



Providing Reliable Technology Solutions for Business



Excel 2016 Guide



A Complete Overview for Connect Users



Chapter 1: Introduction.....5

Chapter 2: Getting Around Excel.....5

 Quick Access Tool Bar 5

 The Ribbon 5

 Auto Hide Ribbon..... 6

 Backstage View 7

 Dialog Box Launcher..... 8

 Keyboard Shortcuts..... 8

Chapter 3: Learning the Ribbon9

 Home Tab..... 9

 Insert Tab 9

 Page Layout Tab 9

 Formulas Tab..... 10

 Data Tab 10

 Review Tab 10

 View Tab..... 10

 PowerPivot Tab..... 11

 Customizing the Ribbon 11

Chapter 4: New in Excel 2016.....12

 Slightly New Look..... 12

 Tell Me 12

 Share 13

 Smart Lookup 13

Chapter 5: Diving Deeper into Excel 201614

 How-To Basics: Using Excel in Your Office 14

 Basic Fundamentals 14

 Selecting Cells 14

 Adding/Removing Content 14

 Modifying Column Width & Row Height..... 15

 AutoFit Columns & Rows 17

 Creating Simple Formulas 17

 Using Cell Reference Formulas 18



Using Absolute and Mixed Cell References 19

Using the Point & Click Method for Formulas 20

Editing Formulas 21

Home Tab Basic..... 22

 Inserting Rows & Columns 22

 Deleting Rows & Columns..... 23

 Formatting Text..... 23

 Using Cut, Copy, & Paste..... 26

Insert Tab Basic 28

 Inserting Illustrations 28

Page Layout Tab Basic..... 28

 Using Themes..... 28

 Working with Margins..... 29

 Setting Orientation 29

Formulas Tab Basic..... 30

 Inserting a Function 30

 Quick Analysis Tool 31

Review Tab Basic..... 31

 Checking Spelling 31

View Tab Basic 32

 View Full Screen 32

File Tab Basic..... 32

 Saving a Workbook 32

 Opening a Workbook 34

 Creating a Workbook 34

 Printing from Backstage View 36

 Printing from the Ribbon 39

How-To Intermediate: Exploring More with Excel..... 40

 Intermediate Fundamentals 40

 Drag & Drop Cells 40

 Using the Fill Handle 40

 Flash Fill..... 42



Working with Worksheets 43

Customizing the Quick Access Toolbar 45

Formatting Tables 46

Home Tab Intermediate 48

 Setting Column Widths & Row Heights 48

 Wrapping Text and Merging Cells 49

 Using Borders 50

 Hide/Unhide 51

 Formatting Numbers & Dates 52

 Conditional Formatting 52

 Sorting Data 55

 Filtering Data 58

Insert Tab Intermediate 62

 Inserting Charts 62

Page Layout Tab Intermediate 68

 Using a Background 68

 Scale to Fit 68

 Print Area 69

 Print Tiles 69

Formulas Tab Intermediate 70

 Using the Function Library 70

 Using the Watch Window 70

 Convert Roman/Arabic Numerals 72

Review Tab Intermediate 72

 Protecting a Workbook 72

View Tab Intermediate 75

 Freezing Worksheet Panes 75

File Tab Intermediate 75

 Using Auto Recovery 75

 Saving As a PDF 76

 Using Templates 77

 Setting Permissions 79



Sending a Workbook as an Email Attachment.....	80
Present a workbook Online.....	81
How-To Advanced: Getting the Most Out of Excel.....	82
Advanced Fundamentals.....	82
Customizing the Ribbon	82
Insert Tab Advanced	83
Using Pivot Tables	83
Pivoting Data.....	85
Creating Pivot Charts	87
Using Sparklines	88
Formulas Tab Advanced.....	92
Error Checking.....	92
Tracing Formulas.....	93
View Tab Advanced.....	94
Split Sheet View	94
Data Tab Advanced	94
Using What-If Analysis	94
File Tab Advanced	98



Chapter 1: Introduction



Microsoft Excel 2016 makes it possible to analyze, manage, and share information in more ways than ever before, helping you make better, smarter decisions. New analysis and visualization tools help you track and highlight important data trends. You can even upload your files to the Web and work simultaneously with others online. Whether you're producing financial reports or managing personal expenses, Excel gives you more efficiency and flexibility to accomplish your goals.

Chapter 2: Getting Around Excel

The Excel 2016 program window is easy to navigate and simple to use. It has been designed to help you quickly find the commands and tools that you need to complete many tasks within Excel. The interface of Excel 2016 hasn't changed dramatically as compared to the 2010 to 2013 transition. The switch to Excel 2016 should be relatively seamless as there are only minor changes which we will go over in this guide.

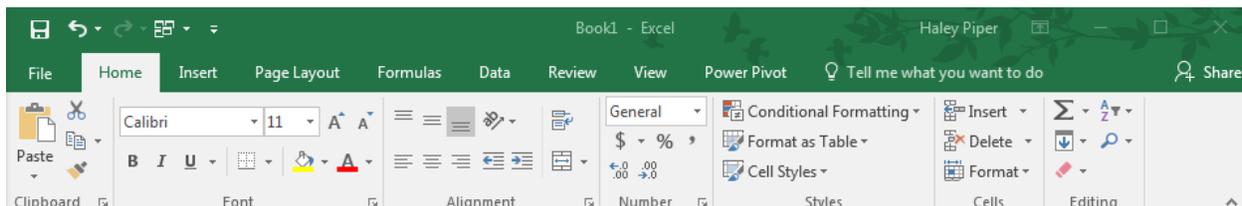
Quick Access Tool Bar

The Quick Access Toolbar displays a small selection of the more commonly used commands in Excel. It is found in the top left hand corner of the application window. It is displayed independently of what tab you are currently working in, so you can always see those popular commands and always have them ready for use. The Quick Access Toolbar is also customizable so you can add commands that you use most frequently. We will address how to customize the Quick Access Toolbar in a later chapter.



The Ribbon

The Ribbon has replaced the toolbar and is the biggest change from Excel 2003 to 2010. The Ribbon contains all the commands related to managing and working with spreadsheets. One of the biggest differences between old-fashioned toolbars and the new-fashioned Ribbon is that the Ribbon is divided into tabs.

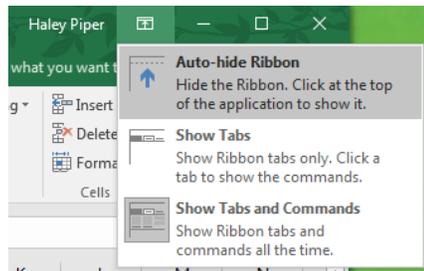


Auto Hide Ribbon

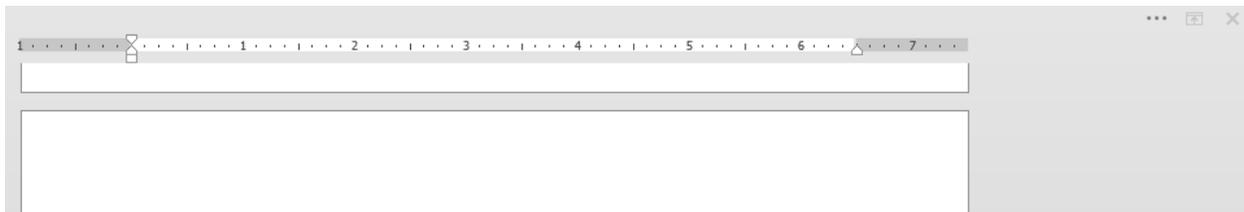
Auto Hide allows you to hide the Ribbon from your screen. You can specify if you want it blank, the tabs to show, or tabs and commands to show.



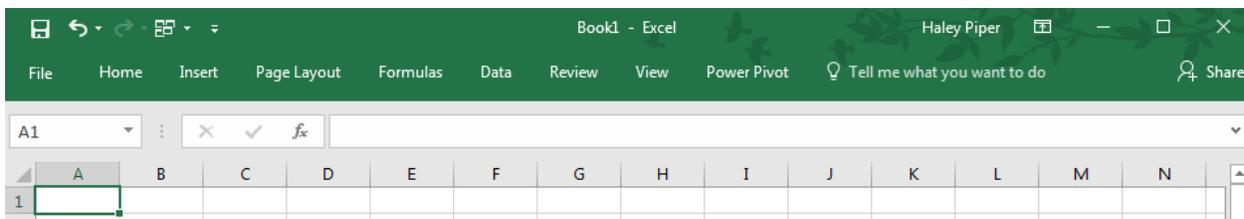
- **Step 1:** Click the Ribbon Display Options tool.
- **Step 2:** Click on Auto-hide Ribbon.



The Ribbon will disappear.



If you want to just bring back the tabs, click on Show Tabs in the Ribbon Display Options.

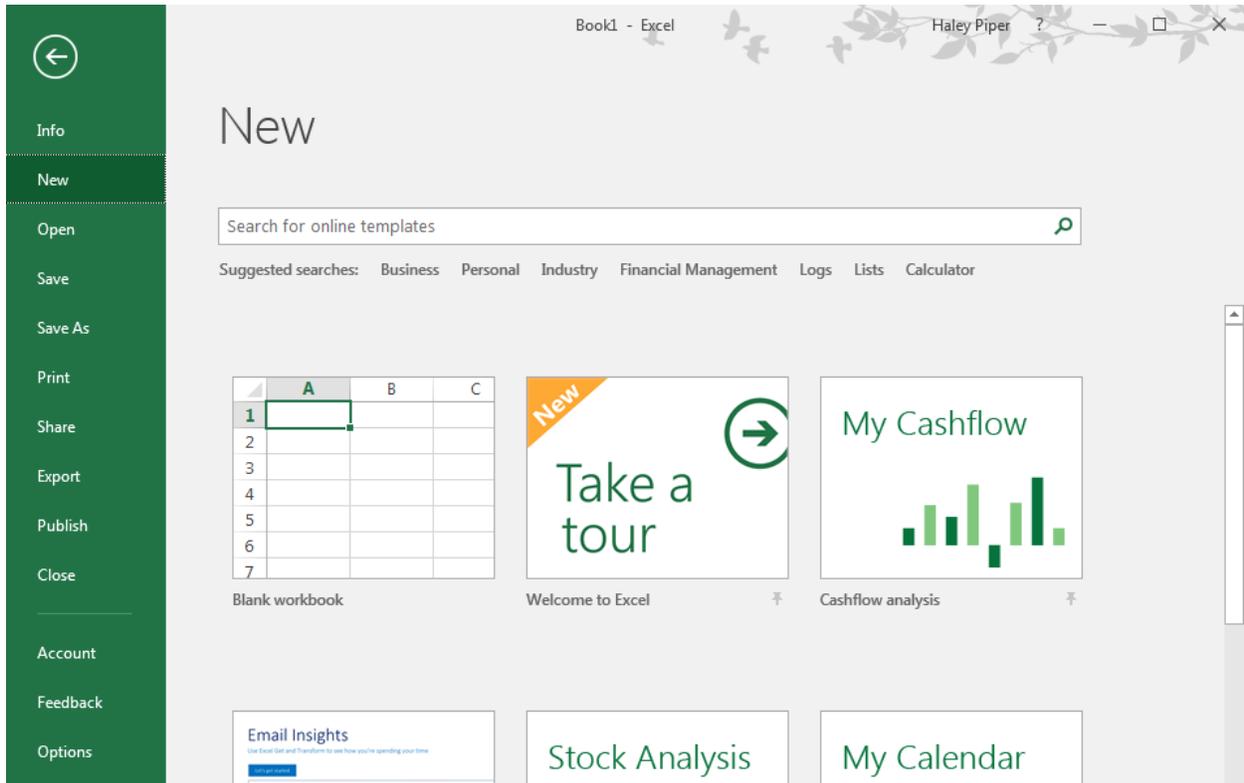


If you want to bring everything back (the tabs and commands) click Show Tabs and Commands in the Ribbon Display Options.

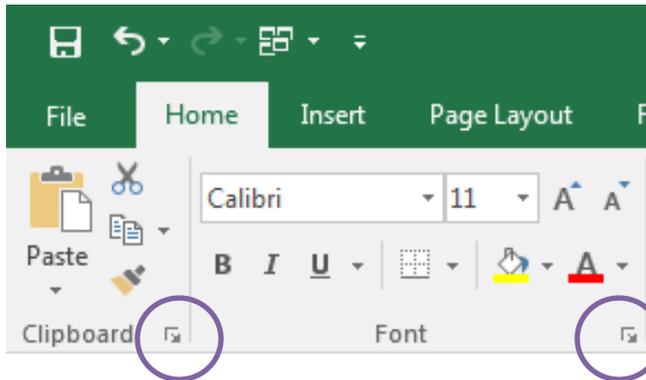
In Excel, seven tabs display by default: Home, Insert, Page Layout, Formulas, Data, Review and View. In addition, you can display the Developer tab, and you might see an Add-Ins tab but we won't bother with that right now. We will discuss the different tabs in the Ribbon in a later chapter.

Backstage View

The Backstage view contains all the commands related to managing the spreadsheets and customizing the program. It provides an easy way to create, open, save, print, share, and close files; find recently used files; view and update workbook properties; set permissions; set program options; get help; and exit the program.



Dialog Box Launcher



For additional formatting, there are dialog box launchers located at the bottom of the ribbon that are indicated by small arrows in the right-hand corners. When these are clicked a dialog box will open providing more options for editing and formatting the spreadsheet.

You can also add a dialog box launcher to any group on a Ribbon. In doing this you can add common editing options that you use creating an even easier environment for you to work.

Keyboard Shortcuts

There are a bunch of keyboard shortcuts you can use to get around faster. Here are a few that are commonly used to get you up to speed.

Action	Keyboard Shortcut
Copy	Ctrl + C
Cut	Ctrl + X
Paste	Ctrl + V
Undo	Ctrl + Z
Redo	Ctrl + Y
Select All	Ctrl + A
Move One Cell to the Right	Tab
Move One Cell to the Left	Shift + Tab
Insert a New Line within Cell	Alt + Enter
Enable Editing within a Cell	F2
Save Workbook	Ctrl + S
Print Workbook	Ctrl + P

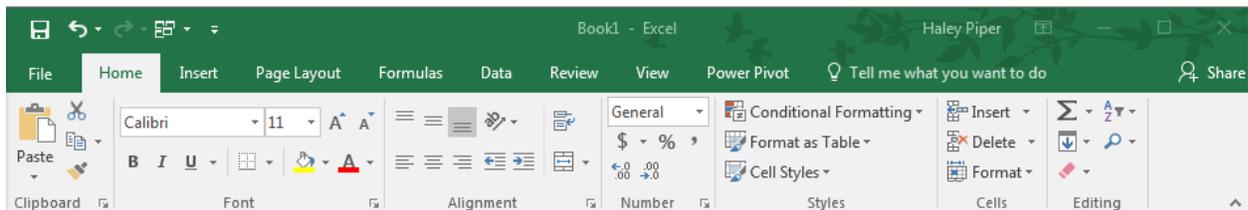
Chapter 3: Learning the Ribbon

The Ribbon was designed to help make the Office applications easier to work with, and help users discover the rich features and capabilities of Office. The menus and toolbars have expanded over the years making it difficult for users to find the commands they needed quickly and easily. With that in mind, the Ribbon was developed allowing for better usability.

Understanding the Ribbon is a great way to help understand what can be done in Excel, especially if you are making the shift between Office 2003 to Office 2010. The ribbon holds all the information in previous versions of Microsoft Office in a more visual stream line manner through a series of tabs that include an immense variety of program features.

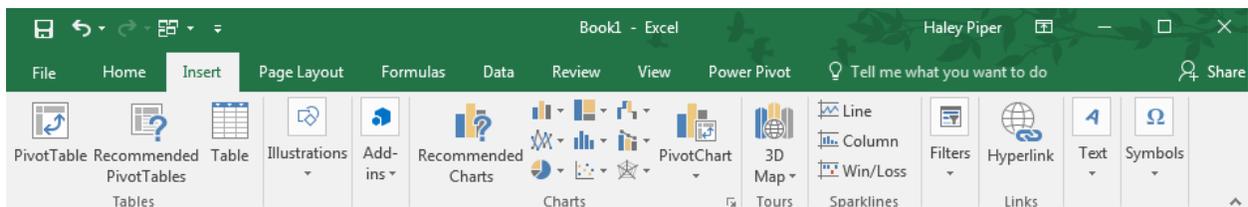
Home Tab

The Home is the most used tab; it incorporates all text and cell formatting features such as font and paragraph changes. The Home Tab also includes basic spreadsheet formatting elements such as text wrap, merging cells and cell style.



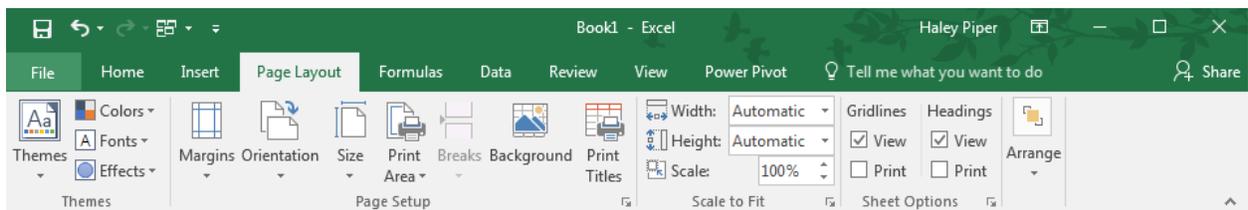
Insert Tab

The Insert tab allows you to insert a variety of items into a workbook from pictures, clip art, and headers and footers.



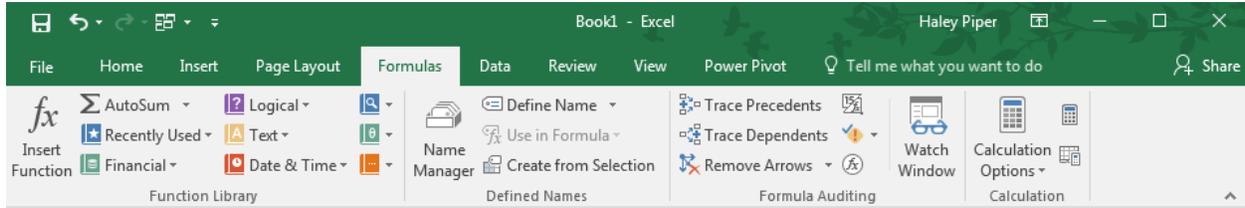
Page Layout Tab

The Page Layout tab has commands to adjust page such as margins, orientation and themes.



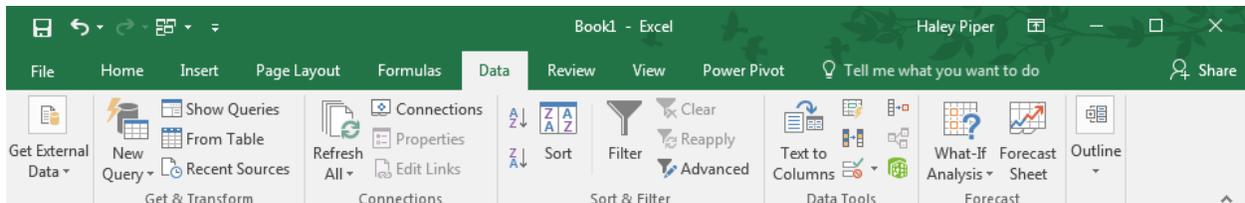
Formulas Tab

The Formulas tab has commands to use when creating Formulas. This tab holds an immense function library which can assist when creating any formula or function in your spreadsheet.



Data Tab

The Data tab allows you to modifying worksheets with large amounts of data by sorting and filtering as well as analyzing and grouping data.



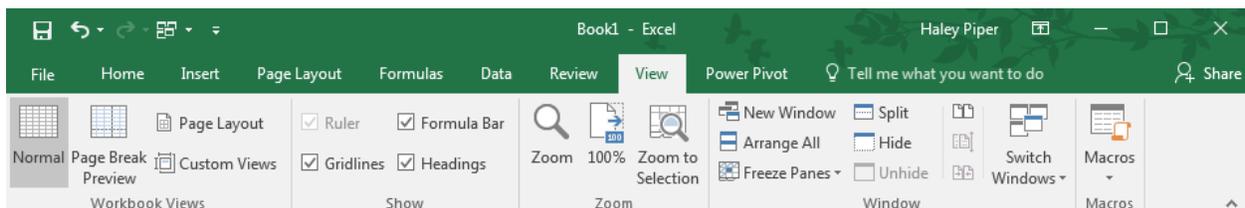
Review Tab

The Review tab allows you to correct spelling and grammar issues as well as set up security protections. It also provides the track changes and notes feature providing the ability to make notes and changes to someone's workbook.



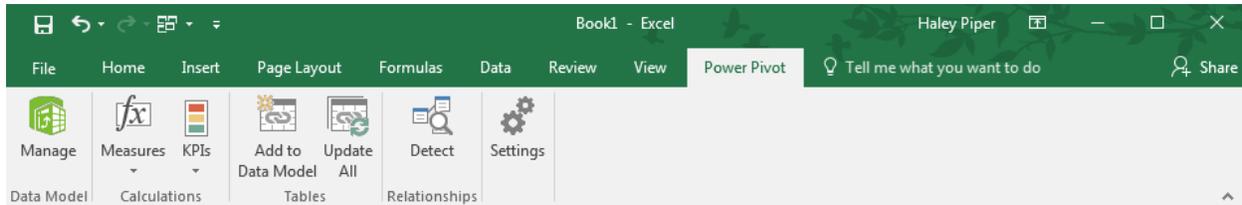
View Tab

The View tab allows you to change the view of your workbook including freezing or splitting panes, viewing gridlines and hide cells.



PowerPivot Tab

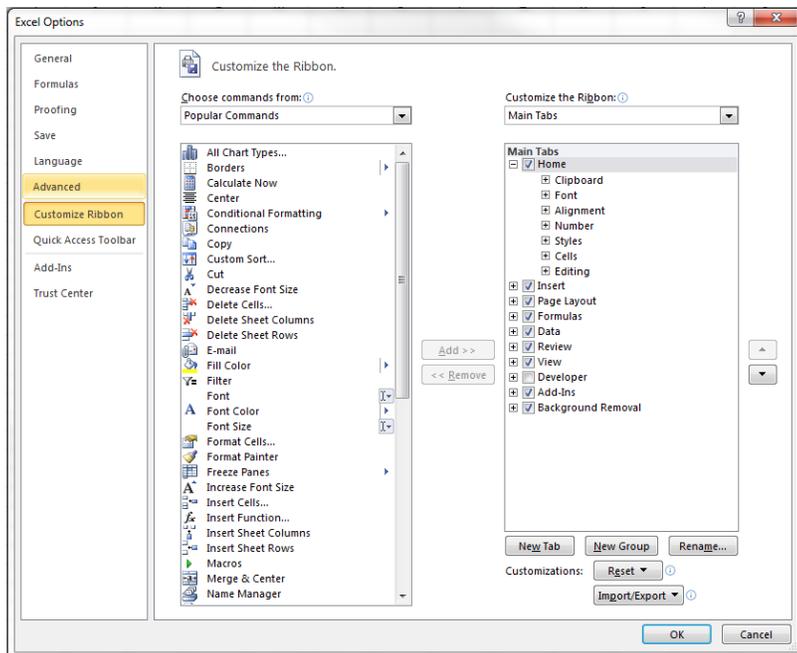
The View tab allows you to change the view of your workbook including freezing or splitting panes, viewing gridlines and hide cells.



Customizing the Ribbon

Use customizations to personalize the ribbon the way that you want it. For example, you can create custom tabs and custom groups to contain your frequently used commands. This can be done by selecting **Options** in the Backstage view and then clicking **Customize Ribbon**. From there you can create new Tabs and Groups selecting the commands you would like to use within them.

You can rename and change the order of the default tabs and groups that are built-into Microsoft Office 2010. However, you cannot rename the default commands, change the icons associated with these default commands, or change the order of these commands. The default commands appear in gray text.



IMPORTANT Ribbon customization is specific to the Microsoft Office program you are working in at the time. Ribbon customization does not apply across all Office programs.

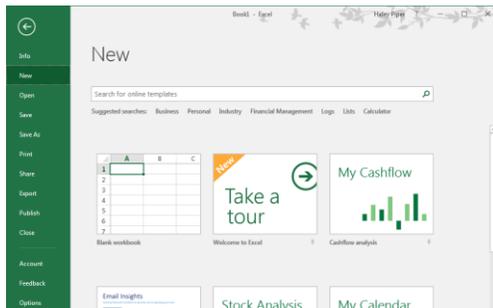
To add commands to a group, you must add a custom group to a default tab or to a new, custom tab. To help you identify a custom tab or group and to distinguish from a default tab or group, the custom tabs and groups in the **Customize the Ribbon** list have (Custom) after the name, but the word (Custom) does not appear in the ribbon.

Chapter 4: New in Excel 2016

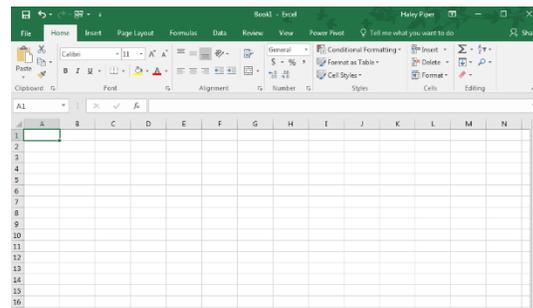
This chapter provides a brief look at some of the changes you will find in Excel 2016. Those changes include the new look of Excel and new capabilities that enable you to better protect, share, save, and edit your worksheet. After reading this chapter, you will understand the new tools and features that you can use to create and share professional spreadsheets with ease.

Slightly New Look

Excel 2016 still has a simplified and clean look to make navigating through various commands easy which in turn will make you more efficient. This new look also includes updated Templates that will do much of the formatting for you. When opening PowerPoint, you are immediately presented with template options. Choosing a template sets the ground work and all you need to do is enter your information. The colors may have changed but the user-friendly platform stays the same.



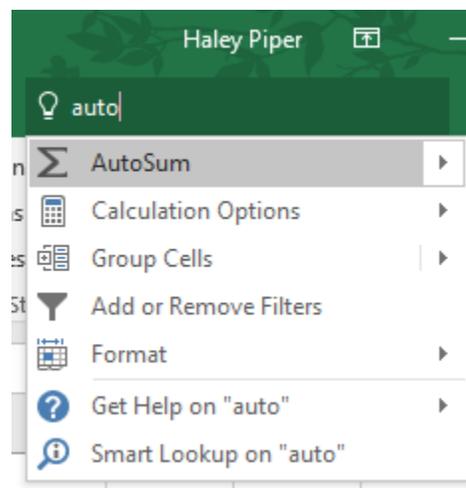
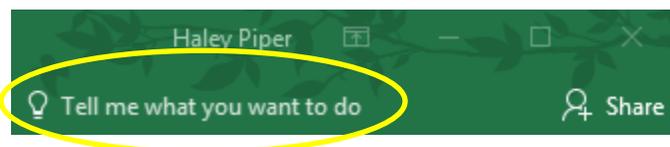
Templates



Blank Presentation

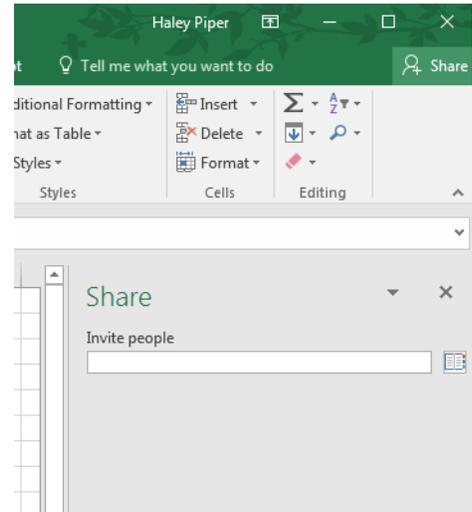
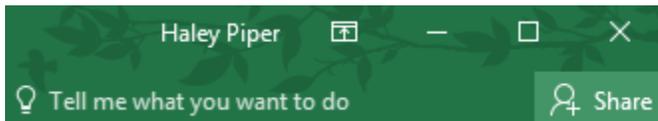
Tell Me

The “Tell Me” feature is a brand new for Microsoft Office 2016 and is located at the end of the ribbon tabs. Sometimes it can be tricky to remember where commands reside the ribbon, especially if you don’t use them often. The “Tell Me” feature acts as a search bar where you can type in what you are looking for and Word will give you a list of commands to choose from. “Tell Me” saves you from searching through the many ribbon tabs and directs you to the exact command you’re searching for.



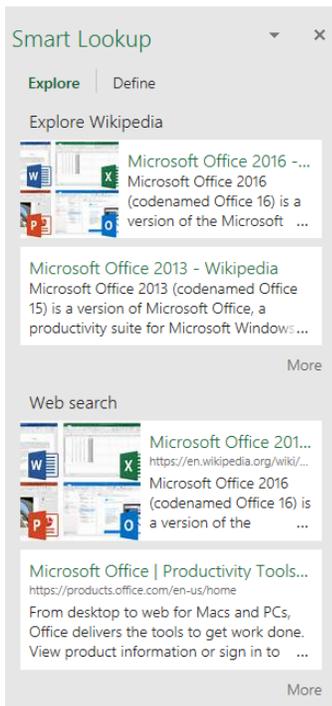
Share

The new Share button makes it easier than ever to collaborate with others. This button can be found in the upper-right corner, beneath the close button. Once you have saved your document to OneDrive or SharePoint, all you need to do is click the Share button and type in the names of individuals you wish to collaborate with. You can also decide what level of permissions you would like them to have by selecting an option from the drop-down box. Finally, you can include a message with your invite so the recipient knows exactly what you need from them.



Smart Lookup

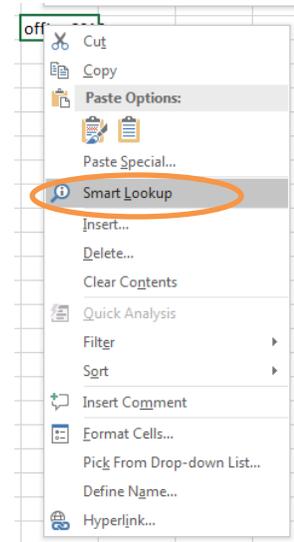
Smart Lookup is available in all Office 2016 programs, including Word 2016. Think of this new feature as a digital research assistant. It can pull information from the web to enhance your work or assist with unfamiliar content. Simply highlight a word or phrase that you wish to research, then right-click and select Smart Lookup. A pane will appear on the left of the screen with links of information to choose from with more information on the selected text.



Step 1: Highlight word/phrase

Step 2: Right-click the selected text

Step 3: Choose Smart Lookup from the dropdown menu. A pane will appear on the left with web research relating to the selected word or phrase.



Chapter 5: Diving Deeper into Excel 2016

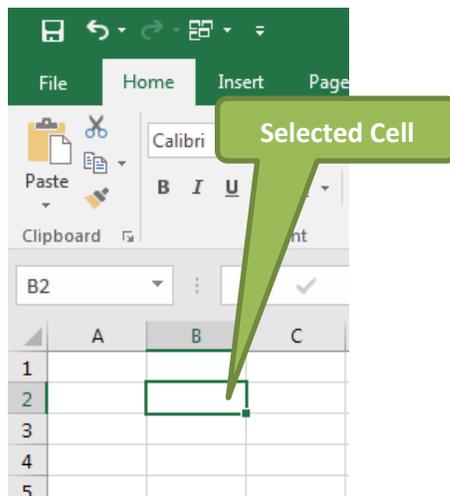
How-To Basics: Using Excel in Your Office

Basic Fundamentals

Selecting Cells

To Select a Cell

- **Step 1:** Click on a cell to select it. When a cell is selected, you will notice that the borders of the cell appear bold and the column heading and row heading of the cell are highlighted.
- **Step 2:** Release your mouse. The cell will stay selected until you click on another cell in the worksheet.



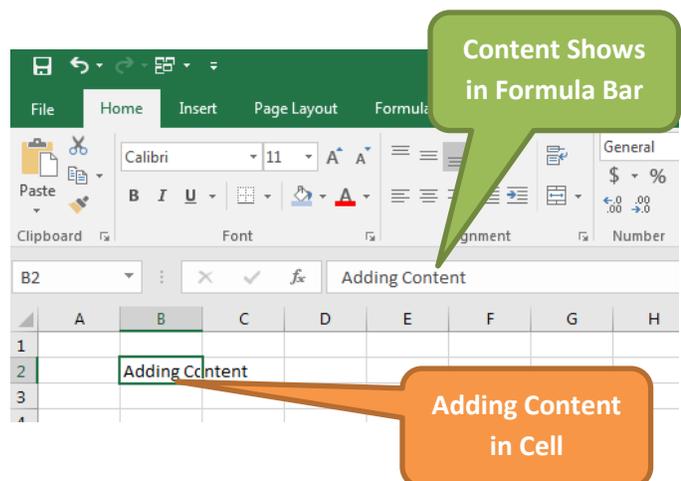
To Select Multiple Cells

- **Step 1:** Click and drag your mouse until all the adjoining cells you want are highlighted.
- **Step 2:** Release your mouse. The cells will stay selected until you click on another cell in the worksheet.

Adding/Removing Content

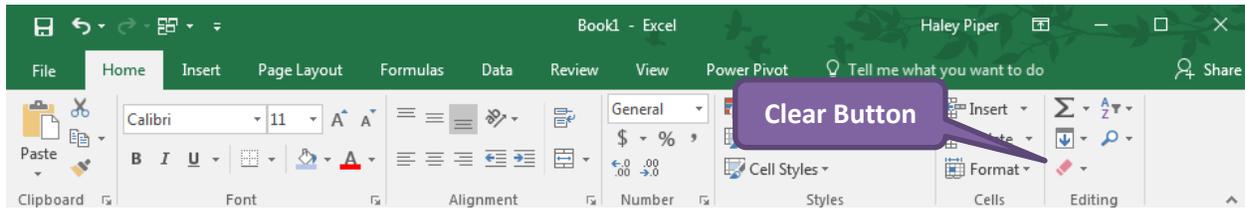
To Insert Content

- **Step 1:** Click on a cell to select it.
- **Step 2:** Enter content into the selected cell using your keyboard. The content appears in the cell and in the formula bar. You also can enter or edit cell content from the formula bar.



To Delete Content Within Cells

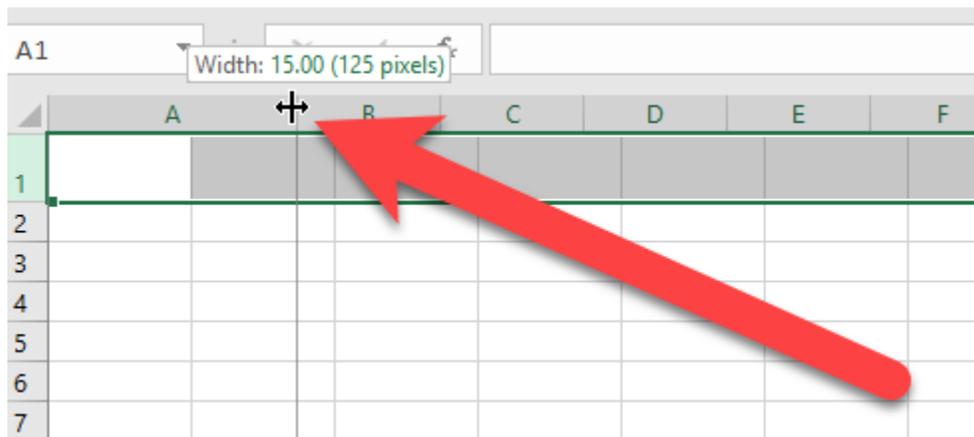
- **Step 1:** Select the cells which contain content you want to delete.
- **Step 2:** Click the Clear command on the ribbon. A dialog box will appear.
- **Step 3:** Select Clear Contents.



Note: You can also use your keyboard's Backspace key to delete content from a single cell or Delete key to delete content from multiple cells.

Modifying Column Width & Row HeightModify Column Width

- **Step 1:** Position your mouse over the column line in the column heading so that the white cross becomes a double arrow.

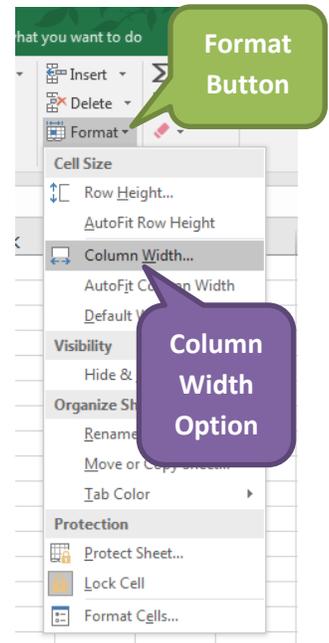


- **Step 2:** Click and drag the column to the right to increase the column width or to the left to decrease the column width.
- **Step 3:** Release the mouse. The column width will be changed in your spreadsheet.

To Set Column Width with a Specific Measurement

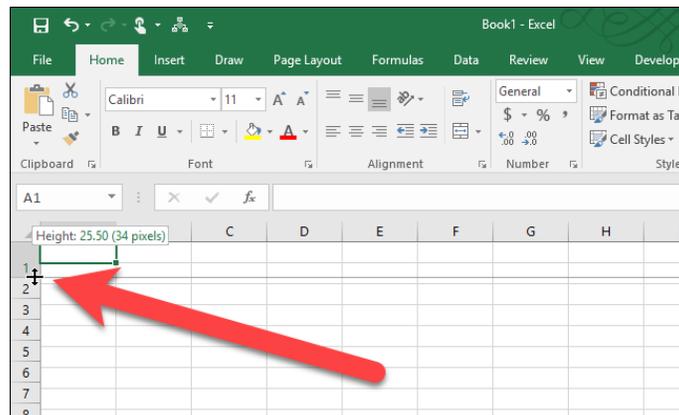
- **Step 1:** Select the columns you want to modify.
- **Step 2:** Click the Format command on the Home tab. The format drop-down menu appears.
- **Step 3:** Select Column Width.
- **Step 4:** The Column Width dialog box appears. Enter a specific measurement.
- **Step 5:** Click OK. The width of each selected column will be changed in your worksheet.

Note: Select AutoFit Column Width from the format drop-down menu and Excel will automatically adjust each selected column so that all the text will fit.



To Modify the Row Height

- **Step 1:** Position the cursor over the row line so that the white cross becomes a double arrow.

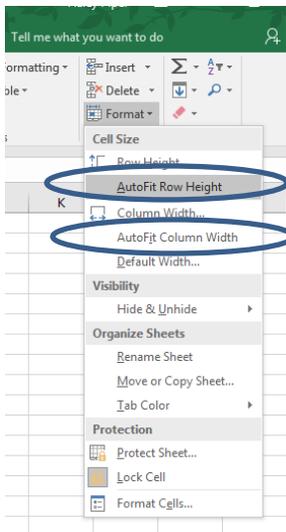
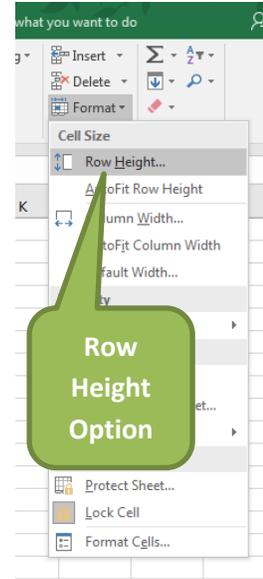


- **Step 2:** Click and drag the row downward to increase the row height or upward decrease the row height.
- **Step 3:** Release the mouse. The height of each selected row will be changed in your worksheet.

To Set Row Height with a Specific Measurement

- **Step 1:** Select the rows you want to modify.
- **Step 2:** Click the Format command on the Home tab. The format drop-down menu appears.
- **Step 3:** Select Row Height.
- **Step 4:** The Row Height dialog box appears. Enter a specific measurement.
- **Step 5:** Click OK. The selected rows heights will be changed in your spreadsheet.

Note: Select AutoFit Row Height from the format drop-down menu and Excel will automatically adjust each selected row so that all the text will fit.



AutoFit Columns & Rows

- **Step 1:** Select the column or columns that you want to change.
- **Step 2:** On the Home tab, in the Cells group, click Format.
- **Step 3:** Under Cell Size, click AutoFit Column Width.

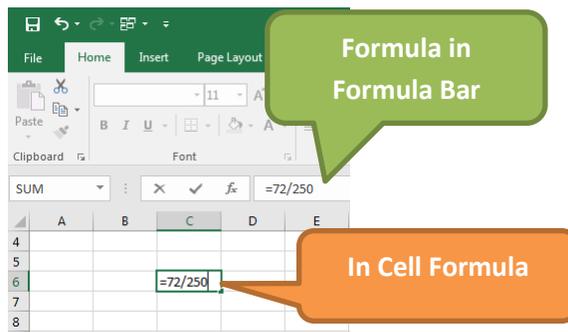
Creating Simple Formulas

Excel uses standard operators for equations, such as a plus sign for addition (+), a minus sign for subtraction (-), an asterisk for multiplication (*), a forward slash for division (/), and a caret (^) for exponents.

The key thing to remember when writing formulas for Excel is that all formulas must begin with an equal sign (=). This is because the cell contains, or is equal to, the formula and its value.

To Create a Simple Formula in Excel

- **Step 1:** Select the cell where the answer will appear.
- **Step 2:** Type the equal sign (=).
- **Step 3:** Type in the formula you want Excel to calculate. For example, "75/250".



- **Step 4:** Press Enter. The formula will be calculated and the value will be displayed in the cell.

Using Cell Reference Formulas

When a formula contains a cell address, it is called a cell reference. Creating a formula with cell references is useful because you can update data in your worksheet without having to rewrite the values in the formula.

To Create a Formula Using Cell References

- **Step 1:** Select the cell where the answer will appear.

	A	B	C	D
1	Budget for June	\$400.00		
2	Budget for July	\$300.00		
3	Total Budget			
4				

- **Step 2:** Type the equal sign (=).
- **Step 3:** Type the cell address that contains the first number in the equation.

	A	B	C	D
1	Budget for June	\$400.00		
2	Budget for July	\$300.00		
3	Total Budget	=B1		
4				

- **Step 4:** Type the operator you need for your formula. For example, type the addition sign (+).
- **Step 5:** Type the cell address that contains the second number in the equation.

	A	B	C	D
1	Budget for June	\$400.00		
2	Budget for July	\$300.00		
3	Total Budget	=B1+B2		
4				

- **Step 6:** Press Enter. The formula will be calculated and the value will be displayed in the cell.

	A	B	C	D
1	Budget for June	\$400.00		
2	Budget for July	\$300.00		
3	Total Budget	\$700.00		
4				

Note: If you change a value in either B1 or B2, the total will automatically recalculate.

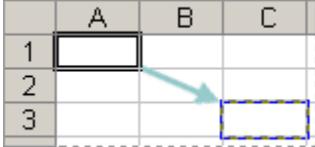
Using Absolute and Mixed Cell References

By default, a cell reference is relative. For example, when you refer to cell A2 from cell C2, you are actually referring to a cell that is two columns to the left (C minus A), and in the same row (2). A formula that contains a relative cell reference changes as you copy it from one cell to another. As an example, if you copy the formula =A2+B2 from cell C2 to D2, the formula in D2 adjusts downward by one row and becomes =A3+B3. If you want to maintain the original cell reference in this example when you copy it, you make the cell reference absolute by preceding the columns (A and B) and row (2) with a dollar sign (\$). Then, when you copy the formula (=A\$2+\$B\$2) from C2 to D2, the formula stays exactly the same.

In less frequent cases, you may want to make a cell reference "mixed" by preceding either the column or the row value with a dollar sign to "lock" either the column or the row (for example, \$A2 or B\$3). To change the type of cell reference:

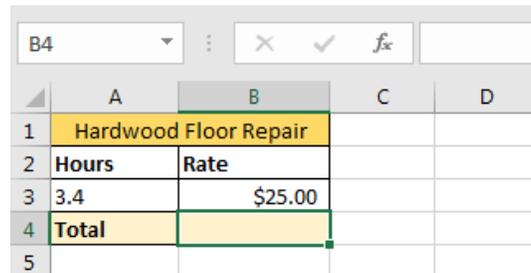
- **Step 1:** Select the cell that contains the formula.
- **Step 2:** In the formula bar Formula bar, select the reference that you want to change.
- **Step 3:** Press F4 to switch between the reference types.

The following table summarizes how a reference type updates if a formula containing the reference is copied two cells down and two cells to the right.

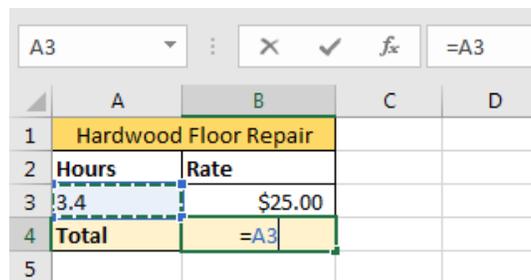
FOR A FORMULA BEING COPIED:	IF THE REFERENCE IS:	IT CHANGES TO:
	\$A\$1 (absolute column and absolute row)	\$A\$1 (the reference is absolute)
	A\$1 (relative column and absolute row)	C\$1 (the reference is mixed)
	\$A1 (absolute column and relative row)	\$A3 (the reference is mixed)
	A1 (relative column and relative row)	C3 (the reference is relative)

Using the Point & Click Method for Formulas

- **Step 1:** Select the cell where the answer will appear.



- **Step 2:** Type the equal sign (=).
- **Step 3:** Click on the first cell to be included in the formula.



- **Step 4:** Type the operator you need for your formula. For example, type the multiplication sign (*).
- **Step 5:** Click on the next cell in the formula.

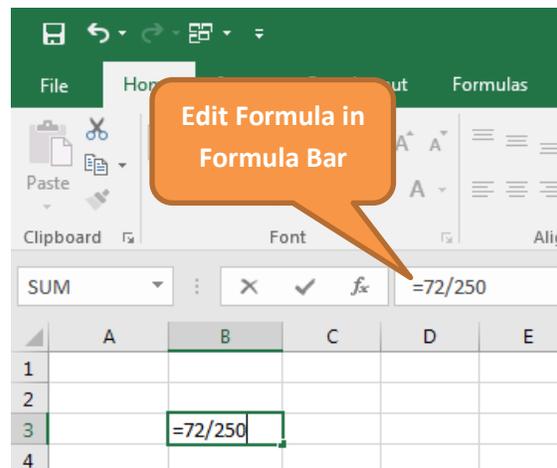
	A	B	C	D
1	Hardwood Floor Repair			
2	Hours	Rate		
3	3.4	\$25.00		
4	Total	=A3*B3		
5				

- **Step 6:** Press Enter. The formula will be calculated and the value will be displayed in the cell.

	A	B	C	D
1	Hardwood Floor Repair			
2	Hours	Rate		
3	3.4	\$25.00		
4	Total	\$85.00		
5				

Editing Formulas

- **Step 1:** Click on the cell you want to edit.
- **Step 2:** Insert the cursor in the formula bar and edit the formula as desired. You can also double-click the cell to view and edit the formula directly from the cell.
- **Step 3:** When finished, press Enter or select the Enter Command Cursor.
- **Step 4:** The new value will be displayed in the cell.

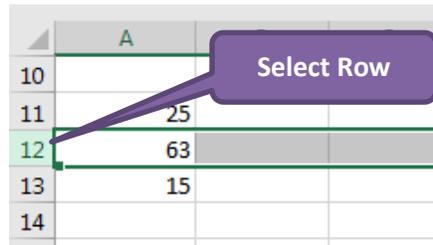


Home Tab Basic

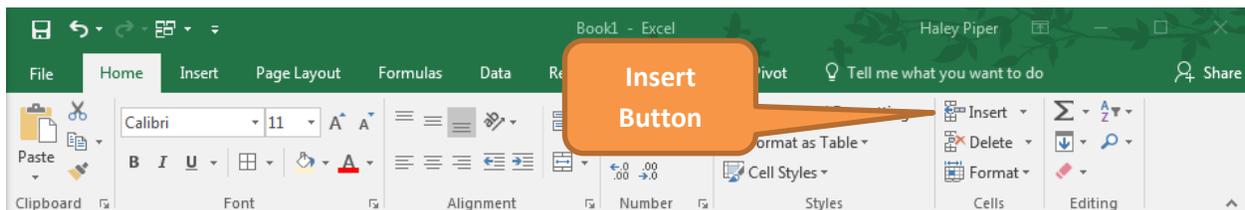
Inserting Rows & Columns

To Insert Rows

- **Step 1:** Select the row below where you want the new row to appear.



- **Step 2:** Click the Insert command on the Home tab.

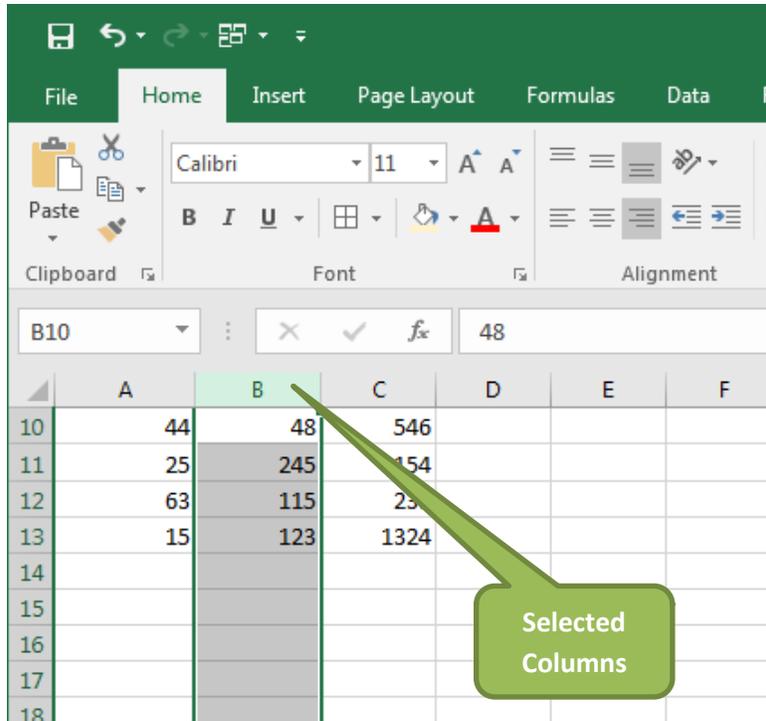


- **Step 3:** The new row appears in your worksheet.

Note: When inserting new rows, columns, or cells, you will see the Insert Options Button Cursor by the inserted cells. This button allows you to choose how Excel formats them. By default, Excel formats inserted rows with the same formatting as the cells in the row above them. To access more options, hover your mouse over the Insert Options button and click on the drop-down arrow that appears.

To Insert Columns

- **Step 1:** Select the column to the right of where you want the new column to appear. For example, if you want to insert a column between A and B, select column B.

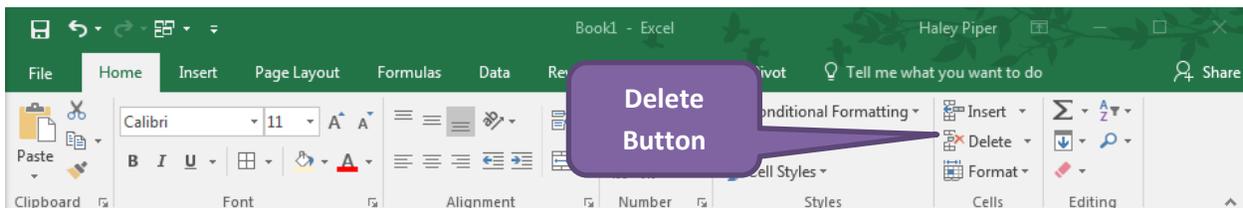


- **Step 2:** Click the Insert command on the Home tab.
- **Step 3:** The new column appears in your worksheet.

Note: By default, Excel formats inserted columns with the same formatting as the column to the left of them. To access more options, hover your mouse over the Insert Options button and click on the drop-down arrow that appears.

Deleting Rows & Columns

- **Step 1:** Select the rows or columns you want to delete.
- **Step 2:** Click the Delete command on the Home tab.



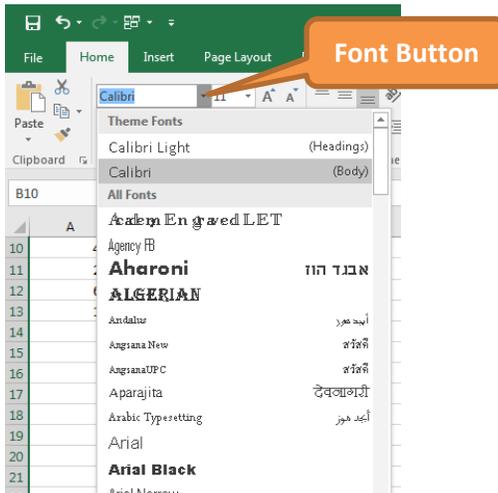
- **Step 3:** The rows or columns are deleted from your worksheet.

Formatting Text

To Change the Font

- **Step 1:** Select the cells you want to modify.
- **Step 2:** Click the drop-down arrow next to the font command on the Home tab. The font drop-down menu appears.

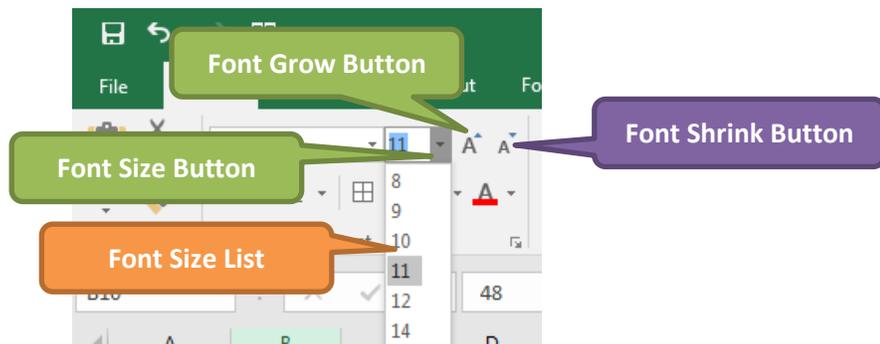
- **Step 3:** Move your mouse over the various fonts. A live preview of the font will appear in the worksheet.



- **Step 4:** Select the font you want to use.

To Change the Font Size

- **Step 1:** Select the cells you want to modify.
- **Step 2:** Click the drop-down arrow next to the font size command on the Home tab. The font size drop-down menu appears.
- **Step 3:** Move your mouse over the various font sizes. A live preview of the font size will appear in the worksheet.

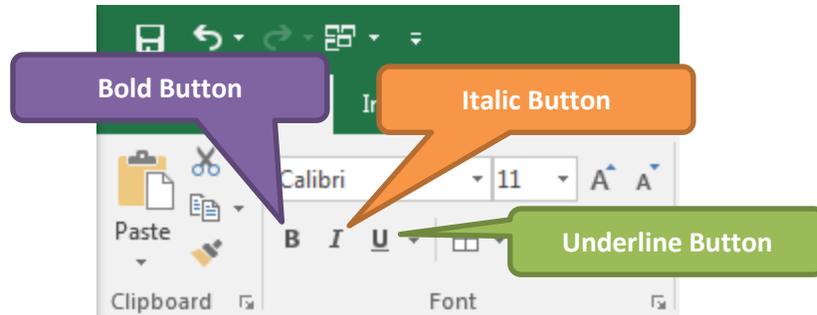


- **Step 4:** Select the font size you want to use.

Note: You can also use the Grow Font and Shrink Font commands to change the size.

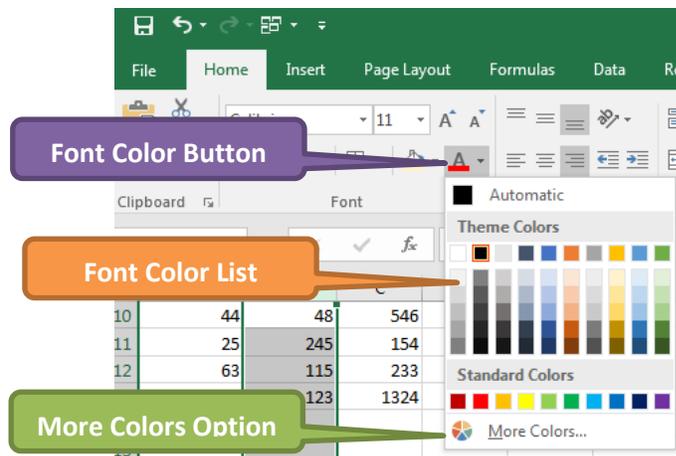
Use the Bold, Italic, and Underline Commands

- **Step 1:** Select the cells you want to modify.
- **Step 2:** Click the Bold (B), Italic (I), or Underline (U) command on the Home tab.



To Change the Font Color

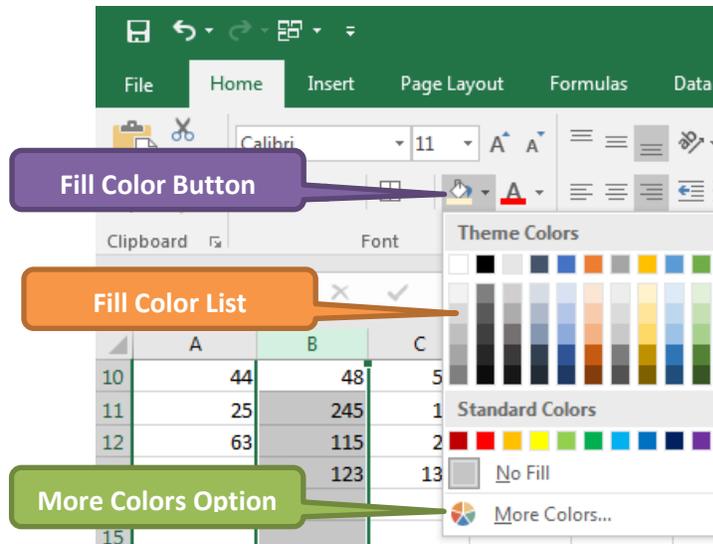
- **Step 1:** Select the cells you want to modify.
- **Step 2:** Click the drop-down arrow next to the font color command on the Home tab. The color menu appears.
- **Step 3:** Move your mouse over the various font colors. A live preview of the color will appear in the worksheet.
- **Step 4:** Select the font color you want to use.



Note: Your color choices are not limited to the drop-down menu that appears. Select More Colors at the bottom of the menu to access additional color options.

To Add a Fill Color

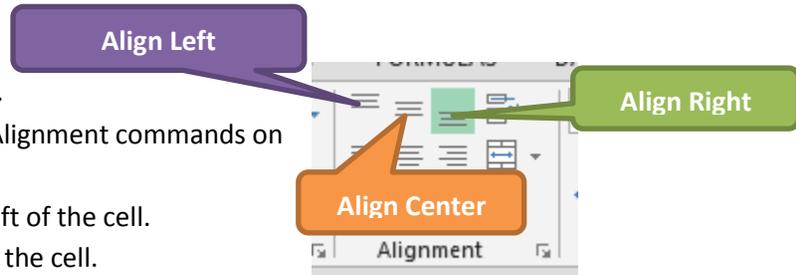
- **Step 1:** Select the cells you want to modify.
- **Step 2:** Click the drop-down arrow next to the fill color command on the Home tab. The color menu appears.
- **Step 3:** Move your cursor over the various fill colors. A live preview of the color will appear in the worksheet.



- **Step 4:** Select the fill color you want to use.

To Change Horizontal Text Alignment

- **Step 1:** Select the cells you want to modify.
- **Step 2:** Select one of the three horizontal Alignment commands on the Home tab.
 - Align Text Left: Aligns text to the left of the cell.
 - Center: Aligns text to the center of the cell.
 - Align Text Right: Aligns text to the right of the cell.



To Change Vertical Text Alignment

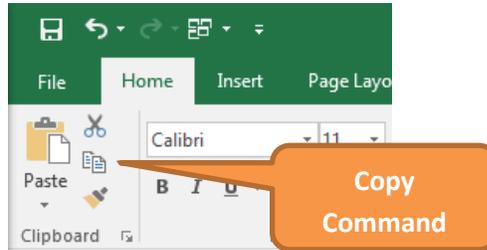
- **Step 1:** Select the cells you want to modify.
- **Step 2:** Select one of the three vertical Alignment commands on the Home tab.
 - Top Align: Aligns text to the top of the cell.
 - Middle Align: Aligns text to the middle of the cell.
 - Bottom Align: Aligns text to the bottom of the cell.



Using Cut, Copy, & Paste

To Copy and Paste Cell Content

- **Step 1:** Select the cells you wish to copy.
- **Step 2:** Click the Copy command (this can also be done by hitting CTRL + C or right clicking in the cell and choosing the Copy option). The border of the selected cells will change appearance.

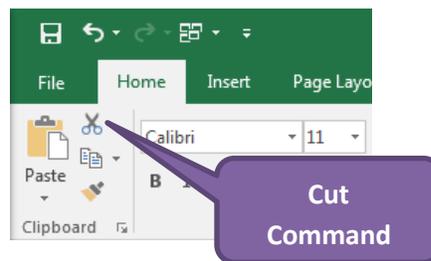


- **Step 3:** Select the cell or cells where you want to paste the content.
- **Step 4:** Click the Paste command (this can also be done by hitting CTRL + V C or right clicking in the cell and choosing the Paste option). The copied content will be entered into the highlighted cells.



To Cut and Paste Cell Content

- **Step 1:** Select the cells you wish to cut.
- **Step 2:** Click the Cut command (this can also be done by hitting CTRL + X C or right clicking in the cell and choosing the Cut option). The border of the selected cells will change appearance.

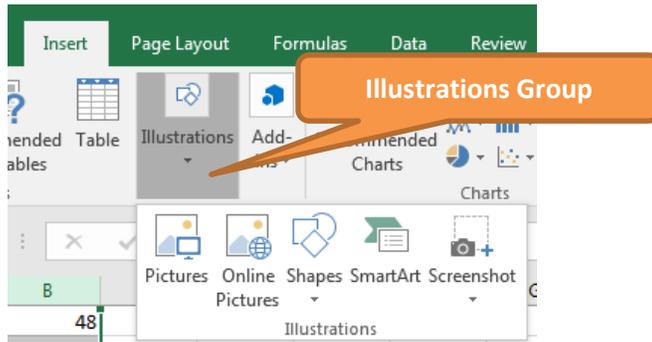


- **Step 3:** Select the cells where you want to paste the content.
- **Step 4:** Click the Paste command (this can also be done by hitting CTRL + V C or right clicking in the cell and choosing the Paste option). The cut content will be removed from the original cells and entered into the highlighted cells.

Insert Tab Basic

Inserting Illustrations

- **Step 1:** Click the cell where you want to insert the illustration.
- **Step 2:** On the Insert tab, in the Illustrations group, click the type of illustration you want to add to your spreadsheet.



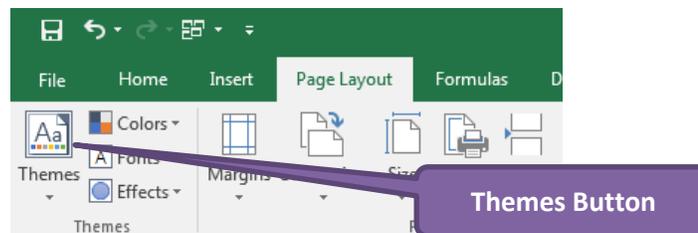
- **Step 3:** Follow the prompts to insert illustration.

Page Layout Tab Basic

Using Themes

To change the document theme that is applied by default in Word and Excel, select another predefined document theme or a custom document theme. Document themes that you apply affect the styles that you can use in your document.

- **Step 1:** On the Page Layout tab, in the Themes group, click Themes.



- **Step 2:** Do one of the following:
 - To apply a predefined document theme, under Built-In, click the document theme that you want to use.
 - To apply a custom document theme, under Custom, click the document theme that you want to use.

Note: Custom is available only if you created one or more custom document themes. For more information about creating custom document themes, see [Customize a document theme](#) below.

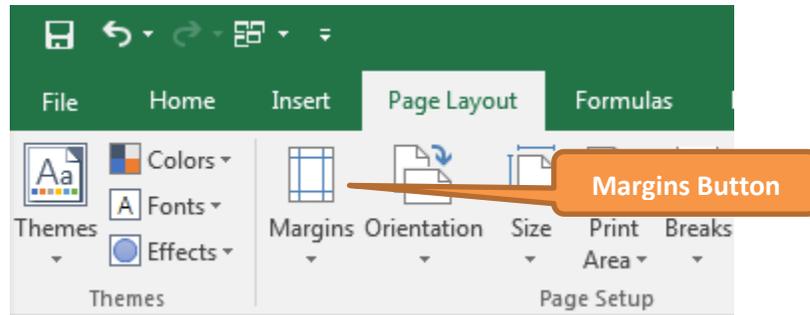
- **Step 3:** If a theme that you want to use is not listed, click Browse for Themes to find it on your computer or network.

Working with Margins

Page margins are the blank spaces between the worksheet data and the edges of the printed page. Top and bottom page margins can be used for some items, such as headers, footers, and page numbers.

To better align a worksheet on a printed page, you can use predefined margins, specify custom margins, or center the worksheet horizontally or vertically on the page.

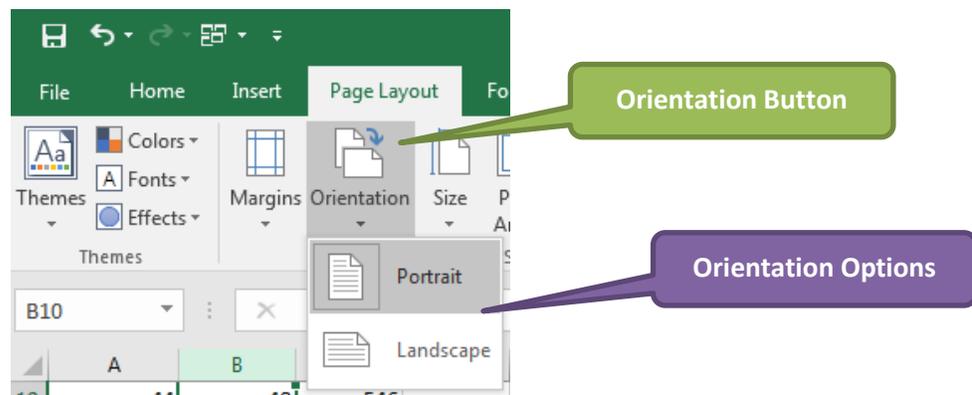
- **Step 1:** On the Page Layout tab, in the Page Setup group, click Margins.



- **Step 2:** Do one of the following:
 - To use predefined margins, click Normal, Wide, or Narrow.
 - To specify custom page margins, click Custom Margins and then, in the Top, Bottom, Left, and Right boxes, enter the margin sizes that you want.
 - To set header or footer margins, click Custom Margins, and then enter a new margin size in the Header or Footer box. Setting the header or footer margins changes the distance from the top edge of the paper to the header or from the bottom edge of the paper to the footer.

Setting Orientation

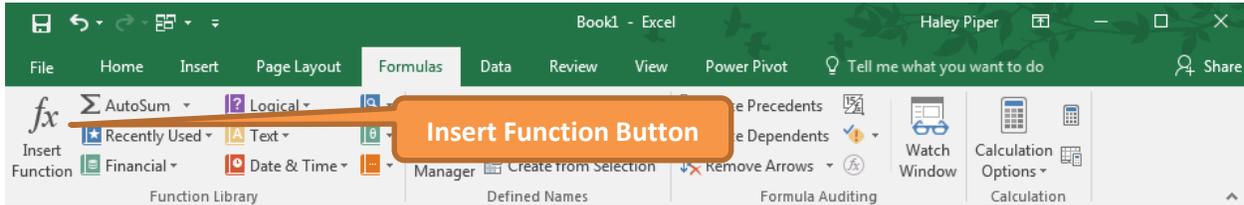
- **Step 1:** On the Page Layout tab, in the Page Setup group, click Orientation
- **Step 2:** Select between Landscape or Portrait



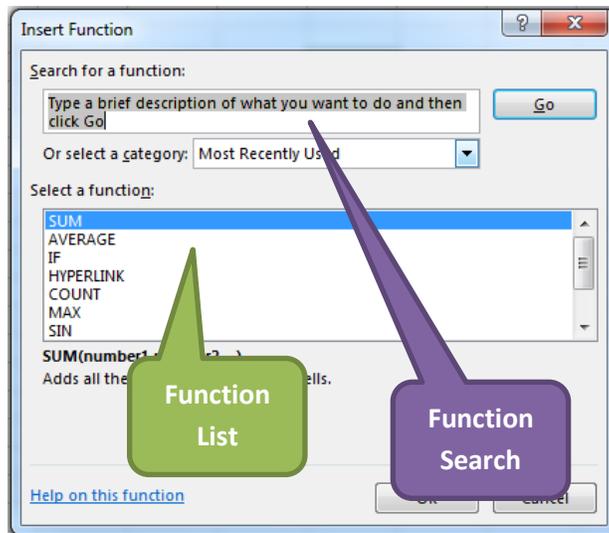
Formulas Tab Basic

Inserting a Function

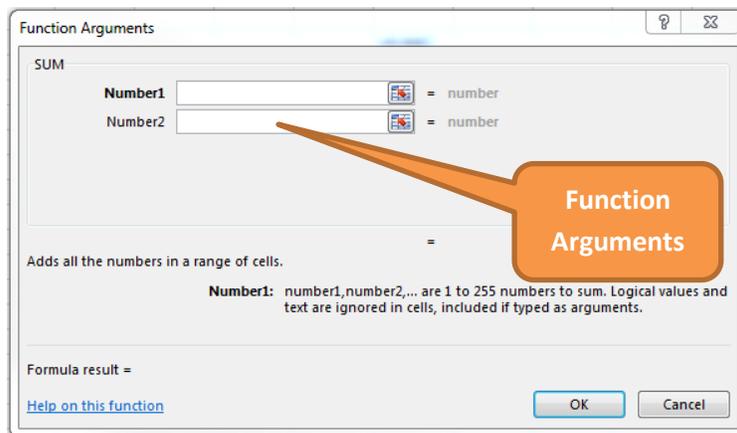
- **Step 1:** Select the cell you want to add a formula into.
- **Step 2:** Click on the Insert Function command on the Formulas tab.



- **Step 3:** Select a function from the list from the Insert Function dialog box and then click Ok.

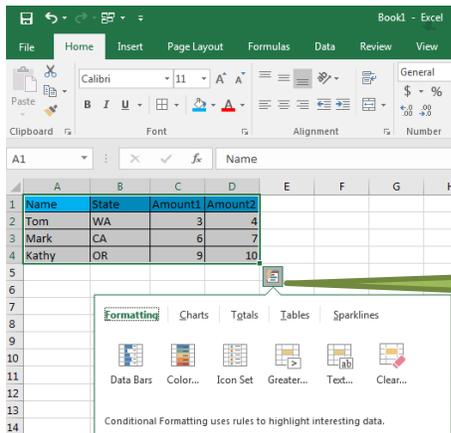


- **Step 4:** Enter the data or cell references into the Function Arguments dialog box and then click Ok.



- **Step 5:** The answer will display in the selected cell.

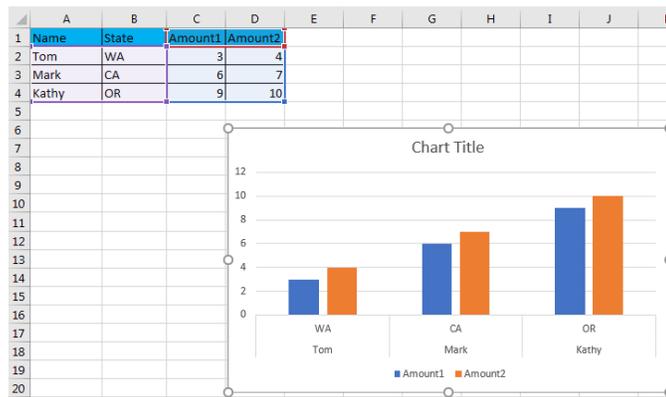
Quick Analysis Tool



The Quick Analysis Tool provides you with single-click access to tools that you may use regularly in Excel. These tools include Formatting, Charts, Totals, Tables, and Sparklines.

- **Step 1:** Select the area of info you want to analyze
- **Step 2:** The Quick Analysis Tool will appear. Click on the Quick Analysis Tool.

- **Step 3:** Choose from the categories provided. In this example I am choosing Charts. Click the style of chart you would like and it will automatically appear with the data included.



Review Tab Basic

Checking Spelling

- **Step 1:** Select the cells you want to spell check.
- **Step 2:** Click on the Spelling command from the Review tab.

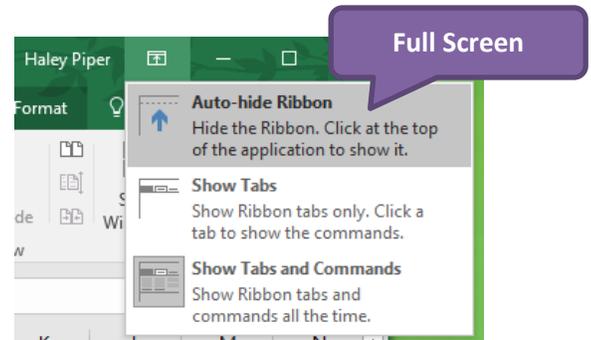


- **Step 3:** The Spelling dialog box will open. From the Spelling dialog box, you can review and edit any misspelled words.

View Tab Basic

View Full Screen

- **Step 1:** Click on the Full Screen Button on the View tab.
- **Step 2:** Click the top of the page to make the Ribbon re-appear



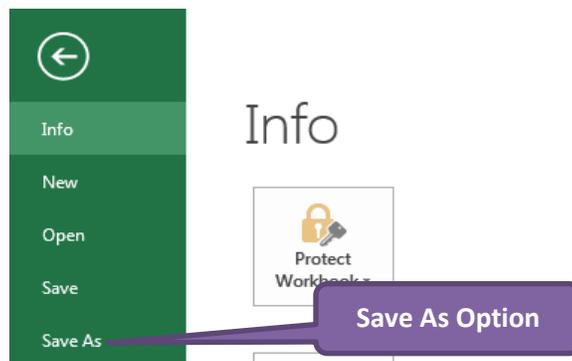
File Tab Basic

Saving a Workbook

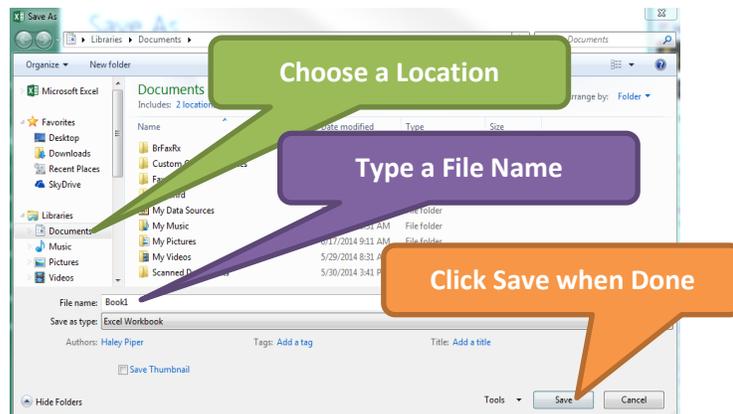
Using the Save As Option

Save As allows you to choose a name and location for your workbook. Use it if you are saving a workbook for the first time or if you want to save a different version of a workbook while keeping the original.

- **Step 1:** Click the File tab.
- **Step 2:** Select Save As.



- **Step 3:** The Save As dialog box will appear. Select the location where you wish to save the workbook.
- **Step 4:** Enter a name for the workbook and click Save.



Using the Save Command

- **Step 1:** Click the Save command on the Quick Access Toolbar (You can also hit CTRL + S).



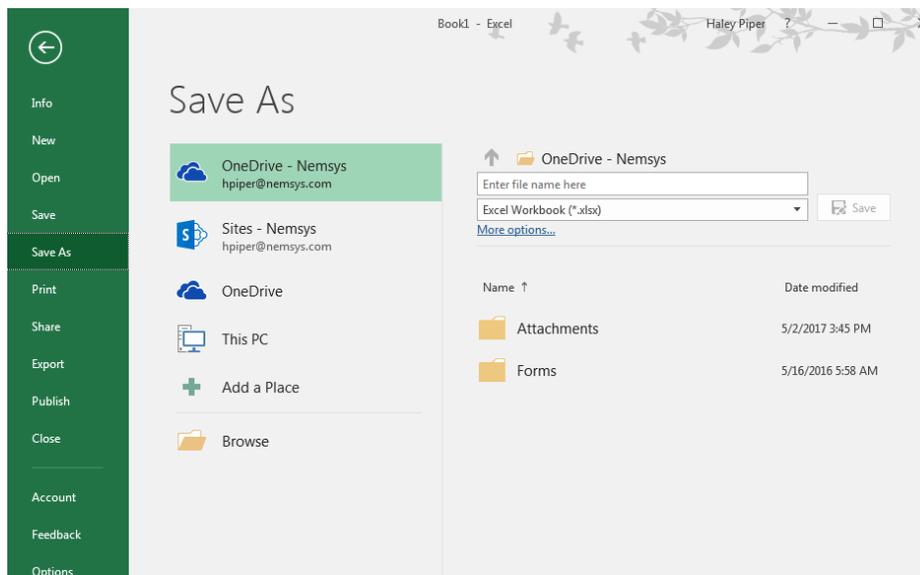
- **Step 2:** The workbook will be saved in its current location with the same file name.

Note: If you are saving for the first time and select Save, the Save As dialog box will appear.

Save Workbook to the Web

Saving to the Web keeps your work in a secure place that you always have access to.

- **Step 1:** Click File to take you into the backstage view and click on Save As.
- **Step 2:** Click Add a Place.
- **Step 3:** Under Add a Place, click either Office 365 (if you have a SharePoint account) or OneDrive



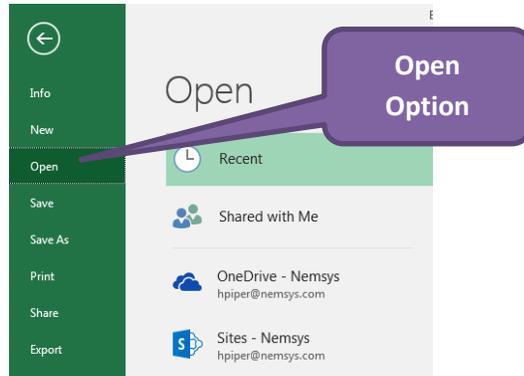
- **Step 4:** Click Microsoft Account to sign in with your Microsoft account.
- **Step 5:** Enter your Microsoft Account and Password and click Sign In.

Note: If you have Hotmail, Messenger, or Xbox Live, you have a Microsoft account.

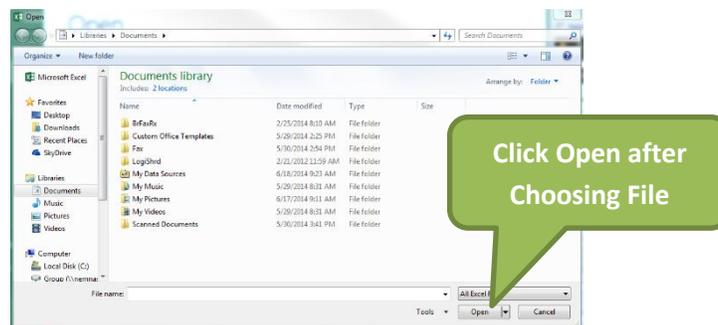
- **Step 6:** Once you have signed in, your OneDrive will show up under Places. Click on it and then under Recent Folders, pick your OneDrive Documents folder.
- **Step 7:** Type a name for your file and click Save.

Opening a Workbook

- **Step 1:** Click the File tab. This takes you to Backstage view.
- **Step 2:** Select Open. Select from Recent Workbooks, OneDrive, or Computer. Then choose a folder. The Open dialog box appears.

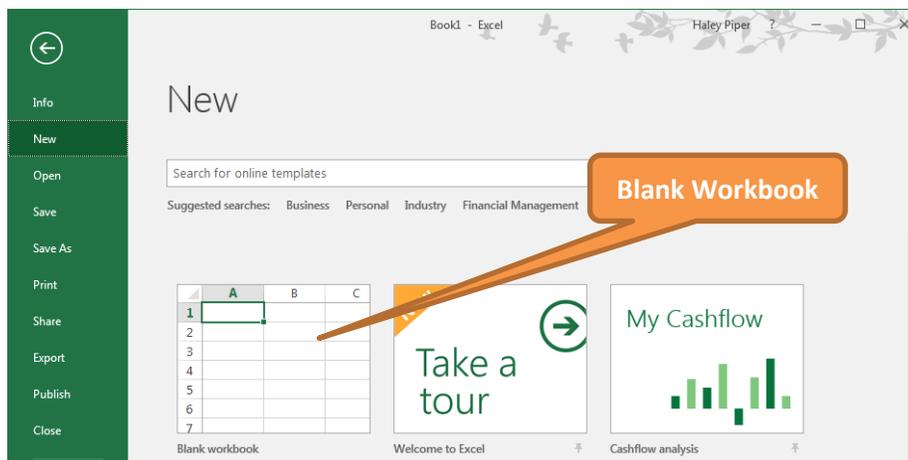


- **Step 3:** Select your desired workbook and then click Open.



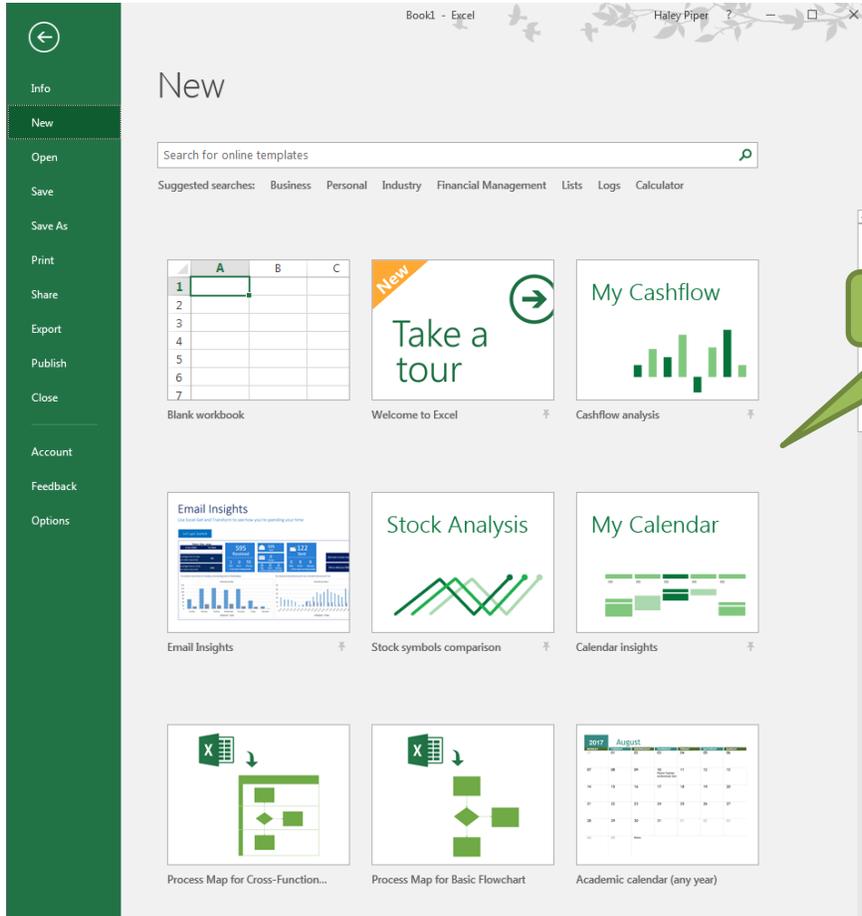
Creating a Workbook

- **Step 1:** Click the File tab. This takes you to Backstage view.
- **Step 2:** Select New.
- **Step 3:** Select Blank workbook template. A new, blank workbook appears.



Templates

When you open Excel 2016 you are presented with many different Templates to choose from. They did all the work so all you must do is input your data. Simply scroll through and click on the one that best fits your needs and a new workbook will open.

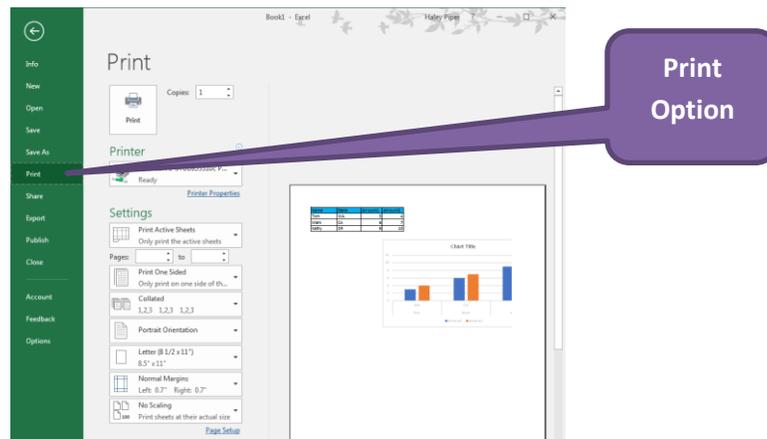


Printing from Backstage View

In previous versions of Excel, there was a Print Preview option that allowed you to preview and modify the workbook before printing. You may have noticed that this feature seems to be gone in Excel 2010. It has not disappeared; it has just been combined with the Print window to create the Print pane, which is in Backstage view.

To View the Print Pane

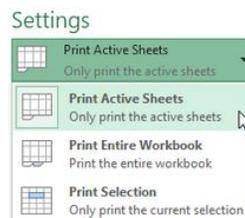
- **Step 1:** Click the File tab. This takes you to Backstage view.
- **Step 2:** Select Print. The Print pane appears, with the print settings on the left and the Print Preview on the right.



To Print Active Sheets

If you have multiple worksheets in your workbook, you will need to decide if you want to print the whole workbook or specific worksheets. Excel gives you the option to Print Active Sheets. A worksheet is considered active if it is selected.

- **Step 1:** Select the worksheets you want to print. To print multiple worksheets, click on the first worksheet, hold down the Ctrl key, then click on the other worksheets you want to select.
- **Step 2:** Click the File tab.
- **Step 3:** Select Print to access the Print pane.
- **Step 4:** Select Print Active Sheets from the print range drop-down menu.

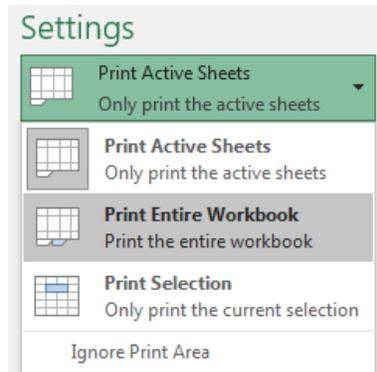


Selecting the Print Active Sheets command

- **Step 5:** Click the Print button.

To Print the Entire Workbook

- **Step 1:** Click the File tab.
- **Step 2:** Select Print to access the Print pane.
- **Step 3:** Select Print Entire Workbook from the print range drop-down menu.

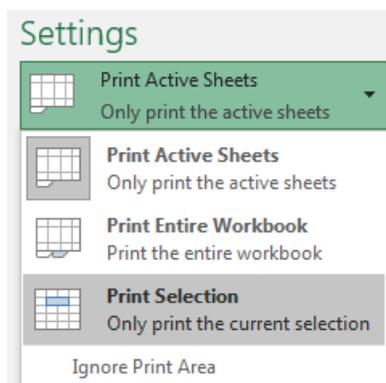


Selecting the Print Entire Workbook command

- **Step 4:** Click the Print button.

To Print a Selection, or Set the Print Area

- **Step 1:** Printing a selection (sometimes called setting the print area) lets you choose which cells to print, as opposed to the entire worksheet.
- **Step 2:** Select the cells that you want to print.
- **Step 3:** Click the File tab.
- **Step 4:** Select Print to access the Print pane.
- **Step 5:** Select Print Selection from the print range drop-down menu.



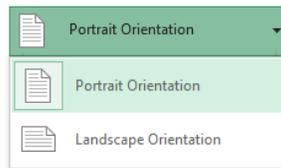
Selecting the Print Selection command

- **Step 6:** You can see what your selection will look like on the page in Print Preview.
- **Step 7:** Click the Print button.

To Change Page Orientation

Change the page orientation to Portrait to orient the page vertically or Landscape to orient the page horizontally. Portrait is useful for worksheets needing to fit more rows on one page, and Landscape is useful for worksheets needing to fit more columns on one page.

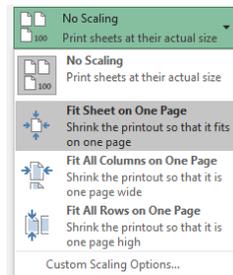
- **Step 1:** Click the File tab.
- **Step 2:** Select Print to access the Print pane.
- **Step 3:** Select either Portrait Orientation or Landscape Orientation from the orientation drop-down menu.



Orientation drop-down menu

To Fit a Worksheet on One Page

- **Step 1:** Click the File tab.
- **Step 2:** Select Print to access the Print pane.
- **Step 3:** Select Fit Sheet on One Page from the Scaling drop-down menu.



Selecting the Fit Sheet on One Page command

- **Step 4:** Your worksheet is reduced in size until it fits on one page. Remember that if it is scaled too small it might be difficult to read.

To Modify Margins While in Print Preview

The margins of your worksheet may need to be adjusted to make data fit more comfortably on the printed page. You can adjust the margins in Print Preview.

- **Step 1:** Click the File tab.
- **Step 2:** Select Print to access the Print pane.
- **Step 3:** Click on the Show Margins button. Your margins will appear.
- **Step 4:** Hover your mouse over one of the margin markers until the double arrow appears.

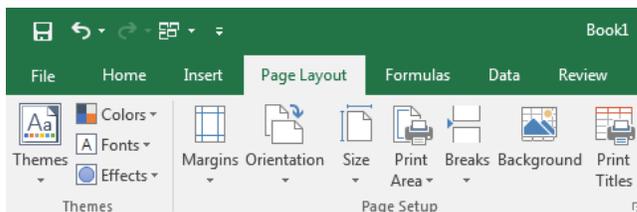
- **Step 5:** Click and drag the margin to your desired location.
- **Step 6:** Release the mouse. The margin is modified.

Printing from the Ribbon

Set Print Area

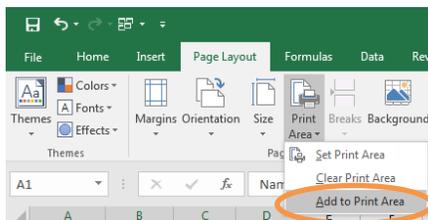
If you find yourself often printing from the same section of a worksheet you can set a print area for that section. This way, when you print your worksheet only that section will print.

- **Step 1:** Select the cells you want to print. If you want to set multiple areas hold Ctrl and click the areas you want to print. Each area will print to its own page.
- **Step 2:** Click the Page Layout tab and in the Page Setup group click Print Area.
- **Step 3:** Click View and Page Break Preview to see the print area and make sure you have selected what you want.



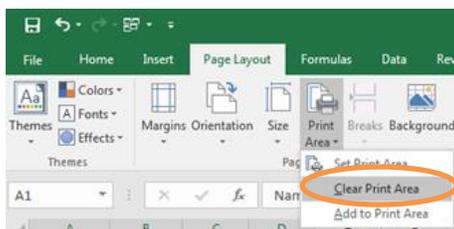
Add Cells to Print Area

- **Step 1:** Select the cells that you want to add to the print area.
- **Step 2:** Click the Page Layout tab and click Print Area in the Page Setup group.
- **Step 3:** Click Add to Print Area from the drop-down menu.



Clear Print Area

- **Step 1:** Click anywhere in your worksheet
- **Step 2:** Click the Page Layout tab and in the Page Setup group click Print Area.
- **Step 3:** From the dropdown menu click Clear Print Area



How-To Intermediate: Exploring More with Excel

Intermediate Fundamentals

Drag & Drop Cells

A single cell or multiple cells can be moved on the spreadsheet simply by dragging the selected text.

- **Step 1:** Select the cells that you wish to move.
- **Step 2:** Position your mouse on one of the outside edges of the selected cells. The mouse changes from a white cross to a black cross with 4 arrows.



- **Step 3:** Click and drag the cells to the new location.
- **Step 4:** Release your mouse and the cells will be dropped there.

Using the Fill Handle

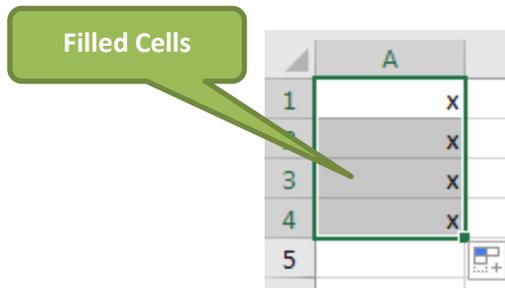
The Fill Handle has many uses. Instead of entering data manually on a worksheet, you can use the Auto Fill feature to fill cells with data that follows a pattern or that is based on data in other cells. It can be used to copy data, copy formulas, add pre-set list of data to spreadsheets, and add a series of numbers as well.

- **Step 1:** Select the cell or cells containing the content you want to use. You can fill cell content either vertically or horizontally.
- **Step 2:** Position your mouse over the fill handle so that the white cross becomes a black cross.

Office Christmas Party		
Employee	Attending	Not Attending
Peraza, Brian	X	
Swensen, Liz		X
Harris, Jane		X
Lewty, Alice	X	
Olvera, Emily K.		
Salter, Joe Ann		



- **Step 3:** Click and drag the fill handle until all the cells you want to fill are highlighted.
- **Step 4:** Release the mouse and your cells will be filled.



Fill formulas into adjacent cells

- **Step 1:** Select the cell that contains the formula that you want to fill into adjacent cells.
- **Step 2:** Drag the fill handle  across the cells that you want to fill.
- **Step 3:** To choose how you want to fill the selection, click Auto Fill Options , and then click the option that you want.

Fill in a series of numbers, dates, or other built-in series items

Using the fill handle, you can quickly fill cells in a range with a series of numbers or dates, or with a built-in series for days, weekdays, months, or years.

- **Step 1:** Select the first cell in the range that you want to fill.
- **Step 2:** Type the starting value for the series.
- **Step 3:** Type a value in the next cell to establish a pattern. For example, if you want the series 1, 2, 3, 4, 5..., type 1 and 2 in the first two cells. If you want the series 2, 4, 6, 8..., type 2 and 4. If you want the series 2, 2, 2, 2..., you can leave the second cell blank.

More examples of series that you can fill

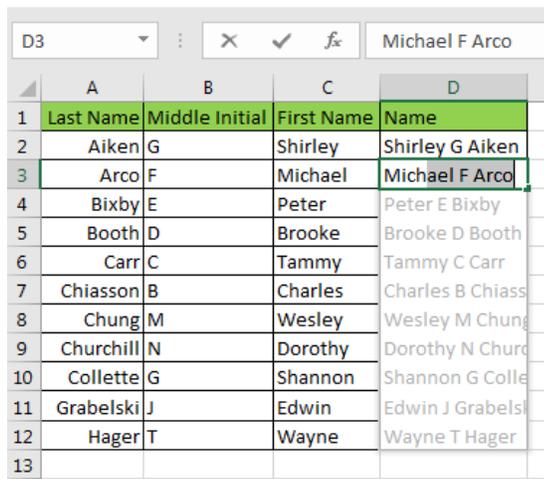
When you fill a series, the selections are extended as shown in the following table. In this table, items that are separated by commas are contained in individual adjacent cells on the worksheet.

INITIAL SELECTION	EXTENDED SERIES
1, 2, 3	4, 5, 6...
9:00	10:00, 11:00, 12:00...
Mon	Tue, Wed, Thu...
Monday	Tuesday, Wednesday, Thursday...
Jan	Feb, Mar, Apr...
Jan, Apr	Jul, Oct, Jan...
Jan-07, Apr-07	Jul-07, Oct-07, Jan-08...
15-Jan, 15-Apr	15-Jul, 15-Oct...
2007, 2008	2009, 2010, 2011...
1-Jan, 1-Mar	1-May, 1-Jul, 1-Sep...
Qtr3 (or Q3 or Quarter3)	Qtr4, Qtr1, Qtr2...
text1, textA	text2, textA, text3, textA...
1st Period	2nd Period, 3rd Period...
Product 1	Product 2, Product 3...

- **Step 4:** Select the cell or cells that contain the starting values.
- **Step 5:** Drag the fill handle  across the range that you want to fill. To fill in increasing order, drag down or to the right. To fill in decreasing order, drag up or to the left.

Flash Fill

If you need enter a large amount of information with a unique Format, the Flash Fill tool will do it for you. The Flash Fill tool was introduced in Excel 2013 and using it along with Auto Fill will save you a ton of time.



	A	B	C	D
1	Last Name	Middle Initial	First Name	Name
2	Aiken	G	Shirley	Shirley G Aiken
3	Arco	F	Michael	Michael F Arco
4	Bixby	E	Peter	Peter E Bixby
5	Booth	D	Brooke	Brooke D Booth
6	Carr	C	Tammy	Tammy C Carr
7	Chiasson	B	Charles	Charles B Chiasson
8	Chung	M	Wesley	Wesley M Chung
9	Churchill	N	Dorothy	Dorothy N Churchill
10	Collette	G	Shannon	Shannon G Collette
11	Grabelski	J	Edwin	Edwin J Grabelski
12	Hager	T	Wayne	Wayne T Hager
13				

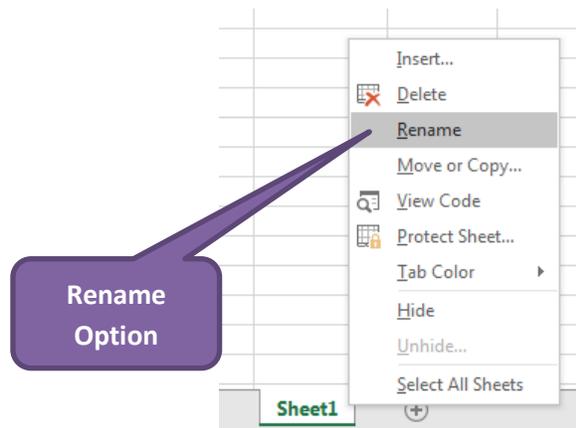
- **Step 1:** In this example, we will use flash fill to complete the Name section of the spread sheet. Begin by typing the complete name in cell D2.
- **Step 2:** Continue to cell D3 when you begin typing the name Excel will recognize the pattern and fill in the rest of the names for you.
- **Step 3:** If you want to complete the column just hit the down arrow key and the information will populate.

Working with Worksheets

When you open an Excel workbook, there are three worksheets by default. The default names on the worksheet tabs are Sheet1, Sheet2 and Sheet3. To organize your workbook and make it easier to navigate, you can rename and even color-code the worksheet tabs. Additionally, you can insert, delete, move, and copy worksheets.

To Rename Worksheets

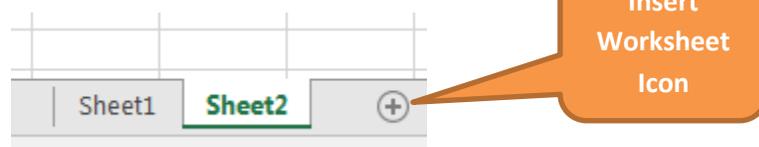
- **Step 1:** Right-click the worksheet tab you want to rename. The worksheet menu appears.
- **Step 2:** Select Rename.



- **Step 3:** The text is now highlighted by a black box. Type the name of your worksheet.
- **Step 4:** Click anywhere outside of the tab. The worksheet is renamed.

To Insert New Worksheets

- **Step 1:** Click on the Insert Worksheet icon. A new worksheet will appear.

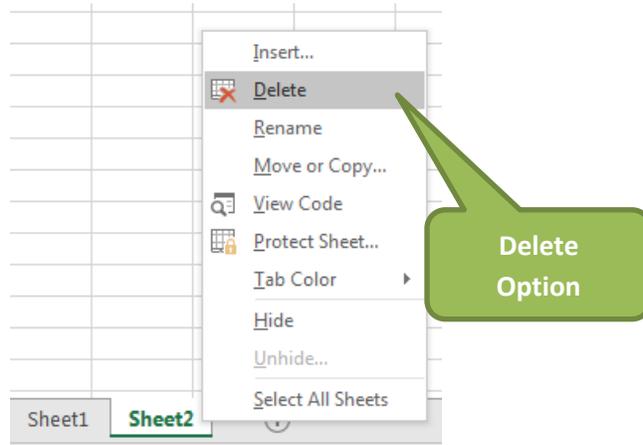


Note: You can change the setting for the default number of worksheets that appear in Excel workbooks. To access this setting, go into Backstage view and click on Options.

To Delete Worksheets

Worksheets can be deleted from a workbook, including those that contain data.

- **Step 1:** Select the worksheets you want to delete.
- **Step 2:** Right-click one of the selected worksheets. The worksheet menu appears.
- **Step 3:** Select Delete. The selected worksheets will be deleted from your workbook.

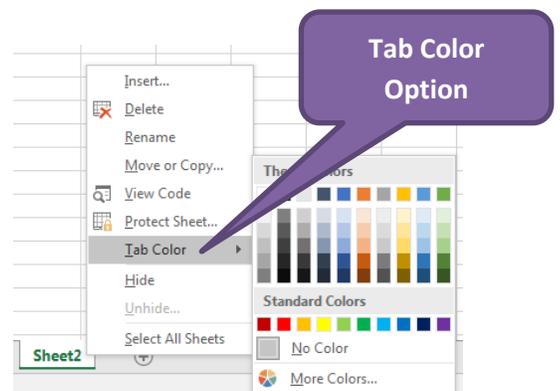
To Move a Worksheet

- **Step 1:** Click on the worksheet you want to move. The mouse will change to show a small worksheet icon.
- **Step 2:** Drag the worksheet icon until a small black arrow appears where you want the worksheet to be moved.
- **Step 3:** Release your mouse and the worksheet will be moved.

Color-code Worksheet Tabs

You can color worksheet tabs to help organize your worksheets and make your workbook easier to navigate.

- **Step 1:** Right-click the worksheet tab you want to color. The worksheet menu appears.
- **Step 2:** Select Tab Color. The color menu appears.
- **Step 3:** Select the color you want to change your tab.
- **Step 4:** The tab color will change in the workbook. If your tab still appears white, that is because the worksheet is still selected. Select any other worksheet tab to see the color change.

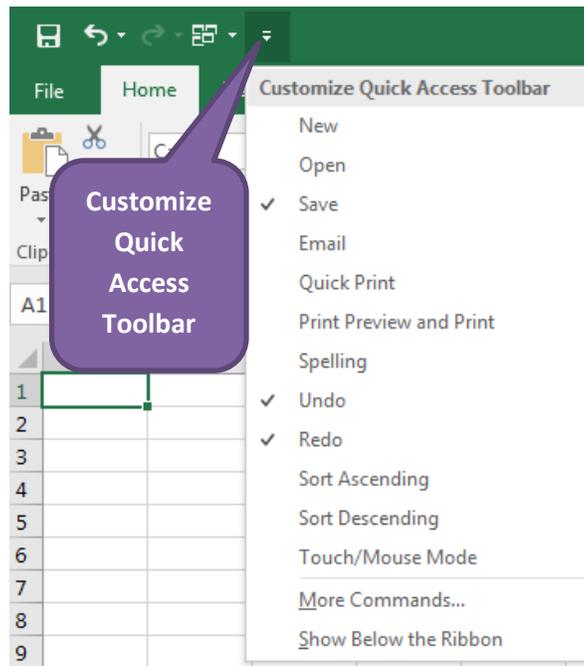


Customizing the Quick Access Toolbar

The Quick Access Toolbar is located above the Ribbon, and it lets you access common commands no matter which tab you are on. By default, it shows the Save, Undo, and Repeat commands. You can add other commands to make it more convenient for you.

To Add Commands to the Quick Access Toolbar:

- **Step 1:** Click the drop-down arrow to the right of the Quick Access Toolbar.
- **Step 2:** Select the command you wish to add from the drop-down menu. To choose from more commands, select More Commands.



Formatting Tables

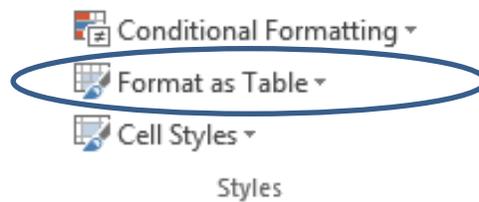
Just like regular formatting, tables can help to organize your content and make it easier for you locate the information you need. To use tables effectively, you'll need to know how to format information as a table, modify tables, and apply table styles.

To Format Information as a Table

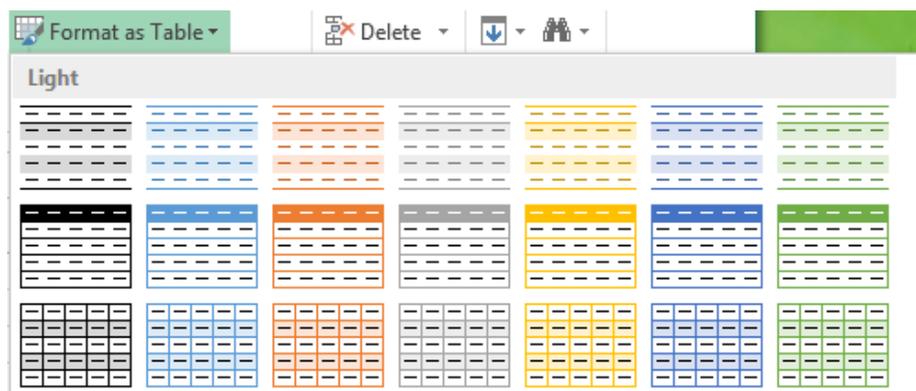
- **Step 1:** Select the cells you want to format as a table. In this example, an invoice, we will format the cells that contain the column headers and the order details.

	A	B	C	D
1			Date:	11/13/10
2	ARTISAN PASTA		Invoice #:	145-10
3	INVOICE		Customer:	Café Aurora
4	Quantity	Description	Unit Price	Line Total
5	5	Fettuccini, Black Bean Flavor	\$12.00	\$60.00
6	7	Fettuccini, Sundried Tomato Flavor	\$10.00	\$70.00
7	9	Fettuccini, Thai Basil Flavor	\$10.00	\$90.00
8	6	Penne, Roasted Red Pepper Flavor	\$14.00	\$84.00
9	3	Penne, Massaman Curry Flavor	\$14.00	\$42.00
10	4	Penne, Wild Mushroom Flavor	\$15.00	\$60.00
11				

- **Step 2:** Click the Format as Table command in the Styles group on the Home tab.

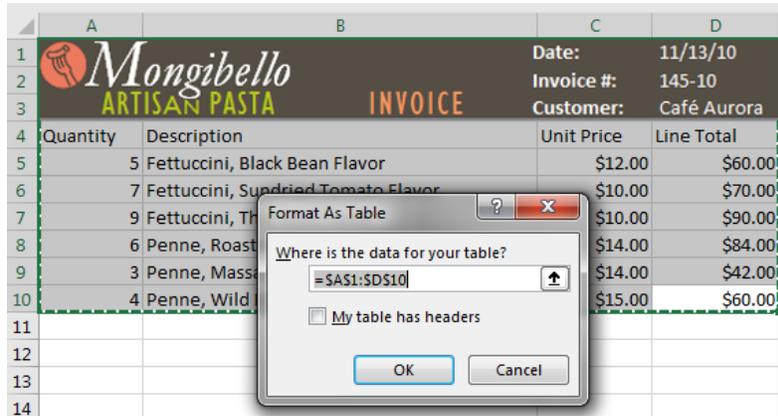


- **Step 3:** A list of predefined table styles will appear. Click a table style to select it.



- **Step 4:** A dialog box will appear, confirming the range of cells you have selected for your table. The cells will appear selected in the spreadsheet, and the range will appear in the dialog box.

- **Step 5:** If necessary, change the range by selecting a new range of cells directly on your spreadsheet.
- **Step 6:** If your table has headers, check the box next to My table has headers.



- **Step 7:** Click OK. The data will be formatted as a table in the style that you chose.

Quantity	Description	Unit Price	Line Total
5	Fettuccini, Black Bean Flavor	\$12.00	\$60.00
7	Fettuccini, Sundried Tomato Flavor	\$10.00	\$70.00
9	Fettuccini, Thai Basil Flavor	\$10.00	\$90.00
6	Penne, Roasted Red Pepper Flavor	\$14.00	\$84.00
3	Penne, Massaman Curry Flavor	\$14.00	\$42.00
4	Penne, Wild Mushroom Flavor	\$15.00	\$60.00

To Add Rows or Columns

- **Step 1:** Select any cell in your table. The Design tab will appear on the Ribbon.
- **Step 2:** From the Design tab, click the Resize Table command.
- **Step 3:** Directly on your spreadsheet, select the new range of cells that you want your table to cover. You must select your original table cells as well.
- **Step 4:** Click OK. The new rows and/or columns will be added to your table.

To Change the Table Style

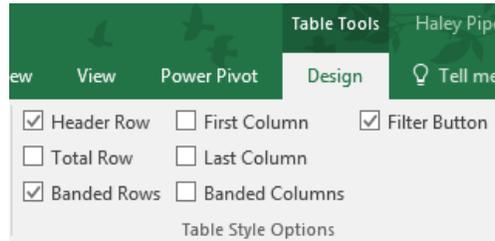
- **Step 1:** Select any cell in your table. The Design tab will appear.
- **Step 2:** Locate the Table Styles group. Click the Quick Styles drop-down to see all the table styles.
- **Step 3:** Hover the mouse over the various styles to see a live preview.
- **Step 4:** Select the desired style. The table style will appear in your worksheet.



To Change the Table Style Options

When using an Excel table, you can turn various options on or off to change its appearance. There are six options: Header Row, Total Row, Banded Rows, First Column, Last Column, and Banded Columns.

- **Step 1:** Select any cell in your table. The Design tab will appear.
- **Step 2:** From the Design tab, check or uncheck the desired options in the Table Style Options group.

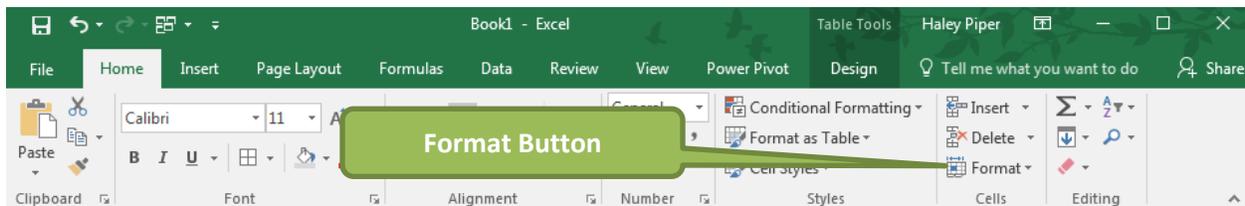


Home Tab Intermediate

Setting Column Widths & Row Heights

Set a column to a specific width

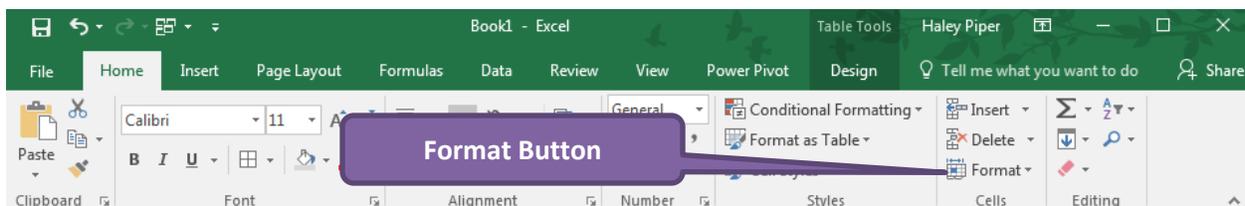
- **Step 1:** Select the column or columns that you want to change.
- **Step 2:** On the Home tab, in the Cells group, click Format.



- **Step 3:** Under Cell Size, click Column Width.
- **Step 4:** In the Column width box, type the value that you want.

Set a row to a specific height

- **Step 1:** Select the row or rows that you want to change.
- **Step 2:** On the Home tab, in the Cells group, click Format.



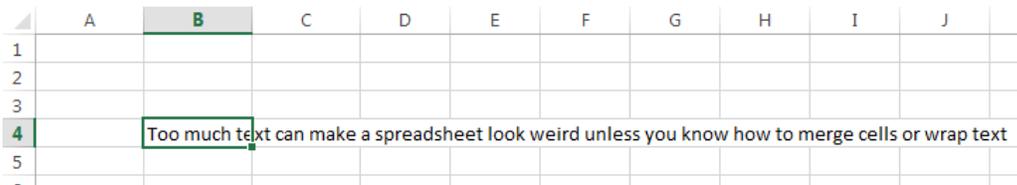
- **Step 3:** Under Cell Size, click Row Height.
- **Step 4:** In the Row height box, type the value that you want.

Wrapping Text and Merging Cells

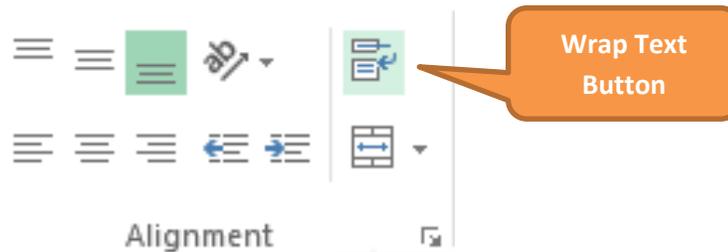
If a cell contains more text than can be displayed, you can choose to wrap the text within the cell or merge the cell with empty, adjoining cells. Wrap text to make it display on multiple lines of the cell. Merge cells to combine adjoining cells into one larger cell.

To Wrap Text

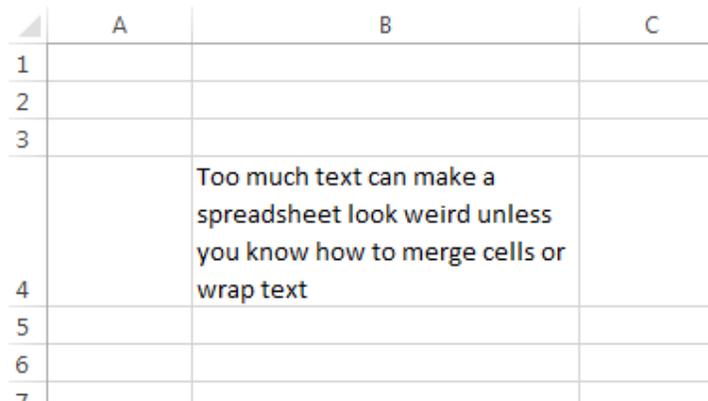
- **Step 1:** Select the cells with text you want to wrap.



- **Step 2:** Select the Wrap Text command on the Home tab.

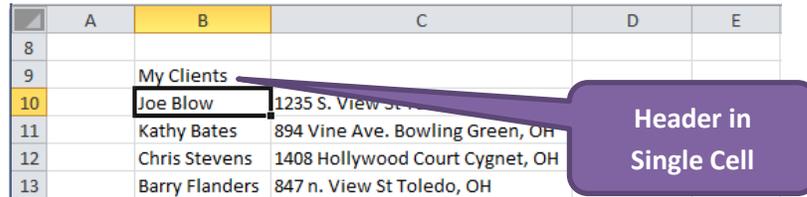


- **Step 3:** The text in the selected cells will be wrapped in your worksheet.

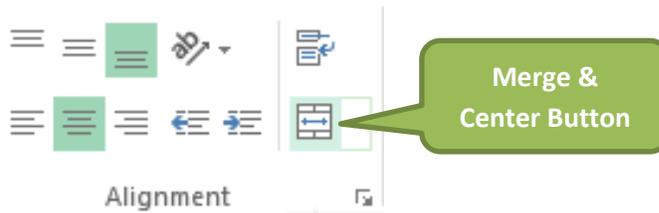


To Merge Cells Using the Merge & Center Command

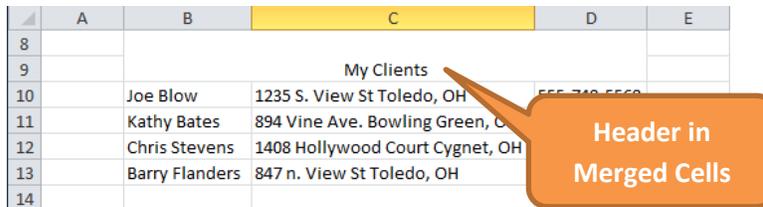
Select the cells you want to merge together.



Select the Merge & Center command on the Home tab.



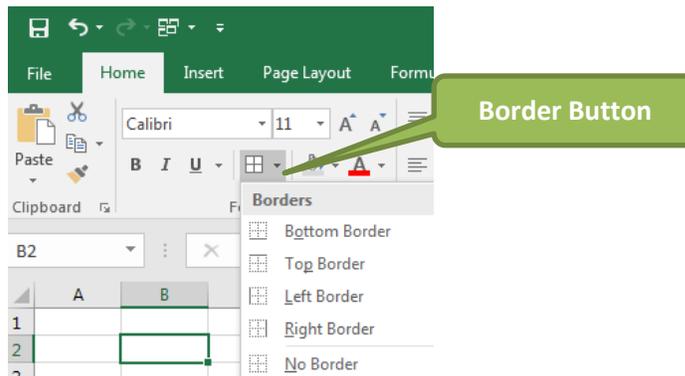
The selected cells will be merged and the text will be centered.



Note: If you change your mind, re-click the Merge & Center command to unmerge the cells.

Using Borders

- **Step 1:** Select the cells you want to modify.
- **Step 2:** Click the drop-down arrow next to the Borders command on the Home tab. The border drop-down menu appears.



- **Step 3:** Select the border style you want to use.

Note: You can draw borders and change the line style and color of borders with the Draw Borders tools at the bottom of the Borders drop-down menu.

Hide/Unhide

At times, you may want to compare certain rows or columns without changing the organization of your worksheet. Excel allows you to hide rows and columns as needed. In our example, we'll hide columns C and D to make it easier to compare columns A, B, and E.

- **Step 1:** Select the column(s) or row(s) you want to hide, right-click the mouse, then select Hide from the formatting menu.

	A	B	C	D
1	First Name	Last	Cell Phone	Street Address
2	Amanda	Ryan	513-555-4477	800 Round Table
3	Tricia	Matthews	808-555-6397	4721 Arron Smith
4	Josefina	Woodard	714-555-4506	2152 Liberty Aver
5	Rodney	Ross	310-555-8862	3503 Prospect Va
6	Leigh	Dizon	607-555-7816	1483 Frosty Lane
7	Mark	Grant	914-555-5592	1663 Taylor Stree
8	Mildred	Persinger	601-555-0175	3329 Washington
9	Dwayne	Patnode	205-555-3783	1736 Broad Street
10	Bonnie	Benjamin	502-555-1212	2937 Earnhardt Dr
11	Eva	Ramer	805-555-8514	232 Timber Oak D
12	Carol	Pena	571-555-0704	4072 Nelm Street
13	Leola	McNew	580-555-8177	2182 Cody Ridge I
14	Annie	Muro	502-555-0190	1001 Cerullo Road
15	Joe	Rodriguez	781-555-9659	9 Tenmile Road

- **Step 2:** The columns/rows will be hidden. The green column line indicates the location of the hidden columns

To unhide the columns, select the columns to the left and right of the hidden columns/rows (in other words, the columns on both sides of the hidden columns/rows).

- **Step 4:** Right-click the mouse, then select Unhide from the formatting menu. The hidden columns/rows will reappear.

	A	B	E
1	First Name	Last	Position(s)
2	Amanda	Ryan	Pitcher, Second base
3	Tricia	Matthews	Catcher
4	Josefina	Woodard	Outfield
5	Rodney	Ross	First base
6	Leigh	Dizon	Third base
7	Mark	Grant	Shortstop
8	Mildred	Persinger	First base, pitcher
9	Dwayne	Patnode	DH
10	Bonnie	Benjamin	Second base
11	Eva	Ramer	Right field
12	Carol	Pena	Third Base
13	Leola	McNew	Pitcher
14	Annie	Muro	Second base
15	Joe	Rodriguez	Third base



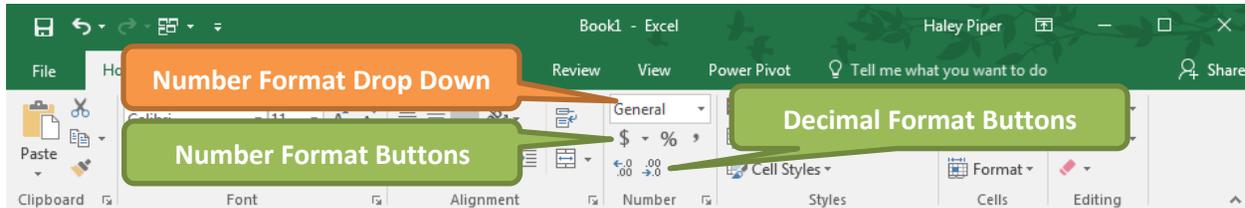
	A	B	E
1	First Name	Last Name	Position(s)
2	Amanda	Ryan	Pitcher, Second
3	Tricia	Matthews	Catcher
4	Josefina	Woodard	Outfield
5	Rodney	Ross	First base
6	Leigh	Dizon	Third base
7	Mark	Grant	Shortstop
8	Mildred	Persinger	First base, pitch
9	Dwayne	Patnode	DH
10	Bonnie	Benjamin	Second base
11	Eva	Ramer	Right field
12	Carol	Pena	Third Base
13	Leola	McNew	Pitcher
14	Annie	Muro	Second base
15	Joe	Rodriguez	Third base
16	Josephine	Carter	Outfield, catcher

Formatting Numbers & Dates

One of the most useful features of Excel is its ability to format numbers and dates in a variety of ways. For example, you might need to format numbers with decimal places, currency symbols (\$), percent symbols (%), etc.

To Format Numbers and Dates

- **Step 1:** Select the cells you want to modify.
- **Step 2:** Click the drop-down arrow next to the Number Format command on the Home tab.



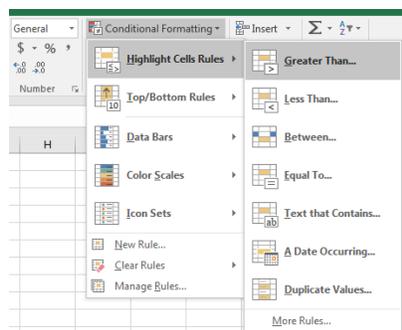
- **Step 3:** Select the number format you want. For some number formats, you can then use the Increase Decimal and Decrease Decimal commands (below the Number Format command) to change the number of decimal places that are displayed.

Conditional Formatting

Conditional formatting applies one or more rules to any cells that you want. An example of a rule might be "If the value is greater than 5,000, color the cell yellow." By applying this rule to the cells in a worksheet, you'll be able to see at a glance which cells are over 5,000. There are also rules that can mark the top 10 items, all cells that are below the average, cells that are within a certain date range, and many more.

To Create a Conditional Formatting Rule

- **Step 1:** Select the cells that you want to add the formatting to.
- **Step 2:** In the Home tab, click the Conditional Formatting command. A drop-down menu will appear.
- **Step 3:** Select Highlight Cells Rules or Top/Bottom Rules. We will choose Highlight Cells Rules for this example. A menu will appear with several rules.
- **Step 4:** Select the desired rule (Greater Than, for example).



- **Step 5:** From the dialog box, enter a value in the space provided, if applicable. In this example, we want to format cells that are greater than \$5,000, so we'll enter 5000 as our value. If you want, you can enter a cell reference instead of a number.
- **Step 6:** Select a formatting style from the drop-down menu.



- **Step 7:** The formatting will be applied to the selected cells.

\$9,355.00	\$1,100.00	\$10,185.00	\$18,749.00
\$6,702.00	\$2,116.00	\$13,452.00	\$8,046.00
\$4,415.00	\$1,089.00	\$4,404.00	\$20,114.00
\$11,601.00	\$1,122.00	\$3,170.00	\$10,733.00
\$3,726.00	\$1,135.00	\$8,817.00	\$18,524.00
\$9,007.00	\$2,113.00	\$13,090.00	\$13,953.00
\$4,505.00	\$1,024.00	\$3,528.00	\$15,275.00
\$3,973.00	\$1,716.00	\$4,839.00	\$13,085.00

To Use Preset Conditional Formatting

Excel has several presets that you can use to quickly apply conditional formatting to your cells. They are grouped into three categories:

Data Bars are horizontal bars added to each cell, much like a bar graph.

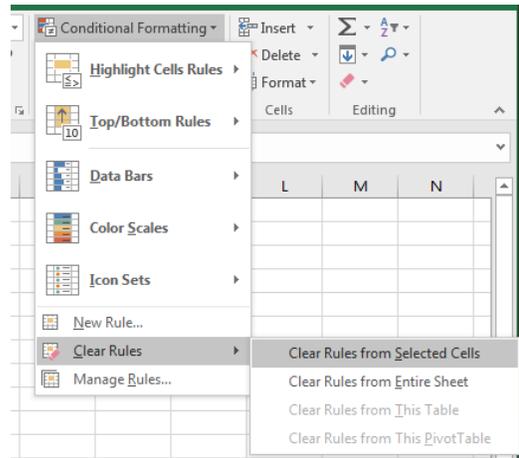
Color Scales change the color of each cell based on its value. Each color scale uses a two or three color gradient. For example, in the Green - Yellow - Red color scale, the highest values are green, average values are yellow, and the lowest values are red.

Icon Sets add a specific icon to each cell based on its value.

- **Step 1:** Select the cells you want to add the formatting to.
- **Step 2:** In the Home tab, click the Conditional Formatting command. A drop-down menu will appear.
- **Step 3:** Select Data Bars, Color Scales or Icon Sets (Data Bars, for example). Then, select the desired preset.
- **Step 4:** The conditional formatting will be applied to the selected cells.

Remove Conditional Formatting Rules

- **Step 1:** Select the cells that have conditional formatting.
- **Step 2:** In the Home tab, click the Conditional Formatting command. A drop-down menu will appear.
- **Step 3:** Select Clear Rules.
- **Step 4:** A menu will appear. You can choose to clear rules from the Selected Cells, Entire Sheet, This Table, or This PivotTable.

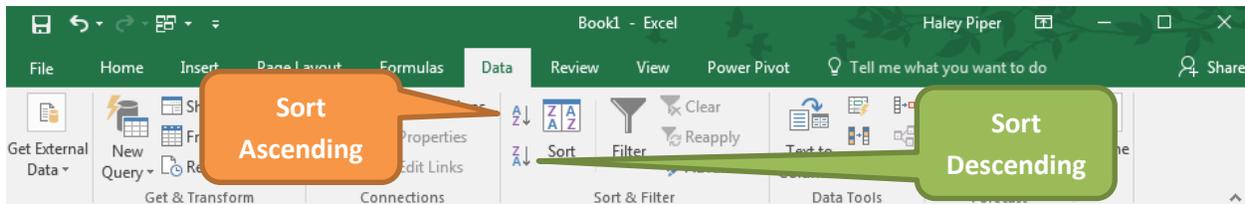


Sorting Data

Sorting is a common task that allows you to change or customize the order of your spreadsheet data. For example, you could organize an office birthday list by employee, birthdate, or department, making it easier to find what you're looking for. Custom sorting takes it a step further, giving you the ability to sort multiple levels (such as department first, then birthdate, to group birthdates by department), and more.

To Sort in Alphabetical Order

- **Step 1:** Select a cell in the column you want to sort by.
- **Step 2:** Select the Data tab, and locate the Sort and Filter group.
- **Step 3:** Click the ascending command sort ascending to Sort A to Z, or the descending command sort ascending to Sort Z to A.



- **Step 4:** The data in the spreadsheet will be organized alphabetically.

To Sort in Numerical Order

- **Step 1:** Select a cell in the column you want to sort by.
- **Step 2:** From the Data tab, click the ascending command sort ascending to Sort Smallest to Largest, or the descending command sort ascending to Sort Largest to Smallest.
- **Step 3:** The data in the spreadsheet will be organized numerically.

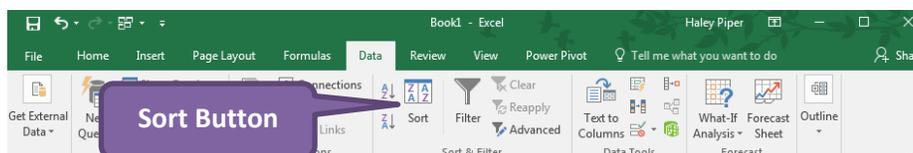
To Sort by Date or Time

- **Step 1:** Select a cell in the column you want to sort by.
- **Step 2:** From the Data tab, click the ascending command sort ascending to Sort Oldest to Newest, or the descending command sort ascending to Sort Newest to Oldest.
- **Step 3:** The data in the spreadsheet will be organized by date or time.

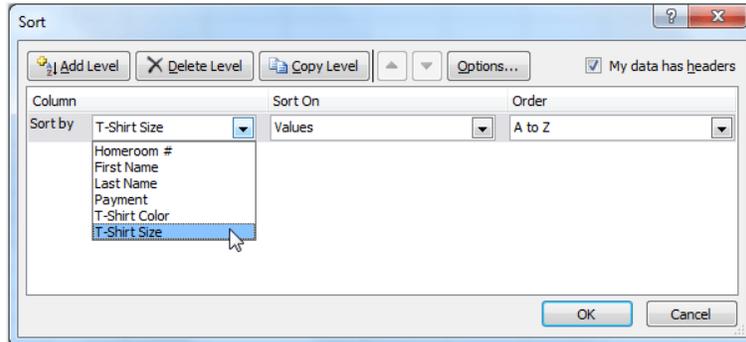
To Sort in the Order of Your Choosing

You can use a Custom List to identify your own sorting order, such as days of the week, or, in this example, t-shirt sizes from smallest to largest (Small, Medium, Large, and X-Large).

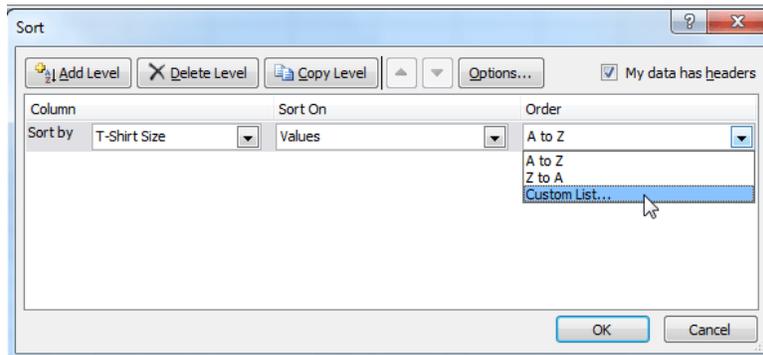
- **Step 1:** From the Data tab, click the Sort command to open the Sort dialog box.



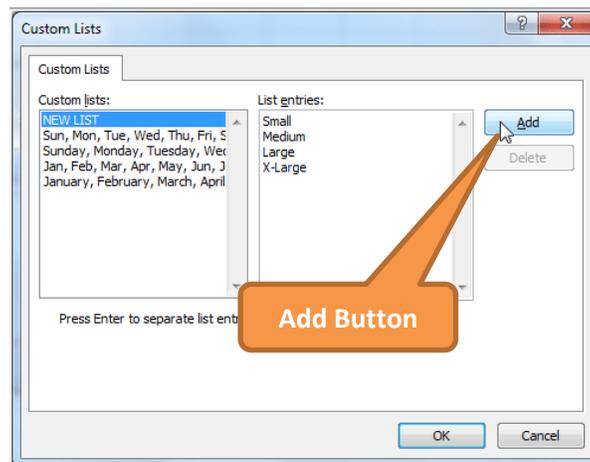
- **Step 2:** Identify the column you want to Sort by clicking the drop-down arrow in the Column field. In this example, we will choose T-Shirt Size.



- **Step 3:** Make sure Values is selected in the Sort On field.
- **Step 4:** Click the drop-down arrow in the Order field, and choose Custom List...



- **Step 5:** Select NEW LIST, and enter how you want your data sorted in the List entries box. We will sort t-shirt sizes from smallest to largest.
- **Step 6:** Click Add to save the list, then click OK.



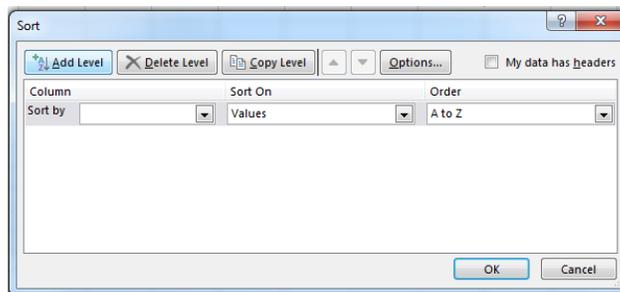
- **Step 7:** Click OK to close the Sort dialog box and sort your data.
- **Step 8:** The spreadsheet will be sorted in order of Small, Medium, Large, and X-Large.

To Sort by Cell Color, Font Color, or Cell Icon

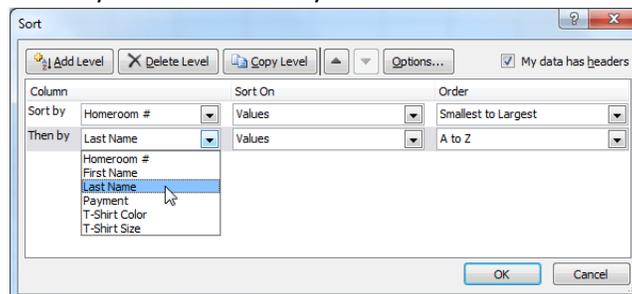
- **Step 1:** From the Data tab, click the Sort command to open the Sort dialog box.
- **Step 2:** Identify the column you want to Sort by clicking the drop-down arrow in the Column field.
- **Step 3:** Choose whether you want to sort by Cell Color, Font Color, or Cell Icon in the Sort On field. In this example, we will sort on Font Color.
- **Step 4:** In the Order field, click the drop-down arrow to choose a color, then decide whether you want it ordered On Top or On Bottom.
- **Step 5:** Click OK. The data is now sorted by attribute rather than text.

To Add a Level for Sorting Multiple Levels

- **Step 1:** From the Data tab, click the Sort command to open the Sort dialog box.
- **Step 2:** Identify the first item you want to Sort by. In this example, we will sort Homeroom # from Smallest to Largest.
- **Step 3:** Click Add Level to add another item.



- **Step 4:** Identify the item you want to sort by next. We will sort Last Name from A to Z.

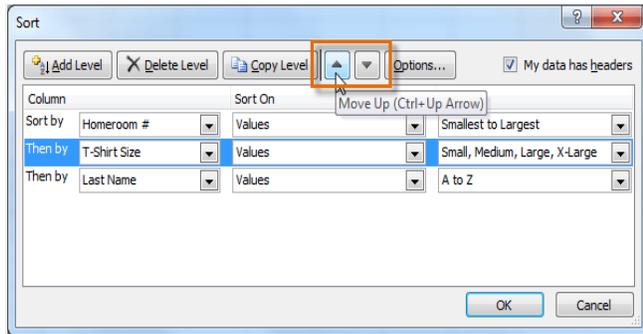


- **Step 5:** Click OK.
- **Step 6:** The spreadsheet will be sorted so that homeroom numbers are in order, and within each homeroom, students are listed alphabetically by last name.

Note: Copy Level will add a level by duplicating the one you have selected, and allowing you to modify the sorting criteria. This is useful if you need to sort multiple levels that share some criteria, such as the same Column, Sort On, or Order.

To Change the Sorting Priority

- **Step 1:** From the Data tab, click the Sort command to open the Custom Sort dialog box.
- **Step 2:** Select the level you want to re-order.
- **Step 3:** Use the Move Up or Move Down arrows. The higher the level is on the list, the higher its priority.



Filtering Data

Filters can be applied in many ways to improve the performance of your worksheet. You can filter text, dates, and numbers. You can even use more than one filter to further narrow down your results.

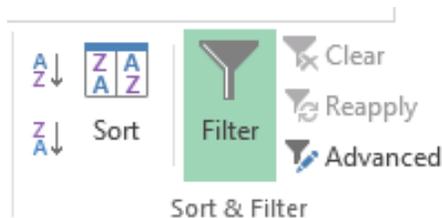
To Filter Data

In this example, we will filter the contents of an equipment log at a technology company. We will display only the laptops and projectors that are available for check-out.

- **Step 1:** Begin with a worksheet that identifies each column using a header row.

	A	B	C	D
1	Equipment Log — Ragnar Technologies Inc.			
2	ID #	Type	Equipment Detail	Checked Out
3	1011	Laptop	10" Saris Netbook Pro	04-Oct-10
4	1012	Laptop	10" Saris Netbook Pro	29-Sep-10
5	1021	Laptop	15" EDI SmartPad L200-3	15-Sep-10
6	1022	Laptop	15" EDI SmartPad L200-3	14-Aug-10
7	1023	Laptop	15" EDI SmartPad L200-3	08-Aug-10
8	1025	Laptop	15" EDI SmartPad L200-4X	26-Sep-10
9	1031	Laptop	17" Saris X-10 Laptop	04-Oct-10
10	1032	Laptop	17" Saris X-10 Laptop	19-Sep-10
11	1033	Laptop	17" Saris X-10 Laptop	24-Sep-10
12	1034	Laptop	17" Saris X-10 Laptop	25-Aug-10
13	2050	Other	EDI SmartBoard L500-1	05-Oct-10
14	2051	Other	EDI SmartBoard L500-1	01-Oct-10
15	3000	Other	Saris Lumina Digital Camera	12-May-10

- **Step 2:** Select the Data tab, and locate the Sort & Filter group.
- **Step 3:** Click the Filter command.



- **Step 4:** Drop-down arrows will appear in the header of each column.

- **Step 5:** Click the drop-down arrow for the column you would like to filter. In this example, we will filter the Type column to view only certain types of equipment.

	A	B	C	D
1	Equipment Log — Ragnar Technologies Inc.			
2	ID #	Type	Equipment Detail	Checked Out
3	1011	Laptop	10" Saris Netbook Pro	04-Oct-10
4	1012	Laptop	10" Saris Netbook Pro	29-Sep-10
5	1021	Laptop	15" EDI SmartPad L200-3	15-Sep-10
6	1022	Laptop	15" EDI SmartPad L200-3	14-Aug-10
7	1023	Laptop	15" EDI SmartPad L200-3	08-Aug-10

- **Step 6:** The Filter menu appears.
- **Step 7:** Uncheck the boxes next to the data you don't want to view. (You can uncheck the box next to Select All to quickly uncheck all.)
- **Step 8:** Check the boxes next to the data you do want to view. In this example, we will check Laptop and Projector to view only those types of equipment.

	A	B	C	D
1	Equipment Log — Ragnar Technologies Inc.			
2	ID #	Type	Equipment Detail	Checked Out
3	1011	Laptop	10" Saris Netbook Pro	04-Oct-10
4	1012	Laptop	10" Saris Netbook Pro	29-Sep-10
5	1021	Laptop	15" EDI SmartPad L200-3	15-Sep-10
6	1022	Laptop	15" EDI SmartPad L200-3	14-Aug-10
7	1023	Laptop	15" EDI SmartPad L200-3	08-Aug-10
8	1025	Laptop	15" EDI SmartPad L200-4X	26-Sep-10
9	1031	Laptop	17" Saris X-10 Laptop	04-Oct-10
10	1032	Laptop	17" Saris X-10 Laptop	19-Sep-10
11	1033	Laptop	17" Saris X-10 Laptop	24-Sep-10
12	1034	Laptop	17" Saris X-10 Laptop	25-Aug-10
13	1035	Laptop	17" Saris X-10 Laptop	25-Aug-10
14	1036	Laptop	17" Saris X-10 Laptop	25-Aug-10
15	1037	Laptop	17" Saris X-10 Laptop	25-Aug-10
16	6100	Projector	Omega VisX 1.0	28-Sep-10
17	6101	Projector	Omega VisX 1.0	26-Sep-10
18	6102	Projector	Omega VisX 1.0	22-Aug-10
19	6103	Projector	Omega VisX 1.0	22-Aug-10
20	6104	Projector	Omega VisX 1.0	22-Aug-10
21	6105	Projector	Omega VisX 1.0	22-Aug-10
22	4905	Other	7N Heavy Rolling Laptop Case	04-Oct-10
23	5020	TV	32" Paragon 440 Plasma TV	11-Aug-10

- **Step 9:** Click OK. All other data will be filtered, or temporarily hidden. Only laptops and projectors will be visible.

	A	B	C	D
1	Equipment Log — Ragnar Technologies Inc.			
2	ID #	Type	Equipment Detail	Checked Out
3	1011	Laptop	10" Saris Netbook Pro	04-Oct-10
4	1012	Laptop	10" Saris Netbook Pro	29-Sep-10
5	1021	Laptop	15" EDI SmartPad L200-3	15-Sep-10
6	1022	Laptop	15" EDI SmartPad L200-3	14-Aug-10
7	1023	Laptop	15" EDI SmartPad L200-3	08-Aug-10
8	1025	Laptop	15" EDI SmartPad L200-4X	26-Sep-10
9	1031	Laptop	17" Saris X-10 Laptop	04-Oct-10
10	1032	Laptop	17" Saris X-10 Laptop	19-Sep-10
11	1033	Laptop	17" Saris X-10 Laptop	24-Sep-10
12	1034	Laptop	17" Saris X-10 Laptop	25-Aug-10
13	1035	Laptop	17" Saris X-10 Laptop	25-Aug-10
14	1036	Laptop	17" Saris X-10 Laptop	25-Aug-10
15	1037	Laptop	17" Saris X-10 Laptop	25-Aug-10
16	6100	Projector	Omega VisX 1.0	28-Sep-10
17	6101	Projector	Omega VisX 1.0	26-Sep-10
18	6102	Projector	Omega VisX 1.0	22-Aug-10
19	6103	Projector	Omega VisX 1.0	22-Aug-10
20	6104	Projector	Omega VisX 1.0	22-Aug-10
21	6105	Projector	Omega VisX 1.0	22-Aug-10

To Add Another Filter

Filters are additive, meaning you can use as many as you need to narrow down your results. In this example, we will work with a spreadsheet that has already been filtered to display only laptops and projectors. Now we will display only laptops and projectors that were checked out during the month of August.

- **Step 1:** Click the drop-down arrow where you would like to add a filter. In this example, we will add a filter to the Checked Out column to view information by date.
- **Step 2:** Uncheck the boxes next to the data you don't want to view. Check the boxes next to the data you do want to view. In this example, we will check the box next to August.

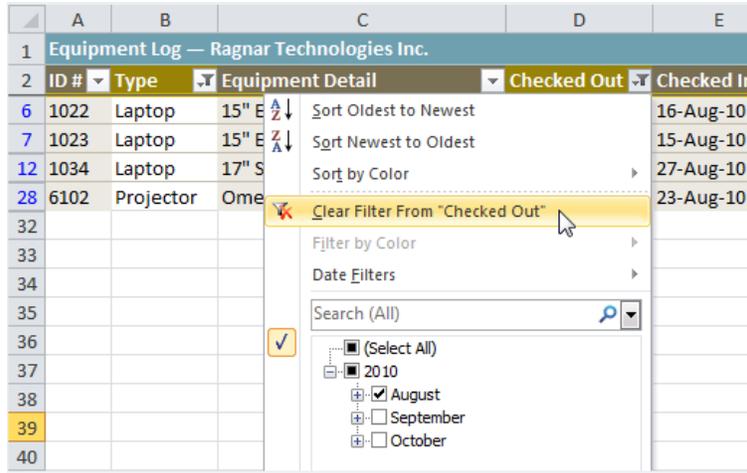
	A	B	C	D	E
1	Equipment Log — Ragnar Technologies Inc.				
2	ID #	Type	Equipment Detail	Checked Out	Checked In
3	1011	Laptop	10" S		
4	1012	Laptop	10" S		
5	1021	Laptop	15" E		01-Oct-10
6	1022	Laptop	15" E		16-Aug-10
7	1023	Laptop	15" E		15-Aug-10
8	1025	Laptop	15" E		04-Oct-10
9	1031	Laptop	17" S		
10	1032	Laptop	17" S		
11	1033	Laptop	17" S		26-Sep-10
12	1034	Laptop	17" S		27-Aug-10
26	6100	Projector	Ome		01-Oct-10
27	6101	Projector	Ome		27-Sep-10
28	6102	Projector	Ome		23-Aug-10
29	6200	Projector	Saris		04-Sep-10
30	6301	Projector	Saris		
31	6302	Projector	Saris		15-Sep-10
32					
33					
34					
35					

- **Step 3:** Click OK. In addition to the original filter, the new filter will be applied. The worksheet will be narrowed down even further.

	A	B	C	D	E
1	Equipment Log — Ragnar Technologies Inc.				
2	ID #	Type	Equipment Detail	Checked Out	Checked In
6	1022	Laptop	15" EDI SmartPad L200-3	14-Aug-10	16-Aug-10
7	1023	Laptop	15" EDI SmartPad L200-3	08-Aug-10	15-Aug-10
12	1034	Laptop	17" Saris X-10 Laptop	25-Aug-10	27-Aug-10
28	6102	Projector	Omega VisX 1.0	22-Aug-10	23-Aug-10
32					

To Clear a Filter

- **Step 1:** Click the drop-down arrow in the column from which you want to clear the filter.
- **Step 2:** Choose Clear Filter From...

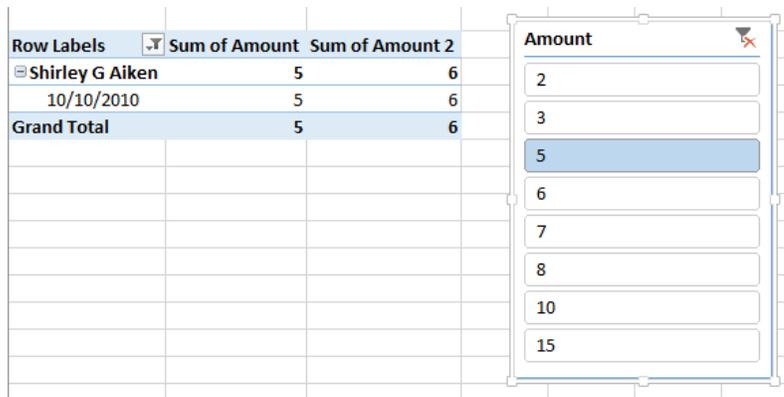


- **Step 3:** The filter will be cleared from the column. The data that was previously hidden will be on display once again.

Slicer Filter

Slicers make it faster and easier to filter and analyze Tables, Pivot Tables, Pivot Charts, and cube functions. They allow you to focus on one area of data more clearly.

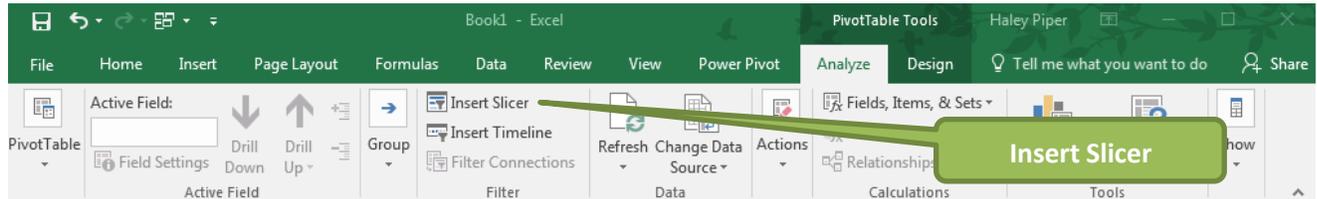
- **Step 1:** Under PivotTable Tools select the Analyze tab and click on Insert Slicer in the the Filter group.
- **Step 2:** Check the category or categories that you want to view and click OK.
- **Step 3:** When you click on specific data in the Slicer your PivotChart will show the information associated with that data



Timeline Filter

The Timeline filter makes it faster and easier to select time periods to filter PivotTables, Pivot Charts, and cube functions.

- **Step 1:** Under PivotTable Tools select the Analyze tab and click on Insert Timeline in the Filter group.



- **Step 2:** Check the category with the dates you want to filter and click OK
- **Step 3:** Your Date Timeline will appear. You can view it in Years, Quarters, Months, or Days by using the dropdown arrow in the top right corner. Slide the ends of the bar left and right by clicking and dragging to view only a certain span of dates in your PivotTable.



Insert Tab Intermediate

Inserting Charts

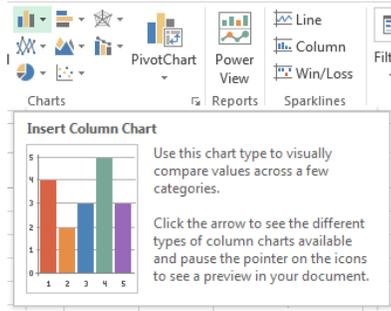
Excel workbooks can contain a lot of data, and that data can often be difficult to interpret. For example, where are the highest and lowest values? Are the numbers increasing or decreasing?

The answers to questions like these can become much clearer when the data is represented as a chart. Excel has many different types of charts, so you can choose one that most effectively represents the data.

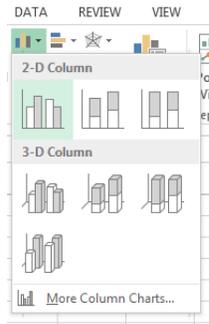
To Create a Chart

- **Step 1:** Select the cells that you want to chart, including the column titles and the row labels. These cells will be the source data for the chart.
- **Step 2:** Click the Insert tab.

- **Step 3:** In the Charts group, select the desired chart category (Column, for example).



- **Step 4:** Select the desired chart type from the drop-down menu (Clustered Column, for example).



- **Step 5:** The chart will appear in the worksheet.

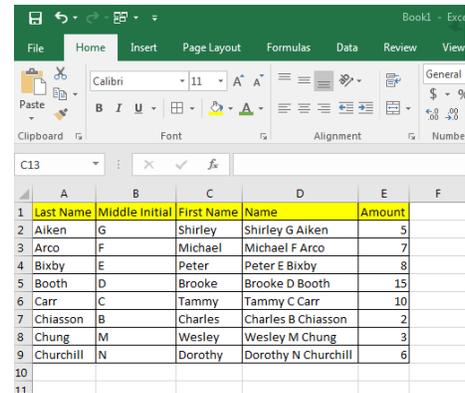


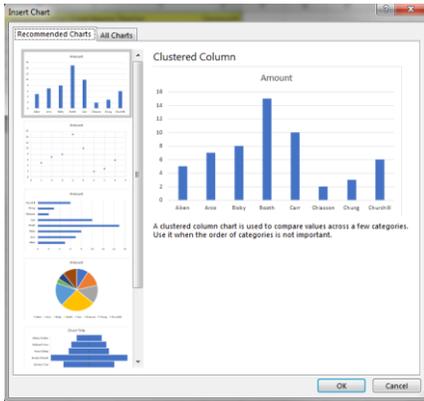
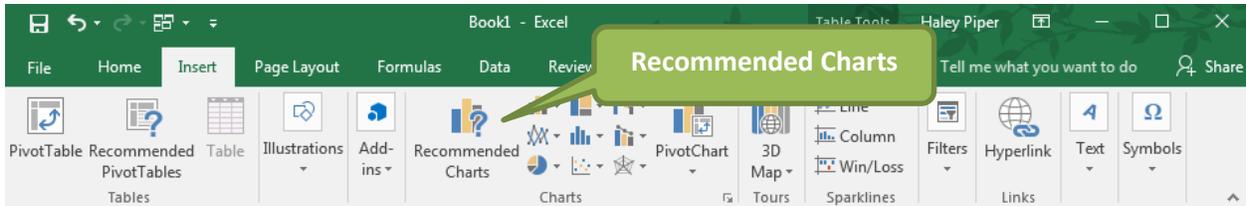
The new chart

Recommended Charts

The Recommended Charts button takes a lot of the guess work out of what kind of chart you should use to represent your data by suggesting what type of chart will be the best fit and why.

- **Step 1:** Select the data that you want to use in your chart.
- **Step 2:** Under the Insert tab in the Charts group click on the Recommended Charts button.

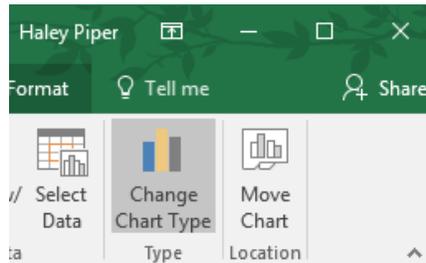




- **Step 3:** The Insert Chart Dialog box will appear with a suggested chart and an explanation of why it's a good fit for your data. If you are happy with this suggestion Click OK.

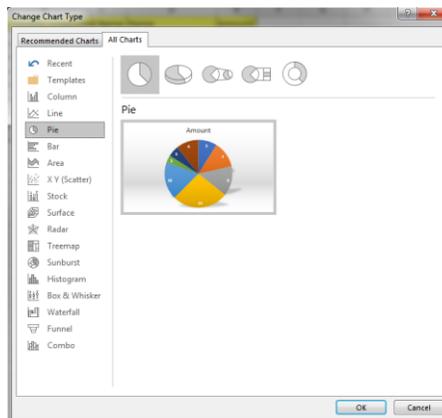
To Change the Chart Type

- **Step 1:** From the Design tab, click the Change Chart Type command. A dialog box appears.



The Change Chart Type command

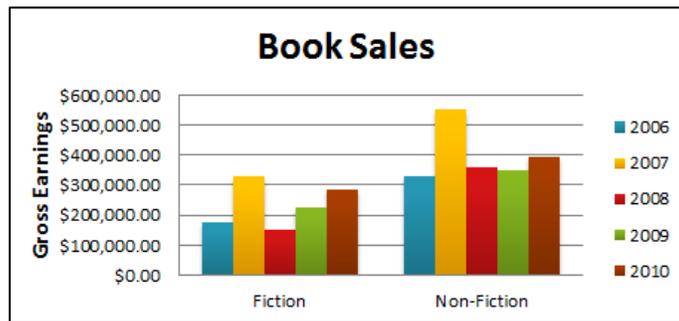
- **Step 2:** Select the desired chart type and click OK.



Selecting a chart type

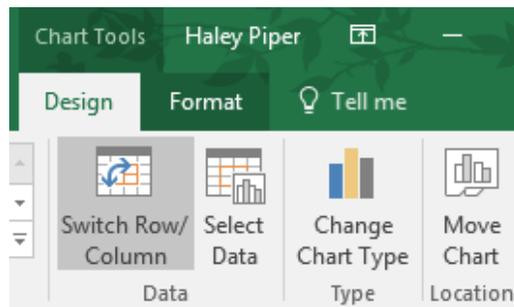
To Switch Row and Column Data

Sometimes when you create a chart, the data may not be grouped the way you want it to be. In the clustered column chart below, the Book Sales statistics are grouped by Fiction/Non-Fiction, with a column for each year. However, you can also switch the row and column data so that the chart will group the statistics by year, with columns for Fiction and Non-Fiction. In both cases, the chart contains the same data; it's just organized differently.



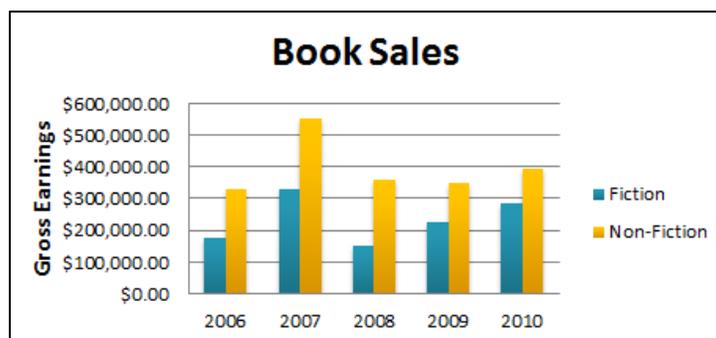
Original Chart

- **Step 1:** Select the chart.
- **Step 2:** From the Design tab, select the Switch Row/Column command.



Switch Row/Column Command

- **Step 3:** The chart will then readjust.



Revised Chart

Chart Elements

The Chart Element icon replaces the Layout tab from earlier versions of Excel. This tool allows you to check or uncheck chart elements that you want to add or remove from your chart.

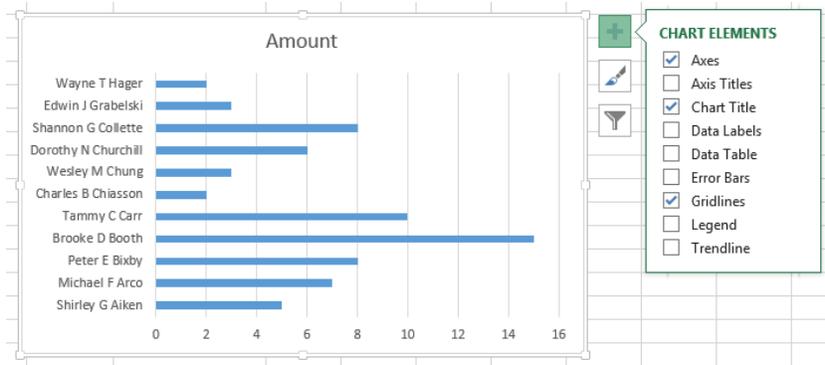


Chart Styles

The Chart Styles icon allows you to easily change the Style and Color of your chart with a simple click

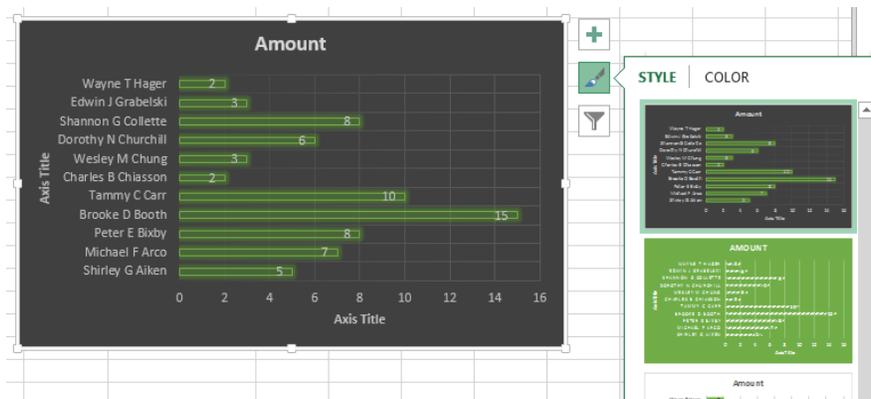
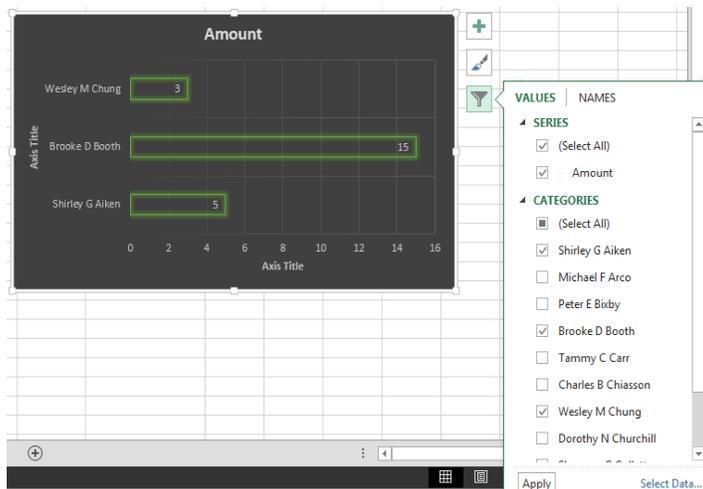


Chart Filters

The Chart Filters icon lets you focus on specific amounts of data in your chart by checking and unchecking categories. This simply hides the unchecked categories so you can focus on a specified amount of information.

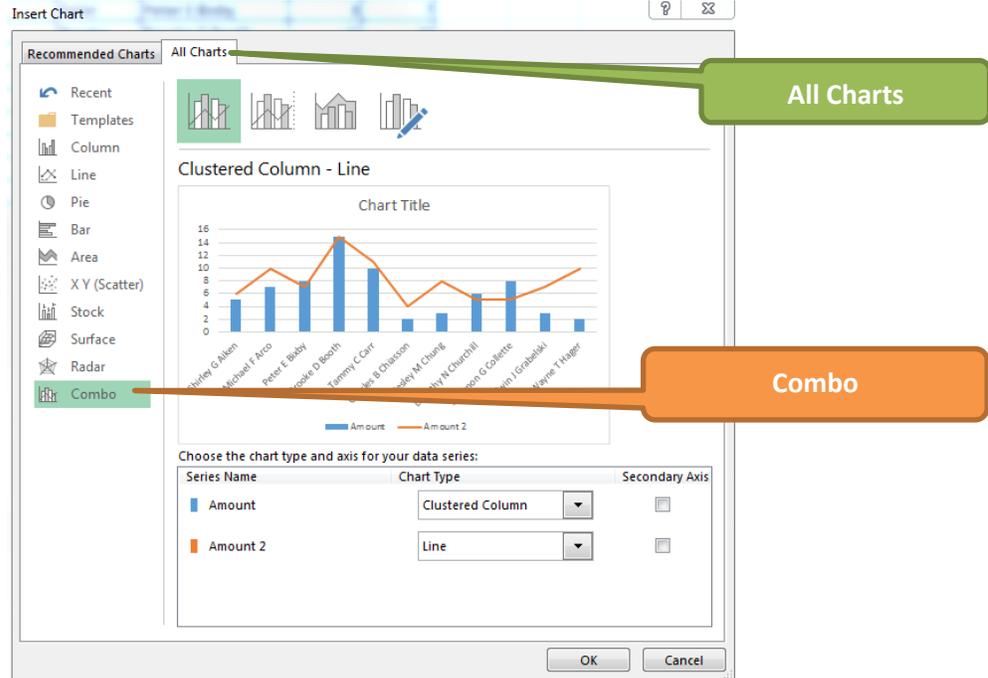
- **Step 1:** Click on the Chart Filters icon.
- **Step 2:** Uncheck the information that you do not want to see.
- **Step 3:** Click Apply.



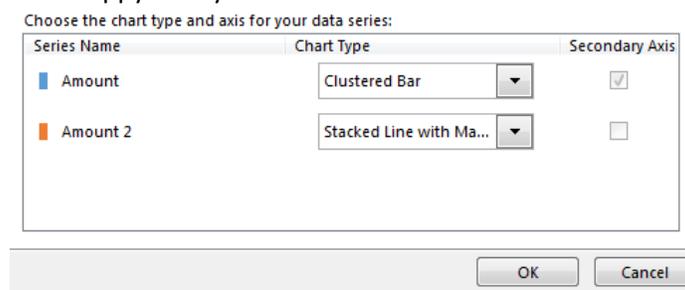
Combo Charts

Combo Charts allow you to view 2 sets of data in one chart which makes it easier to compare. Excel makes this very easy to do.

- **Step 1:** Select the data that you want to use in your Combo Chart.
- **Step 2:** Under the Insert tab in the Charts group click the See All Charts button.
- **Step 3:** The Insert Chart dialog box will appear. Click on the All Charts tab and select Combo.



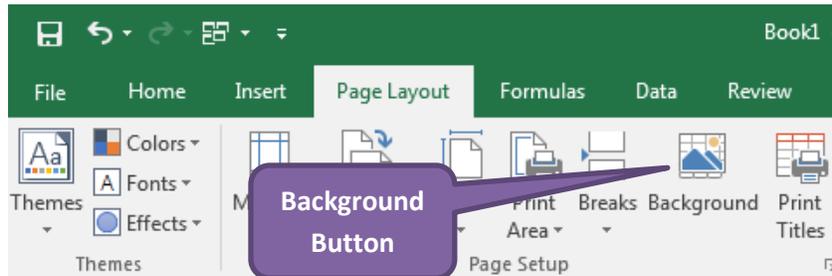
- **Step 4:** Now you can use the drop-down arrows under Chart Type to select the charts that you want to represent your series. There will be a live preview as you go through different chart types. Once you are happy with your chart click OK.



Page Layout Tab Intermediate

Using a Background

- **Step 1:** Click the worksheet that you want to display with a sheet background. Make sure that only one worksheet is selected.
- **Step 2:** On the Page Layout tab, in the Page Setup group, click Background.

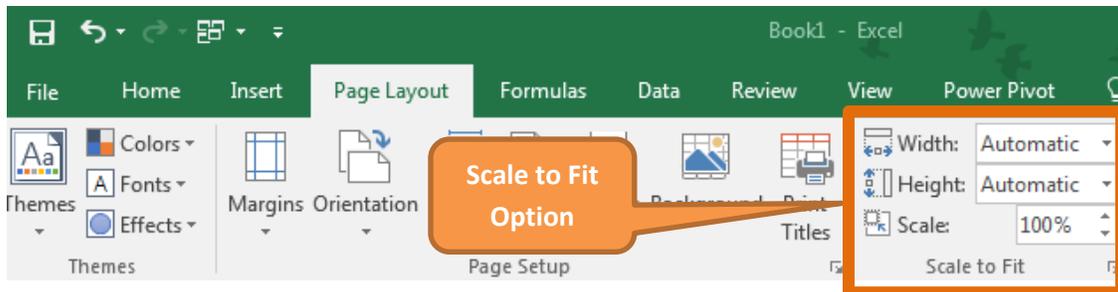


- **Step 3:** Select the picture that you want to use for the sheet background, and then click Insert.

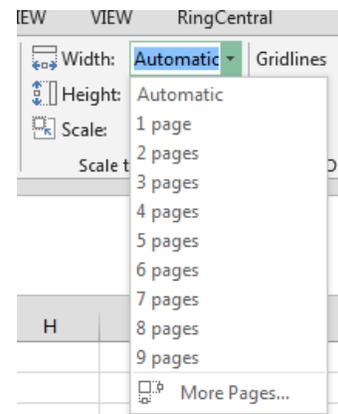
Scale to Fit

If your worksheet has a lot of columns or row, you can use the Scale to Fit options to reduce the size of the worksheet to better fit the printed page.

- **Step 1:** Click **Page Layout** tab, in the **Scale to Fit** group,



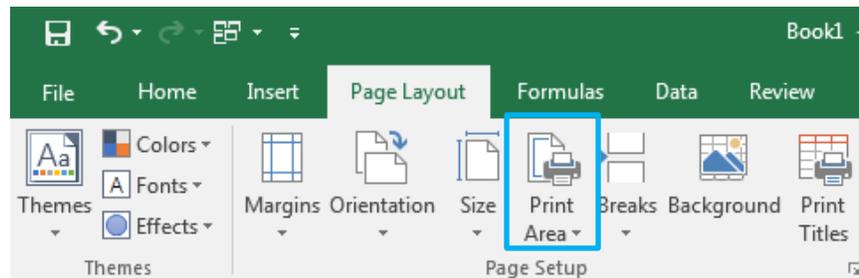
- **Columns:** To print all Columns on one page, in the **Width** box, select **1 page**. Columns will now appear on one page.
- **Rows:** To print all Rows on one page, in the **Height** box, select **1 page**. Rows will now appear on one page



Print Area

If you frequently print a specific section of your worksheet, you can set a print area for it. That way, when you print your worksheet, only that section will print.

- **Step 1:** Select the cells you want to print.
 - To set multiple print areas, hold down the Ctrl key and click the areas you want to print. Each print area prints on its own page.
- **Step 2:** Click **Page Layout** tab, in the Page Setup grouping, select **Print Area** and **Set Print Area**.



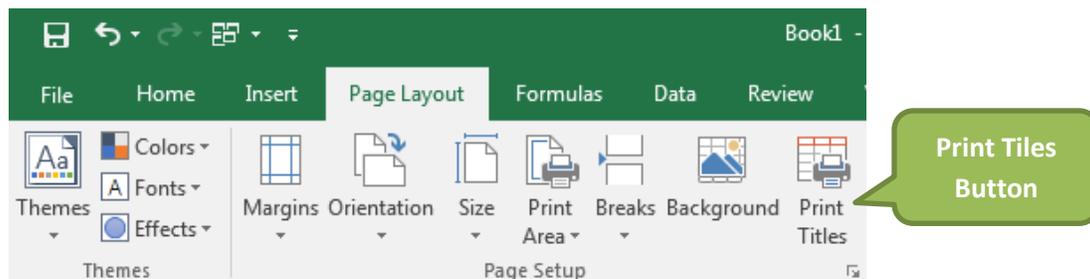
- When you save your workbook, the print area is saved too.
- If you want to print the entire worksheet, instead of specific print areas, Click **Page Layout** tab, in the Page Setup grouping, select **Print Area** and **Set Print Area**.

Print Tiles

You can specify rows and columns in Excel that will be printed on each printed page. This can make your printed copy easier to read.

To print titles, execute the following steps.

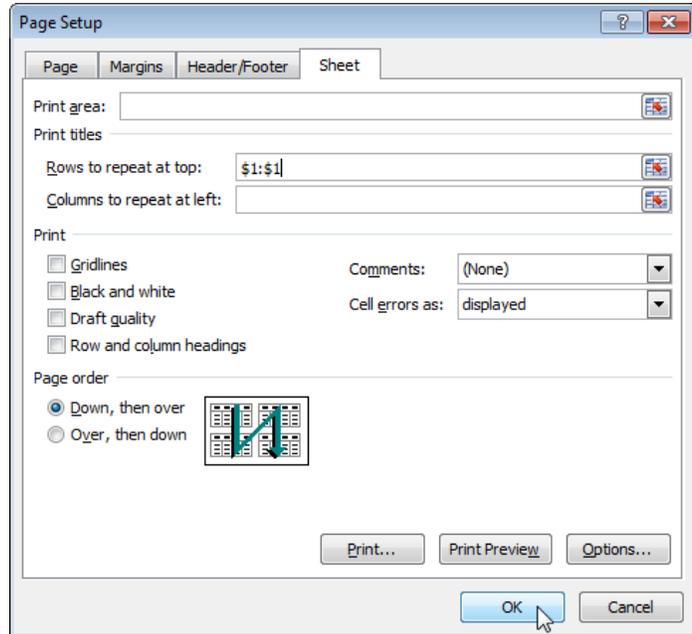
- **Step 1:** On the Page Layout tab, click Print Titles.



The Page Setup dialog box appears.

- **Step 2:** To repeat row 1 at the top of each printed page, click in the corresponding box and select row 1.
- **Step 3:** Click OK

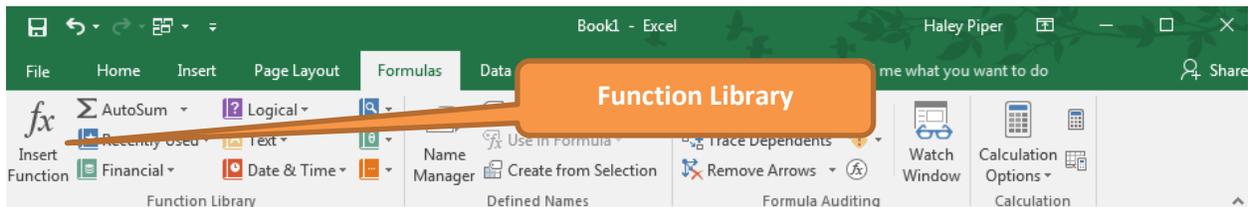
Note: in a similar way, you can repeat columns at the left of each printed page.



Formulas Tab Intermediate

Using the Function Library

- **Step 1:** Select the cell where the answer will appear (I6, for example)
- **Step 2:** Click on the Formulas tab.
- **Step 3:** From the Function Library group, select the function category you desire.



- **Step 4:** Select the desired function from the Date & Time drop-down menu.
- **Step 5:** The Function Arguments dialog box will appear. Insert the cursor in the first field and then enter or select the cell(s) you desire. Repeat this for all arguments needed.
- **Step 6:** Click OK and the result will appear.

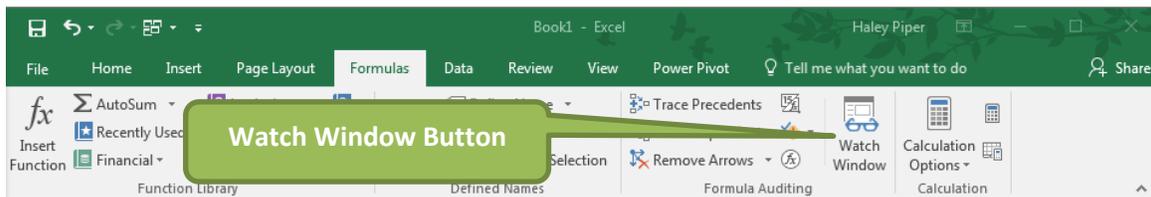
Using the Watch Window

When cells are not visible on a worksheet, you can watch those cells and their formulas in the Watch Window toolbar. The Watch Window makes it convenient to inspect, audit, or confirm formula calculations and results in large worksheets. By using the Watch Window, you don't need to repeatedly scroll or go to different parts of your worksheet.

This toolbar can be moved or docked like any other toolbar. For example, you can dock it on the bottom of the window. The toolbar keeps track of the following properties of a cell: workbook, sheet, name, cell, value, and formula.

Add cells to the Watch Window

- **Step 1:** Select the cells that you want to watch.
- **Step 2:** To select all cells on a worksheet with formulas, on the Home tab, in the Editing group, click Find & Replace, click Go To Special, and then click Formulas.
- **Step 3:** On the Formulas tab, in the Formula Auditing group, click Watch Window.



- **Step 4:** Click Add Watch.
- **Step 5:** Click Add.
- **Step 6:** Move the Watch Window toolbar to the top, bottom, left, or right side of the window.
- **Step 7:** To change the width of a column, drag the boundary on the right side of the column heading.
- **Step 8:** To display the cell that an entry in Watch Window toolbar refers to, double-click the entry.

Remove cells from the Watch Window

- **Step 1:** If the Watch Window toolbar is not displayed, on the Formulas tab, in the Formula Auditing group, click Watch Window.
- **Step 2:** Select the cells that you want to remove.

Note: To select multiple cells, press CTRL and then click the cells.

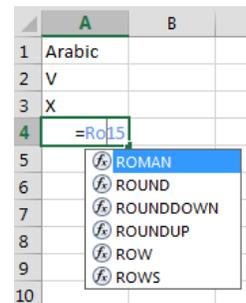
- **Step 3:** Click Delete Watch.

Convert Roman/Arabic Numerals

The ROMAN and ARABIC function can change your numbers to Roman numerals and vice versa.

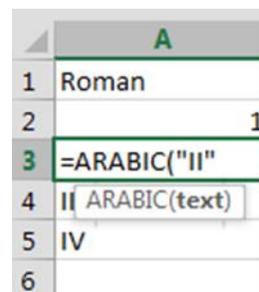
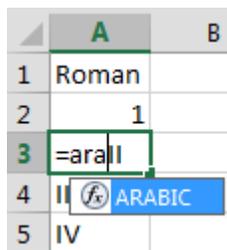
Arabic to Roman Numerals

- **Step 1:** Double click into the cell you want to change.
- **Step 2:** Type “=Ro” and the drop down will appear with a list of functions to choose from.
- **Step 3:** Double click on ROMAN
- **Step 4:** hit the enter key. The number 15 in cell A4 became Roman numeral XV.



Roman Numerals to Arabic

- **Step 1:** Double click the cell you want to change.
- **Step 2:** Type “=Ara” and the drop-down menu will appear with a list of functions to choose from.
- **Step 3:** Double click on ARABIC.
- **Step 4:** Put quotation marks around the number you wish to change.
- **Step 5:** Hit the enter key. The Roman numeral 2 in cell A3 becomes Arabic number 2.



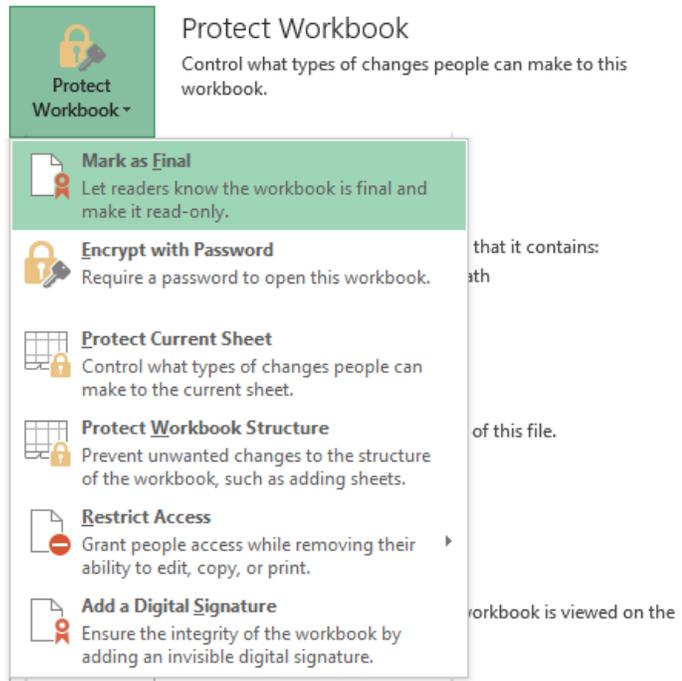
Review Tab Intermediate

Protecting a Workbook

By default, anyone with access to your workbook will be able to open, copy, and change any part of it unless you protect it. There are many ways you can protect your workbook depending on your needs. For example, you can mark your workbook as final, set it up with a password, put restrictions on who can make changes, or make it so that only certain cells or features of the workbook are changeable.

To Protect Your Workbook

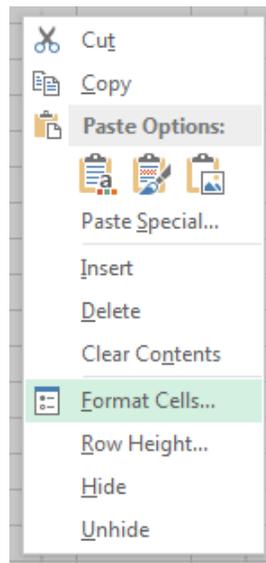
- **Step 1:** Click the File tab to access the Backstage view.
- **Step 2:** From the Info pane, click the Protect Workbook command.
- **Step 3:** Choose the option that best suits your needs. In this example, we will select Mark as Final. Marking your workbook as final is a way to discourage others from making any changes to the workbook. It will alert whoever opens it that typing, editing, and proofreading commands are unavailable.
- **Step 4:** Click OK.
- **Step 5:** Another dialog box will appear. Click OK to confirm.



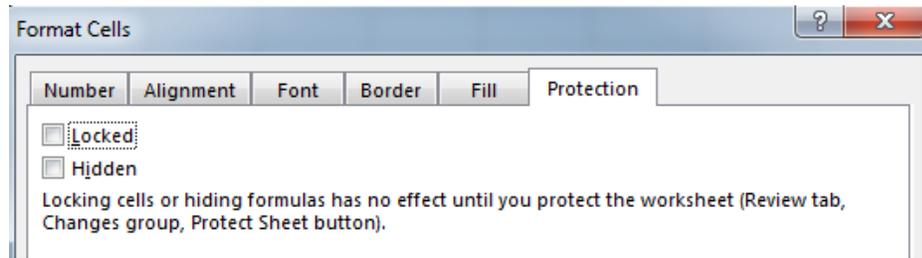
Range Protection

Protection tools allow you to lock and protect an entire worksheet or workbook. However, sometimes you only want to protect specific cells within a selected sheet.

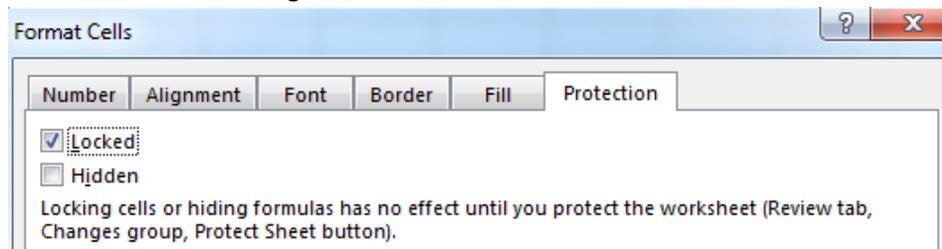
- **Step 1:** Select all cells in the current worksheet by pressing Ctrl A
- **Step 2:** Right click and select Format Cell in the menu



- **Step 3:** In the Format Cells dialog box, uncheck Locked under the Protection tab and click OK.



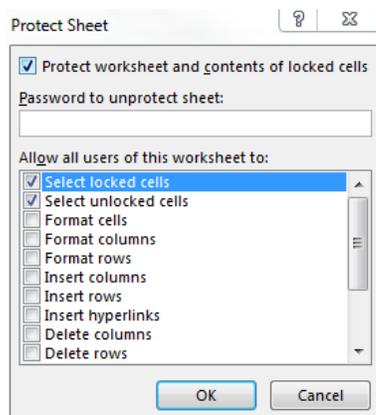
- **Step 4:** Select the cells that you want to lock.
- **Step 5:** Right click the selected range and select Format Cell from the menu.
- **Step 6:** In the Format Cells dialog box, check Locked under the Protection tab and click OK.



- **Step 7:** Click Protect Sheet in the Changes group under the Review tab.



- **Step 8:** In the Protect Sheet dialog box, enter a password and click OK.



- **Step 9:** A Confirm Password dialog box will appear, re-enter the password and click OK.

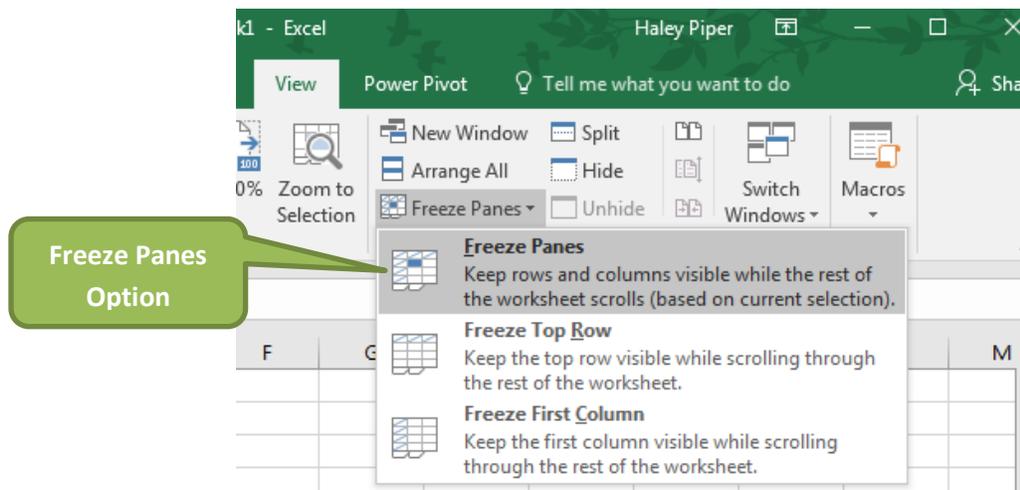
View Tab Intermediate

Freezing Worksheet Panes

The ability to freeze specific rows or columns in your worksheet can be a very useful feature in Excel. It is called freezing panes. When you freeze panes, you select rows or columns that will remain visible all the time, even as you are scrolling. This is particularly helpful when working with large spreadsheets.

To Freeze Rows or Columns

- **Step 1:** Select the row below the rows that you want frozen. For example, if you want rows 1 & 2 to always appear at the top of the worksheet even as you scroll, then select row 3. Do the same manner for columns if freezing columns.
- **Step 2:** Click the View tab.
- **Step 3:** Click the Freeze Panes command. A drop-down menu appears.



- **Step 4:** Select Freeze Panes.
- **Step 5:** A black line appears below the rows that are frozen in place. Scroll down in the worksheet to see the rows below the frozen rows.

To Unfreeze Panes

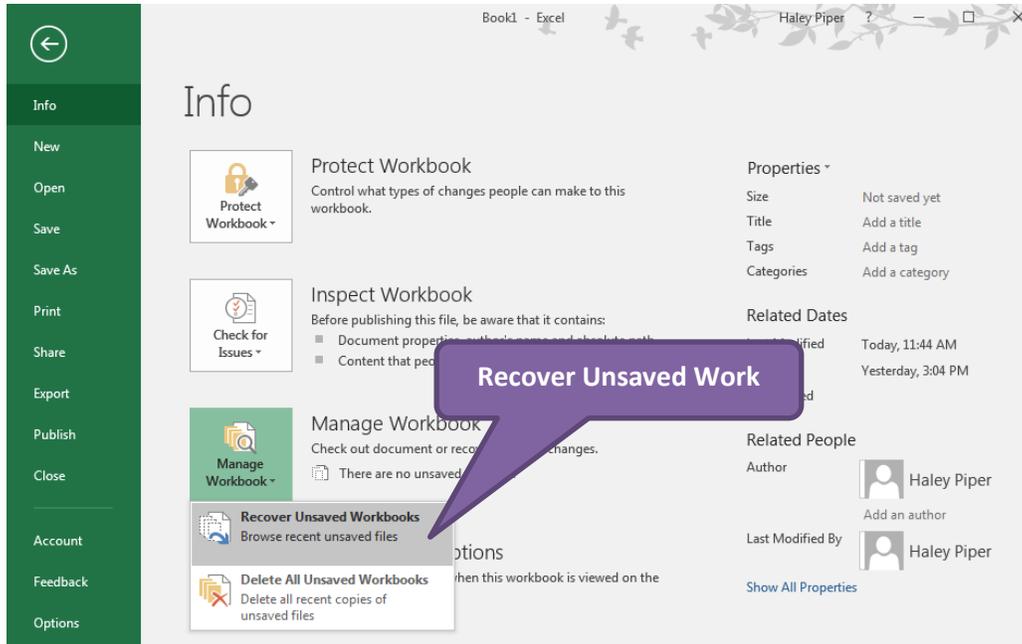
- **Step 1:** Click the View tab.
- **Step 2:** Click the Freeze Panes command. A drop-down menu appears.
- **Step 3:** Select Unfreeze Panes. The panes will be unfrozen and the black line will disappear.

File Tab Intermediate

Using Auto Recovery

Excel automatically saves your workbooks to a temporary folder while you are working on them. If you forget to save your changes, or if Excel crashes, you can recover the AutoSaved file.

- **Step 1:** Open a workbook that was previously closed without saving.
- **Step 2:** In Backstage view, click Info.
- **Step 3:** If there are autosaved versions of your workbook, they will appear under Versions. Click on the file to open it.



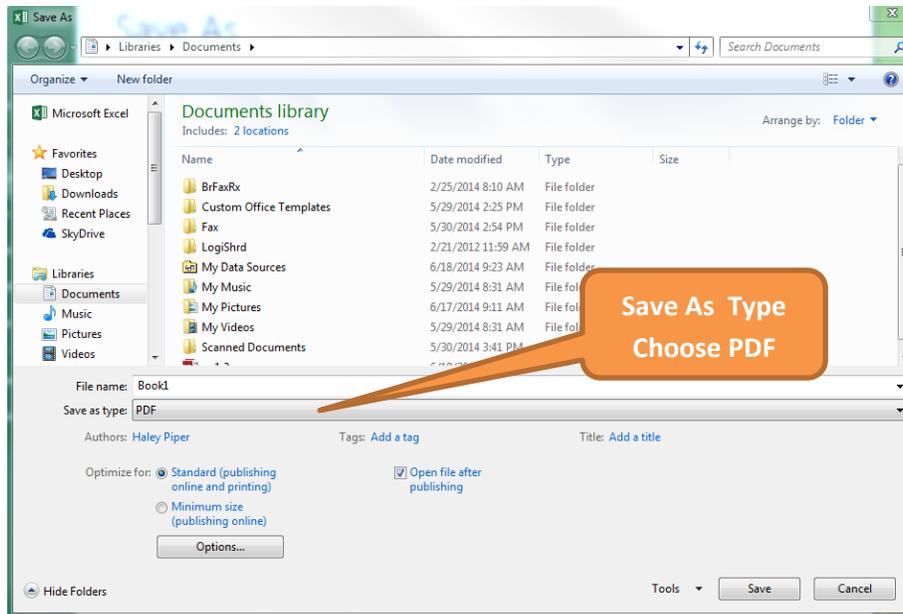
- **Step 4:** A yellow caution note will appear on the ribbon of the workbook. To restore this version of the workbook click Restore and then click OK.

Note: By default, Excel AutoSaves every 10 minutes. If you are editing a workbook for less than 10 minutes, Excel may not create an AutoSaved version.

Saving As a PDF

Saving your workbook as an Adobe Acrobat Document, which is called a PDF file, can be especially useful when your recipients do not have Excel. A PDF file will make it possible for recipients to view the content from your workbook, but they will not be able to edit anything. If you are not sure what a PDF file looks like, you can download our PDF example for this lesson.

- **Step 1:** Click the File tab.
- **Step 2:** Select Save As.
- **Step 3:** In the Save as type drop-down menu, select PDF.



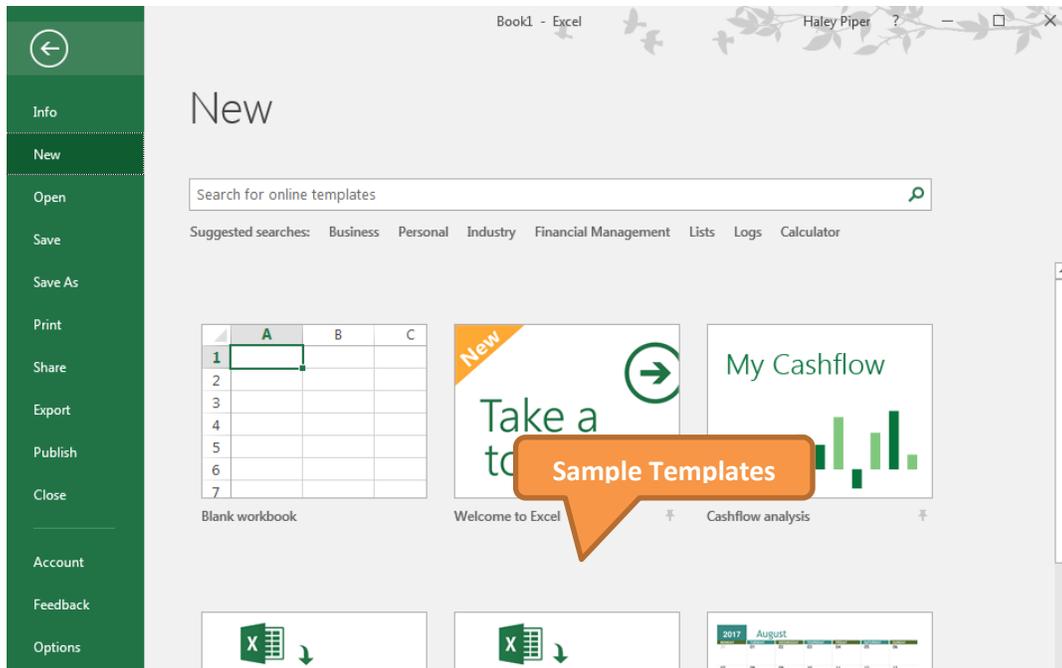
- **Step 4:** Select the location you wish to save the file.
- **Step 5:** Enter a name for the file and click Save.

Note: Excel defaults to saving the active worksheet only. If you have multiple worksheets and want to save all of them in the same PDF file, click on Options. The Options dialog box will appear. Select Entire workbook from the Options dialog box and click OK.

Using Templates

Excel allows you to create a new workbook using a template, which is a pre-designed spreadsheet. Several templates are preloaded in Excel, and others are located on Office.com.

- **Step 1:** To Create a New Workbook Using a Template:
- **Step 2:** Click the File tab to go to Backstage view.
- **Step 3:** Select New. The Available Templates pane appears.



- **Step 4:** Thumbnail images of the templates you have to choose from appear in the center.
- **Step 5:** Click the desired template

Inventory List							Highlight items to reorder? Yes
	Description	Unit Price	Quantity in Stock	Inventory Value	Reorder Level	Reorder Point	
	Desc 1	\$51.00	25	\$1,275.00	29		
	Desc 2	\$93.00	132	\$12,276.00	231		
IN0003	Item 3	Desc 3	\$57.00	151	\$8,607.00	114	
IN0004	Item 4	Desc 4	\$19.00	186	\$3,534.00	158	
IN0005	Item 5	Desc 5	\$75.00	62	\$4,650.00	39	
IN0006	Item 6	Desc 6	\$11.00	5	\$55.00	9	
IN0007	Item 7	Desc 7	\$56.00	58	\$3,248.00	109	
IN0008	Item 8	Desc 8	\$38.00	101	\$3,838.00	162	
IN0009	Item 9	Desc 9	\$59.00	122	\$7,198.00	82	

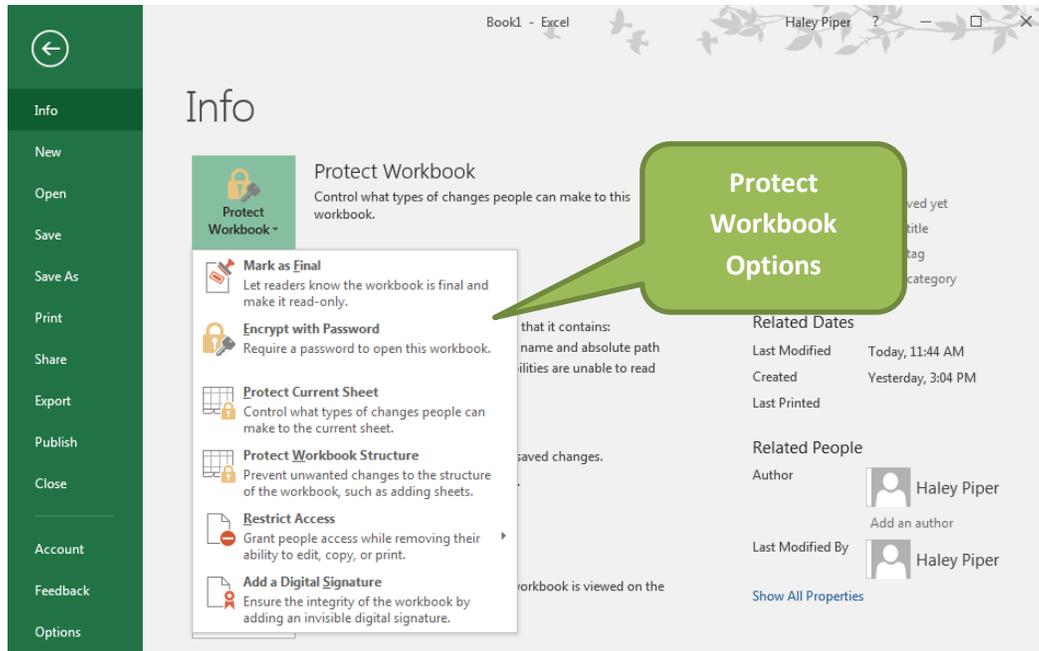
Sample Template

- **Step 7:** A new workbook will appear using the template you chose.

Setting Permissions

In an open worksheet, click File > Info > Protect Workbook.

You see the following options.



- **Mark as Final** - Make the document read-only.

When a worksheet is marked as final, typing, editing commands, and proofing marks are disabled or turned off and the worksheet becomes read-only. The Mark Comment as Final command helps you communicate that you are sharing a completed version of a worksheet. It also helps prevent reviewers or readers from making inadvertent changes to the worksheet.

- **Encrypt with Password** - Set a password for the document.

When you select Encrypt with Password, the Encrypt Document dialog box appears. In the Password box, type a password. Important Microsoft can't retrieve lost or forgotten passwords, so keep a list of your passwords and corresponding file names in a safe place.

- **Protect Current Sheet** - Protect the worksheet and locked cells.

By using the Protect Current Sheet feature, you can select password protection and allow or disallow other users to select, format, insert, delete, sort or edit areas of the worksheet.

- **Protect Workbook Structure** - Protect the structure of the worksheet.

By using the Protect Workbook Structure feature, you can select password protection and select options to prevent users from changing, moving, deleting important data.

- **Restrict Permission by People** - Install Window Rights Management to restrict permissions.

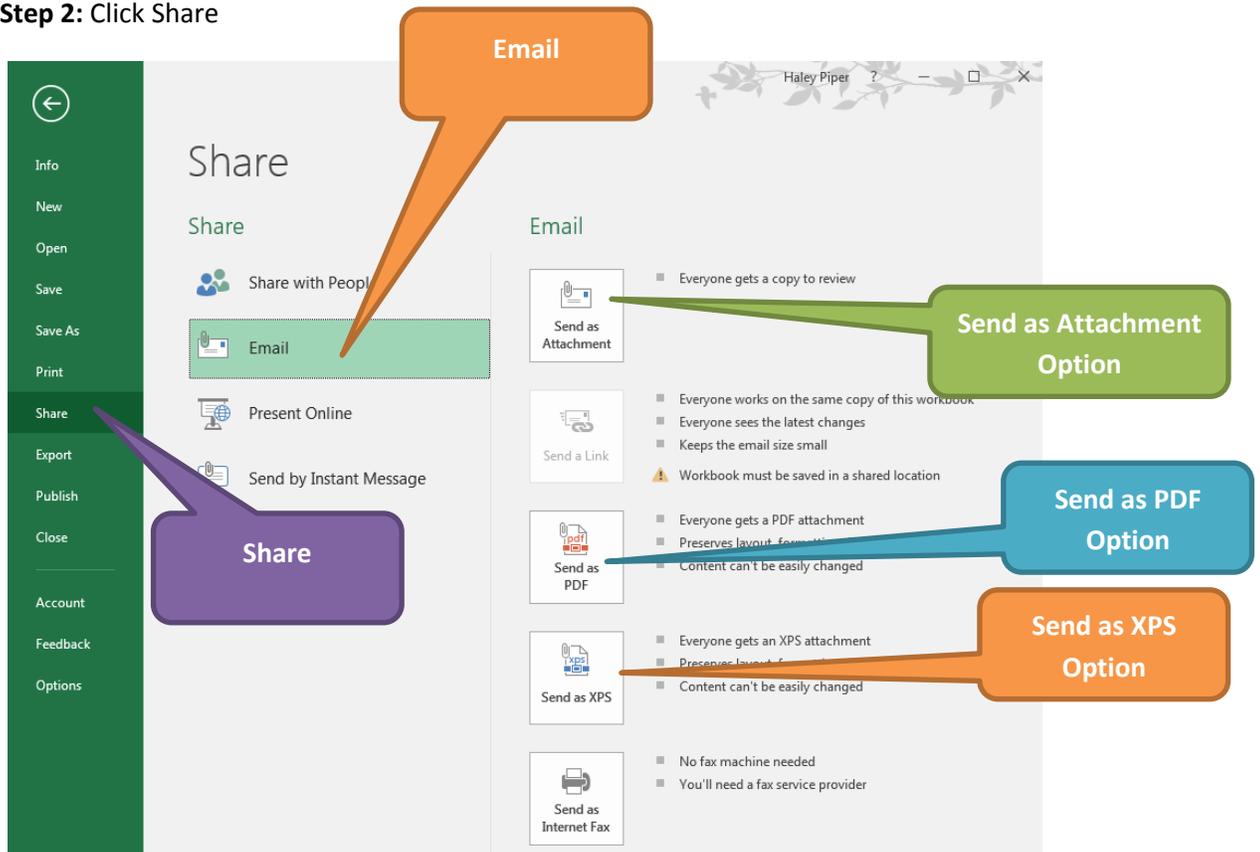
Use a Windows Live ID or a Microsoft Windows account to restrict permissions. You can apply permissions via a template that is used by your organization, or you can add permissions by clicking Restrict Access. To learn more about Information Rights Management see Information Rights Management in Office.

- **Add a Digital Signature** - Add a visible or invisible digital signature.

Digital signatures authenticate digital information such as documents, email messages, and macros by using computer cryptography. Digital signatures are created by typing a signature or by using an image of a signature to establish authenticity, integrity, and non-repudiation. See the link at the end of this topic to learn more about digital signatures.

Sending a Workbook as an Email Attachment

- **Step 1:** Click File.
- **Step 2:** Click Share



- **Step 3:** Select E-mail, and then choose one of the following options:
 - **Send as Attachment** - Opens an e-mail message with a copy of the file in its original file format attached.
 - **Send as PDF** - Opens an e-mail message with a copy of the file in .pdf format attached.
 - **Send as XPS** - Opens an e-mail message with a copy of the file in .xps format attached.

- **Step 4:** Enter the recipient(s), edit the subject line and message body as necessary, and then click Send.

Present a workbook Online

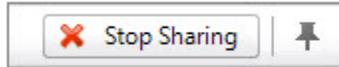
If you have Lync installed, you can present a workbook in an online meeting, work with others in real time, and give control of the workbook to others.

- **Step 1:** Make sure that only the workbook you want to share is open in Excel.
- **Step 2:** Click File to enter the backstage view and click Share.
- **Step 3:** Click Present Online then click the Present button



- **Step 4:** In the Share Workbook Window box, pick a scheduled meeting or click Start a new Lync meeting, and click OK.
- **Step 5:** You may now begin your scheduled meeting OR begin a new meeting by clicking the Participants button and clicking Invite More People, then select or type the names of your attendees.

Click Stop Sharing when you are finished sharing your workbook.



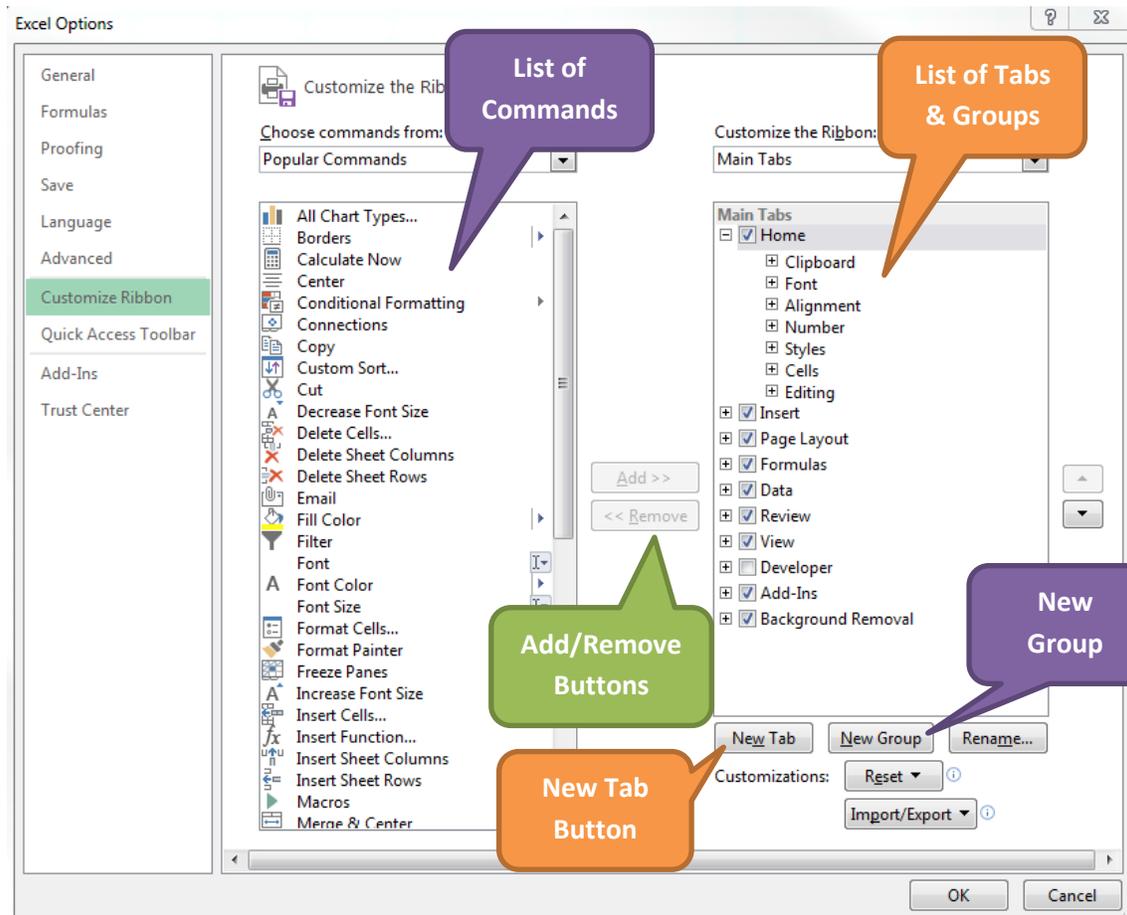
How-To Advanced: Getting the Most Out of Excel

Advanced Fundamentals

Customizing the Ribbon

You can customize the ribbon by creating your own tabs that house your desired commands. Commands are always housed within a group, and you can create as many groups as you need to keep your tabs organized. In addition, you can even add commands to any of the default tabs, as long as you create a custom group within the tab.

- **Step 1:** Right-click the Ribbon and select Customize the Ribbon. A dialog box will appear.



- **Step 2:** Click New Tab. A new tab will be created with a new group inside it.
- **Step 3:** Make sure the new group is selected.
- **Step 4:** Select a command from the list on the left, then click Add. You can also drag commands directly into a group.
- **Step 5:** When you are done adding commands, click OK.

Insert Tab Advanced

Using Pivot Tables

When you have a lot of data, it can sometimes be difficult to analyze all of it. A PivotTable summarizes the data, making it easier to manage. Best of all, you can quickly and easily change the PivotTable to see the data in a different way, making this an extremely powerful tool.

The example below contains sales statistics for a fictional company. There is a row for each order, and it includes the order amount, the name of the salesperson who made the sale, the month, the sales region, and the customer's account number.

Salesperson	Region	Account	Order Amount	Month
Albertson, Kathy	East	29386	\$925.00	January
Albertson, Kathy	East	74830	\$875.00	February
Albertson, Kathy	East	90099	\$500.00	February
Albertson, Kathy	East	74830	\$350.00	March
Brennan, Michael	West	82853	\$400.00	January
Brennan, Michael	West	72949	\$850.00	January
Brennan, Michael	West	90044	\$1,500.00	January
Brennan, Michael	West	82853	\$550.00	February
Brennan, Michael	West	72949	\$400.00	March
Davis, William	South	55223	\$235.00	February
Davis, William	South	10354	\$850.00	January
Davis, William	South	50192	\$600.00	March
Davis, William	South	27589	\$250.00	January
Dumlao, Richard	West	67275	\$400.00	January
Dumlao, Richard	West	41828	\$965.00	February
Dumlao, Richard	West	87543	\$125.00	March
Flores, Tia	South	97446	\$1,500.00	March
Flores, Tia	South	41400	\$305.00	January

Suppose we wanted to answer the question, "What is the amount sold by each salesperson?" This could be time-consuming, as each salesperson appears on multiple rows, and we would need to add up all the order amounts for each salesperson. Of course, we could use the Subtotal feature to add them, but we would still have a lot of data to sift through.

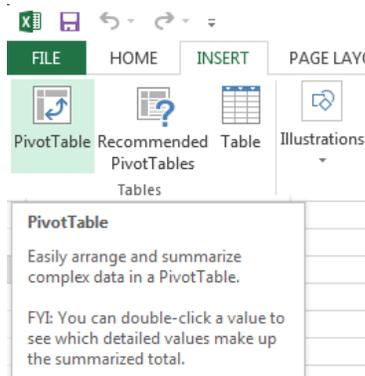
Luckily, a PivotTable can instantly do all the math for us and summarize the data in a way that's not only easy to read, but easy to manipulate. When we're done, the PivotTable will look something like this.

Row Labels	Sum of Order Amount
Albertson, Kathy	\$2,650.00
Brennan, Michael	\$3,700.00
Davis, William	\$1,935.00
Dumlao, Richard	\$1,490.00
Flores, Tia	\$4,565.00
Post, Melissa	\$1,690.00
Thompson, Shannon	\$3,160.00
Walters, Chris	\$4,375.00
Grand Total	\$23,565.00

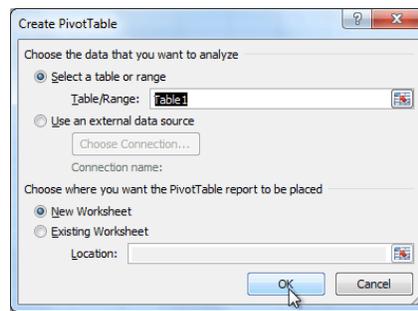
As you can see, the PivotTable is much easier to read. It only takes a couple of steps to create one, and once you create it you'll be able to take advantage of the PivotTable's powerful features.

To Create a PivotTable

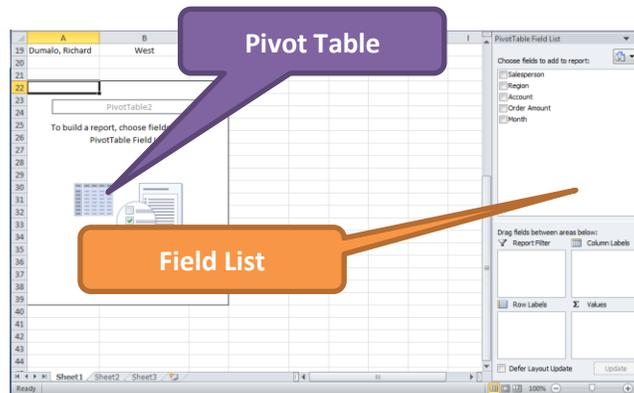
- **Step 1:** Select the table or cells (including column headers) containing the data you want to use.
- **Step 2:** From the Insert tab, click the PivotTable command.



- **Step 3:** The Create PivotTable dialog box will appear. Make sure the settings are correct, and then click OK.



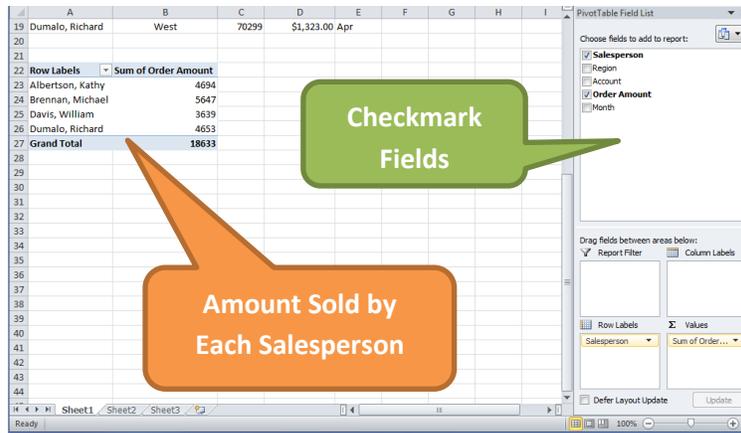
- **Step 4:** A blank PivotTable will appear on the left, and the Field List will appear on the right



To Add Fields to the PivotTable

Now, you'll need to decide which fields to add to the PivotTable. Each field is simply a column header from the source data. It may be helpful to recall the question that you are trying to answer. In this example, we want to know the total amounts of sales by sales people.

- **Step 1:** In the Field List, place a checkmark next to each field you want to add.
- **Step 2:** The selected fields will be added to one of the four Areas below the Field List.
- **Step 3:** The PivotTable now shows the amount of supplies.



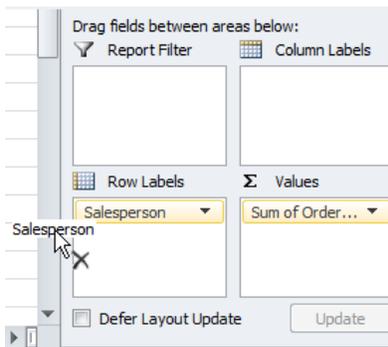
Pivoting Data

One of the best things about PivotTables is that they let you "pivot" the data to look at it in a different way. This allows you to answer multiple questions and even experiment with the data to learn new things about it.

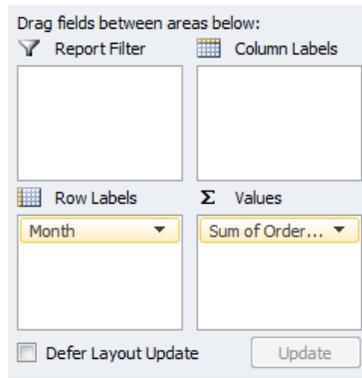
In our example, we used the PivotTable to answer the question "What is the total amount sold by each salesperson?" But now we'd like to answer a new question, such as "What is the total amount sold in each month?" We can do this by simply changing the Row Labels.

To Change the Row Labels

- **Step 1:** Drag any existing fields out of the Row Labels area, and they will disappear.



- **Step 2:** Drag a new field from the Field List into the Row Labels area. In this example, we're using the Month field.



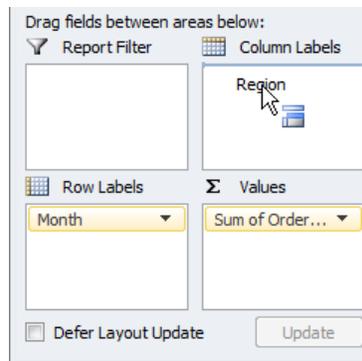
- **Step 3:** The PivotTable will adjust to show the new data. In this example, it now shows us the total Order Amount for each month.

Row Labels	Sum of Order Amount
Jan	5303
Feb	6203
Mar	6484
Apr	643
Grand Total	18633

To Add Column Labels

So far, our PivotTable has only shown one column of data at a time. To show multiple columns, you'll need to add Column Labels.

- **Step 1:** Drag a field from the Field List into the Column Labels area. In this example, we're using the Region field.

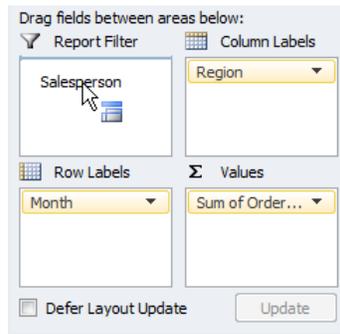


- **Step 2:** The PivotTable will now have multiple columns. In this example, there is a column for each region.

Sum of Order Amount	Column Labels			
Row Labels	East	South	West	Grand Total
Jan	2090	771	2442	5303
Feb	2022	1619	2562	6203
Mar	582	1249	4653	6484
Apr			643	643
Grand Total	4694	3639	10300	18633

To Add a Report Filter

- **Step 1:** Drag a field from the Field List into the Report Filter area. In this example, we're using the Salesperson field.



- **Step 2:** The report filter appears above the PivotTable. Click the drop-down arrow on the right side of the filter to view the list of items.

	A	B	C
20	Salesperson	(All)	
21			
22	Sum of Order Amount	Column Labels	
23	Row Labels	East	South West Grand Total
24	Jan	2090	771 2442 5303
25	Feb	2022	1619 2562 6203
26	Mar	582	1249 4653 6484
27	Apr		643 643
28	Grand Total	4694	3639 10300 18633
29			
30			

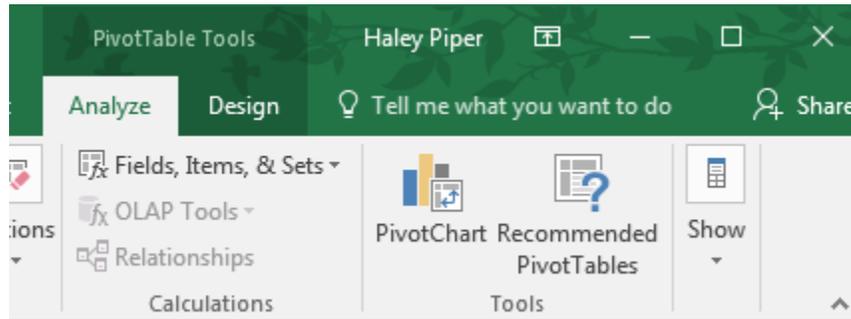
- **Step 3:** Select the item that you wish to view. If you want to select more than one item, place a checkmark next to Select Multiple Items. Then click OK. In the example below, we are selecting five salespeople.
- **Step 4:** Click OK. The PivotTable will adjust to reflect the changes.

Creating Pivot Charts

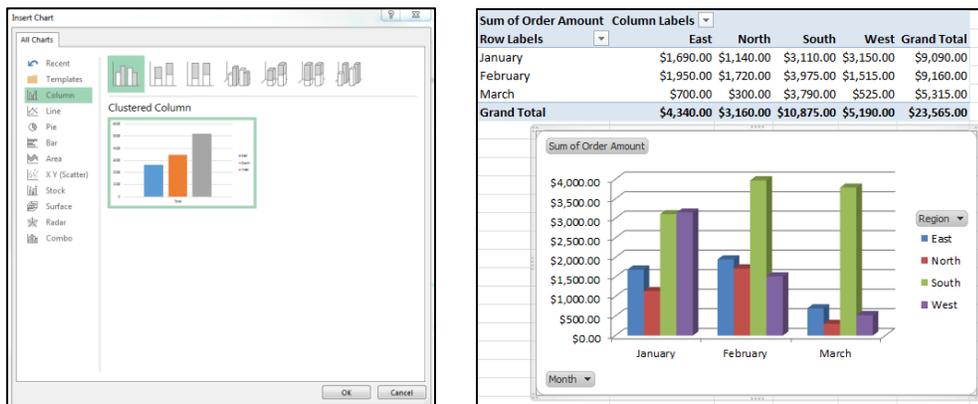
Pivot Charts are like regular charts, except they display data from a PivotTable. As with a regular chart, you'll be able to select a chart type, layout and style to best represent the data. In this example, we'll use a PivotChart so we can visualize the trends in each sales region.

To Create a PivotChart

- **Step 1:** Select any cell in your PivotTable. The Options tab will appear in the Ribbon.
- **Step 2:** From the Options tab, click the PivotChart command.



- **Step 3:** From the dialog box, select the desired chart type (3-D Clustered Column, for example) and click OK.
- **Step 4:** The PivotChart will appear in the worksheet. If you want, you can move it by clicking and dragging.



Using Sparklines

Sparklines were introduced in Excel 2010 to be a convenient alternative to charts. Unlike a traditional chart, a sparkline is placed inside a cell, allowing you to easily create many sparklines (for example, one on each row).

There are three different types of sparklines: Line, Column, and Win/Loss. Line and Column work the same as line and column charts. Win/Loss is similar to Column, except it only shows whether each value is positive or negative, instead of how high or low the values are. All three types can display markers at important points, such as the highest and lowest points, to make them easier to read.

Sparklines are basically charts, so why would you want to use sparklines instead of charts? Sparklines have certain advantages that make them more convenient in many cases. Imagine you have 1000 rows of data. If you place a sparkline on each row, it will be right next to its source data, making it easy to see the relationships between the numbers and the sparkline. If you used a traditional chart, it would need to have 1000 data series to represent all the rows, and you would probably need to do a lot of scrolling to find the relevant data in the worksheet.

Sparklines are ideal for situations where you just want to make the data clearer and more eye-catching, and where you don't need all the features of a full chart. On the other hand, charts are ideal for situations where you want to represent the data in greater detail, and they are often better for comparing different data series.

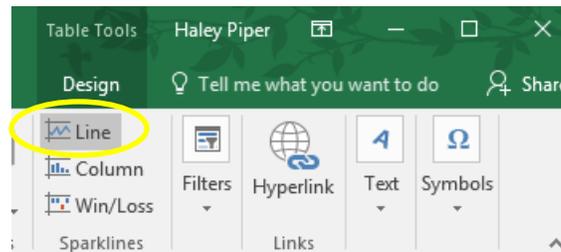
To Create Sparklines

Generally, you will have one sparkline for each row, but you can create as many as you want in any location you want. Just like with formulas it's usually easiest to create a single sparkline and then use the fill handle to automatically create the sparklines for the remaining rows.

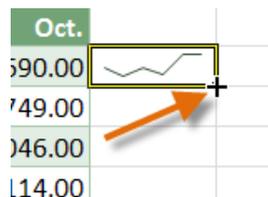
- **Step 1:** Select the cells that you will need for the first sparkline. In this example, we are creating a sparkline for Kathy Albertson, so we will select her sales data.

	A	B	C	D	E	F	G	H
1	Salesperson	May	June	July	Aug.	Sept.	Oct.	
2	Albertson, Kathy	\$3,947.00	\$557.00	\$3,863.00	\$1,117.00	\$8,237.00	\$8,690.00	
3	Allenson, Carol	\$4,411.00	\$1,042.00	\$9,355.00	\$1,100.00	\$10,185.00	\$18,749.00	
4	Altman, Zoey	\$2,521.00	\$3,072.00	\$6,702.00	\$2,116.00	\$13,452.00	\$8,046.00	

- **Step 2:** Click the Insert tab.
- **Step 3:** In the Sparklines group, select Line. A dialog box will appear.



- **Step 4:** Make sure the insertion point is next to Location Range.
- **Step 5:** Click the cell where you want the sparkline to be. In this example, we'll select the cell to the right of the selected cells.
- **Step 6:** Click OK. The sparkline will appear in the document.
- **Step 7:** Click and drag the fill handle downward.



- **Step 8:** Sparklines will be created for the remaining rows.

Sept.	Oct.	
\$8,237.00	\$8,690.00	
\$10,185.00	\$18,749.00	
\$13,452.00	\$8,046.00	
\$4,404.00	\$20,114.00	
\$3,170.00	\$10,733.00	
\$8,817.00	\$18,524.00	
\$13,090.00	\$13,953.00	
\$3,528.00	\$15,275.00	
\$4,839.00	\$13,085.00	
\$9,642.00	\$13,714.00	

To Show Points on the Sparkline

Certain points on the sparkline can be emphasized with markers, or dots, making the sparkline more readable. For example, in a line with a lot of ups and downs, it may be difficult to tell which ones are the highest and lowest points, but if you show the High Point and Low Point, it will be easy to identify them.

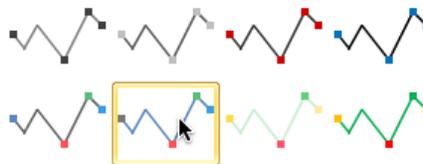
- **Step 1:** Select the sparklines that you want to change. If they are grouped, you only need to select one of them.
- **Step 2:** Locate the Show group in the Design tab.
- **Step 3:** Hover over the different checkboxes to see a description of each one.
- **Step 4:** Check each option that you want to show. The sparklines will update to show the selected options.

To Change the Style

- **Step 1:** Select the sparklines that you want to change.
- **Step 2:** Locate the Style group in the Design tab.
- **Step 3:** Click the More drop-down arrow to show all the available styles and select a style.



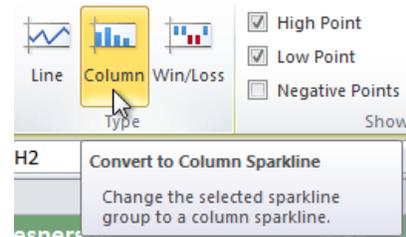
- **Step 4:** Select the Marker Color drop-down to specify points.



- **Step 5:** The sparklines will update to show the selected style.

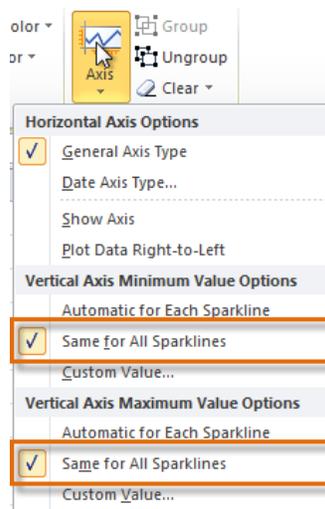
To Change the Sparkline Type

- **Step 1:** Select the sparklines that you want to change.
- **Step 2:** Locate the Type group in the Design tab.
- **Step 3:** Select the desired type (Column, for example).
- **Step 4:** The sparkline will update to reflect the new type.



To Change the Display Range

- **Step 1:** Select the sparklines that you want to change.
- **Step 2:** In the Design tab, click the Axis command. A drop-down menu will appear.
- **Step 3:** Under Vertical Axis Minimum Value Options and Vertical Axis Maximum Value Options, select Same for All Sparklines.



- **Step 4:** The sparklines will update to reflect the new range.

Formulas Tab Advanced

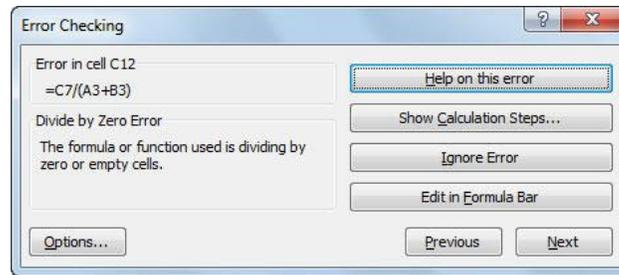
Error Checking

The Error Checking Options button is displayed when the formula in an Excel worksheet cell triggers an error. In addition to the button, the cell itself is marked with a small green triangle in the upper-left corner.

- **Step 1:** Select the cell containing the formula and click the Error Checking button on the Formulas tab.



- **Step 2:** The Error Checking dialog box appears.
- **Step 3:** Click any of the following buttons to help analyze the error and make decisions about how to correct it:



Help on This Error displays the Excel Help window.

Show Calculation Steps opens the Evaluate Formula dialog box.

Ignore Error ensures that Excel no longer cares about the error. The cell may still display an error symbol, but Excel does not give a hoot, and probably you won't either, since you clicked the button.

Edit in Formula Bar places the cursor in the Formula Bar, making it easy for you to edit the formula.

Options opens the Excel Options dialog box.

Previous and Next cycle through the multiple errors on the worksheet, assuming there is more than one error.

Tracing Formulas

Sometimes, checking formulas for accuracy or finding the source of an error can be difficult when the formula uses precedent or dependent cells:

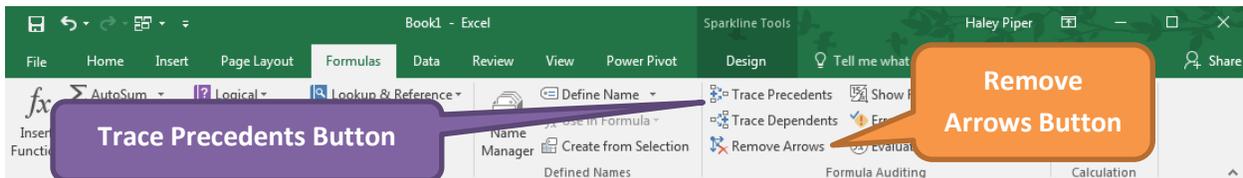
Precedent cells are cells that are referred to by a formula in another cell. For example, if cell D10 contains the formula =B5, cell B5 is a precedent to cell D10.

Dependent cells contain formulas that refer to other cells. For example, if cell D10 contains the formula =B5, cell D10 is a dependent of cell B5.

To assist you in checking your formulas, you can use the Trace Precedents and Trace Dependents commands to graphically display, or trace the relationships between these cells and formulas with tracer arrows.

To show the arrows for precedent cells

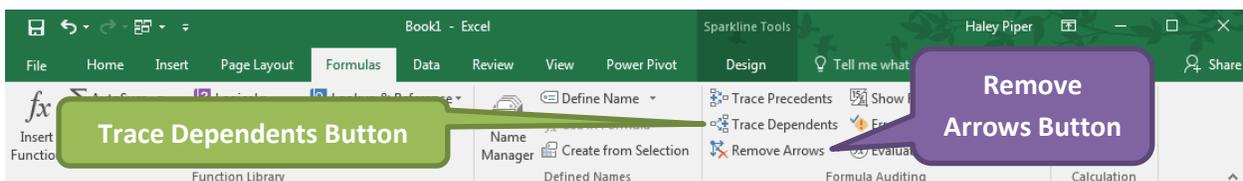
- **Step 1:** Click the Trace Precedents button on the Formulas tab.



- **Step 2:** Arrows will display where the cells are referenced.
- **Step 3:** To clear the arrows select the Remove Arrows option.

To show the arrows for dependent cells

- **Step 1:** Click the Trace Dependents button on the Formulas tab.



- **Step 2:** Arrows will display where the cells are referenced.
- **Step 3:** To clear the arrows select the Remove Arrows option.

View Tab Advanced

Split Sheet View

Sometimes you may want to compare different sections of the same workbook without creating a new window. The Split command allows you to divide the worksheet into multiple panes that scroll separately.

- **Step 1:** Select the cell where you want to split the worksheet.
- **Step 2:** Click the View tab on the Ribbon, then select the Split command.
 - **Horizontal:** To split the screen horizontal only, place your cursor anywhere in column A.
 - **Vertical:** To split the screen vertical only, place your cursor anywhere in row 1.
- **Step 3:** The workbook will be split into different panes. You can scroll through each pane separately using the scroll bars, allowing you to compare different sections of the workbook.
- **Step 4:** After creating a split, you can click and drag the vertical and horizontal dividers to change the size of each section.

	A	B	C	D	E
1	Westbrook Parker Sales Data				
2	Salesperson			July	Aug.
3	Albertson, Kath			\$863.00	\$1,117.00
4	Allenson, Carol			\$355.00	\$1,100.00
5	Altman, Zoey			\$702.00	\$2,116.00
6	Bittiman, William	\$4,752.00	\$3,755.00	\$4,415.00	\$1,089.00
28	Smith, Harold	\$5,421.00	\$4,728.00	\$7,158.00	\$1,116.00
29	Thomas, Robert	\$3,259.00	\$3,679.00	\$8,406.00	\$2,123.00
30	Thompson, Shannon	\$2,943.00	\$3,943.00	\$11,987.00	\$1,183.00

- **Step 5:** To remove the split, click the Split command again.

Data Tab Advanced

Using What-If Analysis

Excel includes many powerful tools to perform complex mathematical calculations, such as what-if analysis. This feature can help you experiment and answer questions with your data, even when the data is incomplete.

Using Goal Seek

Whenever you create a formula or function in Excel, you put various parts together to calculate a result. Goal Seek works in the opposite way: It lets you start with the desired result, and it calculates the input value that will give you that result.

Imagine that you're enrolled in a class. You currently have a grade of 65, and you need at least a 70 to pass the class. Luckily, you have one final assignment that might be able to raise your average. You can use Goal Seek to find out what grade you need on the final assignment to pass the class.

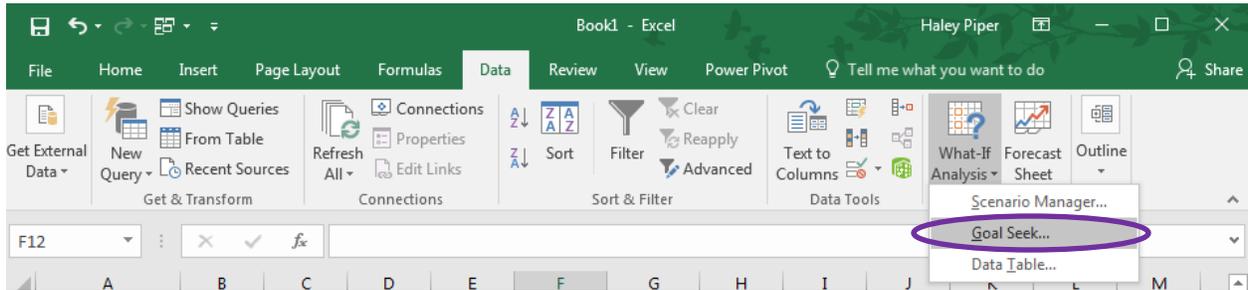
In the image below, you can see that the grades on the first four assignments are 58, 70, 72, and 60. Even though we don't know what the fifth grade will be, we can go ahead and write a formula or function that calculates the final grade. In this case, each assignment is weighted equally, so all we must do is average all five grades by typing `=AVERAGE(B2:B6)`. Once we use Goal Seek, cell B6 will show us the minimum grade that we'll need to make on that assignment.

	A	B	C	D
1	Assignment	Grade		
2	Test 1	58		
3	Paper 1	70		
4	Test 2	72		
5	Paper 2	60		
6	Test 3			
7	Final	<code>=AVERAGE(B2:B6)</code>		
8				

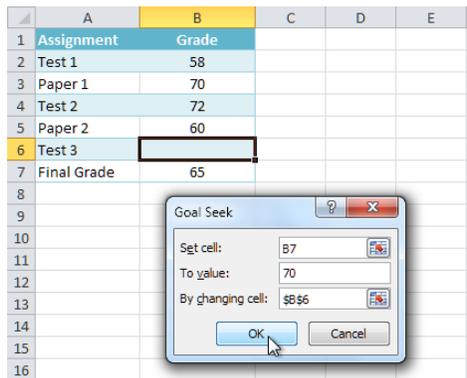
- **Step 1:** Select the cell whose value you wish to change. Whenever you use Goal Seek, you'll need to select a cell that already contains a formula or function. In our example, we'll select cell B7 because it contains the formula `=AVERAGE(B2:B6)`.

	A	B	C	D
1	Assignment	Grade		
2	Test 1	58		
3	Paper 1	70		
4	Test 2	72		
5	Paper 2	60		
6	Test 3			
7	Final Grade	65		
8				

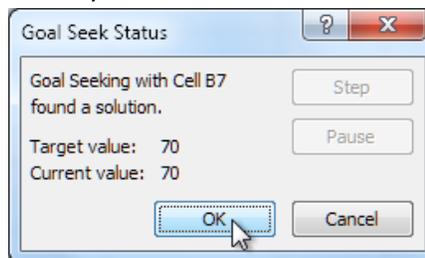
- **Step 2:** From the Data tab, click the What-If Analysis command and then select Goal Seek from the drop-down menu.



- **Step 3:** A dialog box will appear with three fields:
 - Set cell: The cell that will contain the desired result. In our example, cell B7 is already selected.
 - To value: The desired result. In our example, we'll enter 70 because we need to earn at least that to pass the class.
 - By changing cell: The cell where Goal Seek will place its answer. In our example, we'll select cell B6, because we want to determine the grade we need to earn on the final assignment.
- **Step 4:** When you're done, click OK.



- **Step 5:** The dialog box will tell you if Goal Seek could find a solution. Click OK.



- **Step 6:** The result will appear in the specified cell. In our example, Goal Seek calculated that we will need to score at least a 90 on the final assignment to earn a passing grade.

	A	B	C	D	E
1	Assignment	Grade			
2	Test 1	58			
3	Paper 1	70			
4	Test 2	72			
5	Paper 2	60			
6	Test 3	90			
7	Final	70			

Value
Determined
by Goal Seek

Creating a Two –Variable Data Table

To create a two-variable data table to perform what-if analysis in Excel 2010, you enter two ranges of possible input values for the same formula: a range of values for the Row Input Cell in the Data Table dialog box across the first row of the table and a range of values for the Column Input Cell in the dialog box down the first column of the table. You then enter the formula (or a copy of it) in the cell located at the intersection of this row and column of input values.

The steps below for creating a two-variable data table follow a specific example (rather than using generic steps) to help you understand exactly how to use this feature. The following figure shows a Sales Projections worksheet in which two variables are used in calculating the projected sales for the year 2011: a growth rate as a percentage of increase over last year's sales (in cell B3) and expenses calculated as a percentage of last year's sales (in cell B4). The formula in cell B5 is: =B2+(B2*B3)-(B2*B4).

	A	B	C	D	E	F	G	H	
1	Sales Projections for 2011								
2	Sales 2010	\$ 875,000							
3	Growth 2011	3%							
4	Expenses 2011	10%							
5	Projected Sales 2011	\$ 813,750							
7		\$ 813,750	10%	15%	20%	25%			
8		1.0%							
9		1.5%							
10		2.0%							
11		2.5%							
12		3.0%							
13		3.5%							
14		4.0%							
15		4.5%							
16		5.0%							
17		5.5%							

The column of possible growth rates ranging from 1% to 5.5% is entered down column B in the range B8:B17, and a row of possible expenses percentages is entered in the range C7:F7. Follow these steps to complete the two-variable data table for this example:

- **Step 1:** Copy the original formula entered in cell B5 into cell B7 by typing = (equal to) and then clicking cell B5.
- **Step 2:** For a two-variable data table, the copy of the original formula must be entered at the intersection of the row and column input values.
- **Step 3:** Select the cell range B7:F17.
- **Step 4:** The range of the data table includes the formula along with the various growth rates.

- **Step 5:** Choose What-If Analysis → Data Table in the Data Tools group on the Data tab.
- **Step 6:** Excel opens the Data Table dialog box with the insertion point in the Row Input Cell text box.
- **Step 7:** Click cell B4 to enter the absolute cell address, \$B\$4, in the Row Input Cell text box.
- **Step 8:** Click the Column Input Cell text box and then click cell B3 to enter the absolute cell address, \$B\$3, in this text box.
- **Step 9:** Click OK.

Excel fills the blank cells of the data table with a TABLE formula using B4 as the Row Input Cell and B3 as the Column Input Cell.

	A	B	C	D	E	F	G
1	Sales Projections for 2011						
2	Sales 2010	\$ 875,000					
3	Growth 2011	3.00%					
4	Expenses 2011	10%					
5	Projected Sales 2011	\$ 813,750					
6							
7		\$ 813,750.00	10%	15%	20%	25%	
8		1.0%	\$ 796,250	\$ 752,500	\$ 708,750	\$ 665,000	
9		1.5%	\$ 800,625	\$ 756,875	\$ 713,125	\$ 669,375	
10		2.0%	\$ 805,000	\$ 761,250	\$ 717,500	\$ 673,750	
11		2.5%	\$ 809,375	\$ 765,625	\$ 721,875	\$ 678,125	
12		3.0%	\$ 813,750	\$ 770,000	\$ 726,250	\$ 682,500	
13		3.5%	\$ 818,125	\$ 774,375	\$ 730,625	\$ 686,875	
14		4.0%	\$ 822,500	\$ 778,750	\$ 735,000	\$ 691,250	
15		4.5%	\$ 826,875	\$ 783,125	\$ 739,375	\$ 695,625	
16		5.0%	\$ 831,250	\$ 787,500	\$ 743,750	\$ 700,000	
17		5.5%	\$ 835,625	\$ 791,875	\$ 748,125	\$ 704,375	

File Tab Advanced

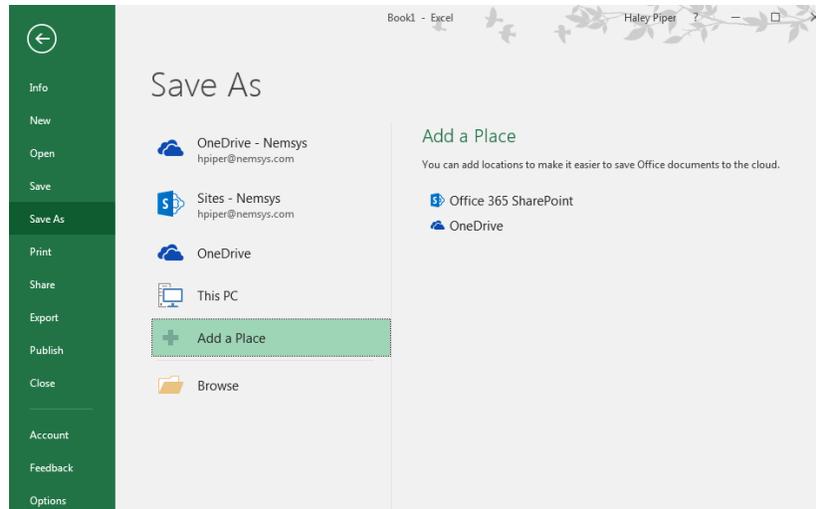
Save Workbook to the Web

Saving to the Web keeps your work in a secure place that you always have access to.

Step 1: Click File to take you into the backstage view and click on Save As.

Step 2: Click Add a Place.

Step 3: Under Add a Place, click either Office 365 (if you have a SharePoint account) or OneDrive



Step 4: Click Microsoft Account to sign in with your Microsoft account.

Step 5: Enter your Microsoft Account and Password and click Sign In.

Note: If you have Hotmail, Messenger, or Xbox Live, you have a Microsoft account.

Step 6: Once you have signed in, your OneDrive will show up under Places. Click on it and then under Recent Folders, pick your OneDrive Documents folder.

Step 7: Type a name for your file and click Save.

Present Workbook Online

If you have Lync installed, you can present a workbook in an online meeting, work with others in real time, and give control of the workbook to others.

Step 1: Make sure that only the workbook you want to share is open in Excel.

Step 2: Click File to enter the backstage view and click Share.

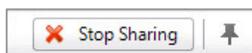
Step 3: Click Present Online then click the Present button



Step 4: In the Share Workbook Window box, pick a scheduled meeting or click Start a new Lync meeting, and click OK.

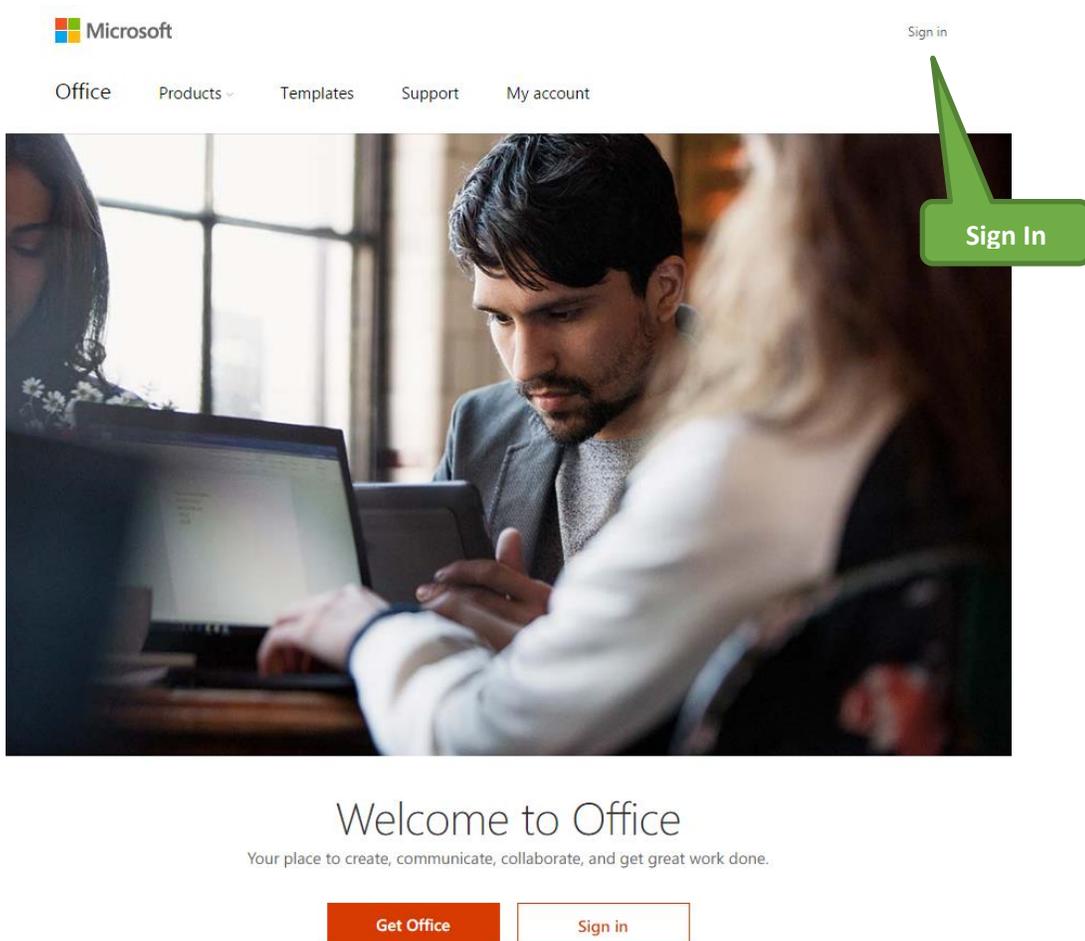
Step 5: You may now begin your scheduled meeting OR begin a new meeting by clicking the Participants button and clicking Invite More People, then select or type the names of your attendees.

Click Stop Sharing when you are finished sharing your workbook.



Office Online

Office Online



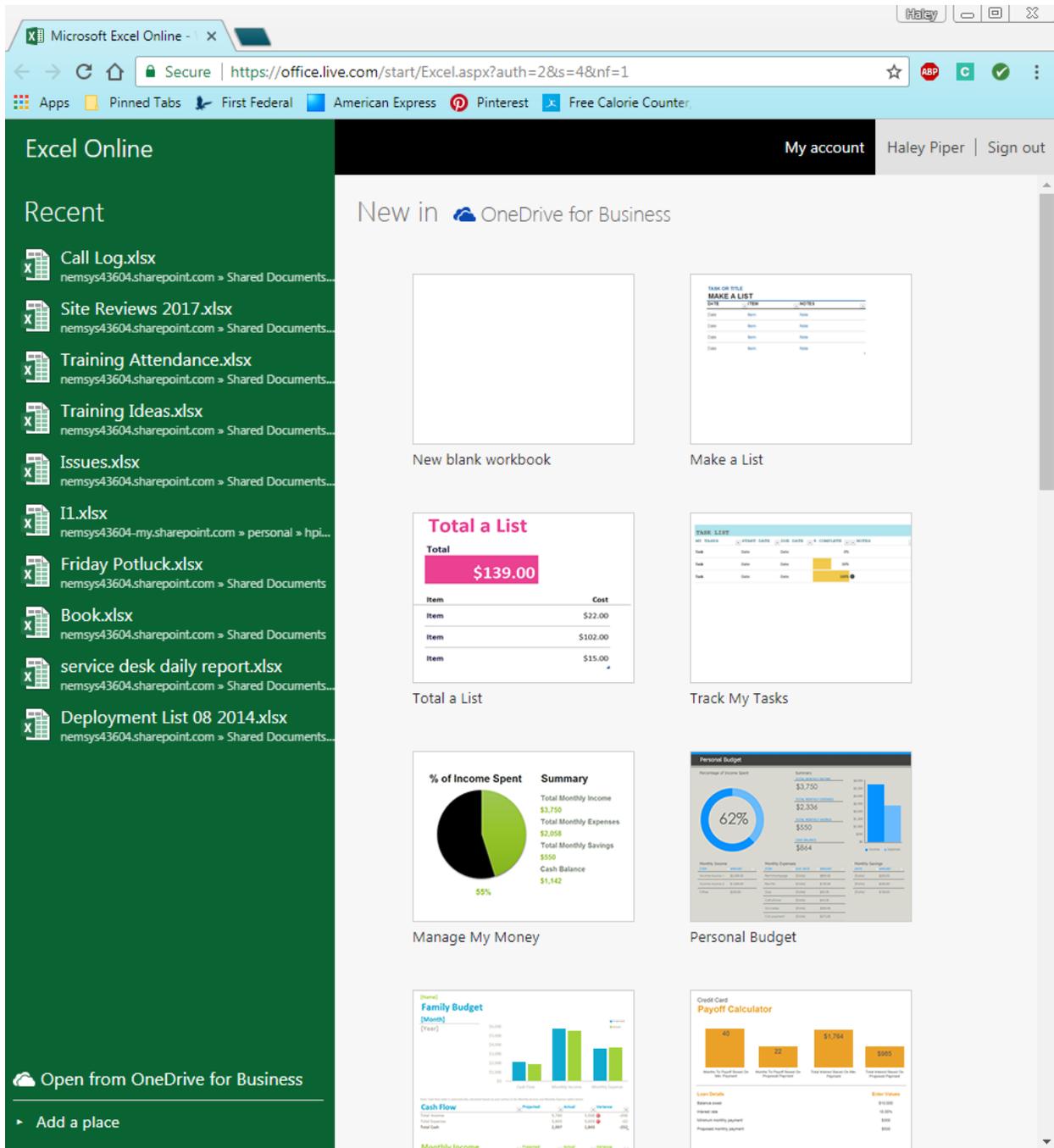
Type www.Office.com into your web browser.

The upper right corner has a space to sign in with your Microsoft email. (The name you use to sign in to Outlook)

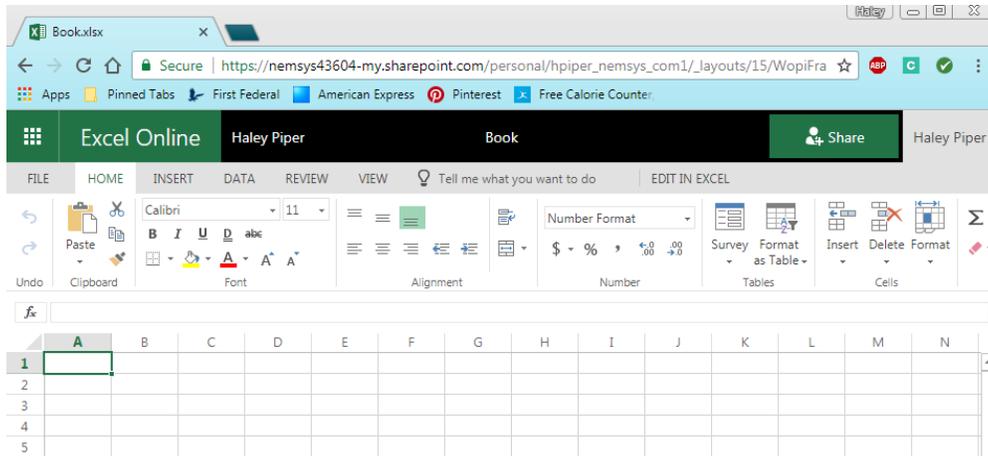
Simply click on a tile to enter that program. In this example I choose PowerPoint

PowerPoint then asks me to choose if I want a new document, to browse templates, or to open a document that I have already saved to my OneDrive.

OneDrive is where you can save all your files and access them at any time from any location such as a tablet, smart phone, or computer.



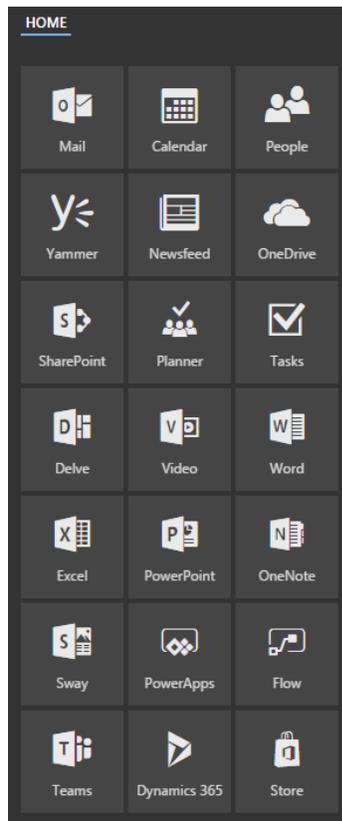
As you can see below, the program appears exactly the same in your browser window.



To switch programs simply click on the tiles in the upper left corner of your screen.



A box will appear that gives you access to all the other programs. Click on the program you want to open next and it will open in a new window. You can have multiple windows open with different programs in each window.



If you have any additional questions, make sure to check out our other trainings and guides at the Nemsys Training Website or contact us at 419.243.3603