MS Excel 2010

Analysing Data Using Formulae & Pivot Tables

User Guide

NOMAS TRAINING & CONSULTANCY LTD

Dissington Hall, Ponteland, Northumberland

Tel : 01661 820 960 • e-mail : info@nomas.co.uk • Web : www.nomas.co.uk

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CONTENTS

INTRODUCTION

This guide covers the analysis of data using formulae, functions & pivot tables, within **Excel 2010**. To obtain maximum benefit from attending this training session, you should have attended an introductory course or be an existing user of **Excel**.

At the end of this course, each delegate will have an understanding of several key functions used in data analysis & will be able to create formulae, use functions, sort & filter data & analyse data using pivot tables.

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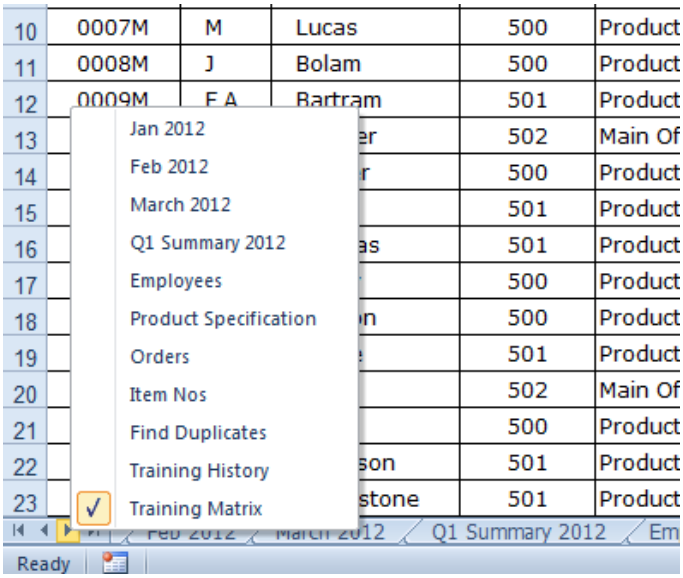
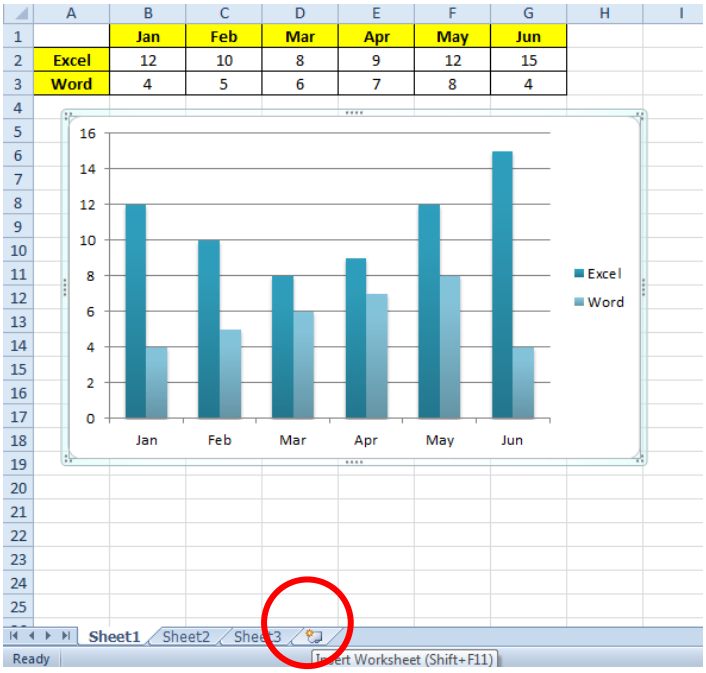
Moving Around Your Spreadsheet

A spreadsheet is made up of a matrix of columns and rows, into which text, dates and numbers can be entered. Excel contains ;

- 16,384 Columns.
- 1,048,576 Rows.

When working in your spreadsheet you can move around by use of both the mouse and the keyboard. You can also move around the spreadsheet using the scroll bars or by using the following keyboard strokes ;

Moving On A Sheet	
Arrow Keys	Move up/down/left/right as required.
Page Up/Page Down	Moves one screen up or down.
Tab / Shift + Tab	Moves one cell left or right.
F5	Moves to the cell number that you enter.
Ctrl + Home	Moves to cell A1.
Ctrl + Left Arrow	Moves to the cell furthest to the left hand of the spreadsheet that contains data.
Ctrl + Right Arrow	Moves to the cell furthest to the right hand of the spreadsheet that contains data.
Ctrl + Up Arrow	Moves to the cell furthest to the top of the spreadsheet that contains data.
Ctrl + Down Arrow	Moves to the cell furthest to the bottom of the spreadsheet that contains data.
Selecting Cells	
Shift + Left / Right Arrow Keys	Selects cells 'one at a time' to the left / right.
Shift + Up / Down Arrow Keys	Selects cells 'one at a time' up / down.
Ctrl + Shift + Left / Right Arrow Keys	Selects cells to the end of a 'block of data' in a row.
Ctrl + Shift + Up / Down Arrow Keys	Selects cells to the end of a 'block of data' in a column.

Moving Between Worksheets	
Ctrl + Page Up	Moves to the previous Worksheet.
Ctrl + Page Down	Moves to the next Worksheet.
Right Click Mouse Over Sheet Navigation Arrows	
Adding A New Worksheet	
Click 'Insert Worksheet' icon (circled)	

CONDITIONAL FORMATTING

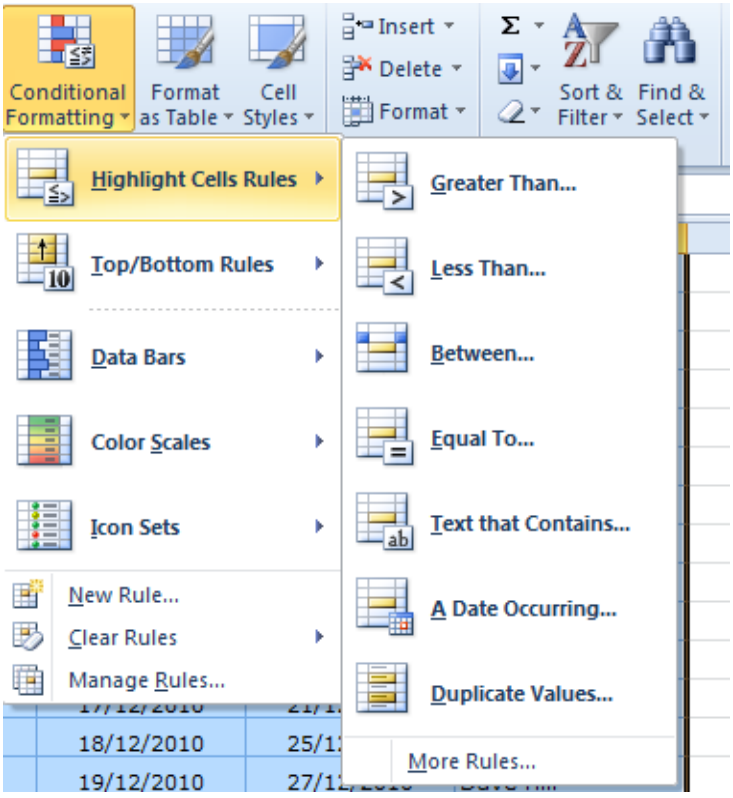
Excel can be used to highlight data that meets conditions that you specify. To highlight formula results or other cell values that you want to monitor, you can identify the cells by applying 'Conditional Formats'.

Setting A Conditional Format

For instance, in an Orders data set, Excel can apply red shading to the cell, if the 'Total Price' is greater than £1,000 or blue shading if the 'Total Price' is less than £1,000. To apply conditional formats to cells ;

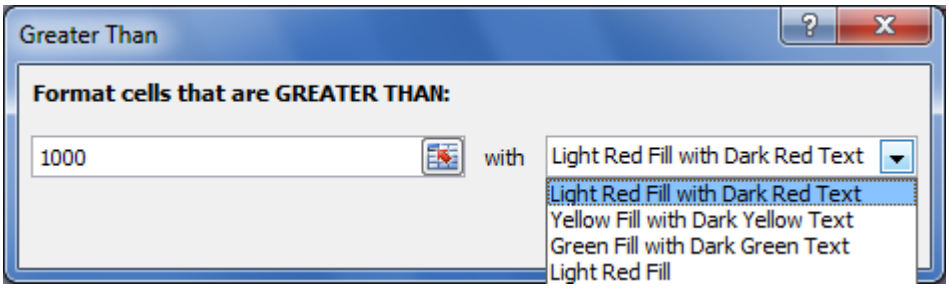
1 Select the cells you want to format. In this example, select the 'Total Order' cells only.

2 Select 'Conditional Formatting' from the 'Home' tab.



3 Select 'Highlight Cell Rules'.

4 Then select an appropriate option e.g. 'Greater than…



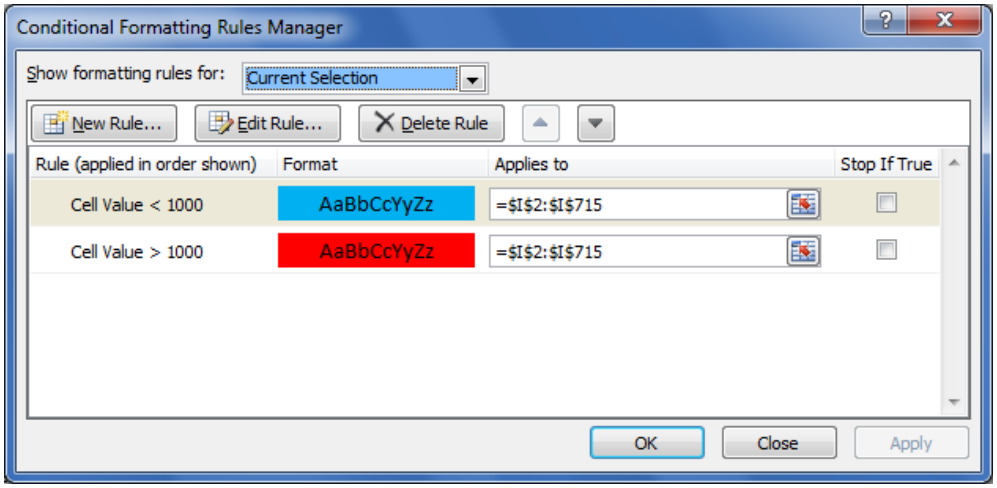
5 Enter the amount in the first dialogue box & then select the drop down option in the second dialogue box, to set the appropriate formatting options. Use 'Custom Format' if you want to set your own formatting options.

6 Select the font style, font colour, underlining, borders, shading, or patterns you want to apply.

7 To add another condition, repeat the steps above.

8 To review the conditional formats applied to the cells, use 'Conditional Formatting….Manage Rules' from the 'Home' tab.

9 Here you can create new rules or modify / delete existing rules.



Using Formulae As Conditions

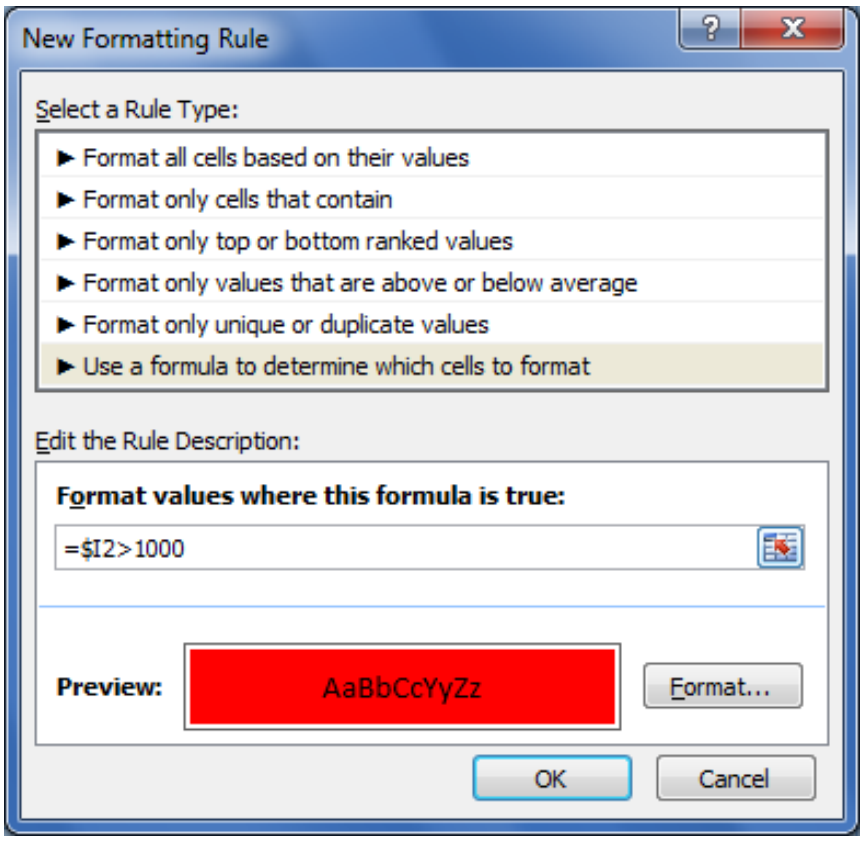
In the previous example, the cell colour in a single column (Total Order) was changed. In order to apply the cell colour all the way across a row, then a formula could be used.

1 Select the cells you want to format (the whole data set).

2 Select 'Conditional Formatting….New Rule' from the 'Home' tab.

3 Select 'Use a formula to determine which cells to format'.

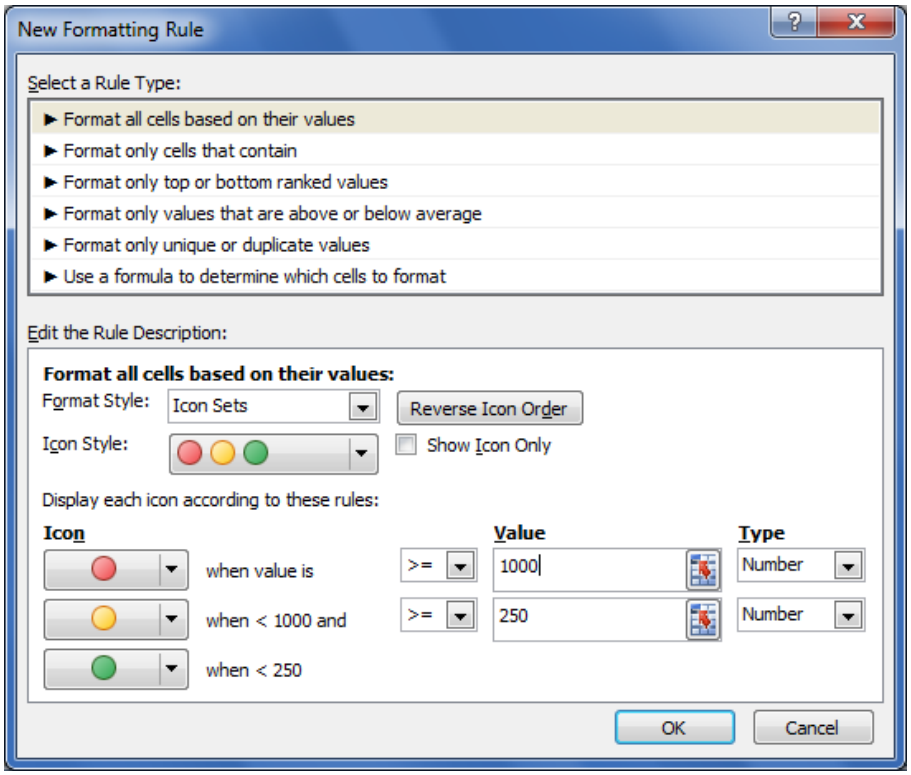
4 Enter a suitable formula & format for the cells & click 'OK'.

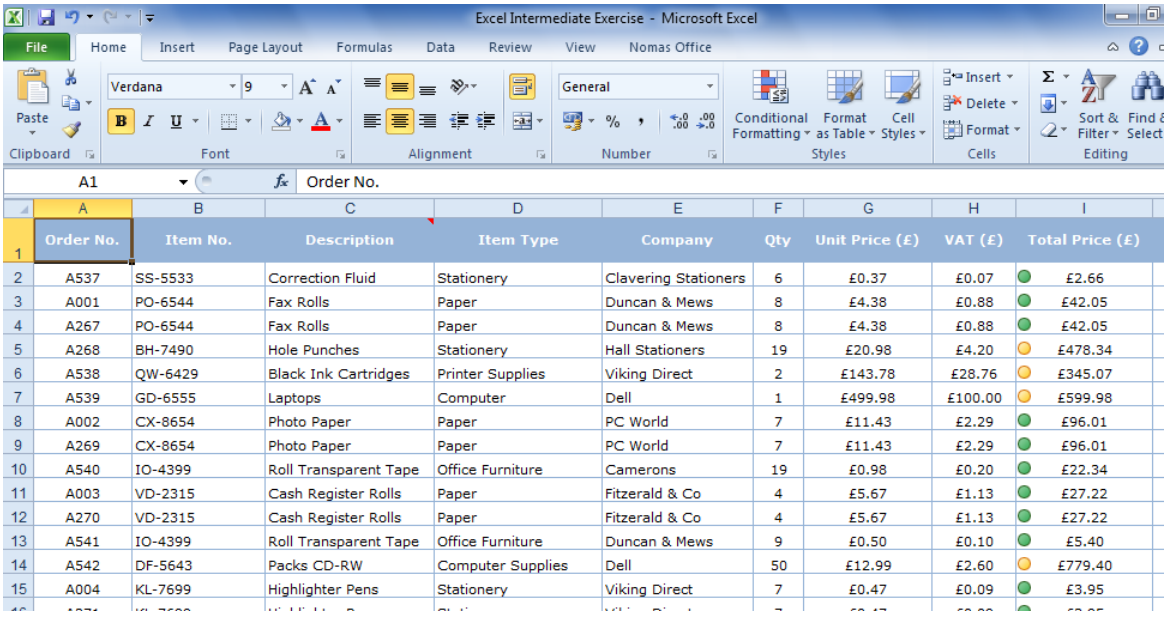


5 In this example, the formula would be =$I2 > 1000.

Style Sets

Data Bars, Colour Scales & Icon Sets can also be used to format cells. In the example below, 'Total Prices' can be marked with 'Traffic Lights' to indicate whether the Total is less than £250, between £250 - £1,000 or over £1,000.





Order No.	Item No.	Description	Item Type	Company	Qty	Unit Price (£)	VAT (£)	Total Price (£)
A537	SS-5533	Correction Fluid	Stationery	Clavering Stationers	6	£0.37	£0.07	£2.66
A001	PO-6544	Fax Rolls	Paper	Duncan & Mews	8	£4.38	£0.88	£42.05
A267	PO-6544	Fax Rolls	Paper	Duncan & Mews	8	£4.38	£0.88	£42.05
A268	BH-7490	Hole Punches	Stationery	Hall Stationers	19	£20.98	£4.20	£478.34
A538	QW-6429	Black Ink Cartridges	Printer Supplies	Viking Direct	2	£143.78	£28.76	£345.07
A539	GD-6555	Laptops	Computer	Dell	1	£499.98	£100.00	£599.98
A002	CX-8654	Photo Paper	Paper	PC World	7	£11.43	£2.29	£96.01
A269	CX-8654	Photo Paper	Paper	PC World	7	£11.43	£2.29	£96.01
A540	IO-4399	Roll Transparent Tape	Office Furniture	Camerons	19	£0.98	£0.20	£22.34
A003	VD-2315	Cash Register Rolls	Paper	Fitzerald & Co	4	£5.67	£1.13	£27.22
A270	VD-2315	Cash Register Rolls	Paper	Fitzerald & Co	4	£5.67	£1.13	£27.22
A541	IO-4399	Roll Transparent Tape	Office Furniture	Duncan & Mews	9	£0.50	£0.10	£5.40
A542	DF-5643	Packs CD-RW	Computer Supplies	Dell	50	£12.99	£2.60	£779.40
A004	KL-7699	Highlighter Pens	Stationery	Viking Direct	7	£0.47	£0.09	£3.95

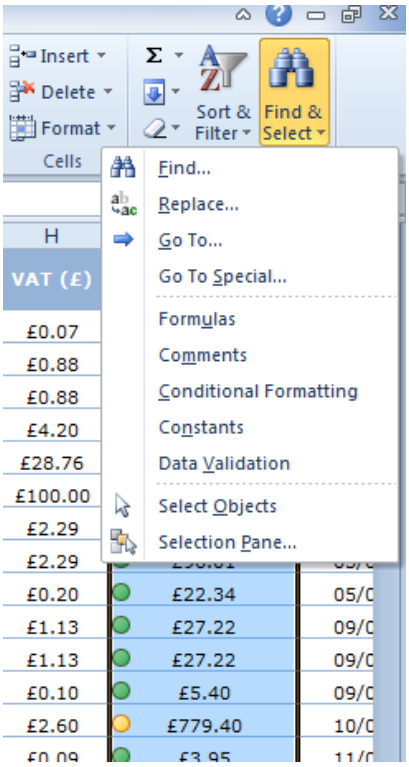
Identifying All Cells With Conditional Formatting

If your worksheet has one or more cells with a conditional format, you can quickly locate them so that you can change or delete the conditional formats. You can use the 'Go To Special' command, to either find only cells with a specific conditional format or find all cells with conditional formats.

1 Click any cell without a conditional format.

2 In the 'Home' tab, click the drop down arrow under 'Find & Select'.

3 Select 'Conditional Formatting'.



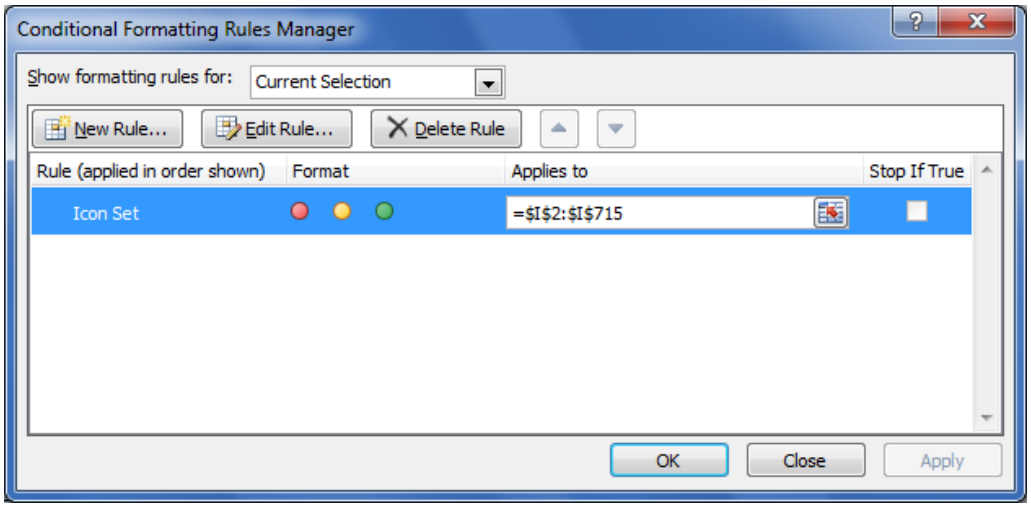
4 Any Conditionally formatted cells will be selected.

Editing / Deleting Conditions

To delete a condition ;

1 Select your 'Conditionally Formatted' cells.

2 Select 'Conditional Formatting….Manage Rules' from the 'Home' tab.



3 Select the format to delete & click 'Delete Rule'.

4 Edit a Conditional Format, in the same manner, by clicking 'Edit Rule'.

SORTING AND FILTERING DATA

Sorting A List By A Single Column

To sort data in ascending / descending order based on values in a single column ;

1 Click a cell in the column you want to 'sort'.

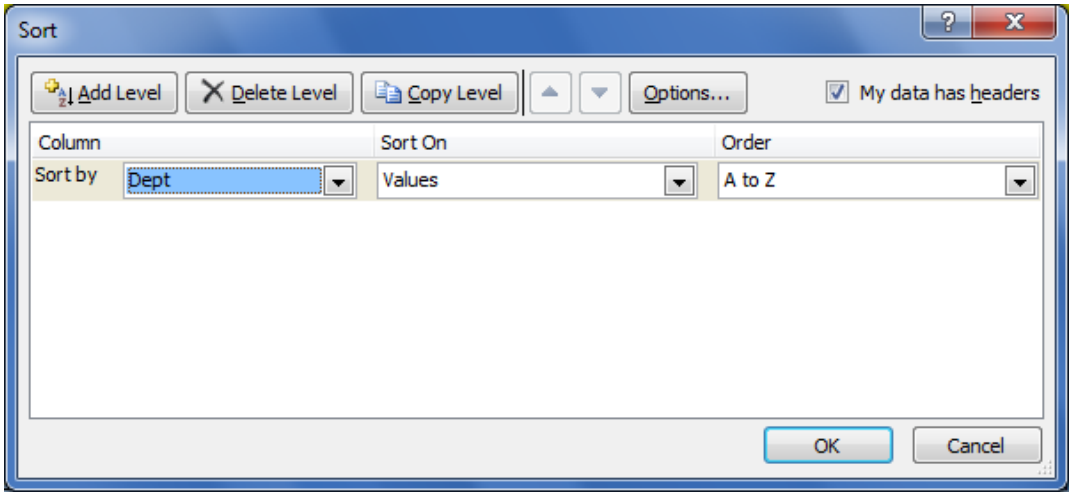
DO NOT HIGHLIGHT MULTIPLE CELLS

2 Click the 'Sort Ascending' or 'Sort Descending' icon on the 'Data' tab.

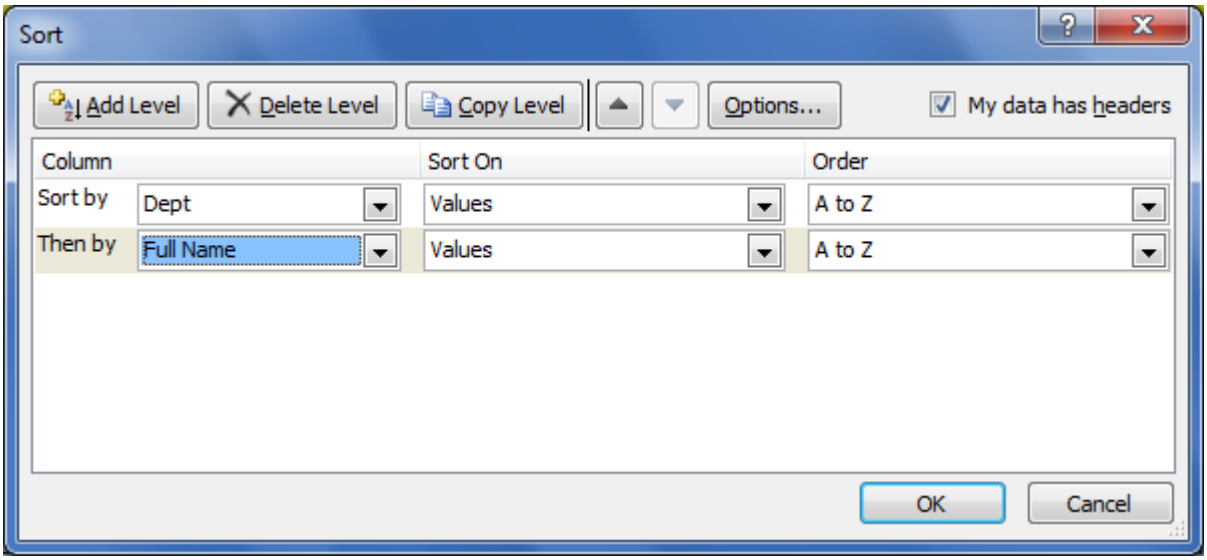
Sorting A List By Multiple Columns

If you require a more complicated sorting procedure i.e. you want to sort by more than one column, you will need the 'Sort' icon on the 'Data' tab. When you sort by more than one column, the rows with duplicate items in the first column are sorted according to the second column you specify. To do this ;

1 Click a cell in the column you want to 'sort'.
2 Click the 'Sort' icon on the 'Data' tab.

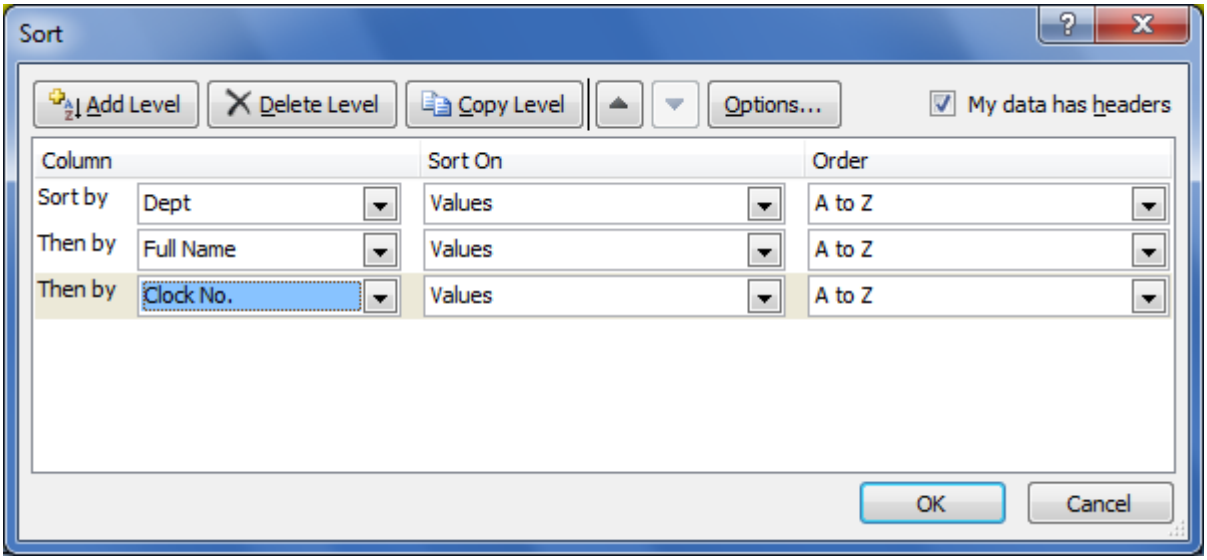


3 Select the 1st sort options you want e.g. above, list is sorted by 'Dept'.
4 Click 'Add Level'.



5 Repeat the selection process, for the 2nd level.

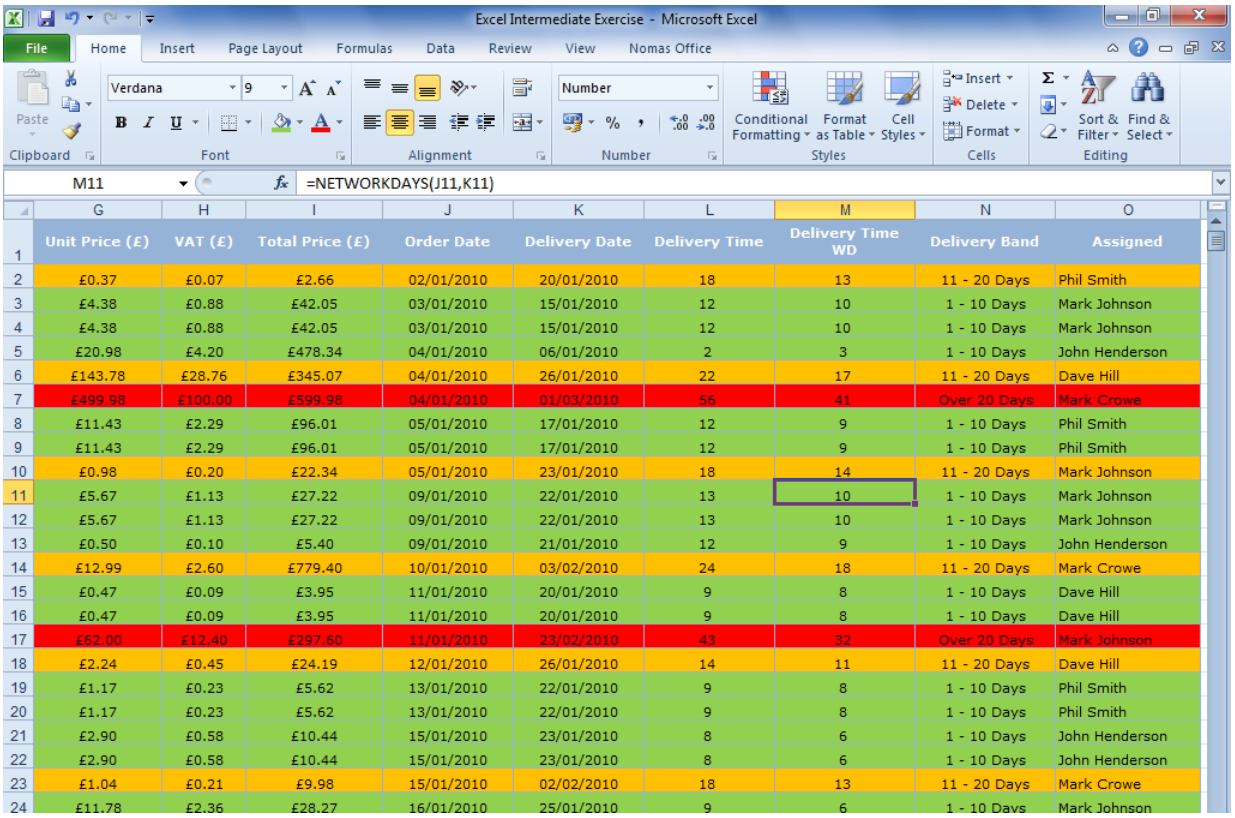
The list above will be sorted by 'Dept' first, then within each department, by 'Full Name'.



6 Potentially, extra levels may be required, until you obtain the 'Sort' order you require.

Sorting A List By Colour

If you have manually or conditionally formatted a range of cells, by cell colour or font colour, you can also sort by these colours. You can also sort by an icon set created through a conditional format.



	G	H	I	J	K	L	M	N	O
1	Unit Price (£)	VAT (£)	Total Price (£)	Order Date	Delivery Date	Delivery Time	Delivery Time WD	Delivery Band	Assigned
2	£0.37	£0.07	£2.66	02/01/2010	20/01/2010	18	13	11 - 20 Days	Phil Smith
3	£4.38	£0.88	£42.05	03/01/2010	15/01/2010	12	10	1 - 10 Days	Mark Johnson
4	£4.38	£0.88	£42.05	03/01/2010	15/01/2010	12	10	1 - 10 Days	Mark Johnson
5	£20.98	£4.20	£478.34	04/01/2010	06/01/2010	2	3	1 - 10 Days	John Henderson
6	£143.78	£28.76	£345.07	04/01/2010	26/01/2010	22	17	11 - 20 Days	Dave Hill
7	£499.98	£100.00	£599.98	04/01/2010	01/03/2010	56	41	Over 20 Days	Mark Crowe
8	£11.43	£2.29	£96.01	05/01/2010	17/01/2010	12	9	1 - 10 Days	Phil Smith
9	£11.43	£2.29	£96.01	05/01/2010	17/01/2010	12	9	1 - 10 Days	Phil Smith
10	£0.98	£0.20	£22.34	05/01/2010	23/01/2010	18	14	11 - 20 Days	Mark Johnson
11	£5.67	£1.13	£27.22	09/01/2010	22/01/2010	13	10	1 - 10 Days	Mark Johnson
12	£5.67	£1.13	£27.22	09/01/2010	22/01/2010	13	10	1 - 10 Days	Mark Johnson
13	£0.50	£0.10	£5.40	09/01/2010	21/01/2010	12	9	1 - 10 Days	John Henderson
14	£12.99	£2.60	£779.40	10/01/2010	03/02/2010	24	18	11 - 20 Days	Mark Crowe
15	£0.47	£0.09	£3.95	11/01/2010	20/01/2010	9	8	1 - 10 Days	Dave Hill
16	£0.47	£0.09	£3.95	11/01/2010	20/01/2010	9	8	1 - 10 Days	Dave Hill
17	£62.00	£12.40	£297.60	11/01/2010	23/02/2010	43	32	Over 20 Days	Mark Johnson
18	£2.24	£0.45	£24.19	12/01/2010	26/01/2010	14	11	11 - 20 Days	Dave Hill
19	£1.17	£0.23	£5.62	13/01/2010	22/01/2010	9	8	1 - 10 Days	Phil Smith
20	£1.17	£0.23	£5.62	13/01/2010	22/01/2010	9	8	1 - 10 Days	Phil Smith
21	£2.90	£0.58	£10.44	15/01/2010	23/01/2010	8	6	1 - 10 Days	John Henderson
22	£2.90	£0.58	£10.44	15/01/2010	23/01/2010	8	6	1 - 10 Days	John Henderson
23	£1.04	£0.21	£9.98	15/01/2010	02/02/2010	18	13	11 - 20 Days	Mark Crowe
24	£11.78	£2.36	£28.27	16/01/2010	25/01/2010	9	6	1 - 10 Days	Mark Johnson

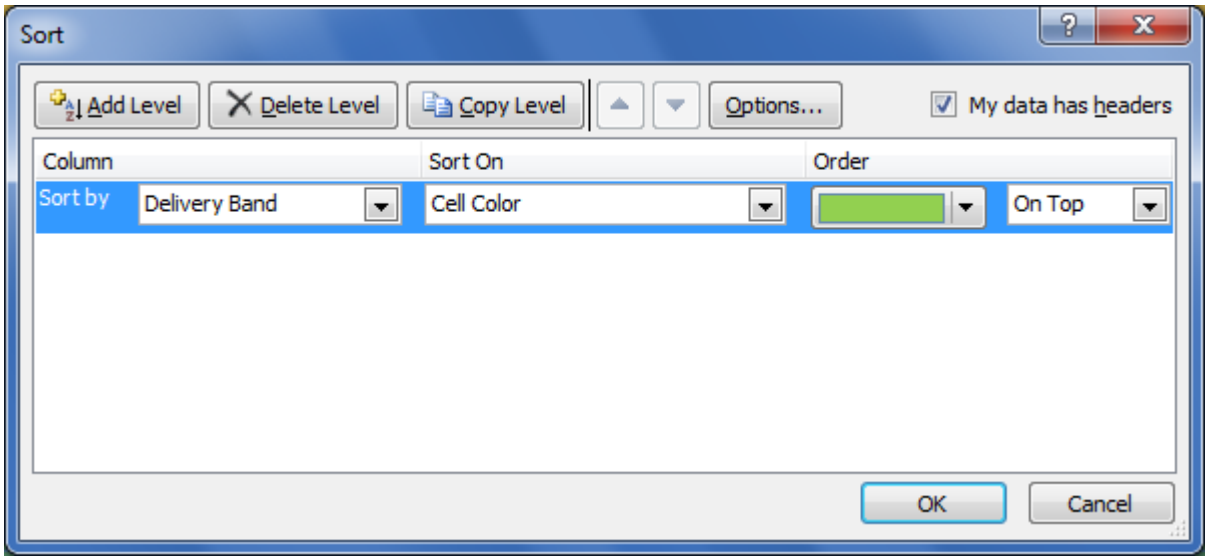
In the above example, a Conditional Format has been applied to highlight 'Delivery Bands' ;

1 - 10 Days	Green
11 - 20 Days	Amber
Over 20 Days	Red

Using the 'Sort' option, you can sort by colour ;

1 Click a cell in the data you want to 'sort'.

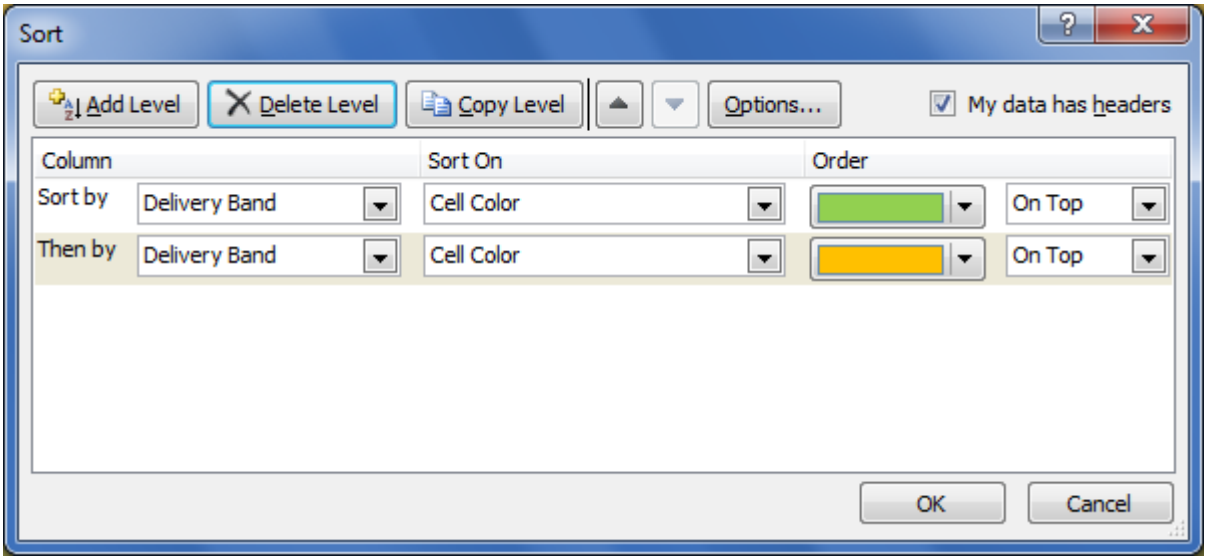
2 Click the 'Sort' icon on the 'Data' tab.



3 Select the 1st sort option, e.g. 'Delivery Band', then in the 'Sort On' column, select the 'Cell Colour' option.

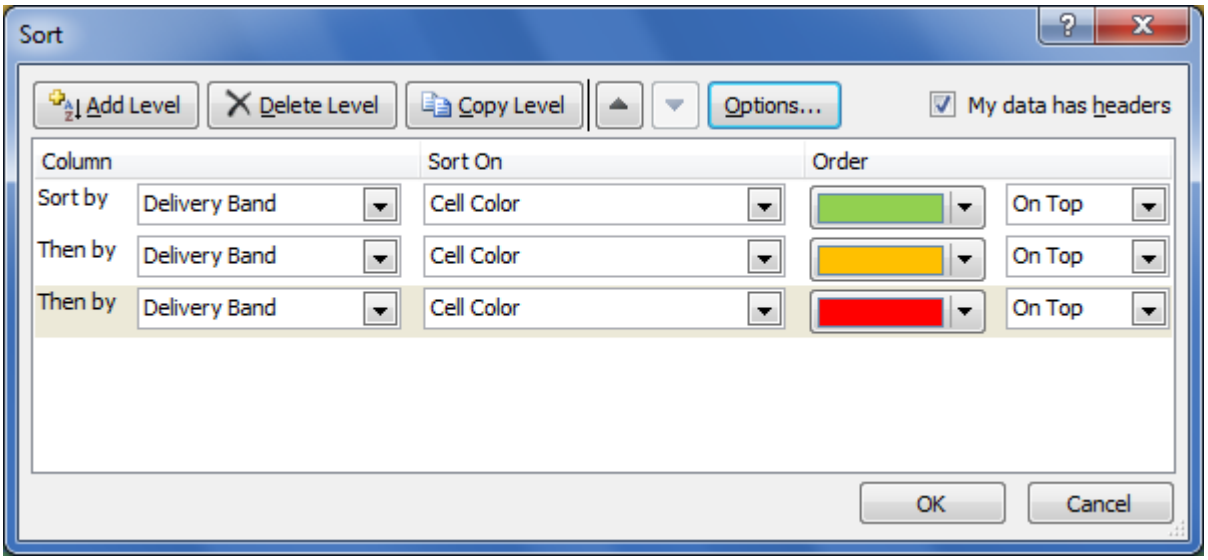
4 In the 'Order' column, select the colour & whether it is to be sorted 'On Top' or 'On Bottom'.

5 Then click 'Add Level' & repeat the process.



6 Make sure that you select the same column in the 'Then by' box and that you make the same 'On Top' selection for your next colour.

7 Keep repeating for each additional cell colour, that you want included in the sort.



The above settings, will sort the list with 'Green' at the top of the list, followed by 'Amber' then 'Red'.

Filter A List

By filtering a list, you can display just the rows that meet the criteria you specify. For example, in a list of names and addresses, you can see only the names of people who live in Newcastle. There are two ways to filter a list in Microsoft Excel i) using the 'AutoFilter' command or ii) the 'Advanced Filter' command, both on the 'Data' tab.

The 'AutoFilter' command displays arrows next to the column labels in a list, so you can select the item you want to display. Use the 'AutoFilter' command to quickly filter rows using criteria in a single column.

The 'Advanced Filter' command, filters your list, as 'AutoFilter' does, but it does not display arrows in column labels for criteria selection. Instead, you type criteria in a criteria range on your worksheet.

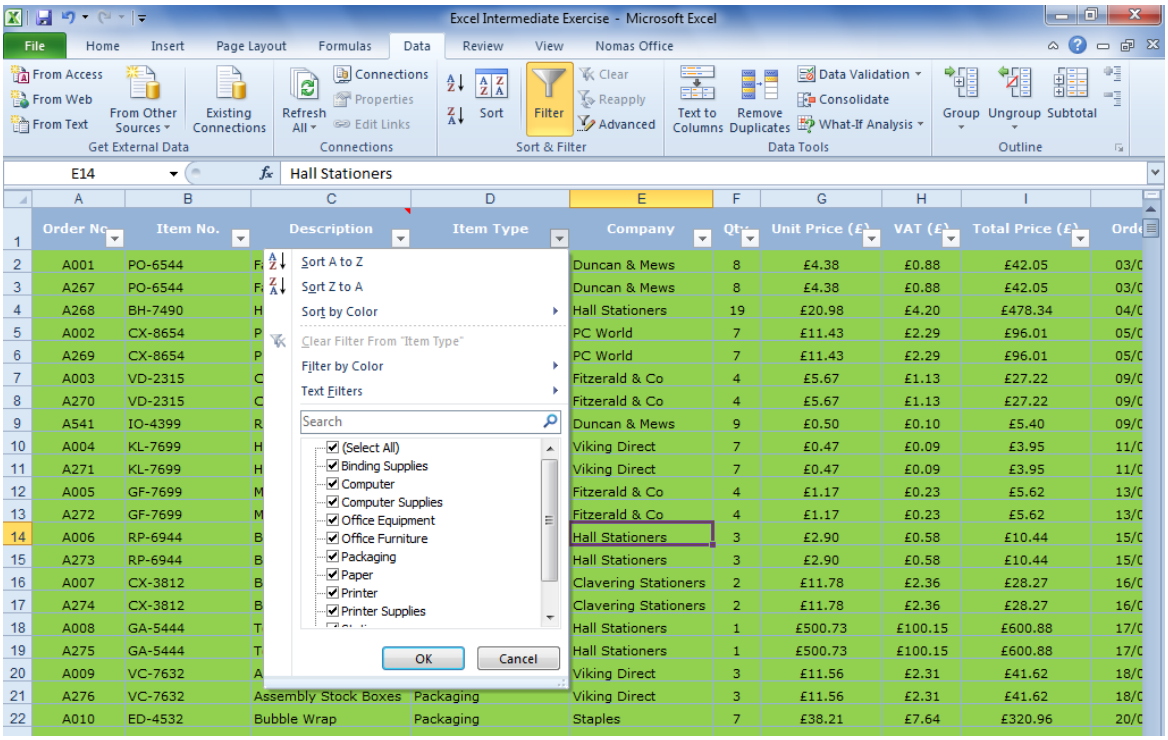
Filter A List Using AutoFilter

For this procedure to work, your list must have 'column labels'.

1 Select a cell in the list you want to filter.

2 Select 'Filter' from the 'Data' tab.

3 Click the arrow in the column, that contains the data you want to filter.



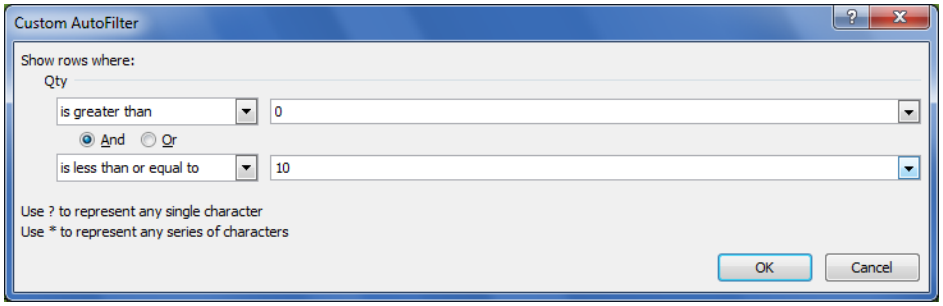
4 Remove the check mark from 'Select All'.

5 Select the check box for the entry you want to filter & then click 'OK'.

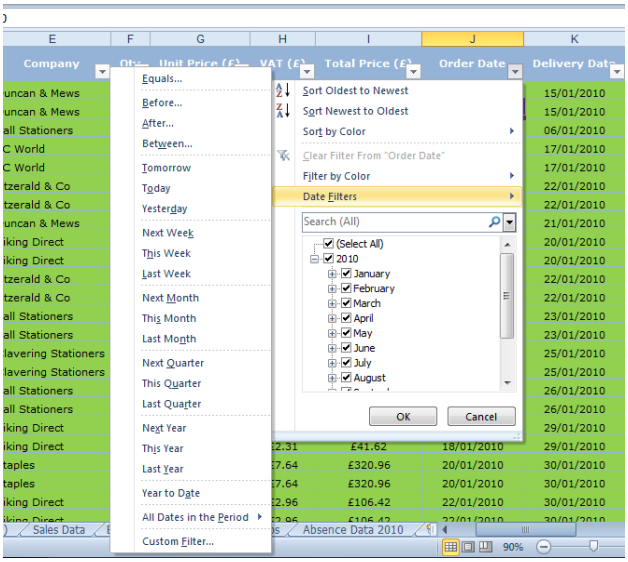
6 You can select multiple check boxes to filter on two or more items.

7 Alternatively, type your criteria in the 'Search' box.

8 You can create 'Custom' filters by using 'Text Filters….Custom Filter'.

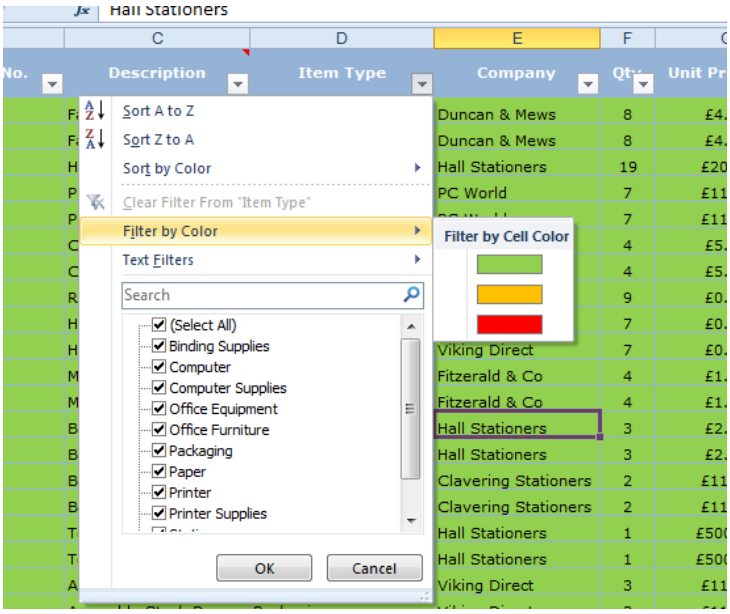


9 If you have 'Date' data, then a particular set of filters are available, by using 'Date Filters……'



10 Similarly, numeric data has it's own set of filters.

11 You can also filter by 'Colour'.



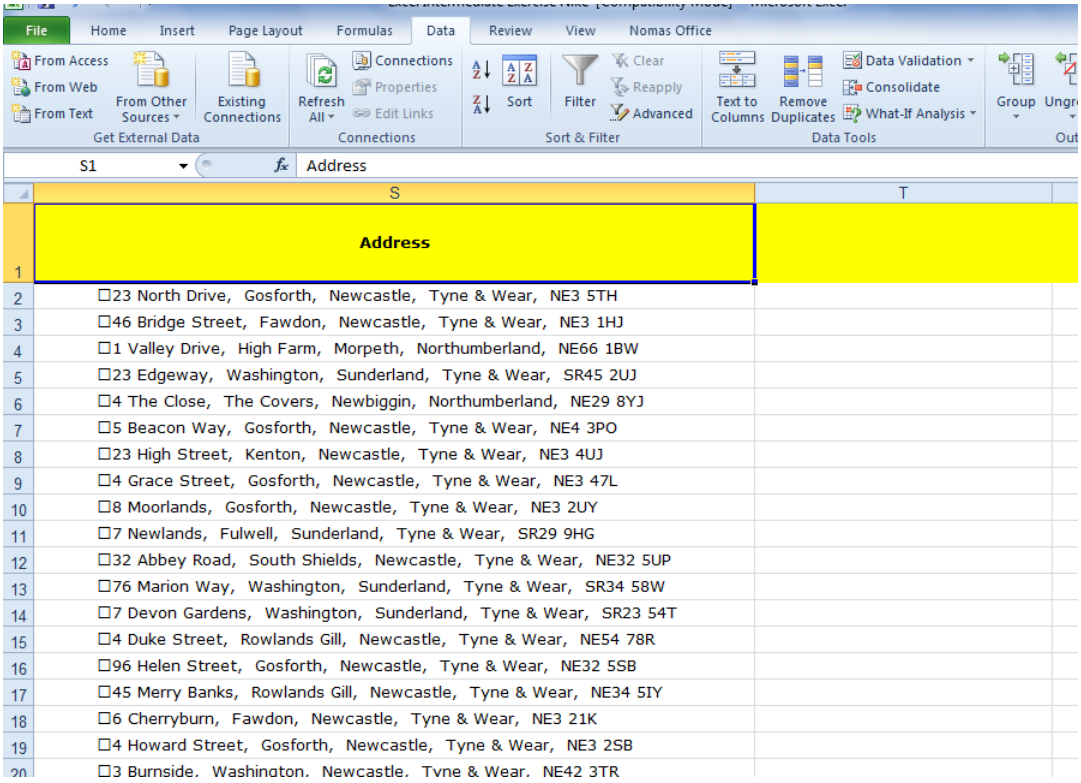
You can also copy & paste a 'Filtered' list to another part of the worksheet or to another worksheet altogether.

RE-ORGANISING DOWNLOADED DATA

When data is downloaded (exported) from other database applications, there can be several problems with the data ;

- Data is contained within one column.
- Data contains unwanted spaces (normally at the front of the data).
- Data contains non-printing characters.

The spreadsheet below, demonstrates all of these problems.

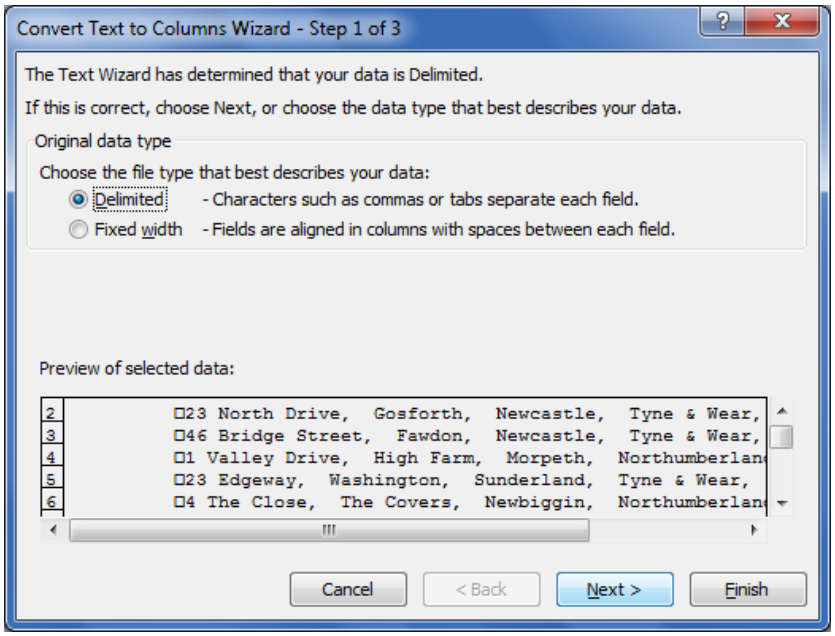


Converting Text To Columns – Parsing Data

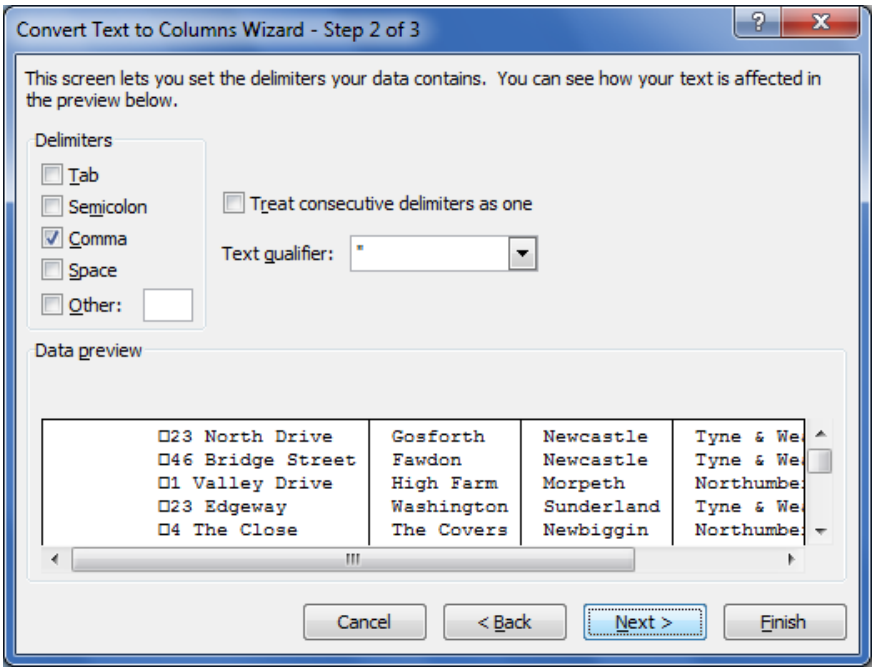
The data above is separated by a ‘,’ character & contains 5 parts of the address in the same column. This data therefore needs to be spilt up (parsed) into 5 separate columns.

1 Ensure you have sufficient (new) blank columns, to the right of the column containing data. In the above example, 4 new columns are required.

2 Select all of the data in the column & then in the 'Data' tab, select 'Text To Columns'.

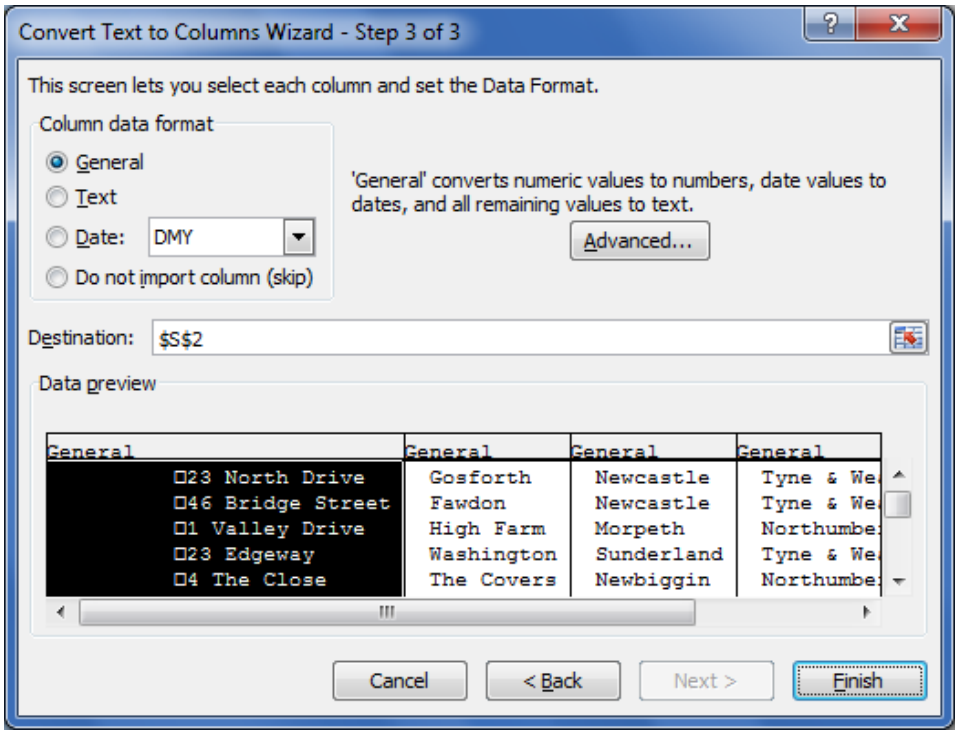


3 If the data has 'separators' e.g. ' , ', select 'Delimited', then click 'Next'.



4 Either select the 'Delimiter', or type it in the 'Other' box.

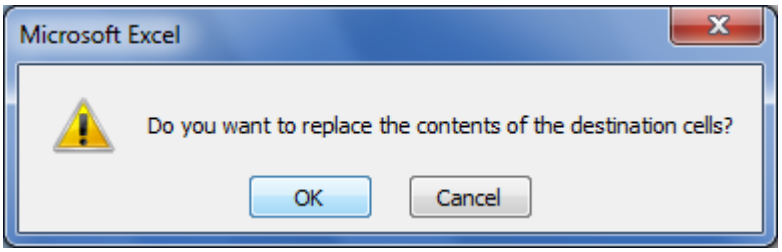
5 Click 'Next'



6 Each column can be formatted before splitting the data.

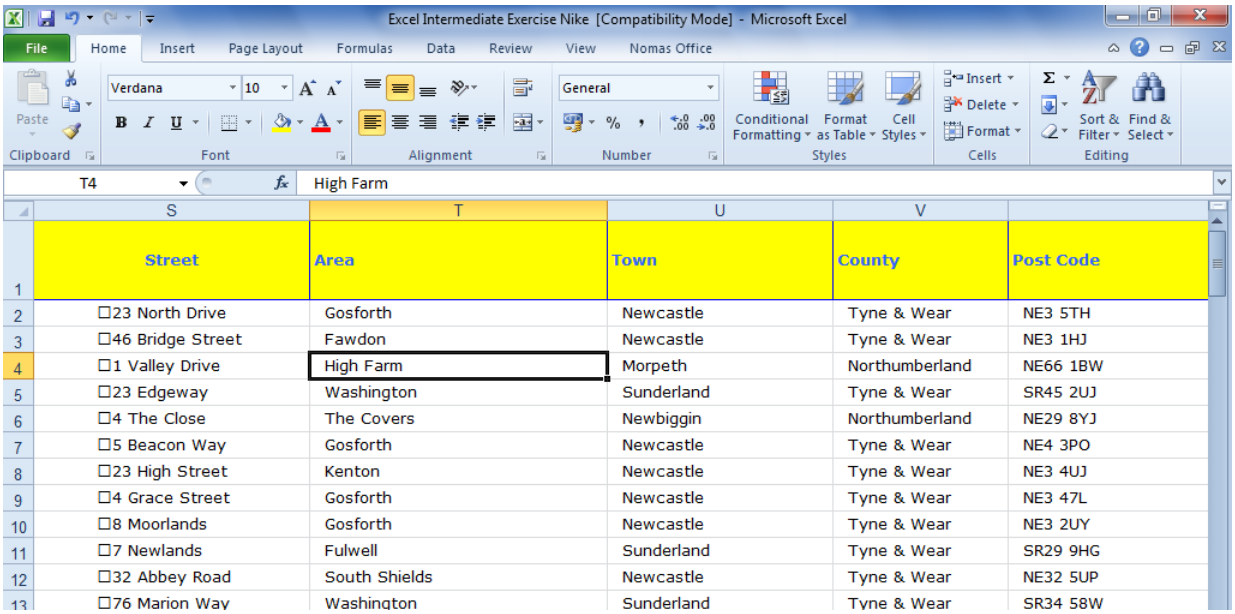
7 Click 'Finish'.

8 Assuming you have entered the required number of empty columns (as described previously), click 'OK'.



9 If you have not entered new columns, you will have to click 'Cancel' at this point, insert the blank columns & then go through the procedure again.

10 The data will then be separated into the required number of columns & in this example, the address will be split into the appropriate parts.



	S	T	U	V	
1	**Street**	**Area**	**Town**	**County**	**Post Code**
2	23 North Drive	Gosforth	Newcastle	Tyne & Wear	NE3 5TH
3	46 Bridge Street	Fawdon	Newcastle	Tyne & Wear	NE3 1HJ
4	1 Valley Drive	High Farm	Morpeth	Northumberland	NE66 1BW
5	23 Edgeway	Washington	Sunderland	Tyne & Wear	SR45 2UJ
6	4 The Close	The Covers	Newbiggin	Northumberland	NE29 8YJ
7	5 Beacon Way	Gosforth	Newcastle	Tyne & Wear	NE4 3PO
8	23 High Street	Kenton	Newcastle	Tyne & Wear	NE3 4UJ
9	4 Grace Street	Gosforth	Newcastle	Tyne & Wear	NE3 47L
10	8 Moorlands	Gosforth	Newcastle	Tyne & Wear	NE3 2UY
11	7 Newlands	Fulwell	Sunderland	Tyne & Wear	SR29 9HG
12	32 Abbey Road	South Shields	Newcastle	Tyne & Wear	NE32 5UP
13	76 Marion Way	Washington	Sunderland	Tyne & Wear	SR34 58W

Removing Spaces

Use the TRIM function to remove all spaces from text, except for single spaces between words.

=TRIM(S2)

The formula would need to be entered in a new column & then copied & pasted (use 'Paste Special') to paste the 'Values' over the existing data.

Removing Non-Printing Characters

Occasionally, data which has been exported from another application, may contain non-printing characters.

Use the CLEAN function to remove these characters from text.

=CLEAN(S2)

These 2 functions could be combined, in to a single formula.

=TRIM(CLEAN(S2))

In order that both operations are performed in a single formula, without the need to enter 2 separate formulae.

CALCULATIONS USING FORMULAE

Excel can perform calculations on your data. This can be done by using 'formulae' within your spreadsheet. All formulae within Excel have the equals sign (=) as the first character.

All formulae within Excel have the equals sign (=) as the first character.

All standard arithmetic operators can be used ;

Operation	Excel Key	Example
Addition	+ (plus sign)	=A1+B3
Subtraction	- (minus sign)	=A1-B3
Multiplication	* (star or asterisk)	=A1*B3
Division	/ (forward slash)	= A1/B3
Exponential	^ (caret)	=A1^2 (equiv to A1 squared)
Brackets	( ) (open / close brackets)	=(A1+B3)/C4

The order that a calculation is performed is important to remember. Excel follows the standard mathematical rules i.e. the following order is adopted ;

1	Anything in brackets is done first,….. then	**B**
2	Orders e.g. squared, square root etc.	**O**
3	Division.	**D**
4	Multiplication.	**M**
5	Addition.	**A**
6	Subtraction.	**S**

Thus, the following formulae ;

= 5+7*3 Produces the answer 26.
= (5+7)*3 Produces the answer 36.

Creating A Simple Formula

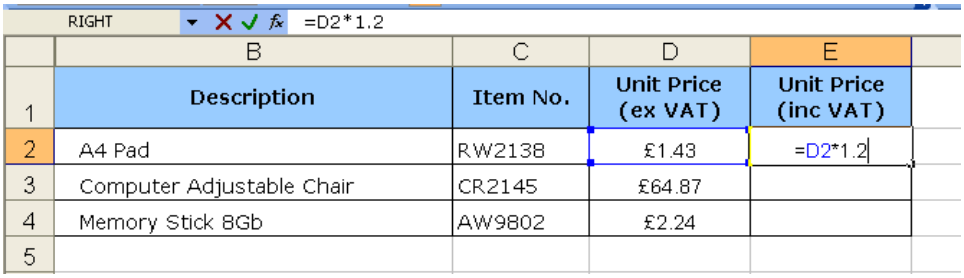
To create your own formula ;

1 Start with an equals sign =.
2 Enter the formula e.g. =54 / 7.
3 Press the 'green tick' on the toolbar or press the 'ENTER' key.
4 The cell will display the result of the formula.
5 The actual formula itself, will be visible in the 'Formula Bar'.

Formulae Involving Cell References

Excel has the ability to perform calculations based on the content of other cells in a spreadsheet (as in the example below).

1 Make the active cell, the cell where you want to put your formula.
2 Start with an equals sign =.
3 As you are using cell references, click in the first cell you require in your formula (D2, in the example below).

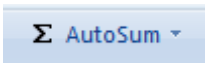


	B	C	D	E
1	Description	Item No.	Unit Price (ex VAT)	Unit Price (inc VAT)
2	A4 Pad	RW2138	£1.43	=D2*1.2
3	Computer Adjustable Chair	CR2145	£64.87	
4	Memory Stick 8Gb	AW9802	£2.24	
5				

4 Enter the required arithmetic operator e.g. *
5 Complete the remaining formula
6 Press the 'green tick' on the toolbar or press the 'ENTER' key.
7 The cell will display the result of the formula.
8 The actual formula itself, will be visible in the 'Formula Bar'.

Addition Of Columns Or Rows

To add a whole group of cells together, a formula such as '=A1+A2+A3….etc.' could be used, however, this would be rather tedious if there were hundreds of cells to add.

Using the 'AutoSum' button 

on the 'Formulas' or 'Home' tab, is the quickest method. To use the 'AutoSum' button ;

1 Move to the cell where the answer will be displayed.
2 Press the 'AutoSum' button
3 Excel makes a 'best guess' at which cells you are going to add up and displays them in the formula bar. It does this by looking at the cells directly above the active cell or if no data are present, to the left of the active cell.
4 If it has not chosen the correct 'cell range', select it using the mouse.
5 Press 'Enter'.

Copying Formulae – Relative & Absolute References

Formula can be copied into other cells and can be made either a ;

1 **Relative** reference, or
2 **Absolute** reference

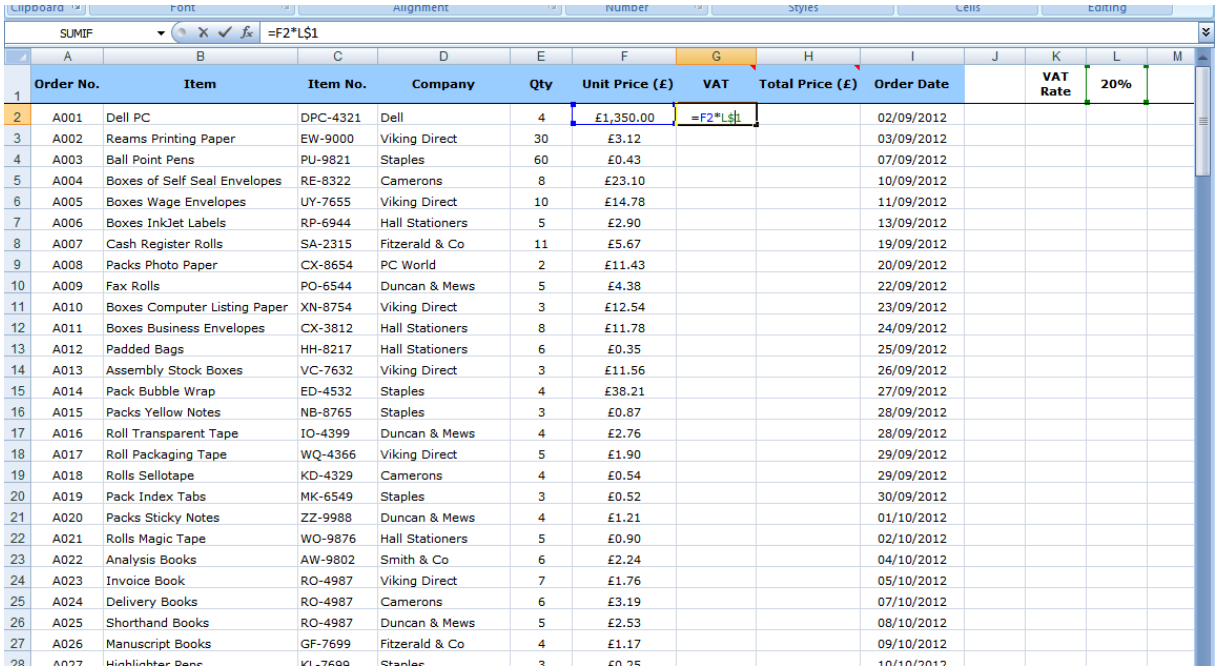
A **relative reference** e.g. F5, should be used if you always want to refer to cells relative to the cell containing the formula, even if you copy the formula. When you copy a formula, Excel automatically adjusts itself to look at the correct cells.

If you have a formula ;

=B6 * 7 and copy this down a column, the formulae below it, will become
=B7 * 7
=B8 * 7
=B9 * 7
=B10*7……..and so on.

If however, you want to refer to the same cell regardless of where the formula is on the worksheet, use an **absolute reference**.

A '$' sign should be placed before the column letter or row number (whichever is appropriate), in order to 'freeze' the cell reference when it is copied.



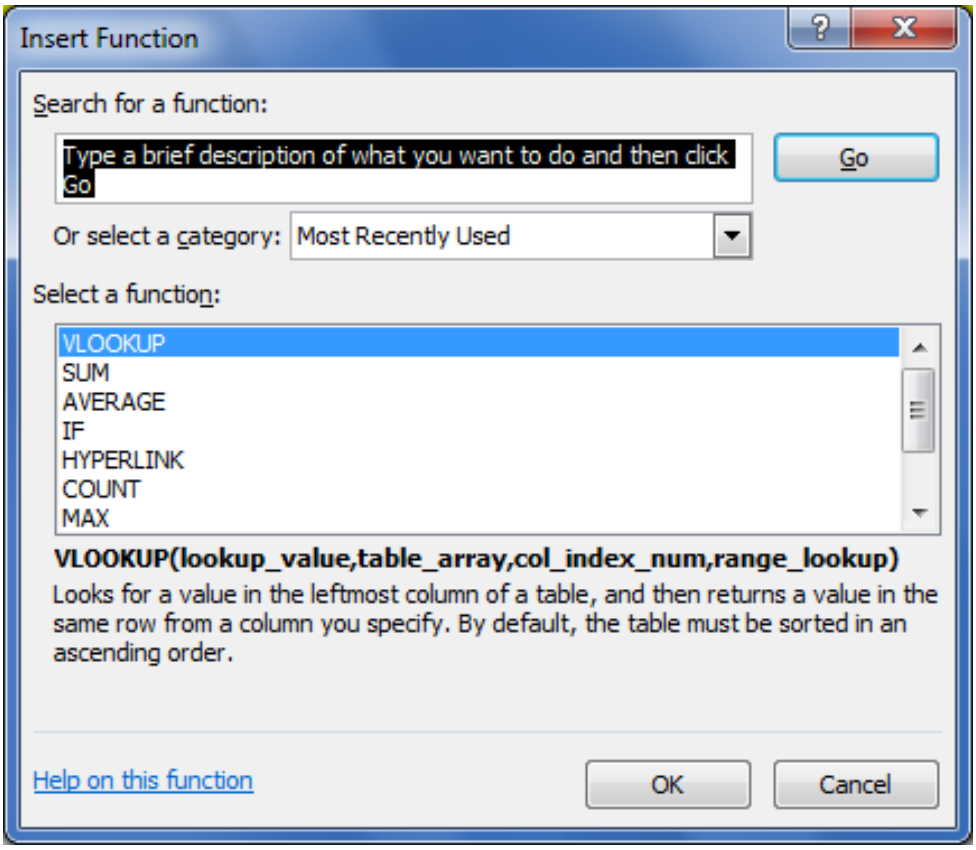
	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Order No.	Item	Item No.	Company	Qty	Unit Price (£)	VAT	Total Price (£)	Order Date		VAT Rate	20%	
2	A001	Dell PC	DPC-4321	Dell	4	£1,350.00	=F2*L$1		02/09/2012				
3	A002	Reams Printing Paper	EW-9000	Viking Direct	30	£3.12			03/09/2012				
4	A003	Ball Point Pens	PU-9821	Staples	60	£0.43			07/09/2012				
5	A004	Boxes of Self Seal Envelopes	RE-8322	Camerons	8	£23.10			10/09/2012				
6	A005	Boxes Wage Envelopes	UY-7655	Viking Direct	10	£14.78			11/09/2012				
7	A006	Boxes InkJet Labels	RP-6944	Hall Stationers	5	£2.90			13/09/2012				
8	A007	Cash Register Rolls	SA-2315	Fitzerald & Co	11	£5.67			19/09/2012				
9	A008	Packs Photo Paper	CX-8654	PC World	2	£11.43			20/09/2012				
10	A009	Fax Rolls	PO-6544	Duncan & Mews	5	£4.38			22/09/2012				
11	A010	Boxes Computer Listing Paper	XN-8754	Viking Direct	3	£12.54			23/09/2012				
12	A011	Boxes Business Envelopes	CX-3812	Hall Stationers	8	£11.78			24/09/2012				
13	A012	Padded Bags	HH-8217	Hall Stationers	6	£0.35			25/09/2012				
14	A013	Assembly Stock Boxes	VC-7632	Viking Direct	3	£11.56			26/09/2012				
15	A014	Pack Bubble Wrap	ED-4532	Staples	4	£38.21			27/09/2012				
16	A015	Packs Yellow Notes	NB-8765	Staples	3	£0.87			28/09/2012				
17	A016	Roll Transparent Tape	IO-4399	Duncan & Mews	4	£2.76			28/09/2012				
18	A017	Roll Packaging Tape	WQ-4366	Viking Direct	5	£1.90			29/09/2012				
19	A018	Rolls Sellotape	KD-4329	Camerons	4	£0.54			29/09/2012				
20	A019	Pack Index Tabs	MK-6549	Staples	3	£0.52			30/09/2012				
21	A020	Packs Sticky Notes	ZZ-9988	Duncan & Mews	4	£1.21			01/10/2012				
22	A021	Rolls Magic Tape	WO-9876	Hall Stationers	5	£0.90			02/10/2012				
23	A022	Analysis Books	AW-9802	Smith & Co	6	£2.24			04/10/2012				
24	A023	Invoice Book	RO-4987	Viking Direct	7	£1.76			05/10/2012				
25	A024	Delivery Books	RO-4987	Camerons	6	£3.19			07/10/2012				
26	A025	Shorthand Books	RO-4987	Duncan & Mews	5	£2.53			08/10/2012				
27	A026	Manuscript Books	GF-7699	Fitzerald & Co	4	£1.17			09/10/2012				

If, in the above example, in Column G, cell F2 is multiplied by the contents of L1 and you want all the subsequent cells, to be multiplied by L1, then you should use the formula =F2*L$1. In this example, L1 has become an absolute reference and when you copy this formula, it will always retain L1, although changing the cell numbers of column F.

=F2 * L$1
=F3 * L$1
=F4 * L$1
=F5 * L$1
=F6 * L$1……and so on.

Formulae Using Functions

In addition to simple mathematical operators e.g. multiplication, subtraction etc., Excel has a variety of 'Functions', these are available via the 'Insert Function' icon, on the 'Formulas' tab or the f_x button, to the left of the 'Formula Bar'.

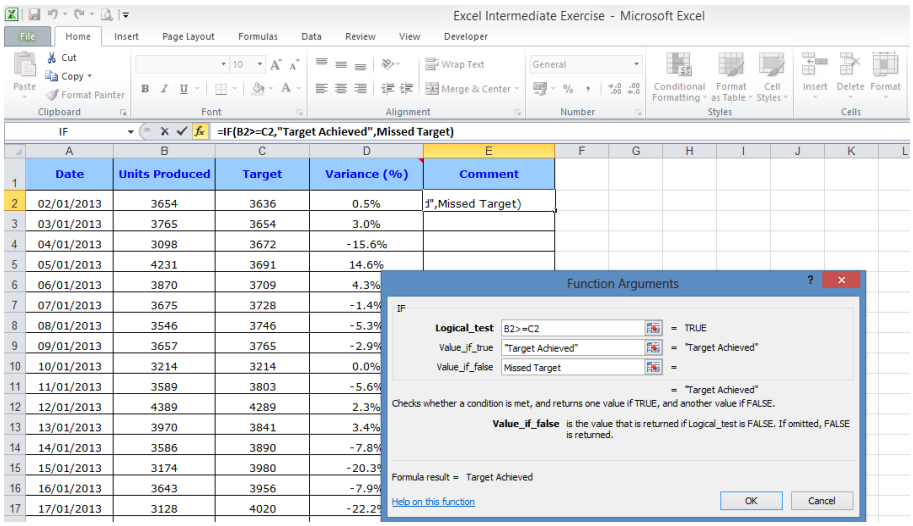


The use of several of the most commonly used functions e.g. SUM, AVERAGE, COUNT, were discussed in the 'Introduction' course.

Due to the large number of functions available, it is beyond the scope of this guide to cover all of these functions, however, the following examples show how to use some of the more commonly used functions. You can search for a function by typing the function name, in the 'Search for a function' box & clicking the 'GO' button.

Using IF Statements

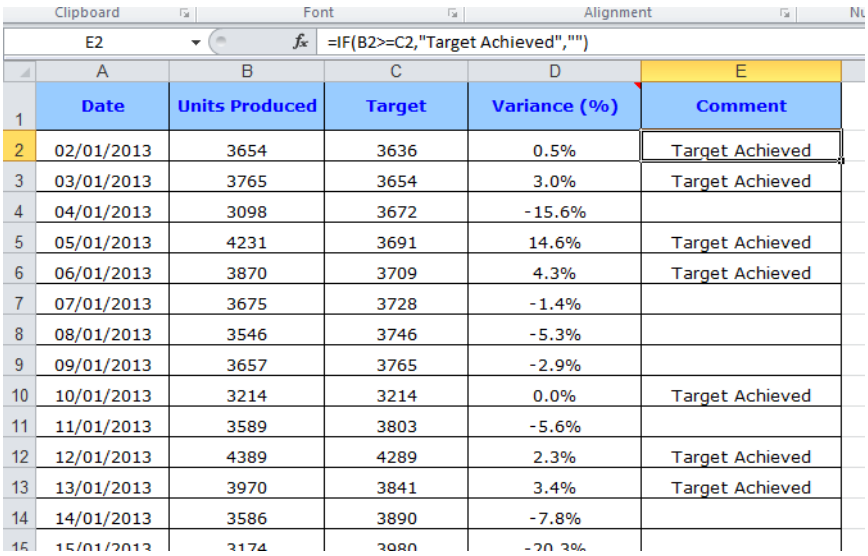
You can use the IF statement to determine if a particular 'criteria' is true or not, and then produce a response depending on the outcome. For example, if you had a 'Production' worksheet, detailing daily production figures & targets, you could use an IF function, to check whether production targets, have been achieved.



	Date	Units Produced	Target	Variance (%)	Comment
2	02/01/2013	3654	3636	0.5%	",Missed Target)
3	03/01/2013	3765	3654	3.0%	
4	04/01/2013	3098	3672	-15.6%	
5	05/01/2013	4231	3691	14.6%	
6	06/01/2013	3870	3709	4.3%	
7	07/01/2013	3675	3728	-1.4%	
8	08/01/2013	3546	3746	-5.3%	
9	09/01/2013	3657	3765	-2.9%	
10	10/01/2013	3214	3214	0.0%	
11	11/01/2013	3589	3803	-5.6%	
12	12/01/2013	4389	4289	2.3%	
13	13/01/2013	3970	3841	3.4%	
14	14/01/2013	3586	3890	-7.8%	
15	15/01/2013	3174	3980	-20.3%	
16	16/01/2013	3643	3956	-7.9%	
17	17/01/2013	3128	4020	-22.2%	

The example above, uses an IF function (column 'E') to check production figures.

If you do not want both the 'True' & 'False' text to appear, you must use a blank set of speech marks "" in the box, otherwise FALSE will be displayed in the cell.



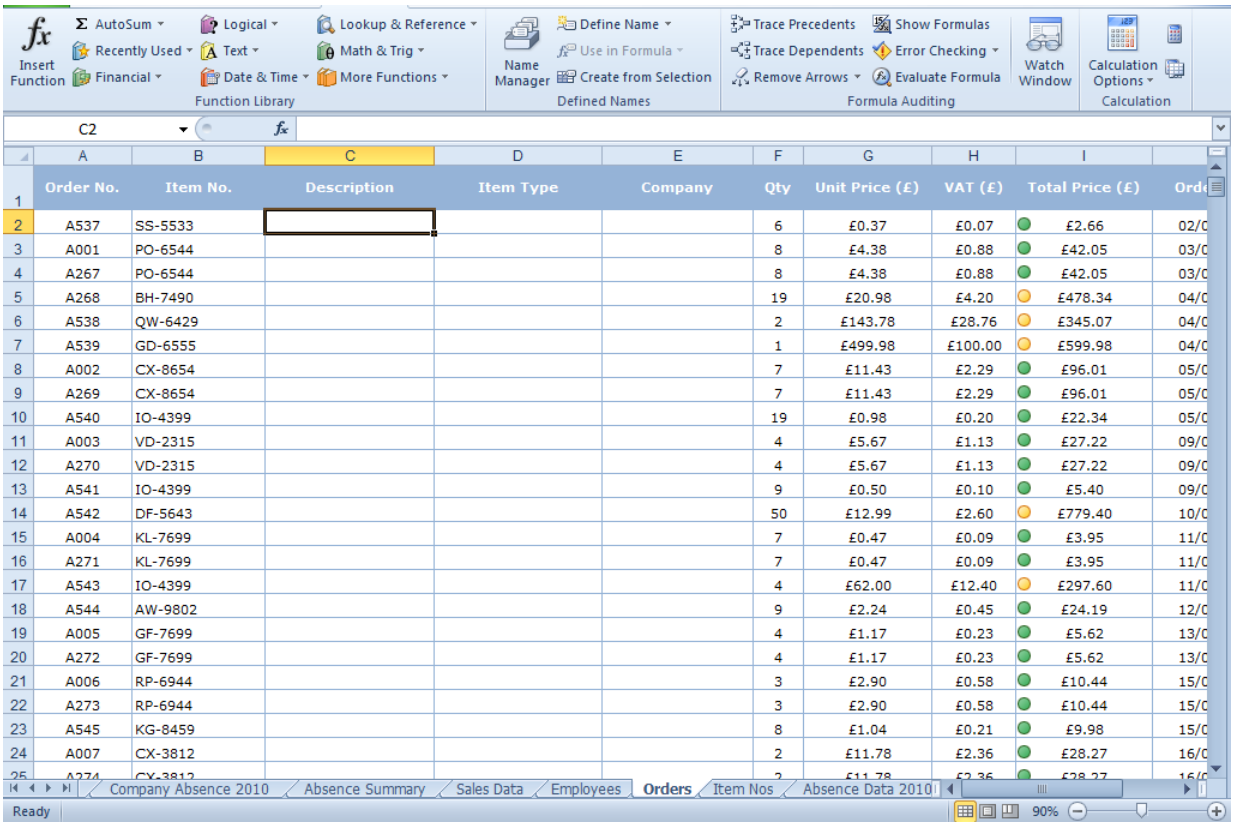
	Date	Units Produced	Target	Variance (%)	Comment
2	02/01/2013	3654	3636	0.5%	Target Achieved
3	03/01/2013	3765	3654	3.0%	Target Achieved
4	04/01/2013	3098	3672	-15.6%	
5	05/01/2013	4231	3691	14.6%	Target Achieved
6	06/01/2013	3870	3709	4.3%	Target Achieved
7	07/01/2013	3675	3728	-1.4%	
8	08/01/2013	3546	3746	-5.3%	
9	09/01/2013	3657	3765	-2.9%	
10	10/01/2013	3214	3214	0.0%	Target Achieved
11	11/01/2013	3589	3803	-5.6%	
12	12/01/2013	4389	4289	2.3%	Target Achieved
13	13/01/2013	3970	3841	3.4%	Target Achieved
14	14/01/2013	3586	3890	-7.8%	
15	15/01/2013	3174	3980	-20.3%	

Looking Up Values In A Table

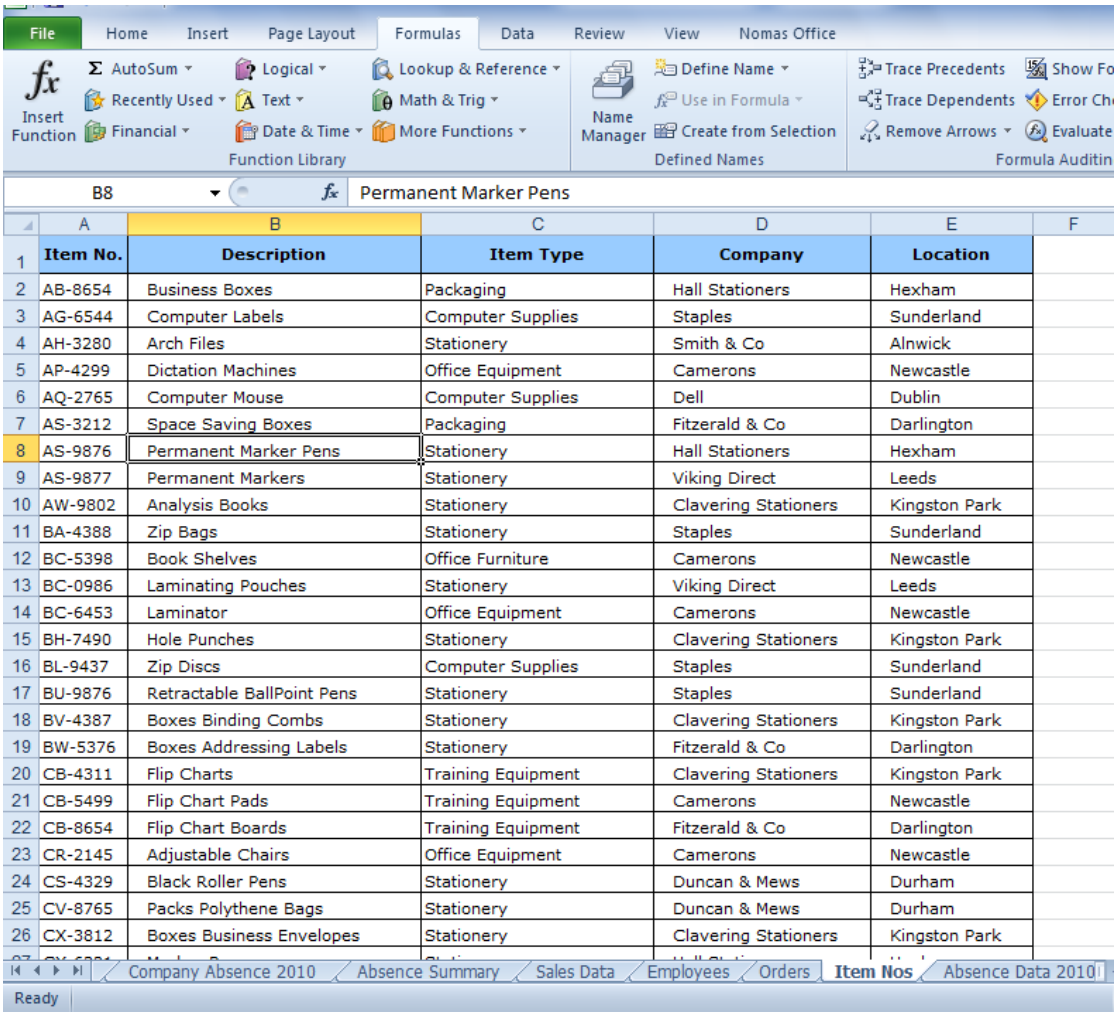
You can look up the contents of various cells within a data set. For example, if an item has a particular code, you simply enter the code number and the name of the item, will be displayed.

Using VLOOKUP

This function looks down a vertical column of data until an appropriate value is found. In the example below, an orders sheet is set up, so that when the 'Item No. is present in column 'B', it 'looks up' the 'Description', 'Item Type' & 'Company' & enters these into columns 'C', 'D' & 'E' respectively.



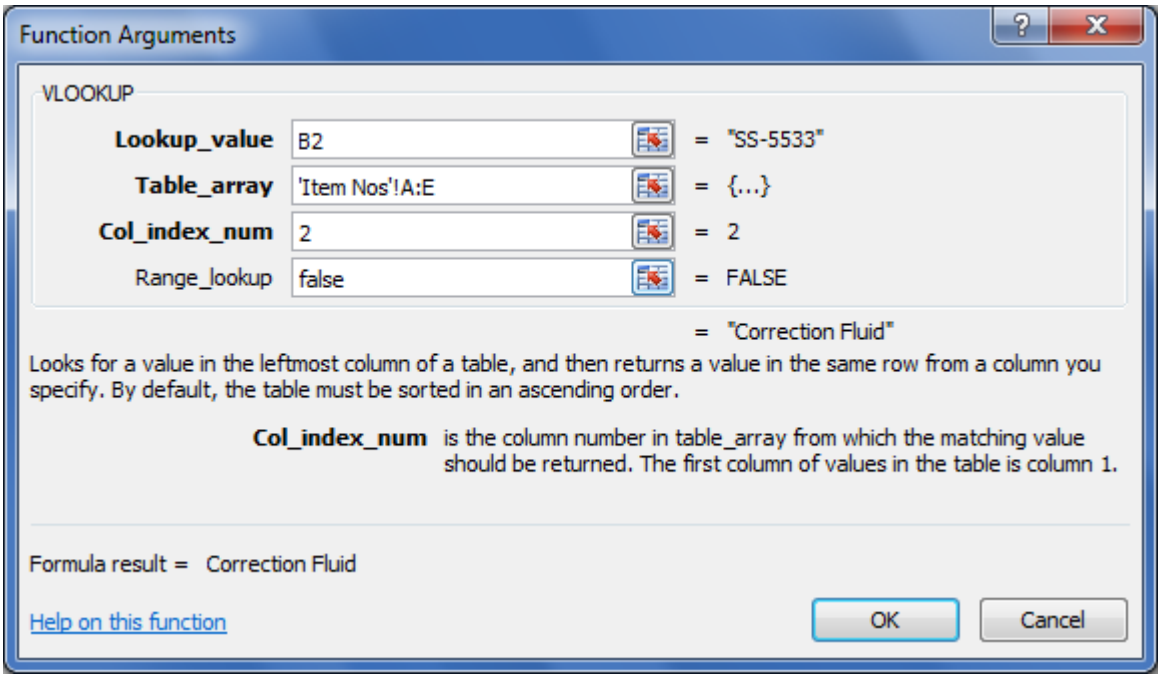
The 'Description', 'Item Type' & 'Company' are stored on a separate sheet 'Item Nos' (above).



	A	B	C	D	E	F
1	**Item No.**	**Description**	**Item Type**	**Company**	**Location**	
2	AB-8654	Business Boxes	Packaging	Hall Stationers	Hexham	
3	AG-6544	Computer Labels	Computer Supplies	Staples	Sunderland	
4	AH-3280	Arch Files	Stationery	Smith & Co	Alnwick	
5	AP-4299	Dictation Machines	Office Equipment	Camerons	Newcastle	
6	AQ-2765	Computer Mouse	Computer Supplies	Dell	Dublin	
7	AS-3212	Space Saving Boxes	Packaging	Fitzerald & Co	Darlington	
8	AS-9876	Permanent Marker Pens	Stationery	Hall Stationers	Hexham	
9	AS-9877	Permanent Markers	Stationery	Viking Direct	Leeds	
10	AW-9802	Analysis Books	Stationery	Clavering Stationers	Kingston Park	
11	BA-4388	Zip Bags	Stationery	Staples	Sunderland	
12	BC-5398	Book Shelves	Office Furniture	Camerons	Newcastle	
13	BC-0986	Laminating Pouches	Stationery	Viking Direct	Leeds	
14	BC-6453	Laminator	Office Equipment	Camerons	Newcastle	
15	BH-7490	Hole Punches	Stationery	Clavering Stationers	Kingston Park	
16	BL-9437	Zip Discs	Computer Supplies	Staples	Sunderland	
17	BU-9876	Retractable BallPoint Pens	Stationery	Staples	Sunderland	
18	BV-4387	Boxes Binding Combs	Stationery	Clavering Stationers	Kingston Park	
19	BW-5376	Boxes Addressing Labels	Stationery	Fitzerald & Co	Darlington	
20	CB-4311	Flip Charts	Training Equipment	Clavering Stationers	Kingston Park	
21	CB-5499	Flip Chart Pads	Training Equipment	Camerons	Newcastle	
22	CB-8654	Flip Chart Boards	Training Equipment	Fitzerald & Co	Darlington	
23	CR-2145	Adjustable Chairs	Office Equipment	Camerons	Newcastle	
24	CS-4329	Black Roller Pens	Stationery	Duncan & Mews	Durham	
25	CV-8765	Packs Polythene Bags	Stationery	Duncan & Mews	Durham	
26	CX-3812	Boxes Business Envelopes	Stationery	Clavering Stationers	Kingston Park	

To work through the VLOOKUP function, the worksheet that holds the reference data i.e. the 'Item Nos' sheet, must have the reference column i.e. 'Item No.' as the first column, on the left of the main data (see above).

You would enter the following parameters, in the VLOOKUP function ;



You will thus end up with the following formula, in your cell.

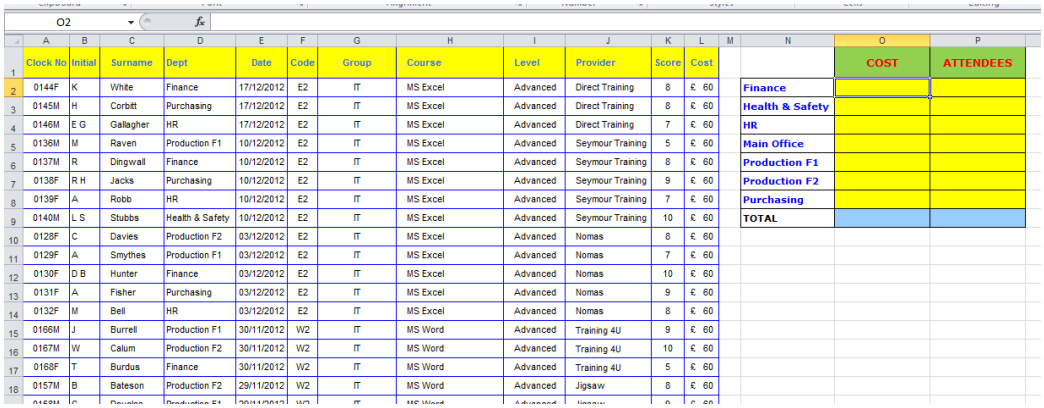
=VLOOKUP(B2, 'Item Nos'!A:E,2,FALSE)

Where :

Lookup_value	=	Cell where Item No. is entered (**B2**)
Table_array	=	Area where Item No & Description are stored (**Item Nos'!A:E**)
Col_index_num	=	Second column, along to the right of column 'A' (**2**)
Range_lookup	=	Ensures an exact match is found (**False**)

Conditional Sums

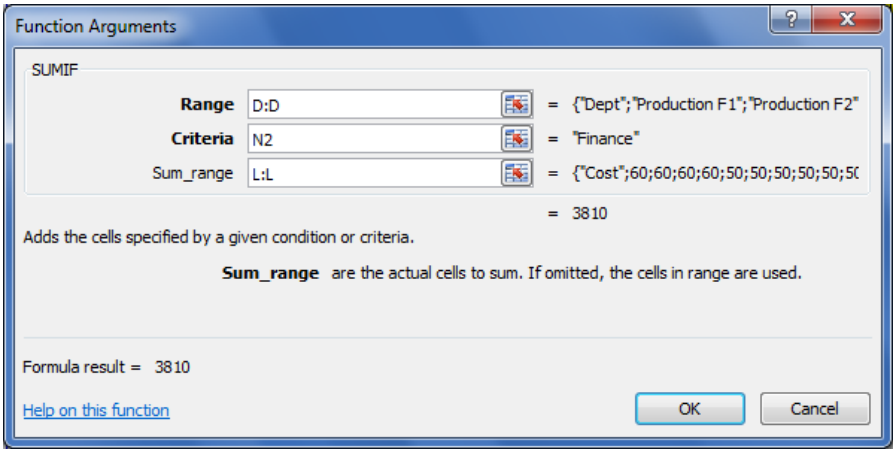
To 'Sum' values in a list (that meet specific conditions) use the 'SUMIF' function.



Clock No	Initial	Surname	Dept	Date	Code	Group	Course	Level	Provider	Score	Cost
0144F	K	White	Finance	17/12/2012	E2	IT	MS Excel	Advanced	Direct Training	8	£ 60
0145M	H	Corbitt	Purchasing	17/12/2012	E2	IT	MS Excel	Advanced	Direct Training	8	£ 60
0146M	E G	Gallagher	HR	17/12/2012	E2	IT	MS Excel	Advanced	Direct Training	7	£ 60
0136M	M	Raven	Production F1	10/12/2012	E2	IT	MS Excel	Advanced	Seymour Training	5	£ 60
0137M	R	Dingwall	Finance	10/12/2012	E2	IT	MS Excel	Advanced	Seymour Training	8	£ 60
0138F	R H	Jacks	Purchasing	10/12/2012	E2	IT	MS Excel	Advanced	Seymour Training	9	£ 60
0139F	A	Robb	HR	10/12/2012	E2	IT	MS Excel	Advanced	Seymour Training	7	£ 60
0140M	L S	Stubbs	Health & Safety	10/12/2012	E2	IT	MS Excel	Advanced	Seymour Training	10	£ 60
0128F	C	Davies	Production F2	03/12/2012	E2	IT	MS Excel	Advanced	Nomas	8	£ 60
0129F	A	Smythes	Production F1	03/12/2012	E2	IT	MS Excel	Advanced	Nomas	7	£ 60
0130F	D B	Hunter	Finance	03/12/2012	E2	IT	MS Excel	Advanced	Nomas	10	£ 60
0131F	A	Fisher	Purchasing	03/12/2012	E2	IT	MS Excel	Advanced	Nomas	9	£ 60
0132F	M	Bell	HR	03/12/2012	E2	IT	MS Excel	Advanced	Nomas	8	£ 60
0166M	J	Burrell	Production F1	30/11/2012	W2	IT	MS Word	Advanced	Training 4U	9	£ 60
0167M	W	Calum	Production F2	30/11/2012	W2	IT	MS Word	Advanced	Training 4U	10	£ 60
0168F	T	Burdus	Finance	30/11/2012	W2	IT	MS Word	Advanced	Training 4U	5	£ 60
0157M	B	Bateson	Production F2	29/11/2012	W2	IT	MS Word	Advanced	Jigsaw	8	£ 60

	COST	ATTENDEES
Finance		
Health & Safety		
HR		
Main Office		
Production F1		
Production F2		
Purchasing		
TOTAL		

The formula below, calculates the total cost of all courses, attended by Finance employees.



=SUMIF(D:D,N2,L:L)

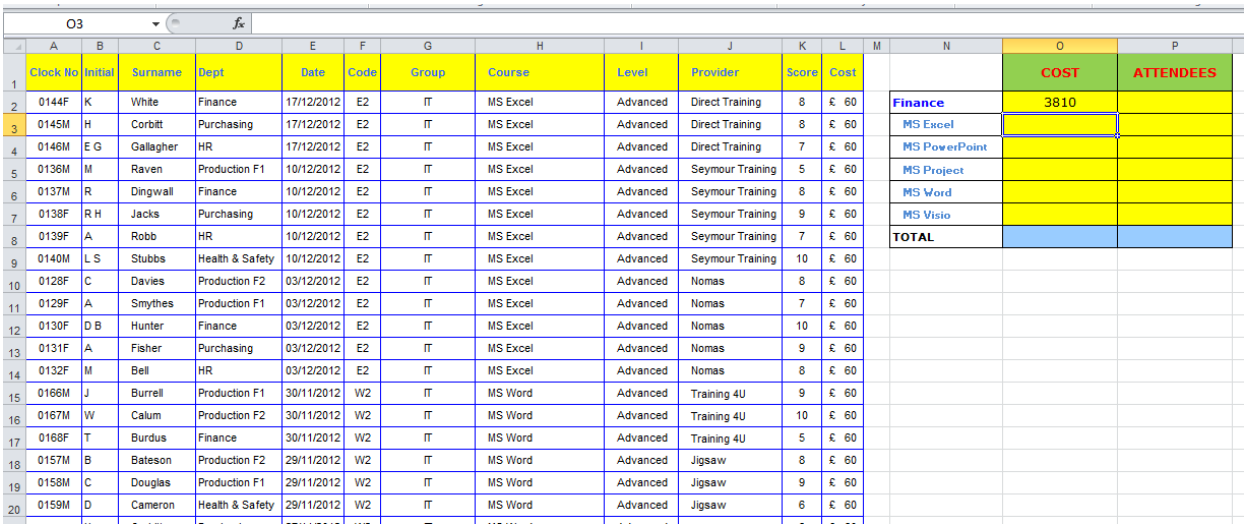
Where ;

Range — Is the range of cells you want evaluated (**D:D**)

Criteria — Is the criteria, in the form of a cell reference that defines which cells will be added. E.g. in the above example, the Total Cost is calculated, using a cell reference of '**N2**', for the criteria.

Sum_range — Are the actual cells to sum. The cells in 'sum_range' are summed only if their corresponding cells in 'range', match the criteria (**L:L**).

There is a new function in Excel 2010 (**SUMIFS**), which allows the addition of cells in a range that meet multiple criteria.

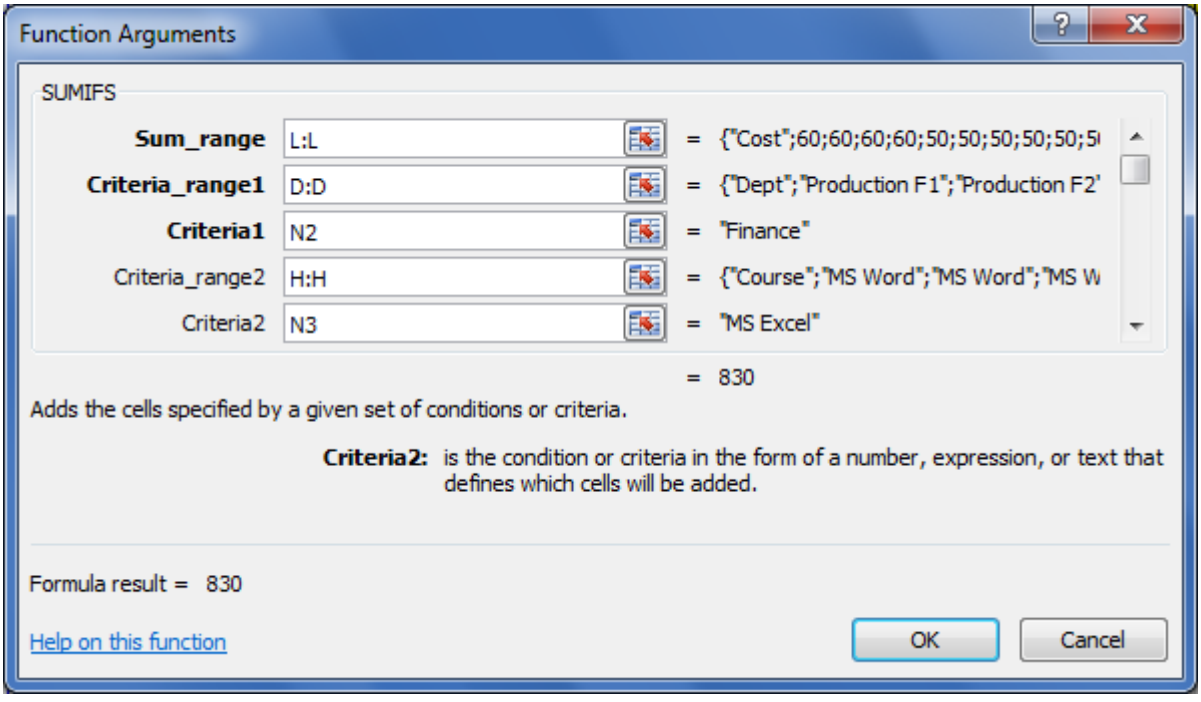


Clock No	Initial	Surname	Dept	Date	Code	Group	Course	Level	Provider	Score	Cost
0144F	K	White	Finance	17/12/2012	E2	IT	MS Excel	Advanced	Direct Training	8	£ 60
0145M	H	Corbitt	Purchasing	17/12/2012	E2	IT	MS Excel	Advanced	Direct Training	8	£ 60
0146M	E G	Gallagher	HR	17/12/2012	E2	IT	MS Excel	Advanced	Direct Training	7	£ 60
0136M	M	Raven	Production F1	10/12/2012	E2	IT	MS Excel	Advanced	Seymour Training	5	£ 60
0137M	R	Dingwall	Finance	10/12/2012	E2	IT	MS Excel	Advanced	Seymour Training	8	£ 60
0138F	R H	Jacks	Purchasing	10/12/2012	E2	IT	MS Excel	Advanced	Seymour Training	9	£ 60
0139F	A	Robb	HR	10/12/2012	E2	IT	MS Excel	Advanced	Seymour Training	7	£ 60
0140M	L S	Stubbs	Health & Safety	10/12/2012	E2	IT	MS Excel	Advanced	Seymour Training	10	£ 60
0128F	C	Davies	Production F2	03/12/2012	E2	IT	MS Excel	Advanced	Nomas	8	£ 60
0129F	A	Smythes	Production F1	03/12/2012	E2	IT	MS Excel	Advanced	Nomas	7	£ 60
0130F	D B	Hunter	Finance	03/12/2012	E2	IT	MS Excel	Advanced	Nomas	10	£ 60
0131F	A	Fisher	Purchasing	03/12/2012	E2	IT	MS Excel	Advanced	Nomas	9	£ 60
0132F	M	Bell	HR	03/12/2012	E2	IT	MS Excel	Advanced	Nomas	8	£ 60
0166M	J	Burrell	Production F1	30/11/2012	W2	IT	MS Word	Advanced	Training 4U	9	£ 60
0167M	W	Calum	Production F2	30/11/2012	W2	IT	MS Word	Advanced	Training 4U	10	£ 60
0168F	T	Burdus	Finance	30/11/2012	W2	IT	MS Word	Advanced	Training 4U	5	£ 60
0157M	B	Bateson	Production F2	29/11/2012	W2	IT	MS Word	Advanced	Jigsaw	8	£ 60
0158M	C	Douglas	Production F1	29/11/2012	W2	IT	MS Word	Advanced	Jigsaw	9	£ 60
0159M	D	Cameron	Health & Safety	29/11/2012	W2	IT	MS Word	Advanced	Jigsaw	6	£ 60

	COST	ATTENDEES
Finance	3810	
MS Excel		
MS PowerPoint		
MS Project		
MS Word		
MS Visio		
TOTAL		

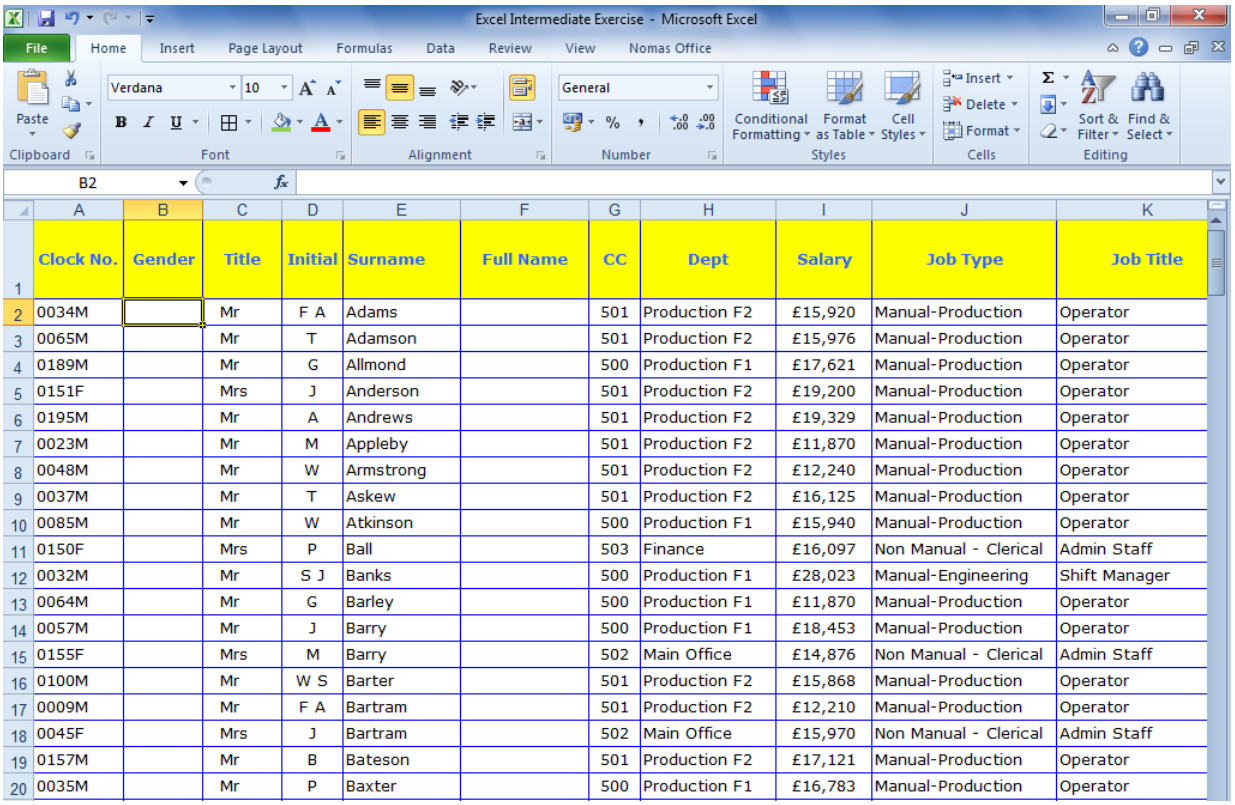
For example, in the above data set, you could calculate the total cost (Column L) of all Excel courses (Column H), attended by Finance employees (Column D).

The expression would look like ;



Extracting Data from the Left or Right of a Cell

If data in a cell, needs to be 'split up' or certain characters extracted from either end of a data set, then the 'Left' or 'Right' function can be used. For example, if an employees number was in the format 0045M, where the last character denoted the gender of the person and the data was stored in Column A, then the final character could be extracted using the formula ;



	A	B	C	D	E	F	G	H	I	J	K
1	Clock No.	Gender	Title	Initial	Surname	Full Name	CC	Dept	Salary	Job Type	Job Title
2	0034M		Mr	F A	Adams		501	Production F2	£15,920	Manual-Production	Operator
3	0065M		Mr	T	Adamson		501	Production F2	£15,976	Manual-Production	Operator
4	0189M		Mr	G	Allmond		500	Production F1	£17,621	Manual-Production	Operator
5	0151F		Mrs	J	Anderson		501	Production F2	£19,200	Manual-Production	Operator
6	0195M		Mr	A	Andrews		501	Production F2	£19,329	Manual-Production	Operator
7	0023M		Mr	M	Appleby		501	Production F2	£11,870	Manual-Production	Operator
8	0048M		Mr	W	Armstrong		501	Production F2	£12,240	Manual-Production	Operator
9	0037M		Mr	T	Askew		501	Production F2	£16,125	Manual-Production	Operator
10	0085M		Mr	W	Atkinson		500	Production F1	£15,940	Manual-Production	Operator
11	0150F		Mrs	P	Ball		503	Finance	£16,097	Non Manual - Clerical	Admin Staff
12	0032M		Mr	S J	Banks		500	Production F1	£28,023	Manual-Engineering	Shift Manager
13	0064M		Mr	G	Barley		500	Production F1	£11,870	Manual-Production	Operator
14	0057M		Mr	J	Barry		500	Production F1	£18,453	Manual-Production	Operator
15	0155F		Mrs	M	Barry		502	Main Office	£14,876	Non Manual - Clerical	Admin Staff
16	0100M		Mr	W S	Barter		501	Production F2	£15,868	Manual-Production	Operator
17	0009M		Mr	F A	Bartram		501	Production F2	£12,210	Manual-Production	Operator
18	0045F		Mrs	J	Bartram		502	Main Office	£15,970	Non Manual - Clerical	Admin Staff
19	0157M		Mr	B	Bateson		501	Production F2	£17,121	Manual-Production	Operator
20	0035M		Mr	P	Baxter		500	Production F1	£16,783	Manual-Production	Operator

=RIGHT(A2,1)

Where ;

Text = cell containing data e.g. Clock No. (**A2**)

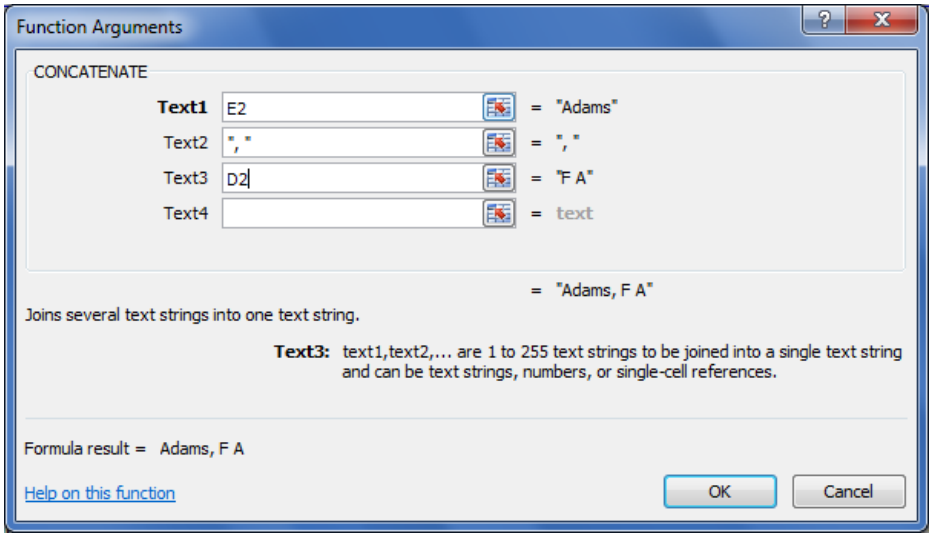
Num_chars = no. of charatcers from the right of this cell, to extract (**1**)

Combining Cell Content

It is possible to combine or join together information, from different columns on a spreadsheet, using the 'Concatenate' function. E.g. if the employees 'Surname' & 'Initial', are stored in separate columns in a worksheet.

	A	B	C	D	E	F	G	H	I	J	
1	Clock No.	Gender	Title	Initial	Surname	Full Name	CC	Dept	Salary	Job Type	
2	0034M	M	Mr	F A	Adams	=CONCATENATE(E2,", ",D2)	501	Production F2	£15,920	Manual-Production	Oper
3	0065M	M	Mr	T	Adamson		501	Production F2	£15,976	Manual-Production	Oper
4	0189M	M	Mr	G	Allmond		500	Production F1	£17,621	Manual-Production	Oper
5	0151F	F	Mrs	J	Anderson		501	Production F2	£19,200	Manual-Production	Oper
6	0195M	M	Mr	A	Andrews		501	Production F2	£19,329	Manual-Production	Oper
7	0023M	M	Mr	M	Appleby		501	Production F2	£11,870	Manual-Production	Oper
8	0048M	M	Mr	W	Armstrong		501	Production F2	£12,240	Manual-Production	Oper
9	0037M	M	Mr	T	Askew		501	Production F2	£16,125	Manual-Production	Oper
10	0085M	M	Mr	W	Atkinson		500	Production F1	£15,940	Manual-Production	Oper
11	0150F	F	Mrs	P	Ball		503	Finance	£16,097	Non Manual - Clerical	Adm
12	0032M	M	Mr	S J	Banks		500	Production F1	£28,023	Manual-Engineering	Shift
13	0064M	M	Mr	G	Barley		500	Production F1	£11,870	Manual-Production	Oper
14	0057M	M	Mr	J	Barry		500	Production F1	£18,453	Manual-Production	Oper
15	0155F	F	Mrs	M	Barry		502	Main Office	£14,876	Non Manual - Clerical	Adm
16	0100M	M	Mr	W S	Barter		501	Production F2	£15,868	Manual-Production	Oper
17	0009M	M	Mr	F A	Bartram		501	Production F2	£12,210	Manual-Production	Oper

=CONCATENATE(E2," , ",D2)



Where ;

Text 1, 2, 3 etc = Cells to be combined (**E2, D2**)

" " = Use " " to indicate space between cells.

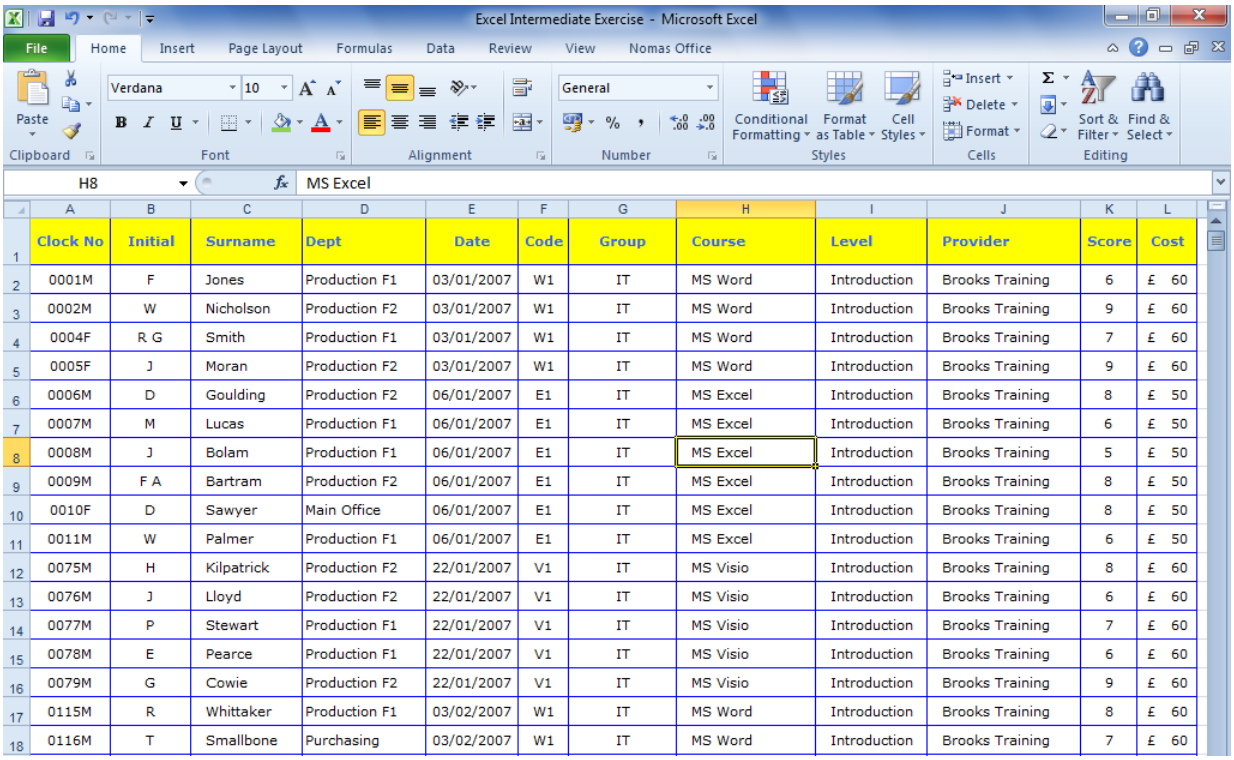
PIVOT TABLE

What Is A Pivot Table ?

A Pivot Table is an interactive worksheet table that summarises and analyses data from an existing list. You decide which of the fields (in the list) are to be arranged in rows and columns. You can re-arrange the table very easily, in effect 'twisting' the data around - hence the name Pivot Table.

Most Excel spreadsheets are generally of the same format i.e. they contain a series of fields (column headings) containing data in rows.

The following example shows a spreadsheet that contains information on the training carried out within a company, from 2007-2013. It lists the delegate details, training provider, course and cost of training. It contains a lot of information & it is very difficult to get an overall 'summarised' view. This is where the 'power' of a Pivot Table lies. They effectively display the result of a 'database analysis'.

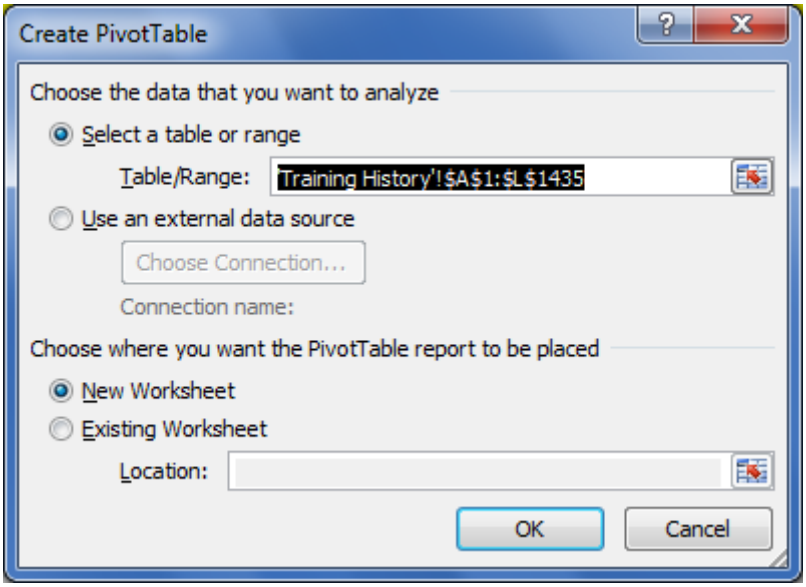


	A	B	C	D	E	F	G	H	I	J	K	L
1	Clock No	Initial	Surname	Dept	Date	Code	Group	Course	Level	Provider	Score	Cost
2	0001M	F	Jones	Production F1	03/01/2007	W1	IT	MS Word	Introduction	Brooks Training	6	£ 60
3	0002M	W	Nicholson	Production F2	03/01/2007	W1	IT	MS Word	Introduction	Brooks Training	9	£ 60
4	0004F	R G	Smith	Production F1	03/01/2007	W1	IT	MS Word	Introduction	Brooks Training	7	£ 60
5	0005F	J	Moran	Production F2	03/01/2007	W1	IT	MS Word	Introduction	Brooks Training	9	£ 60
6	0006M	D	Goulding	Production F2	06/01/2007	E1	IT	MS Excel	Introduction	Brooks Training	8	£ 50
7	0007M	M	Lucas	Production F1	06/01/2007	E1	IT	MS Excel	Introduction	Brooks Training	6	£ 50
8	0008M	J	Bolam	Production F1	06/01/2007	E1	IT	MS Excel	Introduction	Brooks Training	5	£ 50
9	0009M	F A	Bartram	Production F2	06/01/2007	E1	IT	MS Excel	Introduction	Brooks Training	8	£ 50
10	0010F	D	Sawyer	Main Office	06/01/2007	E1	IT	MS Excel	Introduction	Brooks Training	8	£ 50
11	0011M	W	Palmer	Production F1	06/01/2007	E1	IT	MS Excel	Introduction	Brooks Training	6	£ 50
12	0075M	H	Kilpatrick	Production F2	22/01/2007	V1	IT	MS Visio	Introduction	Brooks Training	8	£ 60
13	0076M	J	Lloyd	Production F2	22/01/2007	V1	IT	MS Visio	Introduction	Brooks Training	6	£ 60
14	0077M	P	Stewart	Production F1	22/01/2007	V1	IT	MS Visio	Introduction	Brooks Training	7	£ 60
15	0078M	E	Pearce	Production F1	22/01/2007	V1	IT	MS Visio	Introduction	Brooks Training	6	£ 60
16	0079M	G	Cowie	Production F2	22/01/2007	V1	IT	MS Visio	Introduction	Brooks Training	9	£ 60
17	0115M	R	Whittaker	Production F1	03/02/2007	W1	IT	MS Word	Introduction	Brooks Training	8	£ 60
18	0116M	T	Smallbone	Purchasing	03/02/2007	W1	IT	MS Word	Introduction	Brooks Training	7	£ 60

The Pivot Table Wizard

You create Pivot Tables by using the Pivot Table Wizard. Although this only takes a few moments, it is worth spending some time to decide how you want to summarise your data. To create a Pivot Table ;

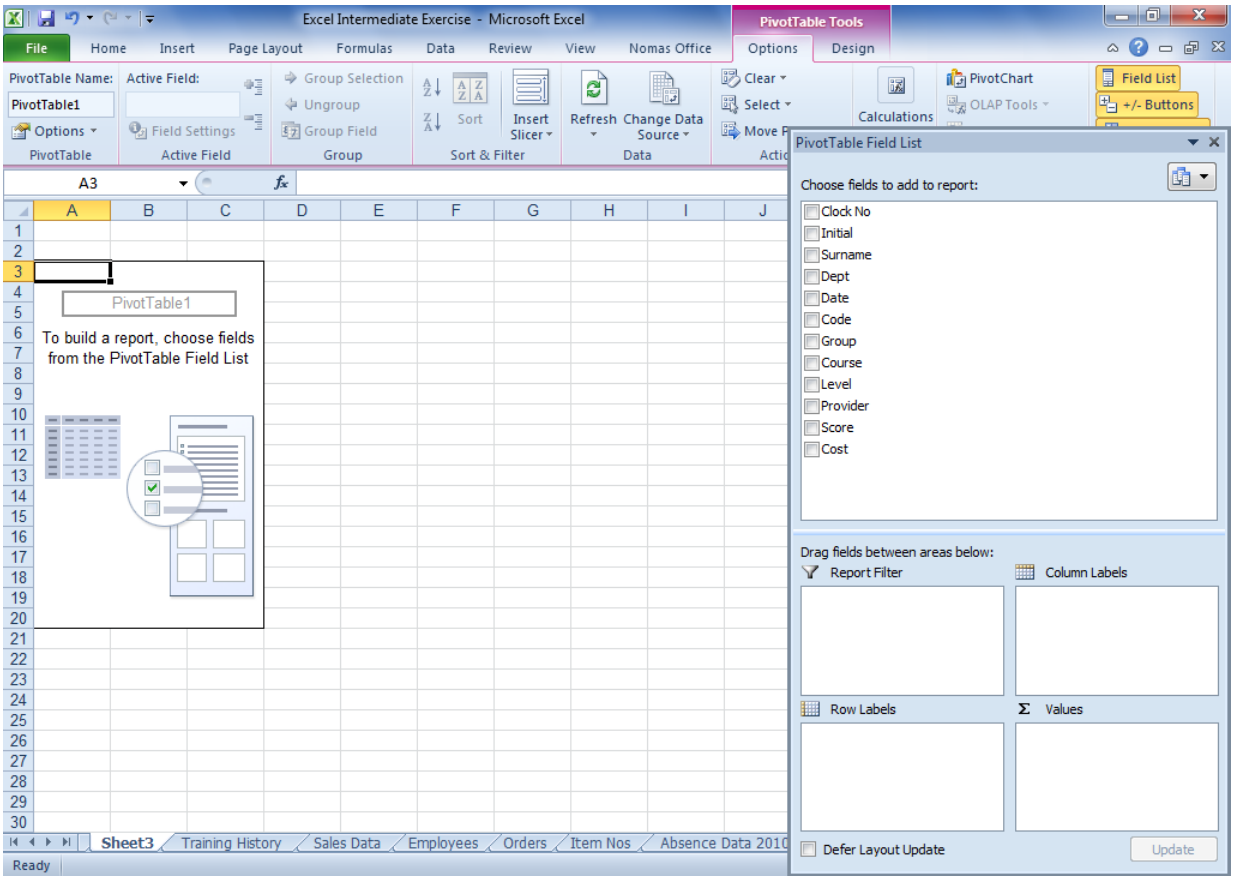
1 Select a cell in your data & select 'Pivot Table' from the 'Insert' tab.



2 The range of your data should be entered automatically, modify, if not correct.

3 Select whether the pivot table is to be placed on a new worksheet or within your existing worksheet.

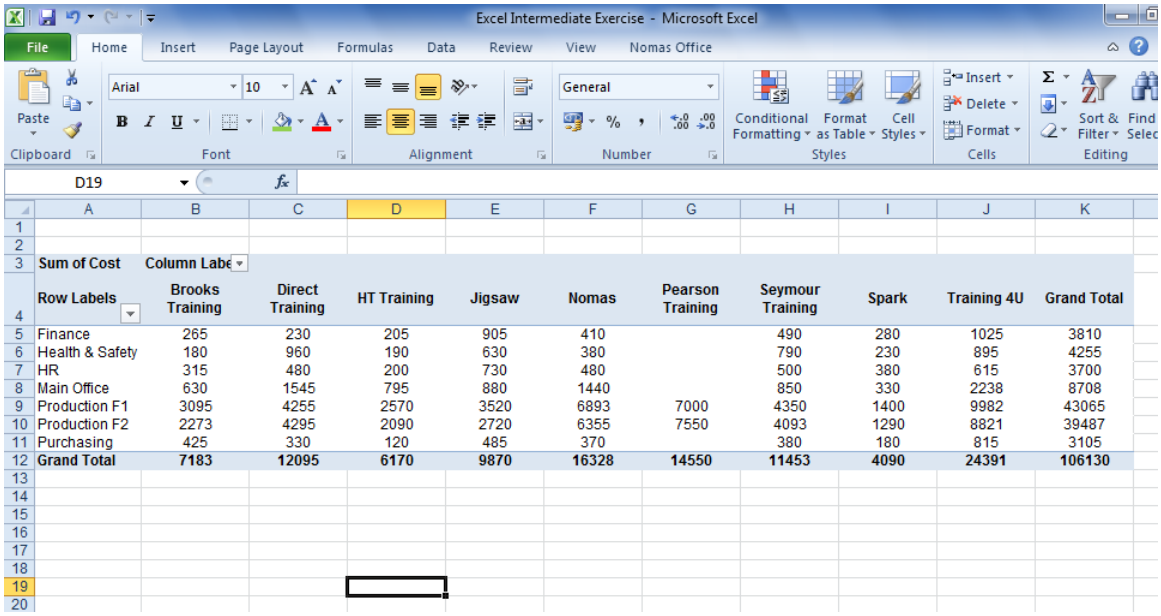
4 Click 'OK'.



5 You need to drag (or tick) the 'Fields' from the right hand side, onto the appropriate lower part of the table (areas marked 'Drag Fields Between Areas Below') & into the 'Row', 'Column', 'Values' areas.

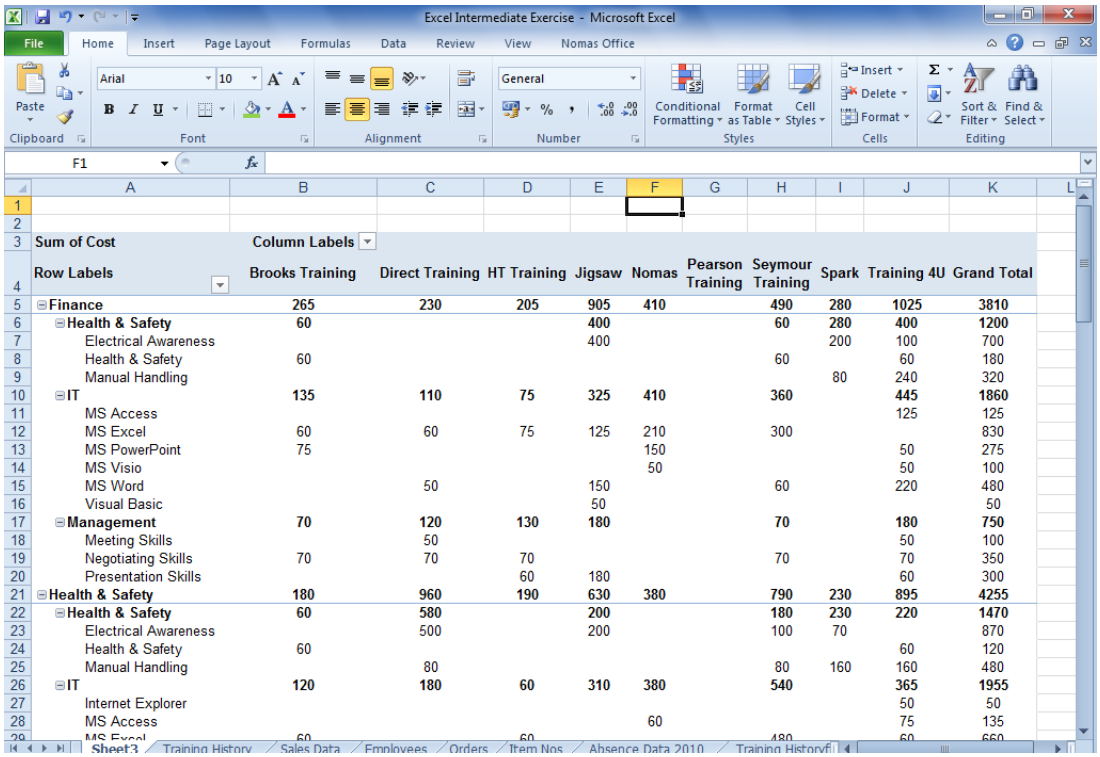
VALUES	This field contains the data that you want to summarise (often a numeric field).
ROW	This is the field that you want to appear as rows with labels down the side of the table.
COLUMN	This is the field that you want to appear as columns with labels across the top of the table.
REPORT FILTER	See later.

6 The Pivot Table is created (next page).



Sum of Cost	Column Labels									
Row Labels	Brooks Training	Direct Training	HT Training	Jigsaw	Nomas	Pearson Training	Seymour Training	Spark	Training 4U	Grand Total
Finance	265	230	205	905	410		490	280	1025	3810
Health & Safety	180	960	190	630	380		790	230	895	4255
HR	315	480	200	730	480		500	380	615	3700
Main Office	630	1545	795	880	1440		850	330	2238	8708
Production F1	3095	4255	2570	3520	6893	7000	4350	1400	9982	43065
Production F2	2273	4295	2090	2720	6355	7550	4093	1290	8821	39487
Purchasing	425	330	120	485	370		380	180	815	3105
Grand Total	**7183**	**12095**	**6170**	**9870**	**16328**	**14550**	**11453**	**4090**	**24391**	**106130**

7 You can have several field headings, in any one of these areas. Example below has 'Dept', 'Group' & 'Course', in the 'Row' area.



Sum of Cost	Column Labels									
Row Labels	Brooks Training	Direct Training	HT Training	Jigsaw	Nomas	Pearson Training	Seymour Training	Spark	Training 4U	Grand Total
Finance	**265**	**230**	**205**	**905**	**410**		**490**	**280**	**1025**	**3810**
Health & Safety	**60**			**400**			**60**	**280**	**400**	**1200**
Electrical Awareness				400				200	100	700
Health & Safety	60						60		60	180
Manual Handling								80	240	320
IT	**135**	**110**	**75**	**325**	**410**		**360**		**445**	**1860**
MS Access									125	125
MS Excel	60	60	75	125	210		300			830
MS PowerPoint	75				150				50	275
MS Visio					50				50	100
MS Word		50		150			60		220	480
Visual Basic				50						50
Management	**70**	**120**	**130**	**180**			**70**		**180**	**750**
Meeting Skills		50							50	100
Negotiating Skills	70	70	70				70		70	350
Presentation Skills			60	180					60	300
Health & Safety	**180**	**960**	**190**	**630**	**380**		**790**	**230**	**895**	**4255**
Health & Safety	**60**	**580**		**200**			**180**	**230**	**220**	**1470**
Electrical Awareness		500		200			100	70		870
Health & Safety	60								60	120
Manual Handling		80					80	160	160	480
IT	**120**	**180**	**60**	**310**	**380**		**540**		**365**	**1955**
Internet Explorer									50	50
MS Access					60				75	135

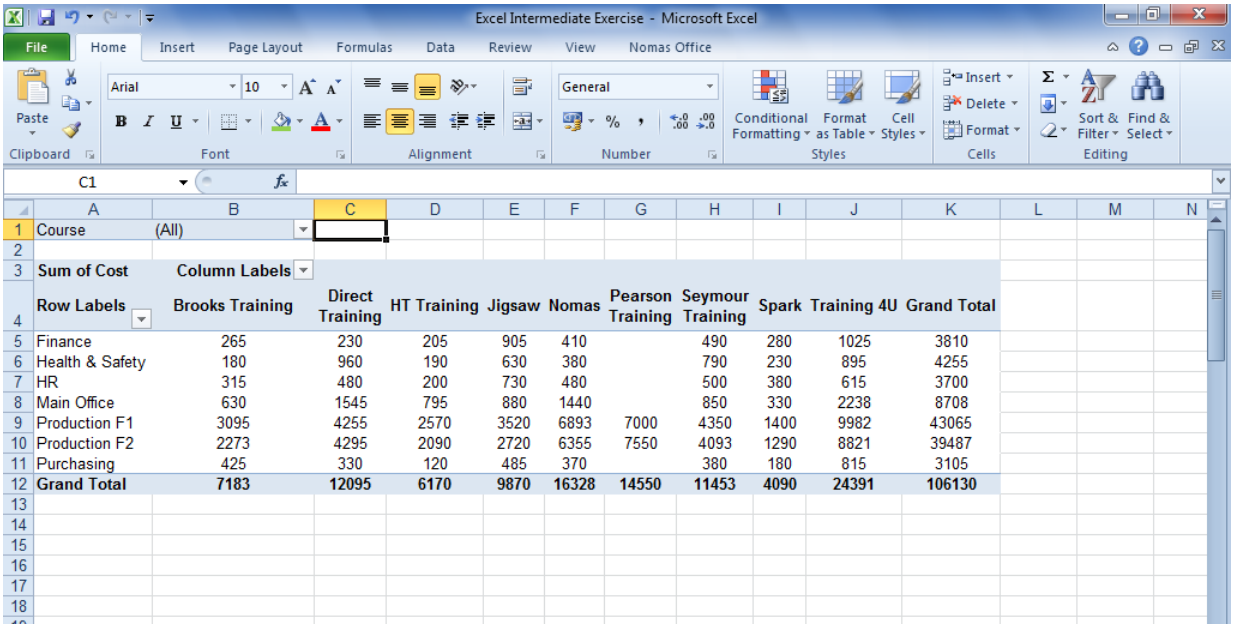
Creating Pivot Filters

As it is not possible to read text in three-dimensions, all the fields that you want to see in a pivot Table are 'squashed' into the row or column positions.

However, it is possible to create a third dimension to provide added flexibility to your data. This is done by creating a Pivot Filter.

To create a Pivot Filter ;

1 Start the Pivot Table Wizard.
2 Complete steps as described previously.
3 In Step 5, move the field that you want to filter to the 'Report Filter' area.
4 Continue as described previously.

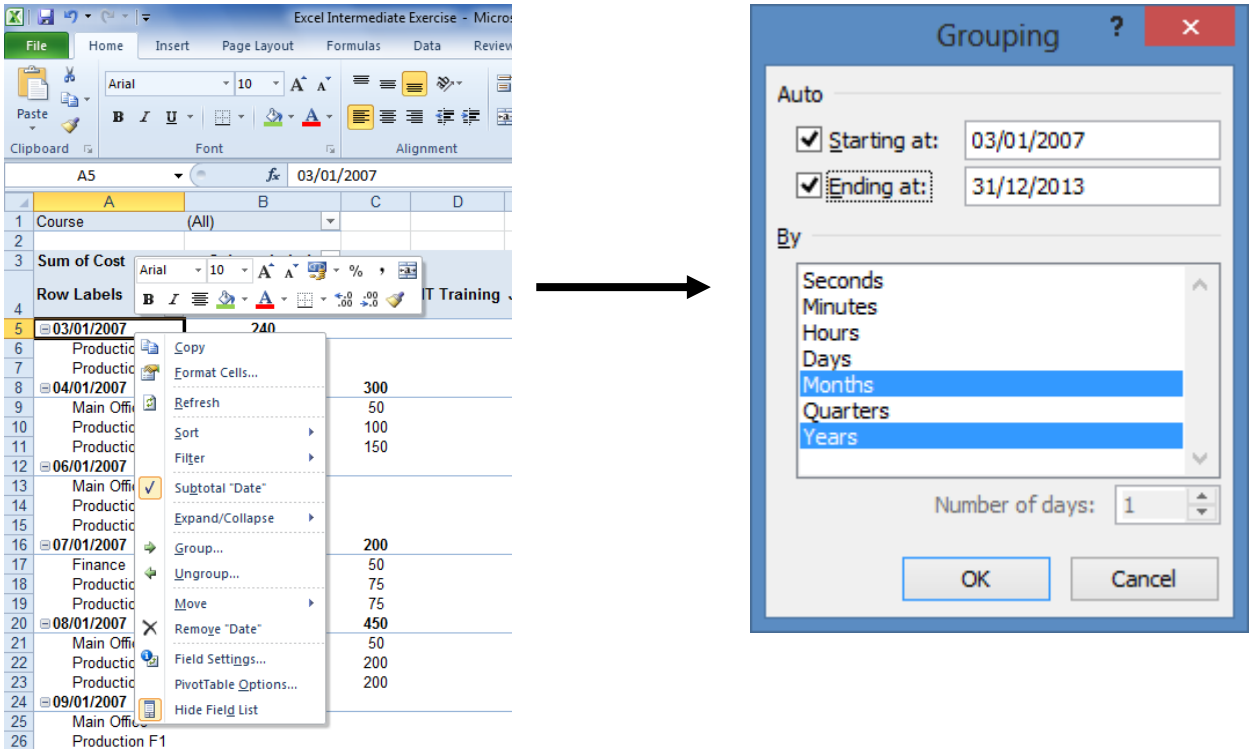


	A	B	C	D	E	F	G	H	I	J	K
1	Course	(All)									
2											
3	Sum of Cost	Column Labels									
4	Row Labels	Brooks Training	Direct Training	HT Training	Jigsaw	Nomas	Pearson Training	Seymour Training	Spark	Training 4U	Grand Total
5	Finance	265	230	205	905	410		490	280	1025	3810
6	Health & Safety	180	960	190	630	380		790	230	895	4255
7	HR	315	480	200	730	480		500	380	615	3700
8	Main Office	630	1545	795	880	1440		850	330	2238	8708
9	Production F1	3095	4255	2570	3520	6893	7000	4350	1400	9982	43065
10	Production F2	2273	4295	2090	2720	6355	7550	4093	1290	8821	39487
11	Purchasing	425	330	120	485	370		380	180	815	3105
12	**Grand Total**	**7183**	**12095**	**6170**	**9870**	**16328**	**14550**	**11453**	**4090**	**24391**	**106130**
13											
14											
15											
16											
17											
18											

5 In the above example the 'Course' field has been added to the 'Filter field, so that the training can be filtered by 'Course'.

Changing Date Grouping

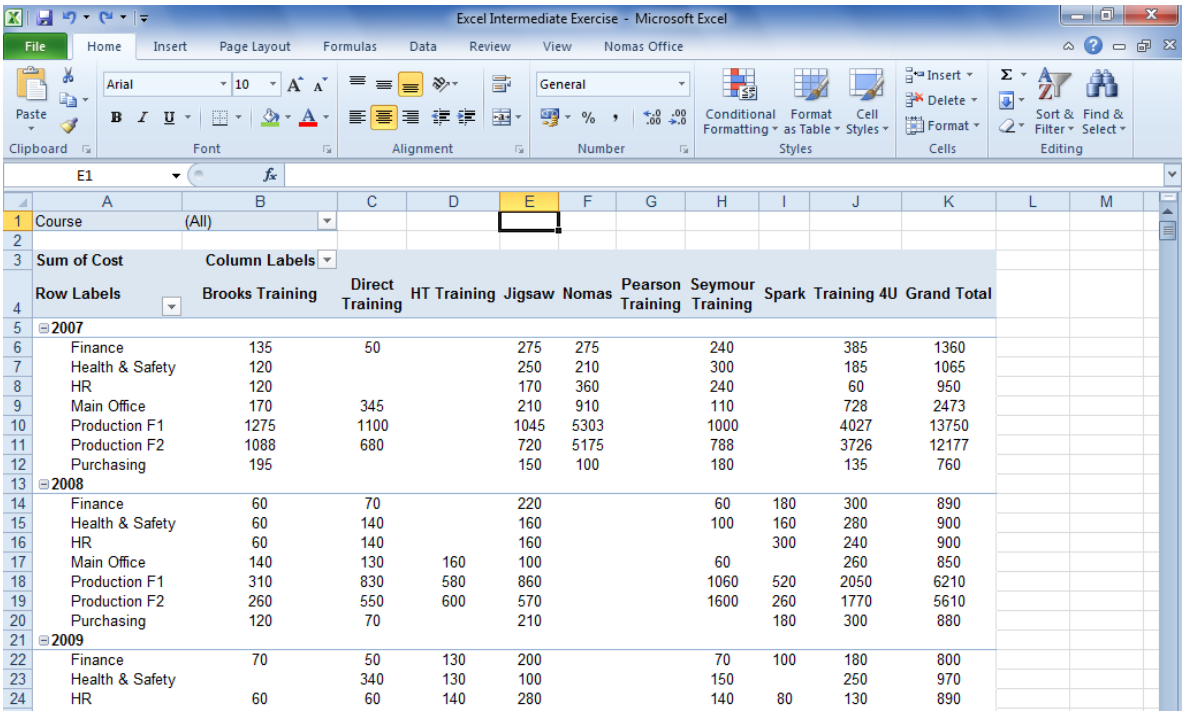
If a 'Date' field is used in a Pivot Table, it does not automatically 'group' data by month or year. Therefore, you need to set the grouping level, by right clicking on the 'Date' area & selecting 'Group'.



You can then set the level required, e.g. 'Months', 'Quarters' etc.

Adding Sub Totals

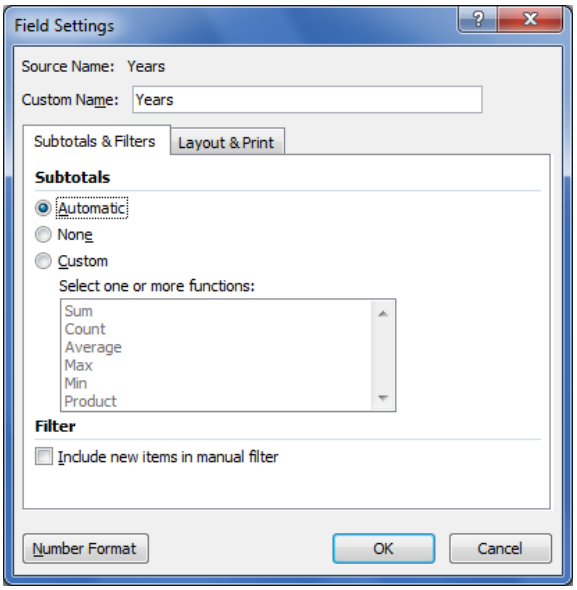
If 'Sub-Totals' are not automatically displayed, it is possible to add them manually, in the example (over) the 'Annual' sub-totals do not appear automatically.



	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Course	(All)											
2													
3	Sum of Cost	Column Labels											
4	Row Labels	Brooks Training	Direct Training	HT Training	Jigsaw	Nomas	Pearson Training	Seymour Training	Spark	Training 4U	Grand Total		
5	2007												
6	Finance	135	50		275	275		240		385	1360		
7	Health & Safety	120			250	210		300		185	1065		
8	HR	120			170	360		240		60	950		
9	Main Office	170	345		210	910		110		728	2473		
10	Production F1	1275	1100		1045	5303		1000		4027	13750		
11	Production F2	1088	680		720	5175		788		3726	12177		
12	Purchasing	195			150	100		180		135	760		
13	2008												
14	Finance	60	70		220			60	180	300	890		
15	Health & Safety	60	140		160			100	160	280	900		
16	HR	60	140		160				300	240	900		
17	Main Office	140	130	160	100			60		260	850		
18	Production F1	310	830	580	860			1060	520	2050	6210		
19	Production F2	260	550	600	570			1600	260	1770	5610		
20	Purchasing	120	70		210				180	300	880		
21	2009												
22	Finance	70	50	130	200			70	100	180	800		
23	Health & Safety		340	130	100			150		250	970		
24	HR	60	60	140	280			140	80	130	890		

To add them ;

1 Right click onto the relevant 'Field' heading – 'Years' in this example & select 'Field Settings'.



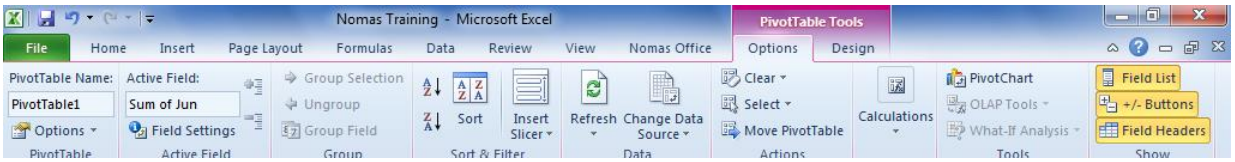
2 Select 'Subtotals….Automatic'

3 Click 'OK'.

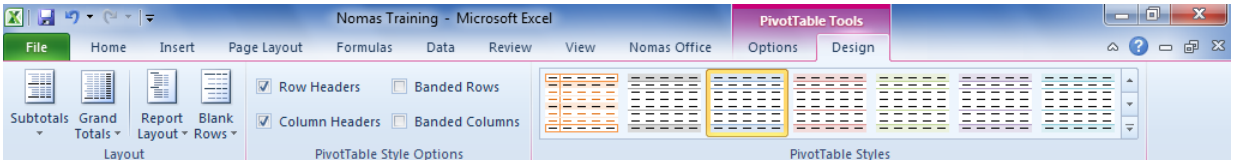
Re-Designing A Pivot Table

There are 2 Custom Tabs, that are available when using a Pivot Table.

Pivot Table Tools – Options



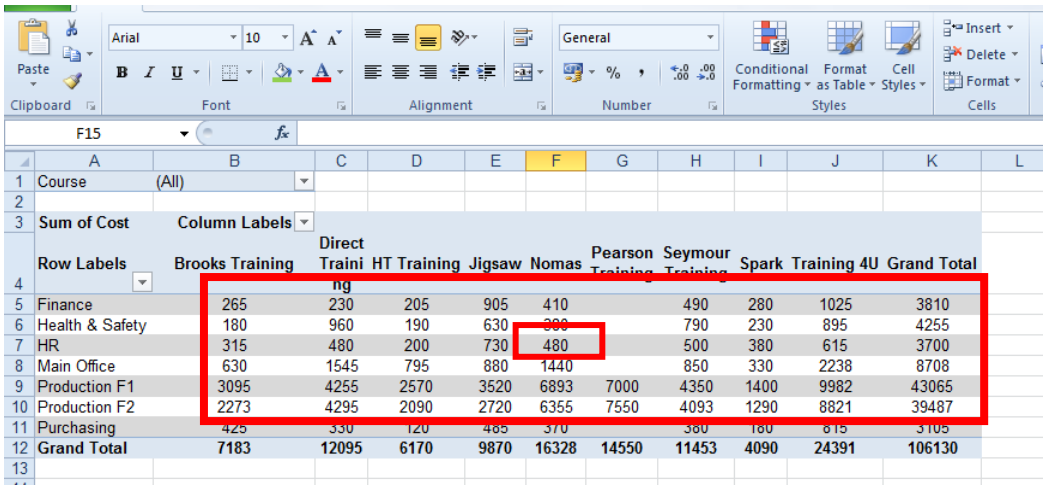
Pivot Table Tools – Design



Commonly, this tab is used for selecting a particular colour scheme, 'PivotTable Style', for your pivot table.

Drilling Down Into The Data In A Pivot Table

To see the 'underlying' data, in the Pivot Table, simply double click in the Pivot Table data. For example, to see the 'Employees Trained' in HR, by the 'Nomas' training provider, double click in the appropriate cell e.g. 480 (below) & the data will be copied into a new sheet.



	A	B	C	D	E	F	G	H	I	J	K	L
1	Course	(All)										
2												
3	Sum of Cost	Column Labels										
4	Row Labels	Brooks Training	Direct Training	HT Training	Jigsaw	Nomas	Pearson Training	Seymour Training	Spark	Training 4U	Grand Total	
5	Finance	265	230	205	905	410		490	280	1025	3810	
6	Health & Safety	180	960	190	630	380		790	230	895	4255	
7	HR	315	480	200	730	480		500	380	615	3700	
8	Main Office	630	1545	795	880	1440		850	330	2238	8708	
9	Production F1	3095	4255	2570	3520	6893	7000	4350	1400	9982	43065	
10	Production F2	2273	4295	2090	2720	6355	7550	4093	1290	8821	39487	
11	Purchasing	425	330	120	485	370		360	160	815	3105	
12	Grand Total	7183	12095	6170	9870	16328	14550	11453	4090	24391	106130	
13												

I21

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Clock No	Initial	Surname	Dept	Date	Code	Group	Course	Level	Provider	Score	Cost	
2	0132F	M	Bell	HR	03/12/2010	E2	IT	MS Excel	Advanced	Nomas	8	60	
3	0139F	A	Robb	HR	20/11/2010	W2	IT	MS Word	Advanced	Nomas	8	60	
4	0132F	M	Bell	HR	30/10/2007	P1	IT	MS PowerPoint	Introduction	Nomas	7	50	
5	0125F	P	Potts	HR	30/05/2007	P1	IT	MS PowerPoint	Introduction	Nomas	8	50	
6	0118F	K	Murrayfield	HR	30/05/2007	P1	IT	MS PowerPoint	Introduction	Nomas	8	50	
7	0111F	E	Long	HR	30/05/2007	P1	IT	MS PowerPoint	Introduction	Nomas	7	50	
8	0139F	A	Robb	HR	19/02/2007	P1	IT	MS PowerPoint	Introduction	Nomas	8	50	
9	0139F	A	Robb	HR	07/02/2007	V1	IT	MS Visio	Introduction	Nomas	7	50	

Slicers

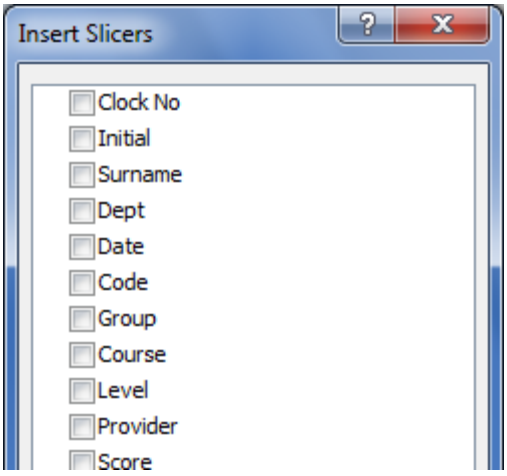
Slicers are easy-to-use filtering components, that contain a set of buttons that enable you to quickly filter the data in a PivotTable, without the need to open drop-down lists to find the items that you want to filter.

When you use a regular PivotTable filter to filter on multiple items, the filter indicates only that multiple items are filtered, and you have to open a drop-down list to find the filtering details. However, a slicer clearly labels the filter that is applied and provides details so that you can easily understand the data that is displayed in the filtered PivotTable report.

Create A Slicer In An Existing Pivot Table

1 Click anywhere in the PivotTable, for which you want to create a slicer.

2 On the 'Options' tab, click 'Insert Slicer'.

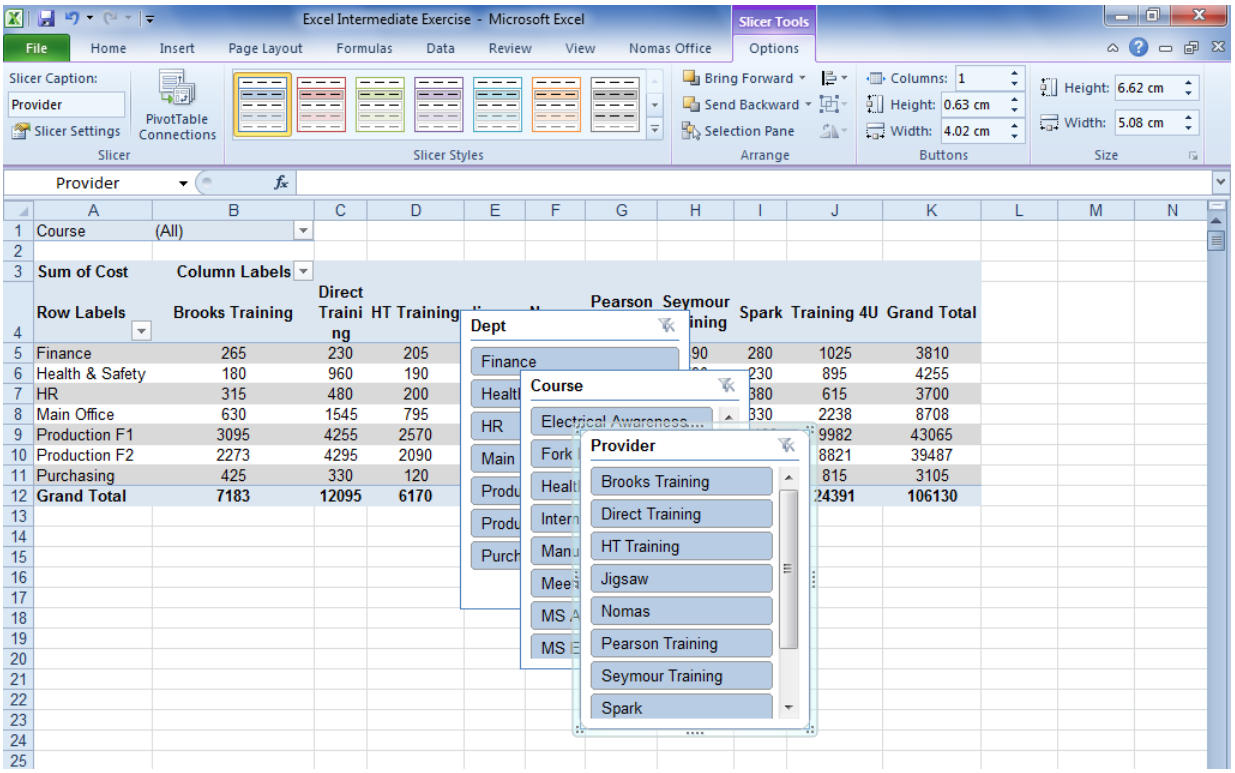


3 In the 'Insert Slicers' dialog box, select the check box of the PivotTable fields for which you want to create a slicer.

4 Click 'OK'.

5 A 'slicer' is displayed for every field that you selected.

6 In each slicer, click the items on which you want to filter.



7 To select more than one item, hold down CTRL, and then click the items on which you want to filter.

8 Click an item in the 'Slicer', to see the Pivot Table data.

Format A Slicer

1 Click the slicer that you want to format.

2 This displays the 'Slicer Tools', adding an 'Options' tab.

3 On the 'Options' tab, click the style that you want.

Delete A Slicer

Do one of the following ;

1 Click the slicer, and then press 'DELETE'.
2 Right-click the slicer, and then click 'Remove <Name of slicer>'.

Updating A Pivot Table

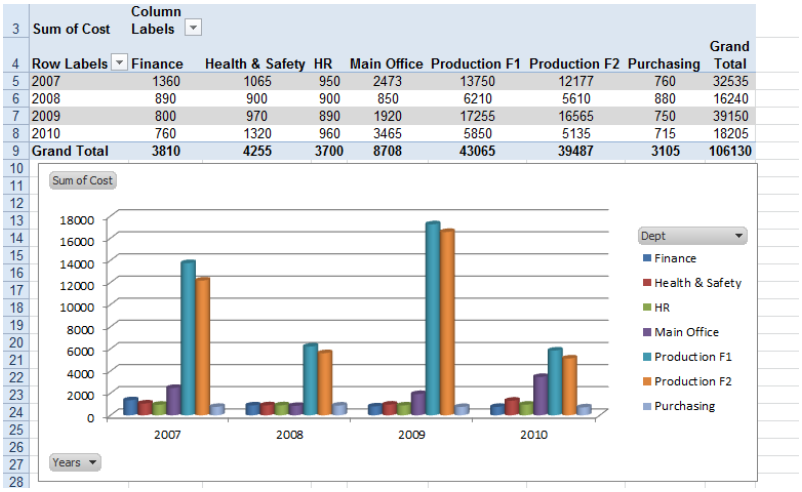
The Pivot Table does not change when you update your data in the source list. You can update your Pivot Table, by ;

1 Selecting any cell within the Pivot Table.
2 Click the 'Refresh' icon, in the 'Pivot Table Tools' tab.

Creating A Chart From A Pivot Table

You can create a chart linked to a pivot Table.

1 Select a cell within the Pivot Table data - avoid selecting any of the field tabs as this will move them within the table.
2 Click the 'Pivot Chart' icon, in the 'Pivot Table Tools' tab.
3 Select the type of chart you require & click 'OK'.
4 The chart will be created on your existing sheet.



Sum of Cost	Column Labels							
Row Labels	Finance	Health & Safety	HR	Main Office	Production F1	Production F2	Purchasing	Grand Total
2007	1360	1065	950	2473	13750	12177	760	32535
2008	890	900	900	850	6210	5610	880	16240
2009	800	970	890	1920	17255	16565	750	39150
2010	760	1320	960	3465	5850	5135	715	18205
Grand Total	3810	4255	3700	8708	43065	39487	3105	106130

Re-Organising The Pivot Table

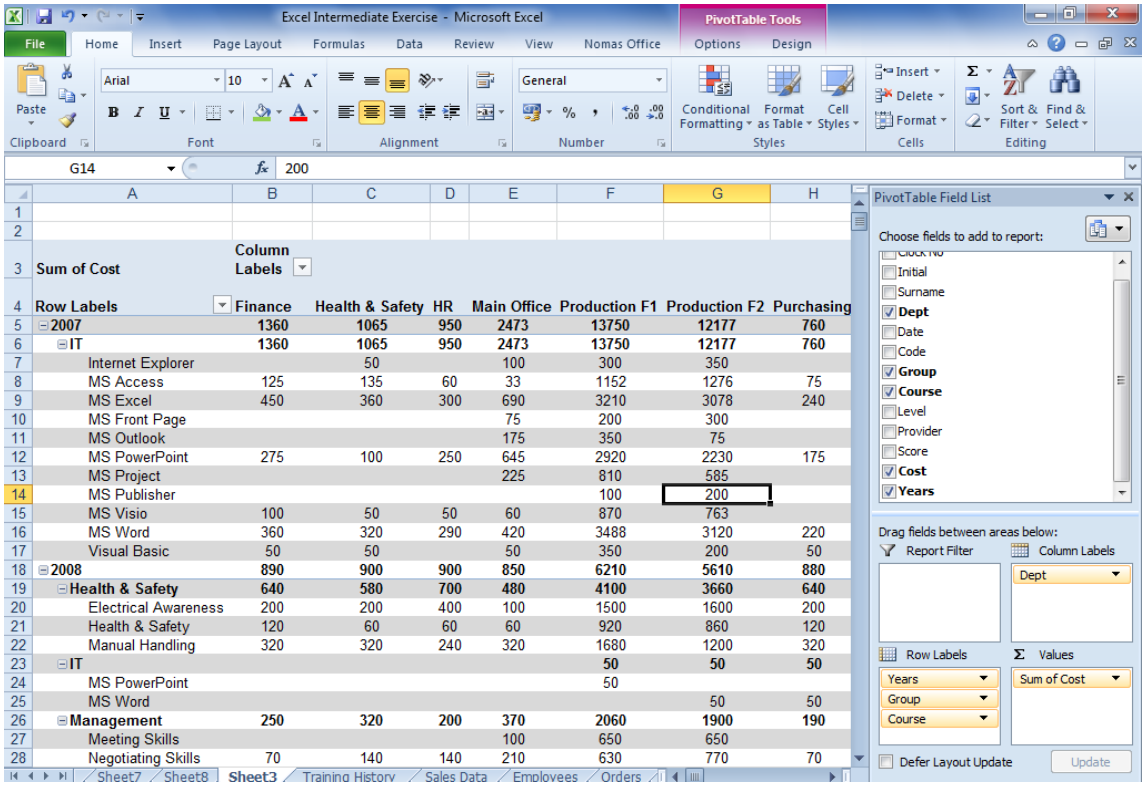
Adding Columns And Rows

To enhance the amount of detail available in your Pivot Table, you can add more fields. Adding row and column fields expands the table and widens the view. In contrast to adding a Filter, which narrows the scope.

To add a column or row ;

1 Select a cell in your Pivot Table.

2 Move the 'Field' that you want to move into the appropriate area (ROW, COLUMN etc).



Sum of Cost	Column Labels						
Row Labels	Finance	Health & Safety	HR	Main Office	Production F1	Production F2	Purchasing
2007	1360	1065	950	2473	13750	12177	760
IT	1360	1065	950	2473	13750	12177	760
Internet Explorer		50		100	300	350	
MS Access	125	135	60	33	1152	1276	75
MS Excel	450	360	300	690	3210	3078	240
MS Front Page				75	200	300	
MS Outlook				175	350	75	
MS PowerPoint	275	100	250	645	2920	2230	175
MS Project				225	810	585	
MS Publisher					100	200	
MS Visio	100	50	50	60	870	763	
MS Word	360	320	290	420	3488	3120	220
Visual Basic	50	50		50	350	200	50
2008	890	900	900	850	6210	5610	880
Health & Safety	640	580	700	480	4100	3660	640
Electrical Awareness	200	200	400	100	1500	1600	200
Health & Safety	120	60	60	60	920	860	120
Manual Handling	320	320	240	320	1680	1200	320
IT					50	50	50
MS PowerPoint					50		
MS Word						50	50
Management	250	320	200	370	2060	1900	190
Meeting Skills				100	650	650	
Negotiating Skills	70	140	140	210	630	770	70

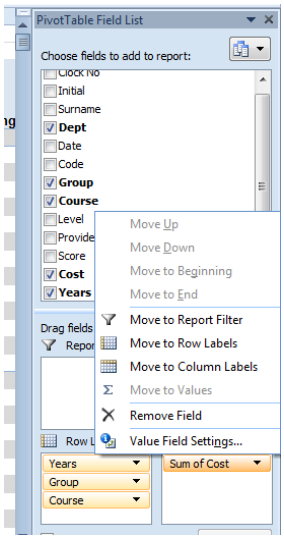
Removing Columns And Rows

1 To remove a row or column, drag it back onto the top half of the 'Field List'.

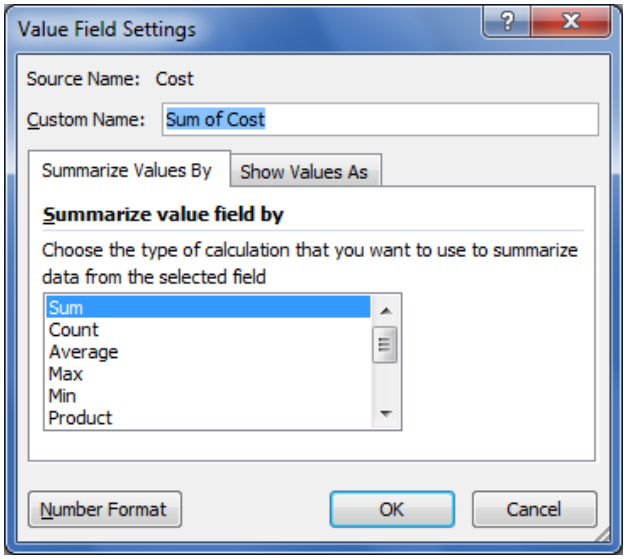
Changing The Summary Functions

Excel summarises data by summing numeric values (if the data fields contain text, the Pivot Table displays counts of the values). You can change the summary function or calculation type ;

1 Select a heading in the 'Values' area of the 'Field List'.



2 Click the drop down arrow & select 'Value Field Settings'.

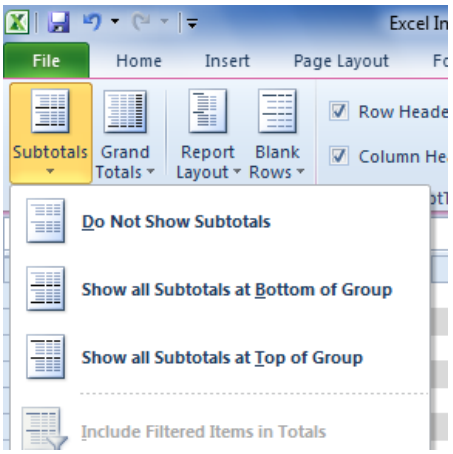


3 In the 'Summarise by' list, select the desired summary function.

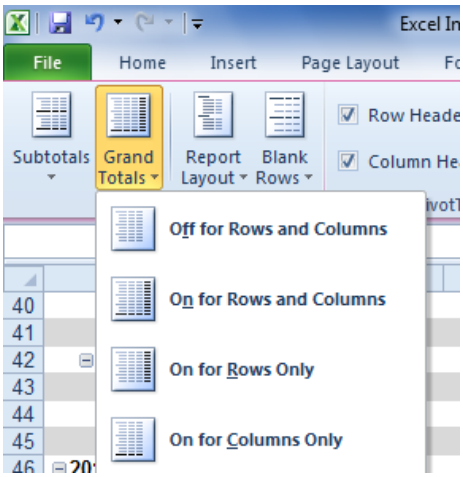
Hiding / Displaying Sub & Grand Totals

The 'Sub Totals' & 'Grand Totals' can be controlled from the 'Design' tab.

Sub – Totals



Grand Totals



APPENDIX 1 - FUNCTION KEYS

The following lists contain function key, CTRL combination shortcut keys and some other common shortcut keys, along with descriptions of their functionality.

Function Keys

Key	Description
F1	Displays the **Microsoft Office Excel Help** task pane. CTRL+F1 displays or hides the ribbon. ALT+F1 creates a chart of the data in the current range. ALT+SHIFT+F1 inserts a new worksheet.
F2	Edits the active cell and positions the insertion point at the end of the cell contents. It also moves the insertion point into the Formula Bar when editing in a cell is turned off. SHIFT+F2 adds or edits a cell comment. CTRL+F2 displays the Print Preview window.
F3	Displays the **Paste Name** dialog box. SHIFT+F3 displays the **Insert Function** dialog box.
F4	Repeats the last command or action, if possible. CTRL+F4 closes the selected workbook window.
F5	Displays the **Go To** dialog box. CTRL+F5 restores the window size of the selected workbook window.
F6	Switches between the worksheet, ribbon, task pane, and Zoom controls. In a worksheet that has been split (**View** menu, **Manage This Window**, **Freeze Panes**, **Split Window** command), F6 includes the split panes when switching between panes and the ribbon area. SHIFT+F6 switches between the worksheet, Zoom controls, task pane, and ribbon. CTRL+F6 switches to the next workbook window when more than one workbook window is open.

F7	Displays the **Spelling** dialog box to check spelling in the active worksheet or selected range. CTRL+F7 performs the **Move** command on the workbook window when it is not maximized. Use the arrow keys to move the window, and when finished press ENTER, or ESC to cancel.
F8	Turns extend mode on or off. In extend mode, **Extended Selection** appears in the status line, and the arrow keys extend the selection. SHIFT+F8 enables you to add a nonadjacent cell or range to a selection of cells by using the arrow keys. CTRL+F8 performs the **Size** command (on the **Control** menu for the workbook window) when a workbook is not maximized. ALT+F8 displays the **Macro** dialog box to create, run, edit, or delete a macro.
F9	Calculates all worksheets in all open workbooks. SHIFT+F9 calculates the active worksheet. CTRL+ALT+F9 calculates all worksheets in all open workbooks, regardless of whether they have changed since the last calculation. CTRL+ALT+SHIFT+F9 rechecks dependent formulas, and then calculates all cells in all open workbooks, including cells not marked as needing to be calculated. CTRL+F9 minimizes a workbook window to an icon.
F10	Turns key tips on or off. SHIFT+F10 displays the shortcut menu for a selected item. ALT+SHIFT+F10 displays the menu or message for a smart tag. If more than one smart tag is present, it switches to the next smart tag and displays its menu or message. CTRL+F10 maximizes or restores the selected workbook window.
F11	Creates a chart of the data in the current range. SHIFT+F11 inserts a new worksheet. ALT+F11 opens the Microsoft Visual Basic Editor, in which you can create a macro by using Visual Basic for Applications (VBA).
F12	Displays the **Save As** dialog box.

CTRL Combination Shortcut Keys

Key	Description
CTRL+SHIFT+(	Unhides any hidden rows within the selection.
CTRL+SHIFT+)	Unhides any hidden columns within the selection.
CTRL+SHIFT+&	Applies the outline border to the selected cells.
CTRL+SHIFT_	Removes the outline border from the selected cells.
CTRL+SHIFT+~	Applies the General number format.
CTRL+SHIFT+$	Applies the Currency format with two decimal places (negative numbers in parentheses).
CTRL+SHIFT+%	Applies the Percentage format with no decimal places.
CTRL+SHIFT+^	Applies the Exponential number format with two decimal places.
CTRL+SHIFT+#	Applies the Date format with the day, month, and year.
CTRL+SHIFT+@	Applies the Time format with the hour and minute, and AM or PM.
CTRL+SHIFT+!	Applies the Number format with two decimal places, thousands separator, and minus sign (-) for negative values.
CTRL+SHIFT+*	Selects the current region around the active cell (the data area enclosed by blank rows and blank columns). In a PivotTable, it selects the entire PivotTable report.
CTRL+SHIFT+:	Enters the current time.
CTRL+SHIFT+"	Copies the value from the cell above the active cell into the cell or the Formula Bar.
CTRL+SHIFT+Plus (+)	Displays the **Insert** dialog box to insert blank cells.
CTRL+Minus (-)	Displays the **Delete** dialog box to delete the selected cells.
CTRL+;	Enters the current date.
CTRL+`	Alternates between displaying cell values and displaying formulas in the worksheet.
CTRL+'	Copies a formula from the cell above the active cell into the cell or the Formula Bar.

CTRL+1	Displays the **Format Cells** dialog box.
CTRL+2	Applies or removes bold formatting.
CTRL+3	Applies or removes italic formatting.
CTRL+4	Applies or removes underlining.
CTRL+5	Applies or removes strikethrough.
CTRL+6	Alternates between hiding objects, displaying objects, and displaying placeholders for objects.
CTRL+8	Displays or hides the outline symbols.
CTRL+9	Hides the selected rows.
CTRL+0	Hides the selected columns.
CTRL+A	Selects the entire worksheet. If the worksheet contains data, CTRL+A selects the current region. Pressing CTRL+A a second time selects the current region and its summary rows. Pressing CTRL+A a third time selects the entire worksheet. When the insertion point is to the right of a function name in a formula, displays the **Function Arguments** dialog box. CTRL+SHIFT+A inserts the argument names and parentheses when the insertion point is to the right of a function name in a formula.
CTRL+B	Applies or removes bold formatting.
CTRL+C	Copies the selected cells. CTRL+C followed by another CTRL+C displays the Clipboard.
CTRL+D	Uses the **Fill Down** command to copy the contents and format of the topmost cell of a selected range into the cells below.
CTRL+F	Displays the **Find and Replace** dialog box, with the **Find** tab selected. SHIFT+F5 also displays this tab, while SHIFT+F4 repeats the last **Find** action. CTRL+SHIFT+F opens the **Format Cells** dialog box with the **Font** tab selected.
CTRL+G	Displays the **Go To** dialog box. F5 also displays this dialog box.

CTRL+H	Displays the **Find and Replace** dialog box, with the **Replace** tab selected.
CTRL+I	Applies or removes italic formatting.
CTRL+K	Displays the **Insert Hyperlink** dialog box for new hyperlinks or the **Edit Hyperlink** dialog box for selected existing hyperlinks.
CTRL+N	Creates a new, blank workbook.
CTRL+O	Displays the **Open** dialog box to open or find a file. CTRL+SHIFT+O selects all cells that contain comments.
CTRL+P	Displays the **Print** dialog box. CTRL+SHIFT+P opens the **Format Cells** dialog box with the **Font** tab selected.
CTRL+R	Uses the **Fill Right** command to copy the contents and format of the leftmost cell of a selected range into the cells to the right.
CTRL+S	Saves the active file with its current file name, location, and file format.
CTRL+T	Displays the **Create Table** dialog box.
CTRL+U	Applies or removes underlining. CTRL+SHIFT+U switches between expanding and collapsing of the formula bar.
CTRL+V	Inserts the contents of the Clipboard at the insertion point and replaces any selection. Available only after you have cut or copied an object, text, or cell contents.
CTRL+W	Closes the selected workbook window.
CTRL+X	Cuts the selected cells.
CTRL+Y	Repeats the last command or action, if possible.
CTRL+Z	Uses the **Undo** command to reverse the last command or to delete the last entry that you typed. CTRL+SHIFT+Z uses the **Undo** or **Redo** command to reverse or restore the last automatic correction when AutoCorrect Smart Tags are displayed.

Other Useful Shortcut Keys

Key	Description
ARROW KEYS	Move one cell up, down, left, or right in a worksheet. CTRL+ARROW KEY moves to the edge of the current data region in a worksheet. SHIFT+ARROW KEY extends the selection of cells by one cell. CTRL+SHIFT+ARROW KEY extends the selection of cells to the last nonblank cell in the same column or row as the active cell, or if the next cell is blank, extends the selection to the next nonblank cell. LEFT ARROW or RIGHT ARROW selects the tab to the left or right when the ribbon is selected. When a submenu is open or selected, these arrow keys switch between the main menu and the submenu. When a ribbon tab is selected, these keys navigate the tab buttons. DOWN ARROW or UP ARROW selects the next or previous command when a menu or submenu is open. When a ribbon tab is selected, these keys navigate up or down the tab group. In a dialog box, arrow keys move between options in an open drop-down list, or between options in a group of options. DOWN ARROW or ALT+DOWN ARROW opens a selected drop-down list.
BACKSPACE	Deletes one character to the left in the Formula Bar. Also clears the content of the active cell. In cell editing mode, it deletes the character to the left of insertion point.
DELETE	Removes the cell contents (data and formulas) from selected cells without affecting cell formats or comments. In cell editing mode, deletes character to the right of the insertion point.
END	Moves to the cell in the lower-right corner of the window when SCROLL LOCK is turned on. Also selects the last command on the menu when a menu or submenu is visible. CTRL+END moves to the last cell on a worksheet, in the lowest used row of the rightmost used column. If the cursor is in the formula bar, CTRL+END moves the cursor to the end of the text. CTRL+SHIFT+END extends the selection of cells to the last used cell on the worksheet (lower-right corner). If the cursor is in the formula bar, CTRL+SHIFT+END selects all text in the formula bar from the cursor position to the end—this does not affect the height of the formula bar.

ENTER	Completes a cell entry from the cell or the Formula Bar, and selects the cell below (by default). In a data form, it moves to the first field in the next record. Opens a selected menu (press F10 to activate the menu bar) or performs the action for a selected command. In a dialog box, it performs the action for the default command button in the dialog box (the button with the bold outline, often the **OK** button). ALT+ENTER starts a new line in the same cell. CTRL+ENTER fills the selected cell range with the current entry. SHIFT+ENTER completes a cell entry and selects the cell above.
ESC	Cancels an entry in the cell or Formula Bar. Closes an open menu or submenu, dialog box, or message window. It also closes full screen mode when this mode has been applied, and returns to normal screen mode to display the Ribbon and status bar again.
HOME	Moves to the beginning of a row in a worksheet. Moves to the cell in the upper-left corner of the window when SCROLL LOCK is turned on. Selects the first command on the menu when a menu or submenu is visible. CTRL+HOME moves to the beginning of a worksheet. CTRL+SHIFT+HOME extends the selection of cells to the beginning of the worksheet.
PAGE DOWN	Moves one screen down in a worksheet. ALT+PAGE DOWN moves one screen to the right in a worksheet. CTRL+PAGE DOWN moves to the next sheet in a workbook. CTRL+SHIFT+PAGE DOWN selects the current and next sheet in a workbook.
PAGE UP	Moves one screen up in a worksheet. ALT+PAGE UP moves one screen to the left in a worksheet. CTRL+PAGE UP moves to the previous sheet in a workbook. CTRL+SHIFT+PAGE UP selects the current & previous sheet in a workbook.
SPACEBAR	In a dialog box, performs the action for the selected button, or selects or clears a check box. CTRL+SPACEBAR selects an entire column in a worksheet. SHIFT+SPACEBAR selects an entire row in a worksheet. CTRL+SHIFT+SPACEBAR selects the entire worksheet. If the worksheet contains data, CTRL+SHIFT+SPACEBAR selects the current

	region. Pressing CTRL+SHIFT+SPACEBAR a second time selects the current region and its summary rows. Pressing CTRL+SHIFT+SPACEBAR a third time selects the entire worksheet. When an object is selected, CTRL+SHIFT+SPACEBAR selects all objects on a worksheet. ALT+SPACEBAR displays the **Control** menu for the Microsoft Office Excel window.
TAB	Moves one cell to the right in a worksheet. Moves between unlocked cells in a protected worksheet. Moves to the next option or option group in a dialog box. SHIFT+TAB moves to the previous cell in a worksheet or the previous option in a dialog box. CTRL+TAB switches to the next tab in dialog box. CTRL+SHIFT+TAB switches to the previous tab in a dialog box.

Notes

These pages are for your own personal notes ;