Excel Basics

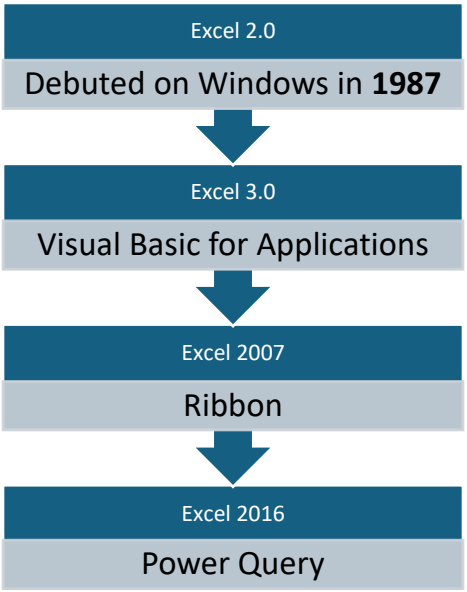
An Overview

Webinar Companion Handout

An Overview

In addition to **Excel for Windows** and **Excel for Mac**, other versions include **Excel for the Web** and **Excel for Mobile**.

Excel is a spreadsheet software created by Microsoft for Windows, Android, and Apple products. Wikipedia[1] explains Excel as "a spreadsheet editor [that provides] … calculation or computation capabilities, graphing tools, pivot tables, and a macro programming language."



Some other spreadsheet software programs include:

- Google Sheets
- Apple Numbers
- Apache OpenOffice Calc
- LibreOffice Calc
- WPS Office Spreadsheets

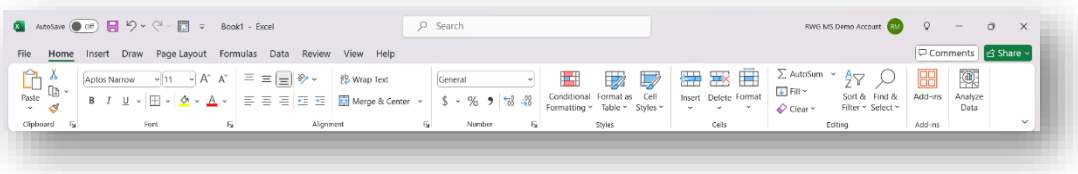
Navigation

The **Ribbon** and **Quick Access Toolbar** are common elements across Office for Microsoft 365 Applications.

In the **Ribbon**, you can find common commands organized in tabs and groups. The **Home** and **Help** tabs are common across Office applications, but other tabs vary based on the application.

Here are the tabs are available in Excel:

- Home,
- Insert,
- Page Layout,
- Formulas,
- Data,
- Review,
- View, and
- Help.



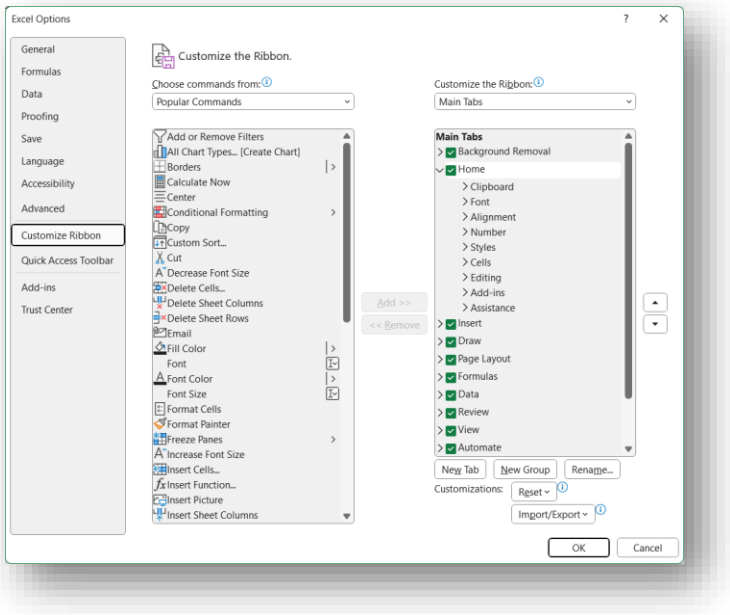
Add the **Developer** tab for advanced functionality. You may see other tabs because of other software and add-ins that you have installed. In addition, Office programs show additional, special **Contextual Tabs** in particular

contexts or circumstances.

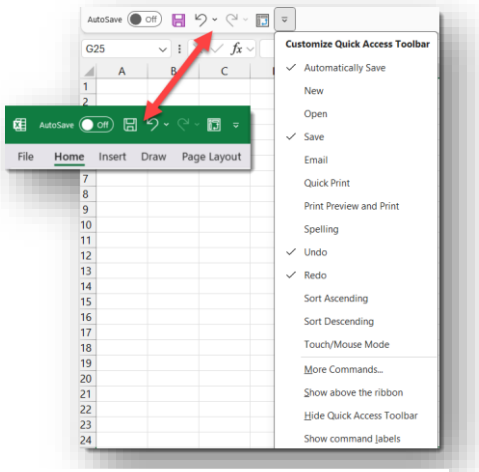
Customize the Ribbon by following these steps:

1. Go to the Backstage by selecting **File**.
2. Select **Options** on the lower left side.
3. Select **Customize Ribbon** from the menu.
4. You can add new tabs and groups from the selection of menu items.
5. Select **OK** when done.

You can follow similar steps to update the **Quick Access Toolbar**.



The **Quick Access Toolbar** is a small menu that allows you to execute the commands you use most often with a single click. In addition to following the steps listed above, you can update the **Quick Access Toolbar** by clicking the **Customize Quick Access Toolbar** command.



Customize Quick Access Toolbar

If the command you would like to use is not shown, select **More Commands…** This will open the **Customize the Quick Access Toolbar** menu in **Outlook Options**.

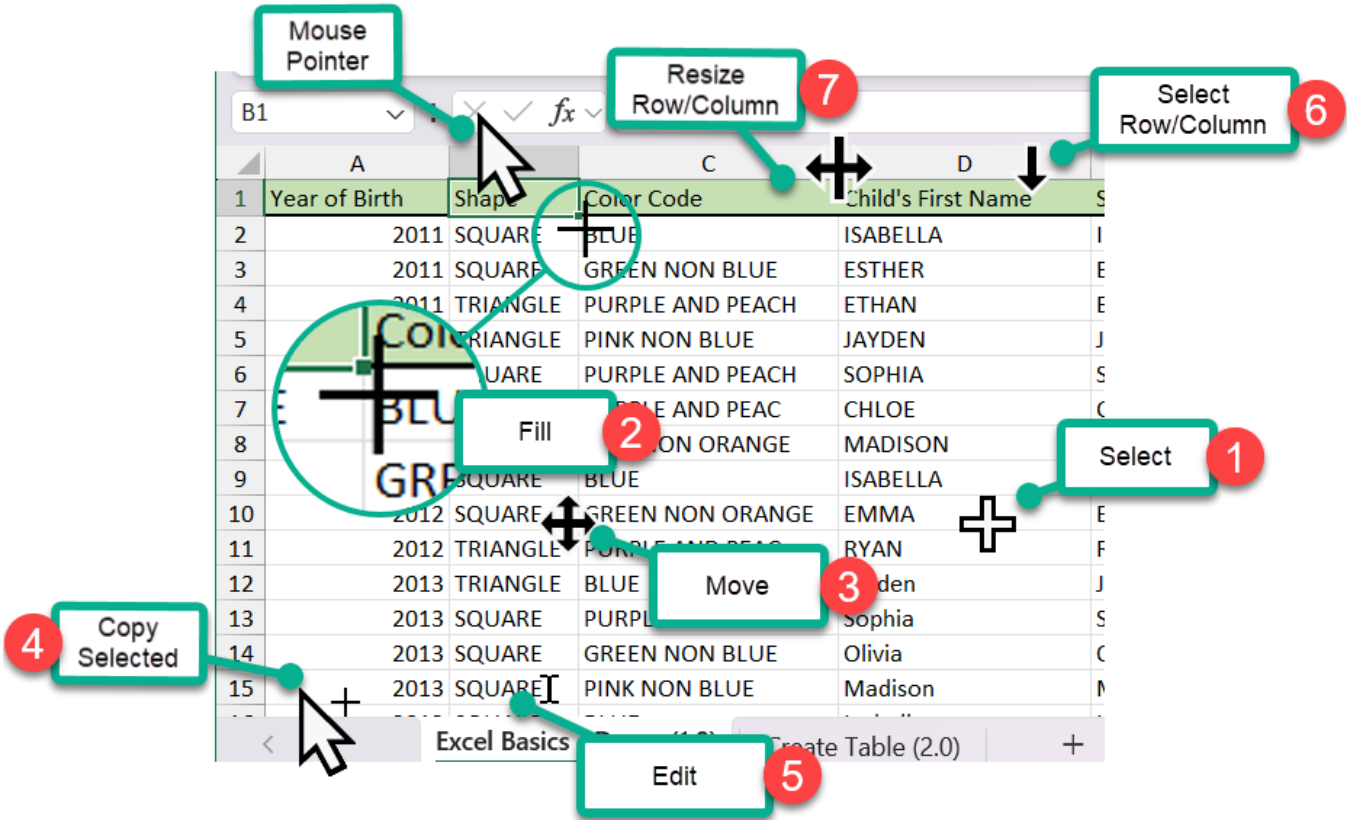
You can also use the **Customize Quick Access Toolbar** menu to hide your **Quick Access Toolbar** or move it below the **Ribbon**.

Sheet Tabs and Status Bar

You can rename, hide, or protect your sheet by right clicking on the sheet tab near the bottom of your screen. This will show a context menu with several consolidated options to make changes to your Excel worksheet.

The **Status Bar** right below your spreadsheet tabs provides you with updates about your workbook, worksheet, and current cell selection.

Mouse Cursor Options

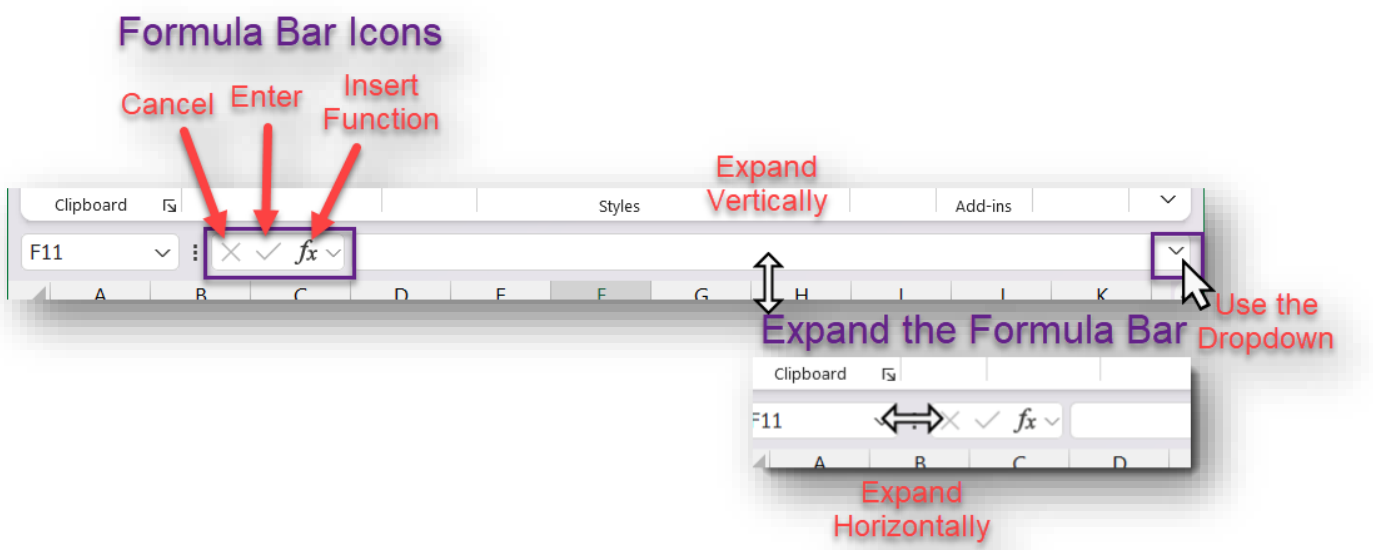


Sighted users who use the mouse in Excel can learn a lot from looking at the shape of the cursor.

In addition to the normal mouse pointer, there are several different cursor types used in Excel:

1. **Select Mode** – This is the cursor we see most often in excel. It looks like a thick white plus sign. You will see this cursor when the mouse is hovering anywhere in a spreadsheet.
2. **AutoFill** – The AutoFill cursor appears when the mouse hovers over the small square in the lower right corner of a cell. This cursor resembles a thin black plus sign.
3. **Move -** The move cursor looks like a plus sign with arrows at the end or crosshairs. When this cursor appears, it indicates that we can move the contents of the cell to another location.
4. **Copy Cells** – The copy selected cells cursor appears when selecting cells while holding the **CTRL** key. This cursor consists of a normal mouse cursor with a small plus sign to the right of it.
5. **Edit/I-Beam** – The I-Beam or edit cursor becomes visible when editing the contents of a cell. As the name suggests, this cursor is shaped like a capital letter "I".
6. **Select Row/Column** – The select cursor is a large black arrow. It appears when an entire row or column is selected.
7. **Resize Row/Column** – The resize cursor is used to adjust the size of rows or columns in a spreadsheet.

Data Entry



You can type directly in a cell or type into **Formula Bar** after selecting the cell that you would like to work with. The **Formula Bar** is located next to the **Name Box**.

If you would like to hide the **Formula Bar**, follow these steps:

1. Go to the **View** tab.
2. Go to the **Show** group.
3. Uncheck the **Formula Bar** checkbox.

You can also go to **Excel Options**, **Advanced**, and **Display**. If you remove the Formula Bar, this will also remove the **Name Box**.

If you would like more space to type, you can expand the **Formula Bar** by using the **Formula Bar** dropdown arrow or by using the keyboard shortcut **CTRL + Shift + U**. You can expand the **Formula Bar** horizontally or vertically by using the resizing arrow.

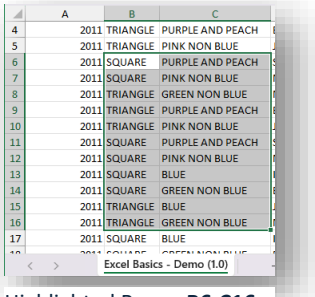
The **Formula Bar** contains three icons:

- **Cancel** – Cancels the input
- **Enter** – Accepts the input
- Insert Function – Opens the **Insert Function** dialog box

Cell References and Ranges

In Excel and other spreadsheet software, we use **Cell References** or **Addresses** to help perform our calculations. Each cell address contains a letter value for the column and numeric value for row.

When you would like to refer to more than one cell, you can use a cell range. A range is a group of multiple cells that are selected or highlighted. It will begin with the first selected cell and end with the last one. If you need to select multiple sets of cells that are not adjacent to one other, you can join the references by using a comma.



Highlighted Range **B6:C16**

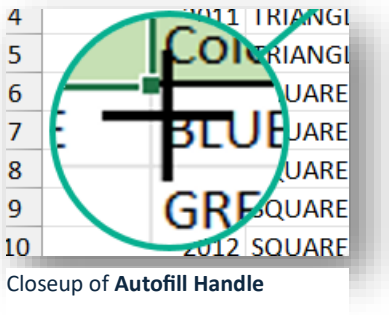
Using Autofill

The **Autofill** feature is a powerful tool within Excel. If you are working with a mouse, the easiest way to use it is by double clicking on the square in the lower right corner of your cell and it will automatically fill empty cells.

You can also click and drag the square to autofill in either direction. Excel will automatically sense any patterns and try to follow them.

If you have a list that you use frequently but Excel doesn't recognize it, you can add it to Excel using these steps:

1. Go to **File.**
2. Go to **Options**.
3. Go to **Advanced.**
4. Scroll to the bottom under the **General** heading**.**
5. Select **Custom Lists…**
6. In the **Custom Lists** dialog box that appears, type the list items in the **List entries** field OR use the reference box and import button to import a list.
7. Click **Add**.
8. Click **OK** twice.



Closeup of **Autofill Handle**

If you only want to copy the formatting or you do not want Excel to follow patterns in your data, you can use the **AutoFill Options** context menu.

Data Types and Operators

There are five main data types when working in Excel:

- Number
- Date
- Text
- Logical
- Error

Some key points to remember:

- In Excel, dates are a special type of number. It is a sequential serial number from **01/01/1900** on Windows and **01/01/1904** on Mac.
- Also, sometimes numbers can be stored as text.

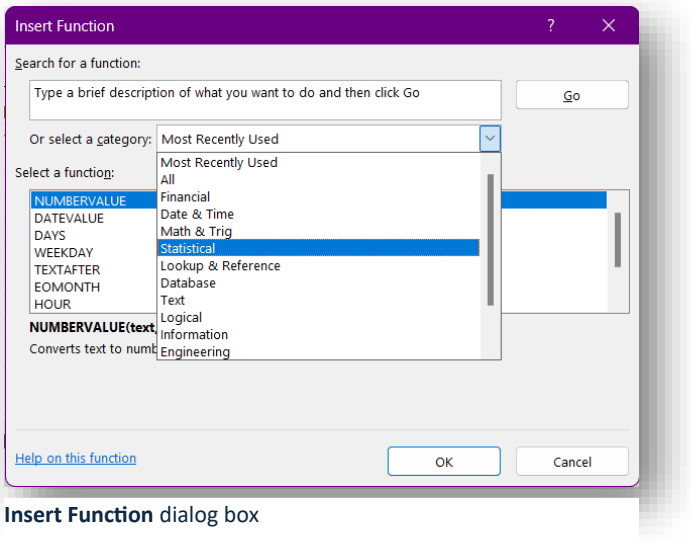
We connect our data types with operators. Operators are symbols that symbolize calculations.

Here are four types of Excel operators:

- **Arithmetic** operators include symbols like plus, minus, asterisk for times, and forward slash for divide (+ , -, *, /).
- **Comparison** operators (=, <>, >, <) are used for logical comparisons.
- Use the **Text Concatenation** operator (&) to join together text.
- We discussed a couple of **Reference** operators when we discussed cell ranges.
    - We mentioned the colon symbol and comma.
    - Other reference operators include space, the pound (#), and the at (@) symbols.

Here is the order of operations when working in Excel:

1. Parentheses
2. Left to Right
3. Reference Operators
4. Negation
5. Percent
6. Exponents
7. Multiplication/Division
8. Addition/ Subtraction
9. Text Concatenation
10. Comparison



Insert Function dialog box

Insert Function Icon

Earlier when discussing the formula bar, we briefly mentioned the **Insert Function Icon**. The **Insert Function Icon** is a quick way to find and insert a formula in your spreadsheet.

Once you click the **Insert Function Icon**, the **Insert Function** dialog box will appear. You can also access this dialog box by using the keyboard shortcut, **Shift+ F3**.

You can narrow down your options by category. For example, if you are working with **Text**, you can select the **Text Category** and the functions listed in the **Select a function:** field will only contain formulas that deal with text.

Once you select a function, the **Function Arguments** dialog box will appear. It will walk you through the

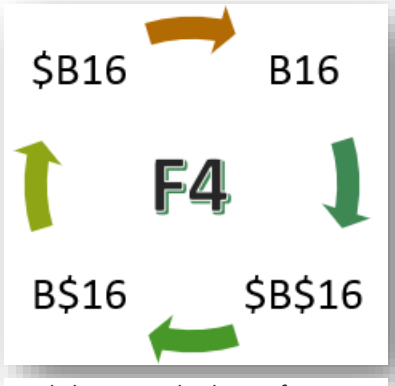
arguments for your function and provide a preview of the results. Once you have input all mandatory fields, click **OK**. If you need help, there is a link to an Excel help article about the function.

Excel Formulas

Excel formulas combine constants (numbers or text), operators, references, and functions to perform calculations on the data in your spreadsheet. They ***always*** begin with an equal sign.

Once you start creating formulas in Excel, you may occasionally see errors. Here are some common errors that may be returned along with a brief explanation:

- **#DIV/0!** – Division by zero isn't allowed
- **#NAME?** - Name doesn't exist in worksheet
- **#NULL!** – No value
- **#NUM!** – A problem with a number
- **#REF!** – Invalid cell reference
- **#VALUE!** – Wrong type



Toggle between Absolute References Using **F4**

Absolute Cell References

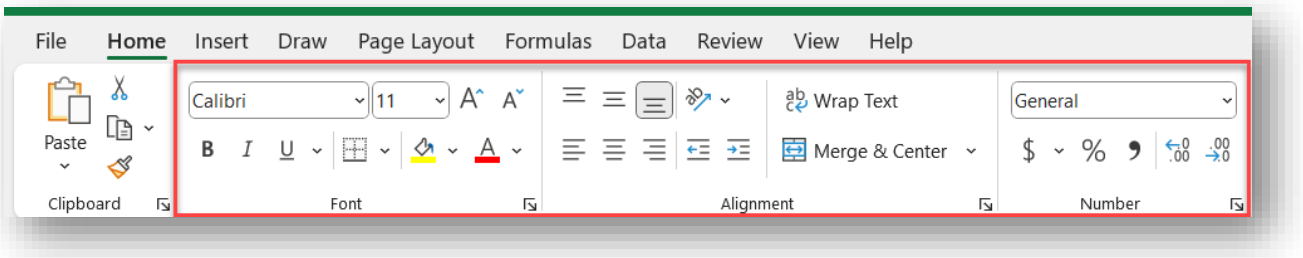
Most cell references only contain a column letter and row number and are considered relative addresses. If you include one in a formula and use Autofill, the reference will change *relative* to the position of the cell for lines as they are filled.

However, at times, we need the column, row, or both components of our cell reference to remain constant. In those cases, we use absolute references. Once you've typed a cell reference, you can use the keyboard shortcut F4 to toggle between types of absolute cell references. At times, Excel will create absolute cell references for us.

You will know that an absolute cell reference is being used by the presence of dollar signs before the row, the column, or both identifiers to indicate that the value will not change.

Formatting

Once you have input your data and it is error free, you can format it!



In addition to using the options available in the **Font**, **Alignment**, and **Number** groups of the **Home** tab, there are other options for modifying your data formats in Excel.

We will discuss these four options in more detail:

- **Format Cells** dialog box
- **Cell Styles**
- **Conditional Formatting**
- **Table Styles**

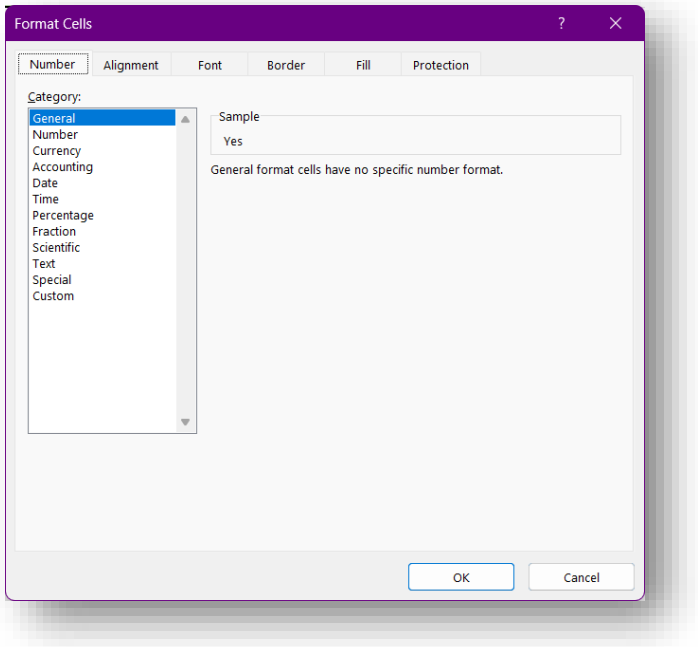
Format Cells

You can manually adjust the appearance of cells in your worksheet by using the **Format Cells** dialog box.

You may already be familiar with the **Format Cells** dialog box because it appears anytime you select the expand symbol from the **Font**, **Alignment**, and **Number** groups on the **Home** tab that we just mentioned. When using this dialog box, you have several options.

You can adjust:

- data type,
- cell alignment,
- font used,
- border,
- fill color and type, and
- whether the cell will be editable if you apply protection to the sheet.



There are several other ways to access the **Format Cells** dialog box.

Here are a few:

1. Go to the **Cells** group of the **Home** tab.
2. Select **Format Cells…**

- OR -

1. Right click on a cell.
2. Select **Format Cells…**

- OR -

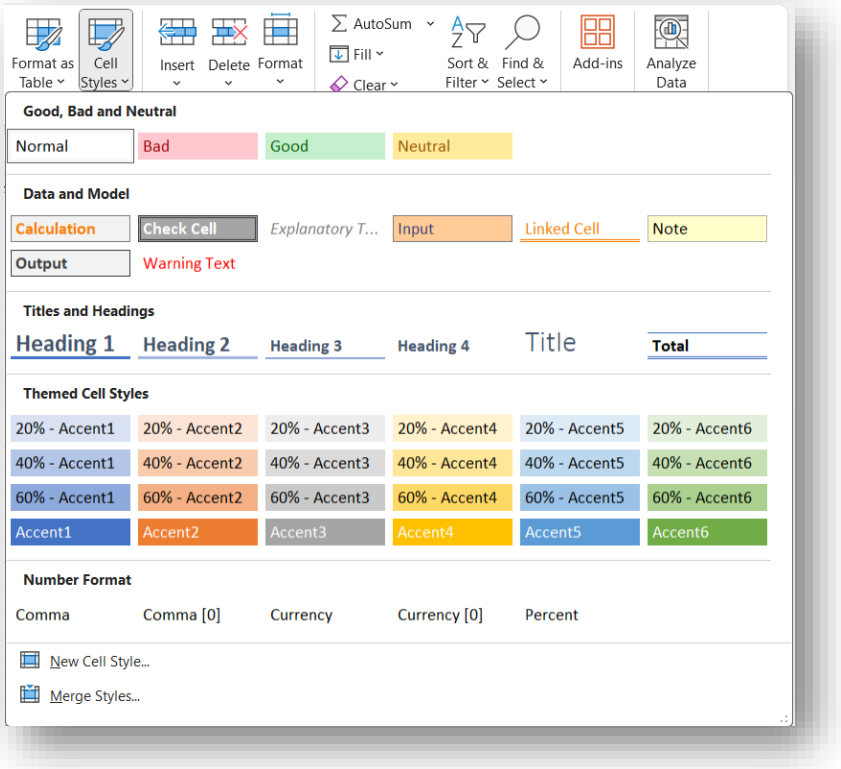
- If you prefer using keyboard shortcuts, type **CTRL + 1.**

Cell Styles

If you would like your formatting to be consistent but not automatic, use **Cell Styles** to format your cells.

The colors available are based on the **Theme** used in your workbook and will be applied to each spreadsheet. Although you can use different colors, you can't use different **Themes** for different worksheets.

To remove a **Cell Style**, select **Normal** or use the **Erase Format** button. If you want to create and apply a custom format, you can create a custom cell style by selecting **New Cell Style**.



Here's how you get to **Use Cell Styles:**

1. Go to the **Home** tab.
2. Go to the **Styles** group.
3. Select **Cell Styles**.

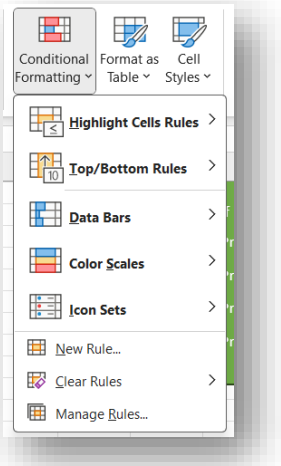
To update the theme …

1. Go to the **Page Layout** tab.
2. Go to the **Themes** group.
3. Select a new **Theme** from the **Themes** dropdown menu.

Conditional Formatting

If you would like your formatting to automatically update based on the data, you can use conditional formatting.

There are five styles of conditional formatting that are preconfigured in Excel.



These include:

- Highlight Cell Rules
- Top/Bottom Rules
- Data Bars
- Color Scales
- Icon Sets

If none of the preconfigured conditional formatting options work for you, you can create your own by selecting **New Rule…**

By selecting **Manage Rules…** or **Clear Rules**, you can update or remove conditional formatting previously added to the workbook.

Table Styles

If you would like access to additional quick analysis tools while also automatically updating the format of your data, you can use the **Format as Table** option.

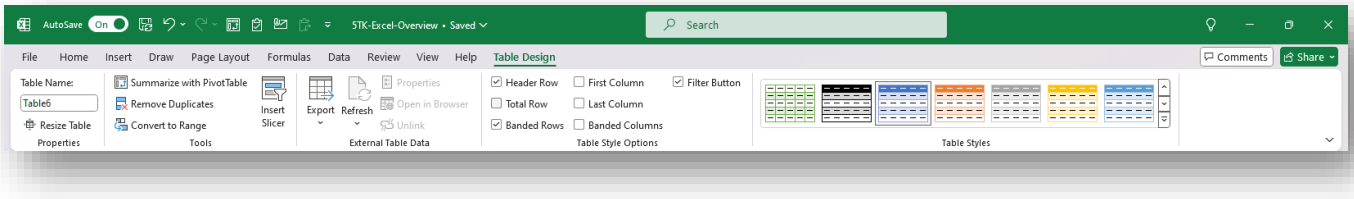
- Go to Home.
- Go to Styles.
- Select Format a Table.

You can also insert a table by following these steps:

1. Go to the **Insert** tab.
2. Go to the **Tables** group.
3. Select **Table**.

The keyboard shortcut is **CTRL+T.**

Once your data is formatted as a table, the **Table Design** contextual tab will appear.



You will see many choices, some options include:

- Remove duplicate entries
- Add banded rows or columns
- Add a total line where you can easily perform many common functions such as sum, average, and count
- Easily filter and sort

You will also see the **Table Styles** group that will allow you to update the format of your table based on your **Theme** and the options you have selected in the **Table Style Options**.

Here's how to remove table formatting:

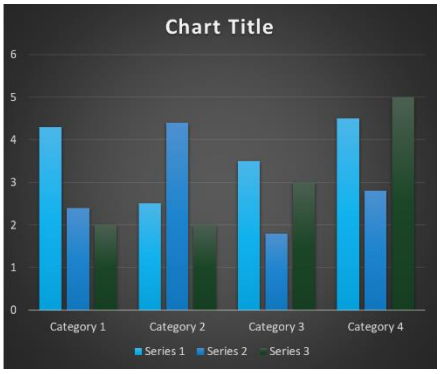
1. Select an area of your table.
2. Go to the **Table Design** tab of the ribbon.
3. Go to the **Tools** group.
4. Select **Convert to Range**.

The existing formatting will remain on the range that was previously formatted as a table.

Visualizations

Once you have your data formatted, you may want to add visualizations to help your audience better understand your data. We have already briefly discussed one way you can add visualizations to our data. We can use conditional formatting to create visualizations using Icon sets, data bars, and color scales.

A quick and easy way to add a visualization to your Excel workbook is by using the **Recommended Charts** tool. Excel will recommend visualizations based on your data. You can pick the chart that most closely matches the design you would like to see and then adjust elements of your chart using the **Chart Layouts** and **Data** groups of the **Chart Design** tab.



Here's how to obtain **Recommended Charts**:

1. Go the **Insert** tab.
2. Go to the **Charts** group.
3. Select **Recommended Charts**.
4. Select your preferred chart from the **Insert Chart** dialog box.
5. Click **OK**.

Another way to show data from your spreadsheet is to add it to **Shapes** by following these steps:

1. Go to the **Insert** tab.
2. Go to the **Illustrations** group.
3. Select **Shapes.**
4. Select the **Shape** you would like to use, and the **Shape Format** tab will appear.
5. Modify the color and style of your inserted object.
6. Once your shape is formatted correctly, use the Formula bar to create a formula to display in your shape.

Note: After you've added your formula, you may have to adjust the size of your text box or shape, so that it appears correctly.

Finally, you can add **Sparklines** and **Filters** to show additional information.

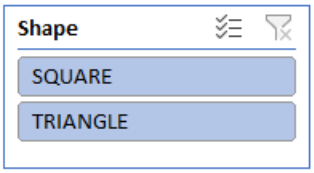
Sparklines show visual information in a single cell. To add **Sparklines**:

1. Select the cell.
2. Go to the Insert tab.
3. Go to Sparklines group.
4. Select the type of Sparkline.
5. Update the Data Range field.

6. Click OK.

Slicers and **Timeline Filters** allow you to easily filter your data.

1. Select the **Heading**.
2. Go to the **Insert** tab.
3. Go to the **Filters** group.
4. Select **Slicer** or **Timeline**.
5. Select the fields you would like to filter.
6. Click **OK**.



Summary

- Use the **Backstage View** to adjust settings in Excel.
- Excel **formulas** begin with an equal sign and contain constants, operators, references, and functions.
- Format cells or tables to highlight important information.
- Use **Charts**, **Sparklines**, and conditional formatting to visualize spreadsheet data

Keyboard Shortcuts

CTRL + SHIFT + U	Expand the Formula Bar
SHIFT + F3	Insert Function Dialog Box
F4	Toggle between absolute and relative cell references
CTRL + 1	Format Cells Dialog Box
CTRL + T	Insert a Table

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- **Flipboard:** https://flipboard.com/@RainwaterGrowth
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Additional References

[1] *Microsoft Excel*. (n.d.). Retrieved from Wikipedia: https://en.wikipedia.org/wiki/Microsoft_Excel