Excel 2013
Data Handling Tips

By Neale Blackwood

a4@iinet.net.au

A4 ACCOUNTING

EXCEL CONSULTING, TRAINING AND WEBINARS

Introduction

Excel is a spreadsheet not a data base, but it does haves many useful data handling features. Excel works well with tables and lists. You can add structure to your spreadsheet by using tables and lists for your options.

Excel 2007 updated a little used feature in Excel 2003 call Lists and renamed it Format As Table. This feature which has an icon on the Home Ribbon tab, has greatly improved how Excel deals with tables.

Sheets have over one million rows and over 16,000 columns, so Excel can handle large data bases.

This session will cover the Format as Table feature in depth and then look at filtering and sorting.

Terminology

In an Excel data table a row is a Data Record and a column is a Data Field. Column headings are Field headings.

Data Table rules

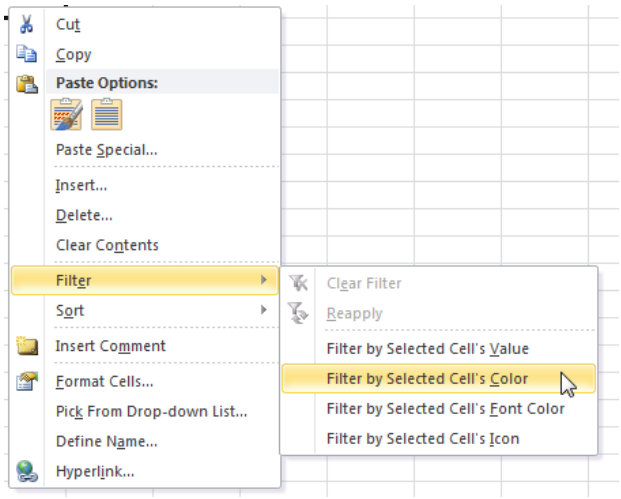
Don't have blanks rows within your data (if you need a visual break between types of data in a data table change the row height rather than inserting a blank row).

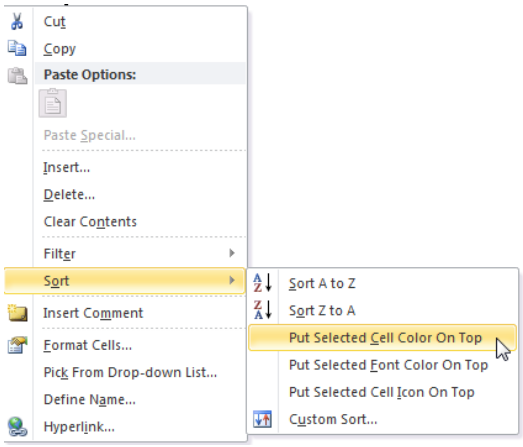
Don't have blank columns within your data (A column heading with no data underneath is ok)

If you have blank rows or columns it affects how well Excel "guesses" the data table range.

Right Clicking

Excel 2007 added extra right click options associated with Data. A Filter and Sort option is available.





Colours

Excel 2007 introduced the ability to filter and sort by colour. This can work hand in hand with conditional formatting to provide some advanced filtering and sorting options.

Note: The example data tables used in this session are all fictitious

© Neale Blackwood 2016

Format as Table

Excel 2007 updated a feature and renamed it Format as Table. Its icon appears on the Home Ribbon. This feature does much more than just adding formats to a table. By defining a list as a table you are able to use Excel's new built-in table features.

Ctrl + t is the keyboard shortcut for Format as Table - it uses the default table colours.

These features include

- Autofilter is automatically added to the column headings
- Field names become column headings as you scroll down the page
- Automatically extending the table as you add rows (records)
- Automatically extending the table as you add columns (fields)
- Automatically copying formulas to every other cell in the same field
- Automatically extending formats as you add columns or rows
- Automatically creating table names which work the same as range names
- Pivot Tables based on a formatted tables automatically have their data extended as rows or columns are added
- A new Ribbon is displayed when the table is selected. This allows you to name your table and to add totals and control formatting.
- Additional right click options when you right click in the table
- You can't use a merged cell in a table (I consider that an advantage)

Limitations of Tables

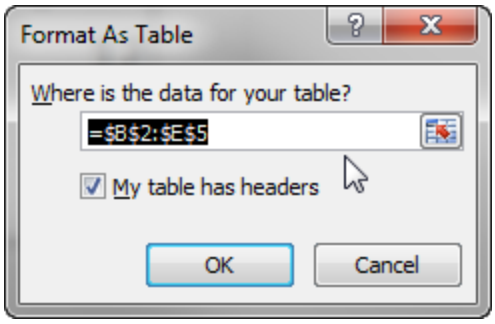
- You have to be careful copying/dragging formula containing table names because if you use the Fill Handle to drag a formula the fields are relative and move as you drag. In most case this is not what you expect.
- Can't use Data > Subtotal on a Table
- Can't share a workbook containing a Table
- Can't use a multi-cell array formula in a table
- Sheet protection can affect table functionality

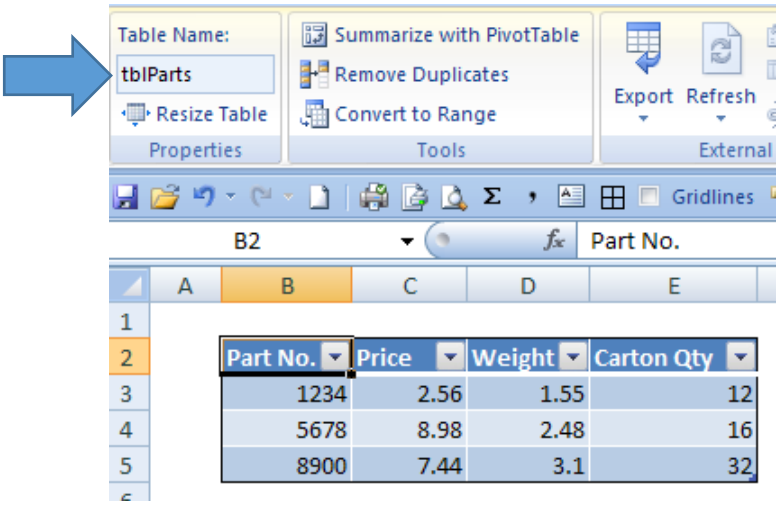
© Neale Blackwood 2016

PRACTICE:

1 In the Table sheet click a cell inside the range B2:D5 then click the Format as Table icon on the Home Ribbon to create a table.

Select a colour combination and confirm the range to format the table. Ensure the My table has headers is ticked.

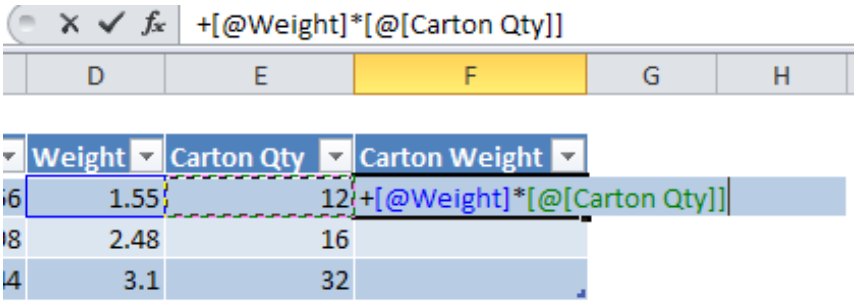




2 Name the Table tblParts in the Design Ribbon tab as per above image.

3 Enter a new column (field) to the table in cell F2 called Carton Weight.

4 In the Carton Weight column use the arrows or the mouse to create a formula to multiply Carton Qty by Weight.



© Neale Blackwood 2016

5 Note the table names are used rather than the cell references. The table names work in a similar way to range names.

6 Add another field called Carton Price in cell G2 and use the Fill Handle to copy the formula from F3 to G3. Note the result.

F3 formula
=+[@Weight]*[@[Carton Qty]]

G3 after Fill Handle copy
=+[@[Carton Qty]]*[@[Carton Weight]]

G3 after copy and paste
=+[@Weight]*[@[Carton Qty]]

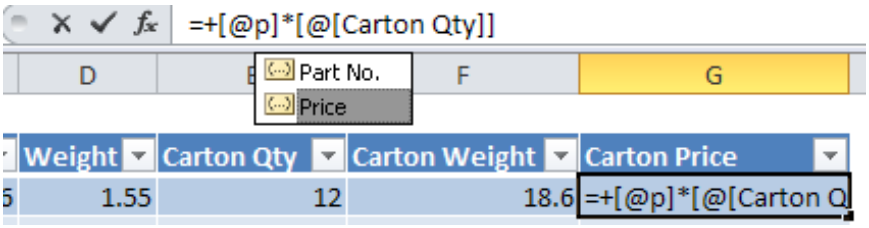
NOTE:

The @ symbol is used in Excel 2010. Excel 2007 uses the # symbol.

In Excel 2007 the formulas may be slightly different

7 Use the copy/paste method to copy the column F formula to Column G and convert the formula to calculate the Carton Price.

If you delete the Weight name and type P you will see a list of possible field names as per below.



=+[@Price]*[@[Carton Qty]]

WARNING:
When you use the Fill Handle to drag a formula that contains Table references the column references (field names) are treated like relative references and copy across as well. To copy the formula you need to use Copy and Paste rather than dragging the Fill Handle.

Example of table references used in formulas

=MAX(tblParts[Carton Qty])

=COUNTA(tblParts[Part No.])

=AVERAGE(tblParts[Carton price])

=VLOOKUP(K2,tblParts,3,0)

TIP:

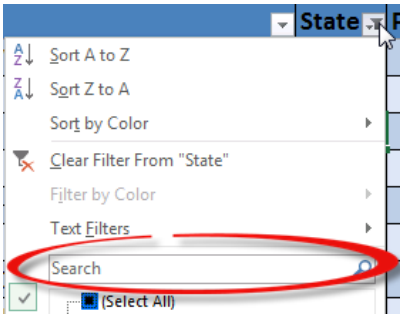
An easy way to insert the table and field names is to select the whole range using the mouse or keyboard. Excel will automatically insert the field name.
Ctrl + Shift + down arrow is a quick way to select everything below the selection.

© Neale Blackwood 2016

Filtering

Excel's Filter feature (formerly called Autofilter) is an easy and fast way to filter a data table. It works by applying AND filters between columns (fields) this means that each filter criteria must be met for the record (row) to display.

You can add filters to any data table by using the keyboard shortcut Ctrl + Shift + L. This shortcut also turns off filters if they have already been applied.

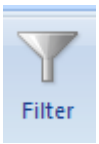


A filter applied to one column may limit the filters that can be applied to other columns.

Search Box – all Filters have a Search Box. This is used to limit the number of entries visible in the bottom section of the Filter. Only the entries that match the entry in the Search Box are displayed. This is very useful when working with structured codes.

PRACTICE:

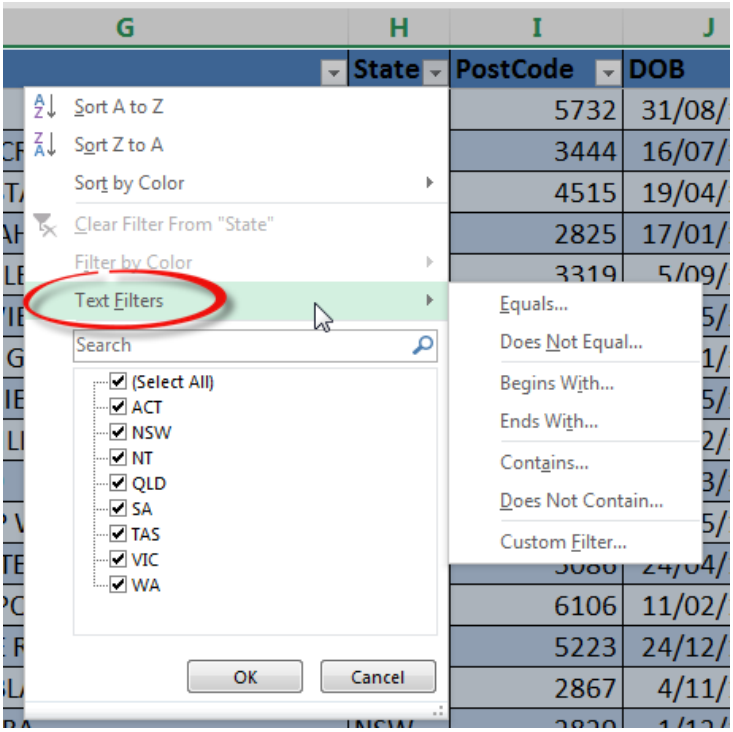
1 In the AutoFilter sheet use the Format as Table in the data. This automatically applies the Autofilter to the data table.



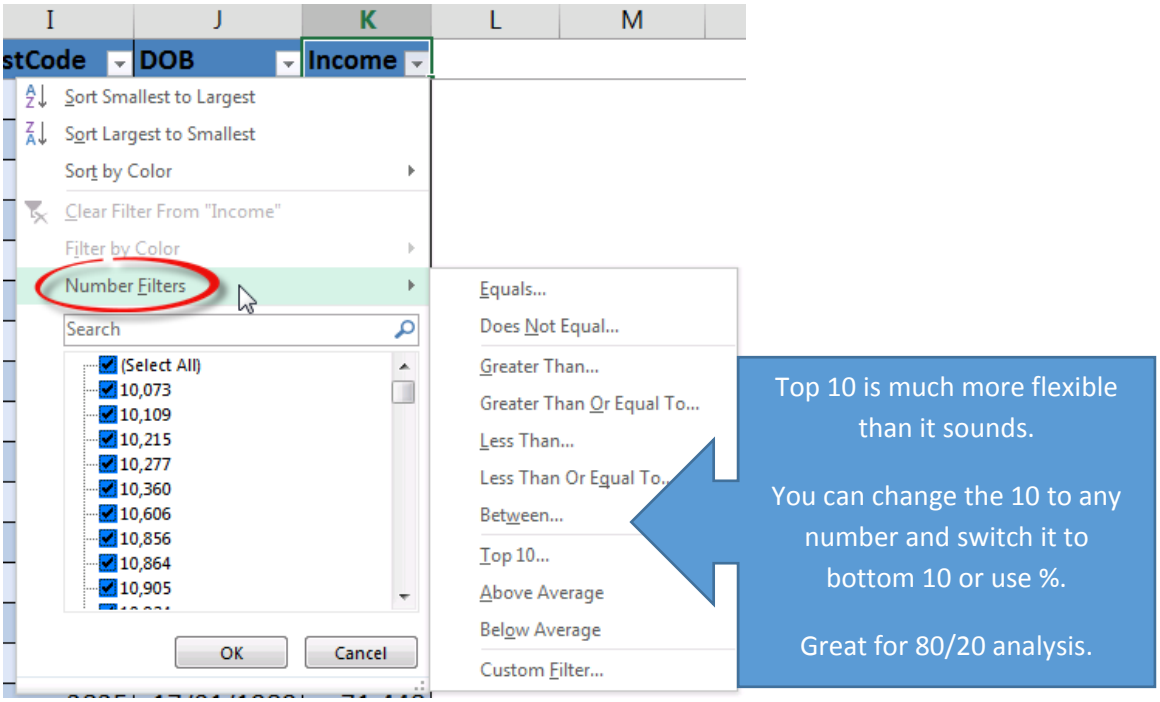
To apply only the AutoFilter click anywhere in the data table and click the Data Tab and then click the Filter icon.

2 Depending on the data in the column Excel will display three types of specialist filters.

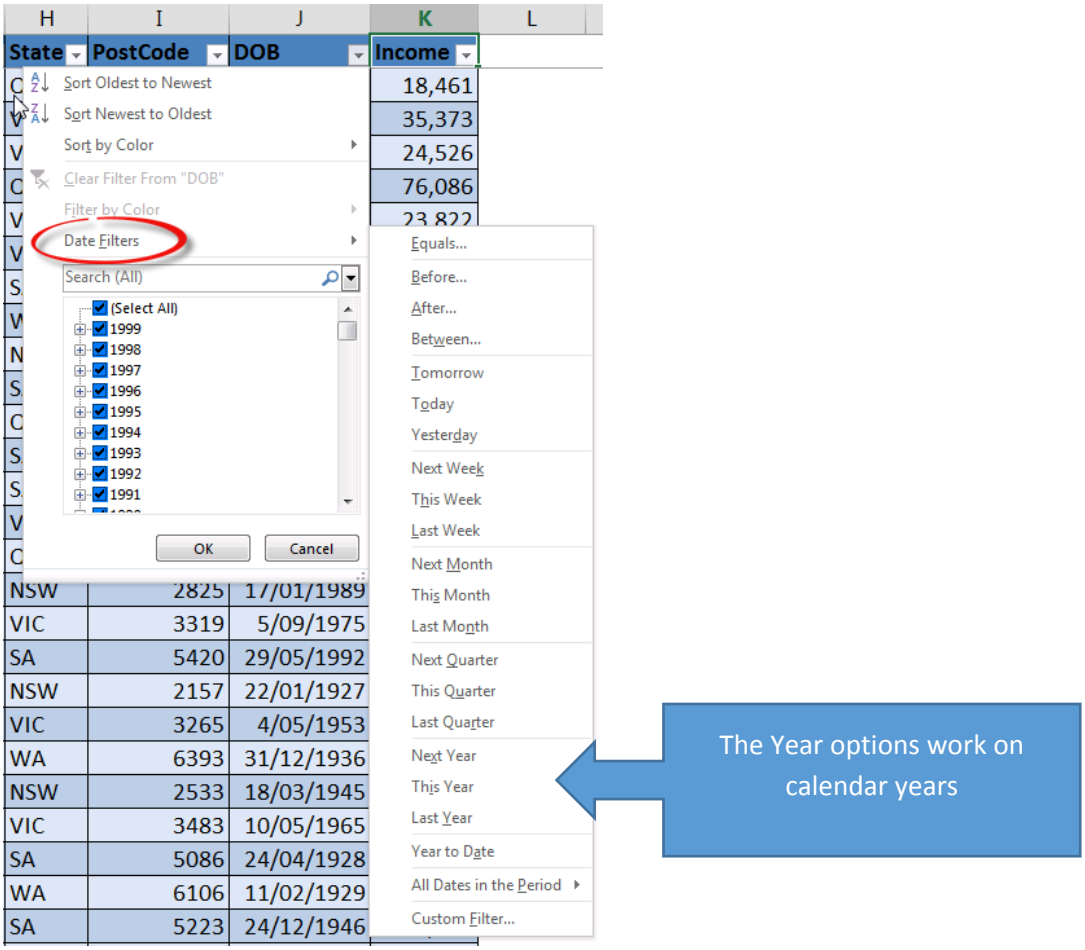
Text Filters



Number Filters

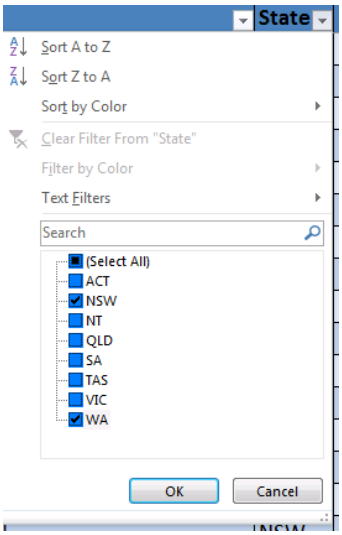


Date Filters



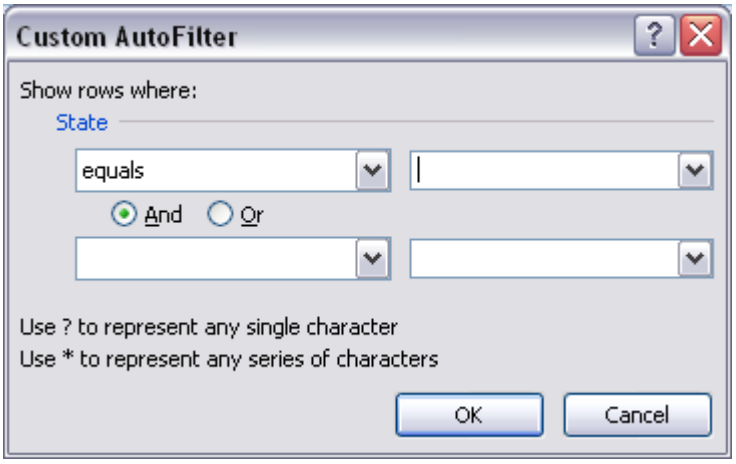
3 To apply a specific filter on the entries in the column first click the (Select All) option which will clear all the checkboxes and then click the ones to view.

The example on the right will display the entries for the States NSW and WA.



4 The Custom Filter option available in all the types allows even more flexibility for the filter. The allows you to apply two criteria using the And or the Or operators.

And - means both conditions must be met to display the row.
Or - means either condition can be met to display the row.



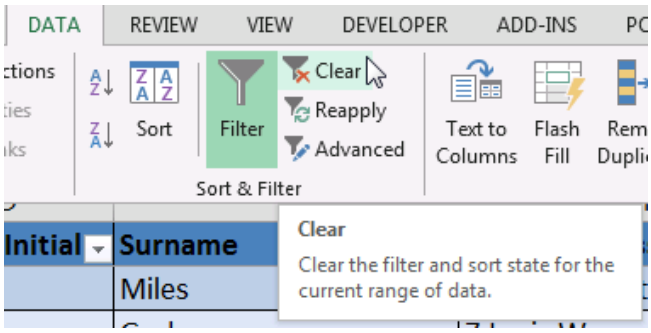
Custom AutoFilter Limitation

You can only use two criteria in the Custom AutoFilter. See the Advanced Filter section which allows you to filter by more than two criteria on a column (field).

Clearing Filters

Often you need to clear all the filters and start again. There is a Clear icon on the Data Ribbon tab that clears all Filters.

I recommend you add it to your Quick Access Toolbar. Right click the icon and select Add to Quick Access Toolbar.



The keyboard shortcut is Alt a c pressed in sequence, not held down.

Sorting

Excel 2007 removed the limitation of 3 columns to sort by. You can now sort by as many columns as you want. You can also now sort by colours and icons.

Sorting has been added to the right click menu. If you only need to sort by one column this is the quickest and easiest way to sort.

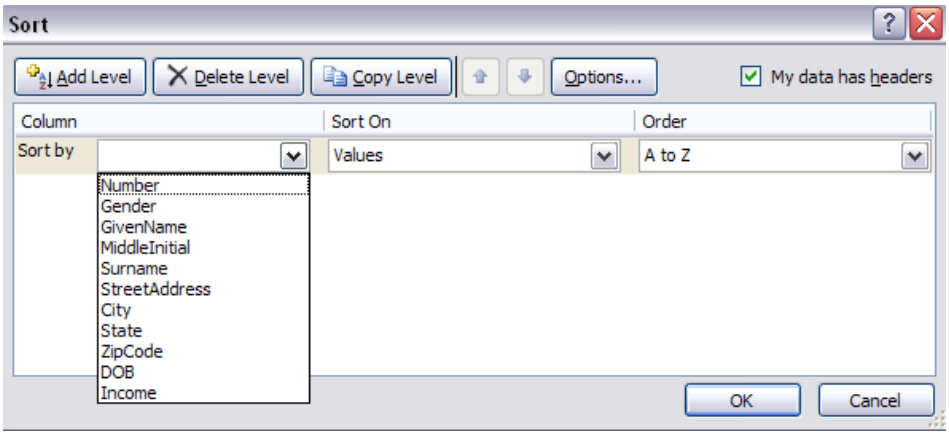
Right click the column you want to sort by and select Sort and choose the type of sort you want.

If you need to sort by more than one column then use the Sort icon in the Data Ribbon tab. When you add levels in the Sort dialog, the order of those levels is important. It determines what the final order will be.

PRACTICE:

1 Open the AutoFilter sheet and click within the data table.

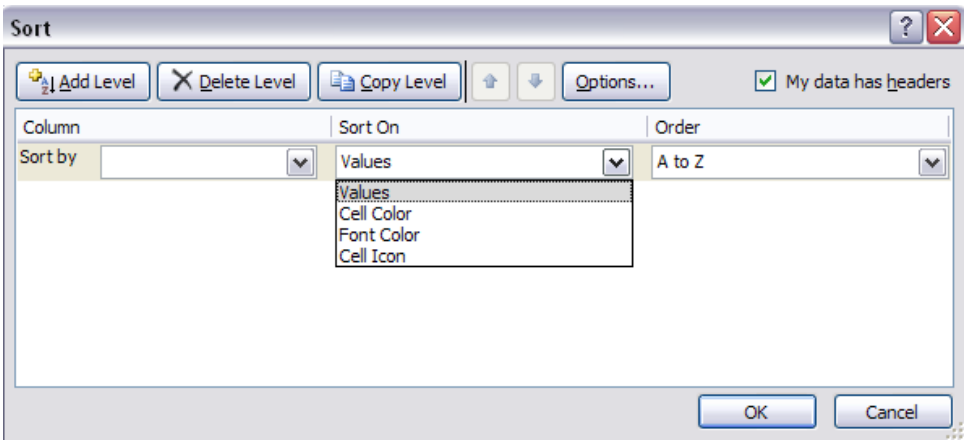
2 Click the Data Ribbon tab and click the Sort icon



3 Click the Sort by drop down and select the column (field) to sort by

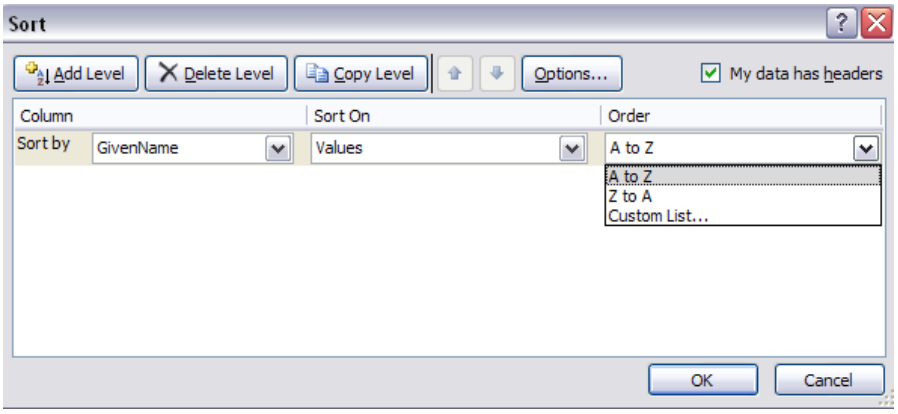
4 Click the second drop down to select the type of sort.

5 Note colour is now an option. Cell Icon relates to conditional formatting icons.

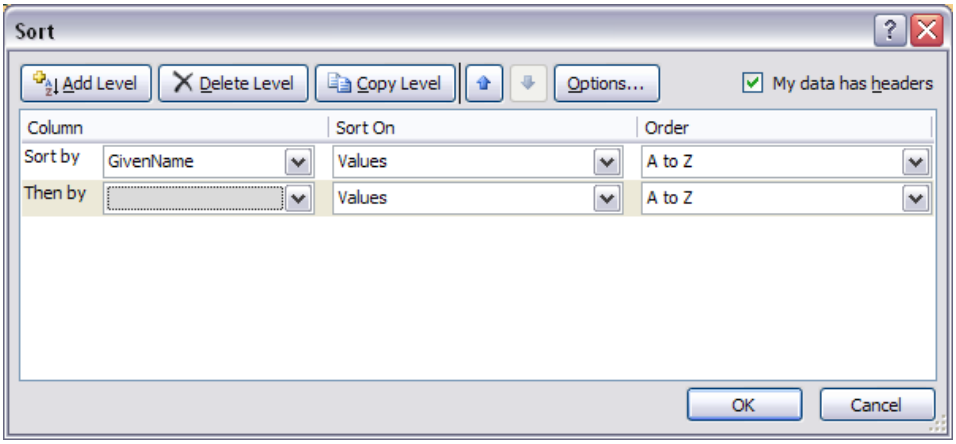


© Neale Blackwood 2016

6 The final drop down determines the order either ascending or descending or Custom List. Custom List allows you to sort using any Custom List you have on your PC.



7 Clicking the Add Level button allows you to add more columns to sort by.



8 The up and down arrows to the right of the Copy Level button allow you to select a sort level and move it up or down. The order of the sort levels determines the final order.

Sorting fields with text and a number

When sorting fields that contain text followed by a number you don't always get the result you are expecting. When creating text + number codes use leading zeroes on the numbers if you have more than one digit. This will ensure the numbers are sorted correctly - see image below.

Instead of

ABC1
ABC2
ABC10
ABC20

Use

ABC01
ABC02
ABC10
ABC20

	A	B	C
1	**Unsorted**		**Sorted**
2	ABC1		ABC1
3	ABC20		ABC10
4	ABC2		ABC2
5	ABC10		ABC20
6			
7			
8	**Unsorted**		**Sorted**
9	ABC01		ABC01
10	ABC20		ABC02
11	ABC02		ABC10
12	ABC10		ABC20

1's are grouped together

2's are grouped together

0's are grouped together

© Neale Blackwood 2016

Custom Lists

If you have ever used the Fill Handle to drag a cell with July in it, you will have seen that Excel can recognise months, so when you drag July, it will enter in August, September etc into the following cells.

Excel uses Custom Lists to perform this operation. Excel allows you to create your own Custom Lists.

A Custom list is useful for any lists you use regularly. Once you have a Custom List you can also use it to sort data.

To access Custom Lists you need to click the Tools menu, then click Options, and then select the Custom Lists tab. You will see the Custom Lists that Excel has as its defaults.

Some Custom Lists that may be useful are:
Perth, Sydney, Melbourne, Adelaide, Hobart, Brisbane, Darwin

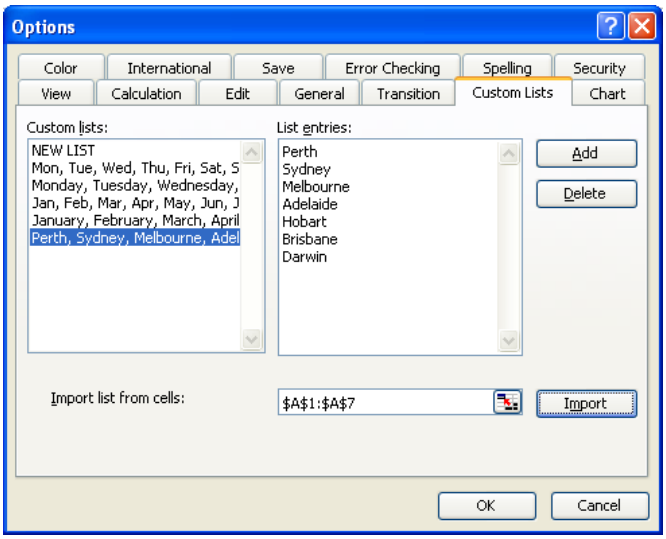
WA, NSW, VIC, SA, NT, TAS, QLD, NT

PRACTICE:

1 Open the "Custom List" sheet and select the Range A1:A7. This has the Capital cities listed.

2 Click the Tools menu, Options, Custom Lists.

The range should already be shown in the Import list from cells box. Click the Import button to create the list and then click OK.



3 TYPE Perth in Cell A10 and use the Fill Handle to drag it down.

Note: Custom Lists are only available on the PC where they were created.

Advanced Filter

Advanced Filters use a criteria range to define the filters to apply to the data. In most cases it's best to place the criteria range above the data. The criteria range has the fields to filter in the first row and the filters to apply in the rows below. One advantage of Advanced Filters is they list the criteria that have been applied.

Applying a filter requires a few mouse clicks and you need to check the criteria range each time to confirm it is correct.

	A	B	C	D	E	F	G	H	I	J
1	Number	Gender	GivenName	MiddleInitial	Surname	StreetAddress	City	State	PostCode	Country
2										
3										
4										
5										
6										
7										
8										
9										
10										
11	Number	Gender	GivenName	MiddleInitial	Surname	StreetAddress	City	State	PostCode	Country
12	1	male	Joseph	S	Karloan	24 Eungella Road	CREDITON	QLD	4757	AU
13	2	male	Joshua	D	McDonnell	29 Thule Drive	JULIA	SA	5374	AU
14	3	male	Jett	I	Baume	59 Fitzroy Street	WENDOUREE VILLAGE	VIC	3355	AU
15	4	female	Keira	I	Downie	8 Settlement Road	BUSHY PARK	VIC	3860	AU
16	5	male	Tyson	S	Koch	15 Grey Street	LYNDON	WA	6701	AU
17	6	female	Emma	K	Kippax	50 Holthouse Road	MOUNT PLEASANT	SA	5235	AU
18	7	male	Dean	B	Cheeke	73 Fitzroy Street	BLACK HILL	VIC	3350	AU
19	8	male	John	N	Jury	79 Grandis Road	CLYBUCCA	NSW	2440	AU
20	9	female	Rebecca	E	Wellish	89 Shaw Drive	SIMSON	VIC	3465	AU
21	10	male	Hunter	H	Hutchens	3 Goldfields Road	GEHAM	QLD	4352	AU
22	11	female	Mary	R	Standish	58 Souttar Terrace	HAMERSLEY	WA	6022	AU
23	12	male	Hunter	V	Grimshaw	90 Frencham Street	LITTLE BILLABONG	NSW	2644	AU

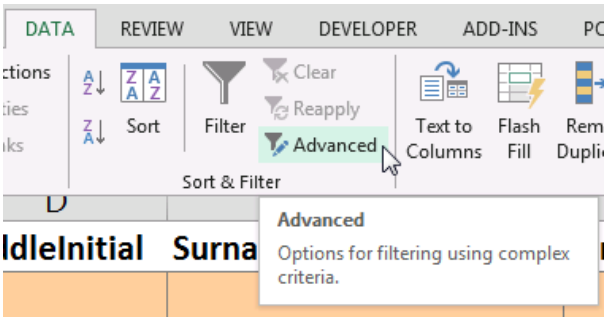
PRACTICE:

1. In the Data sheet the orange area is where you enter the criteria. We'll enter a simple criteria first to demonstrate the technique.

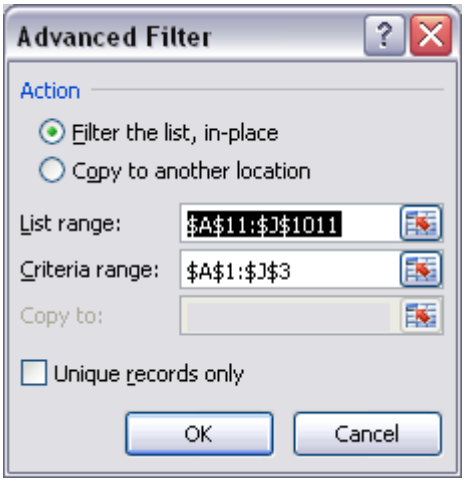
2. Type S in cell D2 and D in cell D3

   This will filter for all Middle initials of S and D and is just like the Autofilter

3. To apply the Advance Filter Click in any cell within the data then click the Data Ribbon Tab and click the Advanced button



4. The List range should be correct, you may need to amend the Criteria range see dialog below



WARNING:

Always confirm the Criteria range is accurate. Blank rows in the Criteria range will cause the filter to show all data rows

Click OK once it matches the above

5. Only S and D middle initials should be displayed.

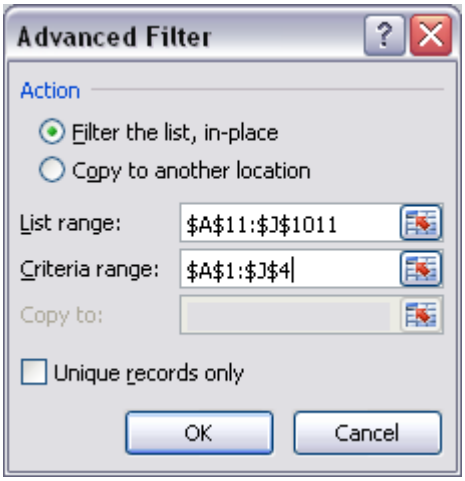
6. The above is the same as an Auto Filter. The power of the Advanced Filter is that it can do an OR filter.

   Let's say you wanted all the middle initials S and D or someone in NSW. That's impossible with an AutoFilter, but easy with an Advanced Filter.

7. In cell H4 enter NSW.

   IMPORTANT NOTE: When you enter a criteria on the same row it's treated as an AND filter (just like a normal Filter). If you enter a criteria on another row it's treated as an OR filter. That is why NSW is on row 4.

8. Click in the data and click the Advanced button.



You will need to amend the Criteria range as per above. Click OK.

© Neale Blackwood 2016

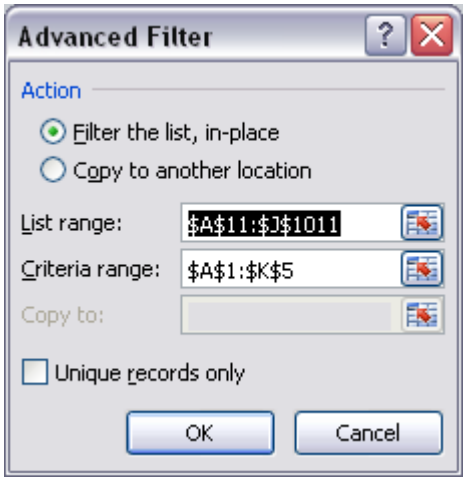
9. The data displayed will be S or D middle initials or everyone in NSW

10. You can also use > < symbols. We can apply a filter for all the numbers between 50 and 70. This requires adding another column. Copy A1 to K1. You can duplicate Field headings.

    in cell A5 enter >=50
    in cell K5 enter <=70

    Note: these are on the same line so they are an AND filter.

    Apply the Advanced filter - remember to check the Criteria range is correct. See below



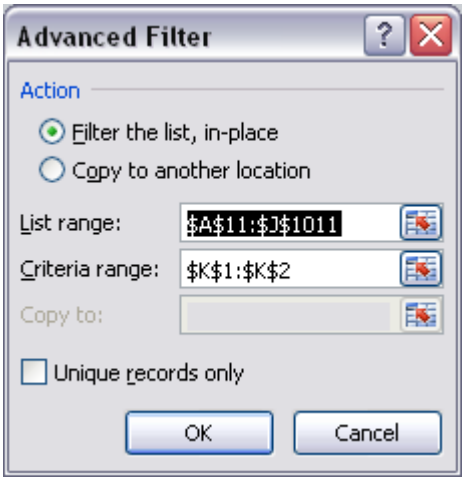
11. The possibilities with Advanced Filter are endless.

    You can even perform calculations.

12. In cell K1 enter the word Odd

13. In K2 enter =ISODD(I12) this will show all the odd numbered post codes. You need to use the first cell of the data in the formula.

    The Advance filter only refers to $K$1:$K$2. See below



© Neale Blackwood 2016

This technique requires a few things to work.

The formula you use must return TRUE or FALSE.
You must use a new field name that doesn't exist in the data.
You need to refer to the first data cell in the field you are filtering eg in example above I12.

Advanced Filter can take practice plus trial and error to master but it does provide you will complete control over you filtering.

Unique Records

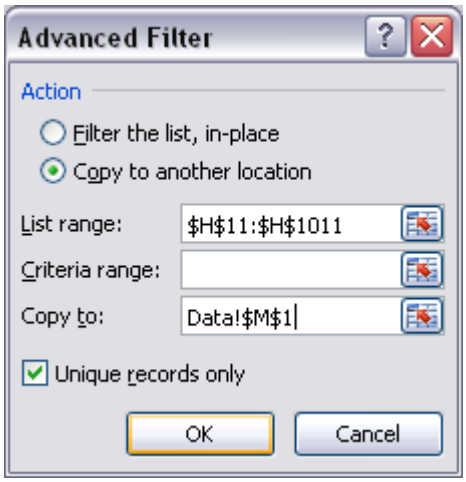
When dealing with data lists it can be useful to extract the unique records from a field. You can compare these to your reports if you are using formula to summarise the data list.

PRACTICE:

1. Select the range H11:H1011 (use Ctrl + Shift + down arrow)

Click the Advanced button.

Replicate the entries below to copy the Unique Records for the State field to M1



Note: Copy is selected, no criteria range is required and ensure you tick Unique records only.

Macros

If you use macros then the commands for Advanced Filter and Unique Records are reasonably straight forward and you can use an event macro to automate applying an advanced filter.

© Neale Blackwood 2016

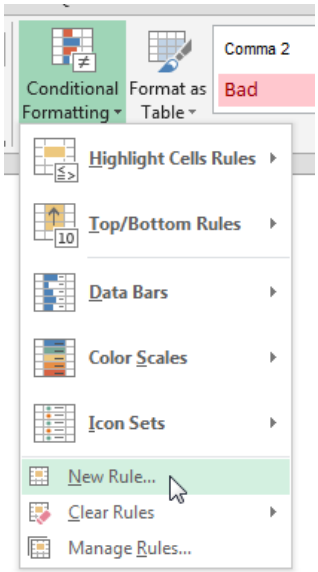
Colours

As I mentioned earlier, it is now possible to filter and sort by colour. This is useful because you can use a fill colour to highlight certain cells and then when complete, use a filter to only show the highlighted cells or use sort to bring them together.

This technique also works with conditional formatting. You can create rules to automatically apply different formats and then use those formats to filter or sort.

If values change and the formats change, you need to re-apply the filter or sort to see the amended results.

PRACTICE:



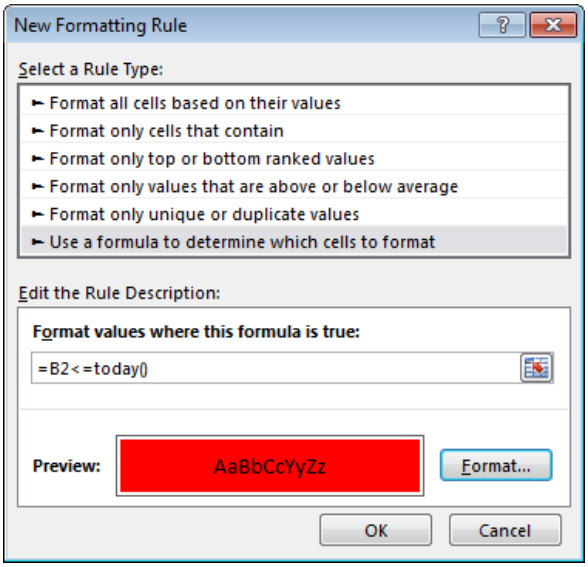
1. In the Colours sheet, select the date entries and on the Home ribbon click the Conditional Formatting icon.

2. Select New Rule and click the last option “Use a formula .. “.

3. In the Formula box enter the following formula

   =B2<=today()

   The TODAY() function returns the system’s current date.



4. Click the Format button, use the Fill tab and choose a colour - I used red and click OK. See image on right.

5. Click OK and then Click Apply, or OK again.

   This format will be applied to new rows added to the table.

6. Because we have used the TODAY() function this updates whenever the file is opened. You would need to re-apply the filter or sort to update it.

   The shortcut to re-apply a Filter is
   Ctrl + Alt + L

   To reapply a sort press, in sequence
   Alt a s s Enter

© Neale Blackwood 2016