Cochise College Center for Lifelong Learning

Excel: Basic

For Lifelong Learners

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Introduction

Welcome to Excel Basic! A spreadsheet is one of the most practical tools ever invented for organizing information and doing calculations. In this class you will build a real working spreadsheet from scratch, learn how Excel thinks about data, and discover how a few simple formulas can save hours of manual arithmetic.

We will work with data from a fictional southern Arizona gift shop called Saguaro Trading Post. By the end of the class you will have opened a real dataset, written formulas, formatted a table, created a chart, sorted and filtered your data, worked with dates from a CSV file, and built a protected form: all skills you can use immediately.

Learning Goals

By the end of this class, you will:

- Understand what a spreadsheet is and why data organization matters
- Navigate Excel's interface with confidence
- Enter, edit, and format data in a worksheet
- Write basic formulas to calculate values automatically
- Create a simple chart and sort or filter your data
- Open a CSV file and work with dates
- Protect a worksheet and restrict what can be typed into a cell

What You Need

- Computer with Microsoft Excel installed
- USB drive with Student Files (provided by instructor)

Module 1: What Excel Is and How It Works

Before we touch the keyboard, let's talk about what a spreadsheet actually is and why the way you organize your data matters just as much as any formula you write.

What Is a Spreadsheet?

A spreadsheet is a grid of rows and columns where you store information. Each box in the grid is called a **cell**. What makes a spreadsheet powerful is that cells can hold formulas that calculate results automatically, and update instantly whenever the data changes.

People use spreadsheets for budgets, sales records, inventory lists, schedules, grade books, and much more. If you have a list of numbers you need to add up, compare, or track over time, Excel is the right tool.

Why Data Organization Matters

Excel is only as smart as the data you give it. A few rules that will save you trouble later:

- **One type of information per column.** Dates in one column, amounts in another: never mixed together.
- **Consistent values.** If one cell says `Arizona` and another says `AZ`, Excel treats them as two different things.
- **A header row at the top.** Every column should have a clear label in row 1.
- **No merged cells inside data.** Merging looks tidy but breaks sorting and formulas.
- **No blank rows inside the data.** Excel uses blank rows as a signal that the data has ended.

Activity 1.1: Open the Dataset and Tour the Interface

⚙ Open the Student File

1. Click the Windows search bar at the bottom of the screen
2. Type **`Excel`** and click the ***Excel App*** result
3. Click ***Open Other Workbook*** on the left-side menu
4. Click ***Browse*** and navigate to the *Student Files* folder on your USB drive
5. Click **`monthly_sales`** and click ***Open***
6. Click `File → Save As → Browse`

7. Save a working copy as **`sales-practice`** in your Student Files folder

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🔍 Explore the Interface

1. Identify these parts of the Excel window:
   - **Ribbon**: the toolbar area across the top with tabs like Home, Insert, and Data
   - **Name Box**: shows the address of the selected cell (e.g., `A1`)
   - **Formula Bar**: shows the contents of the selected cell
   - **Column Headers**: the gray letters (A, B, C…) across the top
   - **Row Numbers**: the gray numbers (1, 2, 3…) down the left side
   - **Sheet Tab**: the tab at the bottom labeled *Monthly Sales*
2. Click cell **`A1`** and look at the Name Box and Formula Bar
3. Click cell **`D5`** and notice how the Name Box and Formula Bar updates
4. Use the arrow keys to move to nearby cells
5. Press **[Ctrl]** + **[End]** to jump to the last cell in the data
6. Press **[Ctrl]** + **[Home]** to return to cell A1

Navigation Shortcuts

- **[Ctrl]** + **[Home]**: jump to cell A1
- **[Ctrl]** + **[End]**: jump to the last used cell
- **[Tab]**: move one cell to the right
- **[Enter]**: confirm entry and move down

Activity 1.2: Understand the Data and Data Types

⊞ Read the Dataset

1. Look at the column headers in row 1: *Month*, *Category*, *Units_Sold*, *Unit_Price*, *Total_Revenue*, *Returns*, *Net_Revenue*
2. Notice that some of the headers are cut off, but that will be corrected in a

later step.

3. Notice that the *Total_Revenue* and *Net_Revenue* columns are highlighted in yellow; those are blank and you will fill them in during the next module
4. Click cell **`A2`**: this is text (a month name)
5. Click cell **`C2`**: this is a number (Units_Sold)
6. Notice **`D2`** and **`F2`** are numbers
7. Notice that text values are left-aligned and numbers are right-aligned. Excel does this automatically to signal the data type.

Add a New Data Row

1. Scroll to the bottom of the data (row 61 is the last data row)
2. Click in cell **`A62`**
3. Enter **`December`** and press **[Tab]**
4. Enter **`Clothing`** and press **[Tab]**
5. Enter **`74`** and press **[Tab]**
6. Enter **`35.00`** and press **[Tab]**
7. Skip the *Total_Revenue* cell by pressing **[Tab]** once
8. Enter **6** for *Returns* and press **[Enter]**
9. Press **[Ctrl]** + **[Home]** to return to the top
10. Save the workbook with **[Ctrl]** + **[S]**

Module 1 Checklist

1. Explain what a spreadsheet is and name two ways people use them
2. Identify the Ribbon, Name Box, Formula Bar, column headers, and row numbers
3. Navigate a worksheet using the keyboard and mouse
4. Describe the rules for well-organized data (headers, consistency, no blank rows)
5. Enter data into a new row

Module 2: Working with Data

Now that you know your way around Excel, it is time to make the data do some work. In this module you will write formulas to calculate the missing columns, use AutoFill to copy those formulas down the entire dataset, add summary statistics, and apply basic formatting to make the spreadsheet easier to read.

How Formulas Work

Every formula in Excel starts with an equals sign (=). Instead of typing a number, you type the **address** of the cell that contains the number. This is called a **cell reference**.

For example: `=C2*D2` means "multiply whatever is in C2 by whatever is in D2."

Why use references instead of numbers? Because if the data in C2 ever changes, the formula recalculates automatically. You never have to update the answer by hand.

Activity 2.1: Calculate Total Revenue

🧮 Write Your First Formula

1. Click cell **E2** (the first yellow Total_Revenue cell)
2. Type **=C2*D2** and press **[Enter]**. *Note: it is OK to use lower-case letters in formulas.*
3. Cell **E2** displays cross-hatches (####) since the calculated number is too large to be displayed.
4. Click the small triangle in the very top-left corner of the grid (above row 1, left of column A) to select the entire worksheet
5. Double-click the divider between any two column header letters to auto-fit all column widths
6. Click back on cell **E2**
7. Look at the Formula Bar: you can see the formula while the cell shows the result

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⏭ Use AutoFill to Copy the Formula

1. Click cell **E2**

2. Move your mouse to the small green square in the bottom-right corner of the cell; the cursor will change to a thin **+** sign. This is the **AutoFill handle**.
3. Double-click the AutoFill handle to fill the formula all the way down to the last data row
4. Click a few cells in column E and notice that the formula bar shows `=C3*D3`, `=C4*D4`, etc., since Excel adjusted the row numbers automatically

Understanding AutoFill

When you AutoFill a formula, Excel adjusts the row numbers (or column letters) automatically. The formula `=C2*D2` becomes `=C3*D3` in the next row, `=C4*D4` in the row after that, and so on. This is called a **relative cell reference** and it is one of Excel's most useful features.

Activity 2.2: Calculate Net Revenue

🖩 A Two-Step Formula
Net Revenue is Total Revenue minus the value of the returned items. A return costs the store one item at the unit price, so the formula is:

```
Net Revenue = Total Revenue - (Returns × Unit Price)
```

1. Click cell **G2** (the first yellow Net_Revenue cell)
2. Type **=E2-(F2*D2)** and press **[Enter]**
3. Click back on **G2** and confirm the formula in the Formula Bar
4. Double-click the AutoFill handle to fill the formula down the column
5. Save the workbook

Activity 2.3: Add Summary Statistics

📈 Use Built-In Functions
Excel has built-in functions that summarize an entire column of numbers with a single formula. We will add a summary section below the data.

1. Click cell **A64**

2. Enter **SUMMARY** and press **[Enter]**
3. In **A65** enter **Total** and press **[Tab]**
4. Skip to **C65** by pressing **[Tab]**
5. Enter **=SUM(C2:C62)** and press **[Tab]**
6. Skip D65, E65, and F65 by pressing **[Tab]** three times
7. In **G65** enter **=SUM(G2:G62)** and press **[Enter]**
8. In **A66** enter **Average** and in **C66** enter **=AVERAGE(C2:C62)**
9. In **A67** enter **Highest** and in **C67** enter **=MAX(C2:C62)**
10. In **A68** enter **Lowest** and in **C68** enter **=MIN(C2:C62)**
11. In **A69** enter **Count** and in **C69** enter **=COUNT(C2:C62)**
12. Save the workbook

The Five Essential Functions

- **SUM**: adds up all the numbers in a range
- **AVERAGE**: calculates the mean value
- **MAX**: finds the largest value
- **MIN**: finds the smallest value
- **COUNT**: counts how many cells contain numbers

These five functions cover the majority of everyday spreadsheet needs.

Activity 2.4: Build a SUMIF Formula

Add Only the Rows You Want
SUM adds up an entire column. But what if you only want the units sold for one category? **SUMIF** adds only the rows that match a condition. It is a little more complex than the five functions above, so we will build it one piece at a time.

1. In **A71** enter **Category Total** and press **[Tab]**
2. In **B71** enter **Jewelry** and press **[Tab]**

3. In **C71** type **=SUMIF(** but do not press **[Enter]** yet
4. Look at the small tip that appears below the cell: `SUMIF(range, criteria, [sum_range])`. Excel is telling you the three pieces it needs.
5. **Piece 1, the range to check:** type **B2:B62,** (the Category column, followed by a comma)
6. **Piece 2, what to look for:** type **"Jewelry",** (text must be in quotation marks)
7. **Piece 3, what to add:** type **C2:C62)** (the Units_Sold column and a closing parenthesis)
8. Press **[Enter]**: the result is `507`, the total units of jewelry sold all year

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Make the Formula Flexible
Typing `"Jewelry"` into the formula works, but you would have to edit the formula to check a different category. A better way is to point at a cell instead.

9. Click **C71** and look at the Formula Bar
10. In the Formula Bar, replace `"Jewelry"` (including the quotation marks) with **B71** so the formula reads `=SUMIF(B2:B62,B71,C2:C62)`
11. Press **[Enter]**: the result is still `507`
12. Click **B71**, enter **Minerals**, and press **[Enter]**: the total updates instantly
13. Try **Crafts** and **Clothing** as well
14. Save the workbook

Reading a SUMIF in Plain English

`=SUMIF(B2:B62,B71,C2:C62)` means: "Look down column B. Every time a cell matches whatever is in B71, add up the number in the same row of column C."

The category must be spelled exactly as it appears in the data. `Jewelery` (misspelled) gives a result of zero, because no rows match.

Activity 2.5: Format the Spreadsheet

🎨 Make It Readable

1. Press **[Ctrl]** + **[Home]** to return to cell A1
2. Click the small triangle in the very top-left corner of the grid (above row 1, left of column A) to select the entire worksheet
3. Double-click the divider between any two column header letters to auto-fit all column widths
4. Click cell **A1**, then **[Shift]** + click **G1** to select the header row
5. Click `Home → Font → Bold`
6. Click `Home → Font → Fill Color Drop-down Arrow` and choose *Dark Blue*
7. Click `Home → Font → Font Color Drop-down Arrow` and choose *White*
8. Select the range **D2:E62** (Unit Price and Total Revenue)
9. Click `Home → Number → Accounting Number Format` (the $ button)
10. Select the range **G2:G62** (Net Revenue)
11. Click `Home → Number → Accounting Number Format` (the $ button)
12. Click **C66**
13. Click `Home → Number → Decrease Decimal` 6 times
14. Select the range **A64:A71**
15. Click `Home → Font → Bold`
16. Save the workbook

Module 2 Checklist

1. Explain what a cell reference is and why it is better than typing a number
2. Write a multiplication formula using cell references
3. Use AutoFill to copy a formula down an entire column
4. Write formulas using SUM, AVERAGE, MAX, MIN, and COUNT
5. Build a SUMIF formula one piece at a time and point it at a cell

6. Apply bold formatting, fill color, and number formatting to a worksheet

Module 3: Making Data Useful

A table of numbers is informative, but a chart is immediate. In this module you will create a chart to visualize the sales data, use sorting and filtering to answer specific questions about the data, and learn how to add a header and footer and send a worksheet to the printer.

Activity 3.1: Create a Chart

Visualize Sales by Category
Charts are easiest to create when the data is small and focused. We will filter the data down to one month and chart revenue by product category.

1. Press **[Ctrl]** + **[Home]**
2. Click `Data → Sort & Filter → Filter` to turn on filter dropdowns
3. Click the dropdown arrow in the *Month* column (cell A1)
4. Click ***Select All*** to deselect everything, then check ***January*** only
5. Click ***OK***: the table now shows only the 5 January rows
6. Select cells **`B1:B6`** then hold **[Ctrl]** and also select **`E1:E6`**
7. Click `Insert → Charts → Recommended Charts`
8. Choose *Clustered Column* and click ***OK***

Change the Chart Type
A chart is not locked into the type you first chose. With one click, you can try a different way of showing the same data.

9. Make sure the chart is still selected (it has a border with small circles at the corners)
10. Click `Insert → Charts → Insert Pie or Doughnut Chart` and choose the first *Pie*: the column chart becomes a pie chart
11. A pie chart shows each category as a slice of the whole month's revenue

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Format the Chart

12. Click the chart title once to select it, then click again inside the title text
13. Select the existing title text, type **`January Revenue by Category`**, and click outside the title

14. Click the chart border, then click the *Chart Elements* button (the **+** sign beside the chart)
15. Check ***Data Labels***: each slice now shows its dollar amount
16. Click the *Chart Styles* button (the paintbrush beside the chart) and try two or three styles
17. After reviewing the chart, click on the chart's border then press **Delete**.
18. Click the dropdown arrow in the *Month* column again and click ***Select All*** to restore all rows
19. Click ***OK***.
20. Click ***A1***
21. Save the workbook

Chart Tips

- Charts update automatically when the source data changes
- Hold **[Ctrl]** to select non-adjacent columns for a chart
- Clustered Column charts are ideal for comparing categories side by side
- Pie charts are best for showing how parts make up a whole, and work best with five or six slices at most
- Select a chart and choose a different type from `Insert → Charts` to change it instantly
- Drag a chart's edge or corner to resize it

Activity 3.2: Sort and Filter

⬍ Sort Data to Find Patterns

1. Press **[Ctrl]** + **[Home]**
2. Click `Data → Sort & Filter → Sort`
3. Set *Sort by* to ***Net_Revenue*** and *Order* to ***Largest to Smallest***
4. Click ***OK***: the rows reorder so the highest net revenue appears first

5. Identify which month and category produced the highest net revenue
6. Click `Data → Sort & Filter → Sort` again
7. Change *Sort by* to ***Month*** and *Order* to ***A to Z***, then click ***OK***
8. Look at the Month column: April comes first, then August, then December. Excel sorted the month names alphabetically, like any other text.

Sort Months in Calendar Order

9. Click `Data → Sort & Filter → Sort`
10. Leave *Sort by* set to *Month*, and change *Order* to ***Custom List...***
11. Click ***January, February, March, ...*** and click ***OK***
12. Click ***Add Level***
13. Set *Then by* to ***Category*** and *Order* to ***A to Z***
14. Click ***OK***: data is now in calendar order by month, then alphabetically by category within each month

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Filter to Answer a Question

1. Confirm that the filter dropdowns are still visible in row 1 (if not, click `Data → Filter`)
2. Click the dropdown in the *Category* column
3. Uncheck ***Select All***, then check ***Jewelry*** only and click ***OK***
4. The table now shows only Jewelry rows; notice the row numbers are not sequential, confirming the other rows are hidden, not deleted
5. Look at your SUM formula in the summary section: does it change?
6. Click the dropdown in Category and click ***Select All*** then click ***OK*** to restore all rows

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Filter by Numbers

Text columns let you check off values from a list. Number columns offer a second option: you can filter by a rule, such as “greater than” or “top 10.”

7. Click the dropdown in the *Units_Sold* column
8. Point to ***Number Filters*** and look at the choices: Equals, Greater Than, Less Than, Between, Top 10, Above Average, and more

9. Click ***Greater Than***, type **`60`** in the box beside *is greater than*, and click ***OK***
10. The table shows only the 20 rows where more than 60 units were sold. Notice the small funnel icon on the Units_Sold dropdown, showing that a filter is active.
11. Click the Units_Sold dropdown again, point to ***Number Filters***, and choose ***Top 10***
12. Leave the settings at *Top 10 Items* and click ***OK***: now you see the ten best-selling rows
13. Click `Data → Sort & Filter → Clear` to remove the filter and show all rows
14. Click `Data → Sort & Filter → Filter` to turn off the filter dropdowns
15. Save the workbook

Custom Lists

Excel already knows the days of the week and the months of the year, which is why they appear under *Custom List*. You can add your own list for any order that is not alphabetical, such as `Small, Medium, Large` or the names of your club's committees. Click `File → Options → Advanced`, scroll to the *General* section, and click ***Edit Custom Lists***.

Activity 3.3: Print the Spreadsheet

Add a Header and Footer
A header and footer print at the top and bottom of every page. They are a good place for the file name, the page number, and the date the report was printed.

1. Click `Insert → Text → Header & Footer`: Excel switches to *Page Layout* view, which shows the worksheet as it will look on paper
2. The cursor is in the center section of the header. Click `Header & Footer → Header & Footer Elements → File Name`
3. Click `Header & Footer → Navigation → Go to Footer`
4. Click in the left section of the footer, then click `Header & Footer`

`Elements → Current Date`

5. Click in the right section of the footer, type **Page** followed by a space, then click `Header & Footer Elements → Page Number`
6. Click any cell in the worksheet to see the finished header and footer
7. Click `View → Workbook Views → Normal` to return to the normal view

🖶 Send to the Printer

8. Press **[Ctrl]** + **[Home]**
9. Click `File → Print`
10. Review the print preview on the right side of the screen, including the header and footer
11. If the preview looks correct, click ***Print***. ***Note: Do not print this spreadsheet in the Lab!***
12. Press **[Esc]** to close without printing if a printer is not available
13. Save the workbook
14. Close the workbook with `File → Close`, but leave Excel open for the next module

Module 3 Checklist

1. Use a filter to focus on a subset of data before creating a chart
2. Create a clustered column chart from selected data and change it to a pie chart
3. Change a chart's title, add data labels, and apply a chart style
4. Sort data by one column and by multiple columns
5. Sort month names in calendar order using a custom list
6. Filter data to show only rows that match a specific value
7. Use a number filter such as Greater Than or Top 10
8. Add a header and footer and send a worksheet to the printer

Module 4: Dates, CSV Files, and Protection

So far all of our data has come from a ready-made Excel workbook. In this module you will open a plain CSV file like the ones many programs export, work with real

dates, and then build a small order form that guides people toward correct entries and protects your formulas from accidental changes.

What Is a CSV File?

CSV stands for **Comma-Separated Values**. A CSV file is plain text: each line is one row, and commas separate the columns. It holds **only the values**, with no formatting, no formulas, no charts, and only one sheet.

Banks, online stores, cash registers, membership databases, and many other programs export data as CSV because almost any program can read it. Excel opens CSV files directly, but if you want to keep your formatting and formulas, you must save the file as an Excel workbook.

Activity 4.1: Open a CSV File

Open and Convert the File

1. Click `File → Open → Browse` and navigate to the *Student Files* folder
2. Click **`daily_sales`** and click ***Open***. This is a register export from Saguaro Trading Post covering February and March.
3. Notice the yellow bar or message near the top of the window warning that some features might be lost if the file is saved as CSV
4. Notice that the data has no formatting and some columns are too narrow, since a CSV file cannot store formatting
5. Click `File → Save As → Browse`
6. Change *Save as type* to ***Excel Workbook (*.xlsx)***
7. Name the file **`daily-practice`** and click ***Save***
8. Select the entire worksheet and auto-fit all column widths, then bold the header row

Dates Are Numbers in Disguise

Excel stores every date as a number. Day 1 is January 1, 1900, day 2 is January 2, 1900, and the count simply keeps going. That is why Excel can sort dates in calendar order, subtract one date from another, and filter by month or year. The date you see in a cell is just a **format** applied to that

number, and you can change the format without changing the date.

Excel's Calendar Quirks

Excel's calendar starts at day 1 (January 1, 1900), so the number zero becomes the imaginary "January 0, 1900." Excel also believes there was a February 29, 1900, even though 1900 was not a leap year. That mistake began in Lotus 1-2-3, the most popular spreadsheet of the 1980s. Microsoft copied it on purpose so that Lotus files would open in Excel with the correct dates, and it has been kept ever since so that old workbooks do not break.

Activity 4.2: Work with Dates

📅 See the Number Behind a Date

1. Click cell **A2** and notice the date is right-aligned, like a number
2. Click `Home → Number → Number Format Drop-down Arrow` and choose ***General***: the date becomes a number in the 46,000s
3. Press **[Ctrl]** + **[Z]** to undo and show the date again
4. Click the empty cell **G2**, type **1**, and press **[Enter]**
5. Click **G2**, then click `Home → Number → Number Format Drop-down Arrow` and choose ***Short Date***: the cell shows `1/1/1900`, the very first day on Excel's calendar
6. With **G2** still selected, type **0** and press **[Enter]**: the cell shows `1/0/1900`, "January 0, 1900," a day that never existed
7. Click **G2** and press **[Delete]**, then click `Home → Editing → Clear → Clear Formats` to empty the cell completely

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🎨 Apply a Custom Date Format

8. Click the *A* column header to select the whole Date column
9. Right-click the selection and choose ***Format Cells***
10. On the *Number* tab, click ***Custom*** at the bottom of the *Category* list
11. In the *Type* box, delete what is there and type **`ddd, mmm d, yyyy`**
12. Look at the *Sample* above the box, then click ***OK***

13. Auto-fit column A: the dates now read like `Tue, Feb 3, 2026`

⇕ Sort and Filter by Date

14. The register exported the sales in no particular order. Click cell **A2**, then click `Data → Sort & Filter → Sort A to Z` (the small **A-Z** button). For a date column, A to Z means oldest to newest, so the sales are now in calendar order.
15. Click `Data → Sort & Filter → Filter` to turn on the filter dropdowns
16. Click the dropdown in the *Date* column. Notice the dates are grouped by year and month, with a **+** beside each to expand it.
17. Uncheck ***Select All***, click the **+** beside *2026*, then check ***March*** only and click ***OK***: only the 34 March sales remain
18. Click the Date dropdown again and click ***Clear Filter From "Date"***
19. Click the Date dropdown again, point to ***Date Filters***, and look at the choices: Before, After, Between, Last Week, Next Month, This Year, and more
20. Click ***Between***. In the first box type **`2/14/2026`** and in the second box type **`2/28/2026`**, then click ***OK***: the 17 sales from the second half of February remain
21. Click `Data → Sort & Filter → Clear` to show all rows, then click `Data → Sort & Filter → Filter` to turn off the dropdowns
22. Save the workbook and close it with `File → Close`

Saving CSV Files

If you add formatting, formulas, or a chart to a CSV file and save it as CSV, everything except the plain values is lost when the file closes. Always use `File → Save As` and choose *Excel Workbook* when you want to keep your work. Save as CSV only when another program needs to read the file.

Activity 4.3: Build a Protected Order Form

☰ Restrict What Can Be Typed
The shop sends this order form to wholesale customers. The yellow cells are for the customer to fill in; the Line_Total and Order Total cells already contain

formulas. **Data Validation** limits what can be typed into a cell, so customers cannot enter a category that does not exist or a quantity that makes no sense.

1. Click `File → Open → Browse`, open **`order_form`** from the Student Files folder, and save a copy as **`order-form-practice`**
2. Select the range **`A7:A11`** (the yellow Category cells)
3. Click `Data → Data Tools → Data Validation`
4. On the *Settings* tab, change *Allow* to ***List***
5. In the *Source* box type **`Jewelry,Crafts,Clothing,Food Items,Minerals`** and click ***OK***
6. Click **`A7`**: a dropdown arrow appears. Click it and choose ***Jewelry***.
7. Click **`A8`**, type **`Toys`**, and press **[Enter]**: Excel refuses the entry. Click ***Cancel***.
8. Select the range **`B7:B11`** (the Quantity cells) and click `Data → Data Tools → Data Validation`
9. Change *Allow* to ***Whole number***, *Data* to ***between***, *Minimum* to **`1`**, and *Maximum* to **`500`**
10. Click the *Error Alert* tab, type **`Please enter a whole number from 1 to 500`** in the *Error message* box, and click ***OK***
11. In **`B7`** type **`2.5`** and press **[Enter]**: your own error message appears. Click ***Retry***, type **`12`**, and press **[Enter]**.
12. In **`C7`** type **`42`** and press **[Enter]**: the Line_Total and Order Total calculate automatically

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🔒 Lock the Formulas
Every cell in Excel is **locked** by default, but locking does nothing until you **protect** the sheet. So the steps are: unlock the cells people should be able to change, then turn on protection.

13. Select the range **`B3:B4`**, then hold **[Ctrl]** and also select **`A7:C11`** (all the yellow cells)
14. Right-click the selection and choose ***Format Cells***
15. Click the *Protection* tab, uncheck ***Locked***, and click ***OK***
16. Click `Review → Protect → Protect Sheet`
17. Leave the password box empty for this class and click ***OK***

18. Click **D7** and try to type a number: Excel displays a message that the cell is protected. Click ***OK***.
19. Click **B8**, type **5**, and press **[Enter]**: the yellow cells still accept entries
20. Click `Review → Protect → Unprotect Sheet` to turn protection off when you need to change the form
21. Save the workbook and close Excel

Passwords and Protection

- **Protect Sheet** (on the Review tab) stops people from changing locked cells. A password is optional, and it is meant to prevent accidents, not to keep secrets.
- **Protect Workbook** (on the Review tab) stops people from adding, deleting, renaming, or rearranging sheets.
- **Encrypt with Password** (`File → Info → Protect Workbook`) requires a password just to open the file. This is the only option that keeps the contents private.

Write your password down somewhere safe. If you forget an encryption password, Microsoft cannot recover the file for you.

What Comes Next

In the **Excel with AI** class, you will take these same skills further by using an AI assistant to write complex formulas, analyze data, and generate charts: all from plain English descriptions. The data literacy skills you practiced today (clean data, consistent values, clear headers) are exactly what an AI needs to work effectively with your spreadsheet.

Module 4 Checklist

1. Explain what a CSV file is and why it cannot hold formatting or formulas
2. Open a CSV file and save it as an Excel workbook
3. Explain that dates are stored as numbers, and apply a custom date format
4. Sort by date and filter by month or by a date range
5. Use Data Validation to create a dropdown list and limit a cell to whole numbers

6. Unlock input cells and protect a worksheet so formulas cannot be changed

Final Words

Congratulations on completing Excel Basic! You have learned how to open and navigate a real dataset, organize data correctly, write formulas, apply formatting, create and change a chart, sort and filter your data, work with dates from a CSV file, and protect a worksheet. These are the core skills that everything else in Excel builds on.

The best way to get comfortable with Excel is to use it for something you genuinely care about. A few ideas:

Practice Ideas

- Track your monthly household expenses by category
- Keep a list of books you have read, with dates and ratings
- Record mileage or fuel costs for a vehicle
- Plan a budget for a trip or project
- Organize a club membership list or volunteer schedule

When you are ready for more, the **Excel with AI** class picks up where this one leaves off and shows you how to use artificial intelligence tools to work with data faster and more powerfully than ever before.

Appendix A: Extra Practice: Quarterly Performance

If you finish the main exercises early, or would like to reinforce your skills at home, this appendix uses a second Saguaro Trading Post dataset covering quarterly sales results for 2024 and 2025, and then returns to the daily sales file from Module 4. You will apply the skills from all four modules.

Activity 4.4: Open the Practice File

⚙ Getting Started

1. Open Excel and click ***Browse***
2. Navigate to the *Student Files* folder and open **`quarterly_performance`**
3. Save a working copy as **`quarterly-practice`**

4. Review the columns: *Year*, *Quarter*, *Category*, *Sales*, *Cost_of_Goods*, *Gross_Profit*, *Store_Expenses*, *Net_Profit*
5. Notice that *Net_Profit* is highlighted yellow and blank

Activity 4.5: Calculate Net Profit

🖩 Apply What You Learned

1. Click cell **`H2`** (the first yellow Net_Profit cell)
2. Net Profit equals Gross Profit minus Store Expenses: write the formula yourself using cell references
3. Use AutoFill to copy the formula to the remaining rows
4. Select the entire worksheet and auto-fit all column widths
5. Save the workbook

Activity 4.6: Add a Summary Row and Format the Table

🎨 Summarize and Tidy the Data

1. Below the last data row, add summary rows for Total, Average, Highest, and Lowest for the *Sales* and *Net_Profit* columns
2. Below the summary rows, type **`Jewelry`** in column B, then write a SUMIF formula in column H that adds up *Net_Profit* only for the category named in column B. If your formula is correct, the result is `28695`.
3. Change the category name to **`Minerals`** and confirm the total updates
4. Select the entire worksheet and auto-fit all column widths
5. Bold the header row and apply a fill and font color of your choice
6. Apply Accounting Number Format to the Sales, Cost_of_Goods, Gross_Profit, Store_Expenses, and Net_Profit columns
7. Save the workbook

Activity 4.7: Chart, Sort, and Filter

Explore the Data Visually

1. Turn on filters, then filter the data to show only *2025* in the Year column and only *Q4* in the Quarter column: five rows remain
2. Select the *Category* and *Net_Profit* cells for those rows (including the headers) and create a Clustered Column chart
3. With the chart selected, change it to a Pie chart
4. Change the chart title to **`2025 Q4 Net Profit`** and add data labels
5. After observing the chart, delete it
6. Clear the filters to restore all rows
7. Use a number filter on *Net_Profit* to show only rows greater than **`4000`**. How many rows remain, and which category appears most often?
8. Clear the filter, then sort the data by *Net_Profit* from largest to smallest
9. Which category had the highest net profit overall?
10. Add a header with the sheet name and a footer with the page number, then check the print preview
11. Save and close the workbook

Activity 4.8: More Practice with Dates

Return to the Daily Sales

1. Open the **`daily-practice`** workbook you saved in Module 4
2. Apply the custom date format **`dddd`** to the Date column: what does it show? Change it to **`mmmm d`** and auto-fit the column
3. Sort the data from newest to oldest
4. Filter the *Payment* column to show only *Cash*, then add a number filter on *Sale_Amount* to show only sales greater than **`50`**. You should see six rows.
5. Clear all filters and turn off the filter dropdowns
6. Select the Payment cells and add a Data Validation list that allows only **`Card,Cash`**, then test it by typing **`Check`**

7. Save and close the workbook

Appendix Checklist

1. Write a formula from scratch using cell references
2. AutoFill a formula down a column
3. Add summary statistics using SUM, AVERAGE, MAX, and MIN
4. Write a SUMIF formula that points at a cell
5. Apply number formatting and header formatting
6. Create a chart from filtered data and change its type
7. Sort by a calculated column and use a number filter
8. Apply a custom date format and combine filters on two columns
9. Add Data Validation to existing data