



EXCEL TRAINING PARTICIPANT GUIDE

Data Capacity Building
Best Start for Kids | King County, WA



the **CAPACITY**
COLLECTIVE
strength in numbers



King County
Best Starts for
KIDS



Table of Contents

INTRODUCTION.....	3
INTRODUCTION TO MICROSOFT EXCEL.....	3
HOW TO USE THIS GUIDE	3
GETTING SUPPORT	4
TIPS AND TRICKS FOR ANSWERING YOUR EXCEL QUESTIONS	4
NAVIGATING A WORKBOOK.....	5
PARTS OF AN EXCEL WORKBOOK	5
EXCEL RIBBONS TABS: WHAT IS IN EACH ONE?	6
HELPFUL KEYBOARD SHORTCUTS IN EXCEL.....	7
LOCKING AND UNLOCKING CELLS AND WORKSHEETS	8
USING EXCEL SCROLL BARS	9
ZOOMING IN AND OUT	10
MAKING SELECTIONS IN EXCEL	10
WORKBOOK TABS: CREATING, DUPLICATING, MOVING, RENAMING.....	12
INSERTING OR DELETING A WORKSHEET.....	12
MOVE OR COPY A WORKSHEET	13
NAVIGATING YOUR DATA: FINDING AND REPLACING	15
FINDING TEXT	15
FINDING AND REPLACING TEXT.....	16
FREEZING PANES	17
COLUMNS AND ROWS: SPACING, ADDING AND DELETING, HIDING.....	18
ADJUSTING COLUMN WIDTHS.....	18
DELETING COLUMNS	19
DELETING ROWS	19
INSERTING A NEW COLUMN	20
CUT AND PASTE COLUMNS.....	21
HIDE AND UNHIDE COLUMNS	21
DESIGNING: FONT, SIZE, COLOR LINES, AND BORDERS	24
BORDERS	24
FORMAT PAINTER.....	24
FORMATTING TEXT IN CELLS	25
FORMATTING CELL CONTENTS: TYPES OF DATA.....	27
COPYING AND PASTING	28

INSERTING: IMAGES, TEXT BOXES, SHAPES, ICONS.....	30
INSERTING AN IMAGE	30
INSERTING A TEXT BOX	31
INSERTING A SHAPE	31
FORMULAS	32
INTRODUCTION TO FORMULAS	32
TOP 15 EXCEL FORMULAS.....	33
BASIC FORMULAS: SUM(), AVERAGE(), MIN(), MAX()	35
COMBINING FORMULAS: NESTED STATEMENTS, COMMON FORMULA ERRORS.....	37
COUNT FORMULAS: COUNTBLANK(), COUNTIF()	39
IF FORMULAS: IF() FORMULAS, NESTED IF STATEMENTS	41
MORE FORMULAS: YEARFRAC(),	43
SORTING AND FILTERING.....	45
SORTING THE DATA.....	45
FILTERING THE DATA	46
MORE ABOUT FILTERING	47
CONDITIONAL FORMATTING	48
INTRODUCTION TO CONDITIONAL FORMATTING.....	48
EXAMPLES OF CONDITIONAL FORMATTING	48
USING CONDITIONAL FORMATTING FOR DATA QUALITY.....	50
CONDITIONAL FORMATTING RULES MANAGER.....	51
TABLES AND GRAPHS	52
TYPES OF CHARTS	52
TABLES	53
GRAPHS.....	53
PIVOTTABLES.....	55
PRINTING	60
PRINTING A WORKSHEET	60

Introduction

Introduction to Microsoft Excel

Welcome to Microsoft Excel training with The Capacity Collective! We are glad you are here.

Microsoft Excel, part of the Microsoft Office Suite, is a powerful tool for collecting, storing and analyzing the stories of your program. What you can do with Excel is almost limitless, but it can be very intimidating. Even those of us who use it daily find we are still learning, especially from others. With Excel, there is always more to learn, and there are probably three other ways to do whatever function you are doing. We hope we can help you build your confidence with Excel so you can start, and/or continue, to demonstrate the incredible work of your programs using this functionality.

We know a lot of the training out there for Excel revolves around the business sector, which can make it harder to understand the concepts. We have designed our workshops around the work you do as program coordinators, program managers, directors and other staff working in community organizations.

This Participant Guide is meant to provide an overview of the functions we find most useful in non-profit work. It should help you through today's workshop and be an ongoing resource after the workshops are over. We hope you find it helpful.

If you would like to reproduce any part of the document, or adapt the guide for your own purposes, we would appreciate you letting us know. Thank you for supporting our work!

How to Use This Guide

As you navigate the guide, be on the lookout for the following:

Keyboard Shortcuts

	+		:	Create a New Workbook
	+		:	Open an Existing Workbook

Throughout the guide you will see **Keyboard Shortcuts**, some of which you may recognize from other Microsoft Office Suite products.

Note: If you are a PC user, use the Control (CTRL) button where specified. If you are a Mac user, use the Command (CMD) button anywhere you see CTRL in the guide.



Excel Tips: Look for this icon for bonus Excel tips and tricks

On a Mac:

While most functions in Excel work similarly for PCs or Macs, there are a few differences here and there. Look for teal boxes with white writing for directions specific to Mac users.

Getting Support

Tips and Tricks for Answering Your Excel Questions

It simply is not possible for you to know (and remember!) every function in Excel. Even those who work in Excel everyday have to Google things on a regular basis. There is no shame in asking for help. Below are some tips and tricks for answering your Excel questions.

Google It!

No matter what it is, we can almost guarantee that Google can lead you to some solutions.

Example Issue: You are working with a large data file. When you scroll down, the top row disappears. It would be really helpful if the top row didn't move so you could see the column headers regardless of where you are in the document. What do you do? Google it!



Nine times out of ten, the first result is the most helpful. Your search results will also often remind you of the language used by Excel to help you fix your problem. For example, with this proposed issue, you would need to *freeze* the top row. Your search results should show you how.

YouTube It!

If you are more of a visual learner, or need step-by-step support, watching a video on how to fix your issue is probably best. There are so many video resources out there for people using Excel.

Example Issue: You are working on a monthly enrollment report and you want to be sure that all the clients in the report are for the current month. You need to sort your data by enrollment date, but you can't remember how to make the sorting box appear. What do you do? YouTube it!



You might find that YouTube results are a bit harder to navigate, but don't let that get you down. You will usually find the answer you are looking for in the top three video results.



This video, for example, is less than 9 minutes long and completely walks you through sorting and filtering of data – exactly what you would need to sort your workbook by enrollment date!

Other Helpful Resources

- Microsoft Office Excel Support – <https://support.office.com/en-us/excel>
- Excel 2016 for Dummies – www.dummies.com/how-to/computers-software/ms-office/excel

Navigating a Workbook

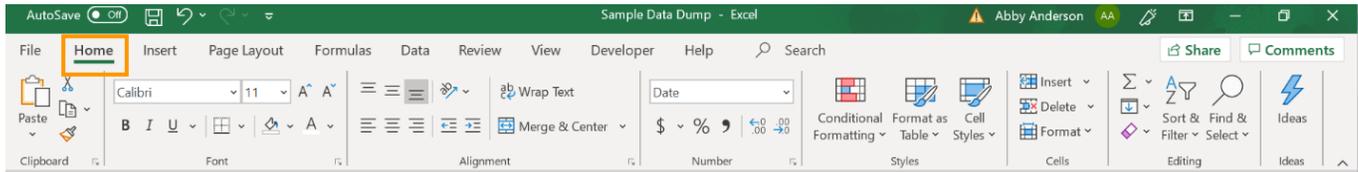
Parts of an Excel Workbook

The image shows a screenshot of the Microsoft Excel interface. The Ribbon is at the top, with tabs for File, Home, Insert, Page Layout, Formulas, Data, Review, View, Developer, and Help. The Data tab is active, showing various data tools. Below the Ribbon is the data table with columns labeled A through Y. The table contains personal information for individuals, including names, addresses, birth dates, and education levels. A red box highlights a cell in the 'Income' column, and a green box highlights a cell in the 'Eligible for Medical' column. Annotations with arrows point to various parts of the interface: 'Ribbon' points to the top menu bar; 'Column' points to column B; 'Row' points to row 10; 'Cell' points to cell A10; 'Formula' points to cell K10; 'Worksheet Tab' points to the 'Sheet1' tab at the bottom; and 'Scroll Bars' points to the vertical scroll bar on the right side of the window.

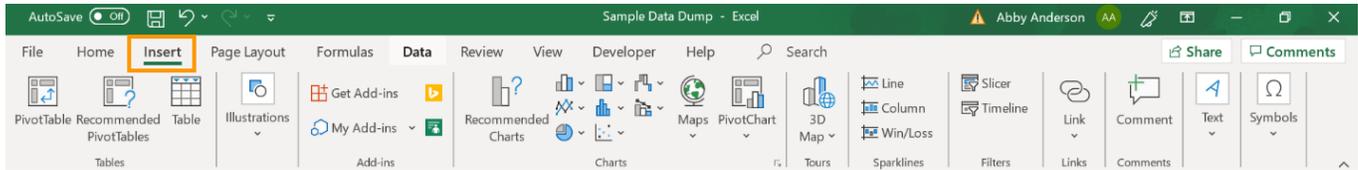
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1	Family	First Na	Phone N	Case ID	Postal C	Address: Ct	Family Enro	Ind. ID	Relationsh	Gender	Birthdate	Eligible for Medica	On Me	Medica	Enrolle	Insuran	Insuran	Income	Education completed	Fundin	Numbe	Visits J	Visits A	Countri	Coun
2	Cotton	Colorado	16720805-11	34567	98042	United States	4/6/2017	3456	Child	Male	04/15/2014		1					500		BSK		5	1		
3	Cotton	Chaim	16541122-54	34567	98056	United States	4/6/2017	3510	Mother	Female	05/19/95		1					500	High School Diploma	BSK	1	5	1		
4	Giles	Unity	16010912-11	34569	98418	United States	3/30/2018	3457	Child	Female			1					\$759		TANF		7	5		
5	Head	Camille	16840105-33	34569	98059	United States	3/30/2018	3511	Mother	Female			1	1			2394709	\$759	High School Diploma	TANF	3	7	5		
6	Good	Lisandra	16171212-75	34571	98056	United States	5/12/2017	3458	Child	Female			1					\$4,100		TANF		5	3		
7	Alford	Driscoll	16560901-27	34571	98056	United States	5/12/2017	3512	Mother	Female			1					\$4,100	Less than high school dig	TANF	1	5	3		
8	Byrd	Brandon	16891007-30	34573	98056	United States	6/1/2018	3459	Child	Male	10/04/2017		1					\$1,100		Title 1		5	10		
9	Byrd	Byron	16450404-45	34573	98003	United States	6/1/2018	3506	Father	Male	01/19/02		1					\$1,100	Bachelor's Degree or hig	Title 1	1	5	10		
10	Farrell	Latifah	16690230-16	34575	98059	United States	6/29/2018	3460	Child	Female	09/19/2015		1					\$2,000		BSK		5	5		
11	Farrell	Cindy	16030913-66	34575	98042	United States	6/29/2018	3513	Mother	Female	11/03/95		1					\$2,000	High School Diploma	BSK	1	5	5		
12	Rowe	Suki	16330825-56	34577	98056	United States	1/18/2017	3461	Child	Female	11/11/2014		1					\$14,000		BSK		1	5		
13	Rowe	Quail	16240129-14	34577	98056	United States	1/18/2017	3514	Mother	Female	05/08/95		1					\$14,000	Less than high school dig	BSK	2	1	5		
14	O'Brien	Rae	16361020-07	34579	98055	United States	10/13/2018	3462	Child	Female	12/22/2015		1					\$2,270		BSK		4	5		
15	Obrien	Imogene	16550115-85	34579	98056	United States	10/13/2018	3515	Mother	Female	03/19/95		1					\$2,270	Associate's Degree	BSK	1	4	5		
16	Benson	Tanner	16201003-45	34581	98059	United States	7/1/2018	3463	Child	Male	12/14/2017		1					\$5,100		BSK		5	7		
17	Benson	Sopoline	16010609-27	34581	98057	United States	7/1/2018	3516	Mother	Female	06/23/03		1					\$5,100	High School Diploma	BSK	2	5	7		
18	Marsh	Jana	16991216-54	34583	98055	United States	4/25/2018	3464	Child	Female	02/15/2017		1					\$2,000		BSK		5	5		
19	Marsh	Kylee	16060203-63	34583	98056	United States	4/25/2018	3517	Mother	Female	09/23/94		1	1			235454	\$2,000	High School Diploma	BSK	1	5	5		
20	Wheeler	Magee	16610811-31	34585	98056	United States	11/22/2017	3465	Child	Female	09/18/2014		1					\$1,300		BSK		5	5		
21	Wheeler	Jaquelyn	16691114-20	34585	98057	United States	11/22/2017	3518	Mother	Female	10/11/94		1					\$1,300	Some college/training	BSK	1	5	5		
22	Sweeney	Amanda	16941129-65	34587	98056	United States	10/2/2017	3466	Child	Female	09/12/2015		1					\$3,130		BSK		7	3		
23	Sweeney	Suki	16860219-17	34587	98059	United States	10/2/2017	3519	Mother	Female	01/05/98		1					\$3,130	Technical Training or Cer	BSK	1	7	3		
24	Arnold	Maryam	16701103-56	34589	98002	United States	5/4/2017	3467	Child	Female	12/05/2017		1					\$650		BSK		1	5		
25	Arnold	Solomon	16620711-56	34589	98059	United States	5/4/2017	3507	Father	Male	12/21/93		1	1			3456357	\$650	High School Diploma	BSK	1	1	5		
26	Doyle	Jenna	16780708-77	34592	98055	United States	7/15/2018	3468	Child	Female	09/02/2015		1					\$1,350		BSK		6	5		
27	Doyle	Ingrid	16790110-88	34592	98056	United States	7/15/2018	3520	Mother	Female	05/02/94		1					\$1,350	High School Diploma	BSK	1	6	5		
28	Brewer	Winifred	16230121-75	34593	98055	United States	7/13/2018	3469	Child	Male	03/02/2016		1					\$2,300		BSK		5	5		
29	Brewer	Darlene	16200228-25	34593	98057	United States	7/13/2018	3521	Mother	Female	03/19/91		1					\$2,300	Associate's Degree	BSK	4	5	5		
30	Romero	Leandra	16450803-88	34595	98059	United States	7/14/2015	3470	Child	Female	08/16/2018		1					\$5,000		BSK		3	7		
31	Romero	Germaine	16390101-15	34595	98030	United States	7/14/2015	3522	Mother	Female	07/02/93		1	1			354645	\$5,000	Less than high school dig	BSK	1	3	7		
32	Rios	Tyler	16450802-55	34597	98055	United States	6/8/2018	3471	Child	Male	08/07/2016		1					\$600		TANF		1	5		
33	Rios	Kenneth	16321212-70	34597	98057	United States	6/8/2018	3523	Mother	Female	03/29/97		1					\$600	Less than high school dig	TANF	1	1	5		
34	Cole	Tallulah	16450803-33	34599	98057	United States	7/3/2018	3472	Child	Female	01/20/2019		1					\$2,200		BSK		5	5		
35	Cole	Amity	16900508-04	34599	98057	United States	7/3/2018	3524	Mother	Female	09/17/92		1					\$2,200	High School Diploma	BSK	1	5	5		
36	Larsen	Hope	16330314-45	34601	98056	United States	7/10/2018	3473	Child	Female	06/28/2015		1					\$3,350		BSK		3	7		
37	Larsen	Maris	16330303-05	34601	98056	United States	7/10/2018	3525	Mother	Female	03/21/97		1					\$3,350	High School Diploma	BSK	1	3	7		
38	Wilkins	Neil	16780807-70	34603	98056	United States	7/20/2018	3474	Child	Male	03/01/2017		1					\$2,500		BSK		2	0		
39	Wilkins	Yasir	16750526-97	34603	98055	United States	7/20/2018	3508	Father	Male	11/11/95		1					\$2,500	High School Diploma	BSK	1	2	0		
40	Hardy	Hyatt	16580522-04	34605	98418	United States	7/9/2018	3475	Child	Male	12/21/2015		1					\$2,500		BSK		7	5		

Excel Ribbons Tabs: What is in Each One?

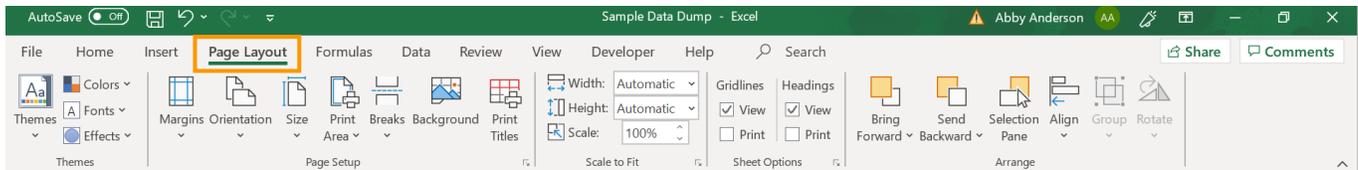
“Home” Tab: This tab contains commands for common actions such as formatting, copying, pasting, inserting, and deleting columns and rows.



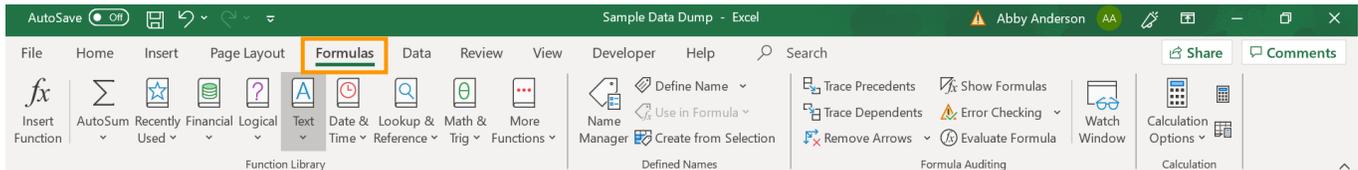
Insert Tab: This tab contains commands that enable you to insert objects such as charts and shapes.



Page Layout Tab: This tab holds all the commands that enable you to determine how your spreadsheet looks, both onscreen and when printed. These commands control options such as theme colors, page margins, and print area.



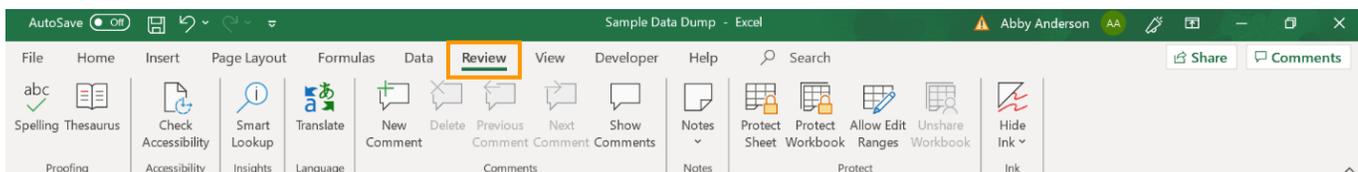
Formulas Tab: This tab holds all the commands that help define, control, and audit Excel formulas.



Data Tab: This tab features commands that enable you to connect to external data, as well as manage the data in your spreadsheet.



Review Tab: With commands such as Spell Check, Protect Sheet, Protect Workbook, and Track Changes, the theme of the Review tab is protecting data integrity in your spreadsheet.

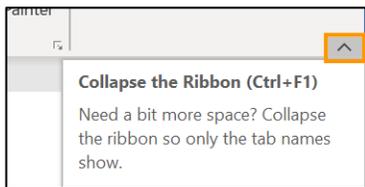


View Tab: The commands on this tab are designed to help you control how you visually interact with your spreadsheet.



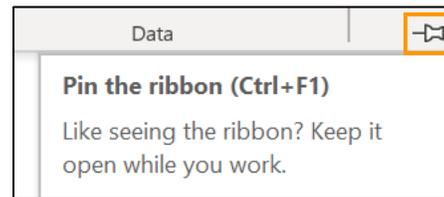
Collapse the Ribbon

If you don't want to view the Ribbon so that you have more space to see your worksheet, select the small arrow in the bottom-right corner of the Ribbon. The Ribbon contents will hide, but can be easily viewed again by clicking each Ribbon Tab.



Pin the Ribbon

If you do wish to view the Ribbon again, click any Ribbon Tab to show the Ribbon. Then, to pin it so that it does not hide, click the pin in the bottom-right corner of the Ribbon.



Helpful Keyboard Shortcuts in Excel

Keyboard Shortcuts

<p> OR : Move one cell to the left or right</p> <p> OR : Move one cell up or down</p> <p> : Go to the next cell</p> <p> + : Go to the most bottom right used cell</p> <p> + : Move to the beginning of a worksheet</p>	<p> + : Move to the farthest cell left (or right with the right arrow) in the row</p> <p> + : Move to the top (or bottom with the down arrow) cell in the column</p> <p> + : Go to the previous cell</p> <p> OR : Move one screen up or down in a worksheet</p> <p> : Go to the leftmost cell in the current row</p>
--	--

Locking and Unlocking Cells and Worksheets

Lock or unlock specific areas of a protected worksheet.

By default, protecting a worksheet locks all cells so none of them are editable. To enable some cell editing, while leaving other cells locked, it's possible to unlock all the cells. You can lock only specific cells and ranges before you protect the worksheet and, optionally, enable specific users to edit only in specific ranges of a protected sheet.

1. If the worksheet is protected, do the following:

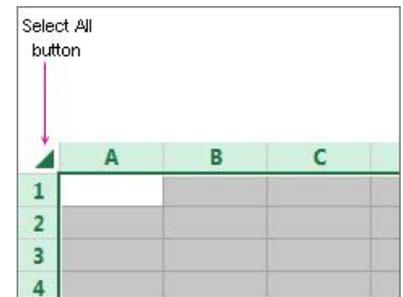
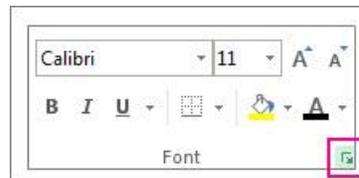
- On the **Review** tab, click **Unprotect Sheet** (in the **Changes** group).
- Click the **Protect Sheet** button to **Unprotect Sheet** when a worksheet is protected.



c. If prompted, enter the password to unprotect the worksheet.

2. Select the whole worksheet by clicking the **Select All** button.

3. On the **Home** tab, click the **Format Cell Font** popup launcher. You can also right click and press **Format**.



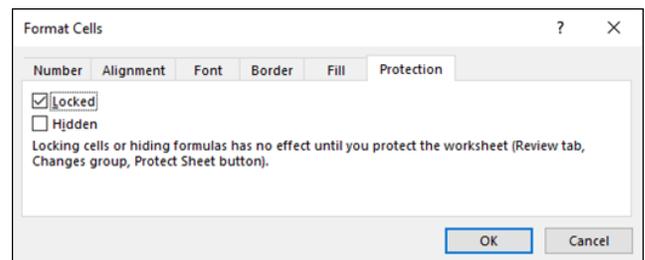
4. In the **Format Cells** popup, in the **Protection** tab, uncheck the **Locked** box and then click **OK**.

This unlocks all the cells on the worksheet when you protect the worksheet. Now, you can choose the cells you specifically want to lock.

5. On the worksheet, select just the cells that you want to lock.

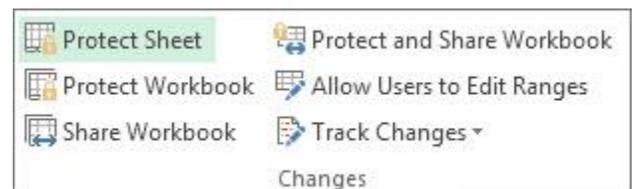
6. Bring up the **Format Cells** popup window again (Ctrl+Shift+F).

7. This time, on the **Protection** tab, check the **Locked** box and then click **OK**.



8. On the **Review** tab, click **Protect Sheet**.

Note: when protecting the sheet, in the **Allow all users of this worksheet to** list, choose the elements that you want users to be able to change.

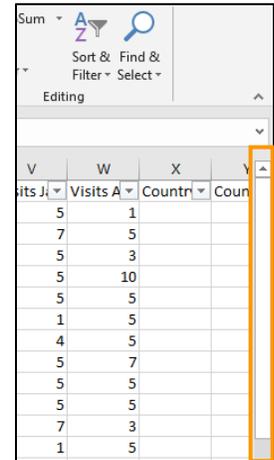


Using Excel Scroll Bars

The scroll bars in Excel can be used to move the worksheet both up and down and side to side.

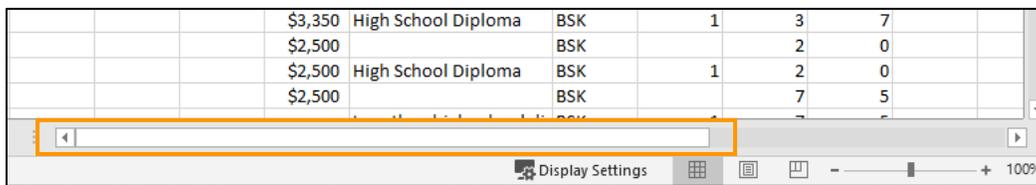
To Scroll Up and Down

1. Locate the scroll bar on the right-hand side of the worksheet. There are two ways to use the scroll bar:
 - a. Left click the up or down arrows at the top and bottom of the scroll bar area. Single clicks will move the scroll bar slightly. By holding the arrow down, you can keep the scroll bar moving without clicking.
 - b. Left click on the scroll bar itself and hold the left mouse button down while dragging the scroll bar up and down.



To Scroll Left and Right

1. Locate the scroll bar on the lower right-hand side of the worksheet. There are two ways to use the scroll bar:
 - a. Left click the Left or Right Arrows on either side of the scroll bar area. Single clicks will move the scroll bar slightly. By holding the arrow down, you can keep the scroll bar moving without multiple clicks.
 - b. Left click on the scroll bar itself and hold the right mouse button down while dragging the scroll bar left and right.



Zooming In and Out

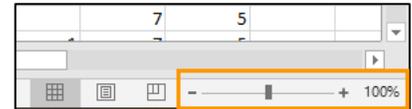
Typically, when you open an Excel workbook, the view will be set to 100%. Adjust this to zoom in (making everything look larger) and out (making everything look smaller) of your worksheet.

There are two ways to do this:

Method 1: Use the Zoom Slider

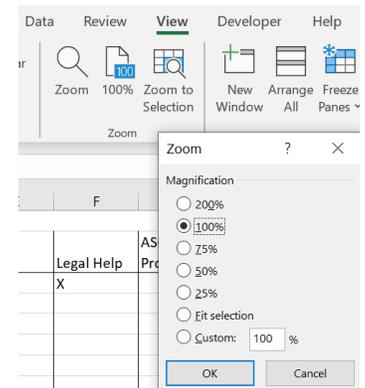
1. Locate the Zoom Bar at the bottom right-hand corner of the worksheet. There are two ways to use the Zoom Bar:

- a. Left-click on the dark gray vertical bar and drag it left (zoom out) or right (zoom in)
- b. Left-click the plus (zoom in) or minus (zoom out) signs on either side of the zoom bar



Method 2: Use the “View” Ribbon Tab

1. Locate the “Zoom” group under the “View” Ribbon Tab. It contains three options to quickly adjust your view of the spreadsheet: Zoom, 100%, and Zoom to Selection.
2. Click “Zoom to Selection” and either select your desired percentage zoom from the options or enter your desired value and click “OK”.



Making Selections in Excel

Select One or More Cells

1. Click on a cell to select it. Or use the keyboard to navigate to it and select it.
2. To select a range of cells:
 - a. **Method 1:** Select a cell, then with the left mouse button pressed, drag over other cells.
 - b. **Method 2:** Use the *Shift* + arrow keys to select the range.
3. To select non-adjacent cells and cell ranges, hold *Ctrl* and select the cells.

Select One or More Rows and Columns

1. Select the letter at the top to select the entire column, or a number to the left of the row to select and entire row.
2. To select multiple columns/rows:

Method 1: Select a column/row, then with the left mouse button pressed, drag over the other left or right to select adjacent columns/rows.

Method 2: Select a column/row, and then use the Shift + arrow keys to select adjacent columns/rows.

Method 3: Select a column/row, and click and hold Shift, and select the last column/row that you would like to select.

3. To select non-adjacent rows or columns, hold Ctrl and select the row or column numbers.

Select All Data

1. To select an entire worksheet, select any cell and press *Ctrl* + *A*. If it just selects a table, click *Ctrl* + *A* twice and the whole sheet will select.
2. To select the entire worksheet, click the “**Select All**” button at the top left corner.

Keyboard Shortcuts

Shift + → : Extend the cell selection to the right

Shift + ← : Extend the cell selection to the left

Shift + Space : Select the entire row

Ctrl + Space : Select the entire column

Ctrl + Shift + Space : Select the entire worksheet

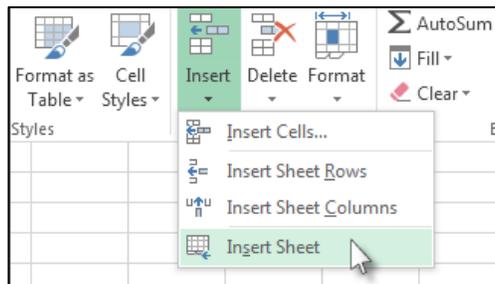
Workbook Tabs: Creating, Duplicating, Moving, Renaming

Inserting or Deleting a Worksheet

Insert a Worksheet

Method 1: Select the  plus icon at the bottom of the screen.

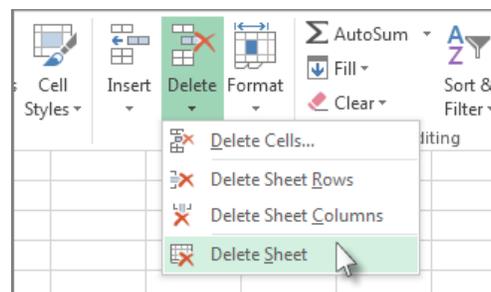
Method 2: Select the "Home" Ribbon Tab, find the "Cells" section, select "Insert" and select "Insert Sheet."



Delete a Worksheet

Method 1: Right-click the **Sheet** tab at the bottom of the worksheet and select  "Delete."

Method 2: Select the sheet, and then select "Home" Ribbon Tab, find the "Cells" section, select "Delete" and select "Delete Sheet."



Keyboard Shortcuts

 +  : Extend the cell selection to the right

 +  : Extend the cell selection to the left

 +  : Select the entire row

 +  : Select the entire column

 +  +  : Select the entire worksheet

Move or Copy a Worksheet

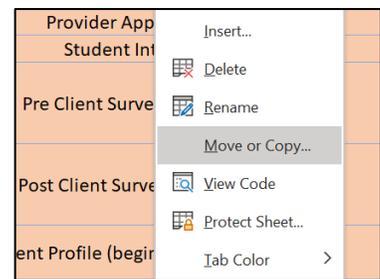
There may be times when you want to create a new Excel worksheet based on an existing worksheet. You can easily move or copy an entire worksheet in Excel to a new worksheet in the same file or even to a new, separate workbook file.

Before you start making changes to a worksheet with data or information on it, it is best practice to make a copy. Making a copy will allow you to save a version of the worksheet that is the same as when you opened the file, so there no fear or mistakenly changing or deleting data.

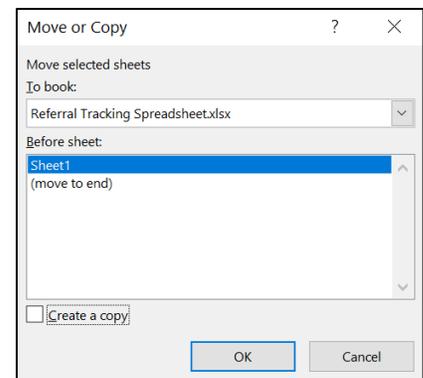
Move/Copy a Worksheet

The easiest way to move a worksheet in the same workbook is simply to click and hold a worksheet tab and drag it to where you want it to land among the tabs in your workbook.

To Move/Copy within the Workbook, or to another workbook:



1. Select the tab that you wish to move or copy.
2. Right-click the tab at the bottom of the worksheet, and select the “Move or Copy” option form the list.
3. Decide if you are moving or copying the sheet. If you want to make a copy and leave the original alone, select the box in the bottom left corner of the call out box.
4. Select the destination workbook from the dropdown menus “To book.” You can select the current workbook (the default), another existing workbook, or a create a new book to contain the moved or copied worksheet. You have to have the workbook open for it to appear in this list.
5. If you are moving or copying the worksheet to the current or another existing workbook, select the worksheet before which you want to move or copy the selected worksheet in the “Before sheet” list. Select “(move to end)” to insert the worksheet after all the existing worksheets in the workbook. The new worksheet will appear before the worksheet that is selected and highlighted in blue.
6. Click “OK” and you are done. Your worksheet will appear in the way you have designated!



If you are copying the selected worksheet to the current or existing worksheet, the new worksheet is labeled with a sequential number at the end of the worksheet name to distinguish it from the original. For example, if you copy a worksheet called March, the new sheet will be called March (2).

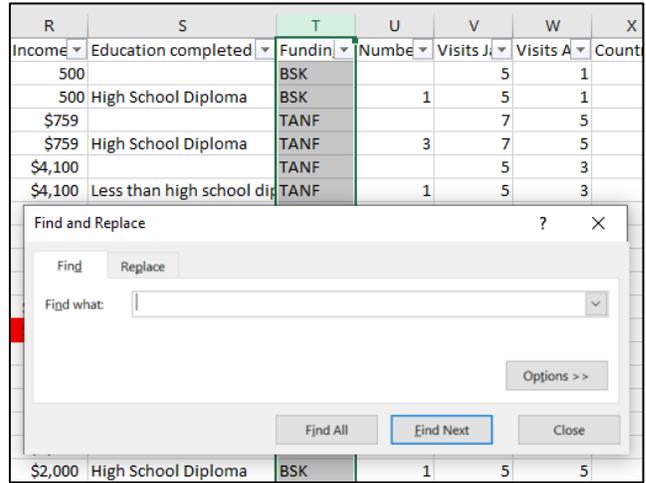
Navigating Your Data: Finding and Replacing

Finding Text

Some commands in Excel are the same as in Microsoft Word. For example, you hit the *Control* Button and the letter F (*Ctrl* + F) at the same time to pull up the “Find and Replace” dialog box.

Excel will search in whatever portion of the worksheet is selected.

1. The column labeled “Funding” is selected to the left. Excel will only search for text that is in this column.
2. If nothing is selected, the function will default to searching the entire worksheet.



Type the text you are looking for and click the “Find Next” button. Excel will take you to the first cell that contains that text. Continue clicking “Find Next” to move through all cells in the column that contain that text.

Example	Explanation	Type in the Finder (Ctrl+F under “Find what”)
You are looking for only clients from the United States, but you know that the system often autocorrects to “Untied” instead of “United”. You want to find everywhere either “United” or “Untied” appears on the worksheet.	A question mark matches any single character within a word	You will type: un??ed The letter case does not matter. You will be shown all situations where the work format is un +two letters + ed.
You are looking for a specific client, but are unsure how the name is spelled: is it Yennifer? Or Jennifer? Or Jenifer?	An asterisk matches any sequence of characters.	You will type: *en*fer You will be shown all of the cases where there are any number of letters + en + any number of letters + fer.

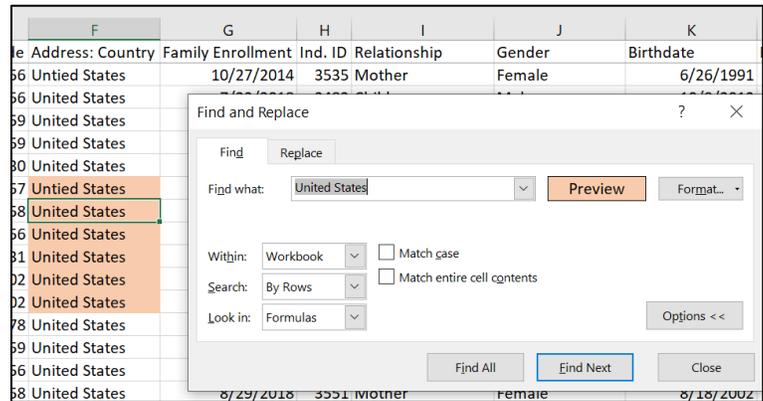
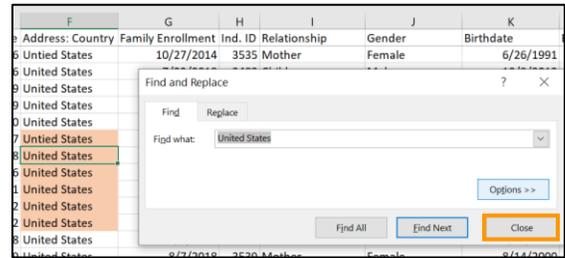
If you want to find an actual question mark or asterisk, type a tilde (~) before the character.



Excel Tip: You can use the wildcard characters— the question mark (?) and asterisk (*) — to look for information. See below for examples of how this could be useful.

For more options in the “Find and Replace” box, select “Options >>”.

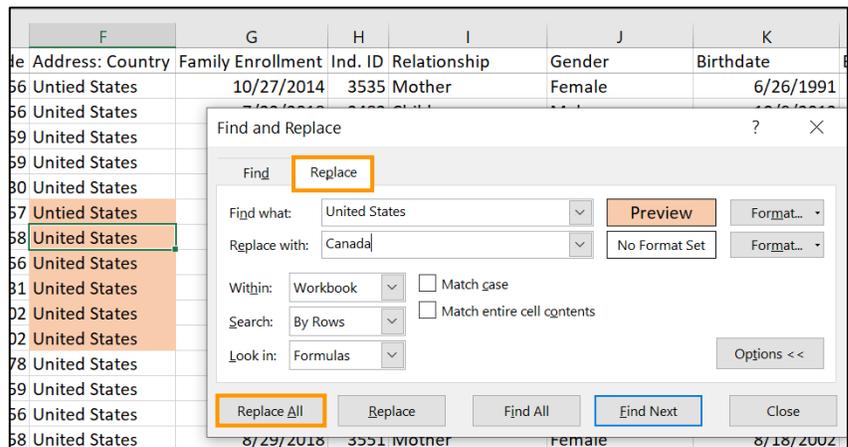
1. Change the “Format” to search only cells that are formatted in a certain way (to the left, Excel will find only orange cells that read “United States”).
2. Change the “Within” dropdown to search within the Workbook vs. Worksheet.
3. Change the “Look in” dropdown to control where Excel should look, including “Formulas”, “Values”, “Notes”, and “Comments”.
4. Select “Find All” to see a complete list of results that match your search criteria.



Finding and Replacing Text

Another option Excel provides is the ability to find a specific value and replace it with another value. For example, you may want to change all the orange cells that read “United States” to “Canada” because these were all entered incorrectly.

- Select “Replace”.
- Enter what the new information will be in “Replace with”.
- Select the “Replace” button at the bottom to replace them one by one, or select “Replace All” to replace all incidence of the text in the “Find What” box.



Freezing Panes

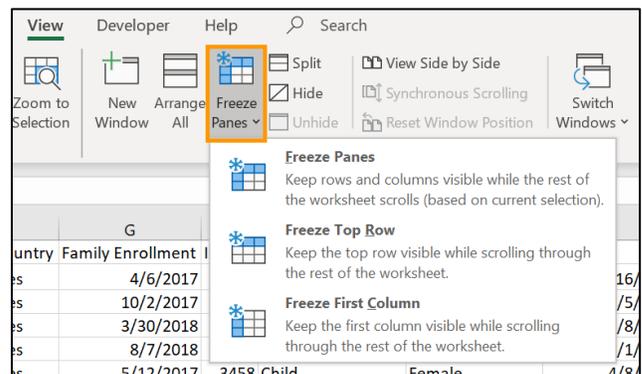
It may be helpful to freeze data that you have in the top row(s) and first column(s) while looking at your data in Excel. For example, you may have headers in your top row, and client names in the first two columns. When you scroll down, you the headers can no longer be seen, and it is easy to lose track of what is in each column. When you scroll right, the client names are no longer visible, making it hard to keep track of which client you are observing. Fortunately, you can freeze as many rows and columns as you need to most easily navigate your data.

1. Select the first cell you want to not be frozen.
 - All the rows *above* the selected cell will be frozen.
 - All the columns *to the left* of the selected cell will be frozen.

	A	B	C	D
1	Family Name	First Name	Phone Number	Case
2	Cotton	Colorado	1-388-544-4262	34
3	Sweeney	Suki	1-933-930-3291	34
4	Giles	Unity	1-197-785-7410	34
5	Lucas	Franny	1-509-176-1373	34
6	Good	Lisandra	1-151-803-3260	34
7	Byrd	Byron	1-157-647-3018	34

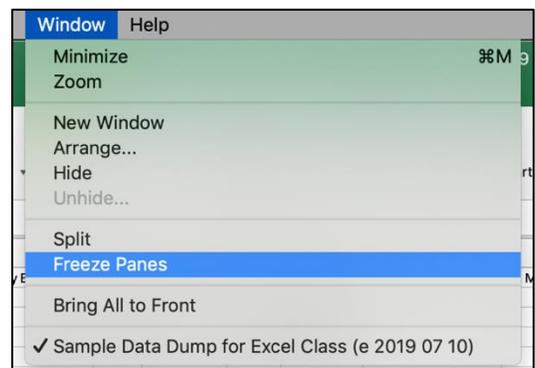
Example: in the image to the right, cell C2 is selected. This means Columns A and B will be frozen, and Row 1 will be frozen.

2. Navigate to the “View” Ribbon Tab.
3. Click the “Freeze Panes” Button in the Window Group. Select “Freeze Panes” from the pop-up menu.
4. To unfreeze the worksheet, return to the “View” Ribbon Tab. Click on the “Freeze Panes” Button and select “Unfreeze Panes”.



On a Mac (Using the Menu): →

1. Highlight the row(s) or column(s), OR
2. Select the cell from which you'd like to freeze the rows above and the columns to the left
3. Select 'Window' from the Main Menu
4. Select 'Freeze Panes' to freeze, OR
5. Select 'Unfreeze Panes' to unfreeze



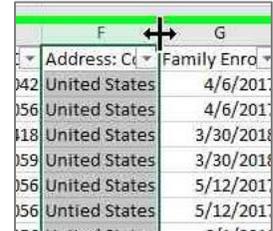
Columns and Rows: Spacing, Adding and Deleting, Hiding

Adjusting Column Widths

Depending on how you are using your worksheet, you may want to change the width of your columns. There are a few different ways to do this:

Method 1: Drag Column to Change Width

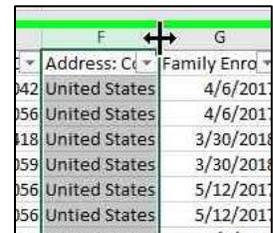
Select the column that you want to resize. Hover the cursor over the left or right edge of the column until you see a black cross with arrows on the horizontal arms. Left-click and drag column edge until it is the length that you want.



Method 2: Auto-Adjust Column Width

You can choose to set the column width to the width of the longest cell (based on content, like a long name) in the column. This is a good option when cells contain a limited number of characters. If the cell contains a lot of text, such as an open-end response field from a survey, this option may not be the best choice.

Select the column that you want to resize. Hover the cursor over the left or right edge of the column until you see a black cross with arrows on the horizontal arms. Double left-click on the edge of the column header. The column will automatically resize to the widest cell.



Set Column Width (One Column)

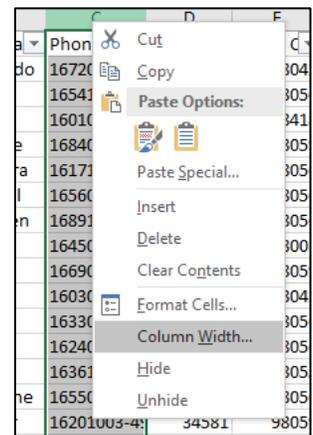
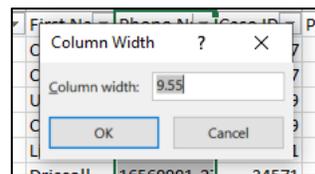
Select the column that you want to resize. Right-click on the top of the column and select “Column Width” from the pop-up menu.

Enter your new column width in the pop-up and click “OK”.

Set Column Width (Multiple Columns)

Occasionally, you might want to make all or some of your columns the same width.

You may adjust multiple columns to the same width using the same method as with one.



Select all of the columns that you want to resize. Left-click on the top of any of the selected columns and select “Column Width” from the pop-up menu.

Enter your new column width in the pop-up and click “OK”.

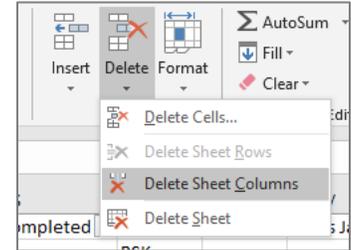
Note: if “#####” appears in a cell, simply widen the column and the information should appear!

Deleting Columns

You may decide you do not need certain columns for the work you are doing. There are a couple of different methods to delete columns. Remember that deleting is permanent. Never delete something that you cannot re-pull from your database or another source. If you are not sure, hiding may be a safer option, or create a backup copy of the worksheet to safely make changes.

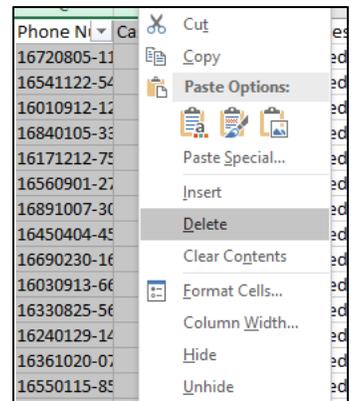
Method 1: Delete Columns Using Ribbon Delete Button

1. Select the column or columns that you would like to delete.
2. Click on the “Home” Ribbon Tab.
3. Click the Delete Button from the Cells Group on the “Home” Ribbon. Select “Delete Sheet Columns”.



Method 2: Delete Columns with Right-Click

1. Select the columns that you want to delete.
2. Right-click on the top of the selected columns and then select “Delete” from the pop-up menu.

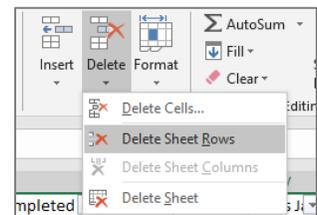


Deleting Rows

Deleting a row is very similar to deleting a column and can also be done one of two ways.

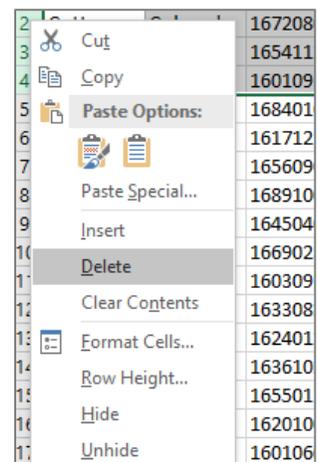
Method 1: Delete Rows Using Ribbon Delete Button

1. Select the row or rows that you would like to delete.
2. Click on the “Home” Ribbon Tab.
3. Click the Delete Button from the Cells Group on the “Home” Ribbon. Select “Delete Sheet Rows”.



Method 2: Delete Rows with Right-Click

1. Select the rows that you want to delete.
2. Right-click on the top of the selected columns and then select “Delete” from the pop-up menu.

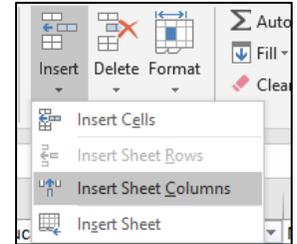


Inserting a New Column

Sometime you need to add a new column into the middle of your worksheet. Maybe you want to create a formula, write notes, or paste in a column from another worksheet. Similar to deleting columns, inserting columns can be done two ways.

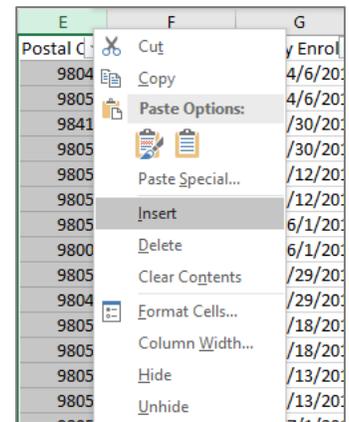
Method 1: Insert a Column Using Ribbon Delete Button

1. Select the column where you want to insert a new column. For example, if you want a new E column, select column E.
2. Click on the “Home” Ribbon Tab.
3. Click the Insert Button from the Cells Group on the “Home” Ribbon. Select “Insert Sheet Columns”.



Method 2: Insert Columns with Right-Click

1. Select the column where you want to insert a new column. For example, if you want a new E column, select column E.
2. Right-click on the top of the selected columns and then select “Insert” from the pop-up menu.

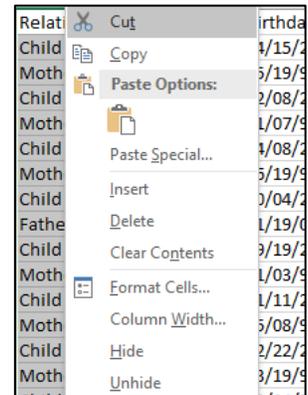


Cut and Paste Columns

At times you may want to reorder your columns so you can see the data in another order, or certain measures next to each other. You can do this by cutting the column and pasting it in a new location. There are two ways to do this.

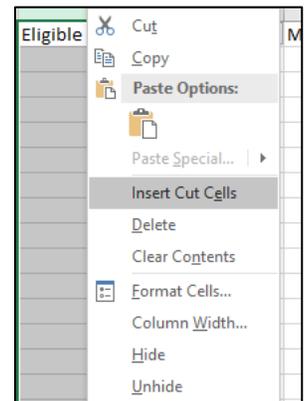
Cut and Paste into Blank Column

1. Insert a new column using the instructions above.
2. Select the column that you want to move and right-click. Select “Cut” from the pop-up menu.
3. Select the first cell in the new blank column that you just created. Paste in the cut column by hitting the *Control* Button and the letter V (*Ctrl + V*) at the same time.



Cut and Insert Cut Cells

1. Select the column that you want to move and right-click. Select “Cut” from the pop-up menu.
2. Select the column that is to the right of where you want this column to be. Right-click on the top of the column and select “Insert Cut Cells”.

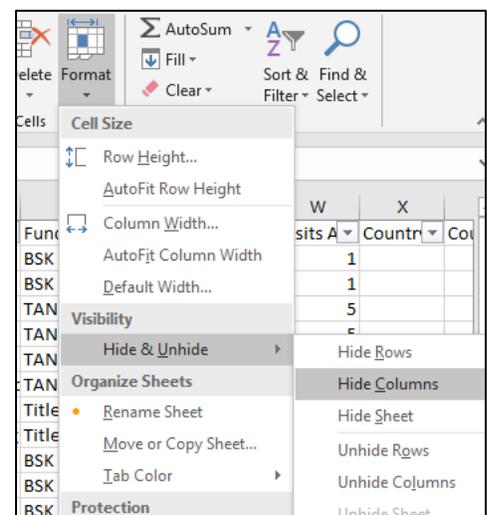


Hide and Unhide Columns

Sometimes you will need to hide a column – or multiple columns – in order to see only the data you need at that moment. You can hide and unhide columns using various methods:

Hide Columns Using Ribbon Format Button

1. Select the column or columns that you would like to hide.
2. Click on the “Home” Ribbon Tab near the top of the Excel window.
3. Select the “Format” Button from the Cells Group.
4. Select “Hide & Unhide” from the first pop-up menu.
5. Select “Hide Columns” from the second pop-up menu.

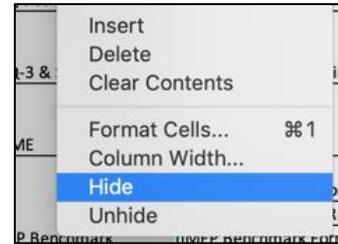
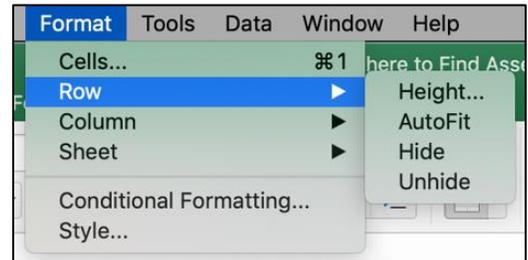


On a Mac (Using the Menu): →

1. Highlight the row(s) or column(s)
2. Select “Format” from the Main Menu
3. Select Row > or Column >
4. Select ‘Hide’ or ‘Unhide’

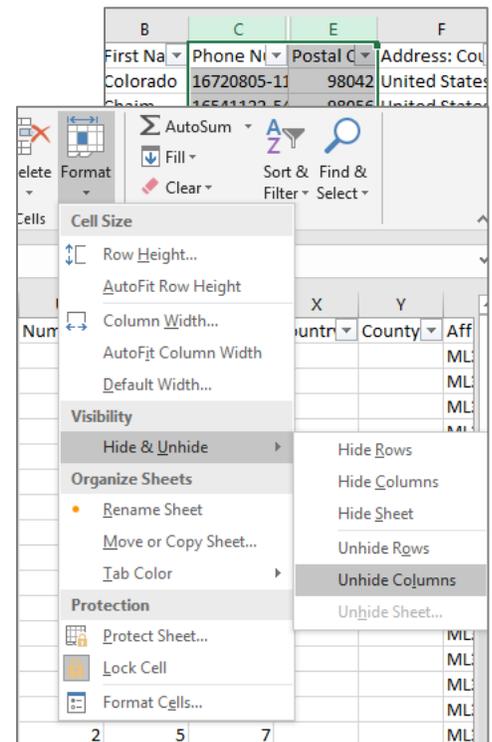
On a Mac (Using Right Click): →

1. Highlight the row(s) or column(s)
2. Right click
3. Select ‘Hide’ or ‘Unhide’



Unhide Columns Using Ribbon Format Button

1. To unhide columns, select the columns on either side of the hidden column. In this example, we have hidden column D. You can tell that column D is hidden by looking at surrounding columns, and seeing that D is skipped.
2. Left-click on column C and drag your mouse over to column E while holding down the left mouse button. Both columns should be selected in gray.
3. Select the “Format” Button from the “Cells” group on the “Home” Ribbon Tab.
4. Select “Hide & Unhide” from the first pop-up menu.
5. Select “Unhide Columns” from the second pop-up menu.



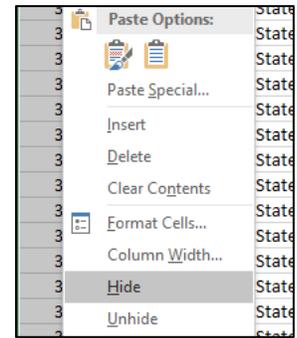
Keyboard Shortcuts

Ctrl + **9** : Hide the selected rows

Ctrl + **0** : Hide the selected columns

Hide Columns with Right-Click

1. Select the column or columns that you would like to hide.
2. Right-click on the top of the selected column. Select “Hide” from the pop-up menu.



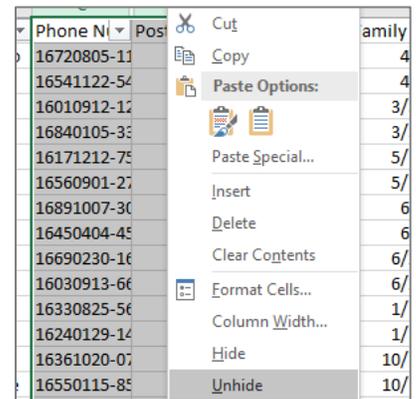
Unhide Columns Using Right-Click

1. To unhide columns, you need to select the columns on either side of the hidden column.

In this example, we have hidden column D. You can tell that column D is hidden by looking at the letter of each column.

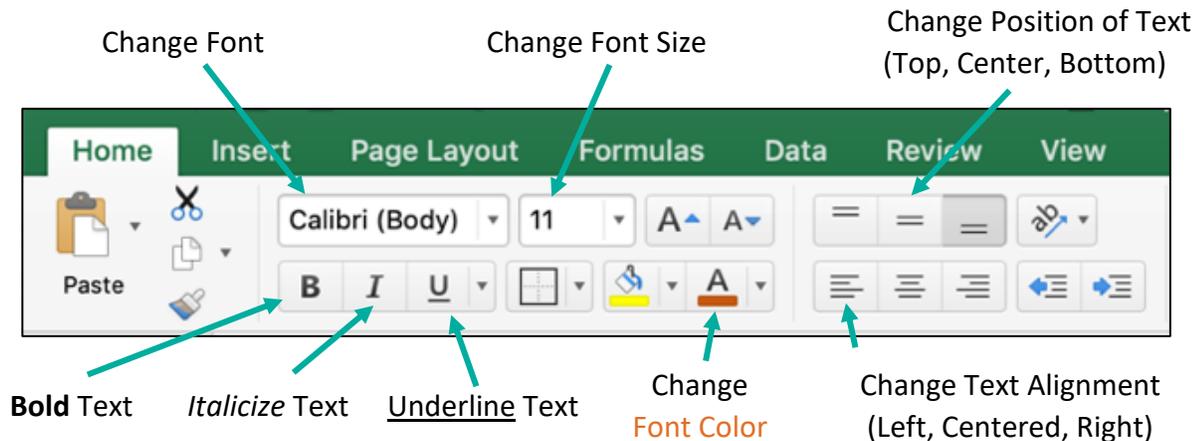
	B	C	E	F
First Na	Phone N	Postal C	Address: Cou	
Colorado	16720805-11	98042	United States	
Chaim	16541122-54	98056	United States	
Unity	16010912-12	98418	United States	
Camille	16840105-33	98059	United States	

2. Left-click on column C and drag your mouse over to column E while holding down the left mouse button. Both columns should be selected in gray.
3. Right-click on the top of the selected column. Select “Unhide” from the pop-up menu.



Designing: Font, Size, Color Lines, and Borders

Excel has a default font, font size, and style to the text and numbers in a workbook. All of these options can be customized based on your needs. For example, you may wish to make titles a larger font size, or use bold to draw the eye to different sections of a worksheet. Many of the options for formatting a worksheet are available in the “Home” Ribbon Tab. Also keep in mind that the design functions in Excel operate just as they do in Word or other Microsoft products.

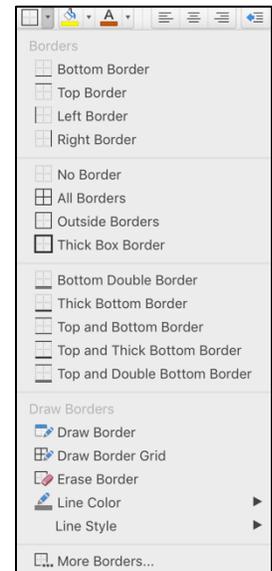


To apply formatting to text, highlight all of the cells to which you want to apply the change, and select the formatting options by clicking on each type you wish to apply.

Borders

Draw lines and borders around cells, rows and/or columns with borders.

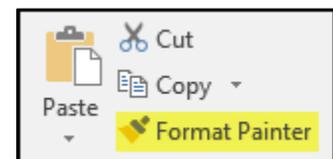
1. Select the cell(s) to which you want to add a line or border
 - a. Click on the “Borders” option from the “Home” Ribbon Tab.
 - b. Select which portion of the selection to apply the line (bottom, top, left, or right) or select a type of border.
 - c. You can customize the appearance of the line or border (thicker or thinner, dotted, or different colors) using the menu options.



Format Painter

One shortcut for quickly formatting is to use the **Formatting Paint Brush**.

The Formatting Paint Brush is located on your “Home” Tab. If you look at the clipboard section (Left Side) of your “Home” Tab, you can find it.

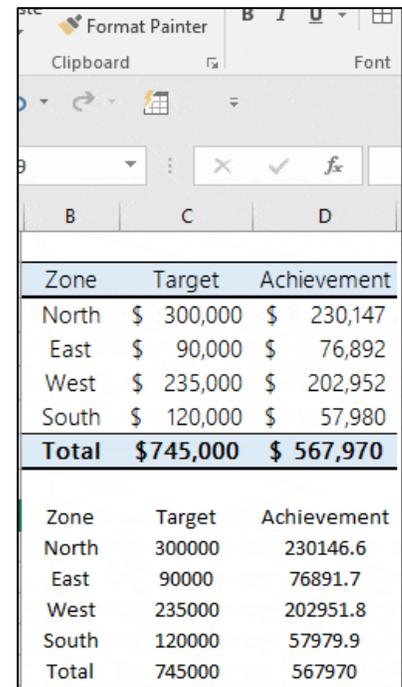


How it Works

When you select a cell or range and click on format painter button it copies formatting.

After that, when you select other cells, it pastes formatting there.

1. Select the range or cell from where you want to copy the formatting.
2. Click on the format painter button. Once you click on the button, your cursor will convert into a paintbrush.
3. Select the range on which you want to apply formatting.



Formatting Text in Cells

Alignment and Justification

Control the appearance of your text by choosing both your alignment and justification in the “Home” Ribbon Tab:

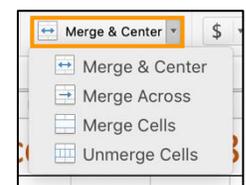
Alignment:	Left	Center	Right
Justification:	Top	Middle	Bottom
Together:	Top Left	Middle Center	Right Bottom

Merge and Unmerge Cells

You may need to combine (merge) cells together to have text appear a certain way in a worksheet. You may also want to split (unmerge) cells that were formerly combined.

Merge/Split Cells from Merge Dropdown in “Home” Ribbon Tab

1. Highlight the exact cells you wish to merge, split or unmerge.



- a. Merge & Center: Combines the highlighted cells, and centers the text inside the cell.
- b. Merge Cells: Combines the highlighted cell into one cell
- c. Unmerge Cells: Restores combined cells into individual cells

Text Direction

You can rotate the appearance of text to the level of the text direction in the “Home” Ribbon Tab.

Regular Appearance	Clockwise 25%	Clockwise 75%
--------------------	------------------	------------------

Text Wrapping

When you type in more text than can fit in a column, Excel’s default is to show the text overlapping into the next cell(s). If you enter text into one of those adjacent cells, the text from the original column will no longer be visible. If you would like all of the text to be visible, you may want to use **Text Wrapping**. This will increase the size of the cell to adapt to the text, and show all of the text.

Before Text Wrapping

This is a long sentence that does not fit in one cell.			
--	--	--	--

After Text Wrapping

This is a long sentence that now fits in one cell.		
--	--	--



Excel Tip: For even more control over the appearance of text in a cell, use **Alt + Enter** to force the text after your cursor onto the next line.

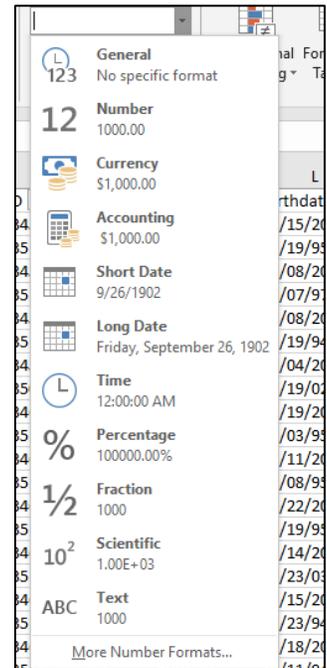
Formatting Cell Contents: Types of Data

Formatting Cell Contents

Sometimes you may want to change the format of dates and numbers in your worksheet. This is also a great place for troubleshooting; if data is not appearing as expected, check to see how the data has been formatted—it may need to be updated to better reflect the data.

Method 1: Format Using Menus

1. Select the column or cells that contain the numbers or dates that you want to reformat.
2. Click the gray down arrow in the white box in the “Number Group” of the “Home” Ribbon Tab. From the pop-up menu, select the type of number formatting you would like to do.
3. Each number type includes several options. Explore these options to find what works best for you. Check out “More Number Options”!



Method 2: Format Using Right Click

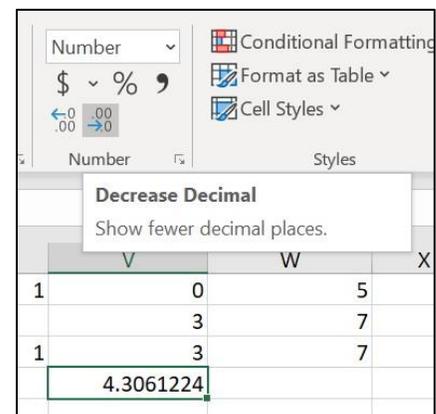
1. Right click the cell or cells you wish to change.
2. Navigate to “Format Cells...” in the “Home” Ribbon Tab.
3. Select the format you wish from the list, and select “OK”.

Formatting Content View

You may want to change how a number appears in the cell. Follow the steps below to:

- Make the value to appear as currency (\$)
- Make the value to appear as a percentage (%)
- Include commas as thousands of separators (,)
- Adjust the number of numbers after the decimal

1. Navigate to the “Home” Ribbon Tab
2. In the “Number” category, select the desired formatting. If you wish to change more than one cell, select all of the cells you wish to reformat before selecting the option. Note the options to increase or decrease the number of decimals.



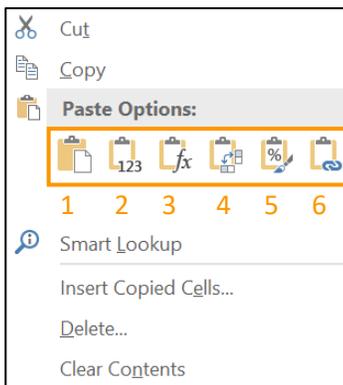
Copying and Pasting

Simple Excel Copy and Paste

The simplest way to copy and paste in Excel uses the following steps:

1. Select an Excel cell, or range of cells.
2. Copy the cell(s) by either:
 - a. Right clicking with the mouse and selecting “Copy” from this menu;
 - b. Selecting the “Copy” option from the “Home” Ribbon Tab;
3. Using the keyboard shortcut, *Ctrl + C* (i.e. hold down the *Ctrl* key and press *C*).
4. Click on the location where you want to paste the copied cell(s).
5. Paste the copied cell(s) by either:
 - a. Right clicking with the mouse and selecting “Paste” from this menu;
 - b. Selecting the “Paste” from the “Home” tab of the Excel Ribbon;
6. Using the keyboard shortcut, *Ctrl + V* (i.e. hold down the *Ctrl* key and press *V*).

Paste Options

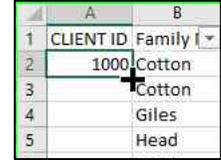


1. Paste Regular - Pastes everything you copied as it was copied.
2. Paste Values - Pastes the result of the formula that was copied.
3. Paste Formulas – Pastes only the formula(s) that were copied.
4. Transpose - Data in rows is pasted into columns and vice versa.
5. Paste Formats – Pastes only the formats that were copied.
6. Paste Link - References the source cells instead of the copied cell.

Copy a Pattern by Dragging

In addition to copying text and formulas, you can drag cells to continue patterns. This is most helpful when you want to create a series of numbers or dates.

1. To duplicate the same word or number in the subsequent cells, enter a number or date into the first cell. To duplicate a pattern, Excel will need to understand that pattern (e.g., 1, 2, 3 or 1, 2, 1, 2) so you will need to establish the pattern by entering data into the first several cells. If you have created a pattern over several cells, highlight all of them.



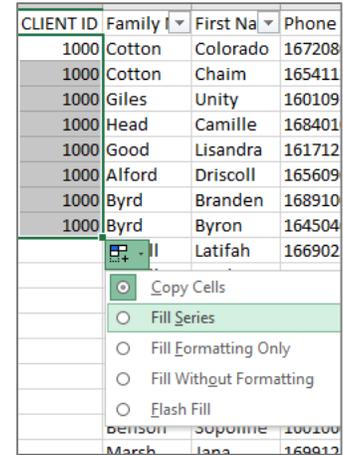
	A	B
1	CLIENT ID	Family
2	1000	Cotton
3		Cotton
4		Giles
5		Head

2. Hover the cursor over the bottom right-hand corner of the cell until you see a black cross.
3. Left-click and drag down while holding the mouse button down. The text will be copied.

4. Click on the icon that appears on the bottom right-hand corner of the last copied cell. Select "Fill Series".
5. The number pattern will be continued through each cell.



	A
1	CLIENT ID
2	1000
3	1001
4	1002
5	1003
6	1004
7	1005
8	1006
9	1007
10	



CLIENT ID	Family	First Name	Phone
1000	Cotton	Colorado	167208
1000	Cotton	Chaim	165411
1000	Giles	Unity	160109
1000	Head	Camille	168401
1000	Good	Lisandra	161712
1000	Alford	Driscoll	165609
1000	Byrd	Branden	168910
1000	Byrd	Byron	164504
		Latifah	166902

- Copy Cells
- Fill Series
- Fill Formatting Only
- Fill Without Formatting
- Flash Fill



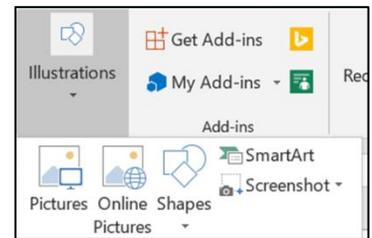
Excel Tip: You can copy a cell or a pattern by selecting the cell(s) you want to copy, then double clicking on the black cross (as described in step 2 above).

Inserting: Images, Text Boxes, Shapes, Icons

Inserting an Image

You can add images, such as a logo or header, to a worksheet.

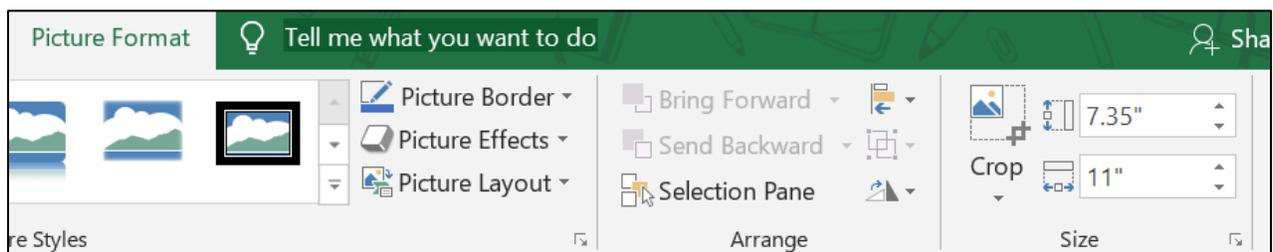
1. Click on the cell where you would like to insert the image.
2. Select the “Pictures” dropdown menu from the “Insert” Ribbon Tab.
3. Select “Photo Browser” to open a window to where you store your photos on your computer, or
4. Select “Picture from File...” to browse to where the image is stored on your computer.



Once you have inserted the image, you can change the size and alignment of the image. You can also edit the photo (in a few basic ways) in Excel. When an image is selected (by clicking on it), the “Picture Format” Ribbon Tab becomes available.

From there you can format the image:

- Align the image vertically (top, middle, bottom)
- Align the image horizontally (left, center, right)
- Crop the image (delete some portion)
- Rotate the image (flip or rotate)
- Change the size of the image

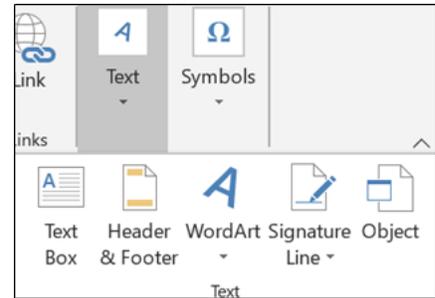


Excel Tip: To keep your images from looking distorted, keep the “Aspect Ratio” checkbox selected. If you uncheck it, you will be able to stretch the image by changing one direction (e.g. width) without changing the other (height). You can find the “Lock Aspect Ratio” by clicking the down arrow. This will open “Format Picture”, where you can also adjust width, height, rotation, and scale.

Inserting a Text Box

You can also add a text box to a worksheet. A text box can include an image or text, and can move around the worksheet without occupying a cell or disrupting data or formulas. The information in the text box will overlay the spreadsheet, so you can draw the eye to a specific point.

1. Select the “Text” dropdown menu from the “Insert” Ribbon Tab.
2. Select “Text Box”. If done correctly, your cursor should turn into an upside down ‘t’ shape. This indicates that you are ready to draw a text box within your worksheet.
3. Click down and hold, while dragging your mouse to create the text box of your desired size.
4. Use the “Shape Format” menu (which shows automatically when you have the box selected) to change the color, fill, border and other visual aspects of the text box.

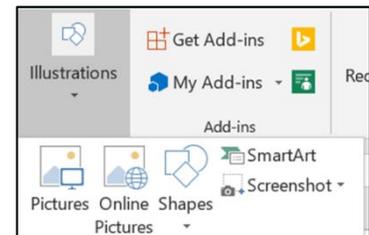


Click on the text box to change location, or to move it around the worksheet. You can shrink and grow the size of the text box by dragging the corners and/or sides in and out to the desired size. Click and hold the mouse button to drag the text box around the worksheet and place it precisely where you want.

Inserting a Shape

Similar to adding a text box, you can insert a shape anywhere in a worksheet, including inside of a cell or a text box (in order to be able to move it around). Excel has many standard shapes you can use, including various types of boxes and arrows, and some fun options like a smiley face and lightning bolt.

1. Select the “Shapes” dropdown menu from the “Insert” Ribbon Tab.
2. Use the dropdown options to select the type of shape you would like to enter.
3. Click down and hold, while dragging your mouse, to create the shape of your desired size.
4. Use the “Shape Format” menu (which shows automatically when you have the shape selected) to change the color, fill, border and other visual aspects of the shape.
5. You can enter text in the shape, and use the settings to format that text as well.



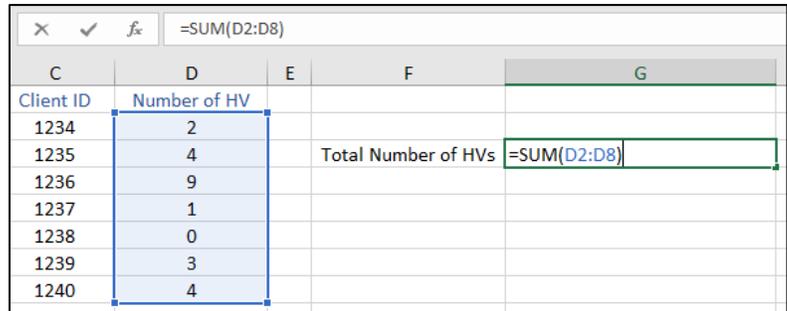
Formulas

Introduction to Formulas

While formulas can be one of the more intimidating aspects of Excel, learning the basic of formulas will revolutionize the way you use the program, and how you use and understand your data.

Microsoft says a formula is “an expression that allows you to make calculations to data in Excel”. Some formulas are very simple (see the example below), while others are complex. Excel has over 500 built-in formulas in their library – don’t worry, you only need to learn a few to make your job easier!

=SUM Formula: With this formula, you can add (or sum) multiple cells or rows of data. For example, if you could use this if you need to report to a funder how many home visits you completed last month.

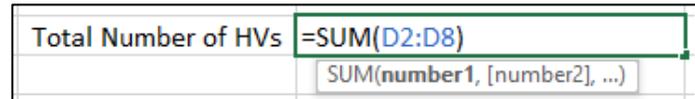


Client ID	Number of HV			
1234	2			
1235	4			
1236	9			
1237	1			
1238	0			
1239	3			
1240	4			

Formula bar: =SUM(D2:D8)

In an Excel formula, the equals sign (=) is what tells Excel that you are starting a formula. This will be how you start any formula you want to use.

Likewise, parentheses are a required component of all Excel formulas; they put the parameters on what you are asking Excel to do.



Total Number of HVs	=SUM(D2:D8)
---------------------	-------------

Tooltip: SUM(number1, [number2], ...)

Element Description

= The equal sign tells Excel that you are ready to start using a formula. You may start a formula in a blank cell, or in the formula bar.

SUM In this example, SUM is the formula. You can tell that you are using a formula because a prompt will pop up, giving you the option to select which formula you’d like to use.

() Parentheses are used in formulas to put parameters on the calculation you are looking to solve. In most cases, parentheses are found at the beginning and end of Excel formulas.

D2 In this example, D2 is the first value in the calculation you are looking to solve. This tells Excel that this is where you wish to start your calculation; with the value in cell D2.

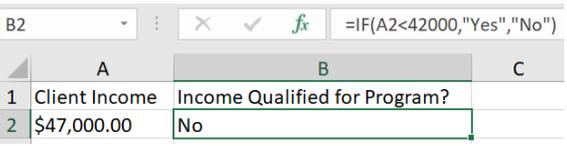
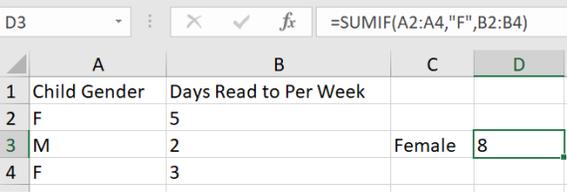
: In Excel formulas, a colon indicates “through” when it comes to data values. In this example, the formula indicates you want to calculate cells D2 through D8.

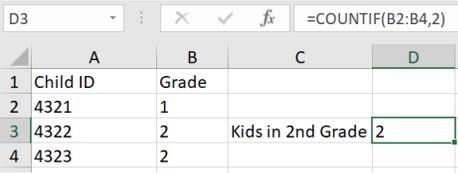
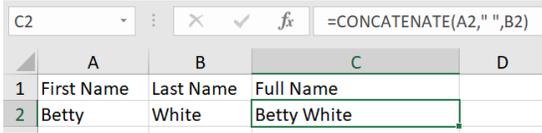
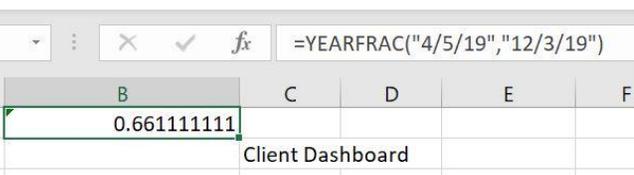
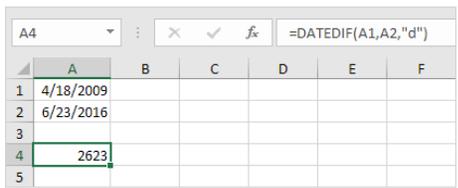
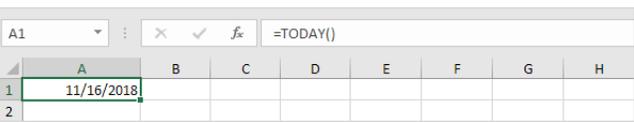
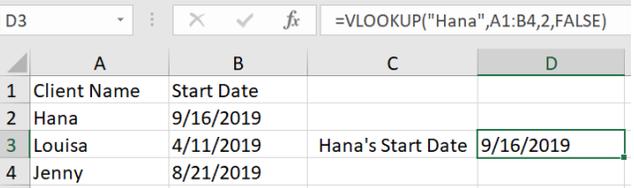
D8 In this example, D8 is the last value in the calculation you are looking to solve. Much like with D2, this tells Excel that you wish to end the calculation at this value.



Excel Tip: You can use the same formulas and basic structures using cells from other worksheets! Just click on the worksheet you want to reference, select the cell you want to reference, and the formulas automatically changes format to include the cell. Ex: =SUM(D2:F2) would be =SUM(NEW_TAB!D2:F2)

Top 15 Excel Formulas

	FORMULA	DESCRIPTION	EXAMPLES																									
1	=SUM	One of the easiest and most important Excel functions. You can use this formula to calculate sum of a range of cells. This can include adding two cells together, or adding 200 cells together.	See =SUM example above.																									
2	=AVG	As the name suggests, this formula allows you to calculate the average number from a range of cells. This formula can be applied to any numeric value found in your Excel worksheet.	Finding the average number of “Home” visits for young parents compared to older parents.																									
3	=MAX	The =MAX function returns the largest value from a range. This is especially helpful when you have a large dataset and need to identify the largest or outlying values.	Finding which children are the oldest, and therefore soonest to age out of the program.																									
4	=MIN	This function operates similarly to =MAX, but rather than identify the largest value, it returns the smallest value in the worksheet, or selected cells.	Finding the clients with the lowest income to offer them access to a new resource.																									
5	=COUNTBLANK	This function counts the number of empty cells in a range. Empty cells are considered those that are blank, not those that have zeros. This is helpful when identifying missing data.	Quickly finding how much missing data there are to assess data quality before starting reporting.																									
6	=IF	This is a must-use formula. It is relatively easy to use and very powerful. You can use this function to check whether a statement is true or false and return a value of your choosing.	 <table border="1"> <thead> <tr> <th></th> <th>A</th> <th>B</th> <th>C</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Client Income</td> <td>Income Qualified for Program?</td> <td></td> </tr> <tr> <td>2</td> <td>\$47,000.00</td> <td>No</td> <td></td> </tr> </tbody> </table>		A	B	C	1	Client Income	Income Qualified for Program?		2	\$47,000.00	No														
	A	B	C																									
1	Client Income	Income Qualified for Program?																										
2	\$47,000.00	No																										
7	=SUMIF	This formula is a combination of the =SUM and =IF formulas. It will sum values, if a certain condition is met. You select the cells you wish to sum, as well as which condition(s) must be met.	 <table border="1"> <thead> <tr> <th></th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Child Gender</td> <td>Days Read to Per Week</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>5</td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>M</td> <td>2</td> <td>Female</td> <td>8</td> </tr> <tr> <td>4</td> <td>F</td> <td>3</td> <td></td> <td></td> </tr> </tbody> </table>		A	B	C	D	1	Child Gender	Days Read to Per Week			2	F	5			3	M	2	Female	8	4	F	3		
	A	B	C	D																								
1	Child Gender	Days Read to Per Week																										
2	F	5																										
3	M	2	Female	8																								
4	F	3																										
8	=IFERROR	The =IFERROR function can be applied to another formula allowing you to quickly and easily hide data return errors, by returning something else, such as a blank or zero.	If you are making a list of client birthdays, but you know some will be missing, you can ask for “—” to appear rather than an error message.																									

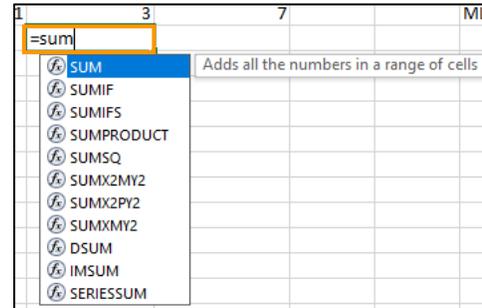
9	=COUNTIF	This formula is very similar to =SUMIF, but rather than summing values, it counts them. The count function counts the number of cells where certain condition is true. Much like =SUMIF, you determine the conditions that must be met.	
10	=CONCATENATE	This basic string function allows you to combine two strings of text together. For example, you could use it to combine a user's first name and last name into a single cell.	
11	=YEARFRAC	This calculates the fraction of the year represented by the number of whole days between two dates (the <i>start_date</i> and the <i>end_date</i>). For instance, you can use =YEARFRAC to determine a client's age, or the amount of time a client has been enrolled in a program.	
12	=DATEDIF	To get the number of days, weeks or years between two dates in Excel, use the DATEDIF function. The DATEDIF function has three arguments: start date, end date, and then "D", "M", or "Y" to indicate if you are looking for the difference in days, months, or years.	
13	=TODAY	To enter today's date in Excel, use the TODAY function. To enter the current date and time, use the NOW function. To enter the current date and time as a static value, use keyboard shortcuts.	
14	=VLOOKUP	The =VLOOKUP function allows you to search for a value in a column ("V" for vertical) and return another value from that same row. This can be especially valuable when you need to pull client information from a large worksheet of data.	
15	=HLOOKUP	The =HLOOKUP function, similar to the =VLOOKUP function, allows you to search for a value in a row ("H" for "horizontal") and return another value from that same column.	Similar to above, but Horizontal rather than Vertical (e.g. if the data were formatted with names above start dates).

Basic Formulas: SUM(), AVERAGE(), MIN(), MAX()

Total (Sum) of a Column

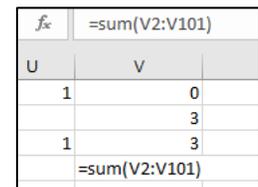
To find the total or sum of a row or column, you use the =SUM() function. You can use any cell to do this calculation; it does not need to be adjacent to the data being analyzed.

1. Select the cell where you would like the sum to appear.
2. Enter the formula directly into the cell *or* in the formula bar at the top of the sheet: =SUM(
3. Indicate which cells you want to add together.



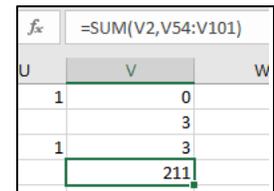
You can click and drag and the cells will be added to the formula automatically, or type the cells in the formula.

a. The colon ":" means *through*. If you want to add the values in cells V2 through V101, type "V2:V101".



fx	=sum(V2:V101)
U	V
1	0
	3
1	3
	=sum(V2:V101)

b. The comma "," means *and*. If you want to add cell V2 and V101, and only those two cells, type "V2,V101".



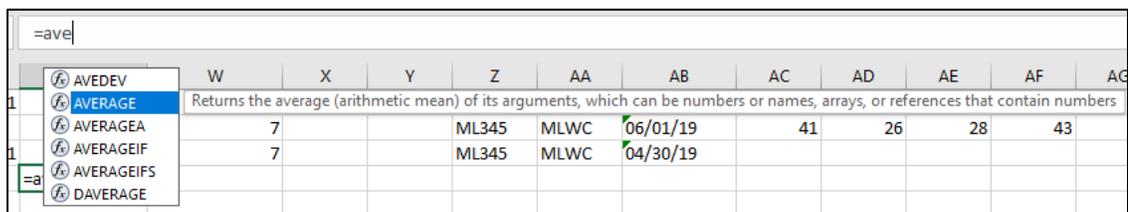
fx	=SUM(V2,V54:V101)	
U	V	W
1	0	
	3	
1	3	
		211

4. Press *Enter* to get your results.

Average or Mean of a Column

To find a mean/average of selected cells, use the =AVERAGE() function. You can use any cell.

1. Select the cell where you would like the sum to appear (can be anywhere!).
2. Enter the formula directly into the cell *or* in the formula bar at the top of the sheet: =AVERAGE(





Excel Tip: Notice that Excel provides an explanation of the function for you. You can also click through the options to see which might work best.

3. Indicate which cells for which you want to find an average. You can click and drag and the cells will be added to the formula automatically, or type the desired cells in the formula.
 - a. The colon “:” means *through*. If you want to average the values in cells V2 through V101, type “V2:V101”.
 - b. The comma “,” means *and*. If you want to average the values in cells V2 and V101, and only those cells, type “V2,V101”.
4. Press *Enter* to get your results.

fx		=average(V2:V101)	
U	V	W	
1	0		
	3		
1	3		
	V101		

fx		=AVERAGE(V2,V54:V101)	
U	V	W	
1	0	5	
	3	7	
1	3	7	
	4.306122449		

Find a Minimum or Maximum Value

To find the maximum or minimum of a set of values, use the =MIN() or =MAX() function.

1. Select the cell where you would like the sum to appear.
2. Enter the formula directly into the cell *or* in the formula bar at the top of the sheet: “=MIN(“ or “=MAX(“
3. Indicate which cells from which you want to find the minimum or maximum value. You can click and drag and the cells will be added to the formula automatically, or type the desired cells in the formula.
 - a. The colon “:” means *through*. If you want to analyze the values in cells V2 through V101, type “V2:V101”.
 - b. The comma “,” means *and*. If you want to analyze the values in cells V2 and V101, type “V2,V101”.
4. Press *Enter* to get your results.

fx		=MAX(V2:V101)	
U	V		
	0		
1	0		
	3		
1	3		
	10		

Combining Formulas: Nested Statements, Common Formula Errors

Nested Statements

Once you become more comfortable with various Excel formulas, you can start to combine them! These are known as “nested statements”. For example, you can find exactly where the missing values in your data are by combining IF and COUNTIF.

- First, you use the COUNTIF function by asking Excel to find, in the range of data, a certain value you are interested in. But instead of stopping there, you “nest” this COUNTIF formula in a larger IF formula.
- The IF formula would ask Excel to tell you, after it finishes the COUNTIF portion, if any individual cell you are interested in is missing a value.
- This is particularly useful when you have a large dataset. If, for instance, you are combining data from two sources, and you are matching by individual ID numbers, you can use this kind of nested statement to find missing values.

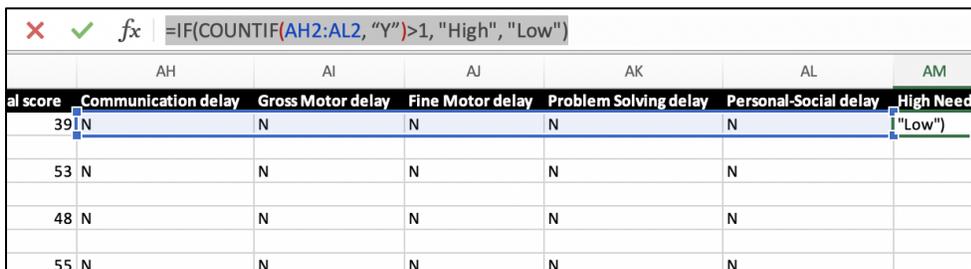
You would do this by creating two new columns:

Individual ID #s	Found
12345	=IF(COUNTIF(range, value), “Ok”, “Missing”)

The “value” in the above nested statement is the cell number of the Individual ID number. Furthermore, the IF and COUNTIF combination can be used in a different way. Let’s say you want to find out whether a client is considered “High Needs” and thus, requiring at least two visits per month.

For purposes of this exercise, let’s pretend that if a client has more than one “Yes’s” in Columns AH through AL, that client would be considered “High Needs”. For this example, create a new column called “High or Low Needs” in Cell AM1. In Cell AM2, write:

=IF(COUNTIF(AH2:AL2, “Y”)>1, “High”, “Low”)



	AH	AI	AJ	AK	AL	AM
al score	Communication delay	Gross Motor delay	Fine Motor delay	Problem Solving delay	Personal-Social delay	High Needs
39	N	N	N	N	N	"Low")
53	N	N	N	N	N	
48	N	N	N	N	N	
55	N	N	N	N	N	

Then, populate Cells AM3 through AM101 with the same formula. This formula asks looks across the cells mentioned to see how many Yes's ("Y") there is/are. If it is more than one, the result will be "High", and "Low" if otherwise.

fx =IF(COUNTIF(AH2:AL2, "Y")>1, "High", "Low")						
	AH	AI	AJ	AK	AL	AM
ial score	Communication delay	Gross Motor delay	Fine Motor delay	Problem Solving delay	Personal-Social delay	High Needs
39	N	N	N	N	N	Low
						Low
53	N	N	N	N	N	Low
						Low
48	N	N	N	N	N	Low
						Low
55	N	N	N	N	N	Low
						Low
29	N	N	N	N	N	Low
						Low
29	N	N	N	N	N	Low
						Low

Common Excel Error Messages for Formulas

Error	Explanation	How to Fix It
#VALUE!	When Excel finds spaces, characters or text in a formula when expecting numbers.	Make sure words are in "", no extra spaces, and that you aren't trying to include empty columns.
#NAME?	When Excel doesn't understand which formula, or element of formula, you are trying to run.	Check spelling or use the Formula Builder to put together the formula.
#####	The column is not wide enough to show the value in the cell.	Make the column wider (tip: double click the right border to auto fit width).
#DIV/O	When you are asking Excel to divide by zero (0) or an empty cell.	Make sure you are using a value to divide; change the formula to use a cell with a value or add a value.
#REF	When Excel runs a formula using a cell that doesn't exist (e.g. a deleted row, cell or column).	Before you paste over cells, make sure there are no formulas referring to those cells.
#N/A	The numbers you are referring to in your formula can't be found or cell not found in VLOOKUP.	Check formula to make sure the sheet, column and row all exist and are referred to correctly.
#NUM	When your formula contains numeric values that aren't valid (e.g. including \$ symbol rather than formatting a number as currency).	Check to make sure there are no commas or symbols--just the numbers themselves--in cells as well as formulas referring to the cells.

COUNT Formulas: COUNTBLANK(), COUNTIF()

Count the Number of Blank Cells with the “=COUNTBLANK()” Formula

This formula allows you to count the number of cells that are blank in a desired selection of data.

1. Select the cell where you would like the number of blank cells to appear.
2. Enter the formula directly into the cell *or* in the formula bar at the top of the sheet:
=COUNTBLANK(

3. Enter the location of the data you want the formula to search, either by clicking and dragging over the data or entering the range in. Be sure to close the parentheses.
4. Press enter to get the result of the number of blank cells. If it reads “0”, there are no missing data.

G	H	J
4/6/2017	3553	Female
2/26/2019	3504	Male
2/26/2019	3554	Female
12/18/2018	3505	Female
12/18/2018	3555	Female

G	H	J
12/18/2018	3505	Female
12/18/2018	3555	Female
		0

Count the Number of Times a Variable is Mentioned with the “=COUNTIF()” Formula

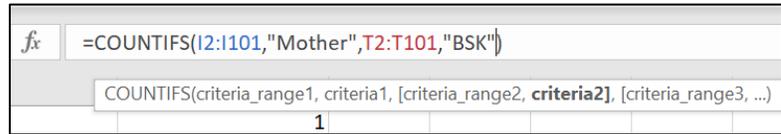
Use this formula to find the number of times a specific text was entered into a set of values. For example, if you would like to determine how many mothers are in a given dataset, you might use the “=COUNTIF()” formula in the following steps:

1. Select where you wish the number to appear.
2. Enter the formula directly into the cell *or* in the formula bar at the top of the sheet:
=COUNTIF(

3. Enter the data you would like to count from.
4. Then, enter the *criteria* you wish it to count. That is, what is the formula looking for? This can be entered as a number (e.g. “32”), formula (e.g. “>32”), word (e.g. “Mother”), or a cell (e.g. J54). Note that text must be in “”.

G	H	I
12/18/2018	3505	Child
12/18/2018	3555	Mother
		46

You can also use the “=COUNTIFS” formula to see when two or more variables co-occur. For example, how many of the BSK funded clients are mothers? For this, two criteria have to occur for the value to be counted (BSK Client from Column “I” AND Mother from Column “T”).



Counting Continued

You can also combine logical operators with the “=COUNTIF” and “=COUNTIFS” functions. For example, you can see how many clients who are children had more than three visits between January and March:

=COUNTIFS(I2:I101, “Child”, V2:V101, “>3”)

The greater than symbol is denoted by “>”. This, along with other useful symbols (e.g. “<” or less than, “>=” or equal or greater than, etc), is known as a **logical operator**. It acts as a connector between two things. In this case, we are asking Excel to find, between cells I2 and I101 AND V2 and V101, clients who are children AND who had more than three visits between January and March, respectively.

Formula Symbols and Logical Operators

- | | | | |
|----|-----------------------|----|------------------------------|
| > | Greater Than | < | Less Than |
| = | Equals/Equal to | >= | Greater Than or Equal To |
| <= | Less Than or Equal To | + | Addition |
| - | Subtraction | / | Division |
| * | Multiplication | : | Through (A2:A14 = A2 to A14) |
- \$D\$2** When dragging formulas to subsequent rows, \$ signs keep D2 in the formula rather than changing based on row
- \$D2** Keeps the D in the formula by the number will change based on row
- “ ”** To search for exact language (e.g. search for “BSK” in Funding column). NOTE: Logical operators must be included within the quotation marks (e.g. “>3”)
- <>** Not equal to (e.g. countif <> “BSK” in Funding column to count other funding sources)
- AND** Will return only answers that meet both criteria (e.g. Child AND BSK will only count children with BSK funding)
- OR** Will return answers that meet either criteria (e.g. counts clients with either BSK or HVSA funding)

IF Formulas: IF() Formulas, Nested IF Statements

IF Formulas

The IF function is one of the most popular functions in Excel, and it allows you to make logical comparisons between a value and what you expect.

An IF statement has two results. The first result is if your comparison is True, the second if your comparison is False.

In the example above, the formula says:

- If column "I" contains the text "Child," column "O", where the formula is being entered, should return the value "Yes".

fx =IF(I2="Child","Yes","No")				
H IF(logical_test, [value_if_true], [value_if_false])				
Ind.	Relationsh	Enrolle	Insuran	Insurar
3456	Child	"No")		
3510	Mother			

- If column "I" does not contain the text "Child," column "O" will return "No."



Excel Tip: Drag the formula down to have it apply to all the cells.

Nested IF Statements

=IF statements can also be nested. This is useful when you are assessing how who is at or above 200% of the Federal Poverty Level (FPL). The elements you would need to build the nested =IF statements are: 1) income; 2) number in the household; and 3) the applicable FPLs.

For purposes of this example, let's assume the following is our data structure:

	A	B	C	D
1	Monthly Income	# in the Household	Annual Income	FPL Outcome
2	\$1000	2	=A2*12	
3	\$4000	3		
4	\$2500	4		

In D2, you would nest IF statements:

```
=IF(B2=1,C2/12140,IF(B2=2,C2/16460,IF(B2=3,C2/20780,IF(B2=4,C2/25100).....  
.....IF(B2=15,C2/72620))))))))))))))
```

- The above asks Excel to tell you how far above or below the FPL each client is, depending on how many people are in the household (e.g. from one to eight).
- Here, you would divide C (Annual Income) with the corresponding FPL. In 2018, the FPL for one-person household is \$12,140, two-person household is \$16,460, etc. You would do this for every type of household, from a one-person household to a 15-person household.
- The Department of Human Health and Services (HHS) sets the poverty guidelines for number of persons in a household from one to eight (for household with more than eight persons, you would add \$4320 for each additional person in 2018). To capture all possibilities, you can write the nested IF statement to include up to 15 persons.
- If you know that you have a client that is in a larger household, you can adjust this formula accordingly.
 - In 2018, the poverty guideline for an eight-person household is \$42380. Since the guidelines state that each additional person beyond an eight-person household is \$4320, you would add that number to a nine-person household and get \$46700, and so on. At the end of the above example nested IF statement, B2 shows the number of persons as 15 and C2 shows the FPL as \$72620.
 - The 15-person household FPL is derived from multiplying \$4230 (the guideline for each additional person beyond an eight-person household) by seven (the number of persons beyond the eight-person household).
- One of the important things to remember about nested statements is the parentheses!
 - Each part of the statement is “nested”, or a part of, another statement. So each time you use an open parenthesis to begin a statement, i.e. “IF(“, you have to close the parenthesis in order for Excel to know that you have completed the function you want to run.
 - The slightly more complicated aspect in a nested statement is that the close parenthesis, i.e. “)”, is not going to be close to the open parenthesis. That is why we have so many of them at the end of the example nested IF statement! In fact, we have 15 of them, to be exact; this reflects the fact that the full formula, when written out, would have 15 statements, one for each of the type of household.

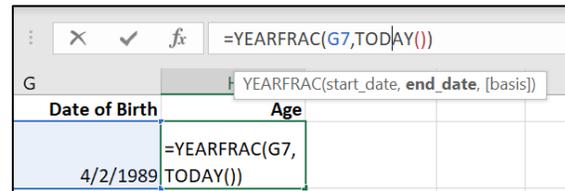
You can change the format of the cells in Column D to “Percentage” so that you can easily see what each client’s FPL outcome is. For instance, after running the nested IF statements, D2 would have returned 73%, D3, 231%, and D4, 120%.

More Formulas: YEARFRAC(),

Change a date of birth to age with “=YEARFRAC()” Formula

Use this formula to automatically calculate the age of a person when have their date of birth. For example, if you would like to know how old your clients are to easily organize your data, you could use the “=YEARFRAC()” formula in the following steps:

1. Insert a column next to the Date of Birth column, and label it.
2. Select the cell where you would like the information to appear.



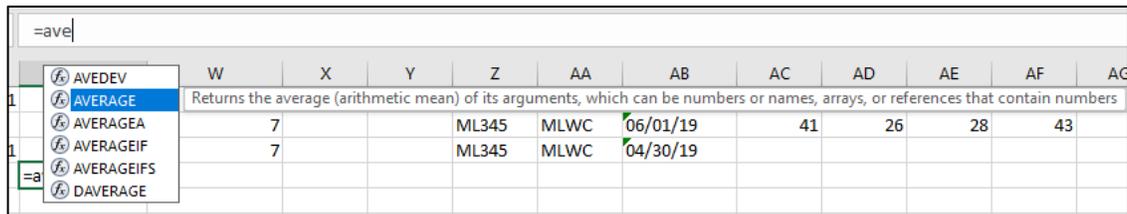
3. Enter the formula directly into the cell *or* in the formula bar at the top of the sheet: “=YEARFRAC(“
4. Enter the “start_date” where you would like to count from. In the example above, the start date is the date of birth that is in Column G, so the start date is G7.
5. Enter the “end_date” where you would like the equation to count to. The equation will respond with how old the person is on the date that is entered here as the “end date.”
 - a. In most cases, you would want to know how old the client is *today*, meaning that the value will change with each day. The information is always current. In the example above, the end date is set as *today* by entering the equation “TODAY()” as the end date. This age will automatically update based on the current date.
 - b. In some cases, you may want to calculate the client’s age at some specific time. For example, you may want to know how old the client was when they ended services. In this case, you would enter the date they ended services for the “end_date”, or have the equation refer to another cell where the end date is present.

You can also use the “=YEARFRAC()” formula in other situations to see the amount of time between any dates. For example, you may want to see how long a client received services by entering their enrollment date as “start_date” and exit date as “end_date”.

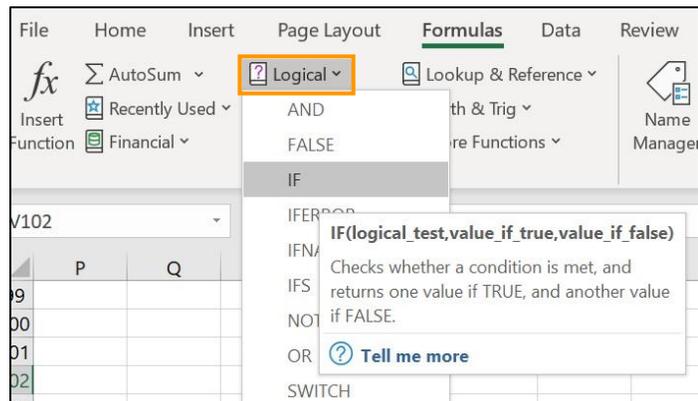
Searching for New Formulas: Start Typing, Formula Bar, Internet

When looking for the formula you need, there are a few different ways to search.

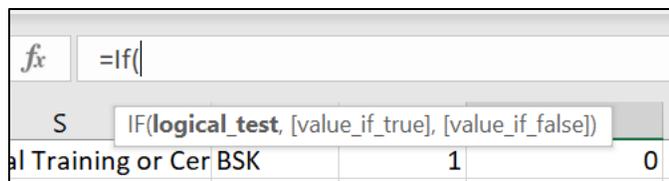
1. **Google it.** If you describe what you are trying to solve in Google, it will likely return some possible formulas and how to use them!
2. **Start typing.** If you type the equals sign “=” and start typing the formula, notice that Excel provides a list of functions for you. As you click through each of them, a brief explanation of the function is provided. You may find an option that works well for what you need!



3. **Look at the “Formulas” Ribbon Tab.** This tab organizes formulas into categories. You can look at the dropdown and explanations for each formula provided in each category.



Excel Tip: After you start writing in a formula, the various segments of the formula appear. Each one should say what needs to be entered for the formula, each separated by a comma.



Sorting and Filtering

Once you begin using Sorting and Filtering, it becomes quickly apparent how frequently these functions can simplify your job. Sorting and filtering both organize and declutter your data to hone in on what is most important to see as you are analyzing.

Sorting: The sorting tool allows you to put the data into a particular order by date, number, alphabetic order and more.

***Example:** You may have a list of clients and their enrollment dates. You can use the sorting feature to instantly put the clients in order of when they enrolled.*

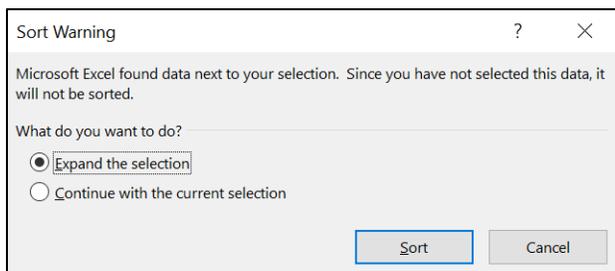
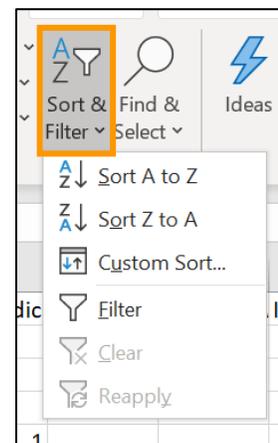
Filtering: The **Filter** tool allows you to isolate particular data based on criteria you choose, and hides the rest, so you can focus on that data (e.g. those particular clients, or a specific group).

***Example:** you want to look at only clients that are funded under the BSK grant, you could use the filtering tool to look only at these clients*

Sorting the Data

Sorting can be used to quickly put data in alphabetical or numerical order. You can change the order of the contents of just the selected column, or you can have the entire row of data shift.

1. Select the column you would like to sort.
2. Navigate to the “Home” Ribbon and find the “Sort & Filter” dropdown under “Editing”.
3. Select the sorting option you desire.
4. A pop-up will ask you if you would like to “Expand the selection.” If the entire row of data belongs together, choose this option! For example, if you are alphabetizing names, you likely want all of the information in the columns to the right of the names to remain in the same row with the corresponding name. Select sort.



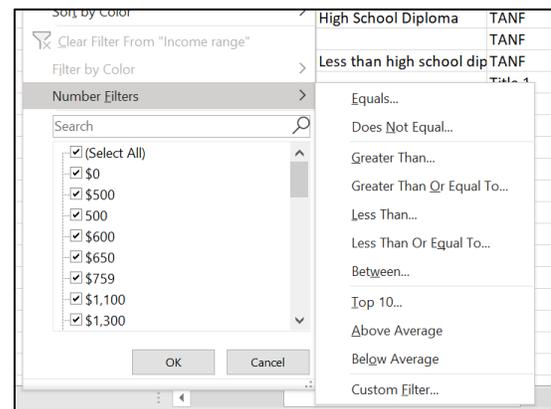
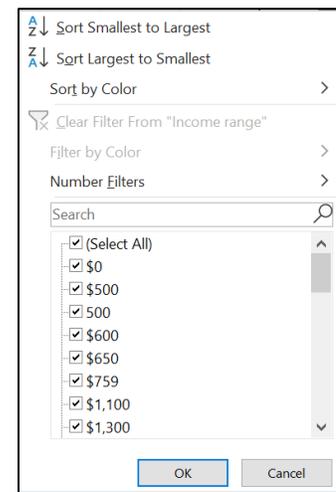
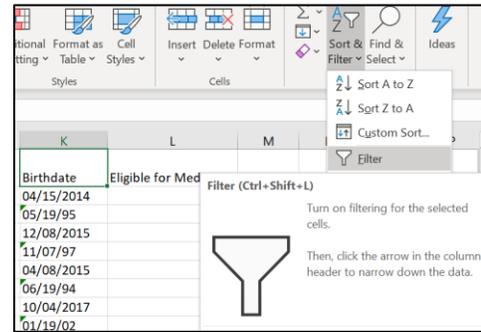
Excel Tip: For more complex sorting, such as using multiple sorting rules together, select the “Custom Sort...” option from the drop-down menu.

Filtering the Data

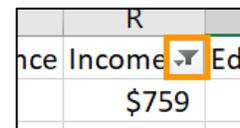
Filtering your data allows you to selectively see specific data you may want to see, and hide the rest. It can also quickly show you the data contained in a given column.

1. Select the column(s) of data you wish to see.
2. Navigate to the “Home” Ribbon Tab and find the “Editing” portion.
3. Click “Sort and Filter”.
4. Click “Filter” on the dropdown menu.
5. An arrow should appear in the first row of the selected column. Click the arrow to display a list of all the values in that column.
6. Scroll through the list of values to the bottom. Click “(Select All)” if you wish to then select only *some* of the values and have the others disappear.
7. If you want to apply another filter (other than showing some of the values and not others), click on the “Number Filters” options.

These filters allow you to filter the data selected based on the listed criteria.



Excel Tip: if a column is filtered and not all data is showing, Excel reminds you of this by keeping a filter icon on the top of the column. This way you don't forget you have hidden data!



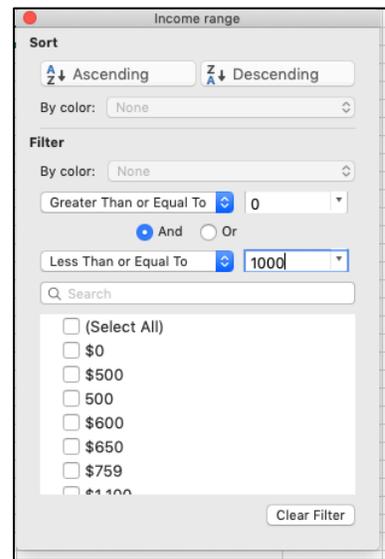
More About Filtering



Excel Tip: you can use the filter function to see if you have any missing or incorrectly entered data!

How to: Scroll through the list of values to the bottom.

- If a value appears that is misspelled, duplicated or seems out of place, select only those values and hit “OK”. You can then edit those values as needed in the “Sheet”.
- If a value appears that reads “(Blanks)” at the bottom of the list, you know there is a missing value. You can click “(Select all)” at the top of the list to deselect.

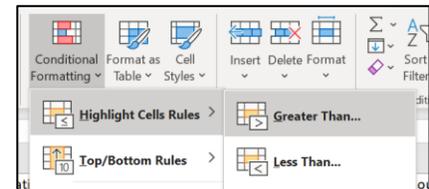
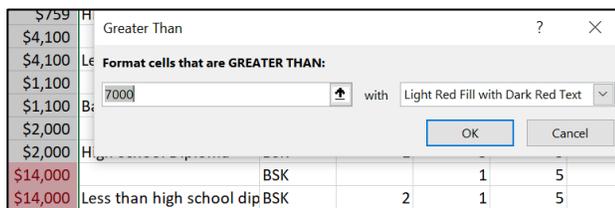
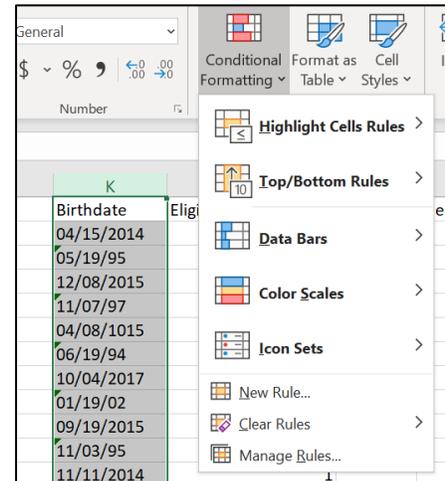


Conditional Formatting

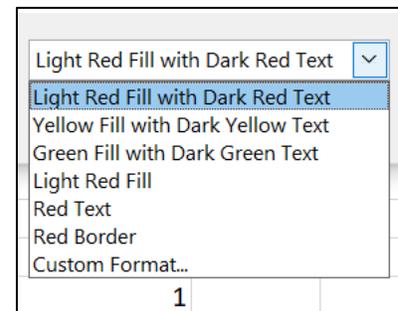
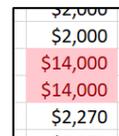
Introduction to Conditional Formatting

Conditional formatting allows you to apply specific formatting to cells that meet certain criteria. It is most often used as color-based formatting to highlight, emphasize, or differentiate among data and information stored in a spreadsheet. By using conditional formatting, all the values outside the range will change the formatting so they are easy to spot.

1. Select the columns you would like to format.
2. Navigate to the “Home” Ribbon and click on “Conditional Formatting” under Styles.
3. You then can choose from the many options provided. To see what data is outside a certain range, select the “Highlight Cells” Rules option.
4. Select the most applicable rule.
5. Select the threshold value (all values greater than this value will be highlighted).



6. On the right, you will find options for *how* you would like the cell to be formatted if the condition is true. Choose from the dropdown or choose “Custom Format...” to choose another format.
7. Select “OK”. The values outside of the determined range should appear in the reformatted form.



Examples of Conditional Formatting

Light Green Fill with Dark Green Text	Gradient Fill
Red Border	Solid Fill

Using the “Highlight Cell Rules” will isolate cells of data based on a criteria. For example, to quickly hone in on your clients who have not received the required 10 home visits in the past month, you could highlight the column with the number of home visits, and use the “Less than” option to highlight all of the clients who received less than 10 visits.

Use the “Top/Bottom Rules” to quickly isolate the top (highest or most frequent) or bottom (lowest or least frequent) values in your data. For example, if you want to quickly determine the community needs (e.g. housing support, education resources) that have come up most often in conversations with clients, you could use the “Top 10 items” option to highlight those items.

Highlight Cell Rules	Top/Bottom Rules
<ul style="list-style-type: none"> • Greater than • Less than • Between • Equal to • Text than contains 	<ul style="list-style-type: none"> • Top 10 items • Bottom 10 items • Top 10 % • Bottom 10 % • Above Average

----- 2-Color Scale -----		
----- 3-Color Scale -----		
Minimum		Maximum
<ul style="list-style-type: none"> • Lowest Value • Number • Percent • Formula • Percentile 	Midpoint <ul style="list-style-type: none"> • Number • Percent • Formula • Percentile 	<ul style="list-style-type: none"> • Highest Value • Number • Percent • Formula • Percentile

Data Bars are quick graphs you can apply to values to quickly get a visual representation of the values in reference to each other.

Solid or Gradient Fill	Solid or No Border	Positive and Negative Values																					
<table border="1"> <thead> <tr><th style="background-color: #4f81bd; color: white;">Amount</th></tr> </thead> <tbody> <tr><td style="background-color: #c0504d;">\$ 13.19</td></tr> <tr><td style="background-color: #c0504d;">\$ 43.24</td></tr> <tr><td style="background-color: #c0504d;">\$ 27.28</td></tr> <tr><td style="background-color: #c0504d;">\$ 95.04</td></tr> <tr><td style="background-color: #c0504d;">\$ 23.74</td></tr> <tr><td style="background-color: #c0504d;">\$ 9.97</td></tr> </tbody> </table>	Amount	\$ 13.19	\$ 43.24	\$ 27.28	\$ 95.04	\$ 23.74	\$ 9.97	<table border="1"> <thead> <tr><th style="background-color: #4f81bd; color: white;">Amount</th></tr> </thead> <tbody> <tr><td style="border: 1px solid #8b4513;">\$ 13.19</td></tr> <tr><td style="border: 1px solid #8b4513;">\$ 43.24</td></tr> <tr><td style="border: 1px solid #8b4513;">\$ 27.28</td></tr> <tr><td style="border: 1px solid #8b4513;">\$ 95.04</td></tr> <tr><td style="border: 1px solid #8b4513;">\$ 23.74</td></tr> <tr><td style="border: 1px solid #8b4513;">\$ 9.97</td></tr> </tbody> </table>	Amount	\$ 13.19	\$ 43.24	\$ 27.28	\$ 95.04	\$ 23.74	\$ 9.97	<table border="1"> <thead> <tr><th style="background-color: #4f81bd; color: white;">Amount</th></tr> </thead> <tbody> <tr><td style="background-color: #4f81bd;">\$ 13.19</td></tr> <tr><td style="background-color: #4f81bd;">\$ 43.24</td></tr> <tr><td style="background-color: #4f81bd;">\$ 27.28</td></tr> <tr><td style="background-color: #4f81bd;">\$ 95.04</td></tr> <tr><td style="background-color: #4f81bd;">\$ 23.74</td></tr> <tr><td style="background-color: #c00000;">\$ (19.97)</td></tr> </tbody> </table>	Amount	\$ 13.19	\$ 43.24	\$ 27.28	\$ 95.04	\$ 23.74	\$ (19.97)
Amount																							
\$ 13.19																							
\$ 43.24																							
\$ 27.28																							
\$ 95.04																							
\$ 23.74																							
\$ 9.97																							
Amount																							
\$ 13.19																							
\$ 43.24																							
\$ 27.28																							
\$ 95.04																							
\$ 23.74																							
\$ 9.97																							
Amount																							
\$ 13.19																							
\$ 43.24																							
\$ 27.28																							
\$ 95.04																							
\$ 23.74																							
\$ (19.97)																							

Icon Sets can help you quickly identify patterns by using symbols and color to mark values. Icons can be Directional (e.g. arrows), Shapes (e.g. circles, triangles), Indicators (e.g. flags) or Ratings (e.g. stars, graphs).

Icon Sets (Samples)								
<table border="1"> <thead> <tr> <th>Amount</th> </tr> </thead> <tbody> <tr> <td>✖ \$ 13.19</td> </tr> <tr> <td>⚠ \$ 43.24</td> </tr> <tr> <td>✖ \$ 27.28</td> </tr> <tr> <td>✔ \$ 95.04</td> </tr> <tr> <td>✖ \$ 23.74</td> </tr> <tr> <td>✖ \$ 9.97</td> </tr> </tbody> </table>	Amount	✖ \$ 13.19	⚠ \$ 43.24	✖ \$ 27.28	✔ \$ 95.04	✖ \$ 23.74	✖ \$ 9.97	
Amount								
✖ \$ 13.19								
⚠ \$ 43.24								
✖ \$ 27.28								
✔ \$ 95.04								
✖ \$ 23.74								
✖ \$ 9.97								

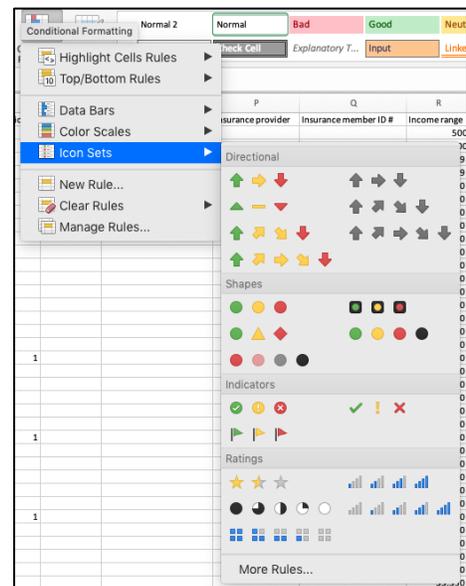
Using Conditional Formatting for Data Quality

If you know all your data should be within a certain range, you can use conditional formatting to show values that are outside of the reasonable range. For example, a birth year of 2118 seems improbable. By using conditional formatting, all the values outside the range will change the formatting so they are easy to spot.

Conditional formatting may be a useful way to get a quick initial understanding of your data. For example, say you want to get an idea of whether there is a difference between your BSK clients and other clients receiving the recommended number of “Home” visits in a given reporting period. You can do so visually by using conditional formatting.

First, you would select the Funding Source column.

- Go to Conditional Formatting in the “Home” Ribbon, choose “Highlight Cells Rules”, and choose “Equal To...”.
- In the field next to the dropdown menu of “equal to”, type in “BSK”.
- You can change the color if you wish (the default is “Light Red Fill with Dark Red Text”).
- Click “OK”. This would highlight all the BSK cells in light red. The non-BSK clients would not be highlighted.

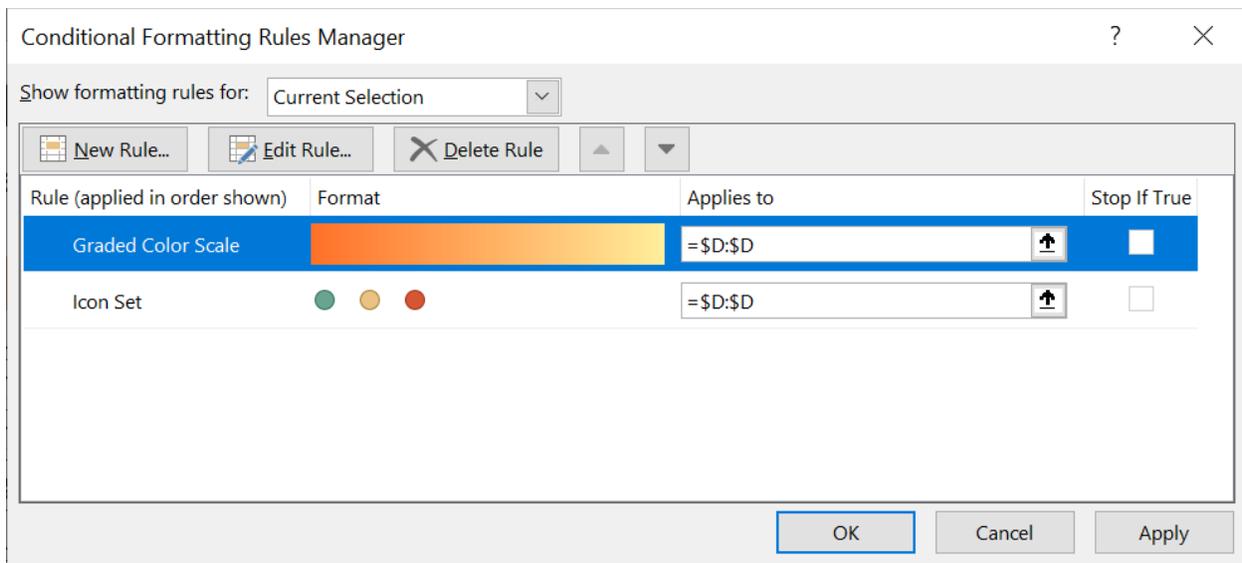


In the [hypothetical] “Number of “Home” Visits” column, you can use one of the Conditional Formatting presets, “Icon Sets”.

- Try the first option, “3 Arrows (Colored)”.
- Excel would divide the values in this column into three categories of values:
 - below average (denoted by the red, downward-facing arrow),
 - average (denoted by the yellow, horizontal arrow), and
 - above average (denoted by the green, upward-facing arrow).
- You can try different options (e.g. indicators, etc) or presets (e.g. Data Bars, Color Scales), to get a sense of what you might find more useful or appealing.

Conditional Formatting Rules Manager

The Conditional Formatting Rules Manager will allow you to add, edit and delete rules, and apply multiple rules to the same dataset. *Note: the most important rules go on top, and the order descends according to importance.*



Excel Tip: Once you have chosen a conditional format, Excel remembers it. Therefore, if you want to change the format, you must delete the existing format first by going back to the Conditional Formatting dropdown menu, and selecting “Clear Rules” and choosing the appropriate cells or the entire sheet.



Excel Tip: You can even complement the conditional formatting function with the SORT function (putting all the BSK funded clients together) to make it easier to see what your data say!

Tables and Graphs

There are many ways to visually display data. Before you insert a chart, think about whether the data are best presented as a chart. Sometimes, depending on what you are trying to convey, the data may not be very useful when they are displayed visually.

You can use the “Recommended Charts” function in Excel as a starting point; most of the time, if you are looking to display two variables (e.g. number of children screened during the reporting period and children age groups), it will recommend the column chart. In many instances, that would be an appropriate type of chart to use.

Here are some ways to think about the differences between the chart types, if you determined that the column chart is not the most appropriate chart to use:

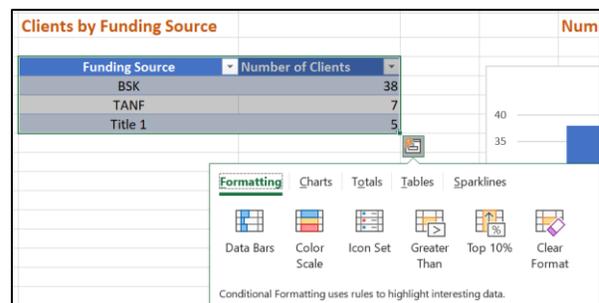
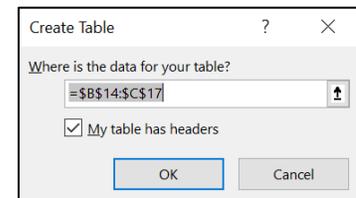
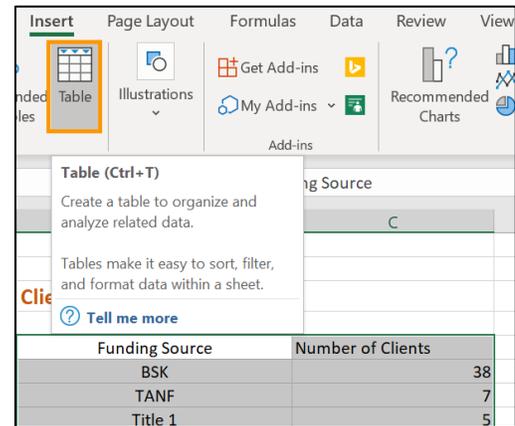
Types of Charts

Type of Comparison	Explanation	Example	Type(s) of Chart
<i>Time Series</i>	How a variable changes over time	Number of clients served every month in 2019	Column or line chart; the x-axis (horizontal axis) would mark the passage of time TIP: if the number of time categories is high (i.e. over 20), consider using the line, instead of the column, chart
<i>Parts of a Whole</i>	Disaggregation: looking at the breakdown of a single variable	The proportion of children in each age category. <i>or</i> The proportion of caregivers in each race category.	Column, bar, or pie chart TIP: if the number of categories is high, and many of the values are small, stay away from the pie chart as it will not be able to display those values well; instead, use the column or bar chart since you will be able to adjust the scale on these charts
<i>Association/Correlation</i>	How one variable may be related (or not) to another variable	Comparing number of caregiver job status (Variable 1) and percentage of completed “Home” visits (Variable 2)	Scatter Chart TIP: for the most part, you probably won’t need to show correlation between two variables for your analyses

Tables

Making a Table

1. Locate the data you wish to make into a table and select it by clicking and dragging.
2. Go to the Insert Ribbon Tab and select “Table” in the “Tables” category.
3. Select if your table has headers or not. Select “OK”.
4. Navigate to the “Table Design” Ribbon Tab to change the styles and view other options.
5. To view additional options, including adding a row to provide a total or average, add conditional formatting, or change the table to a chart, select the entire table, click the icon that appears in the bottom right corner, and select your desired option.

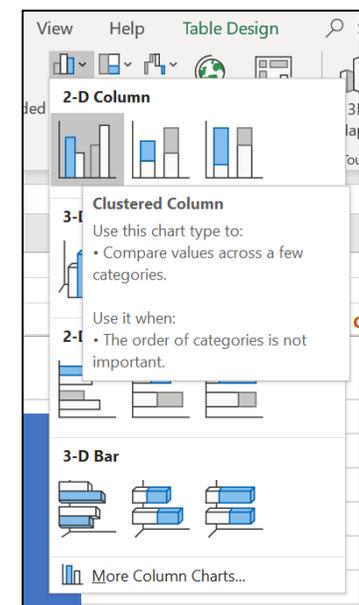


Graphs

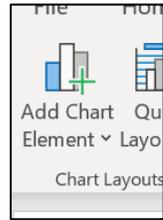
Making a Bar Graph

Once you have a table (or data organized in a table-like format), it’s easy to make a graph!

1. Select the data you would like to include in the graph.
2. Navigate to the “Insert” portion of the Ribbon.
3. Select the kind of graph you wish to use from the drop-down options in the “Charts” portion of the Ribbon.
4. Once you select your desired graph type and press enter, the graph should appear.
5. Now you can edit and customize your graph.
 - a. Click on each element to delete or edit each element.



- b. Under the “Chart Design” Ribbon Tab, add in chart elements with the “Add Chart Element” drop-down on the far left of the Ribbon under “Chart Layouts”.

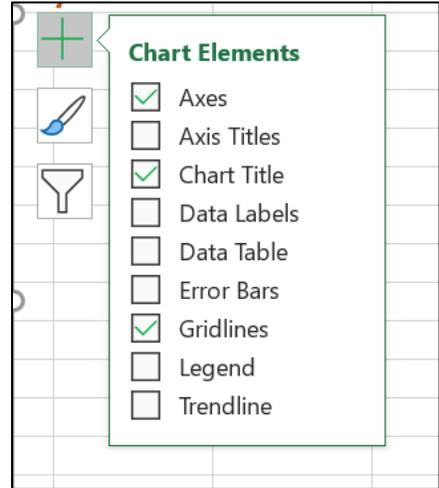


- 6. For additional options, select the graph figure and three icons will appear to the right of the graph.

- a. The first is a plus sign, where you can quickly add and eliminate elements of your chart.

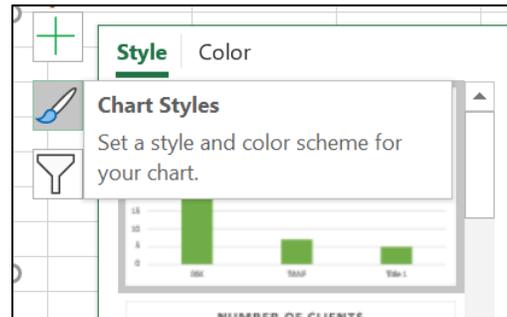
- b. The second is a paintbrush, to quickly make style and color changes (also see the “Chart Design options on the top Ribbon).

- c. The final is the filter icon, where you can quickly remove data and click “Apply” to revise what data the graph is showing.



To change the data itself, navigate to the “Chart Design” Ribbon Tab, where you have additional options in the “Data” section on the righthand side.

To change any specific element of the graph, right click on the element itself on the graph and you will be provided with additional options.



PivotTables

Introduction to Pivot Tables

Pivot Tables rival Formulas as one of the most powerful tools that Excel has to offer. Similar to most advanced Excel functionality, Pivot Tables can seem intimidating. We want to help change that. Learning the basic of Excel Pivot Tables will completely alter the way you use Excel, and how you analyze your data. Let's start with the basics – what is a Pivot Table?

A Pivot Table is a table of outcomes that summarizes the data of a more extensive table. In short, think of a pivot table as a quick-report. Keep in mind that unlike a traditional report, a Pivot Table provides you with an interactive view of your data. With very little effort (and no formulas!) you can look at your data from many different perspectives. You can group data into categories, break down data into years and months, filter data to include or exclude categories, and even build charts.

Pivot Tables can produce tables that are appropriate for presentations and reports. They help you to “slice the cookie”—to show your data, based on other aspects of your data. For example, rather than just showing a list of funders (one data point), or giving a number of clients (one data point), you can show the number of clients *by* funding source (combining two data points together).

In this example, the Pivot Table is showing how many clients are being funded by each funding source: BSK is funding 5 clients, TANF is funding 2 and Title 1 is funding 2, with a total of 9 clients.

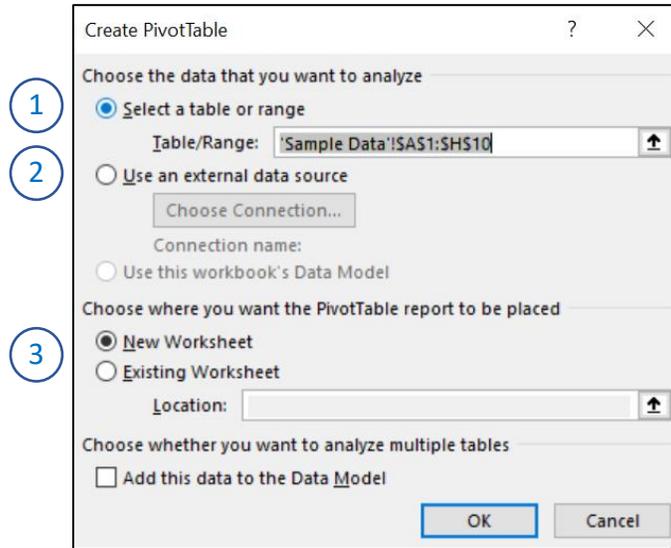
Row Labels	Count of Funding Source
BSK	5
TANF	2
Title 1	2
Grand Total	9

How to Create a Pivot Table

1. The first thing you need to create a Pivot Table is a ‘dataset’. In most cases, this is a spreadsheet of data that you exported from your database. See example below.

	A	B	C	D	E	F	G	H
1	Case ID	Family Name	First Name	Family Enrollment	Gender	Birthdate	Income	Funding Source
2	34567	Cotton	Colorado	4/6/2017	Male	5/16/2018	\$ 500.00	BSK
3	34587	Sweeney	Suki	10/2/2017	Female	1/5/1998	\$ 3,130.00	BSK
4	34569	Giles	Unity	3/30/2018	Female	12/8/2015	\$ 759.00	TANF
5	34651	Lucas	Franny	8/7/2018	Female	1/1/2000	\$ 2,000.00	BSK
6	34571	Good	Lisandra	5/12/2017	Female	4/8/2015	\$ 4,100.00	TANF
7	34573	Byrd	Byron	6/1/2018	Male	1/19/2002	\$ 1,100.00	Title 1
8	34573	Byrd	Branden	6/1/2018	Male	10/4/2017	\$ 1,100.00	Title 1
9	34641	Mcdowell	Janice	8/31/2018	Female	2/10/1996	\$ 3,000.00	BSK
10	34575	Farrell	Latifah	6/29/2018	Female	9/19/2015	\$ 2,000.00	BSK

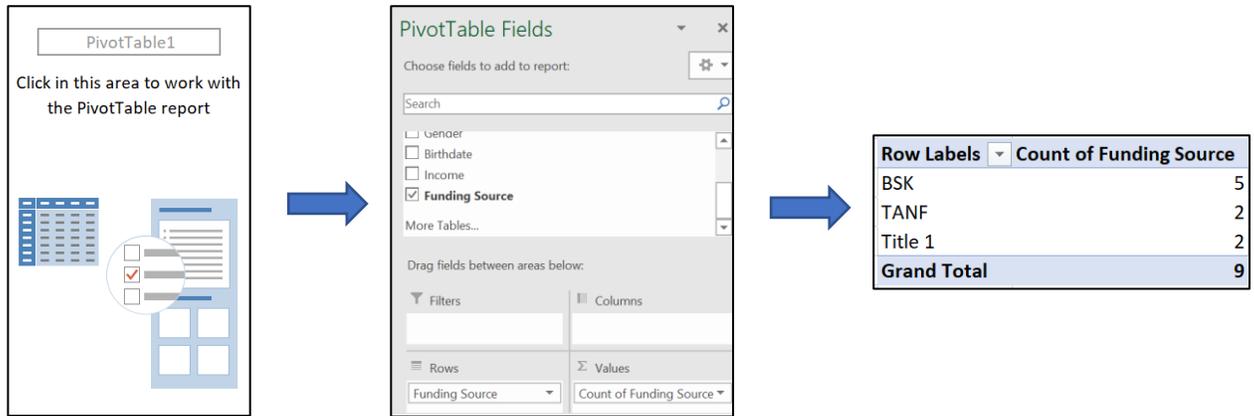
- The next step in creating a Pivot Table is selecting and inserting the data you would like pulled into your Pivot Table by going to Insert → Pivot Table. Once you've made that selection, the prompt box (as seen below) should appear.



Key	Description
1	When the 'Create Pivot Table' box appears, the first thing you need to verify is that the correct dataset is selected. In this example, our dataset is columns A through H and rows 1 through 10.
2	If you want to pull in data from another Excel file, you can use an external data source. This allows you to have at least one other Excel file open and available for use.
3	Before completing your Pivot Table, you must select where you would like it to go in your Excel workbook. To create a new worksheet (one you have not started yet), select the 'New Worksheet' option. Many Excel users create a new tab in their workbook called 'Pivot Tables' and link all pivot tables here. It allows you to keep all of your Pivot Tables in one organized place. To do this, create a new tab called 'Pivot Tables' prior to creating your actual Pivot Table. When prompted to select your location, go to your new tab, and select a cell within the worksheet.

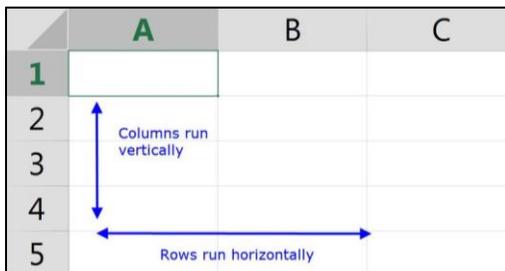
- Using the drag-and-drop functionalities of Pivot Tables, decide which variables you would like to use to create your Pivot Table "report". In the example below, I am wanting to quickly see how many clients are funding through each available funding source.

By making my 'Rows' (vertical) = Funding Source, and my Values (what you want to count) also = Funding Source, I am telling Excel that in my rows, I want to see all possible funding sources, and in my columns, I want to see the total number of each funding source in my selected dataset. See below.



Pivot Table Tips & Tricks

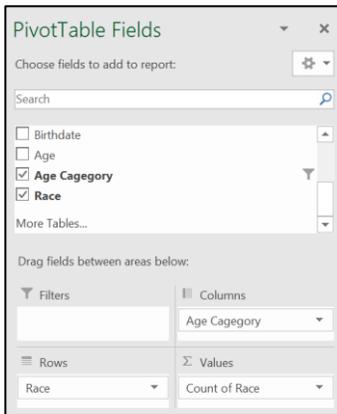
When making Pivot Tables, it is important to remember your rows and columns. When using single variable Pivot Tables (see example above), you will likely put your desired variable in both the 'Rows' box and in the 'Values' boxes.



Multi-Variable Pivot Tables

Adding multiple variables to your Pivot Table is quite simple. To do this, follow each of the steps listed above, but rather than thinking through which one variable you'd like to see analyzed, choose two variables that you would like to see analyzed together.

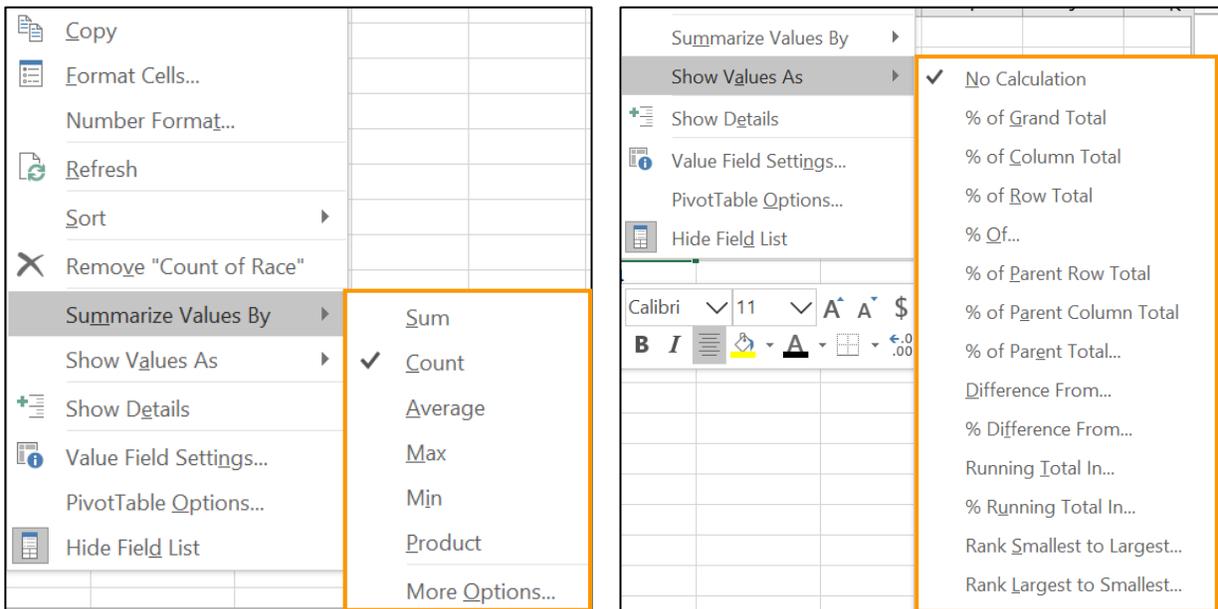
Example Scenario: You want to know the race and age breakdown of your clients, and while you could make two Pivot Tables, one for race and another for age, it's more interesting to see how these two variables intersect with one another. Counting variables independently of each other will only get you so far.



Count of Race	Column Labels	18 and Under	19 to 25	26 to 35	Grand Total
African American		2	10	2	14
American Indian			5	4	9
Asian		1	2	2	5
Latina/x		1	9	2	12
Pacific Islander		1	3		4
White		2	3	1	6
Grand Total		7	32	11	50

What you have now is what is commonly referred to as a crosstab, or a visual representation of how these two variables intersect. Interpreting Pivot Tables can be a bit confusing, so take the time to make sure you understand the output.

If simple counts are not helpful, you can customize your output. For example, if knowing the percent of each race/age breakdown is more helpful, update your output format.



Excel provides a variety of options for formatting your data. The most common basic formatting of Pivot Tables are 'Count' and 'Sum'. For Pivot Tables with multiple variables, you can apply more complex formatting, including 'Percent of Grand Total' and '% of Parent Total'.

See examples of these different formats on the following page. Keep in mind, the way you display your data depends on which question you are more interesting in answering.

Count of Race	Column Labels	18 and Under	19 to 25	26 to 35	Grand Total
African American	14.3%	71.4%	14.3%	100.0%	
American Indian	0.0%	55.6%	44.4%	100.0%	
Asian	20.0%	40.0%	40.0%	100.0%	
Latina/x	8.3%	75.0%	16.7%	100.0%	
Pacific Islander	25.0%	75.0%	0.0%	100.0%	
White	33.3%	50.0%	16.7%	100.0%	
Grand Total	14.0%	64.0%	22.0%	100.0%	

Values Shown as 'Percent of Parent Column Total'.

In this example, using the '% of Parent Column Total' will show you how many clients of each racial category fall into each age category. This is indicated by each row totalling 100%.

Count of Race	Column Labels	18 and Under	19 to 25	26 to 35	Grand Total
African American	28.6%	31.3%	18.2%	28.0%	
American Indian	0.0%	15.6%	36.4%	18.0%	
Asian	14.3%	6.3%	18.2%	10.0%	
Latina/x	14.3%	28.1%	18.2%	24.0%	
Pacific Islander	14.3%	9.4%	0.0%	8.0%	
White	28.6%	9.4%	9.1%	12.0%	
Grand Total	100.0%	100.0%	100.0%	100.0%	

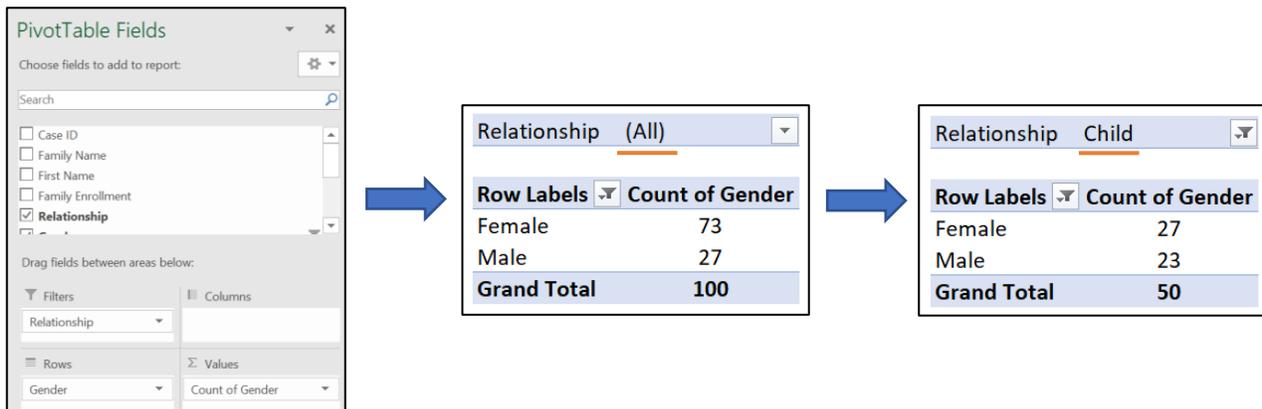
Values Shown as 'Percent of Parent Row Total'.

In this example, using the '% of Parent Row Total' will show you how many clients of each age category fall into each racial category. This is indicated by each column totalling 100%.

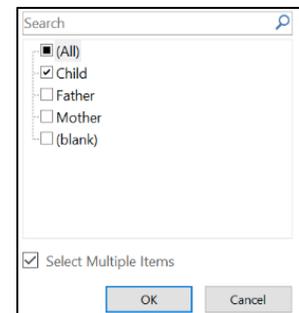
Applying Filters to Pivot Tables

Depending on the size of your dataset, Pivot Tables can sometimes be a bit overwhelming. One way to avoid your output becoming too cumbersome is to apply filters to your Pivot Tables to narrow down what data is presented.

TO apply a filter to your data, drag-and-drop the variable you would like to treat as your filter into the 'Filters' section of the Pivot Table Fields.



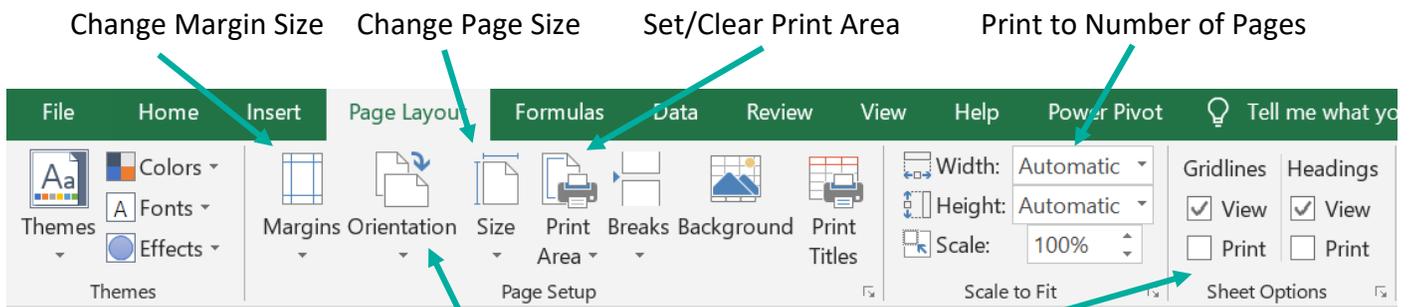
In the example above, a *Relationship* filter was applied to only show the gender breakdown of the children in the dataset. When applying a filter, you will only be able to narrow down your data by the options made available in your dataset. For example, when narrowing the data down by *Relationship*, the only options in the filter selection were Child, Father, and Mother. If your data had more options, this would reflect in your filters.



Printing

Printing a Worksheet

Printing from Excel is highly customizable; you can select exactly what part of the worksheet you want to print, and control how it looks printed. You can use the “Page Layout” Ribbon Tab to make most adjustments related to printing.



Switch Between Portrait and Landscape Page Orientation Choose to Print Gridlines/Headings

Set/Clear Print Area

To only print specific cells, highlight the full area you want to print, and click on the “Print Area” dropdown menu from the “Page Layout” Ribbon Tab. Select “Set Print Area” to set those specific cells as the portion that will be printed, or “Clear Print Area” to go back to printing all of the occupied cells (which is the default).

Print to Number of Pages

You can ask Excel to shrink or expand the way the worksheet prints to fit on a particular number of pages. You can choose by how many pages wide you want the printed document using the Width dropdown menu, and/or how many pages long you want the printed document using the Height option.

File > Print Options

You can also customize many of the printing options in the Print Dialog Box (File > Print).

- Print Active Sheets, Selected Cells or Entire Workbook
- Change margin size (Normal, Wide, Narrow)
- Scale to Fit Set Number of Page

