

# Basic to Intermediate Excel

## Table of Contents

### Hour 1 – Build a Workbook from Scratch – 2

- Find and Create Templates
- Automate Data Entry with AutoFill
- Insert, Delete, Move, and Manipulate Cells, Rows, and Columns
- Insert and Copy Worksheets

### Hour 2 – Customize, Maneuver, and Modify – 7

- Format Cells, Rows, and Columns – Size, Merged Cells, Number Formats, Styles
- Customize the Quick Access Toolbar and Ribbon
- Work with Multiple or Large Worksheets and Workbooks
- Record a Basic Macro

### Hour 3 – Create and Manipulate Reports – 12

- Sort – Quick and Multi-Level
- Filter – Query and Clean up
- Subtotal
- Format As Table
- Create Charts and Sparklines
- Print – Total Control of How it Shows Up on Paper

### Hour 4 – Basic Formulas and Functions – 16

- Formula Syntax and Order of Operations
- AutoFill Formulas
- Refer to and Pull Data from Other Worksheets and Workbooks
- SUM, AVERAGE, MAX, MIN
- Calculate Dates
- The IF Function

### Hour 5 – Shortcuts, Tips, and Tricks – 20

- 20+ Popular Keyboard Shortcuts
- Freeze Headers and Split Panes
- Insert Comments
- Text Functions
- Validate Data
- Secure Data

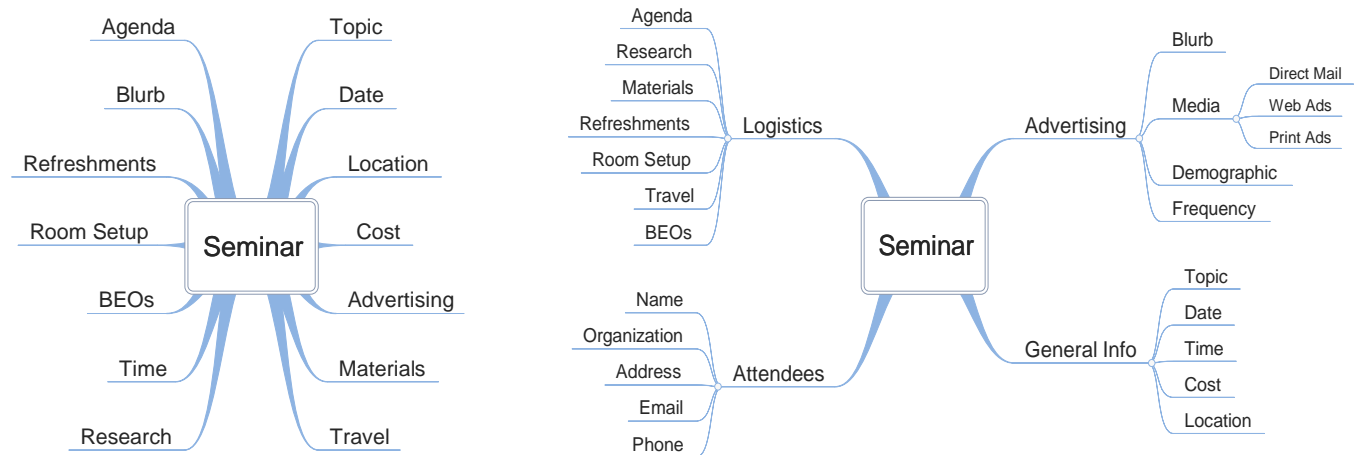
Microsoft Windows, Excel, Word, PowerPoint, Outlook, OneNote, Publisher, Access, and Edge are all registered trademarks of Microsoft Corporation

**DISCLAIMER:** The principles and suggestions in this workbook and the **Microsoft® Excel®** seminar are presented to apply to diverse personal and company situations. These materials and the overall seminar are for general informational and educational purposes only. The materials and seminar, in general, are presented with the understanding that Successful Training Solutions is not engaged in rendering legal advice.

## Hour 1 – Build a Workbook from Scratch

### Design a Spreadsheet

Mind map the content, then sketch the layout. Start by dumping out everything you would want to include in the spreadsheet, the sub-group



Each main topic is a separate workbook or sheet. Branches are column headings. One of the branches is the variable by which to divide sheets

Sketch out a spreadsheet to track 5 products across 12 months:

Design your spreadsheets to grow downward. Also remember you can only sort and filter vertically, so put the item

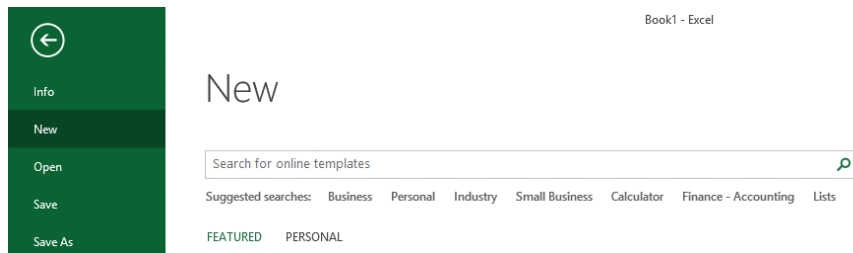

you would likely want to manipulate into the rows

## Find, Create, and Use Templates

### Locate a Template:

Rather than starting with a blank workbook, get started with something that gives you a start on content, formatting, and layout

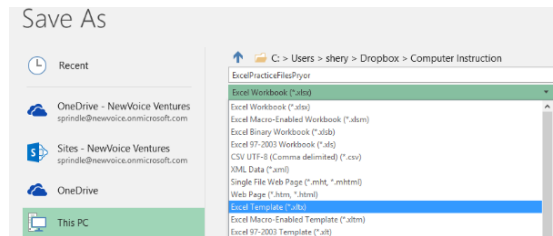
1. Click the File Tab
2. Select New
3. Search for Online Templates



3. Single-click to preview or double-click to open the desired template
4. Pin Favorite Templates [A]
5. Edit and save as a Workbook or Template

### Create a Template:

1. Create the workbook you want to save as a template
2. Click File > Save As...
3. Name the file
3. In the Save as Type drop-down, choose Excel Template

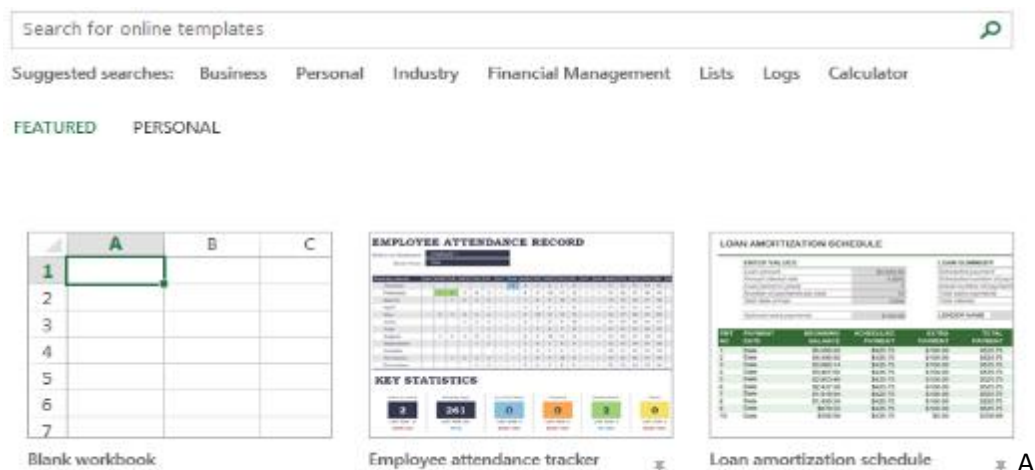


### Open a Saved Template:

1. Click the File Tab
2. Select New
3. Click Personal
4. Double-click the desired template

What makes saving a workbook as a template different than just saving it?

What can you use templates for?



## Automate Date Entry with AutoFill

Type data into a cell:

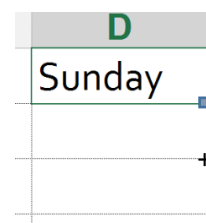
1. Select an empty cell
2. Type the information
3. Leave the cell (Press ENTER or TAB on the keyboard, or click into another cell)

Edit data in a cell:

1. Select the data in the cell containing the information to be edited. This can be done three ways:
  - a. Double-click the cell
  - b. Click the cell, and edit in the Formula Bar
  - c. Press the F2 key on the keyboard
2. Make any needed changes
4. Press ENTER or TAB on the keyboard

Replace information in a cell:

1. Select the cell containing the information to be replaced
2. Type the new information
3. Press ENTER or TAB on the keyboard



Copy Data or Fill a Series with AutoFill:

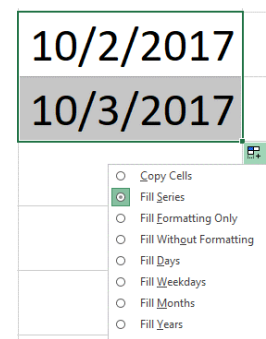
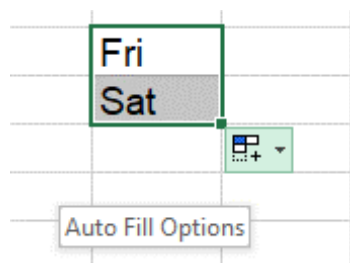
You can use AutoFill to complete a series of numbers, months, days, dates, or other sequential data. The fill handle is a small square in the lower-right corner of a selected cell or range of cells. When you point to the fill handle, the pointer changes to a plus sign (+). Click and drag the pointer in any direction to fill a range with data.

To use AutoFill:

1. Select the cell containing the value that will start the series
2. Point to the fill handle until the pointer changes to a + symbol
3. Click and drag the fill handle over the adjacent cells that you want to fill

To teach Excel a pattern, select multiple cells with a desired range, and AutoFill will continue with the same increments. For example, fill a range by 10s or fill a range with dates a week apart

Click the Options Icon that appears when you release the Fill Handle to take advantage of variations



## Insert, Delete, Move, and Manipulate Cells, Rows, and Columns

### Insert Rows:

1. Right-click the number to the left of the row you want to insert rows above
2. From the right-click menu, click Insert

To insert multiple rows, select the number of rows you want to insert before right-clicking

### Insert Columns:

1. Right-click the letter above the column you want to insert columns in front of
2. From the right-click menu, click Insert

To insert multiple columns, select the number of columns you want to insert before right-clicking

### Delete rows or columns:

1. Select the rows or columns you want to delete
2. From the right-click menu, click Delete

### Select cells, rows, and columns:

Select rows or columns by clicking row and column headers. Click and drag across several column or row headers to select multiple rows and columns

Select an entire worksheet by clicking the upper-leftmost button

Use the SHIFT Key to select adjacent items:

1. Click the first cell (or row or column)
2. Press and hold the SHIFT key on the keyboard while selecting a second cell (or row or column)

All cells between the two places you clicked will be selected

Use the CTRL Key to select non-adjacent items:

1. Click the first cell (or row or column)
2. Press and hold the CTRL key on the keyboard while selecting additional cells (or rows or columns)

All clicked items will be selected

### Selection Shortcuts

CTRL+A: Selects All

CTRL+ARROW: Jumps from the active cell to the last non-blank cell in the direction of the arrow

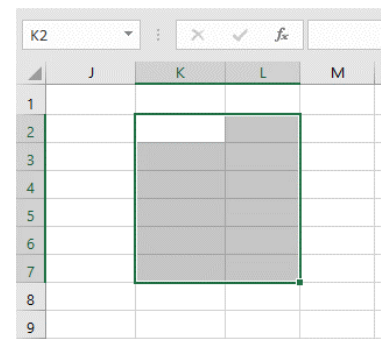
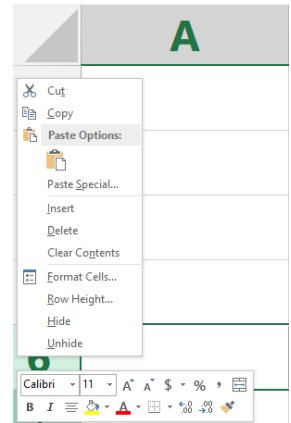
SHIFT+ARROW: Highlights one cell at a time in the direction of the arrow

CTRL+SHIFT+ARROW: Selects all cells from the active cell to the last non-blank cell the direction of the arrow

Move the contents of cells, rows, or columns by clicking and dragging the highlight that surrounds the selection

Press and hold the CTRL key and drag to copy

Press and hold the SHIFT key and drag rows and columns to move them



## Insert, Copy, and Group Worksheets

### Insert a Worksheet:

1. Click the tab of the worksheet you want to insert a worksheet after
2. Click the plus sign (+) to the right of the sheet tabs

### Move or copy a worksheet:

1. Right-click the tab for the worksheet to be moved or copied
2. Select Move or Copy
3. Select the destination workbook from the To Book dropdown menu (the current workbook is selected by default)
4. Select the worksheet position in the destination workbook in the Before Sheet panel
5. Leave the Create a Copy checkbox unchecked to move the sheet or Click the Create a Copy checkbox to copy the sheet
6. Click OK

You can also drag a sheet to move it. To copy a sheet quickly, press and hold the CTRL key on the keyboard while clicking and dragging the sheet tab to new location

### Rename a worksheet:

1. Double-click the tab for the sheet to be renamed
2. Type the new sheet name
3. Press Enter

## Hour 2 – Customize, Maneuver, and Modify

### Format Cells, Rows, and Columns

#### Resize Rows and Columns

Sometimes number formatting will make the data too wide to be displayed at the current column width. When this happens, Excel displays a series of number signs (#) instead of a truncated number. (This is done because the visible part of a truncated number might be mistaken for the complete number.) If number signs are displayed, either increase the column width or change the formatting of the number

Excel automatically adjusts row height to accommodate the size of data in a row, while column widths need to be adjusted manually. There are several ways you can change column widths:

You cannot change the height or width of an individual cell without it changing the entire row or column

#### Drag the Right Column Border

When you point to the border between two column headings, the pointer changes to a two-headed arrow. You can then drag the border to the left or right to decrease or increase the column width.

#### Double-click the Right Column Border

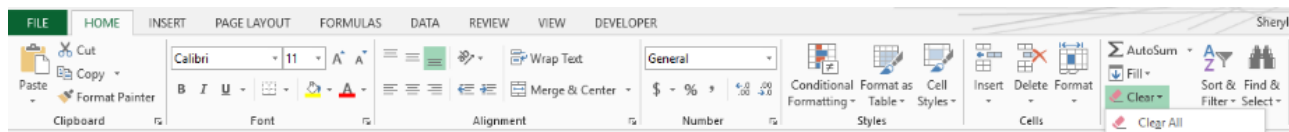
This automatically sizes the column to fit the widest data it contains

#### Set a Specific Numeric Column Size

To do this, right-click a column label (or select multiple columns and then right-click) and choose Column Width. Then enter a width value and click OK. The same options work for customizing row height.

#### Setting the Width of Multiple Columns

To set several contiguous columns to the same width, select the columns and then use one of the methods above to change the width. This method also works for setting row height.



#### Format Cells

The Styles and Cells groups on the Home tab allow you to adjust multiple aspects of cell formatting. For more options, click the Dialog Box Launcher in the lower right corner of a group.

Number tab in the Format Cells dialog box offers a variety of number formats, including dates, times, fractions, and scientific notation.

#### Cell Alignment

Cells in Excel can be aligned both vertically and horizontally in the Alignment Group on the Home tab. You can also change cell Orientation and indent.

## Merge Cells

The Merge & Center button centers data over a range of cells (instead of within a single column)

1. Select the cell containing the data you want to merge and center (If you have not yet typed the data, move to step 2)

2. Select the rest of the cells over which you want to center the data

3. On the Home tab in the Alignment group, click Merge & Center (You can enter data into the merged cells)

To unmerge, select the merged cell and click Merge & Center again

## Wrap Text

Click the cell or range of cells where you want the text wrapping to take place. On the Home tab, click Wrap Text.

Adjust the row height if needed

## Format Painter

Once a desired look has been achieved, it is easy to apply that same formatting to additional cells using a tool called the Format Painter

### Copy or paste formatting from one cell to another

1. Select the cell with the formatting to be copied

2. Click the Format Painter button in the Clipboard group on the Home tab

3. Select the cells to which the formatting should be applied

When you release the mouse, the Format Painter automatically turns off

### Copy or paste formatting several times:

1. Select the cells with the formatting to be copied

2. Double-click the Format Painter button in the Clipboard group of the Home tab

3. Select the cells to which the formatting should be applied

4. Repeat as many times as necessary

5. Turn off the Format Painter by pressing the ESC on the keyboard or Paste clicking the Format Painter button again

## Customize the Quick Access Toolbar

1. Click the Customize Quick Access Toolbar dropdown arrow

2. Take one of three actions:

a. Select an unchecked item to add

b. Select a checked item to remove

c. Select the More Commands option to view additional options

## Customize the Ribbon

1. Click the File tab

2. Choose Options

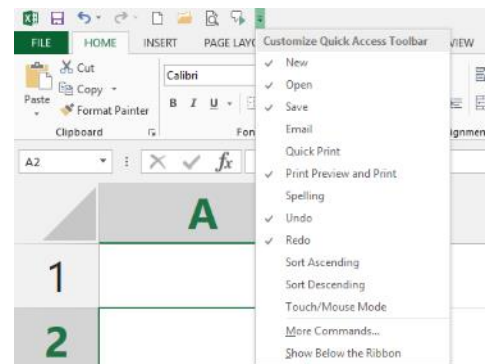
3. In the Options dialog box, select Customize Ribbon

4. Add or remove items (like the Developer tab)

## Customize the Status Bar

1. Right-click the Status Bar

2. Select an unchecked item to add or a checked item to remove





## Work with Multiple or Large Worksheets and Workbooks

### Group Sheets

1. Click the first sheet to be grouped
2. Select additional sheets to include in the group
  - Hold the SHIFT key on the keyboard while clicking a non-adjacent sheet to select both of the clicked sheets and all sheets between them
  - Hold the CTRL key on the keyboard while clicking to add individual sheets to the selection
3. Verify the grouped sheets are the ones intended
  - Grouped sheets are highlighted
  - The term [Group] appears in the Title Bar
4. Make changes to any grouped sheet to apply those modifications to all grouped sheets
5. Ungroup sheets to stop sharing changes
  - Click any ungrouped sheet
  - Right-click any grouped sheet and select Ungroup Sheets

### Window Workbooks and Worksheets

#### Hide Rows, Columns, and Sheets

To hide rows or columns:

1. Select a column heading or row heading, or drag across multiple column headings or row headings to make your selection
2. Right-click the selection and choose Hide

You can also select an individual cell or range and, on the Home tab, click Format (in the Cells group), choose Hide & Unhide, and then choose an option

When you want to use or view hidden rows or columns again, you can unhide them:

1. Select the rows or columns on both sides of the hidden row(s) or column(s)
2. On the Home tab, in the Cells group, click Format and choose Hide & Unhide; then choose Unhide Rows or Unhide Columns

#### Hide and Unhide Worksheets

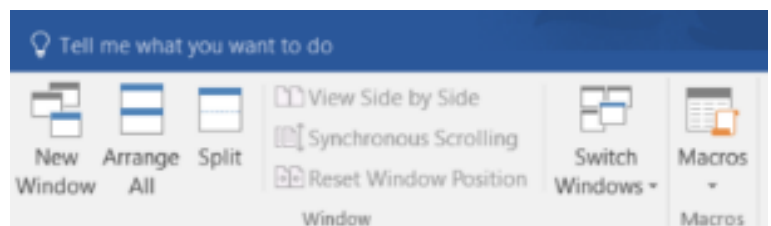
You can also hide and unhide entire worksheets. Simply right-click a worksheet tab and choose Hide. To unhide a worksheet, right-click the active worksheet tab and choose Unhide. Select the name of the hidden tab you want to show, and click OK

#### Split a Worksheet:

Click the View tab

Click Split in the Window group

Drag the split bar(s) to where you want to split the worksheet



To remove a split, double-click the split bar. You can remove both horizontal and vertical splits by clicking the Split button again

#### View Multiple Workbooks in the Same Window:

1. Open the workbooks you want to view
2. In the View tab, in the Window group, choose View Side-by-Side or Arrange
3. View Side by Side allows you to choose from open workbooks and use synchronous scrolling. Click it again to turn it off
4. Arrange automatically arranges all open workbooks and lets you choose the layout. Maximize the workbooks to turn it off

#### View Multiple Sheets in the Same Window:

1. Open the workbook that contains the sheets you want to view
2. In the View tab, in the Window group, click New Window to open another view of the same workbook. You can click it multiple times to get multiple views
3. Use View Side by Side or Arrange All to view the worksheets as explained above
4. You can edit in any window and, as long as you save changes, it will update the worksheets in the workbook

View Side by Side allows you to choose from open workbooks and use synchronous scrolling. Click it again to turn it off

Arrange automatically arranges all open workbooks and lets you choose the layout. Maximize the workbooks to turn it off

## Macros

A macro is a recording of keystrokes and mouse clicks that can be played back. Any set of tasks performed exactly the same way every time is a good candidate for a macro

### Create a Macro:

1. On the View tab, in the Macros group, click the Macros dropdown arrow and select Record Macro
2. Name the macro
3. Assign a shortcut key (optional)
3. Choose where the macro should be stored (the workbook where the macro is stored must be open for the macro to run)
  - a. Personal Macro Workbook (always available when you are logged in)
  - b. New Workbook
  - c. This Workbook (travels with the workbook)
4. Provide description (optional)
5. Click OK
6. Perform the commands you want to record
7. Go back to the Macros group on the View tab, and choose Stop Recording from the drop-down menu

### Run a Macro:

1. Select the View tab
2. Click the Macros button above the drop-down arrow
3. Select the macro you want from the Macro name list
4. Click Run

### Edit a Macro:

1. Go to the View tab
2. Click the Macros drop-down
3. Select View Macros
4. Select the macro you want to edit. (if the Macro is stored in the Personal Macro Workbook, you will need to unhide it from the Window group of the View tab)
5. Click Edit
6. Make text edits to the code
7. Close, and Return to Microsoft Excel

What kinds of things would recording a Macro work well for?

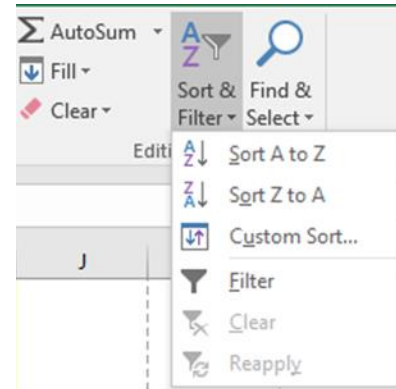
## Hour 3 – Create and Manipulate Reports

### Sort

You can sort data alphabetically, chronologically, or numerically

#### Quick Sort

1. Click a cell in the column by which the data should be sorted
2. Click the Sort & Filter drop-down in the Editing group on the Home tab
3. Select a sort method

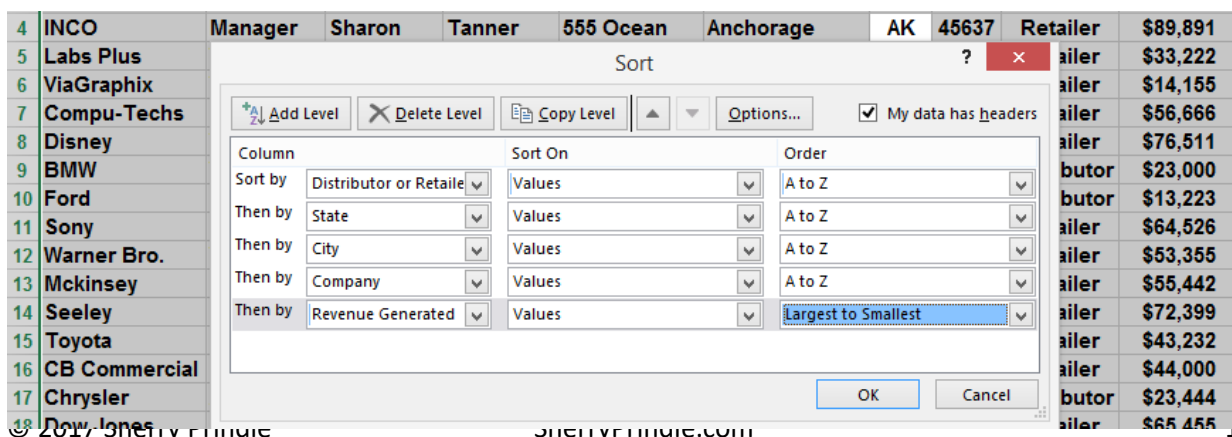
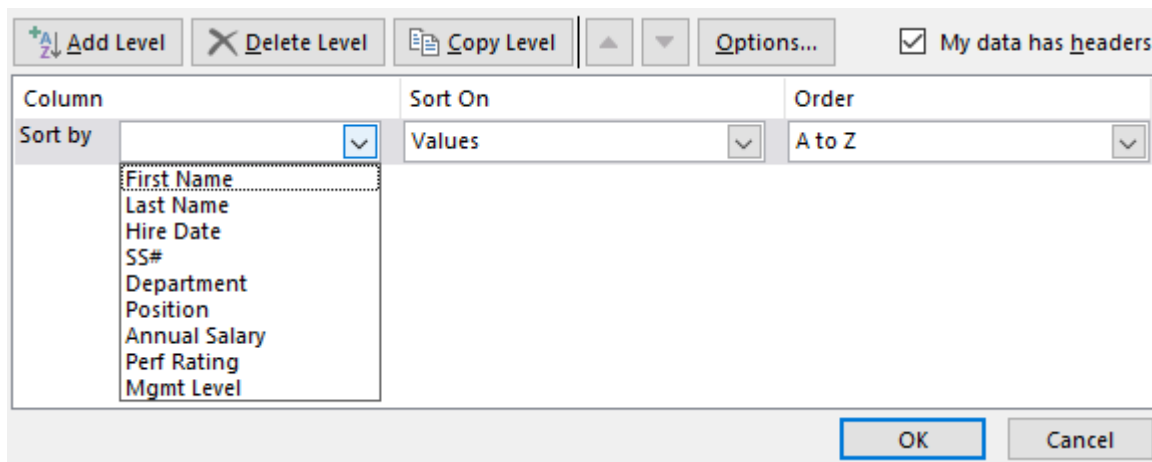


Or

1. Right-click any cell in the column by which the data should be sorted
2. Select Sort
3. Select a sort method

#### Multi-Level Sort

1. Click anywhere in the data to be sorted
2. Choose Custom Sort in the Sort & Filter drop-down in the Editing group on the Home tab
3. Choose the column and aspect you want to sort based on as well as the order
4. Repeat step 3 for multiple levels



## Filter – Query and Clean up

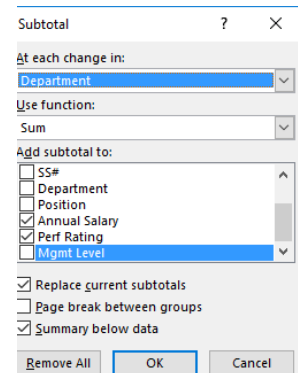
### AutoFilter:

1. Click any cell in the data
2. Click the Filter button in the Sort & Filter group on the Data tab of the Ribbon
3. Click the dropdown button at the top of the column to be filtered
4. Uncheck all but the desired range(s) from the Filters window
5. Click OK

### Subtotals

Excel can automatically calculate subtotals at every change of data in a key column

1. Sort a list by a key column
2. On the Data tab, in the Outline group, click Subtotal
3. Use dropdown arrows to configure desired settings
4. Click OK



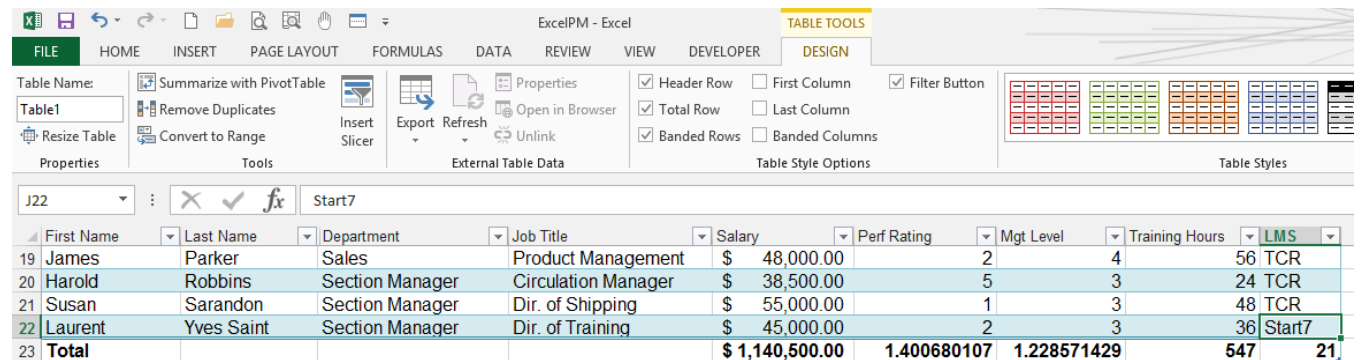
The Subtotal dialog box is shown with the following settings:

- At each change in: Department
- Use function: Sum
- Add subtotal to: SS#, Department, Position, Annual Salary, Perf Rating, Mgmt Level (all checked)
- Replace current subtotals: checked
- Page break between groups: unchecked
- Summary below data: checked

Buttons: Remove All, OK, Cancel

### Format As Table

On the Home ribbon, *Format as Table* automates alternate row shading, freeze panes, the filter, and adding a total row. Tab from the last data cell to add rows



The screenshot shows the Excel ribbon with the 'TABLE TOOLS' tab selected, specifically the 'DESIGN' sub-tab. The 'Table Name' is 'Table1'. The 'Table Style Options' section shows 'Header Row', 'Total Row', 'Banded Rows', and 'Filter Button' checked. The 'Table Styles' gallery is visible on the right. Below the ribbon, a table is displayed with the following data:

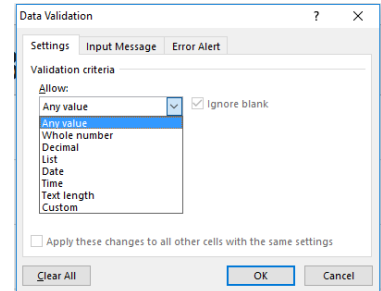
	First Name	Last Name	Department	Job Title	Salary	Perf Rating	Mgt Level	Training Hours	LMS
19	James	Parker	Sales	Product Management	\$ 48,000.00	2	4	56	TCR
20	Harold	Robbins	Section Manager	Circulation Manager	\$ 38,500.00	5	3	24	TCR
21	Susan	Sarandon	Section Manager	Dir. of Shipping	\$ 55,000.00	1	3	48	TCR
22	Laurent	Yves Saint	Section Manager	Dir. of Training	\$ 45,000.00	2	3	36	Start7
23	Total				\$ 1,140,500.00	1.400680107	1.228571429	547	21

1. Click any cell in the data to be converted to a list
2. On the Home tab, in the Styles group, click Format As Table
3. Select a formatting option
4. Click OK to confirm the data range
5. Review your completed table

## Data Validation

To ensure the proper type of data is being entered, Excel can validate it upon entry

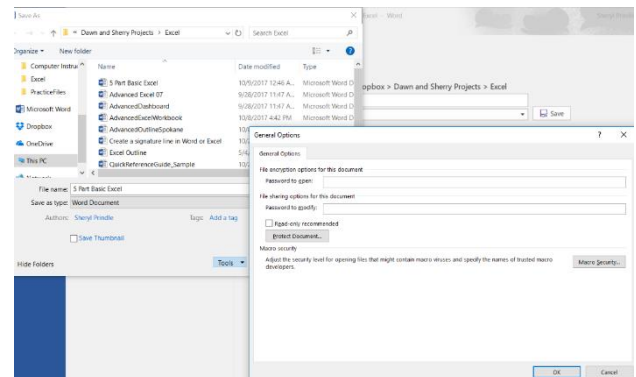
1. Highlight the cells where data validation will be applied
2. On the Data tab, in the Data Tools group, click Data Validation
3. Select the validation criteria
4. Provide any additional parameters
5. Create optional Input and/or Error Messages
6. Click OK



## Securing Data

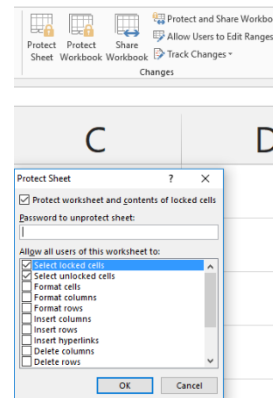
### File Protection:

1. Click File
2. Click Save As
3. Click Excel Workbook
4. Click the Tools dropdown arrow
5. Select General Options
6. Enter a Password to open and/or edit the workbook
7. Click OK



### Cell Protection:

1. Right-click the cells to remain editable
2. Select Format Cells
3. Click the Protection tab
4. Uncheck the Locked box
5. Click OK
6. Click the Review tab
7. Click Protect Sheet
8. Create and confirm a Password
9. Click OK



## **Print – Total Control of How It Shows Up on Paper**

### **Set a Print Area**

- 1 Select the range to be printed
- 2 On the Page Layout tab, in the Page Setup group, click Print Area and choose Set Print Area
- 3 Click the File tab and click Print to preview and verify that only the print area will be printed

### **Print Scaling and Orientation**

On the File tab, click Print to display your print options, which include page orientation, collation, paper size, margins, and scaling

You can also change these settings from the Page Layout tab

On the Page Layout tab, in the Scale to Fit group, you can fit spreadsheets to the desired width and number of pages. You can also adjust the percent of scaling

### **Margins**

On the Page Layout tab, in the Page Setup group, adjust margins to Normal, Wide, Narrow, or Custom

### **Print Titles**

If your data headings appear on only the first page, the data on the other pages will be hard to interpret. You can set Print Titles to specify which text should print as headings on all pages:

1. Click the Page Layout tab
2. In the Page Setup group, click Print Titles. The Page Setup dialog box opens with the Sheet tab active
3. Under Print titles, enter the range containing the titles that you want to print on each page. You can select the rows to repeat at the top of all pages, columns to repeat on the left side of all pages, or both
4. Click OK

### **Add Headers and Footers**

1. Click the Insert tab
2. In the Text group, click Header & Footer. Page Layout view is activated, with the Header & Footer Tools Design tab displayed. An empty header box appears in the top center of the first page
3. Add text and any other elements you want to include, or you can add items from the Header & Footer Elements group or use preset headers and footers

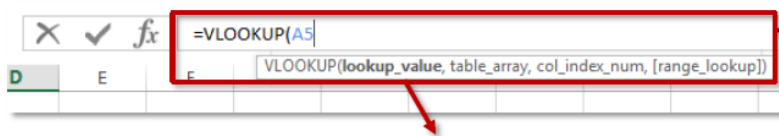
When you finish with the header or don't want one, click Go to Footer in the Navigation group, and follow the above steps to insert a footer

Edit or delete headers and footers manually by clicking into the header and footer area

## Hour 4 –Formulas and Functions

### Formula Syntax and Order of Operations

$$=9 + 3 * 4$$

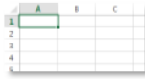


All Excel formulas start with a "=" and can either be selected from the formula library or typed directly into the formula bar

*As you begin to type a formula, a pop-up will appear to guide you through each step, shown in bold*

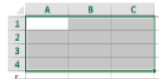
**A1**

**Single-cell references** describe a cell's location within a worksheet, in terms of the intersection between a column (A through XFD), and a row (1 through 1,048,576)



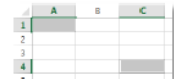
**A1:C4**

**Array references** describe a contiguous group of cells based on the location of the top-left (A1) and the bottom-right (C4) cells, separated by a ":"



**A1,C4**

**Non-contiguous references** describe selections of individual cells that do not share a common border, separated by a ","



Calculations are carried out according to the mathematical "Order of Operations"

1. Parentheses
2. Exponents
3. Multiplication and Division
4. Addition and Subtraction

If there is more than one instance of a type of calculation, Excel calculates from left to right

### Reference Cells

Reference cells in formulas by typing the cell reference or clicking on the cell to enter it into the formula

Compose a formula:

1. Type and equal sign (=)
2. Click the first cell
3. Type an operator (+ to add, - to subtract, \* to multiply, / to divide)
4. Click the next cell
5. Continue until the formula is complete, then press Enter to calculate and move the cursor down or Tab to calculate and move the cursor to the right



You can reference cells in other worksheets or workbooks just by clicking on them. Excel makes a notation in the formula that indicates where to find the cell using the following syntax:

Location	How it Appears	Example
Same worksheet as the formula	Row and Column Cell Reference	F7
Same workbook, different worksheet	Sheetname! CellReference	'Sales Total!' F7
Different workbook	[WorkbookName] SheetName! CellReference	'[Practice Files] Sales Total!' F7

Single quotes are needed if the name of the worksheet or workbook contains a space

### AutoFill Formulas - Relative Reference

1. Select the cell containing the formula
  2. Point to the fill handle until the pointer changes to a + symbol
  3. Click and drag the fill handle over the adjacent cells that you want to fill the formula into
- Excel adjusts the cell references in the formula relative to where you move it. If you fill down, the row reference adjusts, if you move across, the column reference changes. If you copy and paste a formula, both the row and column reference change relative to the distance the formula has been moved

### AutoFill Formulas - Absolute Reference

If you do not want the reference to a cell to change when you copy it to a new location, you can lock in the reference by making it absolute. The way to do this is to put a dollar sign in front of the reference you want to lock in. If you are referring to a single cell and do not want the reference to change no matter what direction it moves, lock it in by putting a dollar sign before BOTH the column and the row reference \$C\$4

You can also lock in just the row C\$4 or just the column \$C4

You can type the dollar signs or use F4 to toggle through the 4 types of reference: \$C\$4 C\$4 \$C4 C4

### Name Cells and Ranges

1. Select the cell(s) to be included in the named range
2. Click the Name Box
3. Type a name for the range
4. Press Enter

The cell or range can still be referred to by the row and column reference, but now it can also be referred to by its name

What is the advantage of naming a cell or range?

What are some situations where naming would come in handy?

### Excel Functions

A function is a pre-written formula. There are over 300 functions in Excel, and you can access them in the Formulas tab or by clicking Fx to the left of the Formula Bar

The most popular functions in Excel are SUM, AVERAGE, MAX, and MIN. You can access these on the Home tab by clicking the symbol for the Greek letter Sigma  $\Sigma$

To sum, average, find the highest number, or find the lowest number in a range:

1. Click the cell where you want the answer to appear (it doesn't have to be at the bottom or right of the range)
2. Click the Sum button (or one of the other functions from the drop-down arrow to the right of the Sum button)
3. Highlight the range you want to sum (Excel guesses for you, so make sure the selection is correct)
4. Press Enter

## Other Functions

Search functions by category in the Formulas tab or use the search box in the Insert Function dialog box, found by clicking Fx

You can compose a function inside the Insert Function dialog box. This is handy because Excel explains all the arguments in the formula and also inserts the proper punctuation for you

The screenshot shows the 'Function Arguments' dialog box for the IF function. The title bar reads 'Function Arguments' with a question mark and a close button. The function name 'IF' is displayed in the top left. The dialog contains three input fields: 'Logical\_test', 'Value\_if\_true', and 'Value\_if\_false'. Each field has a small icon to its right. To the right of each field is an equals sign followed by a description: '= logical' for Logical\_test, '= any' for Value\_if\_true, and '= any' for Value\_if\_false. Below these fields is a line of text: 'Checks whether a condition is met, and returns one value if TRUE, and another value if FALSE.' followed by a definition: 'Logical\_test is any value or expression that can be evaluated to TRUE or FALSE.' At the bottom left, it says 'Formula result =' followed by a blue hyperlink 'Help on this function'. At the bottom right are 'OK' and 'Cancel' buttons.

## Calculate Dates

Excel sees dates as numbers of days since January 1, 1900. Excel sees times as fractions of dates. This means you can easily calculate numbers of days between dates and number of hours or minutes between times

Use the **EOMONTH** function to calculate the last day of a given month, or to calculate the start/end dates of previous or future months

**=EOMONTH(start\_date, months)**

Reference to the cell containing the start/current date

Number of months before or after the start/current date (positive number yields a date in the future, negative number yields a date in the past)

	A	B	C
1			
2		Current Date:	8/3/2015
3			
4		End of month:	8/31/2015
5		Start of Month:	8/1/2015
6		Start of Next Month:	9/1/2015

→ =EOMONTH(C2, 0)  
→ =EOMONTH(C2, -1)+1  
→ =EOMONTH(C2, 0)+1

**YEARFRAC** calculates the fraction of a year represented by the number of whole days between two dates

**=YEARFRAC(start\_date, end\_date, [basis])**

Reference to the cell containing the start date

Reference to the cell containing the end date

Option specify the type of day count to use:

- 0 (default) = US (NASD) 30/360
- 1 = actual/actual (**RECOMMENDED**)
- 2 = actual/360
- 3 = actual/365
- 4 = European 30/360

	A	B
1		
2	Start Date:	1/1/2015
3	End Date:	2/28/2015

} =YEARFRAC(B2, B3, 1) = 15.9%  
=YEARFRAC(B2, B3, 2) = 16.1%



**PRO TIP:**  
YEARFRAC is a great tool for pacing and projection calculations

The IF Function =IF (Logical Test, Value if True, Value if False)

The IF function is the function that allows many other functions to work correctly. How many times do you have everything set, then you realize there is a caveat or exception?

Let's say I ask the class, "If you have never used Excel before, raise your hand. Those who have used Excel, use the distance between your finger and thumb to indicate the level of knowledge you feel you have." That is an IF function where the Logical Test = Have Never Used Excel before, the Value if True = Raise Your Hand, and the Value if False = Use the distance between your finger and thumb to indicate your level of knowledge

## Hour 5 – Shortcuts, Tips, and Tricks

### 24 Popular Keyboard Shortcuts

Cut – Ctrl X	Insert Row(s) – Alt IR	Create Chart – F11	Scroll Sheets – Ctrl PgUp
Copy – Ctrl C	Insert Column(s) – Alt IC	Filter – Ctrl Shift L	Save – Ctrl S
Paste – Ctrl V	AutoSum – Alt =	Paste Special – Alt H V	Open – Ctrl O
Undo – Ctrl Z	Print Preview – Ctrl F2	Switch Windows – Alt Tab	Save As – F12
Redo – Ctrl Y	Select All – Ctrl A	In-Cell Return – Alt Enter	Spell Check – F7
Repeat – Ctrl F4	Show Formulas – Ctrl ~	<b>B</b> , <b>I</b> , <b>U</b> – Ctrl B, I, U	Help – F1

#### Freeze panes:

1. Click in the cell beneath the row and/or to the right of the column to freeze
2. On the View tab, in the Window group, click the Freeze Panes drop-down arrow and select Freeze Panes

#### To unfreeze panes:

1. Click in the cell beneath the row and/or to the right of the column to freeze
2. On the View tab, in the Window group, click the Freeze Panes drop-down arrow and select Unfreeze Panes

#### Insert Comments

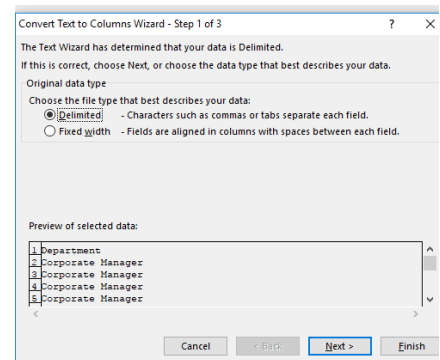
1. Select the cell you want to add a comment to
  2. In the Review tab or right-click menu, click Insert Comment
  3. Type the comment
  4. Leave the cell
  5. A red triangle indicates the cell contains a comment
- Hover over the cell to view the comment. Right click to edit or delete the comment

#### Text Functions

There is little more frustrating than to finish a project and then realize that an important data formatting requirement was overlooked. Fortunately, Excel is equipped with functions that can make tedious changes quickly and easily

#### Convert Text to Columns:

1. Select the column to be split
2. On the Data tab, in the Data Tools group, click Text to Columns
3. Select the Delimited radio button
4. Click Next
5. Select the Delimiter(s)
6. Click Finish
7. Review your split columns



## Use Paste Special:

One of Excel's most useful editing tools is Paste Special. This function provides access to a variety of options regarding how and what is pasted after data is cut or copied

1. Select and copy a range of cells
2. Right-click the destination cell, and choose Paste Special
- Caution: Be sure to select an empty area of a worksheet to paste into, or that the appropriate cells will be pasted over. By default, copied ranges will paste over the same number of cells starting with the selected cell and moving to the right and down
3. Select Paste Special
4. In the Paste Special dialog box, choose the desired options
5. Click OK

## Transpose Data

1. Copy the data to be transposed (without merged title cells)
2. Click the target location
3. Right Click > Paste Special > Transpose
4. Delete the old rows

If the formatting is not right, use *Paste Special* again and choose *Formats* or . . .

First Quarter Sales				
	January	February	March	Total Sales
California	\$9,700.00	\$6,887.00	\$7,954.00	\$24,541.00
Florida	\$5,774.00	\$16,912.00	\$6,349.00	\$29,035.00
Georgia	\$4,712.00	\$5,330.00	\$1,990.00	\$12,032.00
Indiana	\$9,957.00	\$3,778.00	\$5,555.00	\$19,290.00

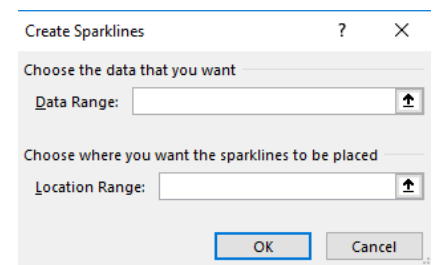
  

	California	Florida	Georgia	Indiana
January	\$9,700.00	\$5,774.00	\$4,712.00	\$9,957.00
February	\$6,887.00	\$16,912.00	\$5,330.00	\$3,778.00
March	\$7,954.00	\$6,349.00	\$1,990.00	\$5,555.00
Total Sales	\$24,541.00	\$29,035.00	\$12,032.00	\$19,290.00

## Sparklines

Sparklines are word-sized charts you can add into specific cells in this way:

1. Select the data range you want the small chart to be based on
  2. In the Insert tab in the Sparklines group, select the Line, Column, or Win/Loss style
  3. In Location Range, indicate the cell where you want the Sparkline to appear
- To remove a Sparkline, right-click the cell, and in the Sparklines arrow, choose Clear



## Name Cells and Ranges

1. Select the cell(s) to be included in the named range
2. Click the Name Box
3. Type a name for the range
4. Press Enter

The cell or range can still be referred to by the row and column reference, but naming makes it absolute throughout the whole workbook

## Absolute Reference

If you do not want the reference to a cell to change when you copy it to a new location, you can lock in the reference by making it absolute. The way to do this is to put a dollar sign in front of the reference you want to lock in. If you are referring to a single cell and do not want the reference to change no matter what direction it moves, lock it in by putting a dollar sign before BOTH the column and the row reference \$C\$4

You can also lock in just the row C\$4 or just the column \$C4

You can type the dollar signs or use F4 to toggle through the 4 types of reference: \$C\$4 C\$4 \$C4 C4

The IF Function =IF (Logical Test, Value if True, Value if False)

The IF function is the function that allows many other functions to work correctly. How many times do you have everything set, then you realize there is a caveat or exception?

## VLOOKUP Function

The VLOOKUP function searches for a value in the leftmost column of a table and returns a value in the same row from a specified column in the table.

=VLOOKUP (WHAT, WHERE, WHICH)

What = What are you looking up based on?

Where = Where are you looking it up? (Highlight [and name] the table)

Which = Which column number (in your table) do you want to return data from?

An optional fourth argument allows you to input, "FALSE: if an exact match is required.

## Pivot Tables

You can take your spreadsheet apart column by column and put it back together in any configuration you want. Pivot Tables allow you to analyze and recombine data into reports and charts.

1. Select one cell within the data
2. Click Insert > Pivot Table > OK
3. Check or drag items in the *Field List* to the *Row*, *Filter*, *Column*, or *Values* areas

The screenshot shows an Excel spreadsheet with a PivotTable. The PivotTable is titled 'Sum of Salary' and has 'Department' as the row label and 'Job Title' as the column label. The values are summed. The PivotTable Fields task pane is open on the right, showing the fields assigned to each area: ROWS (Department), COLUMNS (Job Title), and VALUES (Sum of Salary). A 'Grouping' dialog box is open over the PivotTable, showing options for starting and ending rows and columns.

Right click *Values* column headers to change the operation

Right click row and column headers to see Group options

Explore the *Pivot Table Tools Analyze and Design* ribbons for options such as:

Create Pivot Chart

Hide Field List

Insert Slicer

Adjust Layout

The screenshot shows an Excel spreadsheet with a PivotTable. The PivotTable is titled 'Sum of Salary' and has 'Department' as the row label and 'Job Title' as the column label. The values are summed. The PivotTable Fields task pane is open on the right, showing the fields assigned to each area: ROWS (Department), COLUMNS (Job Title), and VALUES (Sum of Salary). A right-click context menu is open over the 'Sum of Salary' column header, showing options like 'Sum', 'Count', 'Average', 'Max', 'Min', 'Product', and 'More Options...'.

## Conditional formatting

- 1 Select the cell or range containing the values to which you want to apply conditional formatting
- 2 In the Styles group, click Conditional Formatting
- 3 Do one of the following:

Choose a condition and rule from the menu

Choose New Rule. Then specify a condition and format in the New Formatting Rule dialog box

*In this example we're formatting the cells in columns B through H with a green fill and bold text, but only when the state name is equal to the value in cell \$C\$2*

*Note that the row label is relative (no "\$"), which allows us to apply this formatting to other rows without losing functionality*

State	Population	Student Pop.	SAT Participation Rate	Mean Verbal Score	Mean Math Score
Alabama	4447100	177884	9%	559	554
Alaska	626932	12539	51%		
Arizona	5130632	102613	34%		
Arkansas	2673400	53468	6%		
California	33871648	1016149	51%		
Colorado	4301261	172050	31%		
Connecticut	3405565	102167	82%		
D.C.	783600	23508	56%		
Delaware	572059	17162	67%		

**Edit Formatting Rule**

Select a Rule Type:

- Format all cells based on their values
- Format only cells that contain
- Format only top or bottom ranked values
- Format only values that are above or below average
- Format only unique or duplicate values
- Use a formula to determine which cells to format

Edit the Rule Description:

Format values where this formula is true:

= \$B6:\$H6= \$C\$2

Preview: AaBbCcYyZz

OK Cancel