Tips and tricks for managing data in Excel 2007

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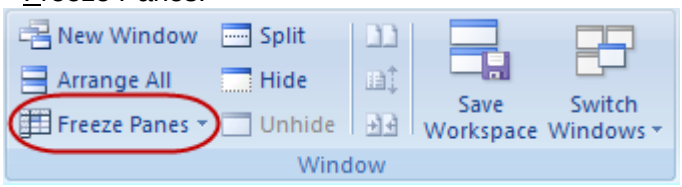
Andrew McLachlan, updated Apr 2009

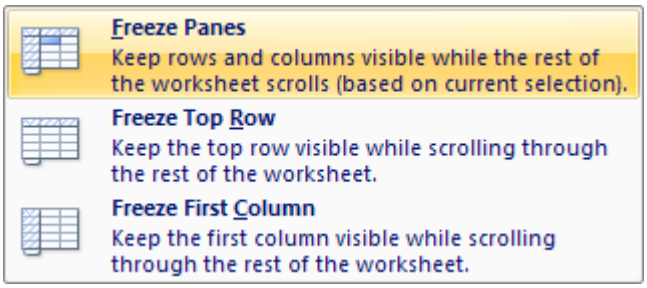
View different parts of a Worksheet or several Worksheets at once

Freeze Panes

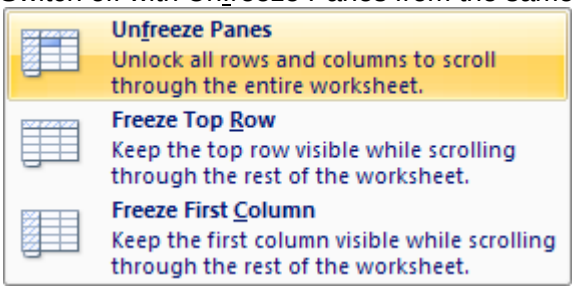
This allows column or row titles to be visible even when scrolling down or to the right.

- Place the cursor in the first cell that is under the column titles and to the right of the row titles. On the ribbon, choose: View tab> Window group > Freeze Panes dropdown control > Freeze Panes.





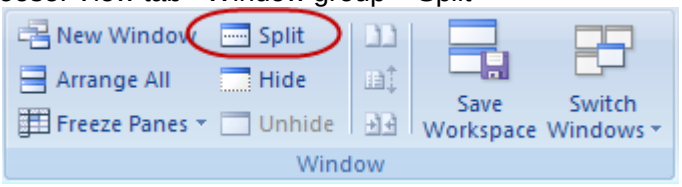
- Switch off with Unfreeze Panes from the same dropdown control.



Split Window

This splits the worksheet into 4 sub-windows, with the splits just above and to the left of the currently selected cell. The sub-windows can be scrolled in a partly independent manner (experiment!)

- On the ribbon, choose: View tab> Window group > Split



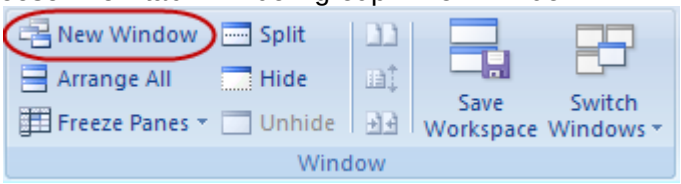
- To undo the split, simply click on the same Split control again.

View many windows

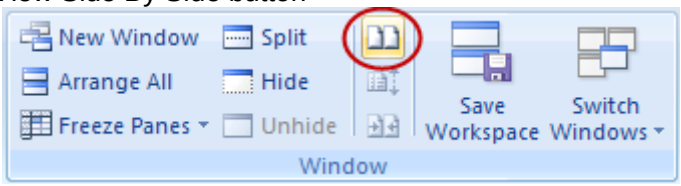
You can view a number of worksheets at once, either sheets from different workbooks or different sheets from within the same workbook.
To view two sheets from the same workbook:

- Open the file

- On the ribbon, choose: View tab> Window group > New Window



- Then, select the View Side By Side button

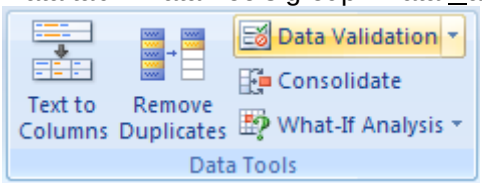


- In each Window, select the sheet that you wish to view.

Data validation

Data validation is an extremely useful tool for managing data entry and preventing data entry errors.

- Select the column (don't include the column title in the selection)
- From the ribbon, choose: Data tab > Data Tools group> Data Validation control.



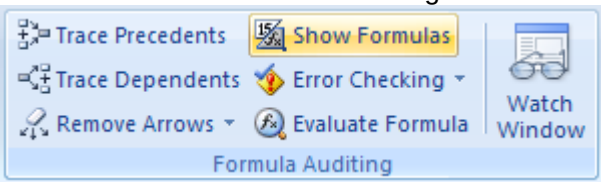
- Select the type of limitations that you want from the *Allow* list, and enter any extra info if necessary (see below for factors in 'Data Validation List'). Do this before the data is entered to check data as it is typed in.
- Input Message tab: enter a message here that will be displayed when a cell is selected, regardless of contents
- Error Alert tab: enter a message here that will be displayed when an invalid value is entered.
- *To remove the data validation*, simply repeat the steps above and change the validation criteria to Allow: **Any value**.

Checking formulae

Displaying Formulae

When checking the contents of formulae, one really simple thing to do is to display the formulae (rather than the results) in the cells.

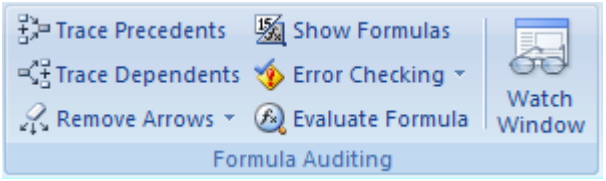
- Either, use [Ctrl+`] (i.e., press Ctrl and the ` key together (top left of the keyboard, with ~ and `))
- Or, use the ribbon: Formulas tab > Formula Auditing tab > Show Formulas control.



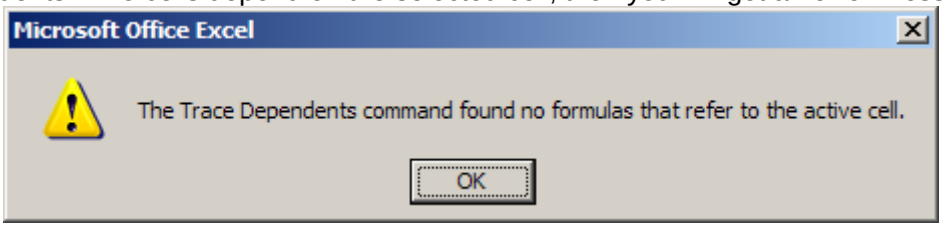
Auditing formulae

When trying to work out problems with a calculation, or even just trying to understand how a calculation has been made, you can display arrows that link the cells referred to in a formula.

- Select the cell whose formula you wish to investigate.
- On the ribbon, choose: Formulas tab > Formula Auditing group.



- To find out which cells contribute to the formula in the selected cell, select Trace Precedents.
- To find out in which cells use the selected cell in their formulae, select Trace Dependents. If no cells depend on the selected cell, then you will get an error message.



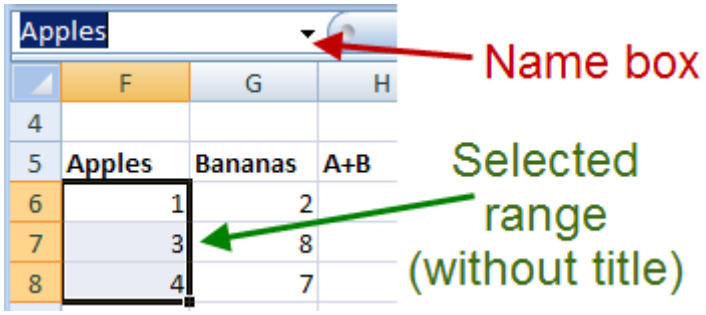
- To remove any arrows connecting the cells, select Remove Arrows.

Using names in Formulae

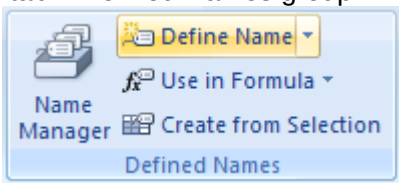
You can make formulae more intelligible by using names instead of cell references. There are a couple of different ways of defining a name to go with a range of cells depending on whether or not the range has a title next to it to be used as the name or not.

Create the name

- Select the cell, or range of cells, that you want to define a name for (don't include a title cell)
- Either, enter the name into the Name box on the formula bar.

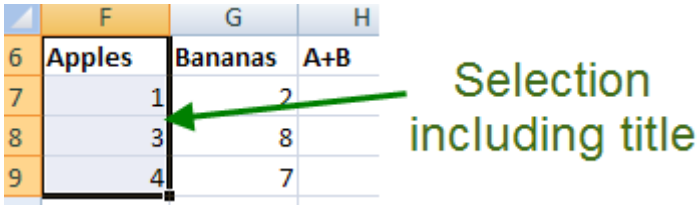


- Or, use the ribbon: Formulas tab > Defined Names group > Define Name control.

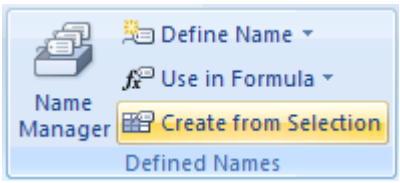


- Enter a name, or edit or accept the name that may already be present.

- Select the cell, or range of cells, that you want to define a name for and include the title cell that you want to use for a name.



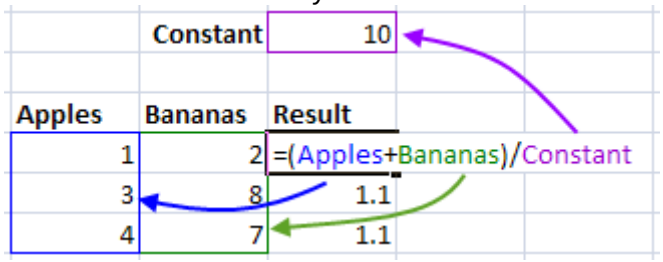
- Use the ribbon: Formulas tab > Defined Names group > Create from Selection.



- 'Top row' is selected, click OK.

Use the name in a formula

When creating or editing formulae, you can use names by typing the name directly into the formula. An easy way (that saves typing and trying to remember the names) is to press F3 when editing the formula to show a list of the names that you can select from.

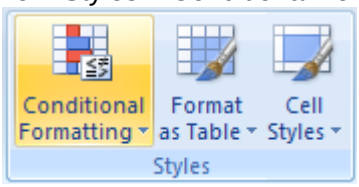


Formatting cells to discover unusual results

Conditional Formatting

Conditional formatting is useful for highlighting cells based on the values.

- Select the cells that you want to have formatted
- On the ribbon, choose Home > Styles > Conditional Formatting.



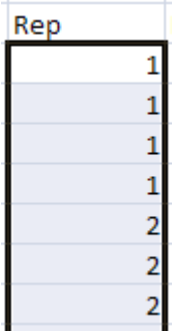
- From the dropdown list select one of the sub-menus and options therein (experiment!).
- You can add any number of conditional formatting rules. For example, you could have a rule for the top value, another rule for the bottom value, plus another rule for cells with any text in them.

Entering Sequences or entering Factors (e.g., Treatments)

Data Validation List

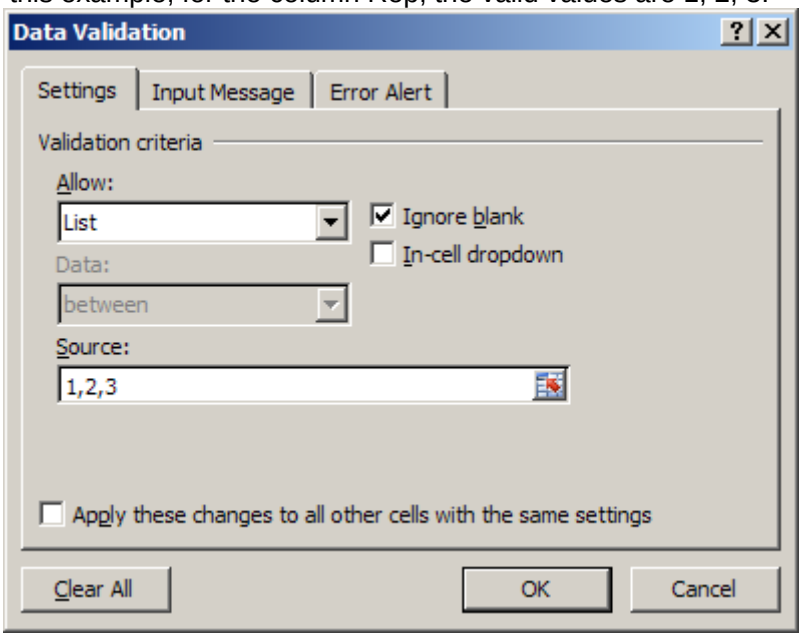
This can be used for columns that should contain a limited list of labels or numbers to check that nothing outside the list is entered. The column might contain replicate numbers (e.g., 1,2,3,4) or treatment names (e.g., Plough, Disc, DDrill).

- Select all the cells in the column, not including the column name:



- From the ribbon, choose: Data tab > Data Tools group > Data Validation.
- Then choose 'List' from the 'Allow:' drop-down list.

- In the Source box, either enter the list of values that are valid, separated by commas, OR enter a range of cells on the SAME work-sheet page as your column that contains the list, OR enter a previously named range containing the list (press F3 for the available names). In this example, for the column Rep, the valid values are 1, 2, 3:

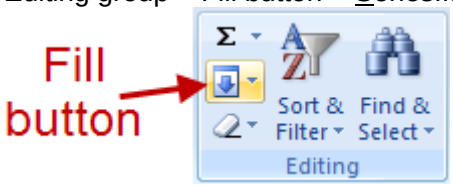


- If you wish, enter information on the Input Message or Error Alert pages.

Fill button

A useful way to generate a series of numbers (or even text) is with the Fill button.

- Enter the first part of the series (e.g., 1,2,3), then select the cells you wish to fill.
- Use the ribbon: Home tab > Editing group > Fill button > Series...

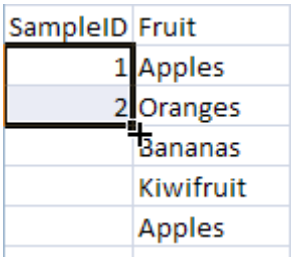


- Select a Series Type, press [OK].
- AutoFill is a particularly useful series type. E.g., if you type A1 in the first cell, this will fill subsequent cells with A2, A3 etc.

Filling cells with the mouse

There are two simple ways to fill cells with a sequence of values by using the mouse.

- Type the first two values of a sequence in the column.
- Select them, move the cursor over the small black square at the bottom right of the selected cells until it turns into a cross.

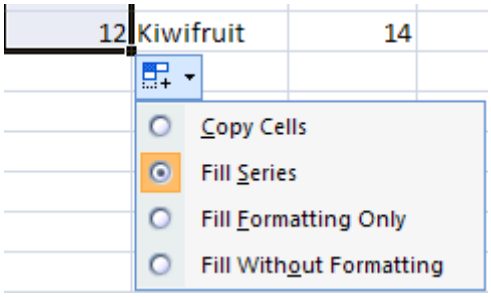


Double-click

- Double-clicking fills the cells to the bottom of the rectangle. Note: this only works if there are adjacent cells with values in them (otherwise, double-clicking does nothing).

SampleID	Fruit
1	Apples
2	Oranges
3	Bananas
4	Kiwifruit
5	Apples
6	Oranges
7	Bananas
8	Kiwifruit
9	Apples
10	Oranges
11	Bananas
12	Kiwifruit

- If you click on the Fill icon (circled above), then some options pop up to change how the cells are filled:



Click and drag

- Instead of double-clicking the bottom right corner of the selected cells, you can simply click and drag to fill cells with a series.
- If you hold down CTRL whilst dragging, this copies the cells rather than copying a sequence.

VLOOKUP

The VLOOKUP function (as well as the related HLOOKUP function) is a very useful tool for matching up values in one list with values in another, e.g., matching cultivar names with an Entry number, or treatment names with treatment numbers.

- First, create a table of treatment numbers and treatment names. This can be anywhere in the workbook, not necessarily on the same work-sheet as the VLOOKUP commands. The first column must contain the numbers or values that you are trying to match.

1	Apples
2	Oranges
3	Bananas
4	Kiwifruit

- It is very useful to name the table, and the following instructions will assume that you have done so. Name the table: select all the cells in the table, then enter in a name for the table (such as Table) in the name box on the formula bar.
- In the work-sheet cells where you want the translation of numbers into names, enter the VLOOKUP command. In the command, the first argument is the reference to the cell you want to translate, then comes the name of the lookup table, then comes the column number of the look-up table where the translation is listed (the leftmost column is 1). After that, FALSE (or 0) means that you want an exact match, not just the nearest match.

- e.g., entering =VLOOKUP(B4,Table,2,FALSE) in cell C4 looks up 1 from B4 in the first column of Table (above) and translates it into 'Apples' which is in the second column of Table. Similarly, cell C5 contains =VLOOKUP(B5,Table,2,0) which looks up 2 (contents of B5) on column 1 of table, and translates it into 'Oranges', which is on the same row of Table, but is in column 2. =VLOOKUP("New fruit",Table,2,0) would give #N/A, as "New fruit" is not in the table, and we want exact matches (as specified by the 0 in the formula).
- This is the result when all the cells in column C are filled:

	A	B	C
3	SampleID	Fruit no.	Fruit name
4	1	1	Apples
5	2	2	Oranges
6	3	3	Bananas
7	4	4	Kiwifruit

NOTE: - see online HELP for VLOOKUP for details.
If you omit the final argument (FALSE or 0 above), then if the value to be translated is not in the table, VLOOKUP will use another value that is 'closest'. What is 'closest' can be affected by the order of items in the table.

HLOOKUP works similarly to VLOOKUP, except that it works on the ROWS of a table rather than columns.

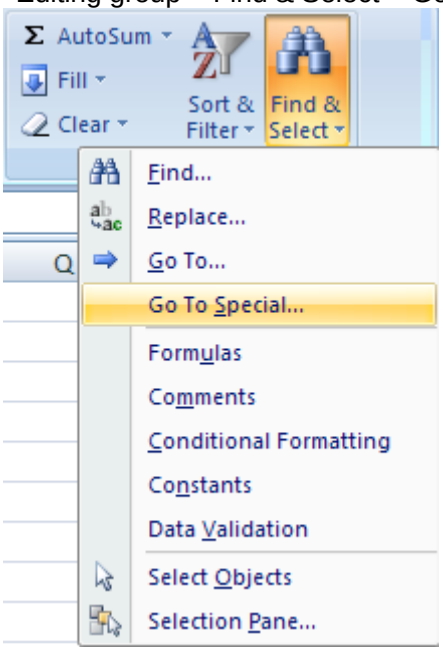
Filling blank cells with the value above

If you have a column containing values with gaps (empty cells) in between them, you may wish to fill the gaps with value above.

Selecting blank cells

First, you need to select all of the blank cells that you want filled. To do this,

- Select all of the cells in the column that you want filled, being sure to **include the cells with values in them**.
- Use the ribbon: Home tab > Editing group > Find & Select > Go To Special...



- From the dialogue box that appears, choose 'Blanks', and press [OK]

Copy the values

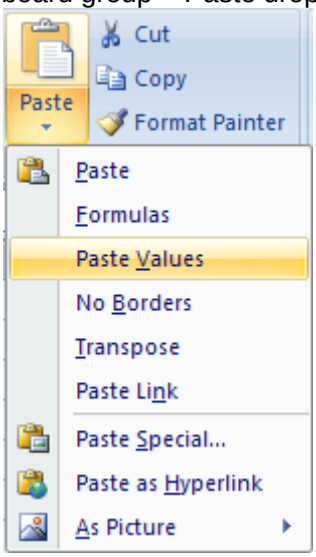
Once the blank cells have been selected, **press the following four keys without clicking the mouse or pressing any other keys**:

- **=** [up arrow] [Ctrl+Enter]

- This should create a formula in each of the blank cells to fill the cell with the value above it. We now need to copy those cells and paste them as values to make the values permanent.

Paste values

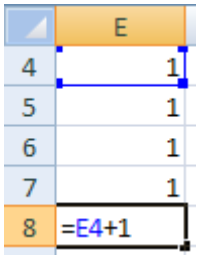
- Select all of the cells in the column (both the newly filled cells and the cells with values in them).
- Copy the selection.
- Use the ribbon: Home tab > Clipboard group > Paste dropdown > Paste Values.



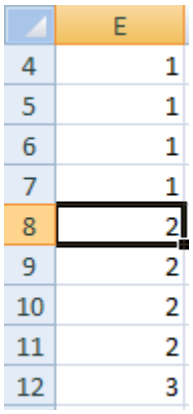
Calculating a list of repeating values

To create a list of repeating numbers in a series, you can use a simple formula. For example, you need to have repeating values 1,1,1,1,2,2,2,2,3,3,3,3,... in a column.

- Enter all of the repeats of the first value (1) into the cells at the top of the range where you want the values.
- In the first blank cell below the entered values, enter a formula that points to the first (topmost) value and adds 1. The first blank cell E8 has a formula **=E4+1**.



- Copy this formula down the column to create as many values as you need.



- You should copy these cells and paste them as values to make the values permanent.

Summarising results

Pivot tables

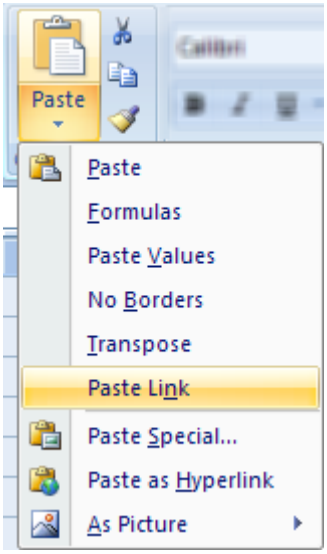
Pivot tables are a powerful and flexible way of summarising results from data that you have stored in a list. The chief value of pivot tables is that you can easily change the table to summarise the table in a different way. Also, pivot tables drastically reduce the number of formulae used to calculate the summary information and, thus, reduce your chances of making a formula error.

Other useful features

Paste Link

Pasting a link to cells pastes a reference to the copied cells instead of the contents. This can be very useful for replicating information in a spreadsheet WITHOUT making a copy.
E.g., on Sheet1, you have a Treatments and Rep column in columns A and B, and you want to copy them to Sheet2 where you will have columns calculated from the raw data on Sheet1.

- Select and Copy the columns A & B on Sheet 1.
- Switch to Sheet 2.
- Use the ribbon: Home tab > Clipboard group > Paste dropdown control > Paste Link.



- Or, use Paste Special, and then click 

.
- **Warning: Links to empty cells give a result of zero.**

Protecting Data

Allows you to prevent a worksheet or part of a worksheet being modified.

- Select any cells that you **DO NOT** want protected.
- Either, from the ribbon, choose: Home tab > Cells group > Format dropdown > Lock Cell.
- Or, [Ctrl+1] > Protection tab, and un-tick Locked.
- From the ribbon, either choose: Home tab > Cells group > Format dropdown > Protect Sheet...,
- Or choose: Review tab > Changes group > Protect Sheet.
- In the 'Protect Sheet' dialogue box that appears, select the things that you want to allow (by default, this is only 'Select locked cells' and 'Select unlocked cells'), and press [OK].

Now you cannot change any cell that you DID NOT select in step 1.

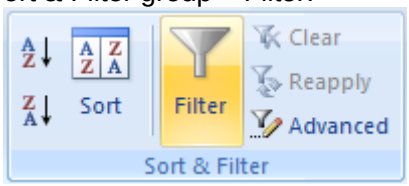
Data Filter

The data filter is an excellent tool for filtering a list of values. Allows rows of the worksheet to be temporarily hidden. Very useful when entering data where you only want to enter a subset. Filter must be set up before a sheet is protected.

- Select the row of column titles:

3	SampleID	Fruit no.	Fruit name	Temperature	Rep	Result
4	1	1	Apples	1°C	1	2
5	2	2	Oranges	1°C	1	8
6	3	3	Bananas	1°C	1	9

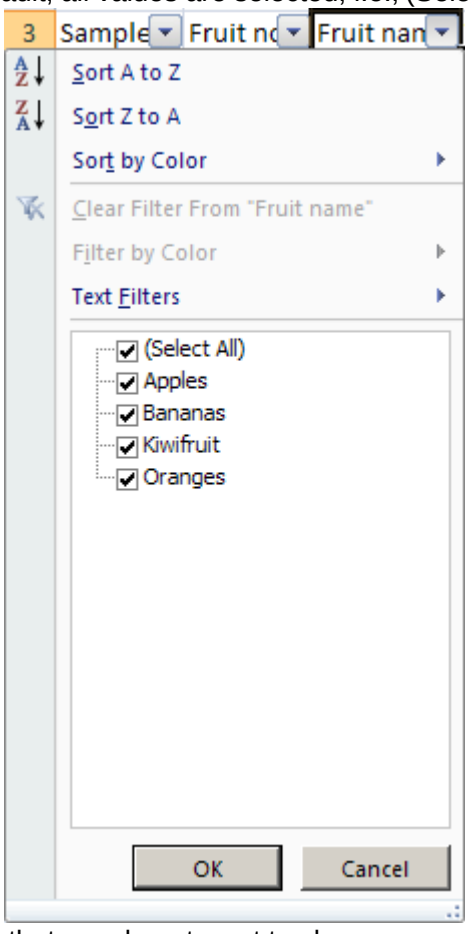
- Use the ribbon: Data tab > Sort & Filter group > Filter.



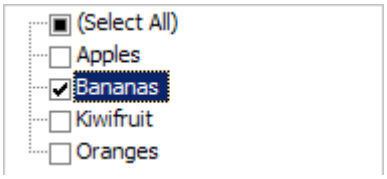
- Or, [Ctrl+Shift+L].
- This adds pull-down arrows to the titles:

3	Sample	Fruit no	Fruit nan	Temperatu	Rep	Result
4	1	1	Apples	1°C	1	2
5	2	2	Oranges	1°C	1	8
6	3	3	Bananas	1°C	1	9

- Click a pull-down arrow to choose a sub-set of the data. At the top of the dropdown box, there are some options for sorting the data. Below this is a list of the values in the selected column. By default, all values are selected, i.e.,'(Select All)' is ticked.

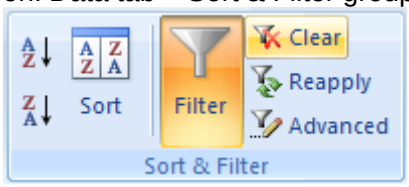


- Either, untick the values that you do not want to show
- Or, untick '(Select All)' and then tick those values you do want to show. E.g., select only the fruit name 'Bananas'. Click [OK].



Only rows of data for Bananas will now be shown. You can now select additional subsets using the other pull-down arrows (e.g., show values for Bananas and Rep = 1).

- Clear all filters using the ribbon: Data tab > Sort & Filter group > Clear.



- Remove the Filter arrows by using the ribbon: Data tab > Sort & Filter group > Filter, or by using shortcut keys [Ctrl+Shift+L].

Inserting a Comment

You can add a comment to a cell. This puts a red marker in the cell. When the mouse is over the cell, the comment is shown. Use for comments like 'DEAD' to allow the cell to remain empty, or to track changes made. There are three different ways to add a comment:

1. Either, put the selector on the cell and then press [Shift+F2]
2. Or, put the selector on the cell and right-click, then choose: Insert Comment.
3. Or, put the selector on the cell and on the ribbon choose: Review tab > Comments group > New Comment control.

Transposing columns and rows

Occasionally, when creating a table of values for presentation, you may wish to swap (or transpose) the rows and columns around. Excel has a simple way of doing just that.

- Select the cells that you wish transpose.
- Copy the selection.
- Select the cell where you wish to place the transposed results.
- Use the ribbon: Home tab > Clipboard group > Paste dropdown > Transpose.