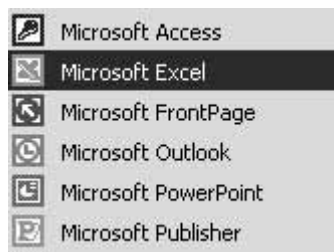


Using Excel

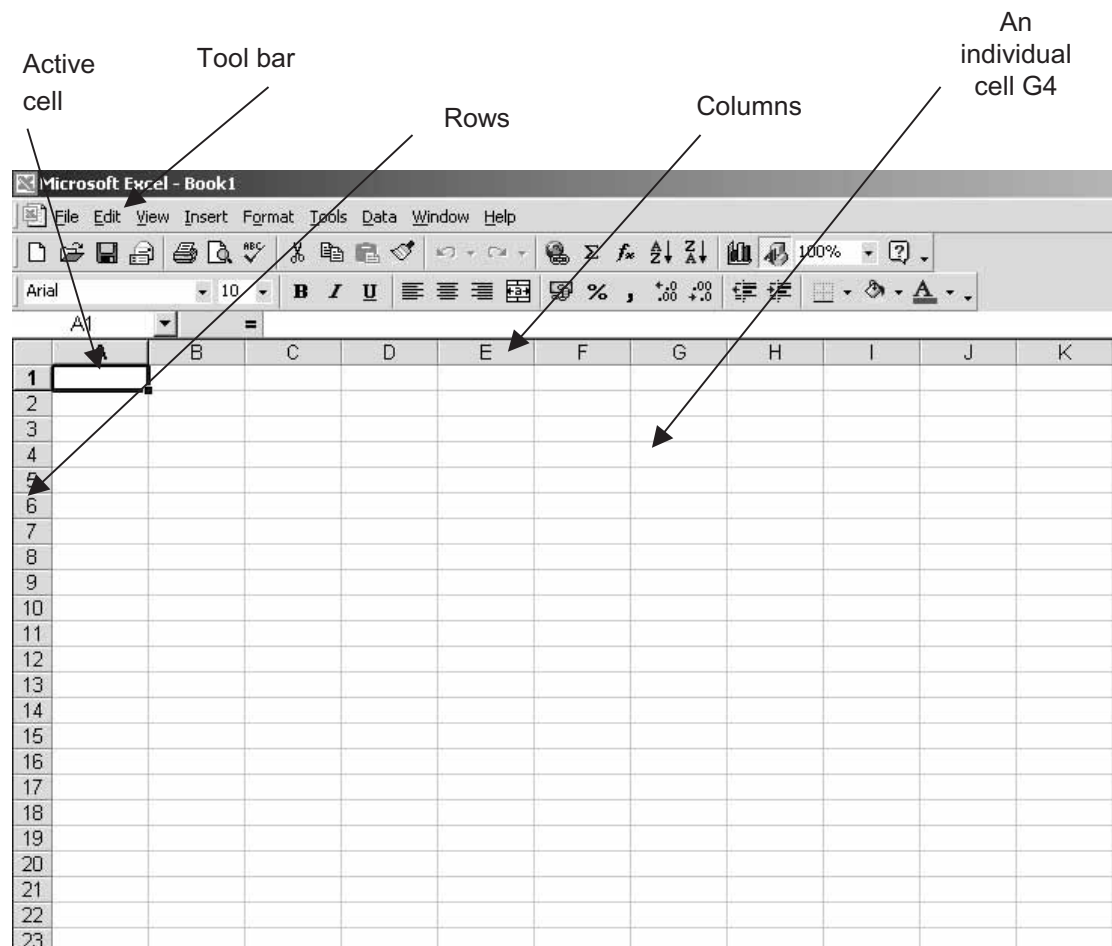
Excel 2000 is a software application which is useful for organizing and displaying data and completing a number of statistical analyses. As with most programmes of this type it employs the use of spreadsheets for the organization of data and as a platform from which to perform a number of operations. Excel incorporates a 'Help' function that can be accessed via the top tool bar and provides comprehensive help for the use of the software but assumes a knowledge of mathematical and statistical operations.

To open Excel 2000:

Click on the 'Start' menu at the bottom left hand corner of your screen and select the 'Programs' option. Then select and click on the 'Microsoft Excel' icon to initiate the package.



Excel opens with a blank workbook by default and this is suitable for data organization and analysis. There are, however, other templates that can be accessed by using the drop down menu by clicking on 'File' and selecting 'New' from the drop down menu.



Entering data

Each datum must be inserted into an individual cell. This is usually done in columns. Move the cursor to the cell in which you wish to add information and click here. The active cell (i.e. the cell that you are working on) is outlined on the spreadsheet. The sample name or label should be put in the top cell of the column and the values from the individual observations should be listed below. Note that the information entered will also appear in the 'Formula Bar'—the area above the column labels A, B, C, etc. Corrections to the information typed into the cell can be made in the 'Formula Bar'. First select the cell by clicking on it. The information will be then seen in the 'Formula Bar'. Move the cursor to this location and delete/add material as required. The changes are then transferred to the cell. The data for the second sample should then be entered into the next column and so on.

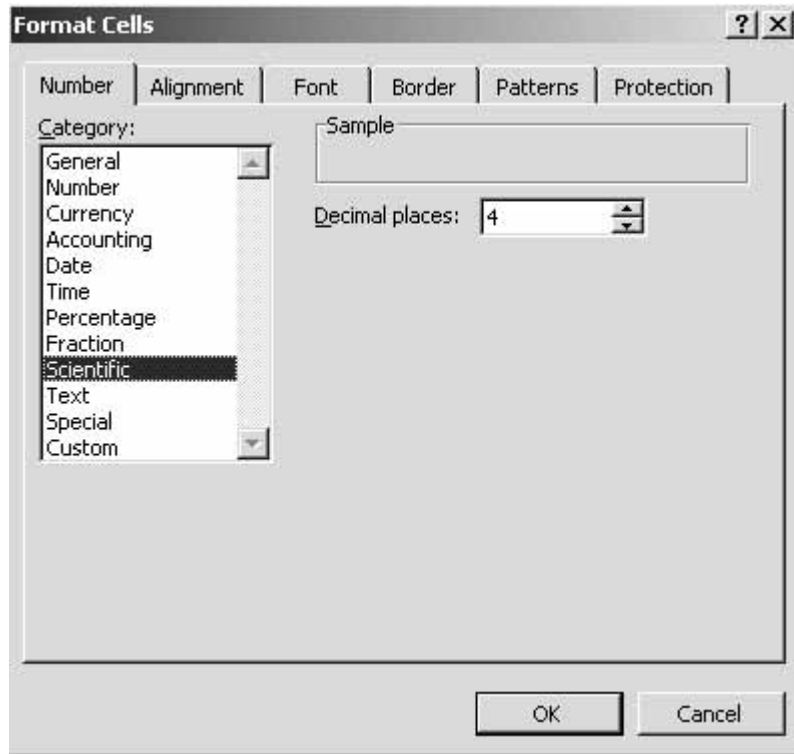
Data can be entered in rows instead of columns if desired. In this case the sample names or labels will appear in the first cell of the row.

	A	B	C	D	E
1	Sample 1	Sample 2	Sample 3		
2		2.6	5.2	6.3	
3		3.5	4.6	6.7	
4		3.4	4.9	6.1	
5					
6					
7					
8	Sample 4	1.4	1.8	1.5	
9	Sample 5	2.8	2.9	3.1	
10	Sample 6	5.2	5.7	5.1	
11					

Formatting cells

Format is found on the top tool bar and clicking on this will produce a drop down menu from which 'Cells' should be selected. A 'Format Cells' box is opened which contains a number of tabs which can be selected in turn.

Number: here you can select the number of decimal places that will be displayed by clicking on the up or down arrow.



Alignment: Text can be aligned as required using the drop down menus. Options under 'Text Control' are particularly useful for organizing your spreadsheet labels and text in an orderly fashion. These are:

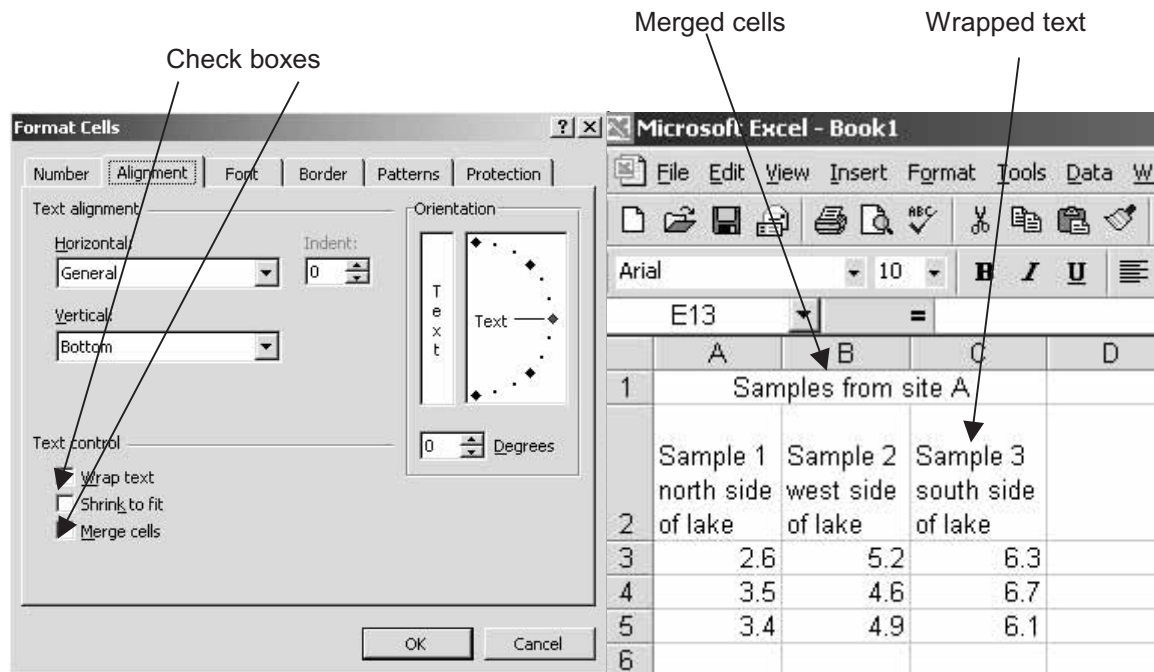
Wrap text is used to display large amount of text within one cell. The cell height increases automatically to accommodate all the text within one cell. Select the cell where the text is to be wrapped by clicking on it. It will become highlighted. Then select 'Format', 'Cells', etc.

Merge cells helps to organize tables by merging cells together in one row (see (a) and (b)). Select the cells to be merged by clicking and dragging across them. They will become highlighted. Then select 'Format', 'Cells', etc.

Font: this tab provides the opportunity to select the font, font style, size, colour, etc., in a similar manner as you would in Microsoft Word.

(a) Format Cells box and wrapped text

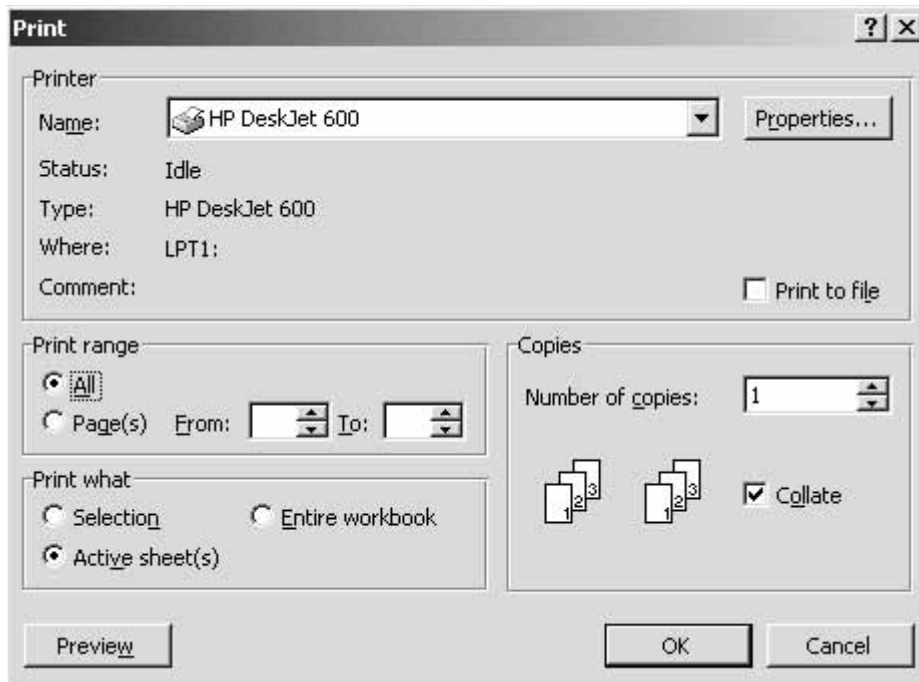
(b) Excel spreadsheet showing merged cells



Inserting rows and columns: Additional rows and columns can be inserted after you have started to work with a spreadsheet. This is particularly useful when additional information is to be added at a later stage, for example, additional labels. Click on cell where you want to insert a row above or a column to the right of the cell. From the top tool bar, click on 'Insert' and then 'Row' or 'Column' from the drop down menu.

Saving your workbook: Your work in the workbook can be saved by selecting 'File' from the top tool bar. From the drop down menu, select 'Save as', and a dialogue box will open to allow you to name the workbook and select the location where it will be saved.

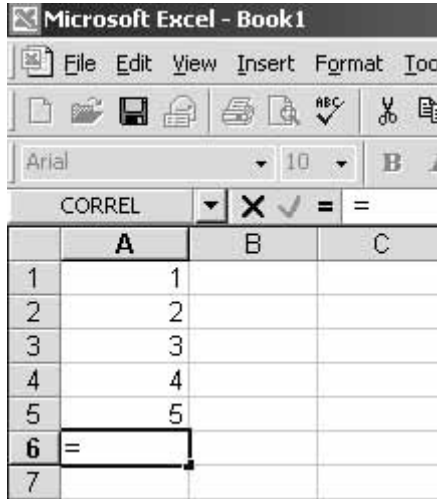
Printing: Select 'File' and then 'Print' from the top tool bar to open the 'Print' dialogue box as in Fig. 6. Here you can select whether to print just a selection of the spreadsheet (select the material by clicking and dragging across the required area both opening the 'Print' dialogue box) or all the material.



Calculating using simple formulae: simple operations can be performed by using mathematical operators:

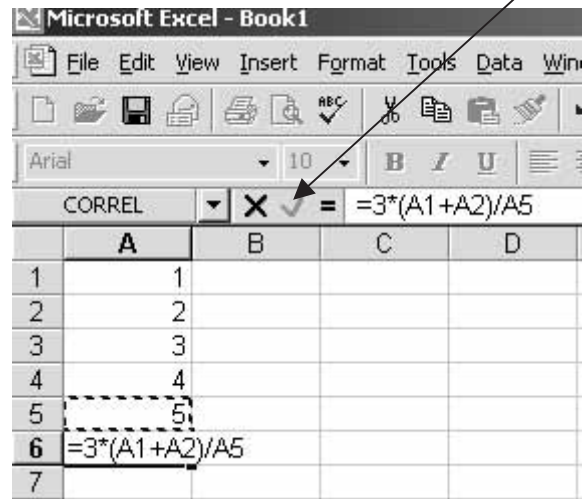
A simple calculation is initiated by placing '=' in the cell where you want the answer to be returned ((c) and (d)).	+	add
	-	subtract
	*	multiply
	/	divide

(c) Initiating a calculation



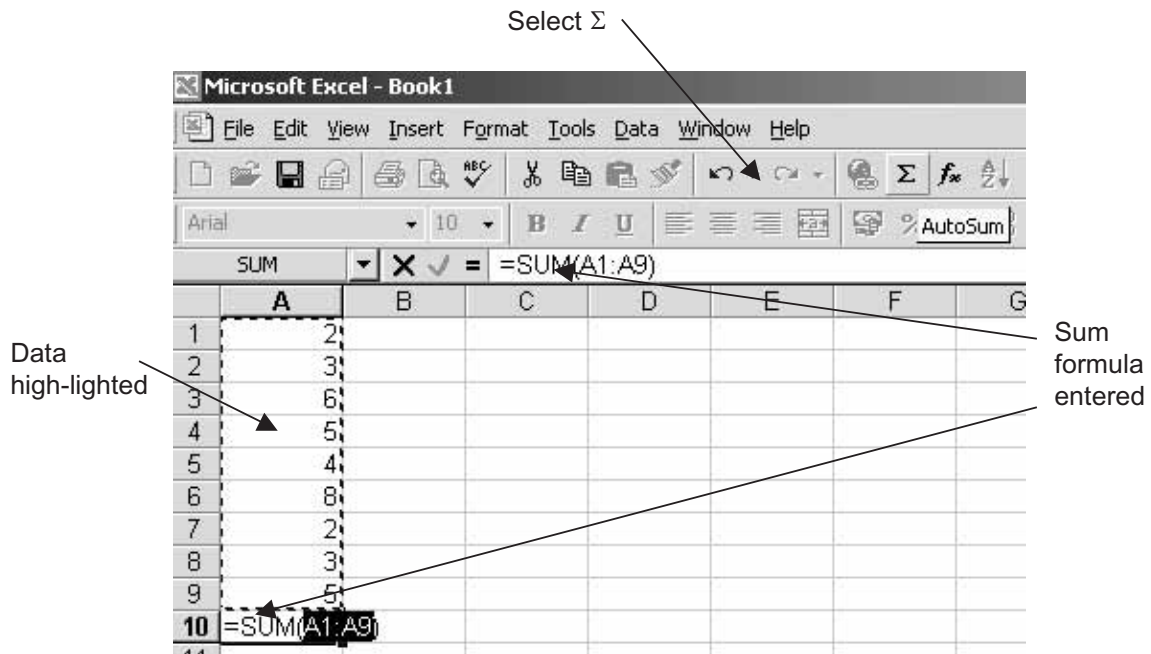
(d) Inserting a formula

When the formula is completed, click here to obtain the result



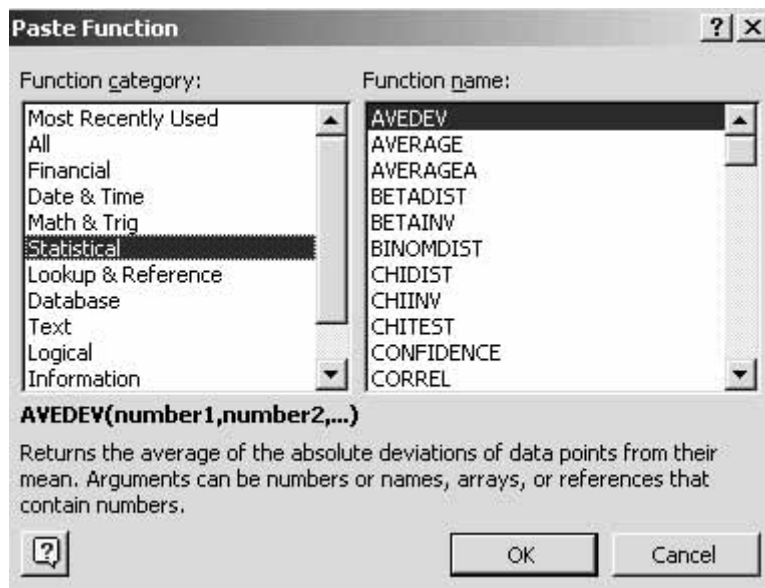
A formula can then be inserted by typing numbers and operators as required. When inserting the value from a particular cell, click in the cell and its location is added to the formula automatically (see Fig. d). When the formula is complete, click on the green tick and the answer (1.8) will be returned to the selected cell.

Using Autosum, Σ : This can be used to quickly sum data in rows or columns. The Autosum tool, Σ , is found on the top tool bar. First, enter data in rows or columns and then click on the next cell in the sequence, making this the active cell. Click on the Σ icon on the tool bar and ' $=\text{SUM}(A1:A9)$ ' will automatically be inserted in the active cell. Note that they are highlighted and can be changed by typing the appropriate locations here or by clicking on and dragging across the required data. Finally press 'Enter' and the sum of the data will be returned to the active cell.



Using f_x paste function

' f_x paste function' is a useful tool available for completion of both descriptive and some analytical statistics operations. Having entered the data in the usual way (usually in columns) the ' f_x paste function' can be accessed by clicking on the appropriate icon on the tool bar. This opens the options box. Select the function by clicking on 'OK'.

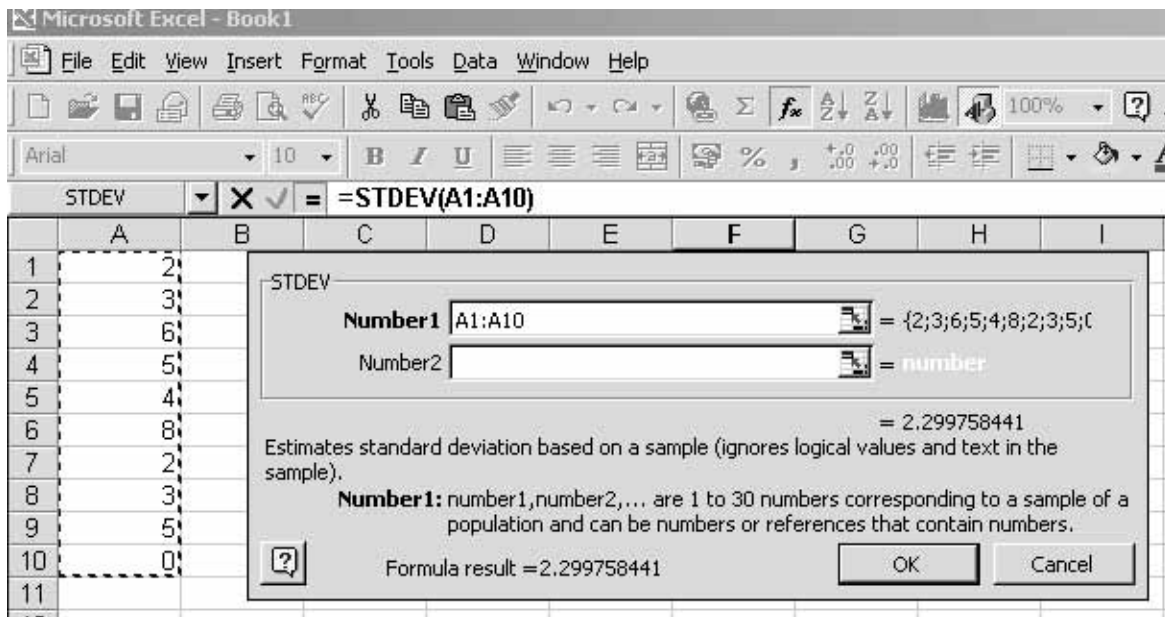


The 'Function Category' is selected from the first list of options and the 'Function Names' associated with this category are then shown. The desired function can be accessed by scrolling through the names. Note that a description of the highlighted function name is given in the lower part of the box.

This opens a box (e.g. Fig. e shows the calculation of the standard deviation). The cell locations of the data are automatically entered into the first box as Excel is making a guess as to what data are to be included. If this is not correct then highlight the cell location and change them by overwriting.

Note that the individual datum are shown next to the box and the result is given below. By clicking on 'OK', the result is entered into the active cell.

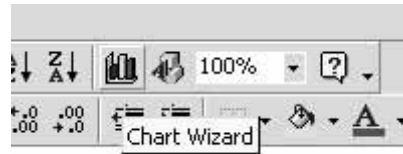
Fig. e. Calculating the standard deviation of a data set using f_x paste function



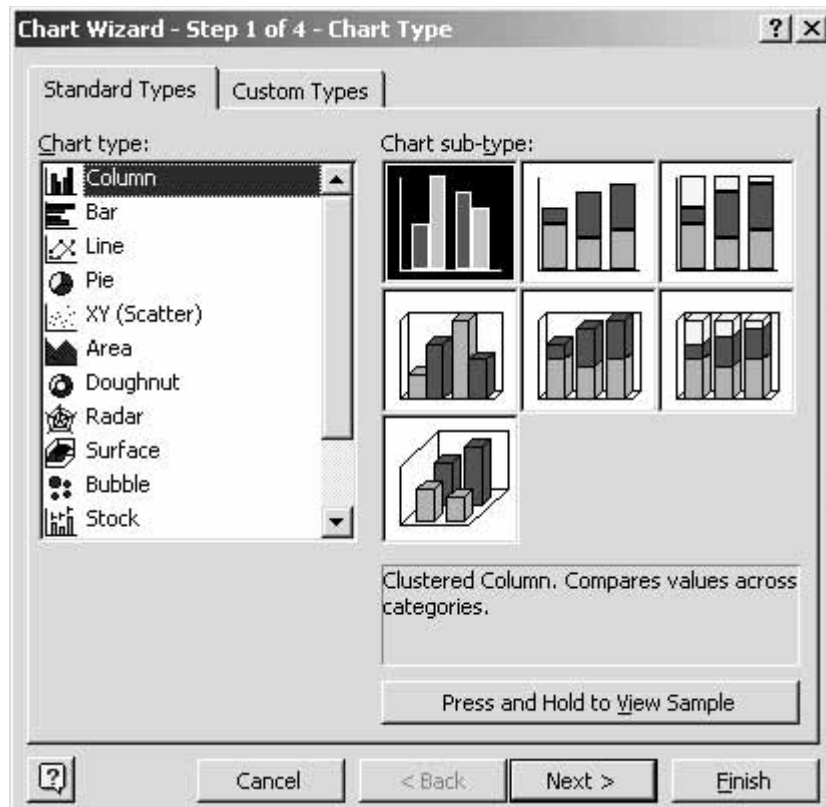
Other functions within the Paste Function are utilized in the same way.

Using Chart Wizard: this utility enables the rapid construction and customization of charts.

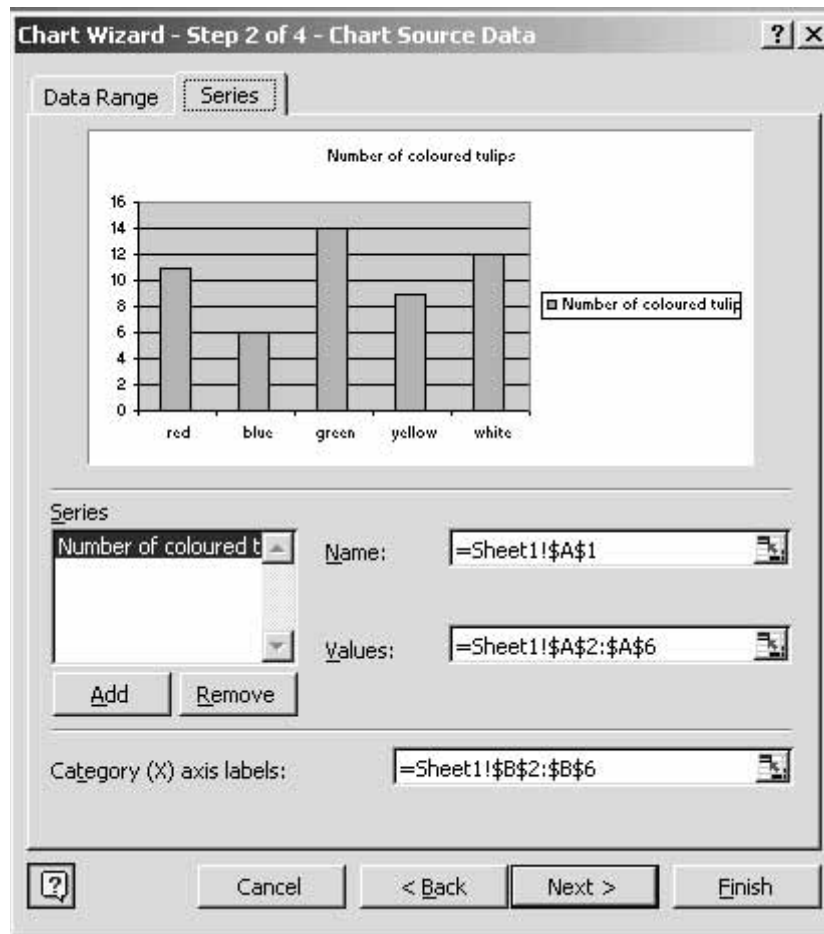
First enter the data set or sets. Then click on 'Chart Wizard' icon situated on the top tool bar.



The first of a set of four boxes will open. Here you can select the type of chart that you need. Each type of chart comes with a number of sub-type options and a description.

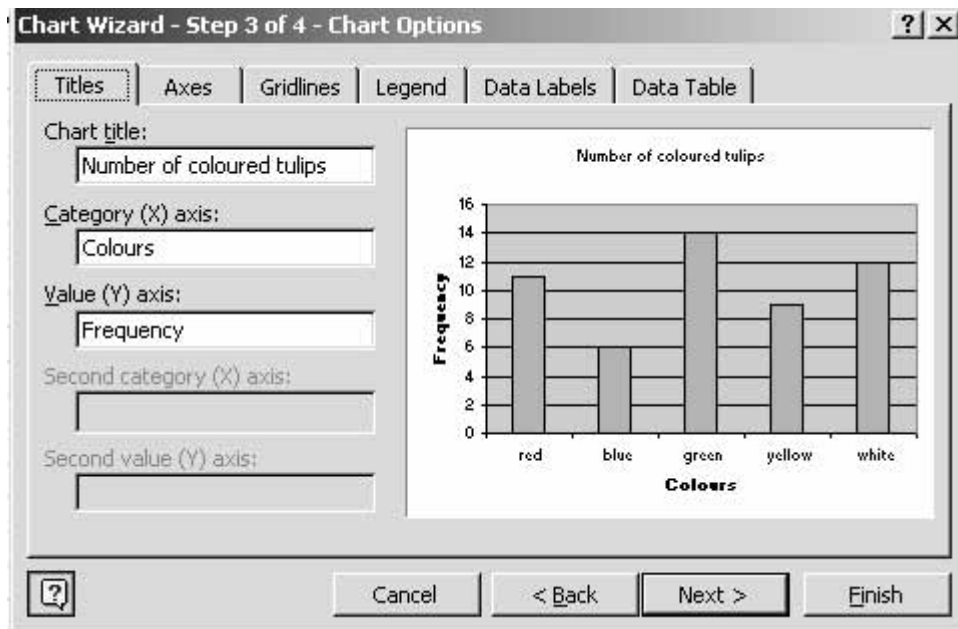


Click on 'Next' to progress.

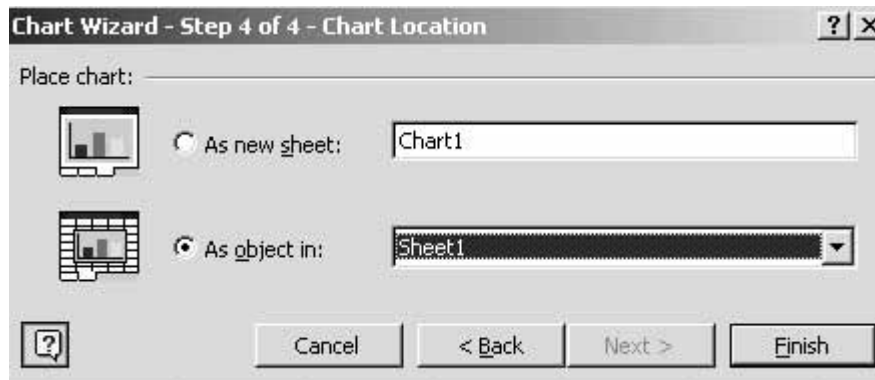


The second step can then be completed. Here there are two tabs. The 'Data Range' is entered in the appropriate place by clicking and dragging across the data to enter the cell locations. Clicking on the 'Series' tab will allow the data to be arranged in an appropriate manner.

Clicking on 'Next' opens the third box.



Here there are a number of tabs available to enable customization of the chart. It is best to explore all these options at your leisure so that you can see the range of changes that you can make to your chart. Clicking on 'Next' opens the fourth box.



Here you decide where the chart is to be position, either on a separate sheet or positioned on your active spreadsheet or another named location.

Clicking on 'Finish' will position the completed chart as requested. The chart can be further customized from this location. Click in the chart area to select it and it will become highlighted (small boxes appear around the frame). Any part of the chart can be formatted by clicking on it. The selected part will become highlighted and by clicking the RIGHT mouse button a menu will open. This allows (amongst other options) you to select 'Format' for that feature. A 'Format' box will open in which format options can be selected. See the finished result in Fig. f in which the individual bars have been appropriately coloured

Fig. f. The completed chart

