

# Microsoft Excel Tips

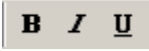




Summarized by Patrick Mount



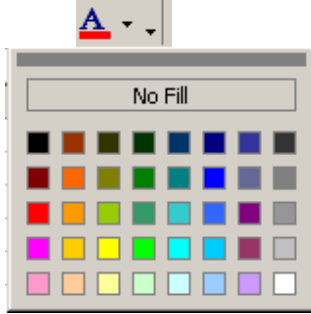
This 'refresher guide' contains a completely incomplete list of common tips, steps, and processes used when working with spreadsheets using *Excel*.

## Formatting cells:

Note: for your editing convenience, be sure the 'Formatting' toolbar is fully visible.



Begin by selecting the cell(s) that you wish to format. Clicking and dragging can select groups of cells, and entire rows or columns can be selected by clicking on the row or column header(s). To select non-adjacent cells, select the first set of cells as described above, then hold down the Ctrl key while selecting additional sets of cells.

-  Used to **Bold**, *Italicize*, or Underline contents of a cell.
-  Used to **justify** the contents of a cell (left, center, or right).
-  Used to **center** contents of one cell **over a merged selection of cells**.
-  Used to format numerical values as **currency** or as a **percent**.
-  Used to **increase** or **decrease** the **decimal places** for numerical values.

		
<ul style="list-style-type: none"> <li>• Used to create various <b>borders</b> around selected cells or groups of cells.</li> </ul>	<ul style="list-style-type: none"> <li>• Used to fill a cell with a <b>background color</b>.</li> </ul>	<ul style="list-style-type: none"> <li>• Used to alter the <b>font color</b> of a cell's contents</li> </ul>

- To **adjust row height** or **column width**, Place cursor between row or column headings, click, and drag to desired size. Double-click to auto-adjust to fit cell contents.
- Select cell immediately beneath and right of cells you wish to **freeze**. *Window > Freeze Panes* from the menu bar will cause those cells to display as the document is expanded.
- Additional formatting, including **text alignment** can be performed using *Format > Cells* from the menu bar, and selecting the appropriate tab.

## Cell Comments

Comments can be added to cells allowing for additional information or notations. Begin by selecting the cell to be annotated, click on the  button, type the comment, and then click away from the comment box. Once entered, the annotated cell will display a red dog-ear , and the comment will appear as the cursor is hovered over the cell.

## Sorting Data

Data may be **sorted** by column in either ascending or descending order, by up to three constraints.

Consider the spreadsheet below (on the left), initially sorted in ascending order by “Last name:” We may wish to sort this instead by “Total Years” or by “Windsor Years”. To do so,



- 1) Select the *rows* data that you wish to have sorted (in this case, rows 3 – 11); [To select non-adjacent cells, hold down the Ctrl key].
- 2) Select *Data > Sort* from the menu bar.
- 3) A window will appear allowing you to customize your sort.
- 4) Since we have included the category titles in the selection, be sure the ‘My list has Header row’ is marked.
- 5) Click on the pop-up menu and choose the category by which the data is to be sorted (In this case, *Total Years*, then *Windsor Years*).
- 6) Choose either Ascending (increasing from smallest to largest) or Descending (largest to smallest).
- 7) Click ‘OK,’ and the data will be sorted.

The ‘Options...’ button allows the user to choose to sort by row rather than by column.

Notice that the spreadsheet on the right is now sorted according to our instructions, and that the data read across the rows reads as it did in the original spreadsheet, just with the rows in a different order.

	A	B	C	D
1	<b>Education Experience of Excel Enrollees</b>			
2				
3	<b>Last Name</b>	<b>First Name</b>	<b>Total Years</b>	<b>Windsor Years</b>
4	Benningsdorf	Bruce	21	1
5	Foreman	Barbara	18	14
6	Keil	Bev	4	4
7	Mount	Patrick	13	10
8	Trusler	Karen	24	23
9	Wagner	Donna	11	11
10	Winder	Connie	11	11
11	Zimmerman	Linda	24	14

**Sort 1: Alphabetically by Last Name**

	A	B	C	D
1	<b>Education Experience of Excel Enrollees</b>			
2				
3	<b>Last Name</b>	<b>First Name</b>	<b>Total Years</b>	<b>Windsor Years</b>
4	Trusler	Karen	24	23
5	Zimmerman	Linda	24	14
6	Benningsdorf	Bruce	21	1
7	Foreman	Barbara	18	14
8	Mount	Patrick	13	10
9	Wagner	Donna	11	11
10	Winder	Connie	11	11
11	Keil	Bev	4	4

**Sort 2: Total Years, then by Windsor Years**

*Important:* This very useful feature has to be used carefully, however, or your data could become corrupted! For example, if we selected only the data in cells C3:D11 for our sort, then the result would have appeared as:

	A	B	C	D
1	<b>Education Experience of Excel Enrollees</b>			
2				
3	<b>Last Name</b>	<b>First Name</b>	<b>Total Years</b>	<b>Windsor Years</b>
4	Benningsdorf	Bruce	24	23
5	Foreman	Barbara	24	14
6	Keil	Bev	21	1
7	Mount	Patrick	18	14
8	Trusler	Karen	13	10
9	Wagner	Donna	11	11
10	Winder	Connie	11	11
11	Zimmerman	Linda	4	4

**Sort 3: Total Years, but incorrect association to Names.**

Notice that with sort 3, the data order for Last Name matches that of Sort 1, but the Experience columns match those of Sort 2, and the years of experience do not match properly with the names. In other words, the data had become corrupted!

Avoid this trauma by selecting all of the related data in each row. In this case, that would be A3:D11.

## Filtering Data

Data can instead be **filtered** to display only selected criteria. Using the preceding example, suppose we wanted only to see a list of individuals with more than 15 years of experience in the education:

Education Experience of Excel Enrollees			
Last Name	First Name	Total Years	Windsor Years
Benningsdorf	Bruce	(All)	1
Foreman	Barbara	(Top 10...)	14
Keil	Bev	(Custom...)	4
Mount	Patrick	4	4
Trusler	Karen	11	10
Wagner	Donna	13	23
Winder	Connie	18	11
Zimmerman	Linda	21	11
		24	14

- 1) Select the entire data set to be considered
- 2) From the menu bar, select Data>Filter>AutoFilter
- 3) Notice that now each of our headings contains a drop-down menu of choices, populated by the contents of the cells beneath it, as well as three pre-defined options. In this case, we want a custom filter of those whose Total Years > Is greater than >15 (use these selections in each window of the ensuing wizard).
- 4) The resulting display includes only those whose criterion meets these conditions. This filtered data can now be sorted as described above, and formula values will remain intact.
- 5) If desired, the data can be further filtered by another column.
- 6) To un-filter the data (and thus to see it all), select Data>Filter>AutoFilter from the menu bar.





Education Experience of Excel Enrollees			
Last Name	First Name	Total Years	Windsor Years
Foreman	Barbara	18	14
Benningsdorf	Bruce	21	1
Trusler	Karen	24	23
Zimmerman	Linda	24	14


## Pivot Tables


Similar to filtering, **Pivot Tables** allow one to quickly summarize data with an interactive data analysis sheet. Pivot tables consist of rows & columns (which will contain data headers), and data (values of the chosen data headers). Once created, columns of data can be easily filtered or hidden. Begin by selecting Data > Pivot Table... and follow the steps of the wizard.

## Copying, Pasting, and Dragging

Once one has formatted cells and entered information (values, labels, and/or formulas) that will be repeated, the drag option can save substantial amounts of time. To the right is a review of the cursors and their functions.

<u>Appearance</u>	<u>Function</u>
	Tool Selector
	Cell Selector
	Adjust column or row height. Place cursor in between column or row headings.
	Drag tool. Select cell and place cursor in lower-right corner of a cell.


To simply **copy** and **paste**, select the source cell and Copy (Ctrl+C or )

and then select the designation cell and Paste (Ctrl+V or ). Even sets of cells, or entire rows, column, or worksheets may be copied and pasted. If only certain aspects of a cell (such as the formats, comments, or borders) are to be pasted, use the *Edit > Paste Special* option from the menu bar.

[Note: If using more than one source cell, the designation cells' quantity and dimension must exactly match that of the source cells (or be an integer multiple thereof). If this is awkward, select only one destination cell, and Excel will make exactly one paste of the source cells beginning in that cell).

Using drag tool is a wonderful way to quickly copy or **auto-fill** cells. For example, type 'Monday' into a cell, then drag that cell either down or right. Doing so will populate the cells with the days of the week. This is also useful for creating sequences of numbers, months, etc.

## Using Formulas

- Formulas may either be created by the user (using the math operands of +, -, \*, /, and ^), or generated with the *Paste Function* () wizard.
- Formulas may involve specific numbers, or values contained within other cells.
- Formulas that obtain information sets of cells refer to those cells by the upper-left-most-cell to the lower-right most cell (i.e. A1:B6).
- All formulas must begin with the equal sign ('=').

### Common formulas

<u>Purpose</u>	<u>Example</u>
Adds the values from within a set of cells	=SUM(B5:B12)
Averages the values from within a set of cells	=AVERAGE(B5:B12, C5:C12)
Counts the quantity of numerical values from within a set of cells	=COUNT(A1:J1)
Counts the quantity of non-empty cells from within a set of cells	=COUNTA(C1:C800)
Counts the quantity of cells meeting a specific requirement from within a set of cells	=COUNTIF(C1:C500,4.0) =COUNTIF(B1:B500, ">=3.5")

## Copying Formulas and Using Cell References

The drag tool will quickly copy and paste formulas, adjusting cell **references** as necessary. However, if some of those cell references are intended to be unadjusted, the referred-to cell must be locked as **absolute** by placing a dollar sign ('\$') before the referred-to cell's row or column (or both) address in the equation.

Example: Consider this spreadsheet, which displays the daily attendance at a local and fictitious water park. Water park managers want to assess the total attendance and income by week and by day-of-the-week. To complicate matters, the admission fee is not constant from week to week:

	A	B	C	D	E	F	G	H	I
1	<b>Windsor WaterWorld Weekly Weport</b>								
2									
3	<b>Week of:</b>	<b>Admission</b>	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>	<b>Weekly Total</b>	<b>Income</b>
4	1-Jun	\$ 1.00	34	27	41	38	48	188	\$ 188.00
5	8-Jun	\$ 1.50	28	22	38	31	35	154	\$ 231.00
6	15-Jun	\$ 2.00	51	35	39	46	57	228	\$ 456.00
7	22-Jun	\$ 2.50	19	21	26	29	32	127	\$ 317.50
8	<b>Daily Total</b>		132	105	144	144	172		<b>\$ 1,192.50</b>
9	<b>Income</b>		\$ 225.50	\$ 182.50	\$ 241.00	\$ 249.00	\$ 294.50	\$ 1,192.50	

Finding the total attendance is relatively simple, and the formula used in one cell for this summary can be dragged across or down to the rest of the cells.

So the formula used to determine the day-of-the-week total is simply the sum of the appropriate column. It can be entered in cell C8, and then be dragged across row 8.

Similarly, determining the weekly total is a matter of summing the appropriate row. Enter the formula in cell H4, and drag down column H.

Finding the weekly income is a little more challenging, as we need to multiply the weekly total by the admission for the week. However, that formula can be entered into cell I4 and be dragged down column I without incident.


Cell	Purpose	Formula
C8	Add column	=SUM(C4:C7)
D8	"	=SUM(D4:D8)
E8	"	=SUM(E4:E8)
F8	"	=SUM(F4:F8)
G8	"	=SUM(G4:G8)
H4	Add row	=SUM(C4:G4)
H5	"	=SUM(C5:G5)
H6	"	=SUM(C6:G6)
H7	"	=SUM(C7:G7)
I4	Weekly Income	=B4*H4
I5	"	=B5*H5
I6	"	=B6*H6
I7	"	=B7*H7

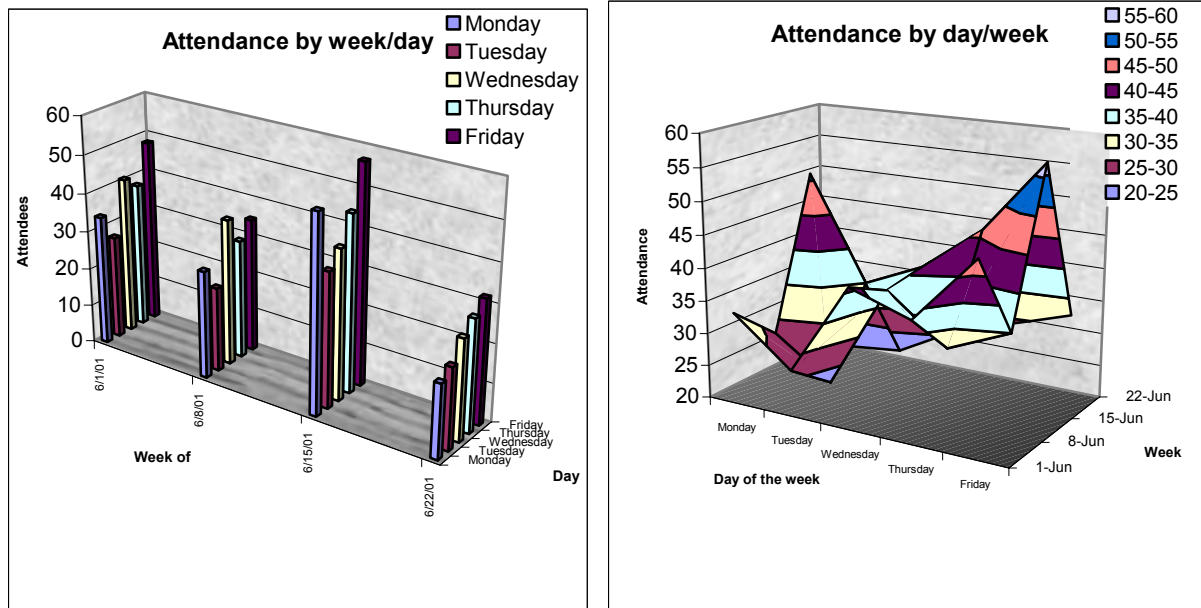
Finding the day-of-the-week Income, however, is much more difficult, and when dragged across the row can create a mess if the referenced cells are not 'locked.' To obtain the proper value for all Mondays' total income, we need to multiply each admission by its attendance, and add the total. We may choose to create this formula for each day of the week, but it would be quicker to drag. It will be necessary to lock the *column* reference of the admission fee, so a dollar sign is placed in front of that reference in the formula (notice the \$ before each B):

Cell	Purpose	Formula
C9	Day-of-week income	=C4*\$B4+C5*\$B5+C6*\$B6+C7*\$B7
D9	"	=D4*\$B4+D5*\$B5+D6*\$B6+D7*\$B7
E9	"	=E4*\$B4+E5*\$B5+E6*\$B6+E7*\$B7
F9	"	=F4*\$B4+F5*\$B5+F6*\$B6+F7*\$B7
G9	"	=G4*\$B4+G5*\$B5+G6*\$B6+G7*\$B7




If we were to need to lock the row reference, the dollar sign would be placed in front of the number (example: B\$4), and if we needed to lock the cell entirely, place the sign before both (\$B\$4).

## Creating Graphs

Graphs (used synonymously with 'charts' in Excel) provide a nice visual display of data, and are surprisingly easy to create using the **Chart Wizard** button (  ).



These charts show the attendance by both week and by day. The chart types are *3-D column* on the left, and *area* on the right.

- 1) Highlight the data to be charted; include labels if desired (in this case cells A3:A7 and C3:G7 were highlighted, [Hold the Ctrl key to select non-adjacent cells]).
- 2) Click the Chart Wizard button (  ), and you will be walked through a host of choices:
  - a. Type of chart (use the  to get a preview of the results of your choices.
  - b. Data Range and Series by column or by row.
  - c. Chart Options  (Titles | Axes | Gridlines | Legend | Data Labels | Data Table).
  - d. Chart location (within worksheet or in its own worksheet).

Once the graph is created, any of the above can be altered. Simply double-click to on the chart, then right click on that which is to be edited, and select 'format....'

## Glossary of Basic Terms:

- Sheet- one page in a workbook; can be inserted, deleted, copied, renamed, or relocated.
- Columns- vertical, labeled with letters across the top of a sheet; can be inserted, deleted, or copied.
- Rows – horizontal, labeled with numbers. can be inserted, deleted, or copied.
- Cells – boxes in which data can be entered; referred to by its column-row intersection (for example, C2 refers to the cell in the C column in the 2<sup>nd</sup> row). The data in cells can be labels (typically words), numbers (including dates, fractions, etc.), or formulas.
- Range – group of cells, usually adjacent to one another (for example, the range B4:D7 consists of a total of 12 cells in a 3-column by 4-row block).