, C, and D, and rows 1 through 5. The formula bar at the top shows the formula `=a2/a3`. The spreadsheet content is as follows:

	A	B	C	D
1	Divide			
2	6785			
3	12			
4	=a2/a3			
5				

Multiplication

The screenshot shows an Excel spreadsheet with columns A, B, C, and D, and rows 1 through 5. The formula bar at the top shows the formula `=c2*c3`. The spreadsheet content is as follows:

	A	B	C	D
1	Divide		Multiply	
2	6785		345	
3	12		67	
4	565.4167		=c2*c3	
5				


Automatic re-calculation

The great thing about spreadsheets is that once you have entered a formula, you can change the contents of the other cells and the answer will still be right.

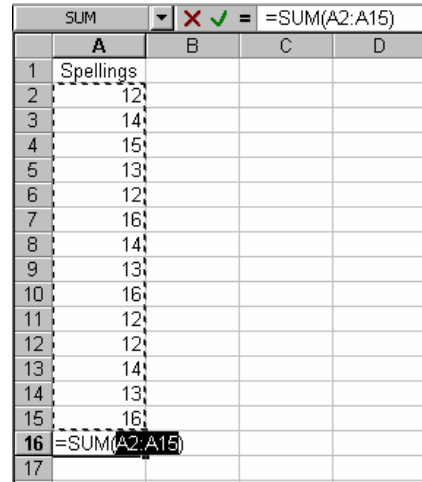
NB. Instead of typing formula you can use the mouse to point to the cells in the formula. Eg. In cell A4, type = and then click the mouse in cell A2. Type + and then click the mouse in cell A3. Then press enter. You could even customise your toolbar to contain the symbols needed, so you only need to click on them as well.

Using the Autosum

The **Autosum** tool will calculate totals for you so you don't need to type in the formula.

- Click in the cell at the bottom of the column of numbers that you wish to total.
- Click on the **Autosum** button  on the standard toolbar.
- Excel guesses which cells you want to total and a dotted line will appear around them.
- Press Enter. The answer will appear.

If you don't want to add the whole column, you can choose the cells you want to add by 'clicking and dragging' over them either before or after clicking on the Autosum button.



	A	B	C	D
1	Spellings			
2	12			
3	14			
4	15			
5	13			
6	12			
7	16			
8	14			
9	13			
10	16			
11	12			
12	12			
13	14			
14	13			
15	16			
16	=SUM(A2:A15)			
17				

Built-in functions

A **function** is a **formula** used in a calculation. Excel provides over 200 functions to help with business, scientific and engineering applications. We have already used one example above. We entered the **Sum function** by pressing the **Autosum** button. You can also enter a function by typing it into the cell.

To carry out the same calculation as above:

- Click in cell A16
- Type **=sum(** in the cell(including opening bracket)
- Click in cell A2 and hold the left mouse down as you drag down to cell A15. (notice Excel is automatically filling in the formula as you do this).
- Type **)** to finish the formula.
- Press Enter. The answer will appear.

The **Average** function works the same way as the Sum function.

To calculate the average spelling score:

- Click in the cell where you want the average to appear.
- Type **=average(** in the cell
- Click and drag over the cells you want included, type **)** to finish the formula.


- Press **Enter**. The answer appears.

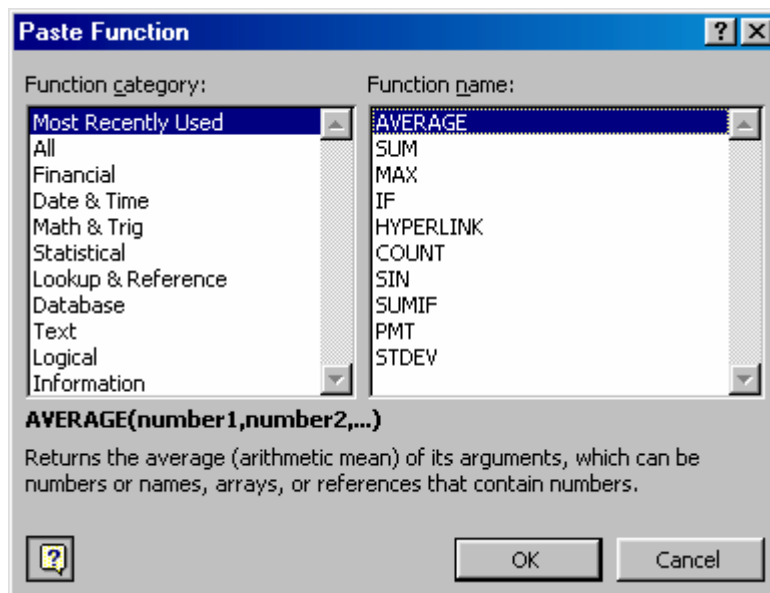
In the same way you can calculate the **Maximum** and **Minimum** number.

Type **=max(** or **=min(** and repeat the steps as above.

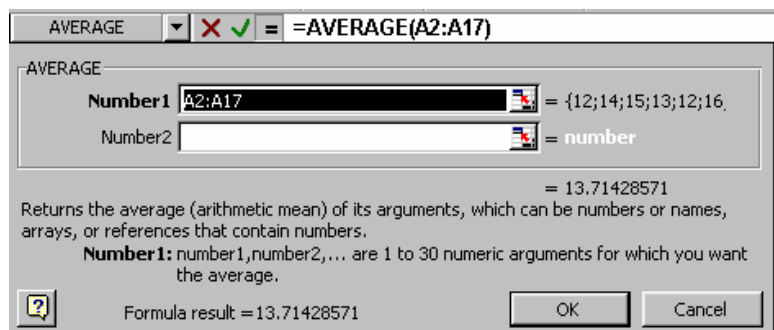
Using the Paste Function tool

The **Paste Function** tool allows you to use many mathematical functions including those already mentioned.

- Click in the cell where you wish the answer to appear.
- Click on the **Paste Function** tool button  on the **Standard** toolbar.
- This window will appear.





- Select the function you want to carry out.
- Click OK
- A new window will appear.
- You can change the cells that have been selected if you need to.
- Click OK.
- The answer will appear in the cell.




Formatting Numbers

You'll notice that when you start entering data that it is automatically right-justified. It is nearly always best to leave numbers right-justified so that the decimal points, units, tens, hundreds etc line up.

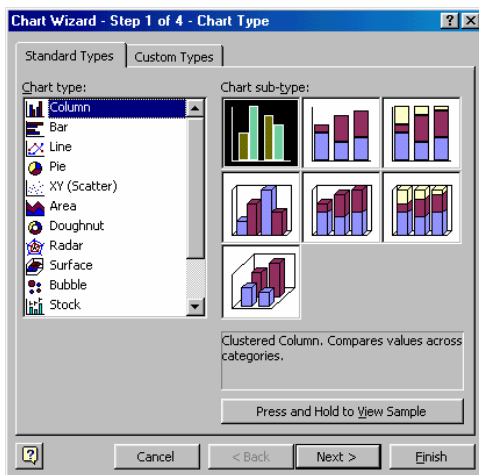
When using a mixture of whole numbers and decimals the spreadsheet can appear untidy. To tidy them up.

- Click and drag over the cells to highlight them.
- Click the **Increase Decimal** button in the **Formatting toolbar**. 
- Clicking twice results in all the numbers being displayed to 2 decimal places.
- Click the **Decrease Decimal** button  to display the numbers to 1 decimal place.

How to produce a chart

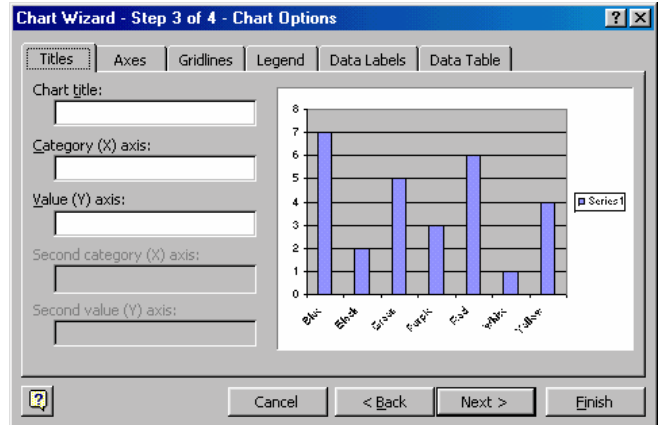
- Click and drag across the cells to highlight the data which is being used to produce the chart.
- Click on the **Chart Wizard** button  on the **Standard toolbar**.

A dialogue box will appear like the one below:

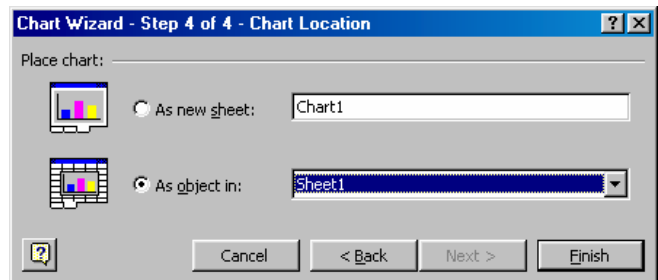


- Choose the type of chart you want to produce from the **Chart type** column on the left hand side. Click to select.
 - Then choose the 2D or 3D type you want from the **Chart sub-type** selection. Click to select.
 - Then click on **Next** at the bottom of the box.
- The Step 2 box will appear. You don't need to change anything unless you want to change the data range.
 - Click **Next**.

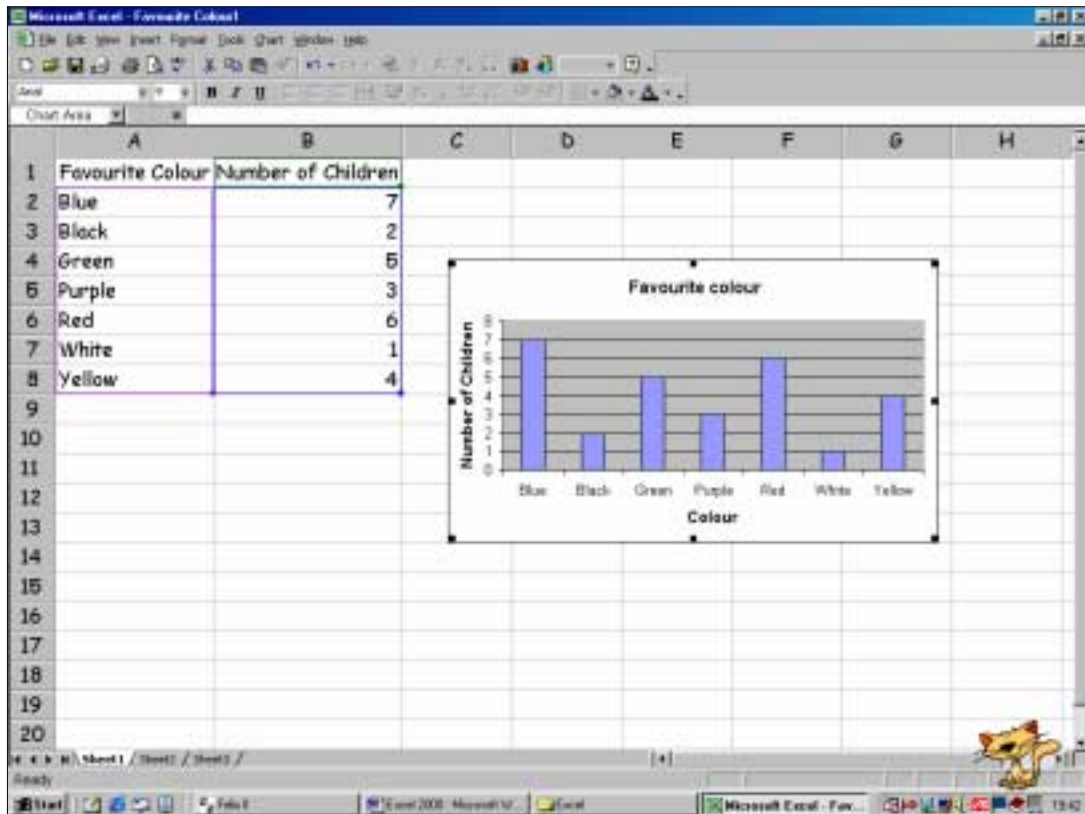
- The Step 3 box appears.
- In the **Chart title** box, type a title for your chart.
- In the **Category (X) axis** box type in a label for the **X axis**.
- In the **Value (Y) axis** box type in a label for the **Y axis**.
- Click **Next**.



- The Step 4 dialogue box will appear.
- You can choose where you want the chart to appear. It can either be placed on its own in a new chart sheet, or it can be placed in the current sheet, alongside the table.
- Now click **Finish**.



If you have chosen to have the chart as an object on sheet 1, it will appear like this.



Editing a Graph

Once your graph is finished you can edit it.

- Click the **Chart Area** so that the black square handles appear.

To move the chart.

- Click and drag it into position.

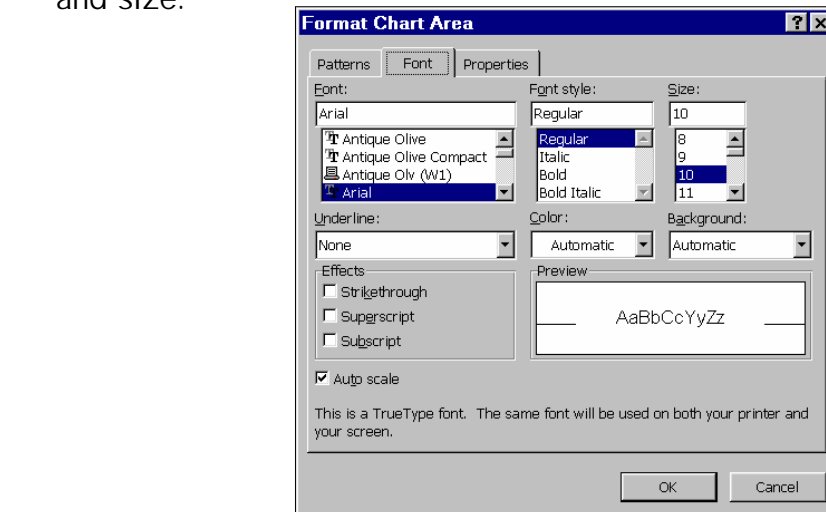
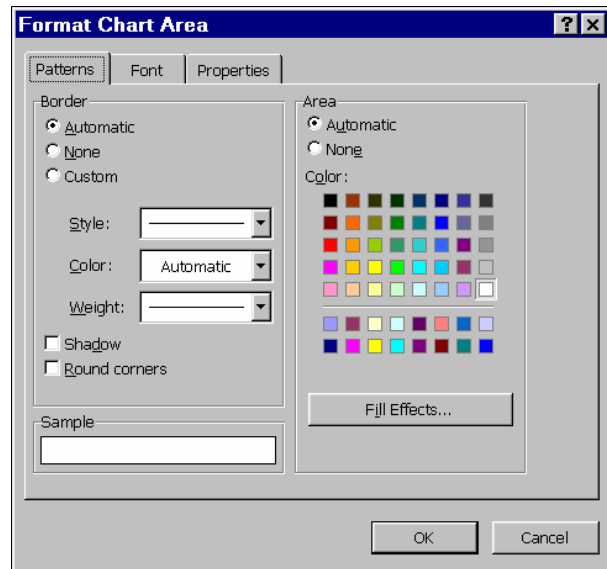
To resize.

- Click and drag the bottom corner handle to resize without distorting it.

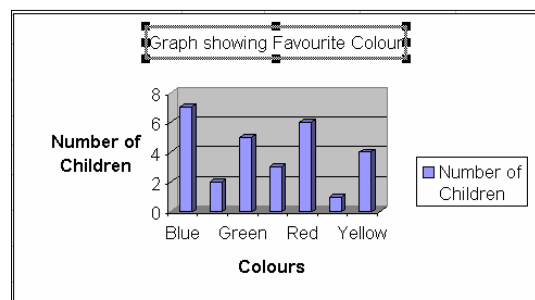
You can change the font style, size, colour etc. There are a number of ways you can do this.

1. **Right Click** on the **Chart Area** and a **Format Chart Area** window will appear.

- You can now select a border style and colour for the chart area and a colour to fill the background if you wish.
- Click on the **Font** tab. You can now select font style, colour and size.



2. Another way is to **Left Click** on the text you want to change. Here the title has been selected.



- Now use the **Formatting toolbar** (Fig.1) to select font style, size and colour.
- You can also edit the title.
- You can also fill the title box with colour using the fill button. (Fig.2)
- You can do the same for all the labels.

Fig.1

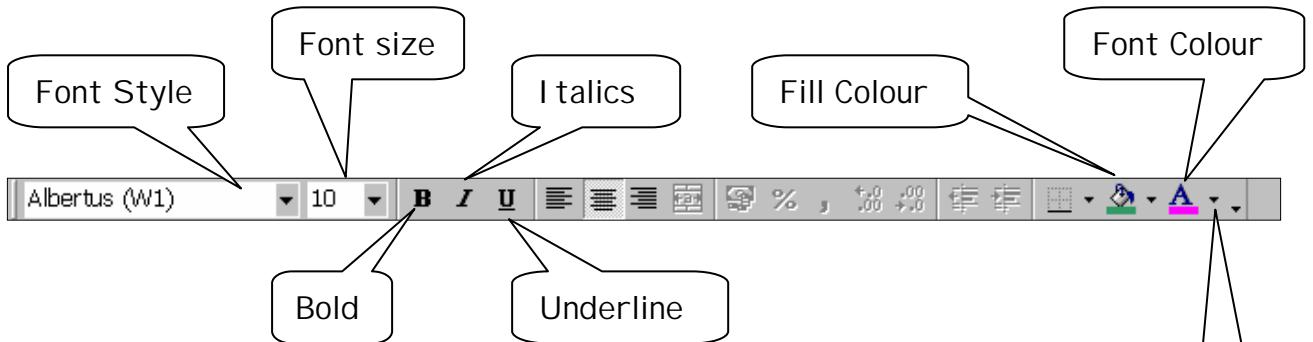
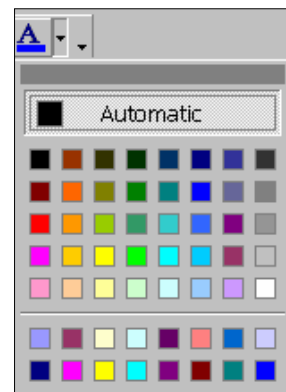
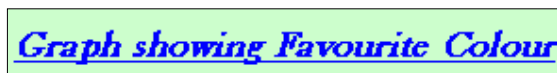


Fig.2



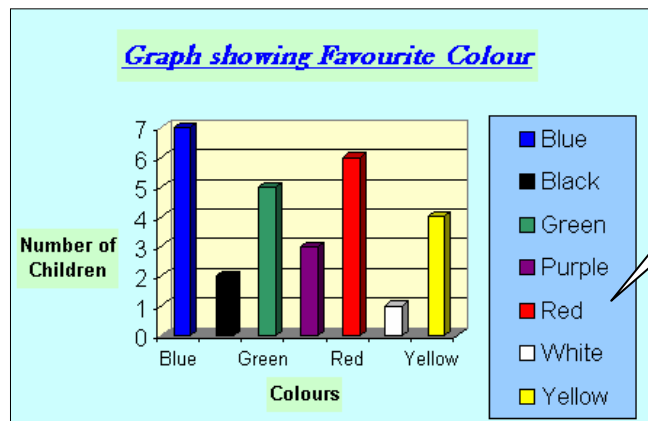
To change the colours of individual bars in your graph.

- **Left Click** on one of the bars and you will see that all the bars become selected.
- **Left Click** again on the bar you want to change. Now only that bar will be selected.
- Using the **Fill** button on the **Formatting toolbar** select the colour you want.

You will notice once you start changing the colours of the bars that the Legend will change automatically. You can edit this as well.

You can also fill the background (**Walls**) of the graph.

- Click on the Wall to select.
- Again use the **Fill** button.

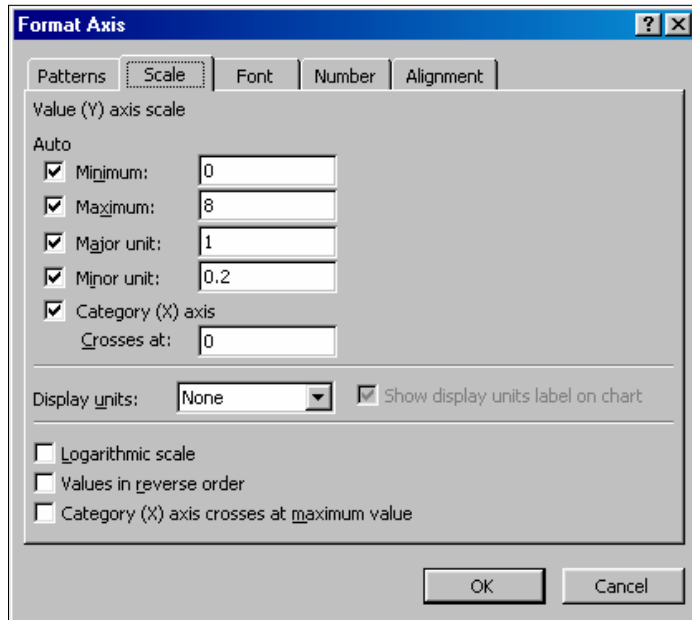


Editing the Axis

To change the axis.

- **Right click** on the Axis to be altered. In this example the **Y axis** was selected.
- Select **Format Axis** from the menu that appears.
- The Format Axis dialogue box will appear.
- Click on the **Scale tab** to alter the scale.
- To change the value of the intervals alter the **Major unit** number, e.g. You may want the scale to go up in 2's.

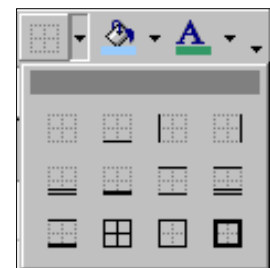
NB. You also have the option here to change Font (Click on the Font Tab), Font Alignment (Alignment Tab) and Axis Colour and style (Patterns Tab).

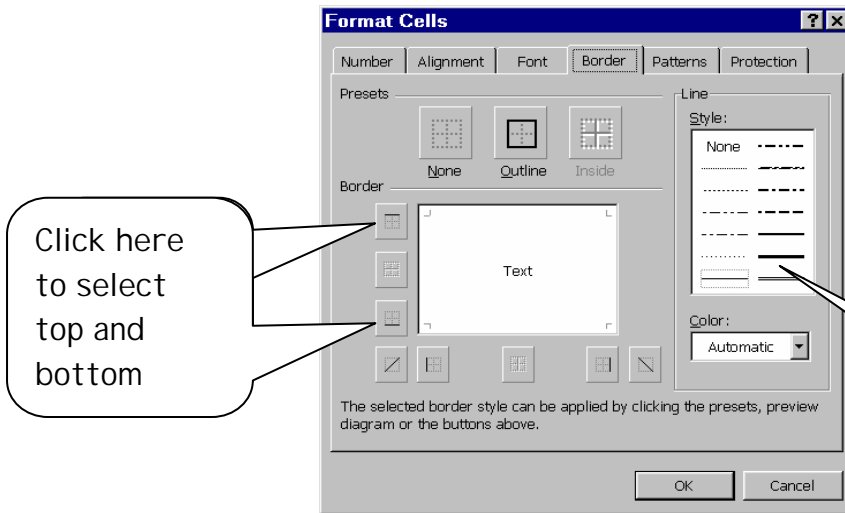


Editing the table

You can change the appearance of the table as well.

- To change font style, size, colour etc. Select the cell or click and drag over a number of cells and adjust using the Formatting toolbar.
- To fill the table with colour. Click and drag to highlight the table and fill using the Fill button on the Formatting toolbar.
- To put a border around it, click and drag to highlight.
- Click on the black triangle next to the border button the formatting toolbar to view choices. You can also do this for a single cell.
- **Or** goto **Format** on the **Menu toolbar** and **Select Cells**.
- A window will appear.
- Click on the **Border Tab**

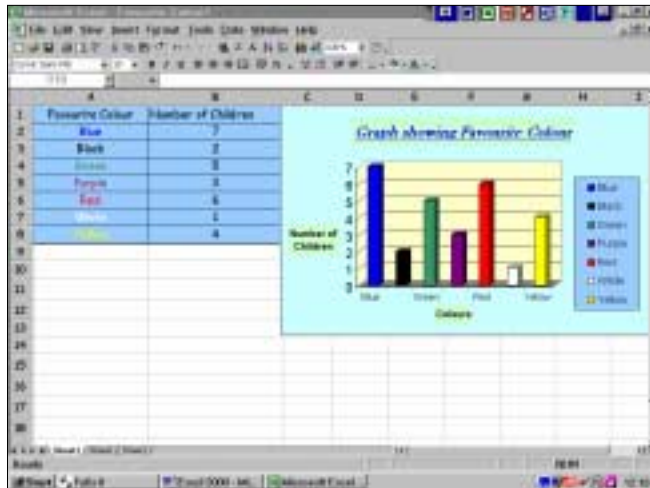




N.B. You also have the option here to change Font (Click on the Font Tab), Font Alignment (Alignment Tab) and Cell colours (Patterns Tab).

Changing Column Widths

You will notice in the table that columns A and B are wider than the others.



To change the column width.

- Position the pointer so that it is on the line between **column headers**.
- The pointer will change to a **double headed arrow**.
- Click and drag to the right. The column will widen. **Or**
- Position the pointer between the column headers.
- Double click.
- The column automatically widens so that the heading fits into the cell. (This is called **autosizing** the cell width)

	A	B	C
1			
2			


Adding A Title

To add a heading which is to be centred across the top row.

- Select Row headers 1 and 2.
- Right - Click to display the shortcut menu.
- Select Insert from the shortcut


	A	B	C
1	Class 6C		
2			
3	Favourite Colour	Number of Children	
4	Blue	7	
5	Black	2	
6	Green	5	
7	Purple	3	
8	Red	6	
9	White	1	
10	Yellow	4	
11			

menu to add two new rows at the top of the page.

- Type the heading in Cell A1.
- Select cells where you want the heading to be. (In the screenshot A1 and B1 were selected).
- Click the **Merge and Centre** button  on the Formatting toolbar.
- This makes the selected cells into a single cell.

Sorting Data

You may want to sort data alphabetically.

- The sort buttons allow you to sort columns of data in alphabetical order, (A-Z or Z-A) or in numerical order.
- To see how these tools work, **click** on the cell at the top of a column, then click the **Z-A sorting tool button**, notice what  happens to your table.
- **Click** the **Undo** button from the menu to return to the original position.
- All individual columns may be sorted in this fashion.

Useful Tip


If you are working with a lot of data that includes headings, you will notice that you lose the headings as you scroll down. To avoid this happening;

- Left click in the first cell below the row that you want to keep in place.
- Go to **Window** on the **Menu toolbar** and select **Freeze Panes**.
- To undo go back to the **Window Menu** and select **Unfreeze Panes**.
- You can also freeze columns in the same way.

Previewing and Printing your Chart

You may want to print your chart. You can print just the chart, or the chart together with the table.

To print only the chart.

- Select the chart.
- Click the **Print Preview** button  on the Standard toolbar.
- You will see how your chart will appear when it is printed.
- If it is OK go to **File** on the **Menu toolbar** and select **Print**.

To print the chart and the table together.

- Click away so that the chart is not selected.
- Click **Print Preview**

- You may find you have lost part of your chart especially if it is aligned to the side of the table.
- Close Print Preview and reposition the chart or try setting the page to Landscape.

Saving Your Work

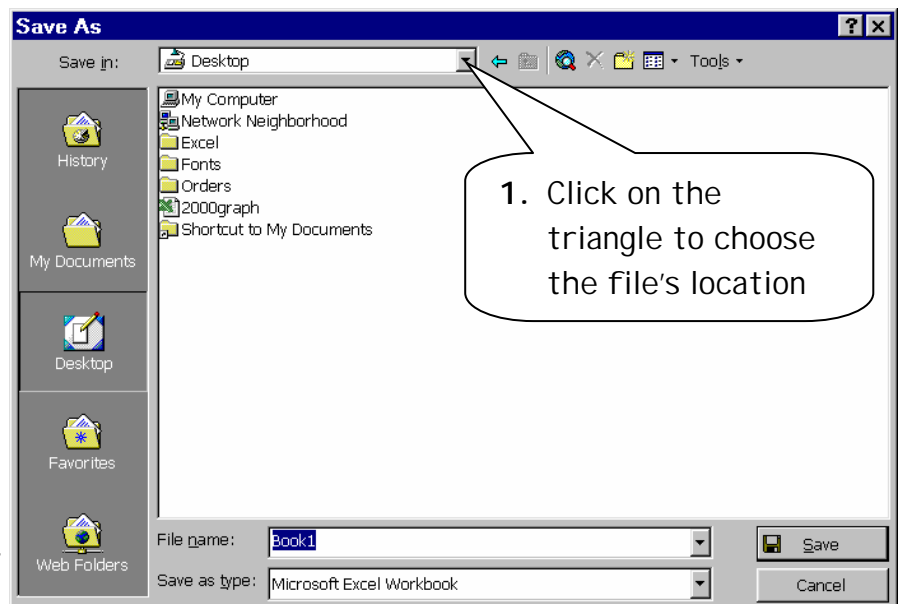
- Click **File** on the **Menu toolbar** and then select **Save as...**
- The **Save As** dialogue box will appear.

Excel gives your workbook the default name Book1. The name appears in the **File name** box.

The name will be highlighted to show that it is ready for you to change it if you want to.

When text is selected you don't have to delete it before typing over it.

- Type a new name.
- Choose where you want to save the spreadsheet (1).
- Click the **Save** button.



Useful Websites

www.kented.org.uk/ngfl/home.html

Check out the Primary maths section for lesson plans and interactive spreadsheets.

www.exnet.iastate.edu/Pages/Excel/

Useful books

'Basic Spreadsheets for Schools' and 'Basic Spreadsheets for Schools, Teachers Book and Photocopiable Worksheets' by Payne-Gallway Publishers Limited.

'Developing ICT Skills Year 5' and 'Developing ICT Skills Year 6' by Hopscotch Publishing.