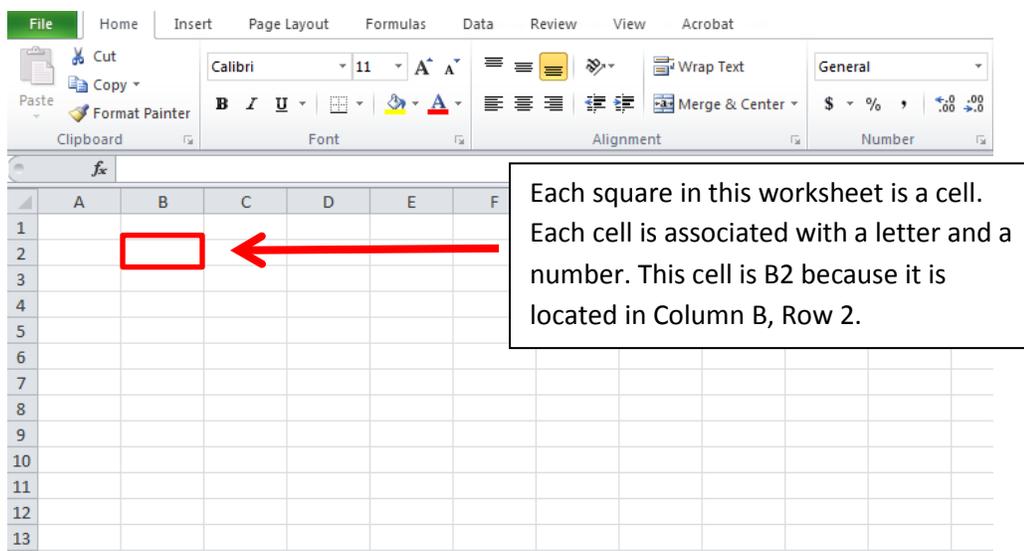




Excel: The Basics

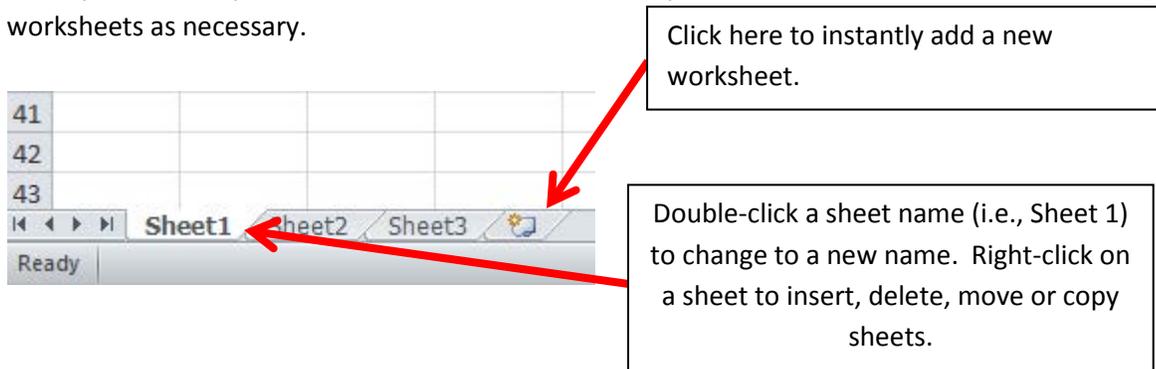
To enter data/information in an Excel **Worksheet**, simply click on a space (known as a cell) and enter content on the worksheet. To move to the next cell hit TAB (to go to the right) or RETURN/ENTER or the down arrow (to go down). With Excel, you can enter in the following types of content:

- Numbers
- Currency
- Date
- Time
- Percentages
- Fractions
- Text
- Customized Information



A Worksheet

In Excel, the page that you are looking at with all of the cells is a single Worksheet. The file that you are saving is a workbook. A workbook can contain one or more worksheets. You will see at the bottom of the screen that when you create/open a new Excel file, there are usually three worksheets created. You can add/delete worksheets as necessary.





Format a Cell

If you right-click on any cell and select **Format Cells** you can see the different types of formats available to you, and the ways in which you can choose to display that format. For example, If you right-click on a cell – choose **Format Cells** – and then select the **Date** Option on the left (beneath Category), you will see the different types of ways that the date can be displayed. See below.

There are many different date formats available to you. Select the one that you prefer and hit OK at the bottom. Now when you enter in a date in that cell, it will be listed in that format. You may also select multiple cells and adjust the format of multiple cells at one time. Oftentimes this is done when you want a column or row to all be formatted similarly.

The screenshot shows the 'Format Cells' dialog box with the 'Date' category selected. The 'Type' list includes options like *3/14/2001, *Wednesday, March 14, 2001, 3/14, 3/14/01, 03/14/01, 14-Mar, and 14-Mar-01. The 'Locale (location)' is set to English (U.S.). A red arrow points to the 'Sample' field, which currently displays 'Sample'.



Formatting Multiple Cells

In the screen below, I selected the entire time column (by right-clicking on the letter B at the top of the column and selecting **Format Cells**) and am formatting all cells in that column to a specific time format.

The screenshot shows the Microsoft Excel interface with the 'Format Cells' dialog box open. The dialog box is titled 'Format Cells' and has tabs for 'Number', 'Alignment', 'Font', 'Border', 'Fill', and 'Protection'. The 'Number' tab is selected. Under 'Category', 'Time' is selected. The 'Sample' field displays '1:00PM'. The 'Type' list shows several time formats, with '*1:30:55 PM' selected. The 'Locale (location)' is set to 'English (U.S.)'. The 'OK' button is highlighted.

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2												
3		Date	Time	Text	Item 1	Item 2	Item 3	Total				
4		9/1/2011	1:00PM									
5		9/2/2011	2:00PM									
6		9/3/2011	4:00PM									
7		9/4/2011	5:00PM									
8		9/5/2011	11:00AM									
9		9/6/2011	9:30AM									
10		9/7/2011	4:30AM									
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												

Once you select the specific time format that you would like. Click **OK**. You should see your current times listed in Column B change to the new format.

Entering Text & Expanding Column Size

In Excel you are not just limited to numbers. You can enter text where necessary. Oftentimes, you will need to expand the column width to include all entered text. There are two ways to expand a column, automatically and manually. As you can see below, I entered in text and because there was more text than space in the cell I cannot read everything that was entered.

As you can see here, when you enter in text (or any content for that matter) if it does not fit in the current cell space it will “spill over” into other cells (that do not have content) or it will be hidden underneath cells that do have content. You need to expand the column manually or automatically to view all text.

	A	B	C	D	E	F	G	H
1								
2								
3		Date	Time	Text	Item 1	Item 2	Item 3	Total
4		9/1/2011	13:00	nal Hard Drive				
5		9/2/2011	14:00	op Computer				
6		9/3/2011	16:00	top Computer				
7		9/4/2011	17:00	one Charger				
8		9/5/2011	11:00	iPhone				
9		9/6/2011	9:30	iPad				
10		9/7/2011	4:30	aptop Case				

To Manually Expand the Column: Bring your cursor up to the top of the column (in this example, to the line indicating the right-side of Column D). Click on the right line (between Column D and E) and manually drag that line to the right until the column is at a desired width. Now all text should fit comfortably within the cell.

To Automatically Expand the Column: Bring your cursor up to the top of the column to the line on the right-side of the column. In this example, bring your cursor to the line between Column D and E. Double-click on that line and the column will expand to exactly the right width that would include your longest text string. See below.

Click on this line at the top of the worksheet, on the right-side of the cell that you want to expand. Single click and drag to expand manually or double-click to expand automatically.

	A	B	C	D	E	F	G	H
1								
2								
3		Date	Time	Text	Item 1	Item 2	Item 3	Total
4		9/1/2011	13:00	External Hard Drive				
5		9/2/2011	14:00	Laptop Computer				
6		9/3/2011	16:00	Dekstop Computer				
7		9/4/2011	17:00	Phone Charger				
8		9/5/2011	11:00	iPhone				
9		9/6/2011	9:30	iPad				
10		9/7/2011	4:30	Laptop Case				

Entering & Formatting Currency

When you enter in currency, you have the option to:

- Display a symbol (\$) next to each dollar amount
- Adjust the number of decimal places (choose 0 if you want to round to whole numbers)
- And adjust how negative numbers are displayed (see choices below)

As always, select the cell(s) that you would like to format, right-click on your mouse, and choose **Format Cells**. Select the **Currency** option from the Category choices and then select the desired options. Click **OK** when finished. See below for more details.

These are the numbers that I want to format. I want to add a \$ symbol, I want two decimal places to be displayed, and I want negative numbers to have a – symbol in front of them. I selected the entire column by right-clicking on the “F” cell at the top of the column and selecting **Format Cells**. I then selected the Currency option on the left-hand side and adjusted my settings as you see below.

# Items	Price	Total
2	89.99	
3	1699.99	
1	549.5	
2	19.99	
5	399.99	
10	699.99	
1	80.89	
		Total

This is where you adjust your options for how the currency will be displayed depending on your preferences.

Format Cells

Number Alignment Font Border Fill Protection

Category:

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

Sample

Decimal places: 2

Symbol: \$

Negative numbers:

- \$1,234.10
- \$1,234.10
- (\$1,234.10)
- (\$1,234.10)

Currency formats are used for general monetary values. Use Accounting formats to align decimal points in a column.

OK Cancel

Basic Formulas

Excel can do all the calculations for you. In the current example I have a list of purchased items and the number of each item that was purchased. I now want to calculate the total price for each component. For example, I purchased two external hard drives at \$89.99 each. What is the total cost for both? Luckily, Excel can do the calculations for you IF you enter in the formula to compute that value. In this case you want to use a Multiplication Formula to multiply the # of items (items in Column E) by the price for each item (amounts listed in Column F).

To enter in a formula, click the cell in which you want to enter the formula. In this case it is Cell G4. Then click on the **Insert Function** button on the **Formula Bar**. See below. Excel will insert an = sign for you, which is the beginning of the formula that you will choose.

This is the function button. Click here to search for and/or select a function

This white space is the Formula Bar

This is Cell G4

Search for a function or select the function that you would like, and then hit OK. If you highlight a function in the list it will explain what it does beneath that list.

	A	B	C	D	E	F	G
1							
2							
3		Date	Time	Purchase	# Items	Price	Total
4		9/1/2011	13:00	External		\$89.99	=
5		9/2/2011	14:00	Laptop Computer	3	\$1,699.99	
6		9/3/2011	16:00	Desktop Computer	1	\$549.50	
		9/4/2011	17:00	Phone Charger	2	\$19.99	
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							

Insert Function

Search for a function:

Type a brief description of what you want to do and then click Go

Or select a category: Most Recently Used

Select a function:

- SUM
- AVERAGE
- IF
- HYPERLINK
- COUNT
- MAX
- SIN

SUM(number1,number2,...)
Adds all the numbers in a range of cells.

Help on this function

OK Cancel



Select the function that you want to use. If you don't know what function you want to use you can type in a question that describes what you want to do in the Search for a function box (for example, "multiply numbers" returns the PRODUCT function), or you can browse from the categories in the **Or Select a category box**.

Enter the arguments (cell numbers that you want to use). In this example the Product function multiples two or more numbers together. You must select the cells which contain the numbers that you want to multiply.

First, click on the **Expand Dialogue** button to select the cell that you want to use as your first number. See below.

The screenshot shows the Microsoft Excel interface with the **Function Arguments** dialog box open for the **PRODUCT** function. The dialog box displays the following arguments:

Argument	Value	Result
Number1	E4	= 2
Number2	F4	= 89.99
Number3		= number

The dialog box also shows the formula result as 179.98 and a description of the function: "Multiplies all the numbers given as arguments." A red arrow points to the **Expand Dialogue** button (the icon with a red X) next to the E4 input field. A text box on the right explains: "This is the **Expand Dialogue** button. Click to manually select the cell that contains Number 1. Or you can manually enter in the cell information. Repeat for all other numbers. Below you will see the total listed and the description of the function. Hit **OK** when done."

Then click on the cell that you want to use as your first number. Then click on the **Close Dialogue** button. You will now see the cell number that you selected listed for Number 1. You can also manually enter in the cell number in that space as well. Repeat for Number 2 (and number 3, 4, 5, ... if applicable). Click **OK**. You will now see the final product. In this example, the final product is listed in cell G4. It contains the product of Cell E4 multiplied by Cell F4. =PRODUCT(E4, F4).

The screenshot shows the Excel ribbon with the 'Formulas' tab selected. Below the ribbon, a spreadsheet is visible with columns D through H. Cell E4 is highlighted with a dotted border. A text box explains that clicking on E4 highlights it and enters 'E4' into the 'Function Arguments' dialog box. Another text box points to the 'Close Dialogue' button (the sigma symbol) in the dialog box, stating that clicking it finalizes the selection. The dialog box shows 'E4' entered in the 'Number1' field.

You now have selected both Function Arguments and this window also lets you see what the final result will be (in this case \$179.98. Click **OK** to insert this function into your Excel worksheet.

The 'Function Arguments' dialog box for the PRODUCT function is shown. The 'Number1' field contains 'E4' and the 'Number2' field contains 'F4'. The dialog box displays the formula result as '= 179.98'. A red circle highlights the 'Number1' and 'Number2' fields. The dialog box also includes a description of the function: 'Multiplies all the numbers given as arguments.' and 'Number2: number1,number2,... are 1 to 255 numbers, logical values, or text representations of numbers that you want to multiply.' The 'OK' and 'Cancel' buttons are visible at the bottom.

Now in the worksheet you can see the Total appear in Cell G4. Also, if you click on that cell, you can see the function used in the **Formula Bar**. See below.

The screenshot shows the Excel interface. The Formula Bar at the top displays the formula `=PRODUCT(E4,F4)`. A red arrow points from a text box above to the Formula Bar. Below the Formula Bar, a table is visible with columns for # Items, Price, and Total. A red arrow points from the Total cell (G4) to a text box that says "Here you see the result of the formula displayed".

	A	B	C	D	E	F	G	H
1								
2								
3					# Items	Price	Total	
4					2	\$89.99	179.98	
5		9/2/2011	14:00	Laptop Computer	3	\$1,699.99		
6		9/3/2011	16:00	Desktop Computer	1	\$549.50		
7		9/4/2011	17:00	Phone Charger	2	\$19.99		
8		9/5/2011	11:00	iPhone	5	\$399.99		
9		9/6/2011	9:30	iPad	10	\$699.99		
10		9/7/2011	4:30	Laptop Case	1	\$80.89		
11							Total	

Enter a Formula Manually

If you know the exact formula that you want to enter, you do not need use the Insert Function feature. You can simply click on the cell, then manually enter in the function, in this case `=PRODUCT(E4, F4)` Then hit RETURN/ENTER and the result will be displayed in that cell.

Common Formulas

- `=AVERAGE(number1,number2,number3,.....)`
- `=MEDIAN(number1,number2,number3,.....)`
- `=MODE(number1,number2,number3,.....)`
- `=SUM(number1,number2,number3,.....)` or `=SUM(firstNumberInColumn:lastNumberInColumn)`
- `=QUOTIENT(numerator, denominator)` – returns the integer portion of the division

Also, if you select cells and then click on the **AutoSum** button, you can choose from popular formulas such as Sum, Average, Count Numbers, Min, Max, etc.

The screenshot shows the Excel ribbon with the 'Formulas' tab selected. The 'AutoSum' button (represented by the sigma symbol Σ) is highlighted with a red arrow. Other buttons in the 'Function Library' include 'Recently Used', 'Financial', 'Logical', 'Text', 'Date & Time', 'Lookup & Reference', 'Math & Trig', and 'More Functions'.

Copying & Pasting Formulas

Lastly, as you know, we want to repeat this formula for all rows in this column. Essentially, we want to multiply the contents in Column E by the contents in Column F for Rows 5 – 10. Rather than have to enter each formula manually and select cells manually, we can simply copy Cell G4 and paste that content into Cells G5 – G10. This is because we are not copying the Value (\$179.98) we are copying the Formula (=PRODUCT(Num1, Num2)). Excel will automatically take the product of the two cells to the right of Column G.

Select Cell G4. Then copy that cell by hitting **CTRL-C** or clicking on the **Copy** Button in the top left-hand corner. Then select all the cells in Column G beneath cell G4 that you want to paste the function into. To paste, hit **CTRL-V** or Select **Paste** from the menu bar in the top left-hand corner.

Select all the cells that you want to paste content into (in this case, all the cells that are in the red box). Hit the **Paste** button in the top right-hand corner or **CTRL-V** to paste the formula. You will see that the product of the formula is now displayed in each cell. Now you may want to format this column to display the numbers with a \$ symbol and two decimal places (depending on your preferences). *Do you remember how to do that?*

	A	B	C	D	E	F	G	H
1								
2								
3					# Items	Price	Total	
4					2	\$89.99	179.98	
5					3	\$1,699.99	5099.97	
6					1	\$549.50	549.50	
7					2	\$19.99	39.98	
8					5	\$399.99	1999.95	
9					10	\$699.99	6999.90	
10					1	\$80.89	80.89	
11								Total
12								

Now you have all of the totals for each item listed based on the number of items purchased for that item.



Challenge Activity: The Sum Formula

Now, can you figure out how to display the Final Total (as shown below)? This final total is the SUM of all amounts listed in Column G. Are you going to enter in the function manually? Or use the Insert Function button to find and use the appropriate function? If you don't know what function to use, what would you enter in the search bar to find that function? There are many ways to insert a function!! GOOD LUCK!!

The screenshot shows the Excel ribbon with the 'Formulas' tab selected. Below the ribbon is a spreadsheet with the following data:

	A	B	C	D	E	F	G	H
1								
2								
3		Date	Time	Purchase	# Items	Price	Total	
4		9/1/2011	13:00	External Hard Drive	2	\$89.99	\$179.98	
5		9/2/2011	14:00	Laptop Computer	3	\$1,699.99	\$5,099.97	
6		9/2/2011	15:00	Laptop Computer	1	\$549.50	\$549.50	
7		9/2/2011	15:00	Charger	2	\$19.99	\$39.98	
8		9/2/2011	15:00	Headset	5	\$399.99	\$1,999.95	
9		9/6/2011	9:30	iPad	10	\$699.99	\$6,999.90	
10		9/7/2011	4:30	Laptop Case	1	\$80.89	\$80.89	
11							\$14,950.17 Total	

A callout box with the text "How can you get this total to display through the use of a Formula in excel??" has a red arrow pointing to the total cell G11.

Consider this Useful Formula: Combine First and Last Name

	A	B
1	First Name	Last Name
2	Nancy	Davolio
3	Andrew	Fuller
	Formula	Description (Result)
	=A2&" "&B2	Combines the names above, separated by a space (Nancy Davolio)
	=B3&", "&A3	Combines the names above, separated by a comma (Fuller, Andrew)
	=CONCATENATE(A2," ",B2)	Combines the names above, separated by a space (Nancy Davolio)

Creating a Basic Chart using the Chart Wizard

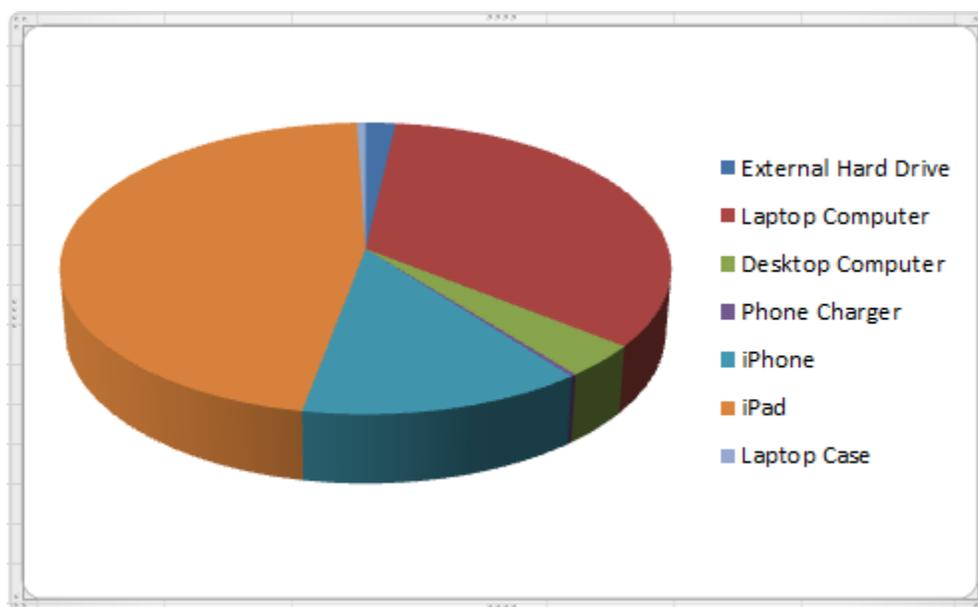
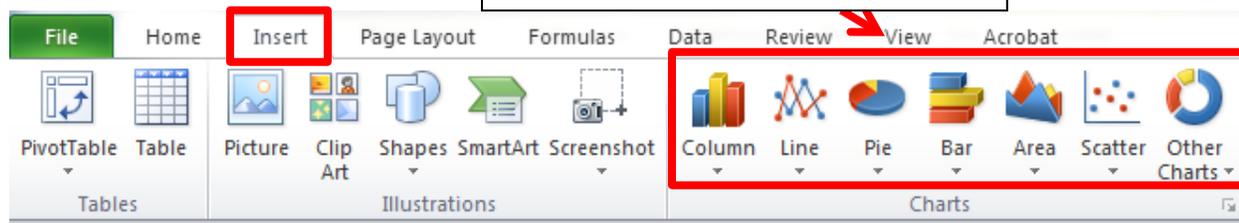
In Excel, you have the option of displaying your content as a chart. The following charts are available to you:

- Column
- Line
- Pie
- Bar
- Area
- Scatter
- Other Charts: Stock, Surface, Doughnut, Bubble, and Radar

First, select the content in your worksheet (by highlighting it) that you would like to turn into a chart. In this example, we will select all elements in the total option to create a Pie Graph of the totals. So I will select Cells D4 – D10 because that has the name of the items, and then I will also select Cells G4 – Cells G10. Since these cells are not all next to each other, I use the **CTRL** button to copy both cells. First I highlight Cells D 4- D10, then press **CTRL** and highlight Cells G4 - G10

Then, I want to select the appropriate chart for my data. I click on the **Insert** tab, and then select **Pie**. You will see that when you choose Pie, you have 2D and 3D options. Choose the Pie graph that best suits your needs and continue.

Here are your chart choices.



Moving Your Chart

Once you select the appropriate graph, it will now display on that worksheet. You can move the graph to another location on that worksheet by clicking on the border and dragging it to a desired location. You can also move the graph to its own worksheet (this will display a larger graph). To move a chart to its own worksheet, right-click on the chart and select **Move Chart**. Then select **New Sheet** and pick a new sheet to add it to.

Customizing Your Chart

Once your chart is created you may want to customize it. This may include (but is not limited to):

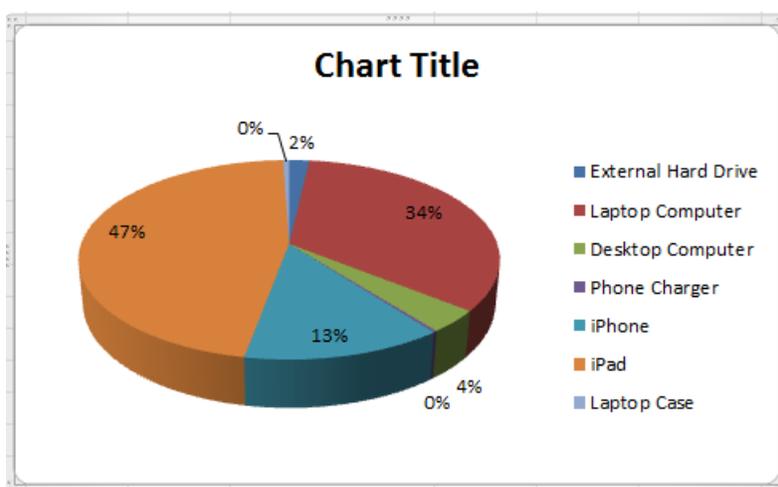
- Adding a title, legend, or data labels
- Changing the colors
- Adding percentage values or numbers

When you click on the chart you will see that you have a variety of Chart Tools at your disposal. You can edit the design, layout, and format.

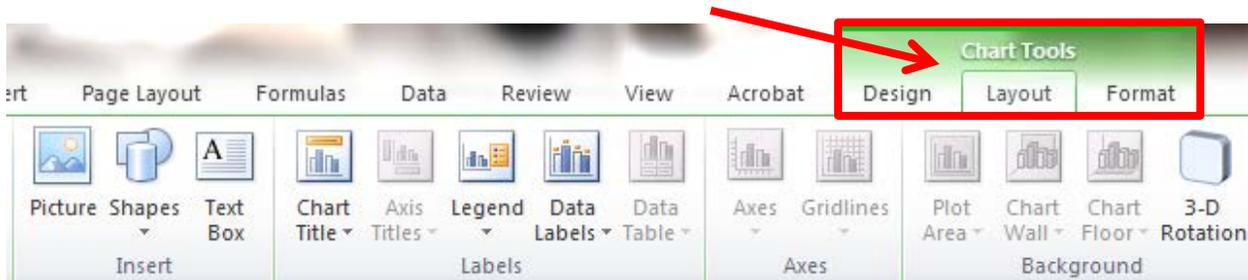


Here you can choose a Chart Layout that suits your needs. These layouts will add titles, data labels, a legend, and /or percentages/values depending on the option that you choose. Test out the different options before settling on one.

Here you can switch between Design, Layout, and Formatting Options for your Chart

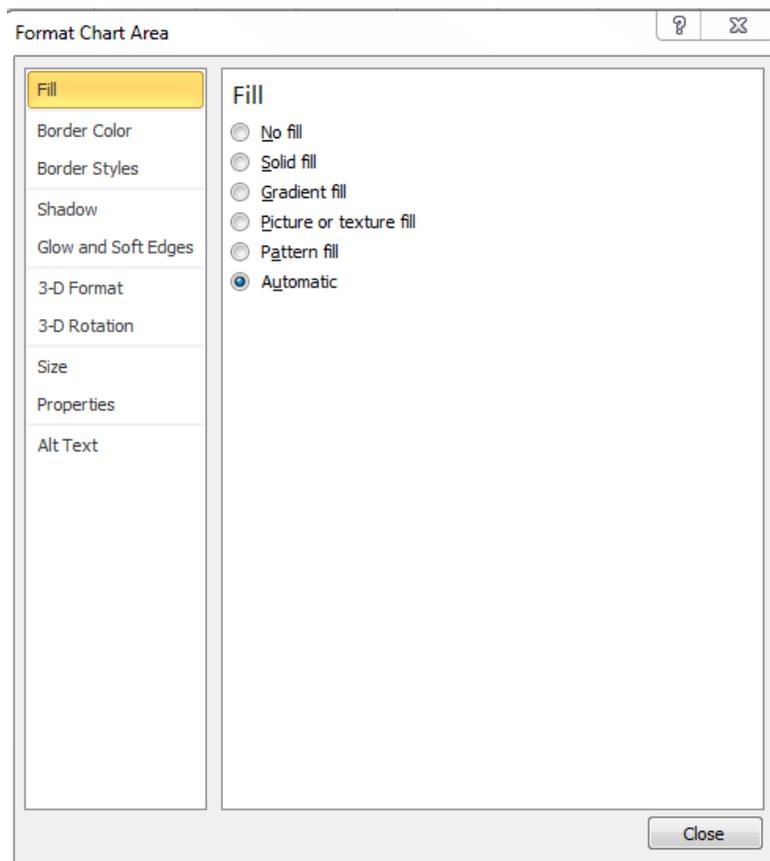


You can further customize your Chart options by clicking on the **Layout** tab in the **Chart Tools** area.



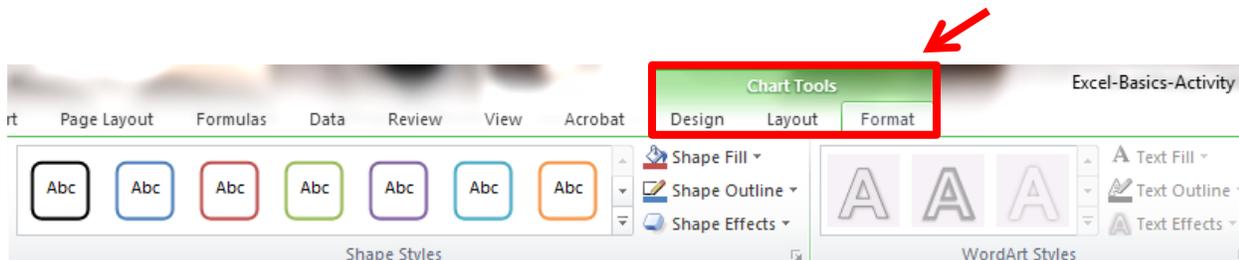
Here you can select options such as **Chart Title** and decide whether you want a Chart Title and/or where it should be located on the Chart. You can turn Data Labels off or on, and/or decide the location of the Legend. Experiment with these options until you find one that suits your needs.

Another way to format your Chart is to right-click on the chart area and select **Format Chart Area**. Additional options will be available.

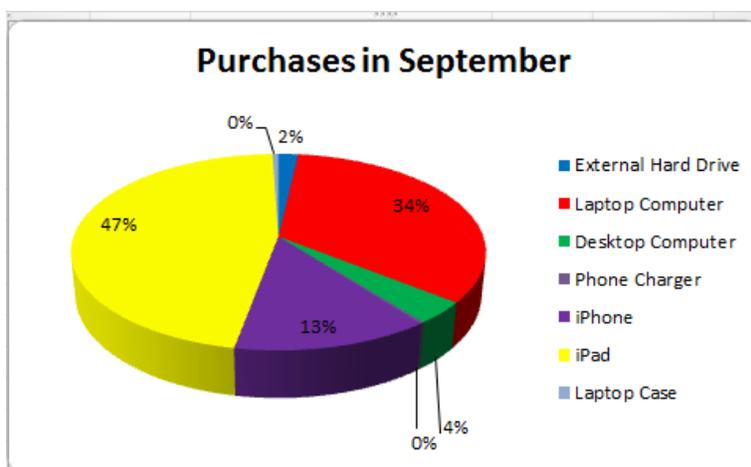


Changing the Chart Colors

If you would like to change the colors of the chart, simply click on the section of the chart that you wish to change (in this example – one of the pie pieces). You will notice that the **Format** tab is now selected in the **Chart Tools** area. Now you can click on **Shape Fill** and select the color of your choice.



New Colors & A Chart Title Added Below



Changing the Chart Type

If you want to change the Chart Type, right-click on the chart and select **Change Chart Type**.

Copy Chart into Word Document

Copying a chart into a Word document is quite easy. Simply click on the chart (so that it is selected), click on the **Copy** button in the top-left corner (or press **CTRL-C**). Then, open up your word document and bring your cursor to the space in the Word document where you want to insert the chart. Select **Paste** (in the top-left corner of Word) or press **CTRL-V**.

