Excel 2003 – A beginner's Guide

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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 Introduction

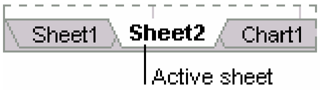
Objectives To introduce the main concepts and terms used in Excel

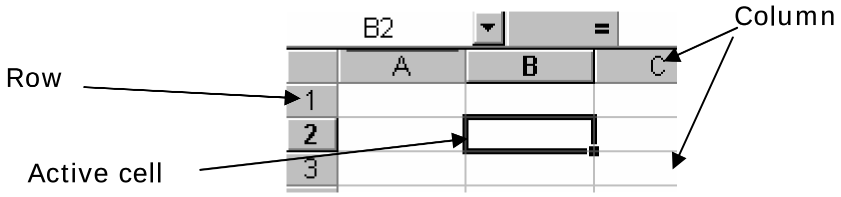
Method

Excel is a spreadsheet, most useful for storing and processing numerical data, though you can store textual information should you want. It is an extremely complex and powerful tool, but the main functions are fairly straightforward to pick up.

Basic terms

Workbook	The file in which you store your data. Can contain more than one **worksheet** – by default there are 3 in a workbook
Worksheet	The area you can see on screen, where you input data and perform calculations etc.
Sheet tabs	Appear at the bottom of the screen, allowing you to jump from one worksheet to another
Cell	Each box on the screen is known as a “cell”. It is usually referred to by its address – e.g. A1 is the cell at the top left of the worksheet
Active cell	The cell that has a dark border around it is “active” – that is where anything you type will appear
Row	All the cells in one horizontal line, marked by the numbers on the left of the screen
Column	All the cells in one vertical line, marked by the letters at the top of the screen





Activity 1.1 **Open Microsoft Excel**

There may be an icon on your desktop, or you can find it on the Start menu

Activity 1.2 **Moving around in Excel**

You can move around a spreadsheet in a variety of ways. Moving around the cells is (arguably) easiest with the arrow keys;

←	left one cell
↑	up one row
→	right one cell
↓	down one row

Activity 1.3 **Entering data**

If you want to enter information in a column, type in each value and press RETURN. You will then be moved down to the next line.
You may enter data in a row by using the TAB key to move across the spreadsheet.

You may also move around using the arrow keys

Activity 1.4 Selecting areas with the keyboard

Sometimes you may need a little more control over the area you select than clicking and dragging with the mouse will allow.

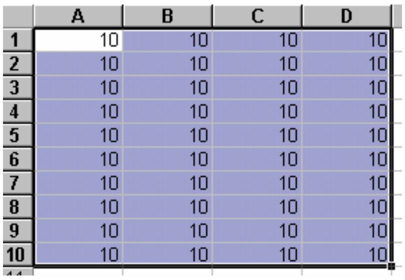
To do so, you may use the keyboard.

- Move to the first (top left) cell you wish to select
- Hold down the SHIFT key (there are two, both have an upward arrow printed on them)
- Use the arrow keys to increase the size of the area selected
- Experiment by using the page up and page down keys. The HOME key will move the selected area over to the first column
- If you have data in your spreadsheet, pressing the END key followed by an arrow key takes you to the end of the data area
- When you have finished selecting an area, let go of the SHIFT key

Note: this also works in Word and other Windows applications

Activity 1.5 Entering the same data into several cells

- Select the cells into which you want to enter data
- Enter one piece of data
- Press CTRL+ENTER together
- The cells are filled with whatever you just input



	A	B	C	D
1	10	10	10	10
2	10	10	10	10
3	10	10	10	10
4	10	10	10	10
5	10	10	10	10
6	10	10	10	10
7	10	10	10	10
8	10	10	10	10
9	10	10	10	10
10	10	10	10	10

2 Laying out a spreadsheet

Objectives To produce a basic layout for a budget calculator

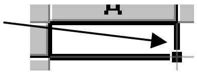
Method We will use the drag handle and block selection method to enter data and text

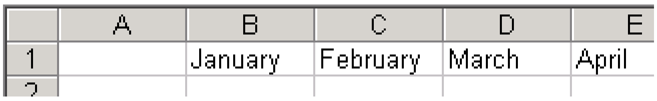
Comments

Activity 2.1 Entering different data automatically

We will set up a worksheet to act as a budget calculator.

Excel will try to complete a series of data for you. To tell it to do so, use the drag handle at the bottom right corner of the input box





	A	B	C	D	E
1		January	February	March	April

Figure 2-1

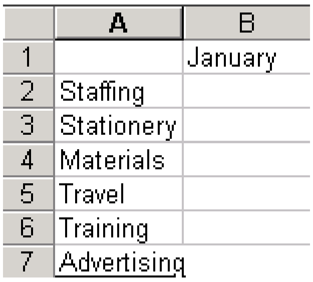
- Clear all data from your spreadsheet
- Type the text January into cell B1
- Put the cursor over the handle – it will turn into a thin black cross
- Drag the handle out to the right until all the months of the year appear
- *what happens if you go beyond December?*
- If you drag too far, drag to the left to remove entries

Excel also understands abbreviated forms of the months – Jan, Feb and so on.

The same technique works for simple sequences of numbers, though you will need to enter and select more than one (e.g. enter 1 and 2 in separate cells, select the two and use the drag handle for excel to fill in 3,4,5…).

Activity 2.2 Headings for Types of Expense

Starting in cell A2, enter the headings shown in Figure 2-2



	A	B
1		January
2	Staffing	
3	Stationery	
4	Materials	
5	Travel	
6	Training	
7	Advertising	

Figure 2-2

Activity 2.3 Repeat entries

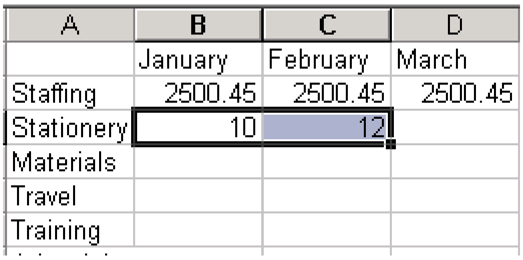
- Select the cells corresponding to Staffing for January to December – that should be B2 – M2 on your spreadsheet
- Type in a value – e.g. 2500.45
- Press CTRL + ENTER

That value will be repeated across all the cells

Activity 2.4 Using the drag handle to complete a sequence

- Enter 10 and 12 in cells B3 and C3, as in Figure 2-3
- Select both cells
- Drag the drag handle across to the right to fill in the sequence across the row

Because this is a simple sequence, Excel is able to add 2 to each value in order to continue it.



A	B	C	D
	January	February	March
Staffing	2500.45	2500.45	2500.45
Stationery	10	12	
Materials			
Travel			
Training			

Figure 2-3

Activity 2.5 Entering a block of data

We now need to enter some information into the remaining cells

- Enter 1, 2 and 4 in the cells next to "Materials" (which should be B4-D4)
- Select the three cells
- **Right**-click on the drag handle and drag it across to cell M4
- A menu will pop up – choose Growth Trend, as shown in Figure 2-5

Excel will continue the trend, doubling each value in the next cell

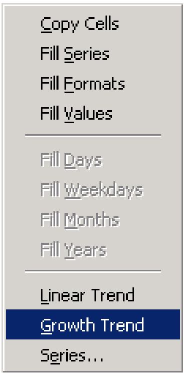


Figure 2-4

Activity 2.6 Entering data into a block

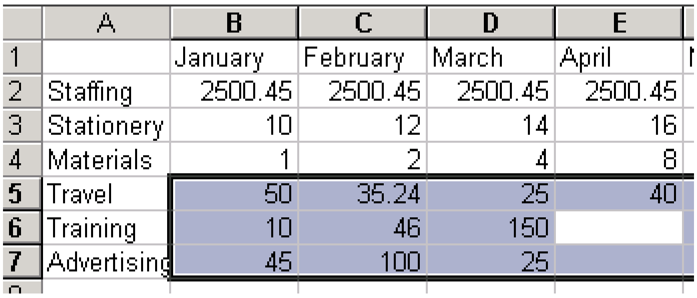
We will fill in random data for the remaining cells.

You may do so by using the arrow or TAB keys to move around the worksheet, but there is another technique, allowing you to enter information in a block of cells, which will help.

If you want to enter information in a block wider than one column you may find it easiest to select the whole block using the mouse or keyboard.
You may then enter information, pressing return after each value. Excel will move you through the cells, and up to the top of the next column when you reach the end of the current one.

Figure 2-5 shows a selected block – the data shown has been entered by hitting RETURN after each item

- Enter some data in each of the remaining cells
- Feel free to select a block and use CTRL+ENTER to fill in the same value across all cells – as in 2.3, above



	A	B	C	D	E
1		January	February	March	April
2	Staffing	2500.45	2500.45	2500.45	2500.45
3	Stationery	10	12	14	16
4	Materials	1	2	4	8
5	Travel	50	35.24	25	40
6	Training	10	46	150	
7	Advertising	45	100	25	

Figure 2-5

Note: when you reach the last cell selected, pressing RETURN takes you back to the first. Be careful not to overtype the contents!

Activity 2.7 Save your work

Save the workbook to your n: drive – you may call it anything you like, but include "wkshp" (without quotes) within the name to distinguish it from other documents.

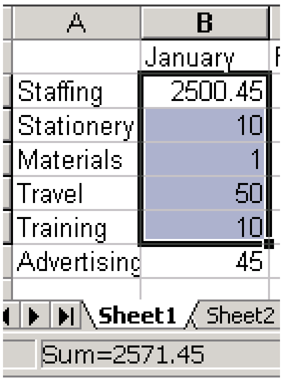
3 Calculations

Objectives	To set the worksheet up to perform calculations based on the data we have just input
Method	Use the autosum function to setup cells that perform calculations
Comments	

Activity 3.1 Quick Sum

You may quickly find out the sum of a group of values by selecting them using mouse or keyboard. The sum of the selected area is displayed at the bottom of the screen (on a larger screen than that in the screenshot, it will be over to the right of the window).
This is one advantage of pre-selecting the area to be filled, as in 2.5, above – the Sum will be updated as you fill in each field.

- Select a few of the cells on your spreadsheet
- Note the Sum, shown at the bottom-right of your screen



A	B
	January
Staffing	2500.45
Stationery	10
Materials	1
Travel	50
Training	10
Advertisinc	45

Figure 3-1

This is, of course, useful only for an immediate check of the total.

Activity 3.2 Autosum

You will most usually want the sum to remain on screen, as a part of the worksheet.

- Click into the blank cell, A8, and add the word “Total”
- Click into In the blank “Total” cell in column B (it should be B8)
- Click on the Autosum icon Σ

Excel will guess which values you want to work with, and should have filled in the calculation =SUM(B2:B7) (note how Excel uses : to mean “to”)

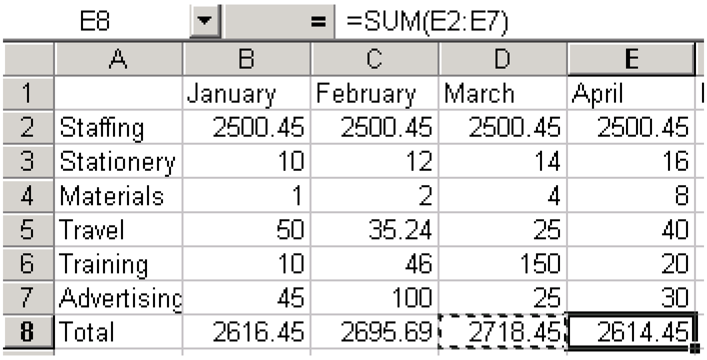
- Hit RETURN to confirm the calculation is correct

- Repeat for C8 and D8

Activity 3.3 Repeated Formulae

Although we have done so here, it is not necessary to use the autosum button for each calculation. 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 D8 (which is the total of the values in column D)
- Choose **Edit – Copy** (or CTRL+C)
- Click on E8 (which is blank at present)
- Choose **Edit – Paste** (or CTRL+V)



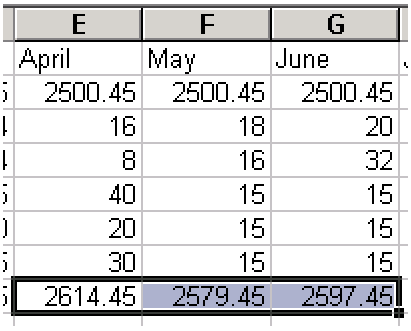
E8 = =SUM(E2:E7)

	A	B	C	D	E
1		January	February	March	April
2	Staffing	2500.45	2500.45	2500.45	2500.45
3	Stationery	10	12	14	16
4	Materials	1	2	4	8
5	Travel	50	35.24	25	40
6	Training	10	46	150	20
7	Advertising	45	100	25	30
8	Total	2616.45	2695.69	2718.45	2614.45

Figure 3-2

Note – as in Figure 3-2 – that when you pasted in the formula, Excel changed it from D2:D7 to E2:E7

Activity 3.4 The drag handle



E	F	G
April	May	June
2500.45	2500.45	2500.45
16	18	20
8	16	32
40	15	15
20	15	15
30	15	15
2614.45	2579.45	2597.45

We used the drag handle above to repeat values across a row. It also works for formulae

- Click on the drag handle in the total for row E
- Drag it across until all the rows have their totals calculated

Figure 3-3

Excel will automatically update the totals - 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.

4 Amending the worksheet

Objectives	To add another expense to our budget
Method	Use the commands on the Insert menu to add to the worksheet
Comments	Excel will automatically update the calculations to take account of the inserted information

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Activity 4.1

There are some other basic functions in excel we need to look at

What if we wanted to add information in between the data we have already input? Excel will allow us to insert a column or row

Activity 4.2 **Inserting a row**

- Click into any cell in row 7
- At the top of the screen, click **Insert**
- Click **Rows**

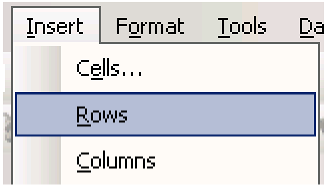


Figure 4-1

A new row is inserted, and all those to the right of it are re-labelled
You may **insert columns** similarly.

- Click into any cell in column B
- Click **Insert**
- Click **Columns**

A new column is inserted

Note that, despite the commands referring to “columns” and “rows”, only one will be entered **unless you have selected multiple rows or columns**

Activity 4.3 **Deleting a Column**

We don’t need the column, so will remove it.

The row and column labels at the edge of the worksheet – A,B,C; 1,2,3 etc – allow you to select a whole row or column.

- Click on the label B

The whole column is selected, as in Figure 4-2

- Choose **Edit – Delete**

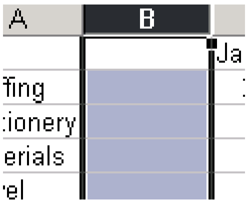


Figure 4-2

The column is removed

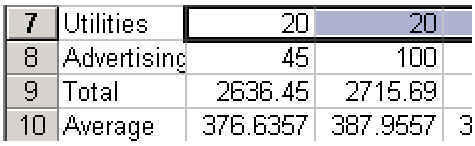
Note that pressing the delete key will not remove the column, but will instead delete the **contents** of the cells

Activity 4.4 **Updated formulae**

Enter some information into the new, blank row of your spreadsheet

- Type the text in

- Select all the blank cells in the row
- Type a value
- Press CTRL + ENTER to copy the value to all the other blank cells



7	Utilities	20	20	
8	Advertisinc	45	100	
9	Total	2636.45	2715.69	
10	Average	376.6357	387.9557	3

Figure 4-3

Note that the rows containing the Total and Average calculations were automatically updated when the new row was inserted, and thus will now take account of the values just entered.

5 Formatting the Worksheet

Objectives	To enhance the layout of the spreadsheet
Method	Use Excel's Format-Cells command to control the layout and appearance of the cells within the worksheet
Comments	Many of the features of the Format-Cells popup may be accessed through individual icons on the toolbar – the popup is useful as it combines many different layout options in one place

---

Activity 5.1 Sizing columns and rows

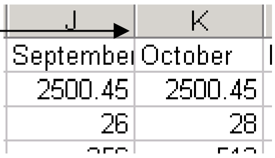
Many of the items in the first column will not fit because they are wider than the column. To fix it

- click on the A at the top of the column to select the entire column
- Click on the **Format** menu and select **column**
- a second menu appears
- Select **AutoFit Selection** and the column width will expand to fit the widest cell.

You may also manually scale the column.

To do so it is not necessary to select the entire column first.

- Position the mouse cursor so that it rests on the line between columns J and K
- The cursor will change to a vertical bar with arrows pointing left and right
- When it does, click and drag the column to the desired width

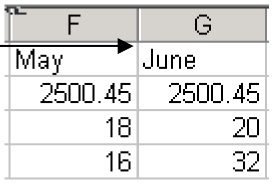


J	K
Septembei	October
2500.45	2500.45
26	28

Figure 5-1

Finally (there are always several different ways of doing things!), you may use the "autofit selection" option without having to use the menus

- Position the mouse cursor so that it is in between F and G
- (again, it will change to a vertical bar with arrows pointing left and right when in the correct place)
- Double click the left mouse button



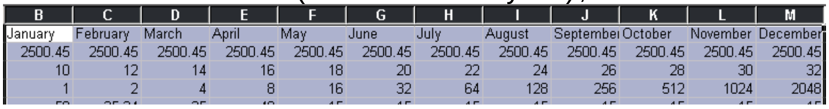
F	G
May	June
2500.45	2500.45
18	20
16	32

- Column F is resized

Figure 5-2

For now, we will make all columns the same width

Select all the columns from B to M (to select a full year);



B	C	D	E	F	G	H	I	J	K	L	M
January	February	March	April	May	June	July	August	Septembe	October	November	December
2500.45	2500.45	2500.45	2500.45	2500.45	2500.45	2500.45	2500.45	2500.45	2500.45	2500.45	2500.45
10	12	14	16	18	20	22	24	26	28	30	32
1	2	4	8	16	32	64	128	256	512	1024	2048

Figure 5-3

- Click on the B at the top and hold the mouse button down
- Drag the mouse across until all those columns are selected
- Click on the **Format** menu
- Choose **Column – Width**
- Enter 9.5 and click OK (or press RETURN)

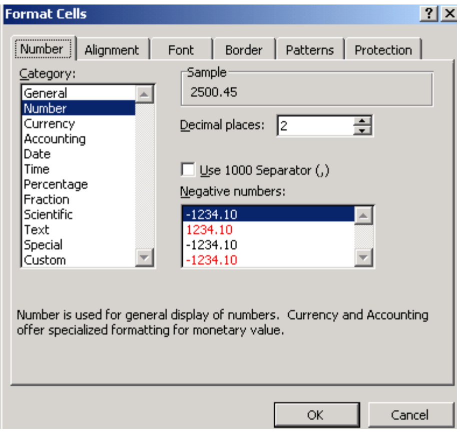
Activity 5.2

Decimal places

There are various styles that it would be sensible to apply to the data in our spreadsheet.

We will make Excel show all values to two decimal places

- Select all the cells with numbers in
- Choose **Format – Cells**
- On the Number tab, choose the category Number, with 2 Decimal places, as in Figure 5-4
- Click OK



Category:
General
Number
Currency
Accounting
Date
Time
Percentage
Fraction
Scientific
Text
Special
Custom

Sample
2500.45

Decimal places: 2

☐ Use 1000 Separator (,)

Negative numbers:
-1234.10
1234.10
-1234.10
-1234.10

Number is used for general display of numbers. Currency and Accounting offer specialized formatting for monetary value.

Figure 5-4

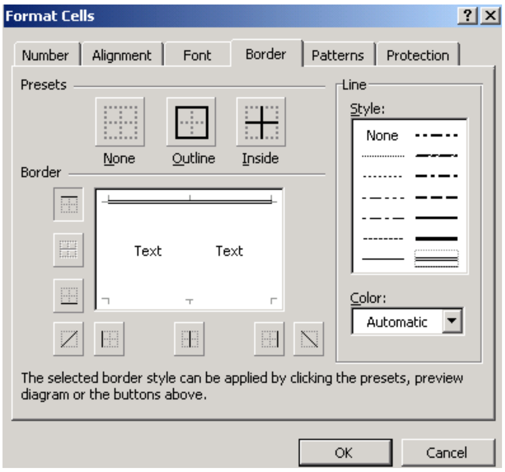
Activity 5.3 Formatting the totals

Because our spreadsheet is financial, it would be appropriate to show the £ symbol. It would look a little too busy if added to every cell, however, so we will just apply it to the Total row

- Select the row containing totals
- Choose **Format – Cells**
- On the **Number** tab, change the category to Currency

We may apply other formatting whilst this dialogue box is up

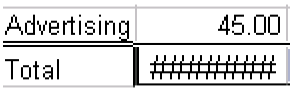
- Select the **Border** tab
- Select a border style from the selection on the right hand side
- Click into the preview window to add the selected border


Format Cells
?
Number
Alignment
Font
Border
Patterns
Protection
Presets
None
Outline
Inside
Border
Text
Text
Line
Style:
None
Color:
Automatic
OK
Cancel

The selected border style can be applied by clicking the presets, preview diagram or the buttons above.

Figure 5-5

You may also change the font size from this set of options. Note that ### displayed in a cell, as in Figure 5-6, denotes a column width too narrow for the information contained therein – widen the column to display the data.



Advertising	45.00
Total	#######

Figure 5-6

- Click OK
- Click away from the selected cells to see the effect of your changes

Activity 5.4 Formatting the header row

- Select the cells B1:M1
- Use the toolbar icons to make the text bold and centred
- Click and drag between the 1 and 2 on the left hand side to expand the height of the row
- Choose **Format – Cells**
- On the **Alignment** tab, change the vertical alignment to "Center", as in Figure 5-7

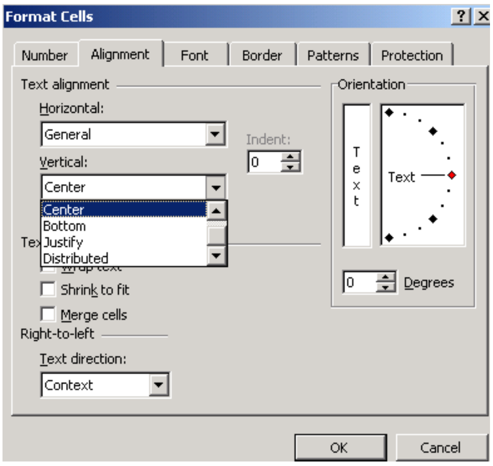

Format Cells
?
Number
Alignment
Font
Border
Patterns
Protection
Text alignment
Horizontal:
General
Indent:
0
Vertical:
Center
Center
Bottom
Justify
Distributed
Tex
Wrap text
Shrink to fit
Merge cells
Right-to-left
Text direction:
Context
Orientation
T
e
x
t
Text
0
Degrees
OK
Cancel

Figure 5-7

Note the other options on this tab, allowing you to orient text at a different angle, or to wrap text – useful if you have a lot of text to fit into one cell. Merge cells allows you to combine several cells into one – useful for titles and so on. Select several cells and then click the icon to merge and centre align them together.

- Use the **Patterns** tab to apply a background colour to these cells
- Use the **Border** tab to underline the title row
- Click OK

6 Printing Options

Objectives	To change options for printing for best results
Method	Use the page setup command on the file menu to fit the spreadsheet to an A4 page
Comments	It is possible to access page setup from within the print preview screen – click the “setup” button. In normal usage you will probably need to switch between the two for best effect

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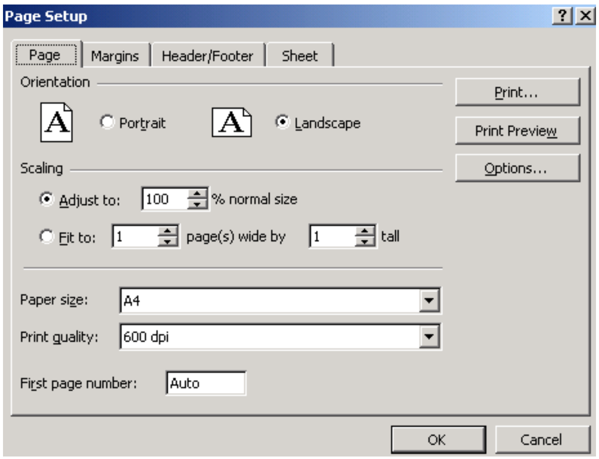
Activity 6.1 Page Setup

There are several useful settings contained within the Page Setup dialogue.

- Choose **File – Page Setup**
- Change the Page orientation to Landscape

The most useful setting is a little further down the dialogue box



Orientation: ○ Portrait ● Landscape

Scaling: ● Adjust to: 100 % normal size

○ Fit to: 1 page(s) wide by 1 tall

Paper size: A4

Print quality: 600 dpi

First page number: Auto

Figure 6-1

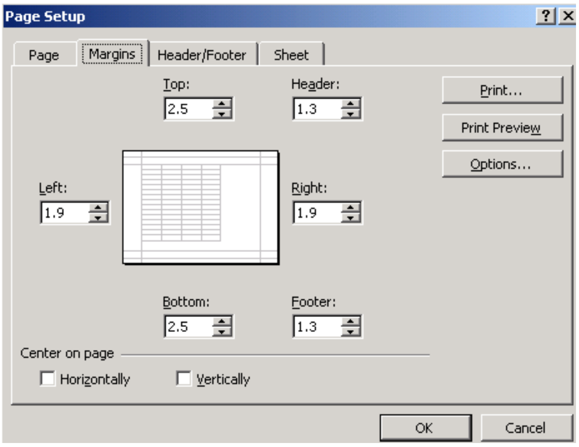
- Click the radio button next to “Fit to”
- Click OK
- Choose **File – Print Preview**

The spreadsheet is scaled to fit onto one page, which works well with our example, as it does not need to be reduced by much and is still legible. With larger amounts of data, of course, there is the danger of creating a printout too small to read.

Activity 6.2 Centreing the Data

The options on the Margins tab allow you to change print margins, and also to centre your information on the page when printing.

- Choose **File – Page Setup**
- Click on the **Margins** tab
- Tick the boxes under “Center on page”, as shown in Figure 6-2
- Click OK
- Choose **File – Print Preview**



Top: 2.5

Header: 1.3

Left: 1.9

Right: 1.9

Bottom: 2.5

Footer: 1.3

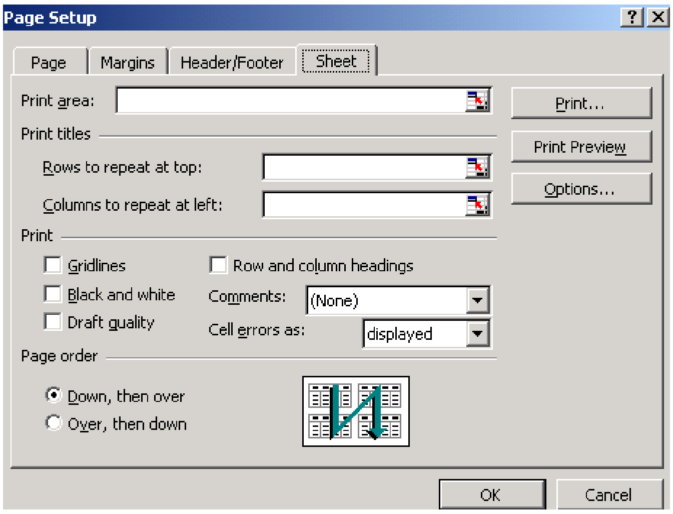
Center on page: ☐ Horizontally ☐ Vertically

Figure 6-2

Activity 6.3 Further options

The Sheet tab has further options which may be of use – the tickboxes under “Print” are fairly self-explanatory.

Printing gridlines may be useful to delineate your data, but for best results you should set borders using the techniques we have already explored


Page Setup
?
Page
Margins
Header/Footer
Sheet
Print...
Print Preview
Options...
OK
Cancel

Print area:

Print titles

Rows to repeat at top:

Columns to repeat at left:

Print

☐ Gridlines ☐ Row and column headings

☐ Black and white Comments: (None)

☐ Draft quality Cell errors as: displayed

Page order

● Down, then over

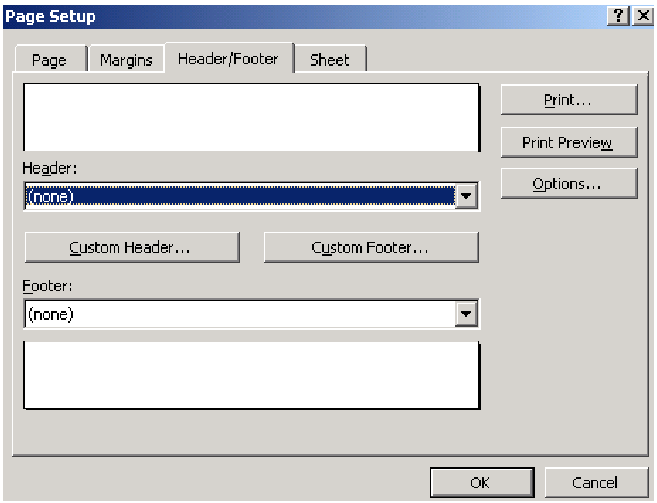
○ Over, then down

Figure 6-3

Activity 6.4 Headers and Footers

Finally, you may apply a header to your printed document by using the Header/Footer tab.

- Click on the Header/Footer tab
- Click Custom Header
- Enter text as appropriate, as in Figure 6-4
- Click OK
- Click Print Preview to see the effect


Page Setup
?
Page
Margins
Header/Footer
Sheet
Print...
Print Preview
Options...
Custom Header...
Custom Footer...
OK
Cancel

Header: (none)

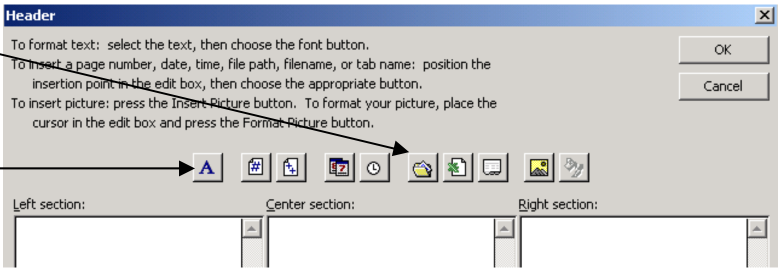
Footer: (none)

Figure 6-4

- Click Close

Adds filename and path (where it is saved)

Use the icon to change text style and size


Header
OK
Cancel
A

To format text: select the text, then choose the font button.

To insert a page number, date, time, file path, filename, or tab name: position the insertion point in the edit box, then choose the appropriate button.

To insert picture: press the Insert Picture button. To format your picture, place the cursor in the edit box and press the Format Picture button.

Left section:

Center section:

Right section:

Figure 6-5

7 More calculations

Objectives To include the calculation of VAT in our spreadsheet

Method Include a function which multiplies an existing value by a constant

Comments

Activity 7.1 Calculating VAT

- In the blank cell under “Total”, enter the text VAT
- Click into the first blank cell in the VAT row
- Click on the Autosum icon Σ
- Click on the cell which contains the total for that column

To multiply by a constant, we need only type the muliplication sign (note this is the asterisk - *) and the number to be used.

- Type *.175
- Hit RETURN
- Click Copy (shortcut CTRL+C)
- Select the remaining cells in the row
- Click Paste (shortcut CTRL+V)

We saw above that selecting a block of cells allows us to repeat a value across them all. As we have just seen, pasting a formula into a selected block allows quick replication of that calculation across rows or columns.

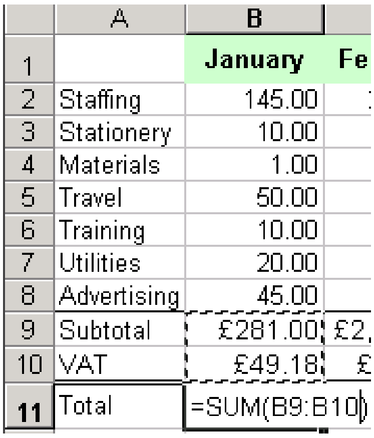
Activity 7.2 Grand Total

We now need a row to give the total including VAT

- Change the text Total to Subtotal
- In the blank cell underneath “VAT”, enter the text Total
- Click into the empty Total cell of column B
- Click on the autosum icon

Note that even though Excel guesses which cell you want to sum, you do not have to accept its recommendation

- Click and drag to select the Subtotal and VAT cells in column B (which should be B9 and B10)
- Hit RETURN



	A	B	
1		January	Fe
2	Staffing	145.00	
3	Stationery	10.00	
4	Materials	1.00	
5	Travel	50.00	
6	Training	10.00	
7	Utilities	20.00	
8	Advertising	45.00	
9	Subtotal	£281.00	£2,
10	VAT	£49.18	£
11	Total	=SUM(B9:B10)	

Figure 7-1

Repeat the calculation across the whole row

8 Inserting a chart

Objectives To insert a chart into our workbook

Method Select the data to use, then use Excel's chart wizard to choose the type and layout of the graph

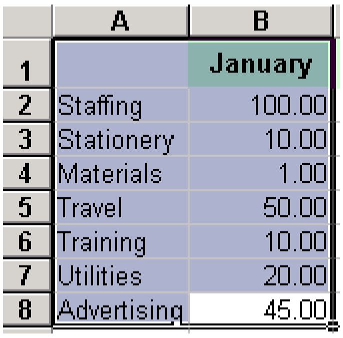
---

Activity 8.1

Selecting data for the chart

Excel makes producing charts easy with the Chart Wizard. We will look at how to insert a chart based on the data we select.

- Select January's expenses and the headings, as shown in Figure 8-1
- Note that you may need to adjust the figure for staffing and others so that they are not too different from each other



	A	B
1		January
2	Staffing	100.00
3	Stationery	10.00
4	Materials	1.00
5	Travel	50.00
6	Training	10.00
7	Utilities	20.00
8	Advertising	45.00

Figure 8-1

Selecting the data tells Excel which information it should create a chart from

- Click on the chart wizard icon

The command is also available on the menus, as **Insert – Chart**

Activity 8.2

Choose the Type of graph

The first step in the chart wizard asks you to choose the type of chart.

- Click Pie on the left
- Choose a type of pie-chart on the right-hand side

Note the button allowing you to see a sample of how your chart might look

- Click Next

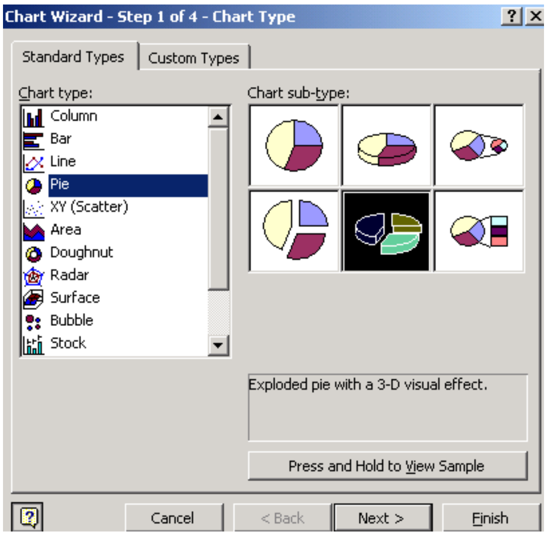


Chart Wizard - Step 1 of 4 - Chart Type
?
Standard Types
Custom Types
Chart type:
Column
Bar
Line
Pie
XY (Scatter)
Area
Doughnut
Radar
Surface
Bubble
Stock
Chart sub-type:
Press and Hold to View Sample
Cancel
< Back
Next >
Finish

Exploded pie with a 3-D visual effect.

Figure 8-2

The next screen shows a sample of how the chart will look

- Click Next again

Activity 8.3

Options

The next step of the wizard allows you to change various options relating to the chart, with the tabs at the top giving access to different areas.

- Amend the chart's title – note that the preview on the right-hand side also changes

- Click Next

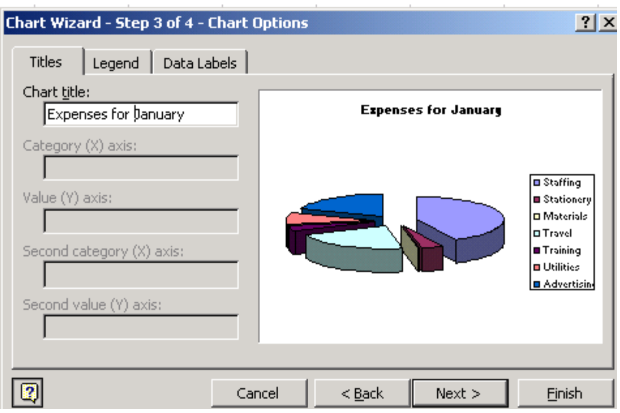


Chart Wizard - Step 3 of 4 - Chart Options
Titles
Legend
Data Labels
Category (X) axis:
Value (Y) axis:
Second category (X) axis:
Second value (Y) axis:
Expenses for January
Staffing
Stationery
Materials
Travel
Training
Utilities
Advertisin
Cancel
< Back
Next >
Finish

Chart title: Expenses for January

Figure 8-3

Activity 8.4 **Inserting the chart**

The final screen allows you to set where the chart will be inserted – into the current worksheet, or on its own, new worksheet.

- Select “As new sheet”

Once you have selected where to place the chart, the sheet name is selected; typing (you need not click anywhere) will therefore allow you to give that sheet a new name

- Type a name for the new sheet, as in Figure 8-4

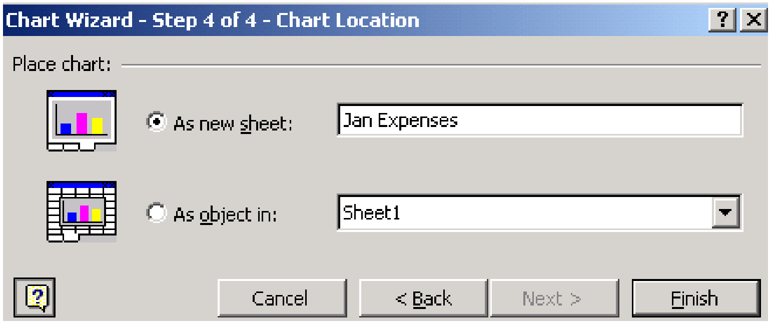


Chart Wizard - Step 4 of 4 - Chart Location
Place chart:
Cancel
< Back
Next >
Finish

● As new sheet: Jan Expenses

○ As object in: Sheet1

Figure 8-4

9 Sharing data

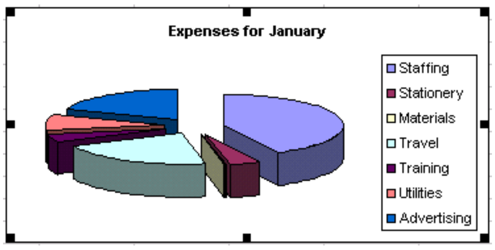
Objectives To insert an Excel chart into a Word document

Method Use copy and paste, then linked paste

Activity 9.1 **Basic copy and paste**

It is straightforward to copy the chart created in 8, above, into Word

- Click anywhere on the outside of the chart – you will see black handles appear around the edge of the chart
- Click the copy icon, or press CTRL+C
- Start MS Word



- Choose paste – CTRL+V

Figure 9-1

Activity 9.2 The problem with basic copy and paste

- Go back to Excel without closing Word (use the tabs at the bottom of the screen, or hold down the ALT key and press TAB to cycle through available windows)
- Use the tabs within Excel to go back to your data
- Change one of the values that appears in your chart
- Have a look at the chart within Excel – that value has changed
- Now go back to Word – the chart has not been changed

While that is sometimes useful – in a report you might want the chart to be a snapshot of information at a certain time – it is possible to have the information update within Word

Activity 9.3 Linked copy and paste

- Copy the chart in Excel in the same way
- Go back to Word
- Click to place the cursor under the first chart (you may need to press return to create a new line – click to the right of the existing chart and then press return if so)
- This time, choose **Edit – Paste special** (you may need to click the double arrow at the bottom of the menu to show it the first time)

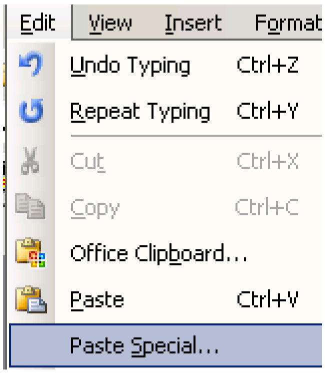
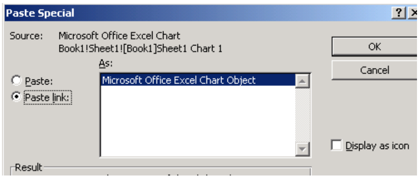


Figure 9-2

- Select **"Paste link"**
- As the text at the bottom of the window says, "changes to the source file will be reflected in your document"
- Click OK



Source: Microsoft Office Excel Chart
Book1!Sheet1![Book1]Sheet1 Chart 1

As:

○ Paste:
● Paste link:

Microsoft Office Excel Chart Object

☐ Display as icon

Result

Again the chart is inserted.

Figure 9-3

Now, though, when you go back to Excel and change a value, that change is represented both in Excel's chart and Word's (try it to check… - you may need to save and close the document in Word and then open it again to see the update)