



Beyond the Basics: Microsoft Excel



Getting Started Guide





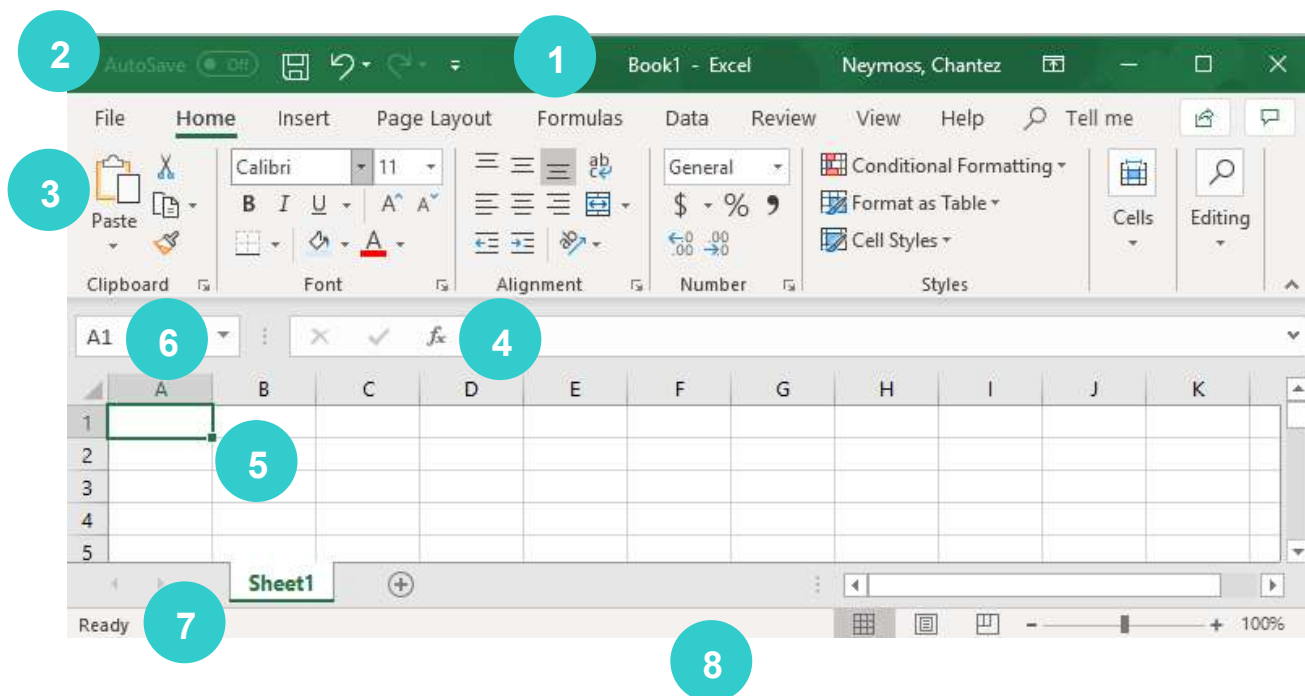
What is a Spreadsheet?

A spreadsheet is a way to organize data into rows and columns. This format allows users to calculate, analyze, and visually represent data. Examples of spreadsheet programs include Microsoft Excel, Google Sheets and Numbers (by Apple). **Microsoft Excel** is the spreadsheet software offered by Microsoft Office. Excel allows you to organize data, complete calculations, and graph data.

Navigating Microsoft Excel



The Excel layout is like other Microsoft Office products. There is a horizontal menu across the top of the page - the 'ribbon menu' - where you can find most of the options for editing and formatting.

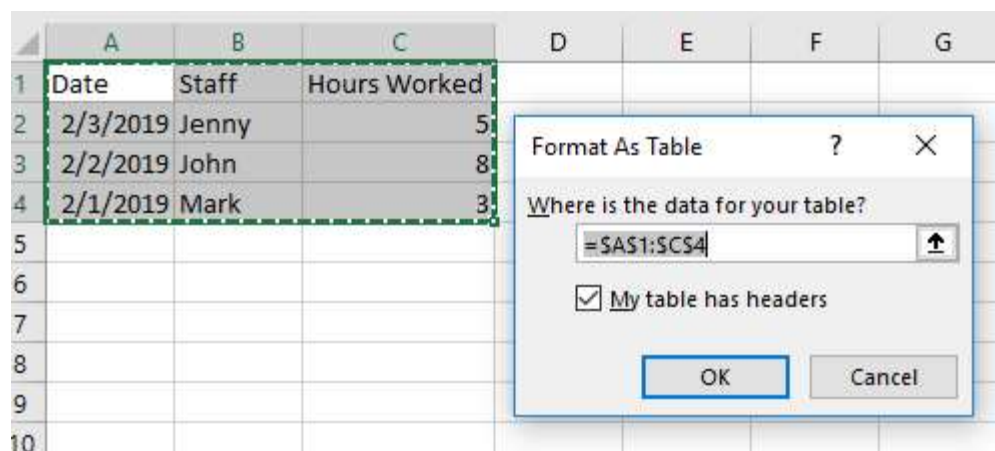


1. **Title Bar** Displays title of workbook and other quick access information.
2. **Quick Access Toolbar** A customizable toolbar that contains a set of commands including Save, Undo, and Redo.
3. **Ribbon Menu** Contains all of your commonly needed options, grouped by category. The ribbon is grouped into tabs and each tab is grouped by category within that tab.
4. **Formula Bar** Enter and edit data, formulas, and functions that will appear in an active cell.
5. **Cell** The intersection of a column (noted by a letter) and a row (noted by a number). Cell A1 is selected as an active cell above.
6. **Name Box** Displays the location of the selected active cell.
7. **Worksheet Tabs** Each workbook can contain multiple sheets. Here you can rename your sheet and add additional sheets.
8. **Status Bar** Displays status on default options such as Average, Count, and Sum.

Formatting Data as a Table

If you have a large amount of data, you can format your data as a table to make managing it easier. Begin by selecting (highlighting) your data. Then go to the **Home** ribbon and select **Format as Table** and choose a style. The only difference between the styles is the visual appearance. The dialogue box that appears will display the range you selected.

If your data has headers in the columns, make sure that “My table has headers” is checked.



Sort and Filter Data with Tables

Formatting as a table also allows you to **sort** data by using the drop-down buttons in the header cells. Click on the drop-down for the column that you want to sort and select the best option.

Date	Staff	Hours Worked
2/3/2019	Jenny	5
2/2/2019	John	8
2/1/2019	Mark	3

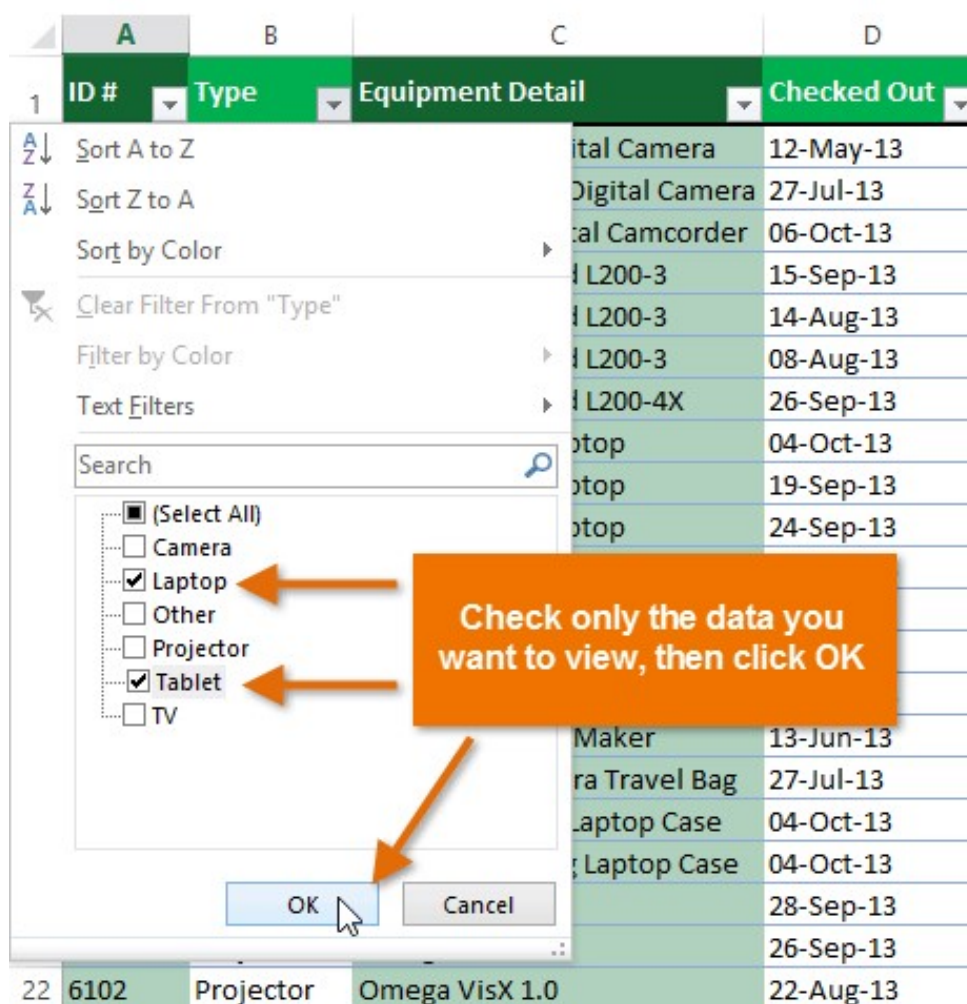


A header column drop-down

Filters can be used to **narrow down** the data in your worksheet, allowing you to view only the information you need.

	A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
2	3000	Camera	Saris Lumina Digital Camera	12-May-13	15-May-13	Shannon Nguyen
3	3005	Camera	Canon Z-60 Digital Camera	27-Jul-13	06-Aug-13	Sela Shepard
4	3070	Camera	Omega PixL Digital Camcorder	06-Oct-13		Min Seung
5	1021	Laptop	15" EDI SmartPad L200-3	15-Sep-13	01-Oct-13	Sofie Ragnar
6	1022	Laptop	15" EDI SmartPad L200-3	14-Aug-13	16-Aug-13	Hank Sorenson

Your column headers will become drop down menus with additional options. Select the drop-down arrow for the item you want to filter. Simply check the items you'd like to view, and Excel will hide the rest of your data.



ID #	Type	Equipment Detail	Checked Out
3000	Camera	Saris Lumina Digital Camera	12-May-13
3005	Camera	Canon Z-60 Digital Camera	27-Jul-13
3070	Camera	Omega PixL Digital Camcorder	06-Oct-13
1021	Laptop	15" EDI SmartPad L200-3	15-Sep-13
1022	Laptop	15" EDI SmartPad L200-3	14-Aug-13
6102	Projector	Omega VisX 1.0	22-Aug-13

Check only the data you want to view, then click OK

Formula Fundamentals

Excel can calculate basic equations like addition, subtraction, multiplication, and division. By writing an equation in reverse, Excel will calculate it for you. However, Excel has a specific format and set of symbols to use. **All formulas begin with an equal sign (=).**

$$=2+2 \rightarrow 4$$

You can also add cells together, instead of numbers. This adds the value of whatever is contained within the cell. These are called **cell references**. If the value of a cell (the number inside it) change, Excel automatically recalculated when you leave that cell.

	A
1	2
2	2
3	

$$=a1+a2 \rightarrow 4$$

Excel uses some of the same symbols that we use when writing math problems, but there are some differences as well:

	Regular	Excel
Addition	+	+
Subtraction	-	-
Multiplication	x	*
Division	÷	/
Equals	=	=
Exponents	x^n	$^$

Remember that Excel also follows the “Order of Operations.” You might remember this as **P**arentheses, **E**xponents, **M**ultiplication, **D**ivision, **A**ddition, then **S**ubtraction. You can remember this as **PEMDAS** or **P**lease **E**xcuse **M**y **D**ear **A**unt **S**ally.

Example: $=8+5*(3+4)$ gives you a value of 43, not 91

Entering Formulas

There's another way to enter formulas into cells. Instead of typing in a cell address, you can just use your mouse to point and click on the cell you wish to include in a formula. This method is good when you need to select cells that are spread out all over the place.

If you have multiple adjacent cells you would like to include in the same calculation you can click on the first cell and drag your mouse until all needed cells are included. The cell reference added to the formula will appear as **first cell reference:last cell reference** (for instance **A1:A7**). In this case the colon represents the word "through" and can be read as A1 through A7.

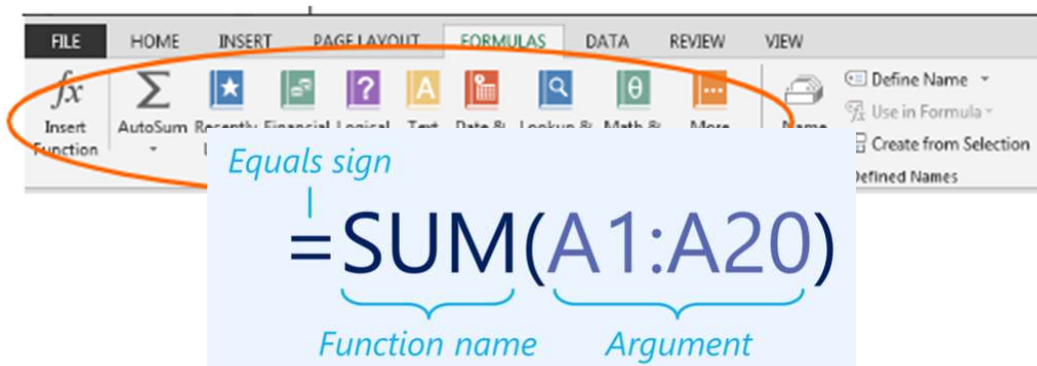
Functions: Predefined Excel Formulas

A **Function** is a predefined formula that performs calculations using specific values in a particular order.

Common functions:

- **SUM:** Adds all of the values of the cells in the argument.
- **AVERAGE:** Determines average of the values included in the argument. It calculates the sum of the cells and then divides that value by the number of cells in the argument.
- **COUNT:** Counts the number of cells with numerical data in the argument. This function is useful for quickly counting items in a cell range.
- **MAX:** Determines the highest cell value included in the argument.
- **MIN:** Determines the lowest cell value included in the argument.

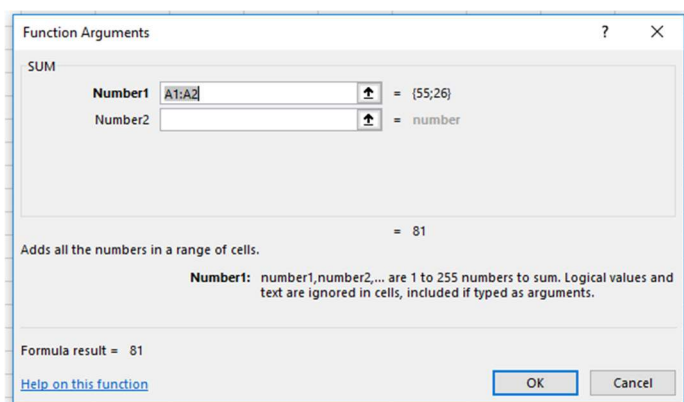
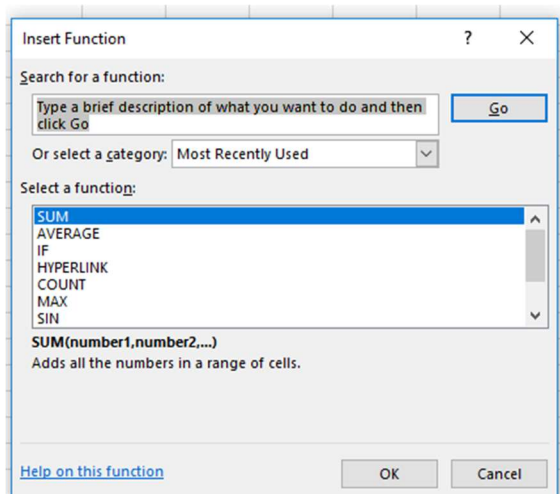
Additional specialized advanced functions are available through the Function Library section and are organized by topic.



The values that you use with a function are called **arguments**. All functions begin with an **equal sign** and include the **arguments** in parentheses after the function name.

Steps for creating a function:

1. Click inside the cell where you want to see the formula's results.
2. Click on the Insert Function button located on the Formula Bar.
3. When the Insert Function dialog box appears, select the function of your choice from the list, and then click OK. From: <https://edu.gcfglobal.org/en/excel/functions/1/> **NOTE:** To see additional functions, change the category to All.



4. When the Function Arguments dialog box appears, either type in the range of cells you need analyzed into the Numbers box, or, better yet, click and drag to define the range you need.
5. Click OK and the calculated result will show up in the active cell.

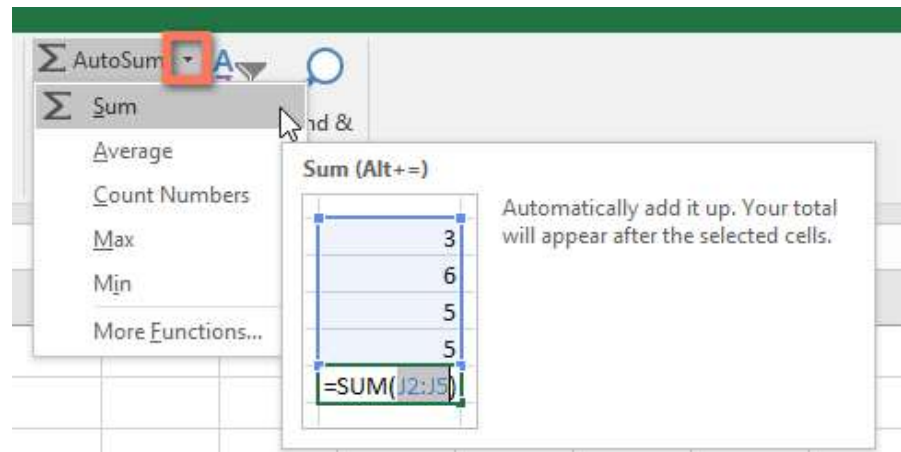
Nesting: You can also put formulas inside of other formulas. This is called “Nesting.” For example, you could calculate the deviation in a range (the difference between the smallest value and the largest) by using:

=SUM(-MIN(Range),MAX(Range))

AutoSum

The **AutoSum** command allows you to easily insert common functions.

You can find the **AutoSum** command in the **Editing** group on the **Home Tab**, or in the **Formulas Tab** on the Ribbon.



Example: **=SUM(J2:J5) is the same as =J2+J3+J4+J5**

The range J2:J5 contains all of the cells between J2 and J5, but you don’t have to write them out individually.

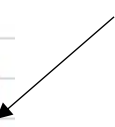
Filling Across Columns and Rows

Another way to copy formulas from one cell to another is to drag it or “fill” it across a range of cells (a row or a column). **AutoFill** can be used to quickly fill in the in a column or row.

In the active cell of the spreadsheet, the **Fill Handle** is a small box at the right corner, as shown in the image to the right.

	A	B
1	Schedule	
2		
3	Date/Time	8:00 AM
4	1/1/2020	
5	1/2/2020	

Fill Handle



Select a cell and move the mouse pointer to the **Fill Handle** in the lower right corner where it will turn into a crosshair cursor. You can then click and drag the crosshair cursor to fill in information like numbers, months, days of the week, or even formulas.

	A	B
1	Schedule	
2		
3	Date/Time	8:00 AM
4	1/1/2020	
5	1/2/2020	
6		
7		

The **Auto Fill Options** button will appear in the lower right corner when you use the Fill Handle. Hover over the button and then click the downward arrow to show a menu of options to customize how information is filled.

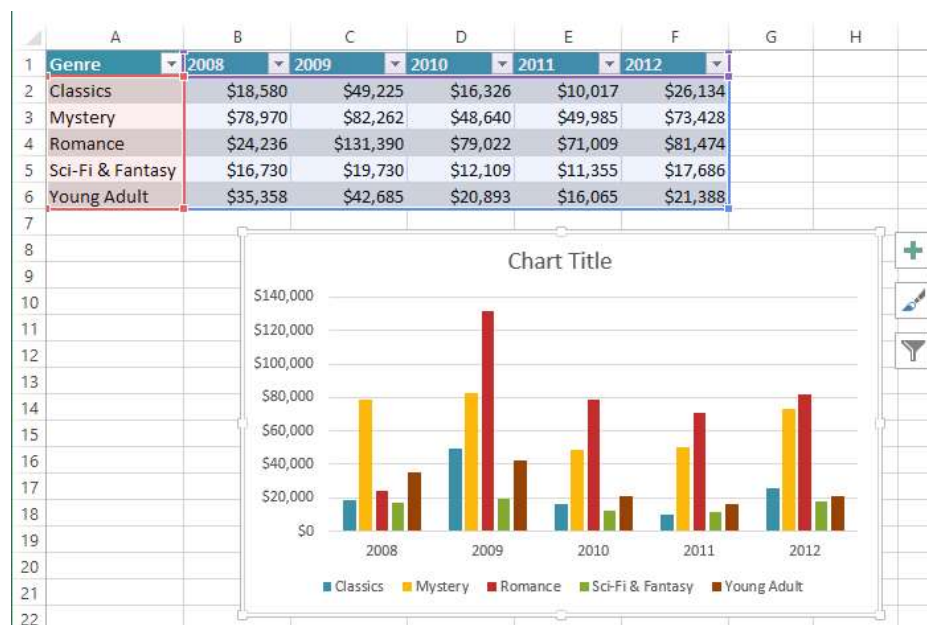
(**NOTE:** Auto Fill Options button/menu is only visible when viewed in Excel desktop app, not Microsoft 365 for web in the browser)

	A	B	C	D
1	Schedule			
2				
3	Date/Time	8:00 AM		
4	1/1/2020			
5	1/2/2020			
6	1/3/2020			
7	1/4/2020			
8				
9				
10				
11				
12				
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14				
15				
16				
17				
18				
19				

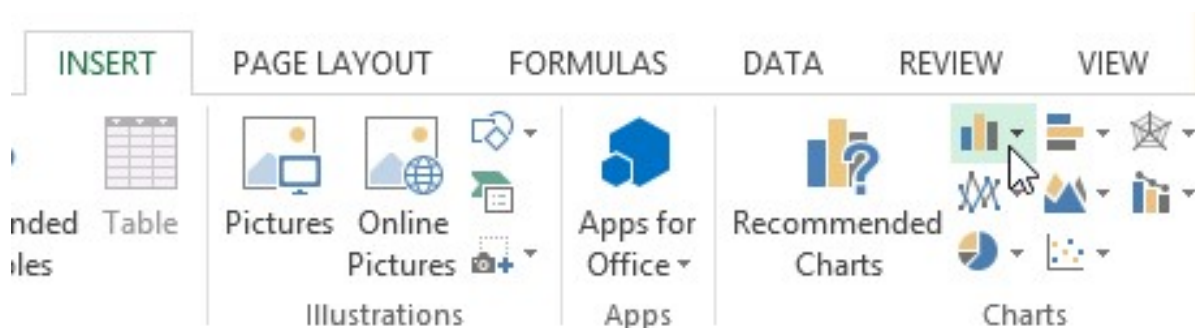
- ☐ Copy Cells
- ☒ Fill Series
- ☐ Fill Formatting Only
- ☐ Fill Without Formatting
- ☐ Fill Days
- ☐ Fill Weekdays
- ☐ Fill Months
- ☐ Fill Years
- ☐ Flash Fill

Creating Charts for Your Data

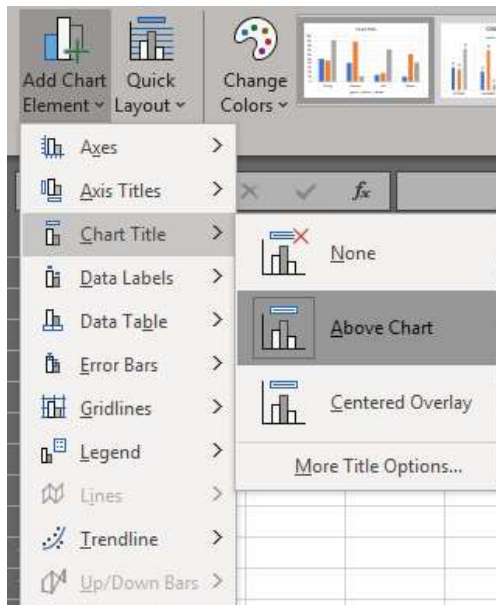
Charts allow you to illustrate your workbook data **graphically**, which makes it easy to visualize **comparisons** and **trends**.



To insert a chart in Excel, select the data you wish to include and go to the **Insert** tab. Select **Insert Chart** and choose the type of chart you would like to use.



Customize Your Charts



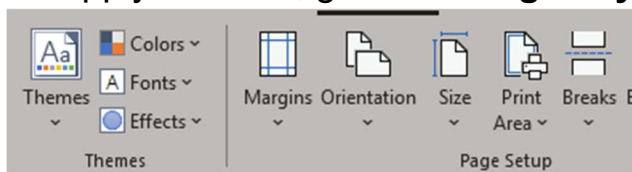
Once you've chosen a chart, you can customize it to your liking by choosing the chart layout and style in your ribbon. Excel allows you to add **chart elements**—such as **titles**, **legends**, and **data labels** to make your chart easier to read. To add a chart element, click the **Add Chart Element** command on the **Design** tab, then choose the desired element from the drop-down menu.

You can also reorganize your chart by selecting **Switch Rows and Columns** or use **Quick Layout** to change multiple elements at once. **Change Chart Type** also allows you to switch to a different type of chart.



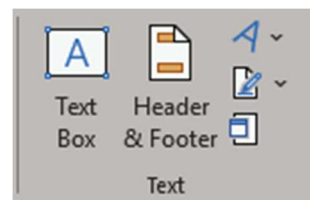
Themes

Themes are available across multiple Office applications, allowing documents, spreadsheets, and presentations to all have the same “look.” To apply a theme, go to the **Page Layout** tab and choose **Themes**.

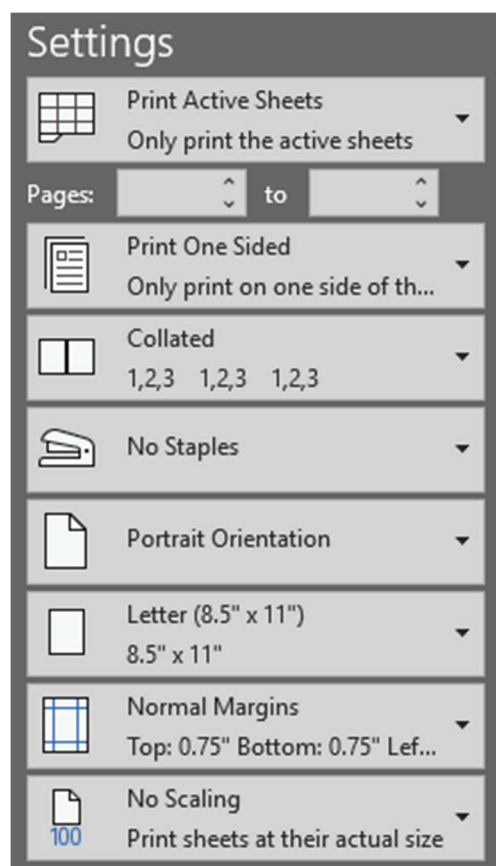


Headers and Footers

Headers can appear at the top of every page of a printed worksheet. Footers can appear at the bottom of every page of a printed worksheet. To add a header or a footer, click on the **Insert Tab**, then on the **Header & Footer** option. Once you click on the Header & Footer tool, the Header & Footer Tools tab should appear. You can type anything you like into the header or footer, or you can use the tools on the ribbon such as **Page Number** or **Date**.



Page Setup



Page set up allows you to change way your page will print. You can access the **Page Setup** button from the **Page Layout** tab of the ribbon.

You can also access them from the **Print Preview** screen. To get to **Print Preview**, go to **File**, then **Print**.

Orientation – Whether your paper is portrait or landscape

Size – The size of paper your workbook prints on

Margins – Use can quickly use a preset or create your own custom one

Scaling - —If your spreadsheet is very large but you need to get as much as possible on a page, you have the option of: 1) Adjusting the spreadsheet to a smaller (or larger) percentage of its current size or 2) Forcing the spreadsheet to print to a specific number of pages

*Resources used:

<https://edu.gcfglobal.org/en/>,
<https://support.microsoft.com/>

Resources

The following resources can be accessed from the library's resource page:

<https://www.cmlibrary.org/resources>

GCF Learn Free

Find many Microsoft Office, Google Suite, and basic-to-advanced digital literacy lessons for free on www.gcflearnfree.org. They have both text-based and video tutorials on a wide variety of topics.

LinkedIn Learning

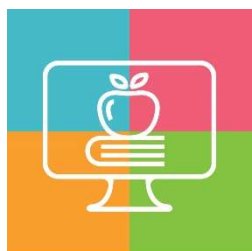
Access a library of video tutorials from beginner to advanced level on a variety of technology topics on LinkedIn Learning (formerly Lynda.com). LinkedIn Learning allows you to track your progress and download resources from tutorials. You can view lessons at home or in the library using your library card.

Northstar Digital Literacy

This resource provides interactive online assessments and practice exercises to help individuals master computer and software skills such as using email, navigating the internet, and using Microsoft Word, Excel, and PowerPoint. Learn to navigate technology in your daily life with assessments on topics such as Social Media, Google Documents, Supporting K-12 Distance Learning, and Career Search Skills. Receive certification in one or more topics by completing an assessment (score 85% or higher) during a virtual Library proctored session.

1-on-1 Technology Tutoring

Charlotte Mecklenburg Library offers 1-on-1 tutoring with a library staff member or volunteer. You can call your library branch to check availability or check out our online calendar at www.cmlibrary.org/calendar.



DigiLit

DigiLit is a digital literacy program provided by Charlotte Mecklenburg Library. To find out more information about this program, download class handouts, and access additional resources, visit: www.cmlibrary.org/digilit