

Intermediate Excel 2003

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Prerequisites

This document assumes that you are familiar with the use of a computer keyboard and mouse and have a working knowledge of Microsoft Windows

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About this Document

Words in bold	Will need to be typed or chosen from a menu or window
Small capitals – e.g. ALT	Indicate keys that you press
Press KEY1 + KEY2	Press both keys together
Press KEY1, KEY2	Press each key consecutively
Bulleted lists	Are guidelines on how to perform a task
Choose Insert - Picture	Show menu commands – in this case, choose the option Picture from the Insert menu at the top of the screen

1 Download a workbook

Objectives	Download a spreadsheet for use in the exercises that follow
Method	Use Internet Explorer to save the file from the CCS website
Comments	Right-clicking on a link brings up different options

Activity 1.1 Internet Explorer

If you have completed the beginners workshop and still have access to the spreadsheet you created then, open it and move straight to no. 2.

We will use Internet Explorer to download a spreadsheet to save typing it from scratch

- Open Internet Explorer
- Browse to www.bbk.ac.uk/ccs/docs/resources
- Right-click on the link to [intexcel.xls](#) and choose **Save target as**
- Save the spreadsheet onto your n: drive
- Open Excel
- Open the spreadsheet you have just saved

2 Calculations

Objectives	To perform a simple calculation in Excel
Method	Use the function wizard to set up the calculation
Comments	In the beginners' workshop we used the autosum command. The function wizard gives access to the full range of Excel commands.

Activity 2.1 The Function Wizard

The function wizard gives easy access to Excel's many types of calculation.

- Click into the blank cell, A12, and add the word "Average"
- Click into cell B12
- Position the mouse over the = sign next to the Name box – the popup help tells you it is called "Edit formula"
- Click on it

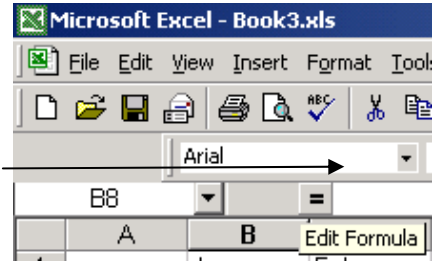


Figure 2-1

A new window pops up. This is the function wizard.

First we have to tell excel which calculation we want to carry out

- Use the drop down arrow to select the word **Average**

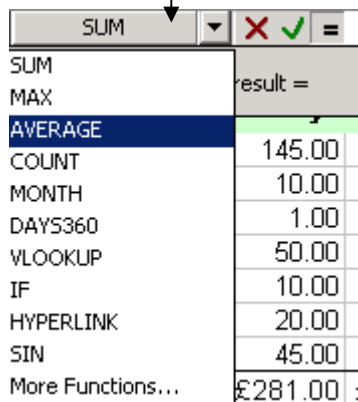


Figure 2-2

The popup window changes appearance. Excel will guess which values you want to work with, and should have filled in B2:B11 (note how Excel uses : to mean "to"). We want to omit the fields calculating totals

- Click into the Number1 box and change the 11 to an 8
- Click OK

Excel has now filled in the full function – bear in mind that it is very easy to forget to click "Average" at the beginning once you have used the function wizard a few times, leading to annoying #VALUE! errors

- Repeat for C12

Activity 2.2 Repeated Formulae

Although we have done so here, it is not necessary to use the function wizard for each value. Excel is clever enough to understand that if you copy and paste a "Sum" from one column, you want to work with the values in the new column. To see what I mean;

- Click on C12 (the average expenditure for March)
- Choose **Edit – Copy** (or CTRL+C)
- Click on D12 (which is blank at present)
- Choose **Edit – Paste** (or CTRL+V)

	D12	=	=AVERAGE(D2:D8)	
	A	B	C	D
7	Utilities	20.00	20.00	20.00
8	Advertising	45.00	100.00	25.00
9	Subtotal	£281.00	£2,715.69	£2,738.45
10	VAT	£49.18	£475.25	£479.23
11	Total	£330.18	£3,190.94	£3,217.68
12	Highest	40.14	367.96	391.21

Figure 2-3

Note – as at the top right of Figure 2-3 – that when you pasted in the formula, Excel changed it from C2:D8 to D2:E8

Activity 2.3 The drag handle

The drag handle – the box at the bottom right of the active cell – can be used to repeat values across several cells. It also works for formulae

April	May	June
2500.45	2500.45	2500.45
16.00	18.00	20.00
8.00	16.00	32.00
40.00	15.00	15.00
20.00	15.00	15.00
20.00	20.00	20.00
30.00	15.00	15.00
£2,634.45	£2,599.45	£2,617.45
£461.03	£454.90	£458.05
£3,095.48	£3,054.35	£3,075.50
376.35	371.35	373.92

- Click on the drag handle in cell E12
- Drag it across until all rows have their averages calculated

Excel will automatically update the calculations - change some of the values to test it out.

Have a look at the syntax of Excel formulae – note the = sign at the beginning, then the function to be performed, and finally, in brackets, the cells on which to perform it.

Figure 2-4

The list of functions is fairly comprehensive – have a look down and see if there are any others that might be of use to you.

3 Customising a Chart

Objectives	To change a chart's appearance
Method	Double-click different areas of the chart to change those areas' appearance
Comments	Excel charts are extremely customisable – clicking most parts will bring up different options, allowing you to change the colour, font, size or even remove a particular series or label.

Activity 3.1 Font size

The font sizes chosen by Excel may be a little too small relative to the size of the pie chart. Changing them is similar but slightly different to Word, in that you do not select the text in the same way

- Click on the tab for "chart1" at the bottom of the workbook
- Click on the heading, Expenses for January
- Use the drop-down menu to change the font to a larger size
- Repeat for the legend at the side of the chart

Note that you could instead have right-clicked on the text and chosen "Format Chart Title" or "Format Legend", as appropriate

Activity 3.2 Data series options

There are different options for each area of the chart.

- Double click on the pie-chart itself

Doing so brings up the Data Series options. Note that the first tab, patterns, is not very useful in this context, as we have selected all of the data series – changing colour here would change **all slices** of the pie to the new colour.

- Click the **Data Labels** tab
- Check the radio button to Show label and percent, as in Figure 3-1

We don't now need the legend, so it can be removed. Either of the methods below will do so

- Right-click on a blank area of the chart
- Choose **Chart Options**
- Click on the **Legend** tab
- Untick the box next to Show Legend

Or

- Click on the Legend
- Press the DELETE key

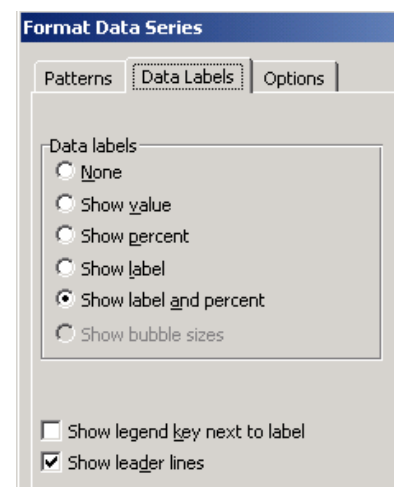


Figure 3-1

Activity 3.3 Group vs Individual selection

Some areas of the chart is made up of several different items – the legend and data labels are made up of different pieces of text, the pie chart of different slices – Excel allows you to select items as a group or individually.

- Click on the pie chart itself

That single click has selected the whole of the chart area – that is, all of the slices as a group.

Selecting individual slices can be a little tricky – note that double-clicking in the same place brings up options for that area, rather than selecting that item.

- Click again on one of the slices, in a different place to your first click

You should now have selected just one slice of the pie chart – the black squares marking the current selection should be around the edge of the slice.

- Click on a different slice

Note that, now Excel has switched to allowing you to select one slice, each time you click it selects a different individual piece.

- Double click on a slice

This time the options, shown in Figure 3-2, apply only to that data series

- Change the colour
- Click OK
- Change the colour of a different slice in the same way
- Try dragging a slice out of the pie chart

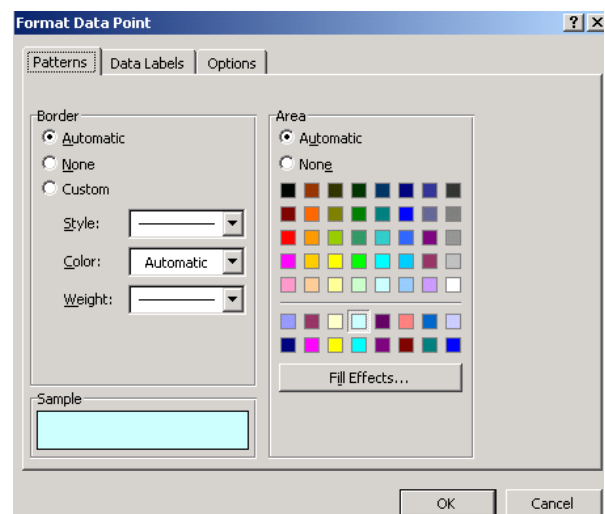


Figure 3-2

Using the techniques above, it is possible to customise the appearance of your chart and give prominence to different information as necessary

It is easy to get stuck selecting just individual areas of a chart. To exit this mode of selection, either click somewhere neutral (e.g. on the background) on the chart, or press the ESCAPE key

4 Setting up a new sheet

Objectives Set up a new worksheet to hold details of expenditure within a given month

Method We will use and rename one of the worksheets already within the workbook and add columns

Comments

Activity 4.1 Renaming the worksheets

Rename sheet1 – which holds our record of overall expenditure – to Overall, or similar

- Double click on the tab for Sheet1 at the bottom of the screen – the text should be highlighted in black
- Type in the new name
- Hit RETURN
- Double click on the tab for Sheet2 at the bottom of the screen
- Type in the month – January
- Hit RETURN



Activity 4.2 January’s expenditure

- Click on the tab to take you to the January worksheet
- In the top-left cell, A1, enter “Date”

We now need to add column headings for each of our expenditure categories. It is of course possible simply to type them in, but it is easier to copy and paste. The immediate problem is that the categories are listed in a column on the first sheet, and we want them in a row, but Excel is able to swap them around for us.

- Click on the tab to return to the Overall worksheet
- Select the headings from Staffing – Advertising, as in Figure 4-1
- Click on the copy icon (CTRL + C is the shortcut)
- Click on the tab to change to the January worksheet

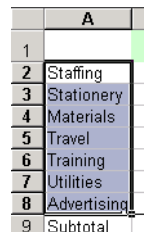


Figure 4-1

- Click into the first blank cell on the first row, which should be B1
- From the **Edit** menu, choose **Paste Special**
- You need not worry about any of the options that pop up, except the last – tick the box marked **Transpose**, as in Figure 4-2
- Click OK

The headings will be pasted into the row

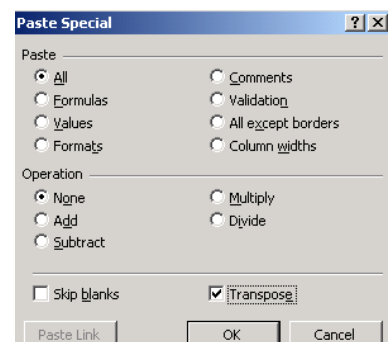


Figure 4-2

Activity 4.3 Entering Information

We now have a very basic spreadsheet for recording expenditure, by date, throughout January. Enter a few pieces of information.

- In the first, blank, date field, type 20/1

Note that Excel knows this means January. If you click back onto the field, you will see at the top that it has also assumed a year of 2004, as in Figure 4-3

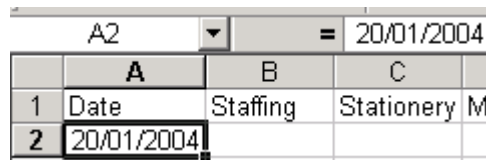


Figure 4-3

- Enter some more random dates and figures
- Excel understands very abbreviated dates – for 1st January 2003, you may enter 1/1/3

You should aim to have a grid something like that in Figure 4-4. You may have an expense for more than one category in each row. The order of the dates does not matter, and do not worry if excel changes the date format

Remember that you can select a block of cells, enter one value and then press CTRL + ENTER to add it to all selected cells. Please use at least two dates in your example

A	B	C	D	E	F	G	H
Date	Staffing	Stationery	Materials	Travel	Training	Utilities	Advertising
20/01/2004	20						
15/01/2004		12					
21/01/2004	25				5		
02/01/2004			10				
04/01/2004			15				
06-Jan				30			
06-Jan		12			15		
04-Jan						25	
03-Jan						18	
25-Jan		19					
24-Jan	100		10				
13-Jan						15	
30-Jan				10			35

Figure 4-4

Activity 4.4 Date Format

Knowing we are entering dates, Excel has tried to apply a format to them. It is not always consistent in doing so – see Figure 4-4 - and, in any case, may not be the format you prefer. Excel allows you to use several different formats, without changing the information held in each cell.

- Click on the column header, A, to select the whole column
- Choose **Format – Cells**
- Choose Date on the left-hand side
- Pick a format on the right
- Click OK

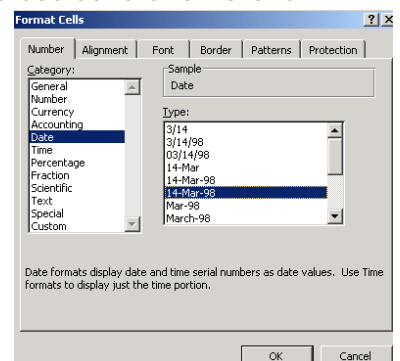


Figure 4-5

Because the whole column was selected, that format will now apply to all dates entered, no matter how many rows are used.

5 Cross-sheet calculations

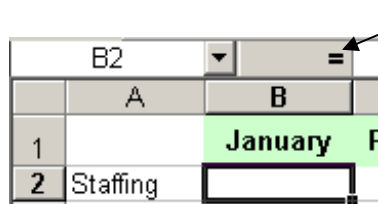
Objectives	To use the details within the sheet of January expenses to supply a total for each category on the overall sheet
Method	Use the formula wizard to create the calculation, switching sheets using the tab
Comments	You may use the autosum icon if you prefer

Activity 5.1 Cross-sheet calculations

Now that we have January’s expenses entered onto a separate sheet, we need to include the total for those values on the overall sheet – at present, we have to type the total in by hand. Excel will allow you to enter a calculation on one sheet which relies on values on a different sheet.

- Click on the tab to return to the Overall sheet, if necessary
- Click into January’s Staffing total, which should be cell B2
- Delete the contents

We will use the formula wizard to fill in the details we want



- Click on the icon for the formula wizard
- Use the drop down list to select SUM
- The box that pops up may be dragged out of the way – click into a grey area and move it to the right-hand side of the screen
- Click on the tab called “January” to move to the list of expenses

Figure 5-1

You could, at this point, select only the cells with data in them. If setting this spreadsheet up as a template, though, it would be better to select the whole column, so that the total would take account of all entries made, whether there are 1 or 100 in a particular month

- Click on the row header, B
- Note that Excel fills in the necessary formula, as in Figure 5-2
- Click OK

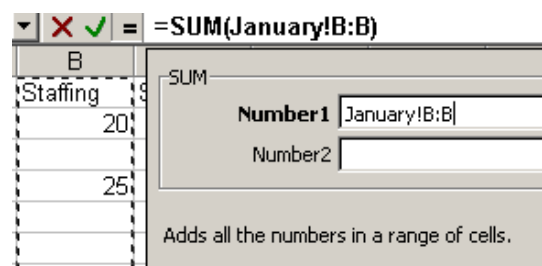


Figure 5-2


You will be returned to the overall sheet, with the total filled in. Any changes or additions you make to the Staffing column on the sheet for January will be reflected in the total on the overall sheet.

If you want to practice, repeat the above for one or two of the other categories on the overall sheet.

6 Sorting data

Objectives	To sort data in columns
Method	Use Excel's sort function to specify which columns to sort by, and in which order
Comments	

Activity 6.1 Selecting data

Sorting information entered into an Excel spreadsheet is straightforward. You may sort data by using the command on the **Data** menu, or by using the icons  to sort in ascending/descending order respectively. Using the menu command allows you to sort by more than one column at a time.

- Click on the January tab to move to that worksheet
- Click on a cell containing a number or a date
- Choose **Data – Sort**

Excel will bring up the sort dialogue box. If it looks like Figure 6-1, with the bottom radio buttons greyed-out, click cancel and try selecting cell A2 and choosing **Data – Sort** again – sometimes Excel does not pick up the whole of the range of data.

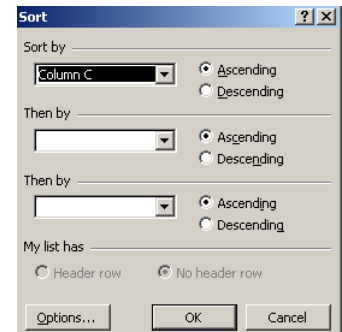


Figure 6-1

Activity 6.2 Column headings

Once Excel has spotted the range of data, it should see that the top row is a header – though note the options at the bottom to tell it explicitly.

- Use the drop-down to pick a column to sort by
- Choose a second column to sort by
- Click OK

Information may be reordered using Excel's in-built sort function, whether it is numerical or textual.

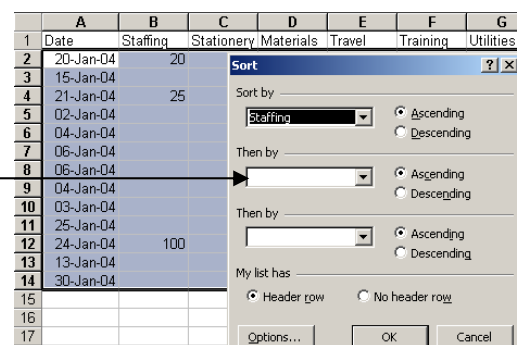


Figure 6-2

7 Filtering data

Objectives	Add a filter to a column of data in order to change the information displayed
Method	Use the AutoFilter command to add drop down lists to each heading
Comments	

Activity 7.1 Autofilter

Excel allows you to filter the information displayed on screen – very useful when you have long lists of data. The autofilter function checks all the values in a column and adds them to a drop-down menu. In our spreadsheet, we can use it to filter expenditure by date.

- Make sure the active cell is somewhere within the data on the January sheet
- Choose **Data – Filter – Autofilter**

	A	B	C
1	Date	Staffing	Station
2	24-Jan-04	100	

Figure 7-1

Excel adds a drop-down list to the top of each heading, as in Figure 7-1

- Click on the drop-down menu by the Date header

As in Figure 7-2, the list of dates entered on the spreadsheet appears – any date not entered does not appear.

- Select a date from the list

A
1 Date
(All)
(Top 10...)
(Custom...)
02-Jan-04
03-Jan-04
04-Jan-04
06-Jan-04
13-Jan-04
15-Jan-04

Figure 7-2

Only entries for that date will be shown

Note the option to show All data

Activity 7.2 Custom filter

You are not restricted to showing only one item from the list.

- Click on the drop-down next to Date
- Click on Custom

You may apply various different combinations here. With textual information, you might choose to show all information *except* one value, with the “does not equal” option. The “does not begin with” and “does not end with” options may also be useful.

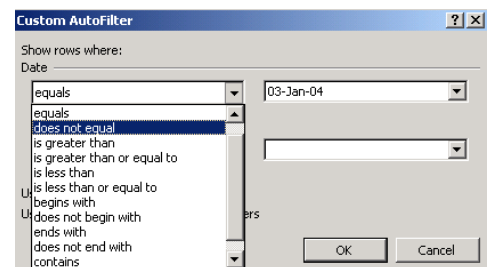


Figure 7-3

- Select “is greater than” with the left-hand drop-down
- Select a date using the right-hand drop-down menu, as in Figure 7-4
- Click OK

Excel will show all information relating to dates greater than the one you picked. The custom filter may be used for both text and numbers.

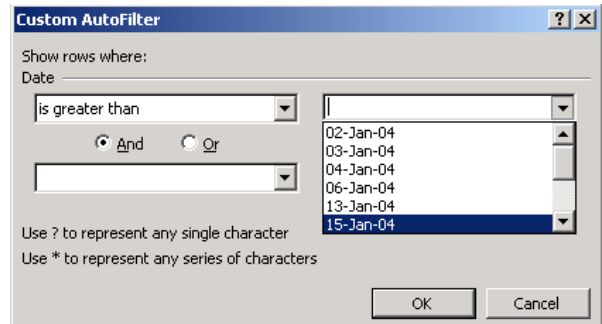


Figure 7-4

Activity 7.3 Switching off the filter

To switch off the filter, select the option from the menu once more

Note the tick to show the autofilter is switched on

- Choose **Data – Filter**
- Click on **Autofilter**

The drop down menus disappear, and all the data is displayed

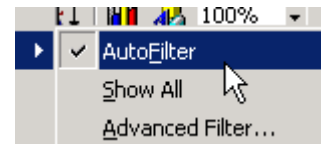


Figure 7-5

8 Absolute References

Objectives	To perform a VAT calculation based a constant entered in one cell – allowing for the easy incorporation of future changes in the rate of VAT
Method	Use an absolute reference to the cell containing the VAT rate
Comments	

Activity 8.1 Absolute vs relative

We have already seen Excel's use of relative references – when copying a formula (e.g.) from row b to row c, that formula is updated to perform calculations on the new row, not the old one.

It is sometimes, however, useful to set an **absolute** reference, rather than a relative one; if calculating based on a constant number to apply a percentage increase, for instance.

Activity 8.2 Setting the VAT rate

- Click on the tab to switch to the Overall sheet
- In a blank cell, e.g. A15, type "VAT rate"
- Click into the cell next to it

We will enter the VAT rate in this cell. As you can see from the calculations in row 10, you may calculate 17.5% by multiplying by 0.175. It is neatest to display the number as a percentage rather than a fraction, but if we use Format-cells to change the format of a cell, Excel will multiply the contents by 100. It is easiest, therefore to format the cell first.

- Choose Format – Cells
- Choose Percentage from the list of categories on the Number tab
- Click OK
- Enter the percentage – 17.5 – into the cell. Note that Excel adds the trailing % sign

Activity 8.3 Amending the formula

The above entry will make no difference to our calculations – partly because it is the same rate we have already used, and partly, of course, because our formulas do not refer to that cell.

- Select the row containing VAT calculations (B10:M10)
- Delete the contents

We will now insert a new calculation, using the function wizard

- Click on the icon (Σ) to start the wizard
- Choose SUM from the drop-down menu – note that even if SUM is already showing, you must click on it

We now need to pick the cells containing the numbers to work with

- Click on the subtotal for this column – B9
- Enter a multiplication symbol - *
- Click on the cell holding the VAT rate

That formula will work, but we cannot copy it across cells, as Excel will update B15 to C15, D15 and so on. We must make it an absolute reference

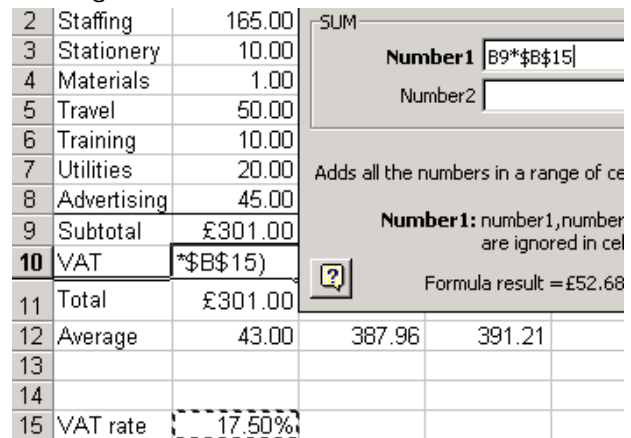


Figure 8-1

- With the cursor still flashing after B15, press the key F4

Excel adds \$ signs before both the column (B) and row (15) reference (you can just type them in, but the shortcut key makes it easier).

- Click OK
- Use the drag handle, or copy and paste, to repeat the formula across the row
- Click on C10

Note that the reference to B15 has stayed in place for all the other formulae, with that to B9 changing to C9 and so on.

- Change the value in cell B15

All the VAT totals change – as do the Total values, as they depend on the results of the VAT calculations.

Setting a spreadsheet up in this way makes it simple to allow for future changes

9 Naming cells

Objectives	To give the VAT cell a distinctive name
Method	Use Excel's Name box to rename a cell
Comments	Naming a cell – or range of cells – allows you to refer to it by name rather than cell reference. Doing so is possibly of more use if you plan to type your formulae, but is invaluable if using lookup tables with the VLOOKUP function.

Activity 9.1 The Name Box

The name box is to the left of the function wizard we have used before, showing the reference of the active cell, as in Figure 9-1

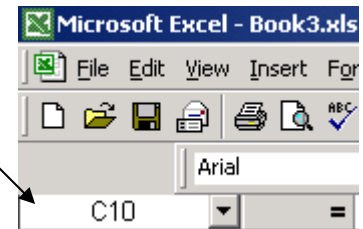


Figure 9-1

- Click on cell B15 (which contains the VAT rate)
- Click into the name box
- Type the text, VAT
- Press RETURN to confirm

That cell has now been called VAT. You may still refer to it as B15, but may also use the name just defined.

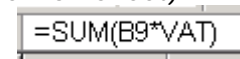
Activity 9.2 Editing a formula by hand

Our calculations of VAT still use the cell reference – Excel does not change them despite our naming cell B15

- Click on cell B10

To the right of the name box is the formula bar, showing =SUM(B9*\$B\$15)

- Click into the formula (or press F2 to edit it on the worksheet)
- Erase \$B\$15 and type VAT in its place
- Hit RETURN to confirm your change



Note the absence of \$ marks – another benefit of naming the cell is that it explicitly marks that cell, so you no longer need to remember how to make a reference absolute

10 Customising the Toolbar

Objectives	To add useful buttons to the toolbar
Method	Use the Tools – Customise command to access the list of commands
Comments	Bear in mind that this technique may also be used in other Office applications

Activity 10.1 Customise

You may find that Excel has functions you use often but which are not on the toolbars. It is straightforward to add most functions to whichever toolbar you like.

- Choose **Tools – Customise**

Commands are listed by menu

- Click on the **Insert** category on the left
- Drag the **Cells** command onto the toolbar

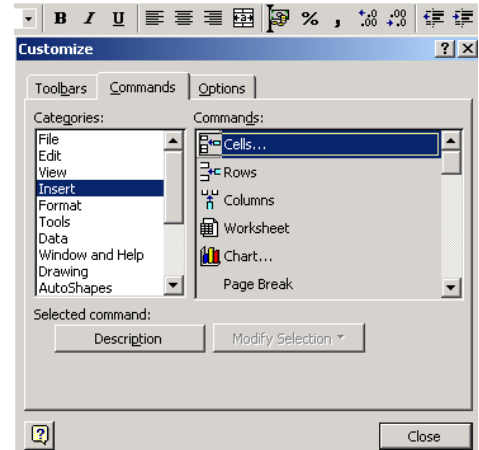


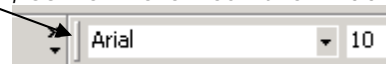
Figure 10-1

- The black marker, as at the top of , shows where the icon will be placed
- Click Close when you have finished

Activity 10.2 Toolbars

When first installed, Excel (and Word) will usually put both the default toolbars on the same line with the effect that, on all but the biggest screens, some of the icons are hidden. To display both toolbars in full;

- Look for the grey bar, somewhere near the middle of the toolbar



- Click and drag the bar down below the other toolbar

If you drag the toolbar too far, it will be turned into a “floating” toolbar, with its own blue title bar – drag it up to the top of the screen to make it snap into place again.

You may drag toolbars to either side of the screen if you prefer.

Should you lose a toolbar, or want an additional one;

- Choose **View – Toolbars**
- Click on the toolbar you require

The two default toolbars are “Standard” and “Formatting”

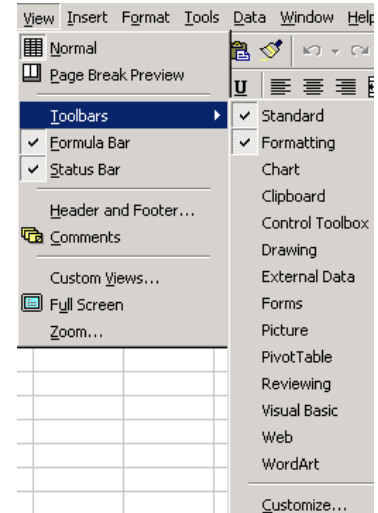


Figure 10-2

11 Freezing parts of the screen

Objectives Fix part of the screen in place so it is always visible when scrolling

Method Click into the spreadsheet and use the Freeze panes command

Comments

Activity 11.1 Freeze panes

It is often useful to be able to keep part of your spreadsheet visible; keeping the header row in sight as you scroll down, for instance. To do so you need to click **below** (for rows) and/or **to the right** (for columns) of the data you want to keep in view

- Click into cell A2
- Choose **Window – Freeze panes**

A thin black line has appeared across the top of that row – you may not be able to see it if you have a border there already

- Scroll down the spreadsheet

The first row is kept in place.

You may also achieve the same effect by first choosing Window – Split, and then Window – Freeze panes. The advantage is that the split lines added may be moved around the worksheet. The disadvantage is that you will need to choose **Window – Unfreeze panes** and **Window – Remove split** to remove the marker lines.

12 Changing Default Chart Settings

Objectives To change the chart that Excel selects when the chart wizard is started

Method Use the autosum icon to create the calculation, switching sheets using the tab

Comments

Activity 12.1 Default chart settings

As you may have noticed, Excel automatically starts with a Clustered Column chart. While working through the wizard and changing options does not take long, you will probably find that you use one type of graph more than others. It is possible to set options so they take effect by default, saving you time.

First we need to create a chart, formatted as we want it. We will create a pie chart to compare values within one category

- Select the data in one row, as in Figure 12-1

3	Stationery	10.00	12.00	14.00	16.00	18.00
4	Materials	1.00	2.00	4.00	8.00	16.00

Figure 12-1

- Click the chart wizard button
- Choose a 3-d pie, as in Figure 12-2

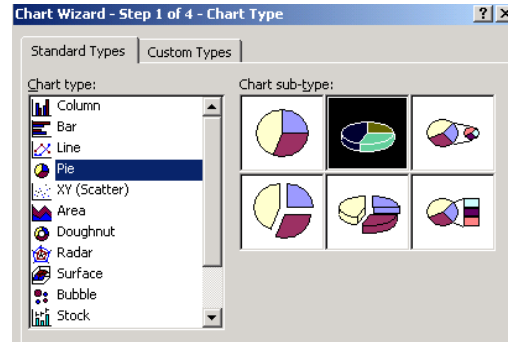
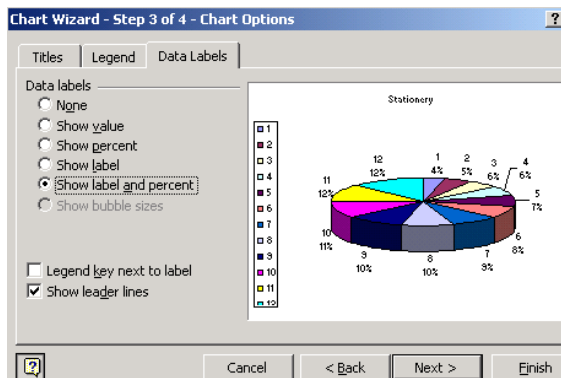


Figure 12-2



- Click Next
- Click Next to go to step 3
- Set the legend to appear on the left
- On the data labels tab, choose Show label and percent
- Click Next

Figure 12-3

- Insert the chart as a new sheet, and give that sheet its own name
- Click Finish

Activity 12.2 Selecting a chart as the default

Now that we have formatted and inserted a chart as we want it, we need to tell Excel to use this type of chart in the future.

- Right-click in a clear area of the chart
- From the popup menu, choose **Chart type**
- Click on the Custom Types tab
- Click on the Set as default chart button at the bottom left
- The dialogue box in Figure 12-5 will appear – click Yes

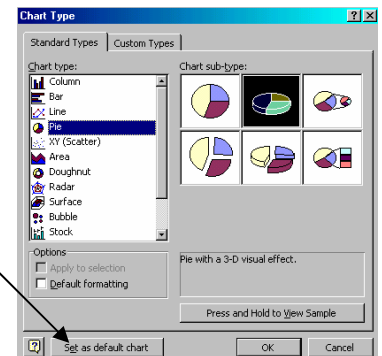


Figure 12-4

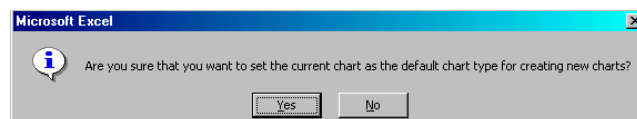


Figure 12-5

- You will now be asked to give your chart-type a name – you should be sure it will make sense to you in the future, as you might want to set up different custom formats
- Click OK
- You may either OK or cancel the chart type window – it does not matter, as you have already set the default

Activity 12.3 Custom vs Standard types of chart

You may have noticed that there is a “set as default chart” option on the “standard types” tab (see Figure 12-4). Whilst you can set the default chart from here, it will **only** change the **type** of chart; it will not preserve any other formatting changes you have made.

The benefits of setting a different default chart type *should* be that you can simply select data, click the chart wizard and then click Finish rather than go through each step separately, as your legend, data series options etc will be set for you. If you find yourself producing different charts each time, setting a new default may not help, though you might usefully be able to set font size and so on.

Selecting data and then pressing F11 will immediately insert a chart based on your default settings