



Advanced Excel 2013

IT Training

March 2017



Table of Contents

Introduction	5
Conditional Formatting	6
Exercise 1 – Emphasize Certain Data	6
Custom Sorting	8
Exercise 2 – Multiple Custom Sorting Choices	8
Grouping	10
Exercise 3 – Group Columns or Rows.....	10
Lock Cells & Protect Sheet	13
Exercise 4a – Don’t Allow Others to Edit Your Work	13
Exercise 4b – Lock Some Cells, Skip & Unlock Others	15
Consolidate & Sparklines.....	17
Exercise 5 – Consolidate Data to a Single Master Worksheet	17
Exercise 6 – Insert a Sparkline to Illustrate Trends	21
V-Lookup	25
Exercise 7 – Quickly Locate Specific Column Data in Large Worksheet	25
Exercise 8 – V-LOOKUP Across Multiple Worksheets	27
Watch Window.....	29
Exercise 9 – Keep an Eye on Things.....	29
Trace Precedents & Trace Dependents.....	33
Exercise 10 – Point to Where Data Comes From and Goes To	33
What-If Analysis with Goal Seek & Scenarios	35
Exercise 11 – Goal Seek.....	35
Exercise 12 – Scenario Manager	37
Pivot Tables	45
Exercise 13 – A “Recommended” PivotTable by Excel	46
Exercise 14 – Build a PivotTable Yourself.....	50
Exercise 15 – PivotChart.....	59
Basic Keyboard Shortcuts for Excel	61
Help	62

Introduction

This training handbook is *not* intended to be a comprehensive book on advanced Excel.

It contains certain advanced Microsoft Excel 2013 topics selected for professional development of the employees of the San Diego Unified School District.

Before using this handbook, it is strongly recommended that you already be comfortable using Excel's basic tools. This class only covers advanced topics.

If you have not taken the Introduction to Excel training class offered by SDUSD yet, we recommend you to do so before taking this class.

You should know how to use these Basic Excel tools before taking this class:

- ✓ Create, Save, and Open an Excel Workbook
- ✓ Format Painter
- ✓ Copy-and-Paste and Move Cell Contents
- ✓ Insert and Delete Columns and Rows
- ✓ Build a Formula by Typing it, using Insert Function, and Function Library
- ✓ Hide and Unhide Columns and Rows
- ✓ Copy and Insert Formulas
- ✓ Basic Data Sorting and Filtering
- ✓ Find and Replace Text
- ✓ Create Headers and Footers
- ✓ Create a Bookmark Link
- ✓ Create Charts
- ✓ Preview & Print a Whole or Partial Worksheet

These topics are covered in this Advanced Excel class:

- ★ Conditional Formatting
- ★ Custom Sorting
- ★ Grouping
- ★ Lock Cells, Protect Sheet
- ★ Consolidate & Sparklines
- ★ V-Lookup
- ★ Watch Window
- ★ Trace Precedents & Trace Dependents
- ★ What-If? Analyses with Goal Seek and Scenario Manager
- ★ PivotTables & PivotCharts

Conditional Formatting

Conditional Formatting is used to easily spot trends and patterns in your data. You format a series of cells (*usually a column or row*) so that a specific value that repeats will stand out by looking different from the other cells in the series.

In the example of conditional formatting shown here, all cells containing the text “**Returning Student**” are highlighted in light blue, with the black text in bold.

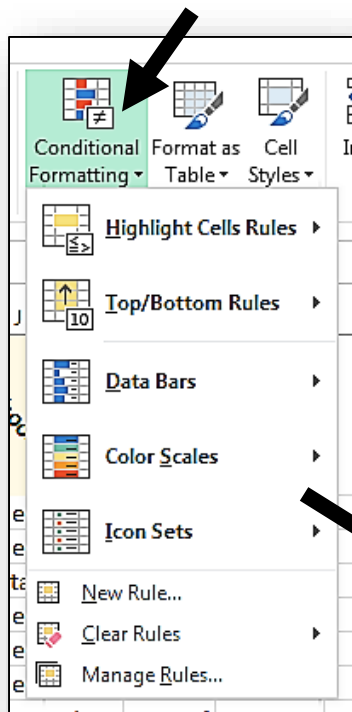
Returning Student	Ca
Returning Student	Ca
Enter from Out of State	Li
Returning Student	Ca
Enter from Out of State	Ca
Returning Student	Ca
Returning Student	Ca
Returning Student	Ca
Enter from within SDCS	M
Initial Enrollment K-12	Li
Returning Student	Li

Exercise 1 – Emphasize Certain Data

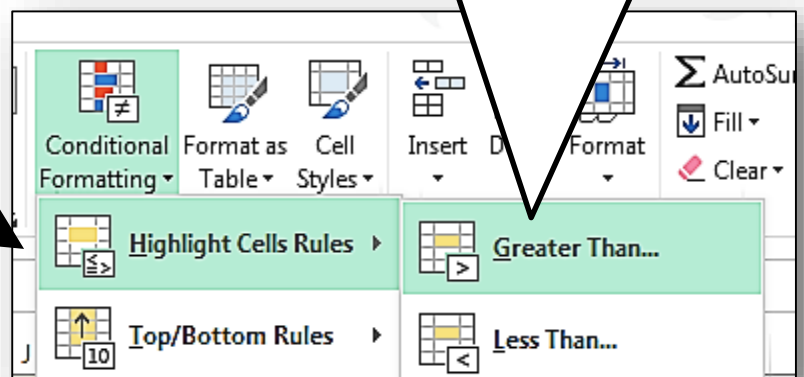
When you want to apply conditional formatting to a series of cells, follow these steps:

1. Select the cells. (*Typically a single row or column*). In this example, we selected cells D2:D12 (*the Grade Levels*).
2. Click this navigation: HOME → STYLES → CONDITIONAL FORMATTING.

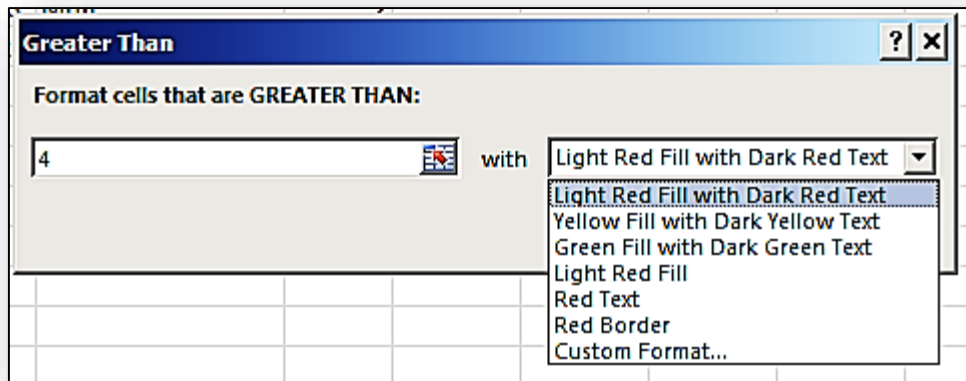
6
6
6
2
0
4
5
5
3
1
2



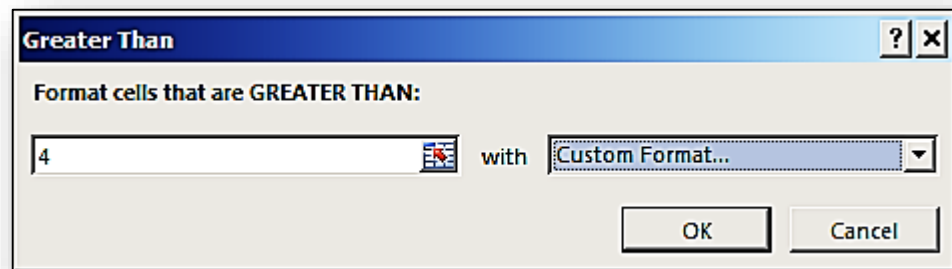
We chose **Highlight Cells Rule**, and then **Greater Than...**



3. Based on the kind of data in the cells you selected, and based on what it is about that data you want to stand out, choose the type of conditional formatting from the drop-down menu. (See above illustration)
4. Enter or choose the rule you want the conditional formatting to follow. In this example we want to highlight all grade levels higher than 4th grade. So we entered a “4” in the field on the left. Then we opened the drop-down menu choices for how we want the highlight to look. You can also create a customized format with your own font and color choices.



5. Click OK.



6. The result is that all 5th and 6th grades are highlighted to stand out from the rest. In our custom sort format, we chose to have these cells highlight in pink, with bold black font, and black borderlines around each highlighted cell.

6
6
6
2
0
4
5
5
3
1
2

Custom Sorting

If regular ascending/descending sorting doesn't meet your needs, you can create a **Custom Sort**.

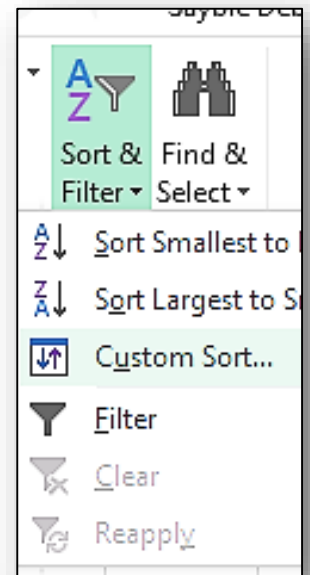
A Custom Sort can be set to focus on values (*any numeric value typed in a cell*), or cell colors, font colors, or cell icons. There are many ways to arrange the sort using the different options.

In the example shown below, a Custom Sort was done in which cell colors (*that were applied using Conditional Formatting*) were the primary criterion.

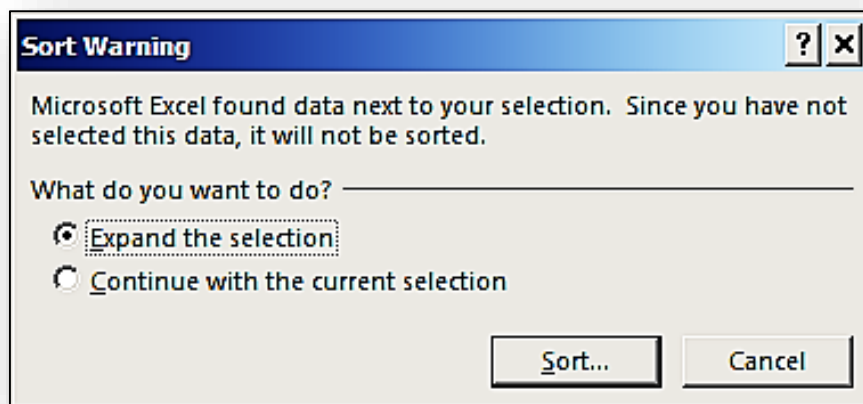
Exercise 2 – Multiple Custom Sorting Choices

When you want to do a customized sort to a series of cells, follow these steps:

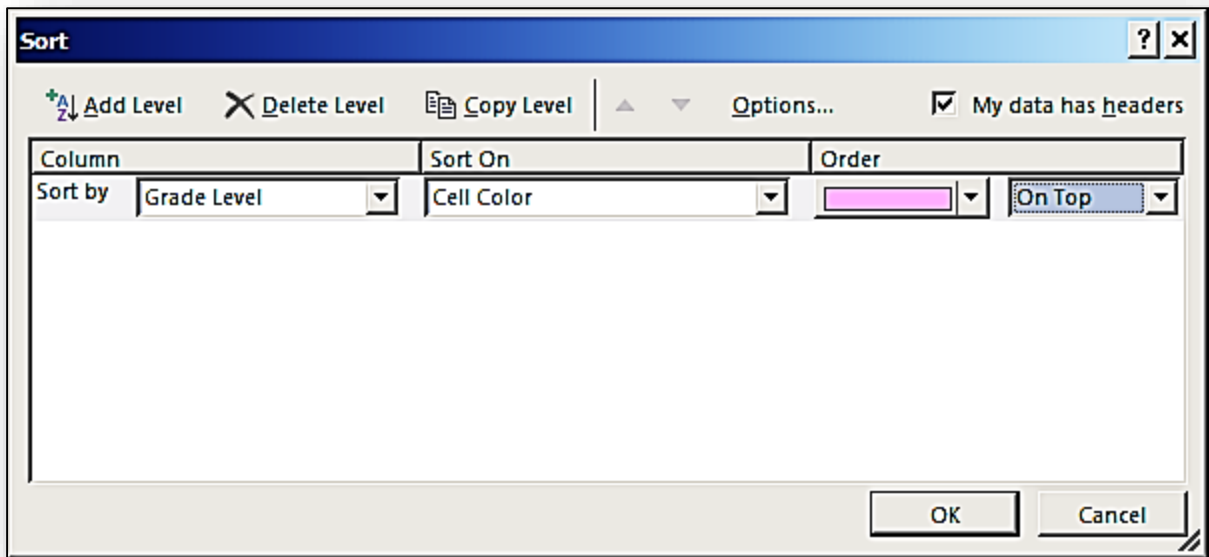
1. Select the cells. In this example we selected the same cells we used in the last Exercise: cells **D2:D12**. Click this navigation: HOME → EDITING → SORT & FILTER → CUSTOM SORT...



2. **IMPORTANT!** Click to choose **Expand the selection**. Then click **Sort...**



3. Select the criteria for how you want the Sorting to happen. Here we chose to sort by the **Grade Level** column, by the **cell color**, and we chose the **Order** we wanted (*the pink color*). Lastly, we chose to have all the pink cells (*the 5th and 6th grades*) move to the **top of the list**. Then, click **OK**.



4. The Sort happens, and now we see that all the 5th & 6th grade level students have been moved to the top of the list.

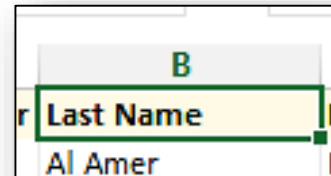
6
6
6
5
5
2
0
4
3
1
2

Grouping

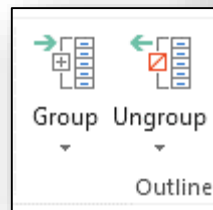
You can “group” together designated rows and/or columns. This makes it easier to view the data in larger worksheets, without having to freeze anything.

Exercise 3 – Group Columns or Rows

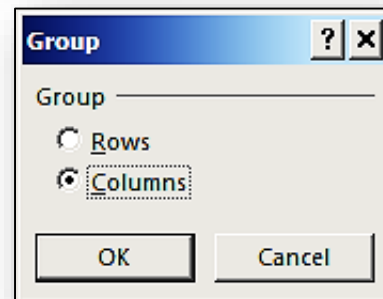
1. Click the **Enrollment by Date** worksheet.
2. We want to group (*hide*) Column B.
Click **Cell B1** (“*Last Name*”).



3. On the **DATA** tab, in the **Outline** group on the far right, click **Group**.



4. In the **Group** dialog box, select **Columns** and click **OK**.



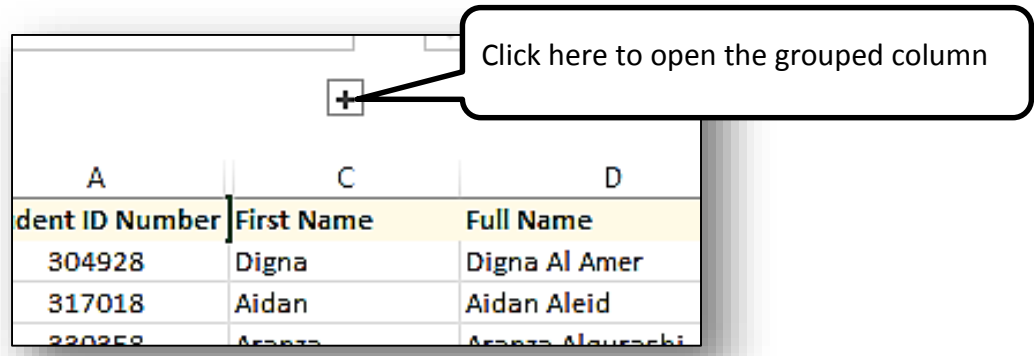
5. Note that above the B column a horizontal line with a minus button on the right appears. This means that Column B has been grouped, and is currently open/displayed.

	B	C
per	Last Name	First Name
	Al Amer	Digna
	Aleid	Aidan
	Alqurashi	Aranza
	Altorok	Emanuel

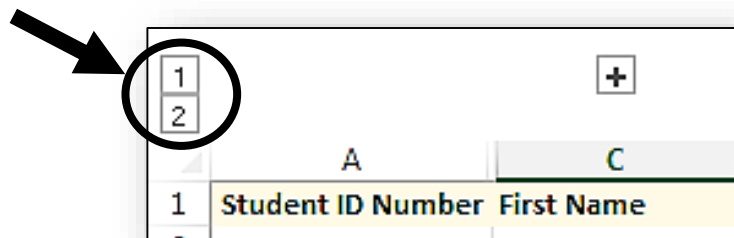
Click the **minus button** to “close” Column B.

Click here to close the grouped column

6. Note that now Column B is hidden. To bring it back, click the **plus sign button** located just above Column C.



7. In addition to using the plus and minus buttons, you can also use the 1 and 2 buttons in the upper left margin to open and close the grouped column(s).



8. Now we will group all the rows that have student last names beginning with A and B. Click-and-drag to **select Rows 2 through 12**.

	A	B
1	Student ID Number	Last Name
2	304928	Al Amer
3	317018	Aleid
4	330358	Alqurashi
5	335016	Altorok
6	335209	Alvarez
7	340226	Amante
8	342762	Angero
9	353207	Bautista
10	550562	Bobodillo
11	365811	Borrows
12	548488	Bumbo
13	366150	Calderon
14	366601	Canlan

9. Excel should automatically group those rows. If it doesn't, select **Rows** in the **Group** dialog box, and click **OK**.

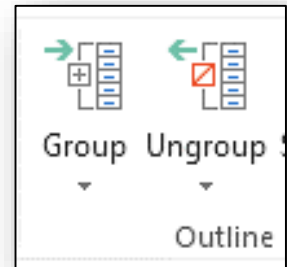
1	2	A	B
1		Student ID Number	Last Name
2		304928	Al Amer
3		317018	Aleid
4		330358	Alqurashi
5		335016	Altorok
6		335209	Alvarez
7		340226	Amante
8		342762	Angero
9		353207	Bautista
10		550562	Bobodillo
11		365811	Borrows
12		548488	Bumbo
13		366150	Calderon
14		366601	Canilao

Rows 1-12 Displayed

1	2	A	B
1		Student ID Number	Last Name
13		366150	Calderon
14		366601	Canilao
15		449690	Cano
16		326585	Carson
17		396022	Carson

Rows 1-12 Hidden

10. To ungroup columns or rows, first select (*highlight*) the columns or rows; and then click the **Ungroup** button, located next to the **Group** button, on the **DATA** tab.



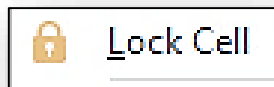
Lock Cells & Protect Sheet

You can prevent other people from making changes to your worksheet. To do this, you must **lock the cells, and then protect the worksheet.**

Exercise 4a – Don't Allow Others to Edit Your Work

FIRST: Select the entire worksheet and make sure it is completely unlocked: HOME → CELLS → FORMAT → LOCK CELL

NOTE: You know the cells are unlocked if you don't see any square around the padlock icon:



1. Select all the cells you want to lock.

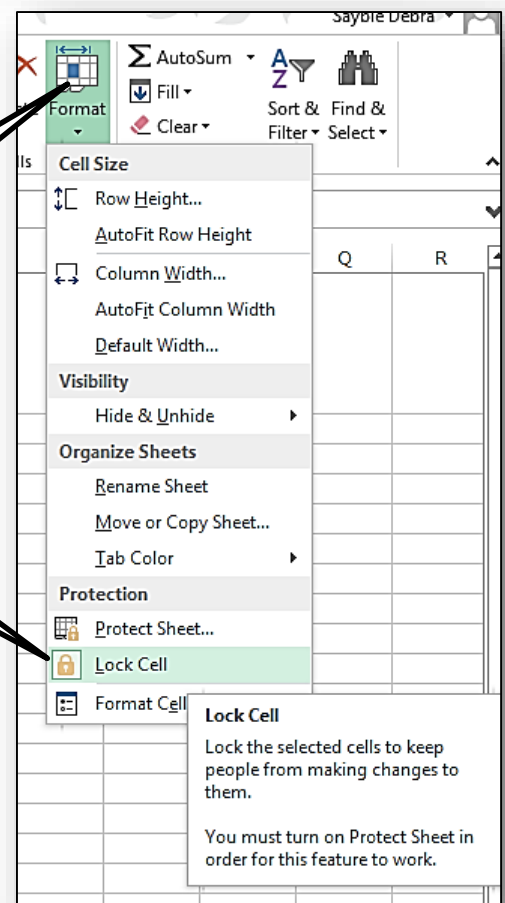
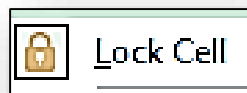
dent	Carson Elementary	5
dent	Carson Elementary	5
t of State	Linda Vista Element	5
dent	Carson Elementary	4
dent	Carson Elementary	4
dent	Carson Elementary	1
t of State	Carson Elementary	0
dent	Carson Elementary	3
thin SDCS	Muir	2
ent K-12	Linda Vista Element	K
dent	Linda Vista Element	1

2. Click this navigation path:
HOME → CELLS →
FORMAT → LOCK CELL

Click **Format...**

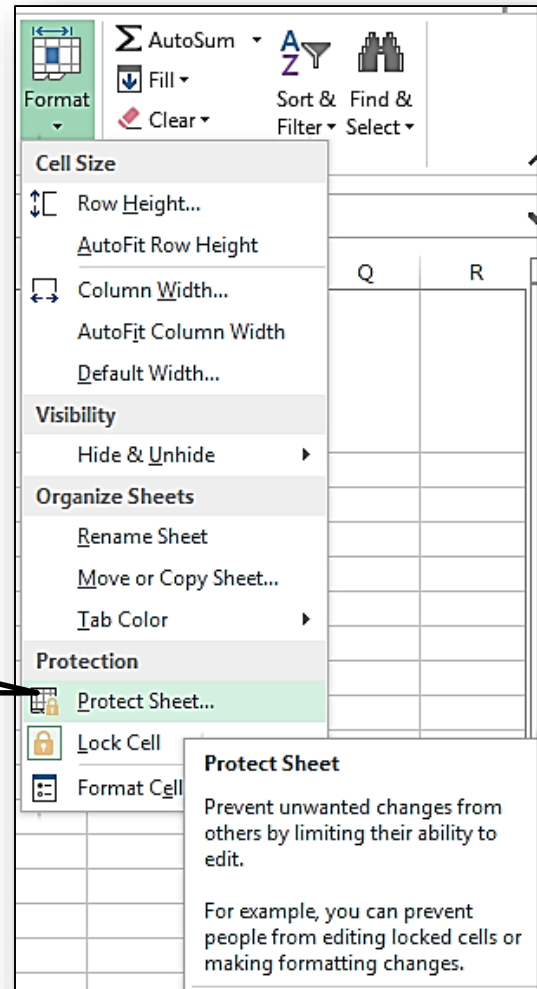
... and then click
Lock Cell

NOTE: You know the cells are locked if you see the square around the padlock icon:



3. For this to work you now have to protect the sheet. Click the same navigation as in Step 2, except at the end, click **Protect Sheet**.

Click **Protect Sheet...**

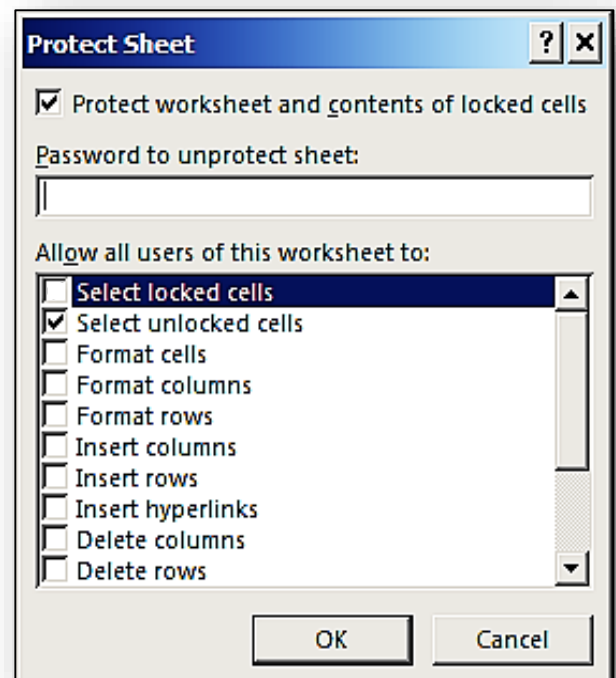


4. **DO NOT ENTER A PASSWORD! If you forget the password, there is NO WAY TO RETRIEVE IT.**

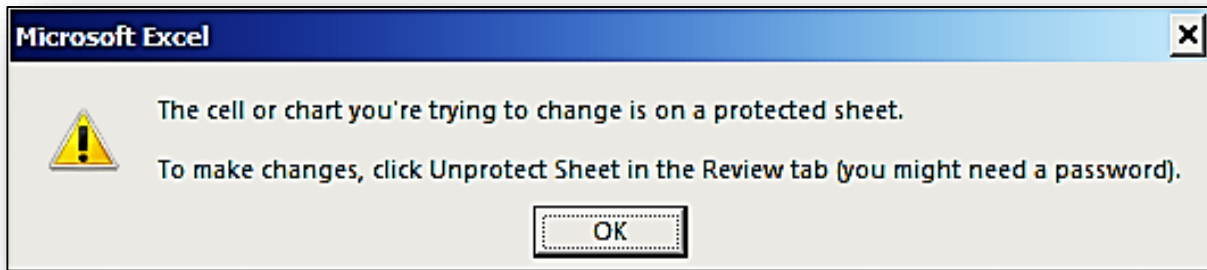
Checkmark each action you do want others to be able to do. **For example, click a checkmark for “Select unlocked cells”.**

But if you don't want them to do anything at all to locked cells, for example, **just uncheck “Select locked cells”**. If they can't select a cell, they can't change anything in it.

Click **OK**.



To try it out, deselect the cells and try to edit one of the *locked* cells. The following message *may or may not display*. If it does, **Click OK. Then go ahead and release the sheet from protection.**



Exercise 4b – Lock Some Cells, Skip & Unlock Others

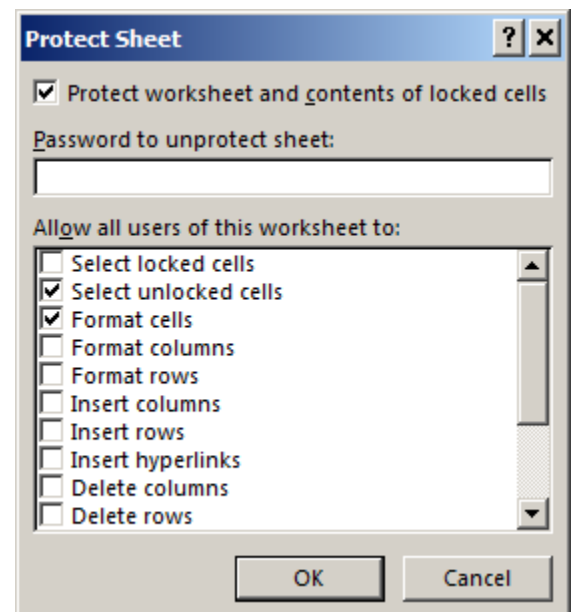
FIRST: Select the entire worksheet and make sure it is completely unlocked: HOME → CELLS → FORMAT → LOCK CELL

NOTE: You know the cells are unlocked if you don't see any square around the padlock icon:



1. **Select Columns A, B, and C.** We will lock those, but not yet.
2. Press and hold down the **CTRL** key on your keyboard. (*This allows us to select only the cells, columns, or rows we want, while skipping others in between*). **While holding down the CTRL key, ignore column D and select any other column.** We will lock that column, too.
3. Release the CTRL key.
4. **Click: HOME → CELLS → FORMAT → LOCK CELLS** to lock the columns you selected (*skipping column D*).
5. **Click: HOME → CELLS → FORMAT → Protect Sheet.** Place checkmarks only for “Select unlocked cells” and “Format cells”.

Click OK.



6. Try it out. We set it up so that only unlocked cells can be clicked on, and can be formatted (*change color, change font, etc.*). The locked cells cannot be clicked on.

When done, be sure to Un-protect the sheet.

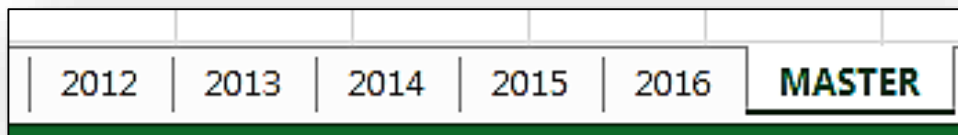
Consolidate & Sparklines

In Excel, the **Consolidate** tool summarizes data from separate ranges, consolidating the results in a single output range. For example, if you have a separate worksheet for each fiscal year of spending in certain given accounts, the Consolidate tool can create a “Master” worksheet that brings all those individual years’ of spending data together into one place. This can help you quickly see your site’s spending trends, for instance.

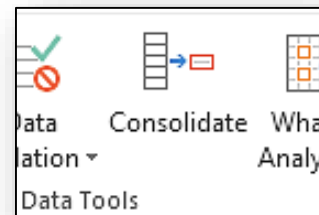
Open the **Consolidate and Sparklines** Excel file.

Exercise 5 – Consolidate Data to a Single Master Worksheet

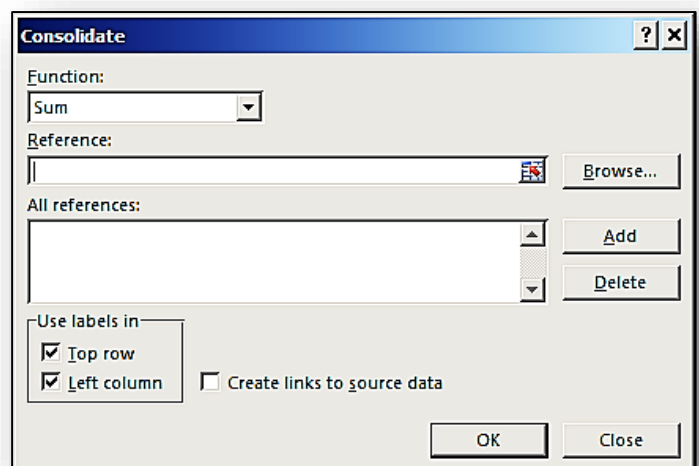
1. There are several worksheets, one for each year dating from 2012 to 2016. To the right of the 2016 worksheet, open a new blank worksheet. This will be the Master worksheet. Rename the worksheet tab: **MASTER**



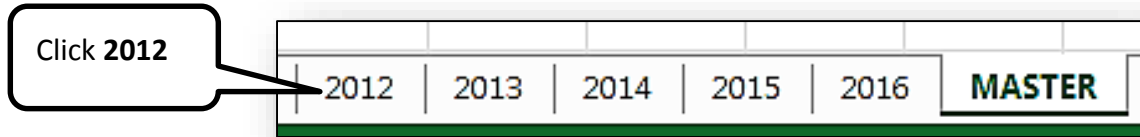
2. Click any blank cell on the Master worksheet. This is where the consolidation summary will appear.
3. On the **DATA** tab in the **Data Tools** group, click the **Consolidate** button.



4. In the **Consolidate** dialog box, make sure the **Function** is **SUM**, and place a checkmark into both check boxes in the bottom left corner for **Top row** and **Left column**.



5. Click to place the flashing cursor into the **Reference** field of the dialog box.
6. Click the **2012** worksheet tab.



7. On the 2012 worksheet, click-and-drag to select **cells A1:B5**.

	A	B
1	YEAR	2012
2	Printer Paper	11%
3	Office & Classroom Supplies	75%
4	Custodial Supplies	14%
5	Grand Total	100%
6		
7		
8		

Consolidate [?] [X]

Function: Sum

Reference: \$A\$1:\$B\$5 [Browse...]

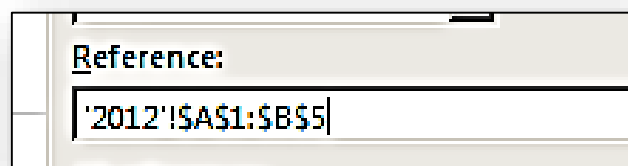
All references:

Use labels in:

Top row Left column Create links to source data

OK Close

The **Reference** field should now look like this:



8. Click the **Add** button to add this reference to the **All references** field list.



9. Your screen should now look like this:

	A	B
1	YEAR	2012
2	Printer Paper	11%
3	Office & Classroom Supplies	75%
4	Custodial Supplies	14%
5	Grand Total	100%

10. Click the **2013** worksheet tab, and then click the **Add** button on the dialog box again. Your screen should now look like this:

	A	B
1	YEAR	2013
2	Printer Paper	15%
3	Office & Classroom Supplies	75%
4	Custodial Supplies	10%
5	Grand Total	100%

11. Repeat Step 10 for each of the annual worksheets (2014, 2015, and 2016). When done, your screen should look like this:

	A	B
1	YEAR	2016
2	Printer Paper	21%
3	Office & Classroom Supplies	57%
4	Custodial Supplies	22%
5	Grand Total	100%

12. Click **OK** on the **Consolidate** dialog box.

13. Your screen should display the Master worksheet, like this:

	1	2	A	B	C	D	E	F
	1			2012	2013	2014	2015	2016
+	7		Printer Pap	11%	15%	9%	10%	21%
+	13		Office & Cl	75%	75%	81%	76%	57%
+	19		Custodial S	14%	10%	10%	14%	22%
+	25		Grand Total	100%	100%	100%	100%	100%
	26							

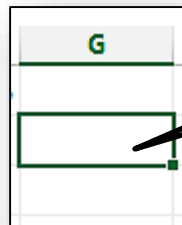
14. Adjust the formatting as desired, and leave this file open for the next exercise:

		A	B	C	D	E	F
	1		2012	2013	2014	2015	2016
+	7	Printer Paper	11%	15%	9%	10%	21%
+	13	Office & Classroom Supplies	75%	75%	81%	76%	57%
+	19	Custodial Supplies	14%	10%	10%	14%	22%
+	25	Grand Total	100%	100%	100%	100%	100%
	26						

A **Sparkline** is a miniature chart placed into a single cell, representing/illustrating a single row of data. Sparklines are often used to illustrate trends over time.

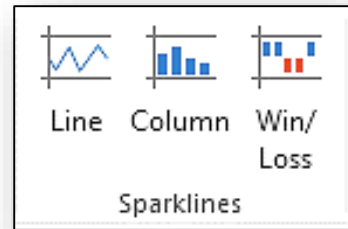
Exercise 6 – Insert a Sparkline to Illustrate Trends

1. On the Master worksheet, click the cell indicated by the instructor. The sparkline for the data in row 2 will go here.



Click a cell where the sparkline will go

2. There are three different formats of Sparklines: Line, Column, and Win/Loss. On the **INSERT** tab in the **Sparklines** group, click **Line**.



3. In the **Create Sparklines** dialog box, make sure the flashing cursor is inside the **Data Range** field. Then:
 - a. Click-and-drag to select the first row of percentage cells.
 - b. Click **OK** on the dialog box.

B	C	D	E	F
2012	2013	2014	2015	2016
11%	15%	9%	10%	21%
75%	75%	81%	76%	57%

Click OK

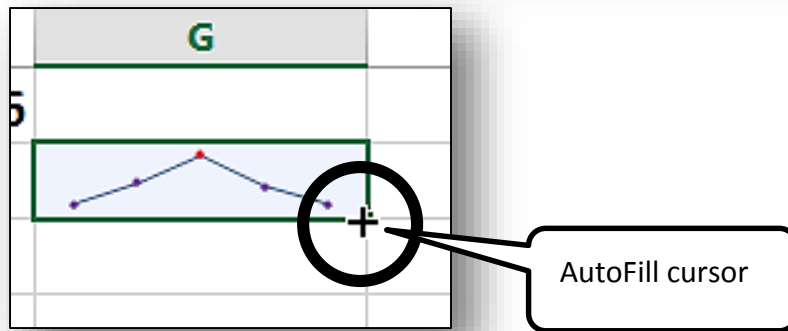
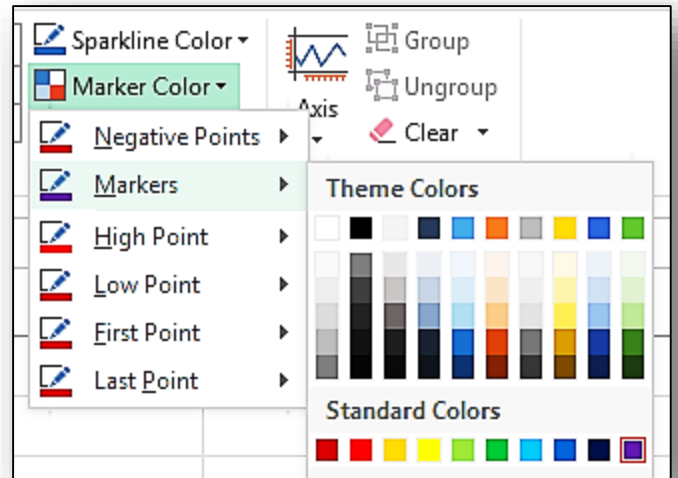
4. The sparkline is inserted into the designated cell and the **SPARKLINE TOOLS** contextual tab is displayed.

Sparkline

	G	H	I	J	K
16	[Sparkline]				
00					
00					
00					

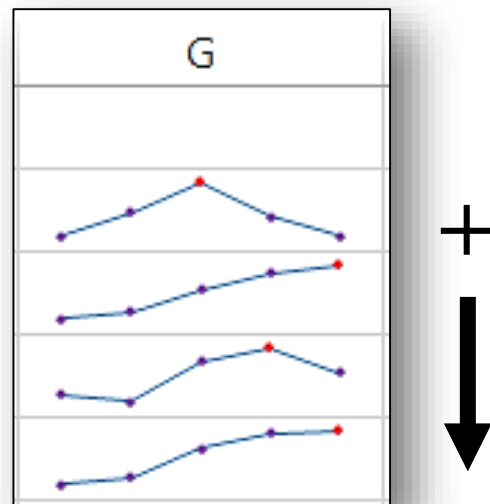
5. Use the **SPARKLINE TOOLS** features to format the sparkline as desired. In the example shown below, we did the following:

- a. We chose a dark blue color for the **Sparkline Color**.
- b. We clicked **Marker Color** → **Markers** and chose purple.
- c. We clicked **Marker Color** → **High Point** and chose red.

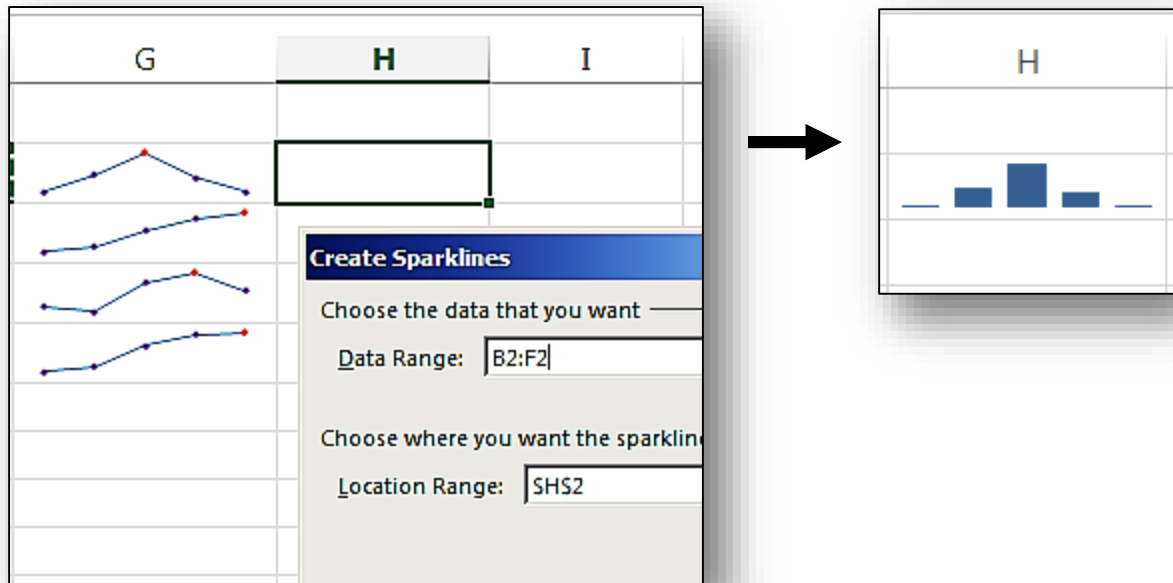


6. Use the **AutoFill** tool (*the black cross-hair mouse cursor*) to copy the sparkline into cells just below the first sparkline.

Note that your worksheet may look different from the one pictured here.

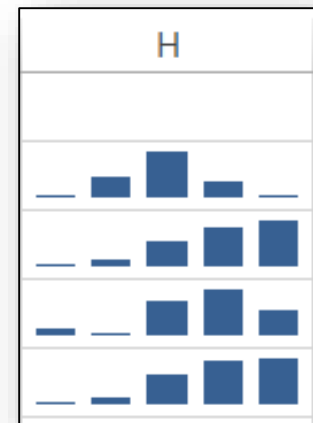


7. To see what the **Column Sparklines** look like, click into another column, and insert a column style sparkline there for the appropriate data range.



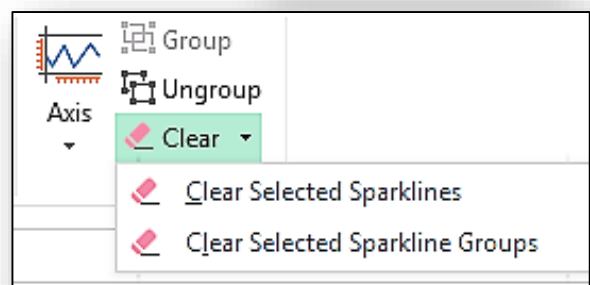
8. Copy the column sparkline down into the cells below it.

Use the **SPARKLINE TOOLS** to format the column sparklines as desired. It's usually helpful to color the High Point Markers with a bright, different color, such as red.



9. NOTE the following:

- Sparklines can be static or live linked.** If linked, they can update automatically if you change the data on any worksheet within the sparkline's Data Range.
- You can use the **Clear** tool to delete one or all selected sparklines.



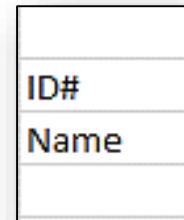
V-Lookup

Use the **Vlookup** function (*vertical searching in a single column*) when you want a faster way to find specific information, instead of having to read through long columns of data, searching for it.

Click to the **Enrollment by Date** worksheet. In this example, we want to be able to type any given student ID number, and have it instantly display the name of the student it belongs to.

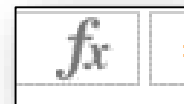
Exercise 7 – Quickly Locate Specific Column Data in Large Worksheet

1. In any blank column to the far right, type: **ID#** and in the cell just beneath that, type: **Name**

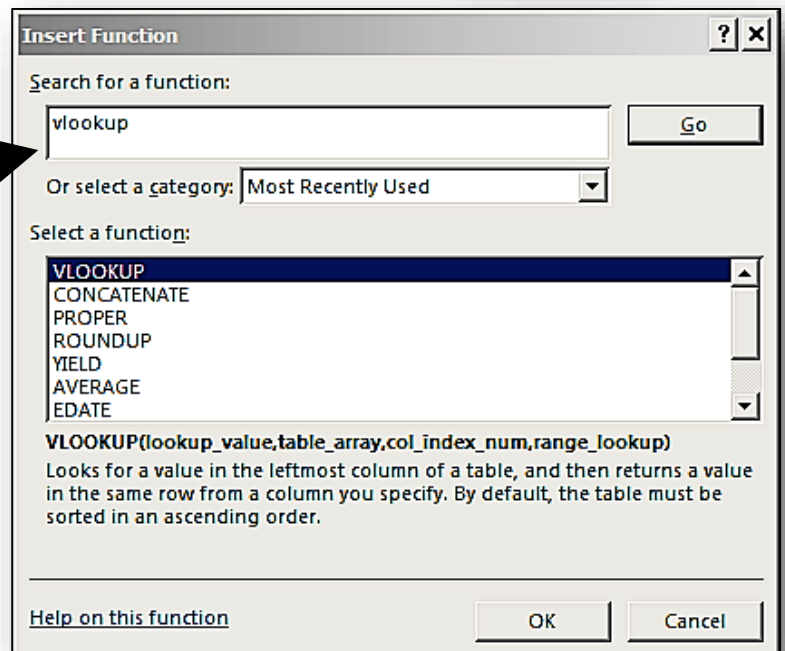


2. Click into the blank cell just to the right of where you typed Name. This is where the **VLOOKUP** formula will go.

3. Click the **Insert Function (fx)** button to the left of the **Formula Bar**.



4. Type **VLOOKUP** in the **Search for a Function** field at the top of the dialog box and click **OK**.



5. Enter the 4 Function Arguments like this:

- Lookup_Value:** Choose the cell just to the right of where you typed ID#. This is where you will enter a given student's ID number, not knowing the student's name yet.
- Table_array:** Enter the cell range **A2:D473**. This needs to include the very first column on the left, through the column containing the students' full names (*Column D*). Include all rows containing all student data.
- Col_index_num:** Enter the number for the column containing the information you are searching for to display... the student names. This would be the number **4**, for Column D, since it's the fourth column from the left.
- Range_lookup:** Enter the word **FALSE**. This will display the exact name for that one student, matching up with whatever student ID# you use to look it up with.

Click OK.

Function Arguments

VLOOKUP

Lookup_value	N5	= 0
Table_array	A2:D473	= {304928,"Al Amer","Digna ","Digna A...
Col_index_num	4	= 4
Range_lookup	FALSE	= FALSE

=

Looks for a value in the leftmost column of a table, and then returns a value in the same row from a column you specify. By default, the table must be sorted in an ascending order.

Lookup_value is the value to be found in the first column of the table, and can be a value, a reference, or a text string.

Formula result =

[Help on this function](#)

OK Cancel

6. In the cell with the VLOOKUP formula you just created, you will see an error displayed (**#N/A**), because it's looking for an ID# to be entered into the cell just above it. We haven't done that yet.

Name	#N/A
-------------	-------------

7. In the cell just to the right of ID#, enter one of the student ID's from Column A, and press ENTER. The cell just beneath that (*that has the VLOOKUP formula*) will then display the student's name that matches that ID#.

		ID#
		Name
ID#	335209	
Name	Brandon Alvarez	

You can also create a VLOOKUP formula on a blank worksheet, and point the arguments to an entirely separate worksheet that has all the long columns of data.

Exercise 8 – V-LOOKUP Across Multiple Worksheets

1. Click into the worksheet labeled “**VLOOKUP**”.
2. There is already an example formula set up in the upper left corner of this worksheet. But to build your own, follow these steps. In any other two blank cells, type **ID#** and **Name**, just as you see them here.
3. As in the last exercise, use the **Insert Function** wizard tool to input the arguments. The only difference now is that in the **Table array** field you have to **point to the correct worksheet** that has all the student data. That means you **enter the name of the worksheet and an exclamation point in front of the cell range**.

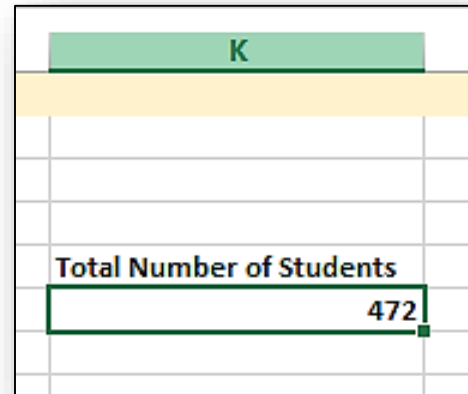
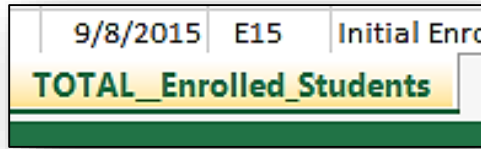
NOTE: The tab label (*name*) of the worksheet cannot have any spaces.

Lookup_value	B1
Table_array	Enrollment_by_Date!A2:D473
Col_index_num	4
Range_lookup	FALSE

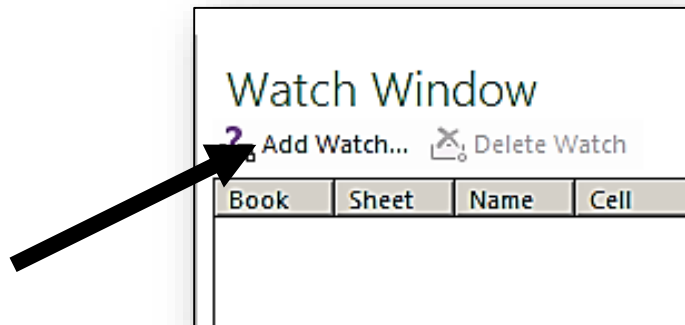
4. Click **OK** on the **Insert Function** dialog box, and test out your new VLOOKUP formula by entering one of the Student ID numbers from the **Enrollment_by_Date** worksheet. Press **ENTER** and watch the student's name appear.

ID#	335209
Name	Brandon Alvarez

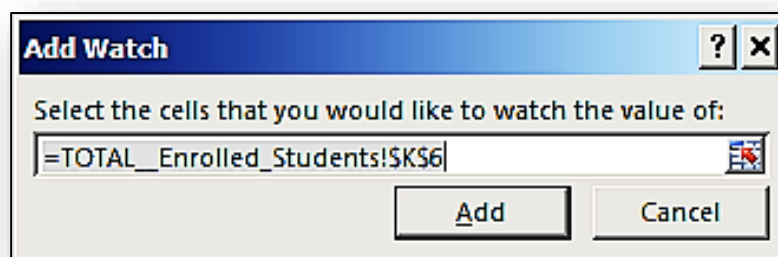
- Click the cell you want to watch (*keep an eye on*). In this exercise, go to the worksheet labeled **TOTAL Enrolled Students** and click Cell **K6**, that has a number in it.



- To set up a Watch on Cell K6 in the Watch Window, click **Add Watch...**



- When the **Add Watch** dialog box appears, it should already point to Cell K6 in its field. Click **Add**.



7. Check to see that the cell information appears in the Watch Window pane.

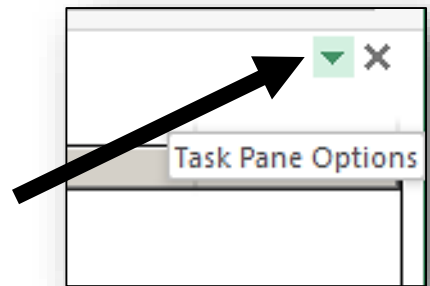
The Watch Window pane displays the following information:

Book	Sheet	Name	Cell	Value	Formula
Advanced Skills Illustrated.xlsx	TOTAL_Enrolled_Students		K6	472	=COUNT(A2:A700)

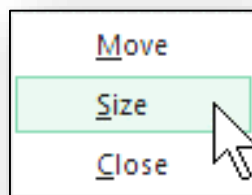
Callouts from the image:

- Name of Excel file (Workbook)**: Points to the 'Book' column.
- Name of Worksheet**: Points to the 'Sheet' column.
- Name of Cell**: Points to the 'Cell' column.
- Current value in watched cell. Any changes to value will show here instantly.**: Points to the 'Value' column.
- The watched cell's Formula**: Points to the 'Formula' column.

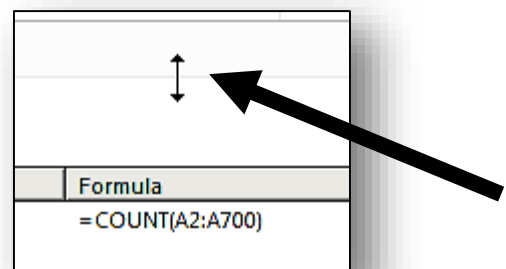
8. If the Watch Window pane is too big and you want to resize it, click the **Task Pane Options** arrow icon in the upper right corner of the pane.



9. Select **Size** in the menu.



10. Click-and-drag the double-headed black arrow cursor to the size you want.



11. Test the Watch Window setup by making the watched cell change its value. Try it this way:

- a. Scroll the **TOTAL Enrolled Students** worksheet all the way down into the lower area, so that row 6 is no longer visible.
- b. Note the **Value** of **Cell K6** in the **Watch Window**. It should be 472, but it might be a different number.
- c. Delete 7 or more rows of student information.
- d. Look again at the Value of Cell K6 in the Watch Window. The number should be lower now.

Cell	Value
K6	472

Cell	Value
K6	458

The Watch Window remains visible on your screen at all times. You can see the cell's Value in the Watch Window change right away, as you work in different areas that affect the Watched cell.

Trace Precedents & Trace Dependents

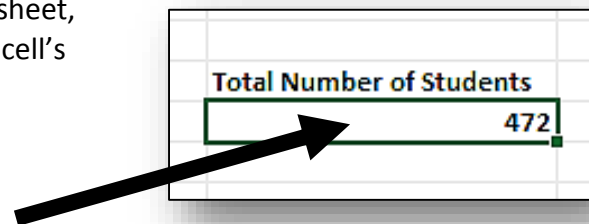
“Precedent” cells are cells that are referred to by a formula in another cell. The **Trace Precedents** button displays arrows that indicate *which* other cells affect the value of the currently selected cell.

“Dependent” cells contain formulas that refer to other cells. The **Trace Dependents** button displays arrows that indicate *which* other cells are *affected by* the currently selected cell.

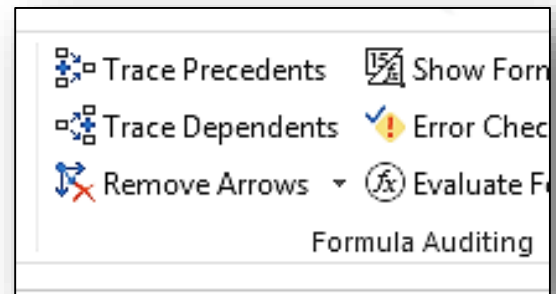
These buttons are worth knowing if you ever need to be shown graphically which other cells are putting data into a currently selected cell, that has some kind of formula in it that uses the other cells’ data. Or vice versa.

Exercise 10 – Point to Where Data Comes From and Goes To

1. On the **TOTAL Enrolled Students** worksheet, click into **Cell K6**. We will observe that cell’s precedents and dependents.



2. Click the **FORMULAS** Tab. In the **Formula Auditing** Group, find the buttons labeled **Trace Precedents**, **Trace Dependents**, and **Remove Arrows**.



3. Click **Trace Precedents**. Note the blue arrow showing that all of Column A is the precedent for Cell K6.

	A	B
1	Student ID Number	Last Name
2	304928	Al Amer
3	317018	Aleid
4	330358	Algurashi

ment K-12	
udent	Total Number of Students
ment K-12	472
ment K-12	

4. With Cell K6 still selected, click the **Trace Dependents** button. Two more blue arrows appear, showing which other cells are affected by Cell K6. In other words, the value in K6 helps determine the values for the formulas in these other two cells.

The image shows an Excel spreadsheet with a grid. Cell K6 is selected and contains the text "Total Number of Students" and the value "472". Two blue arrows originate from the right side of cell K6 and point to the right side of cells L7 and L8. Cell L7 contains the text "Students Divided by Classrooms" and the value "23.6". Cell L8 contains the text "Students Divided by Teachers" and the value "33.71".

	Total Number of Students	
	472	
	Students Divided by Classrooms	
	23.6	
	Students Divided by Teachers	
	33.71	

5. To turn off the blue arrows, click the **Remove Arrows** button. You can also use this button to remove only the Precedents arrows or only the Dependents arrows.

What-If Analysis with Goal Seek & Scenarios

The **What-If Analysis** provides ways you can project and see possible outcomes of formulas. What-If Analysis changes the values in cells to see how those changes would affect the outcome of formulas in the worksheet. In other words, you create a certain scenario in Excel, and then use What-If to show what the outcomes would be if you changed one of the variables in the scenario. Three kinds of What-If Analysis tools are available in Excel: Goal Seek, Scenarios, and Data Tables.

Let's say you have a \$1500 budget for buying printer paper, toner, and office supplies. Your department makes purchases and ends up with a couple of hundred dollars left over. You want to know how much more of a particular item you can buy in order to spend down the budget to zero by the end of the fiscal year. What-If with Goal Seek can answer that question for you.

We will learn how to use two What-If methods: **Goal Seek** and **Scenarios**.

WHAT-IF with GOAL SEEK

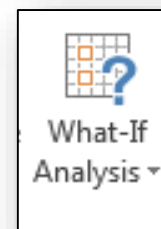
Exercise 11 – Goal Seek

1. Click the worksheet labeled **WHAT-IF**. It shows a simple budget, expenses, and what's left over. Let's say we want to reduce the **Amount Left Over** (\$245.98) to zero by June 30. This will help us in getting funding for next year. We want to know how much more we need to spend in one of the expenses to have nothing left over. So to start, we click into Cell B9. **Make sure B9 has a formula for B1-B8, and not just numbers typed in.**

Total Expenses	\$1,234.02
Amount Left Over	\$245.98

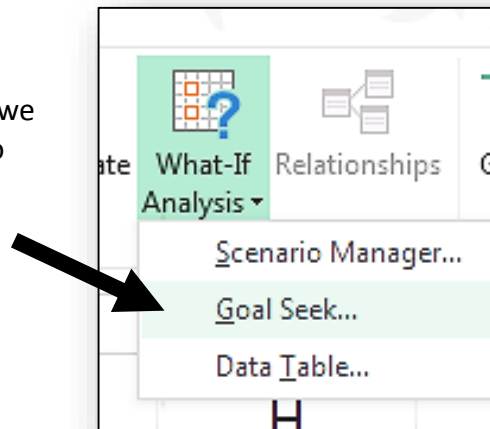
We want \$0 left over.

2. Click the **DATA** Tab, and in the **Data Tools** Group click the **What-If Analysis** button.



3. Select Goal Seek.

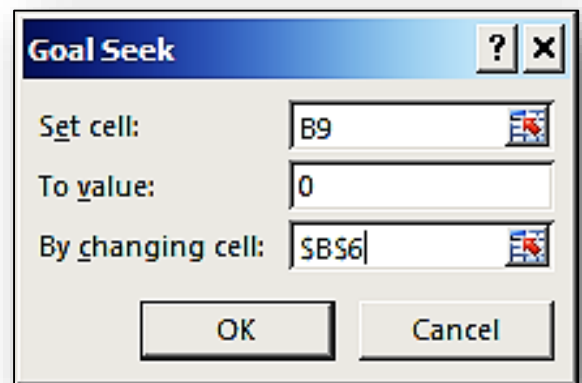
We want to spend off the excess \$245.98 by increasing spending on Office Supplies. So our question is going to be “How many dollars must we spend in Office Supplies to reach our goal of zero left over?”



4. In the Goal Seek dialog box, enter the following:

- a. **Set cell: B9**
- b. **To value: 0**
- c. **By changing cell: (Click into Cell B6)**

We’re asking Excel to figure out what **Cell B6 (Office Supplies)** needs to change to, so that we spend off all our allocated funds for this budget. That way we will use up all our funds properly, and have a better chance of getting the same amount of funding next year.



- 5. Click **OK** in the Goal Seek dialog box. Note that Excel does the calculation and displays its answer. **We will need to spend \$695.98 in Office Supplies** if we want to use up all the budget funding by the end of the fiscal year.

Office Supplies	\$695.98		
Total Expenses	\$1,500.00		
Amount Left Over	\$0.00		

Goal Seek Status		?	X
Goal Seeking with Cell B9 found a solution.		Step	
Target value:	0	Pause	
Current value:	\$0.00	OK	
		Cancel	

WHAT-IF with Scenario Manager

Stay with the **What-If** worksheet. **Scenario Manager** is a useful feature that lets you create, store, and re-use different scenarios in which variables change to show different results for each scenario. What would the outcome be if your department bought less printer paper? What would it be if you bought more office forms? These are just examples. You can create any scenario you want, as many as you want. Then you can run them anytime in the future.

The easiest way to prepare for Scenario Manager is to run the Goal Seek exercise first, to find the extra total dollar amounts you need to spend on a couple of different items. For the following Scenario Manager exercise, we determined we could spend the following:

Office Supplies: **\$695.98** (Buy only more office supplies)

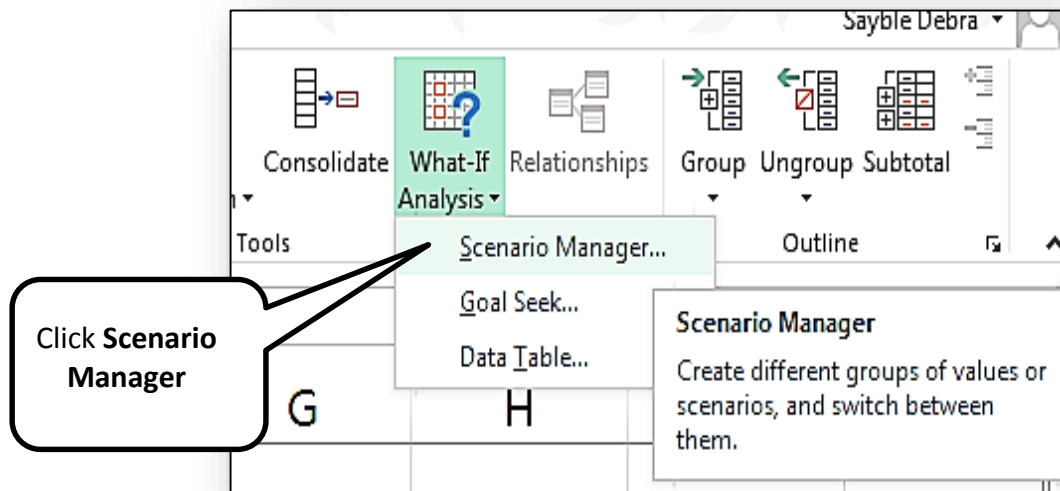
Paper: **\$645.11**

Toner: **\$266.47**

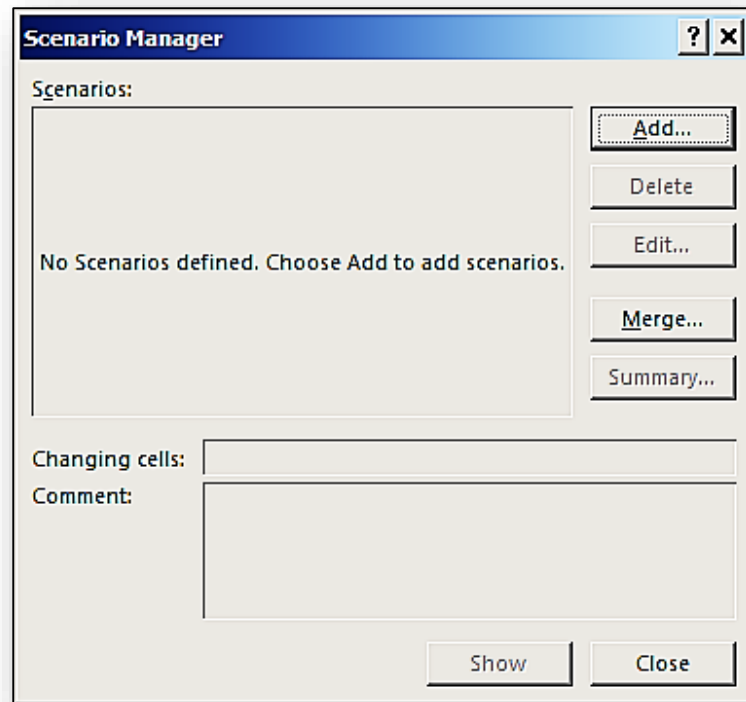
Buy more paper & toner at the same time

Exercise 12 – Scenario Manager

1. On the **What-If** worksheet, click this navigation: **DATA** Tab on the Ribbon → **Data Tools** → **What-If Analysis** → **Scenario Manager**



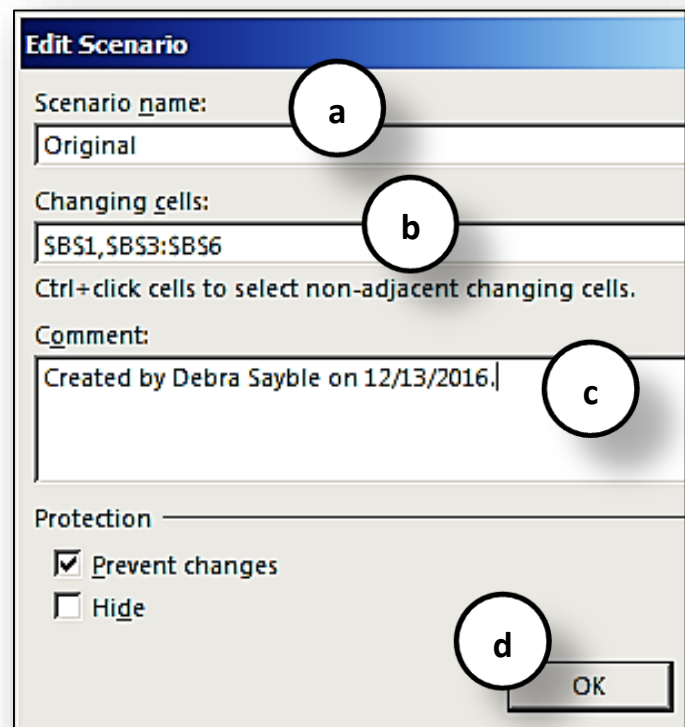
2. When the **Scenario Manager** dialog box appears, click **Add** to start a new scenario.



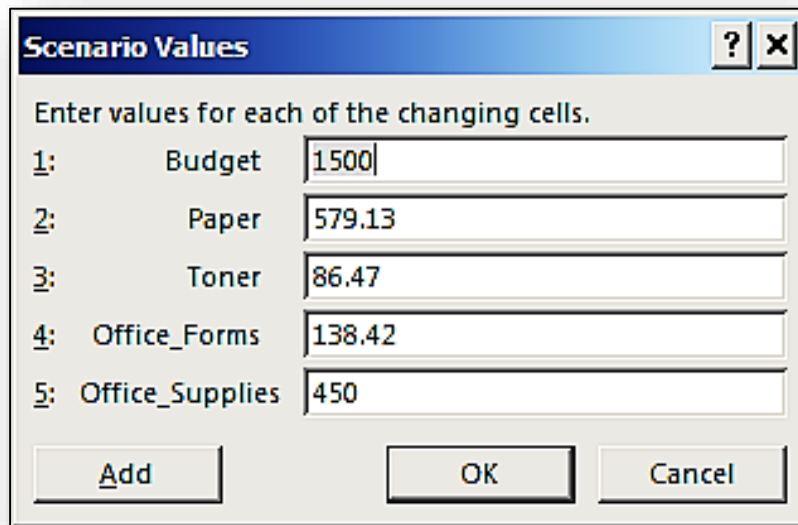
3. It's usually a good idea to create your first scenario with no changes, and keep it as the "Original" worksheet looks. That way you can always return to what it was before you made any changes to it.

Do the following:

- a. **Scenario Name:** Type the word **Original**
- b. **Changing Cells:** Holding down the CTRL key on your keyboard, click into Cell B1, (*skip B2*), and Cells B3 through B6.
- c. **Comment:** You can leave it alone, or you can edit it as desired.
- d. Click **OK**.

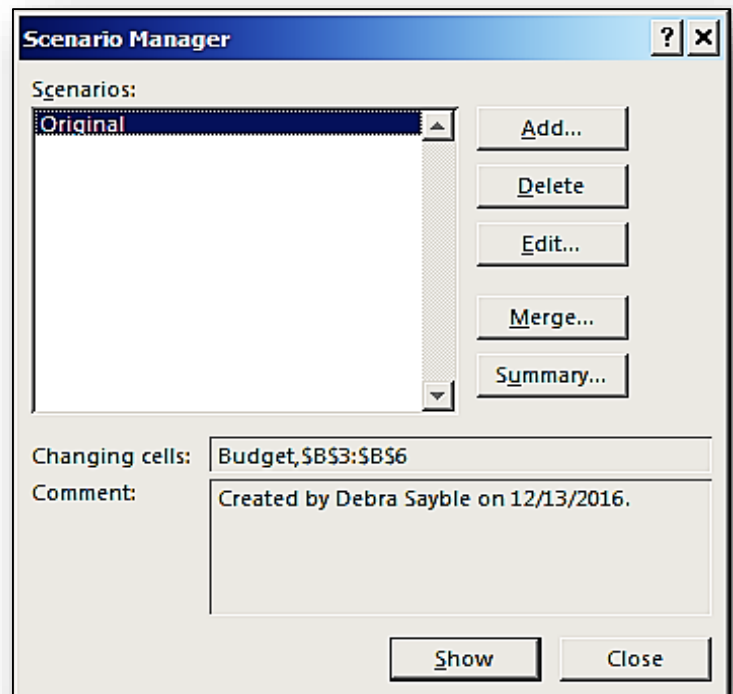


4. In the **Scenario Values** dialog box, don't change anything. Click **OK**.



Scenario	Value
1: Budget	1500
2: Paper	579.13
3: Toner	86.47
4: Office_Forms	138.42
5: Office_Supplies	450

5. The Scenario Manager dialog box returns, displaying your first Scenario, called "Original". Click **Add** to create another scenario.



Scenario	Changing cells	Comment
Original	Budget,\$B\$3:\$B\$6	Created by Debra Sayble on 12/13/2016.

6. Enter the following into the fields for the new Scenario:

The screenshot shows the 'Add Scenario' dialog box with the following fields and callouts:

- Scenario name:** Buy More Office Supplies (Callout: Type: Buy More Office Supplies)
- Changing cells:** B1, B3: B6 (Callout: Do not edit the cell references)
- Comment:** Created by Debra Sayble on 12/13/2016. How much would we need to spend in Office Supplies to spend down the budget to 50 by end of fiscal year? (Callout: Type any comment that helps explain the scenario)
- Protection:**
 - Prevent changes
 - Hide
- Buttons:** OK, Cancel (Callout: When done, click OK)

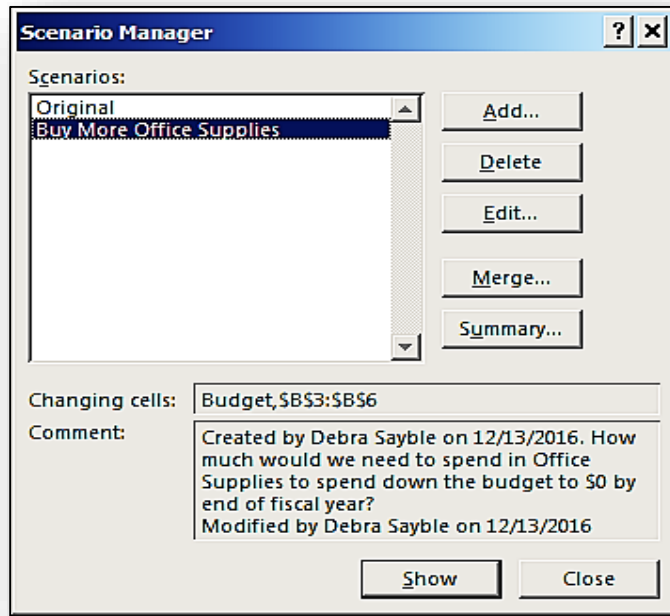
7. For this scenario we want to show how much to change what we spend in Office Supplies alone, in order to use up the budget by the end of our fiscal year, and have nothing left over. Change the dollar amount in the **Office Supplies** field to **695.98** and click **OK**.

The screenshot shows the 'Scenario Values' dialog box with the following data:

Enter values for each of the changing cells.		
1:	Budget	1500
2:	Paper	579.13
3:	Toner	86.47
4:	Office_Forms	138.42
5:	Office_Supplies	695.98

The 'Office_Supplies' value of 695.98 is circled, and an arrow points to it from the right.

- The new scenario has been added to your Scenario Manager. Let's add one more new scenario. Click **Add**.



- In this next scenario, we want to see how much we need to spend on both paper and toner, rather than office supplies, to spend down the budget as desired.

Type: **Buy More Paper and Toner**

Do not edit the cell references

Type any comment that helps explain the scenario

When done, click **OK**

10. For this scenario we want to show how much to change what we spend in both paper and toner, in order to use up the budget by the end of our fiscal year, and have nothing left over. Change the dollar amount in the **Paper** field to **645.11** and change the **Toner** field to **266.47**, then click **OK**.

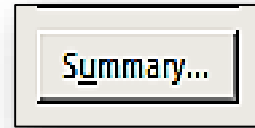
Scenario Values	
Enter values for each of the changing cells.	
1: Budget	1500
2: Paper	645.11
3: Toner	266.47
4: Office_Forms	138.42
5: Office_Supplies	450

11. The **Scenario Manager** displays all three scenarios we created:
- Original
 - Buy More Office Supplies
 - Buy More Paper and Toner

Scenario Manager	
Scenarios:	
Original	Add... Delete Edit... Merge... Summary...
Buy More Office Supplies	
Buy More Paper and Toner	
Changing cells:	Budget,\$B\$3:\$B\$6
Comment:	Created by Debra Sayble on 12/13/2016. If we split the increased spending between paper and toner, how much would we need to spend on them to bring the Amount Left Over to \$0?

12. Leave the **Scenario Manager** on the screen. Try out the different scenarios. Click on the one you want to see, and then click **Show**. The data in the cells on the left change to that scenario. Try another scenario in the list and click **Show**. To return to the original data, click the **Original** scenario and click **Show** once more.

13. Now try viewing a **Summary**. This creates a new worksheet called **Scenario Summary**, and it displays all the results from all your Scenarios. Click the **Summary** button.

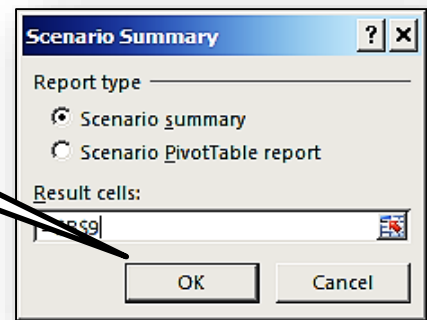


14. When the **Scenario Summary dialog box** appears, click into the cell you want to focus on in the summary. In this worksheet, we want to focus on the **Amount Left Over** cell, to see how it changes with each scenario. Click into **Cell B9**. Then, click **OK**.

Total Expenses	\$1,254.02
Amount Left Over	\$245.98

Click Cell B9...

...then click OK

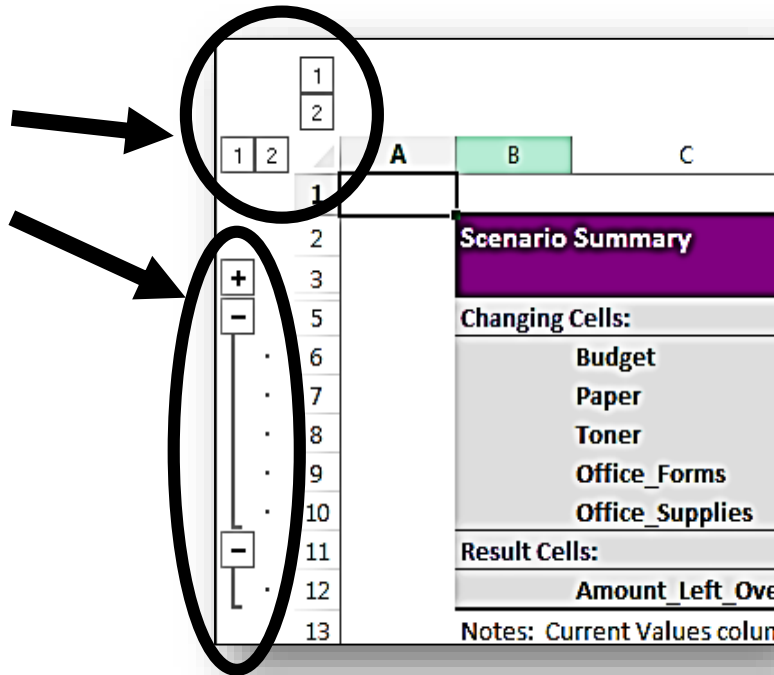


15. A new worksheet is created showing the summary. The new worksheet is automatically labeled **“Scenario Summary”** on its tab at the bottom.

		Current Values:	Original	Buy More Office Supplies	Buy More Paper and Toner
Changing Cells:					
Budget		\$1,500.00	\$1,500.00	\$1,500.00	\$1,500.00
Paper		\$579.13	\$579.13	\$579.13	\$645.11
Toner		\$86.47	\$86.47	\$86.47	\$266.47
Office_Forms		\$138.42	\$138.42	\$138.42	\$138.42
Office_Supplies		\$450.00	\$450.00	\$695.98	\$450.00
Result Cells:					
Amount_Left_Over		\$245.98	\$245.98	\$0.00	\$0.00

Notes: Current Values column represents values of changing cells at time Scenario Summary Report was created. Changing cells for each scenario are highlighted in gray.

16. You can expand or collapse details on the Summary by using the plus and minus or the 1 & 2 buttons on the outer edges. **Delete the Scenario Summary worksheet.**



Pivot Tables

A **Pivot Table** is a way Excel can organize and summarize complex data to make it easier to interpret. Excel's definition of a Pivot Table is: *A PivotTable is a program tool that allows you to reorganize and summarize selected columns and rows and data in a spreadsheet or database table to obtain a desired report.*

You can use a PivotTable report to summarize, analyze, explore, and present summary data. PivotCharts complement PivotTables by adding visualizations to the summary data in a PivotTable, and allow you to easily see comparisons, patterns, and trends. Both PivotTables and PivotCharts enable you to make informed decisions about critical data in your Excel worksheets.

A PivotTable is an interactive way to quickly summarize large amounts of data. You can use a PivotTable to analyze numerical data in detail, and answer unanticipated questions about your data. Note that a PivotTable does not actually change the spreadsheet or database itself.

A PivotTable is especially designed for:

- Querying large amounts of data in many user-friendly ways.
- Subtotaling and aggregating numeric data, summarizing data by categories and subcategories, and creating custom calculations and formulas.
- Expanding and collapsing levels of data to focus your results, and drilling down to details from the summary data for areas of interest to you.
- Moving rows to columns or columns to rows (*or "pivoting"*) to see different summaries of the source data.
- Filtering, sorting, grouping, and conditionally formatting the most useful and interesting subset of data enabling you to focus on just the information you want.
- Presenting concise, attractive, and annotated online or printed reports.

For example, here's a simple list of household expenses on the left, and a PivotTable based on the list to the right:

Household Expense Data

	A	B	C
1	MONTH	CATEGORY	AMOUNT
2	January	Transportation	\$74.00
3	January	Grocery	\$235.00
4	January	Household	\$175.00
5	January	Entertainment	\$100.00
6	February	Transportation	\$115.00
7	February	Grocery	\$240.00
8	February	Household	\$225.00
9	February	Entertainment	\$125.00
10	March	Transportation	\$90.00
11	March	Grocery	\$260.00
12	March	Household	\$200.00
13	March	Entertainment	\$120.00

Corresponding PivotTable

Sum of AMOUNT	Column Labels	January	February	March	Grand Total
Row Labels					
Entertainment		\$100	\$125	\$120	\$345
Grocery		\$235	\$240	\$260	\$735
Household		\$175	\$225	\$200	\$600
Transportation		\$74	\$115	\$90	\$279
Grand Total		\$584	\$705	\$670	\$1,959

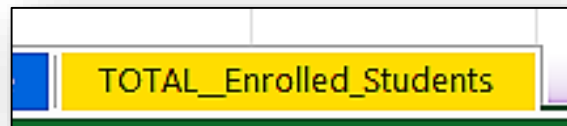
Before you get started...

- You data should be organized in a tabular format, and not have any blank rows or columns. Ideally, you can use an Excel table like in the example above.
- Tables are a great PivotTable data source, because rows added to a table are automatically included in the PivotTable when you refresh the data, and any new columns will be included in the **PivotTable Fields** List. Otherwise, you need to either manually update the data source range, or use a dynamic named range formula.
- Data types in columns should be the same. For example, you shouldn't mix dates and text in the same column.
- PivotTables work on a snapshot of your data, called the cache, so your actual data doesn't get altered in any way.

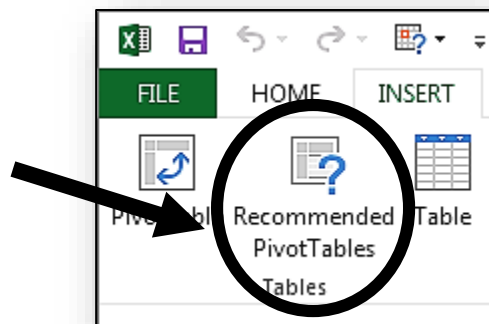
Using the **Recommended PivotTables** feature in Excel is a good place to start, if you have limited experience with them. Excel can recommend the best types of PivotTables to suit the data in your worksheet.

Exercise 13 – A “Recommended” PivotTable by Excel

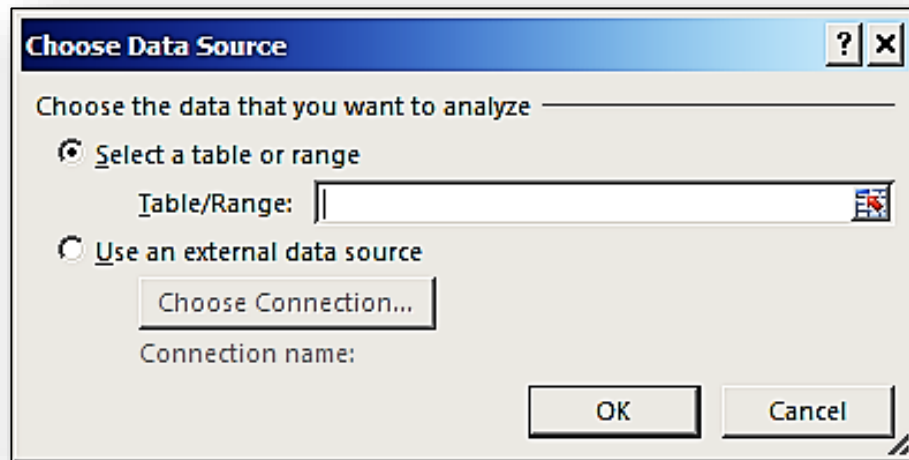
1. Use the **TOTAL Enrolled Students** worksheet for this exercise. **NOTE:** Select a single BLANK CELL several columns away to the right, before going on to Step 2.



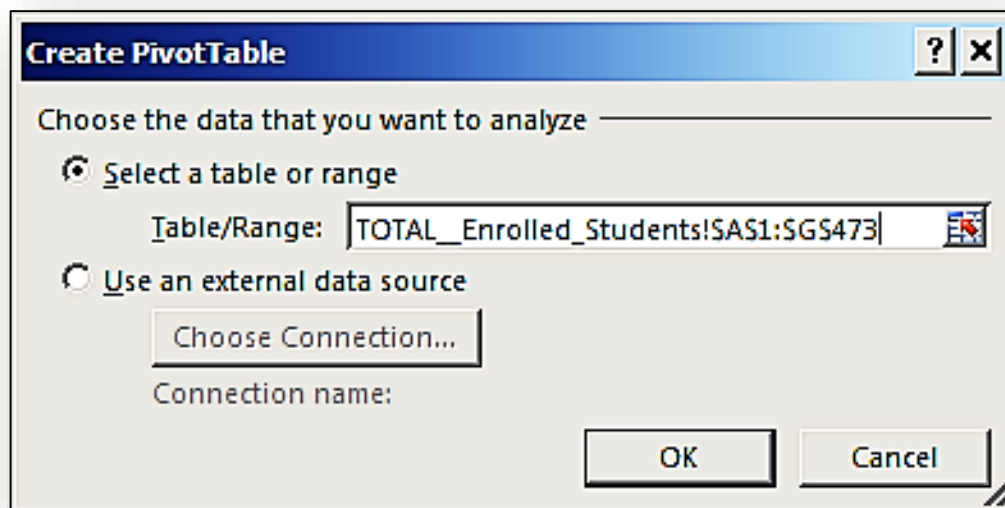
2. Click this navigation: **INSERT** Tab → **Tables** Group → **Recommended PivotTables**



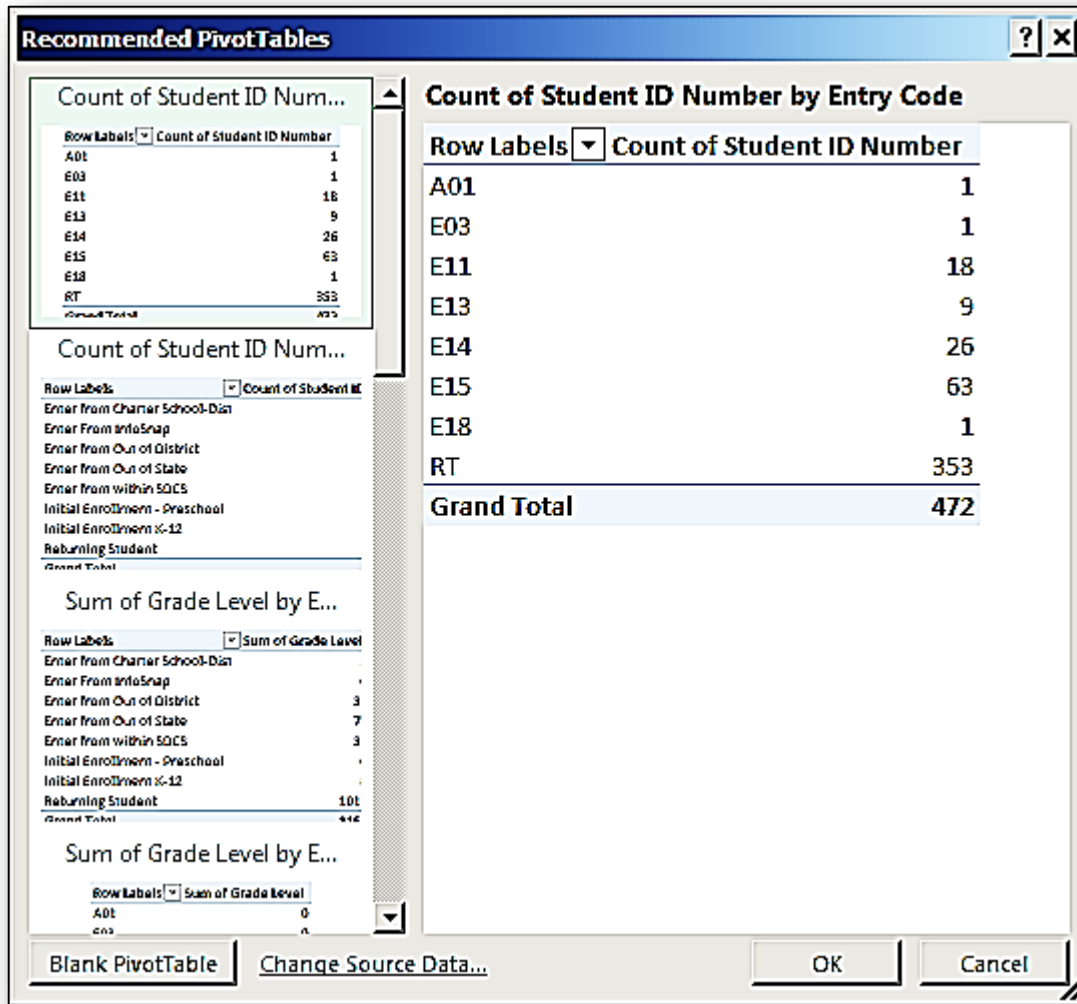
3. Click the **Recommended PivotTable** button. When the **Choose Data Source** dialog box appears, you need to tell it which cells in your Table you want to include in the PivotTable. You could type it in, but it's usually best to click-and-drag over the cell range you want (*see the next step*).



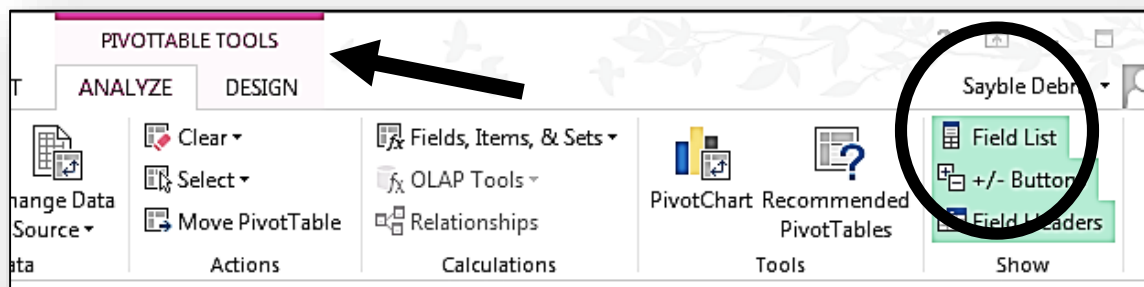
4. Select **Cells A1:G473**. Click **OK** on the dialog box.



5. Excel displays a dialog box with thumbnails of suggested PivotTables on the left. When you click one, its details are seen in the main part of the window. Keep the default (*choose the first one at the top*) and click **OK** in the lower right of the dialog box.



6. A new worksheet is inserted with the newly created PivotTable on it. Along with the PivotTable, the **PivotTable Fields** dialog box is also displayed, as shown on the next page. If you don't see the PivotTable Fields box, single-click anywhere inside the PivotTable, and on the **PIVOTTABLE TOOLS** → **ANALYZE** contextual ribbon, on the far right side, click the **Field List** button.



Row Labels	Gender	Grand Total
0		101
1		62
2		72
3		48
4		49
5		42
Grand Total		193

PivotTable

PivotTable Fields
(choose what is included in the PivotTable)

Once the PivotTable Fields are displayed, if you click away from the PivotTable, the Fields disappear. To bring them back, just click anywhere inside the PivotTable again. You can use various buttons and checkboxes within the **PivotTable** and the **PivotTable Fields** dialog box to edit or filter the PivotTable.

Exercise 14 – Build a PivotTable Yourself

Observe this example of a PivotTable with its Fields displayed. In the next exercise, you will build it from scratch:

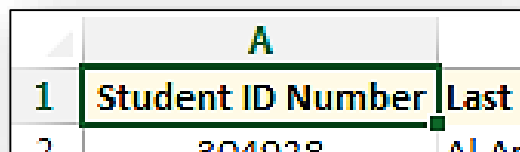
Grade Level	(All)
Enter from Charter School-Dist	1
Enter From InfoSnap	1
Enter from Out of District	9
Enter from Out of State	26
Enter from within SDCS	18
Initial Enrollment - Preschool	1
Initial Enrollment K-12	63
Returning Student	353
Grand Total	472

PivotTable
(based on choices made in PivotTable Fields)

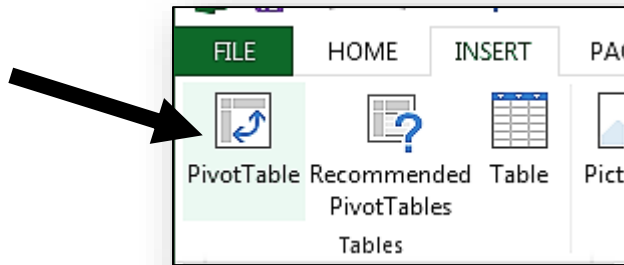
Fields (Data) Chosen to Display in PivotTable

Placement of Fields in PivotTable *(click-and-drag to move them)*

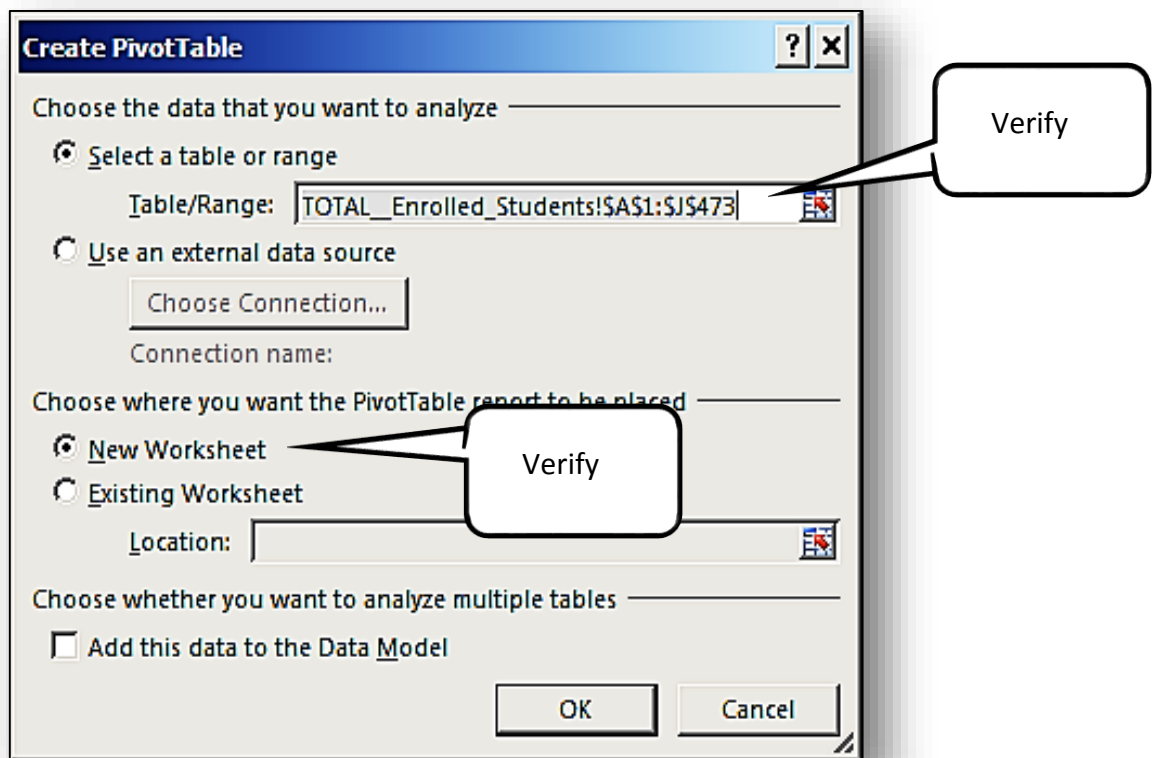
1. Click **Cell A1** on the **TOTAL Enrolled Students** worksheet.



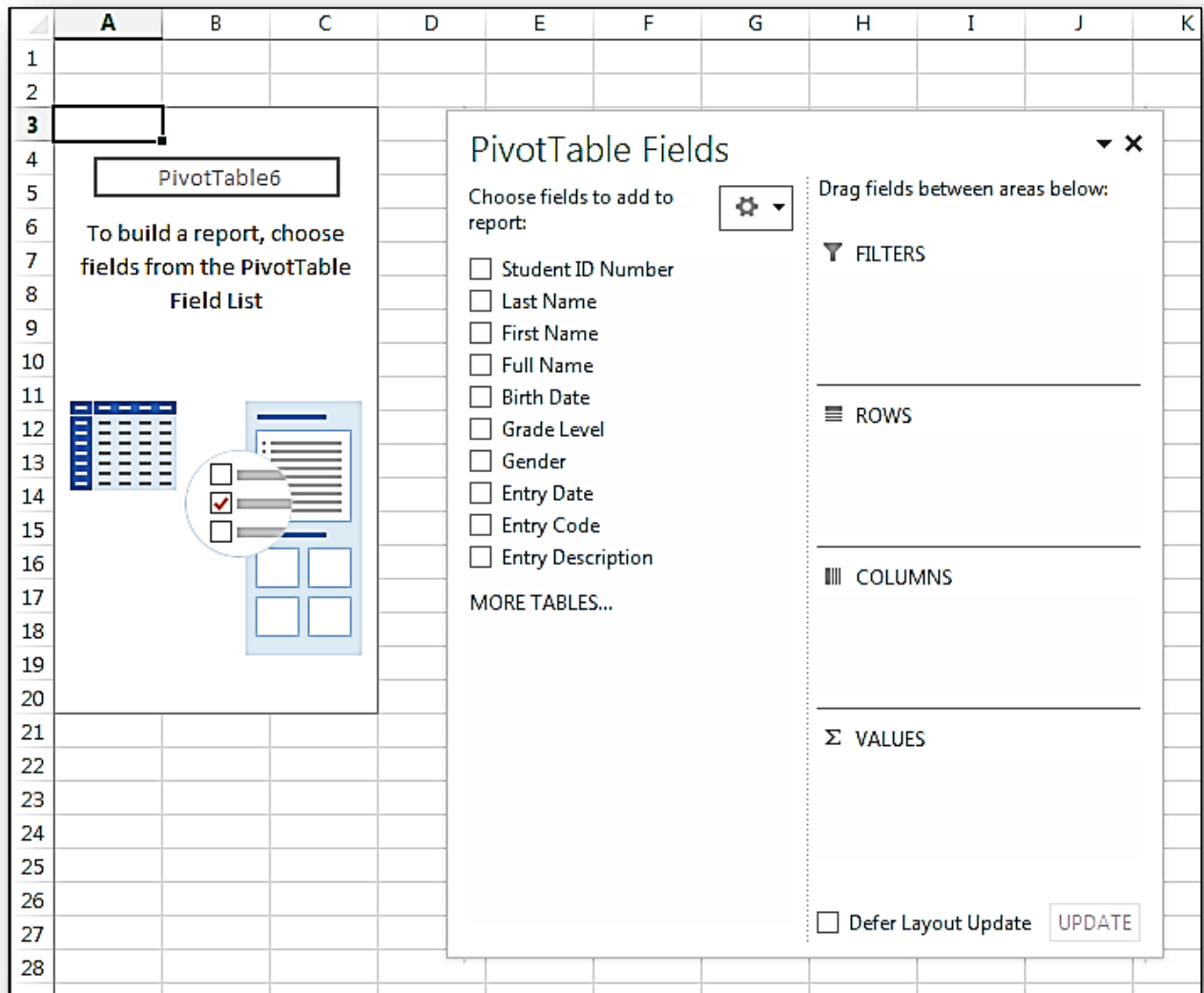
2. On the **INSERT** Tab, on the far left side, click the **PivotTable** button.



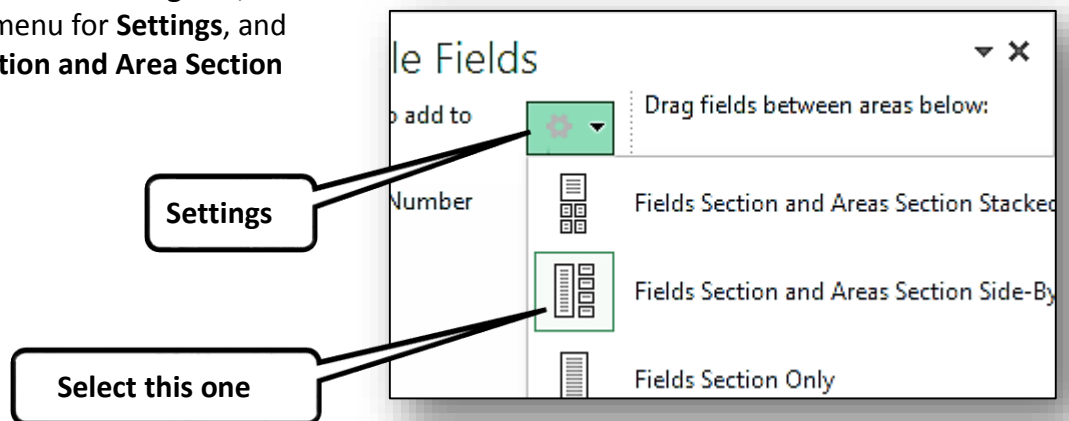
3. On the **Create PivotTable dialog box**, leave the default settings as they are and click **OK**.
NOTE: Before you click **OK**, verify that the Table/Range shows: **TOTAL_Enrolled_Students!\$A\$1:\$J\$473**, and that the PivotTable will be placed on a **New Worksheet**.



- A new worksheet is inserted with a blank PivotTable displayed, along with the PivotTable Fields dialog box with nothing chosen yet.



- In the **PivotTable Fields** dialog box, click the drop-down menu for **Settings**, and select **Fields Section and Area Section Side-by-Side**.



6. In the **PivotTable Fields**, place a checkmark in the checkboxes for the following fields. Note how the PivotTable grows as you choose each field:
 - a. **Student ID Number**
 - b. **Grade Level**
 - c. **Entry Description**

	A	B	C
1			
2			
3	Row Labels	Sum of Student ID Number	Sum of Grade Level
4	Enter from Charter School-Dist	400602	3
5	Enter From InfoSnap	526795	0
6	Enter from Out of District	4266950	32
7	Enter from Out of State	12533600	72
8	Enter from within SDCS	8036071	33
9	Initial Enrollment - Preschool	437594	0
10	Initial Enrollment K-12	27738029	8
11	Returning Student	160881576	1016
12	Grand Total	214821217	1164

PivotTable Fields

Choose fields to add to report:

- Student ID Number
- Last Name
- First Name
- Full Name
- Birth Date
- Grade Level
- Gender
- Entry Date
- Entry Code
- Entry Description

Drag fields between areas below:

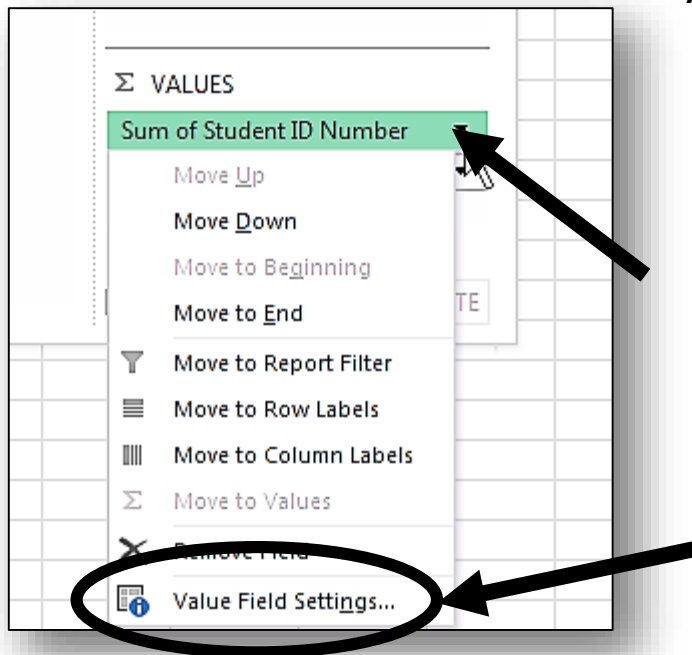
FILTERS

ROWS
Entry Description

COLUMNS
Σ Values

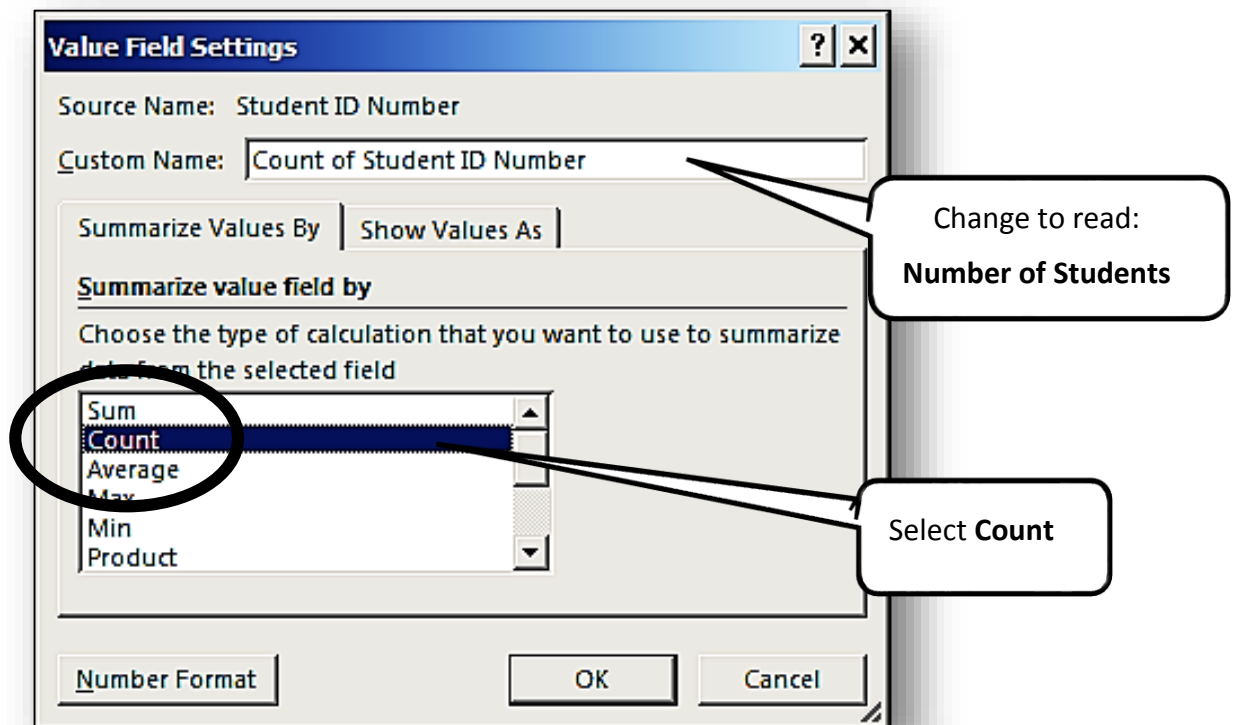
VALUES
Sum of Student ID Number
Sum of Grade Level

Defer Layout Update **UPDATE**



7. Excel tends to assume things sometimes. It displayed the fields into the areas it thinks we wanted. We still need to rearrange the fields, so they display the way we want. As the PivotTable stands now, it doesn't make much sense. For instance, we don't want it to show a sum of student ID numbers. In the **PivotTable Fields dialog box**, in the lower right area, click the drop-down menu for **Sum of Student ID Number**, and then click **Value Field Settings...**

8. On the **Value Field Settings dialog box**, change it from **Sum** to **Count**; then, change the Custom Name to: **Number of Students** and click **OK**.



- Click-and-drag to move **Sum of Grade Level** up to the **Filter** area.

Drag this into the **Filter** area at the top

Drag fields between areas below:

FILTERS

ROWS

Entry Description

COLUMNS

Σ Values

VALUES

Number of Students

Sum of Grade Level

Defer Layout Update **UPDATE**

- Your worksheet should look like this, now:

	A	B	C	D	E	F	G	H	I	J	K	L
1	Grade Level	(All)										
2												
3	Row Labels	Count of Student ID Number										
4	Enter from Charter School-Dist	1										
5	Enter From InfoSnap	1										
6	Enter from Out of District	9										
7	Enter from Out of State	26										
8	Enter from within SDCS	18										
9	Initial Enrollment - Preschool	1										
10	Initial Enrollment K-12	63										
11	Returning Student	353										
12	Grand Total	472										
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												

PivotTable Fields

Choose fields to add to report:

- Student ID Number
- Last Name
- First Name
- Full Name
- Birth Date
- Grade Level
- Gender
- Entry Date
- Entry Code
- Entry Description
- Last School Name
- Last School Grade

MORE TABLES...

Drag fields between areas below:

FILTERS

Grade Level

ROWS

Entry Description

COLUMNS

VALUES

Count of Student ID Number

Defer Layout Update **UPDATE**

11. The PivotTable is now set up to quickly show us how many students in any given grade level (or all grade levels at once, as seen below) are within each Entry Description category. For example, the PivotTable shows that there are 26 students altogether (including all grade levels) who fit into the category **Enter from Out of State**.

	A	B
1	Grade Level	(All) ▾
2		
3	Row Labels ▾	Number of Students
4	Enter from Charter School-Dist	1
5	Enter From InfoSnap	1
6	Enter from Out of District	9
7	Enter from Out of State	26
8	Enter from within SDCS	18
9	Initial Enrollment - Preschool	1
10	Initial Enrollment K-12	63
11	Returning Student	353
12	Grand Total	472
13		

12. Now we want to see how many students in just 3rd grade fit into these Entry Description categories. So we select **3rd grade** in the **Filter** drop-down list.

Click here first...

...then here...

...then click OK

	A	B
1	Grade Level	(All) ▾
2		
3	Row Labels ▾	Number of Students
4	Enter from Charter School-Dist	1
5	Enter From InfoSnap	1
6	Enter from Out of District	9
7	Enter from Out of State	26
8	Enter from within SDCS	18
9	Initial Enrollment - Preschool	1
10	Initial Enrollment K-12	63
11	Returning Student	353
12	Grand Total	472
13		
14		

Search

- ... (All)
- ... 0
- ... 1
- ... 2
- ... 3
- ... 4
- ... 5

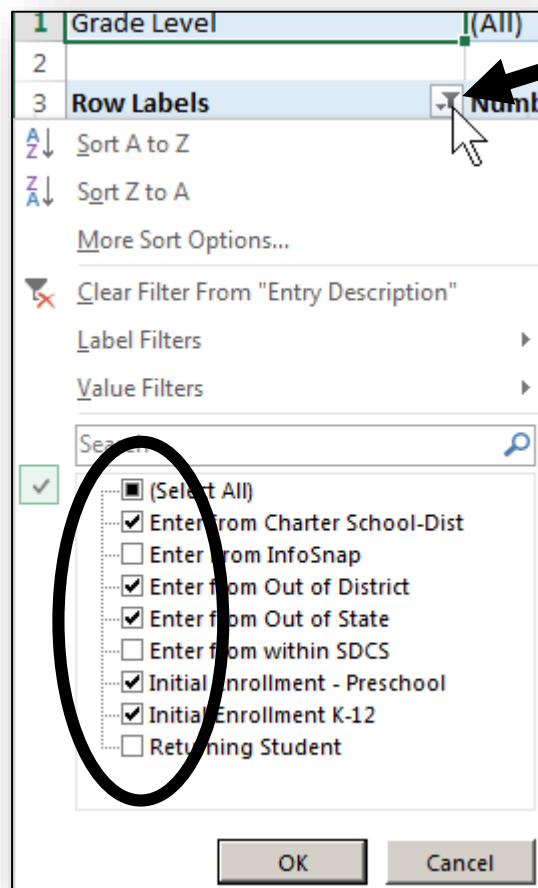
Select Multiple Items

OK Cancel

13. The PivotTable changes to show only the 3rd graders and how they are distributed across the Entry Description categories. For example, it shows there is one 3rd grader from a Charter school. It shows there are sixty-four 3rd graders who are Returning Students.

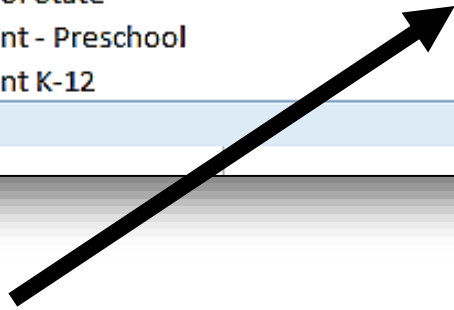
	A	B
1	Grade Level	3
2		
3	Row Labels	Number of Students
4	Enter from Charter School-Dist	1
5	Enter from Out of State	4
6	Enter from within SDCS	1
7	Initial Enrollment K-12	1
8	Returning Student	64
9	Grand Total	71
10		

14. You can also click the drop-down list for **Row Labels** to select which of the Entry Descriptions you want to display, and which ones you don't want to display.



15. This illustration shows the PivotTable after making the selections in Step 14, and including all grade levels.

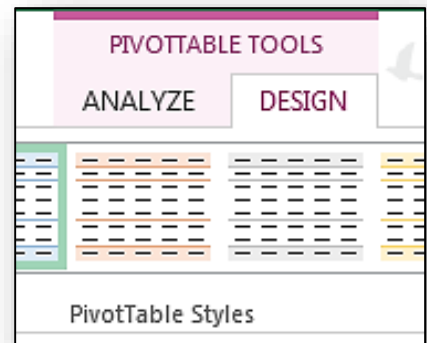
Grade Level	(All)
Row Labels	Number of Students
Enter from Charter School-Dist	1
Enter from Out of District	9
Enter from Out of State	26
Initial Enrollment - Preschool	1
Initial Enrollment K-12	63
Grand Total	100



NOTE: Double-click any numeral below “Number of Students” to open a list of those individual student records in a new worksheet:

	A	B	C	D	E
1	Student ID Number	Last Name	First Name	Full Name	Birth Date
2	560373	Verdugo	Anali	Anali Verdugo	6/1
3	421326	Halimzai	Carolina	Carolina Halimzai	10/20
4	560324	Verdin	Ana	Ana Verdin	6/2
5	555840	Valencia	Aiden	Aiden Valencia	10/10
6	347724	Martin	Mackenzie	Mackenzie Martin	7/9

16. Add some style to your PivotTable. Click anywhere inside the PivotTable. In the **PIVOTTABLE TOOLS** contextual ribbon at the top of your screen, click to the **DESIGN** tab. Select any **PivotTable Style** you like.



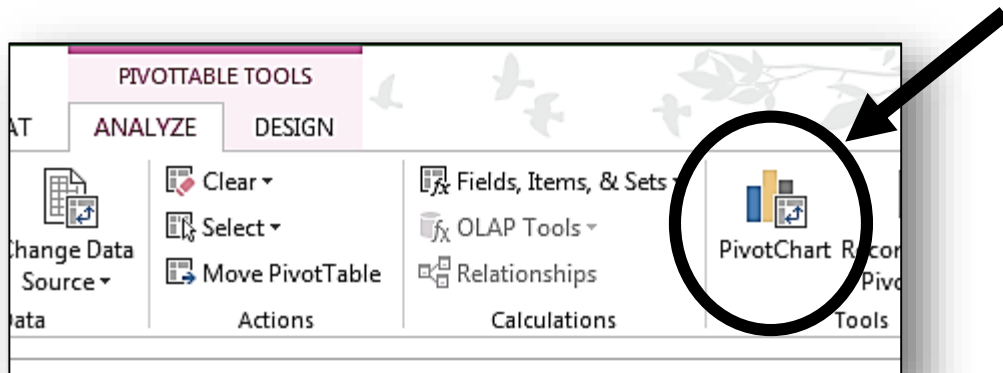
PivotCharts

PivotCharts complement PivotTables by adding visualizations that allow you to easily see comparisons, patterns, and trends. A PivotChart illustrates a PivotTable in a graphic format. PivotCharts are also interactive. When you create a PivotChart, the **PivotChart Filter Pane** is displayed. You can use this filter pane to sort and filter the PivotChart's underlying data. Changes you make to the layout and data in a PivotTable are immediately reflected in the PivotTable's associated PivotChart, and vice versa.

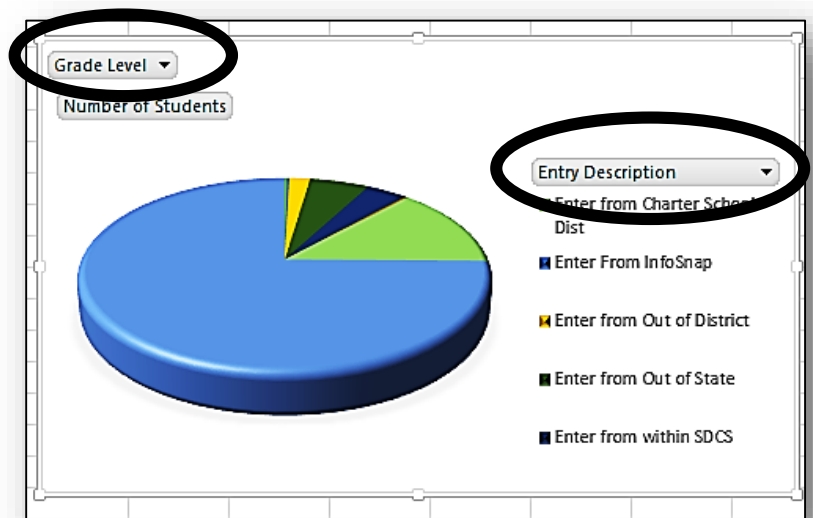
Before starting the next exercise, be sure that you are on the **TOTAL Enrolled Students** worksheet.

Exercise 15 – PivotChart

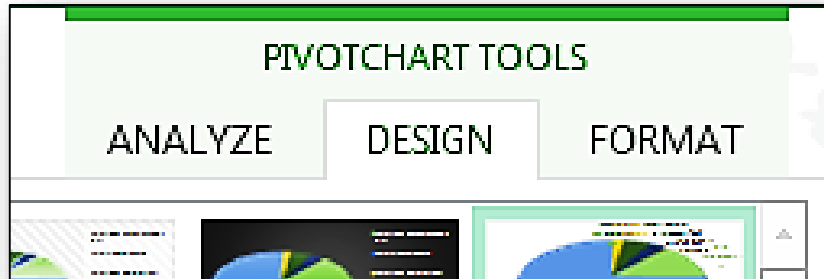
1. With your flashing insertion cursor anywhere inside the PivotTable, look at the top of the screen at the **PIVOTTABLE TOOLS** contextual ribbon, and click to the **ANALYZE** Tab. Click the **PivotChart** button.



2. Select the type of chart you want, and set it on the worksheet next to the PivotTable. **NOTE** that you can use the **Grade Level** and **Entry Description** filters here just as you can on the PivotTable.



3. With the PivotChart still selected, use the **PIVOTCHART TOOLS contextual ribbon Tabs – ANALYZE, DESIGN, and FORMAT** – to format the chart the way you want.




Basic Keyboard Shortcuts for Excel

These shortcuts can actually be quicker and easier than using the mouse.

Note that in key combinations the first key (**Ctrl**, **Shift**, **Alt**, etc.) should be pressed and held down while tapping the second key:

Keys to Use	What They Do
Ctrl + N	Creates a new, blank workbook (a whole new file)
Ctrl + O	Opens an existing workbook
Ctrl + W	Closes the current workbook
Ctrl + S	Saves the current workbook and keeps it open
F12	Opens the "Save As" window to save a copy of the workbook with a different name
Ctrl + P	Prints the document
Ctrl + scroll the mouse wheel	Zooms the document in or out (magnifies/shrinks it)
Ctrl + End	Jump to the end of the worksheet
Ctrl + Home	Jump to the beginning of the worksheet
Ctrl + Z	Undo the last action
Ctrl + Y	Redo the last action
Shift + Arrow Key Right	Select (highlight) additional cells to the right
Shift + Arrow Key Left	Select (highlight) additional cells to the left
Ctrl + Shift + Arrow Right or Left	Extend selection one word to the right or left
Ctrl + A	Select (highlight) entire document
Ctrl + C	Copies whatever is selected (highlighted)
Ctrl + V	Pastes whatever was copied
Ctrl + X	Cuts out whatever was selected (highlighted)
Ctrl + B	Bolds the selected cell contents
Ctrl + I	Italicizes the selected cell contents
Ctrl + U	Underlines the selected cell contents

Help

Click the Help button in the upper right corner of any Excel window to access Microsoft's resources for help. The Help button looks like a question mark: 

In the Help window you can either click to open any of the Popular Articles, or type a keyword for the topic you want and click the Search button (magnifying glass icon). It will search for answers and display its findings.



The District also has a web page on its site which contains additional resources for help with Microsoft Office applications like Excel. To find it use this navigation:

1. Start by clicking to the Employee Portal on the main SDUSD home page. Login.
2. On the Inside Unified page in the lower left area, underneath **Shortcuts**, click **Technical Support**.
3. Scroll if necessary and click the link: **Microsoft Office**
4. Click the name of the software you are interested in (*Word, Excel, etc.*).

