# Even More Excel

- ▶ Advanced features of EXCEL

- Cell Naming, Moving
- Mathematics + Functions
- Multiple Worksheets
- Macro uses, Visual Basic
- Online Tutorials

- ▶ You can do more with the many uses and features

## More Excel Topics

- Cell References:
  - ○ Relative
  - ○ Absolute Column, Absolute Row, Absolute

- Basic Calculations:
- Symbols * / + -
  - ○ Order of calculation
  - ○ Parenthesis to express meaning
  - ○ Adding cell references

- Built in Functions: Sum, Left Right, Concatenate

- Macros: Enable use, workbook properties, protection levels
- Recording a Macro with examples:

- Visual Basic for the adventurous

## Cell References

▸ A cell is referred to by '**column','row'**
▸ Example **A1** is the top leftmost cell

▸ This is a <u>Relative</u> reference.
▸ You can tie it to a specific column with $
  ◦ $A1 means always column A
▸ Or you can tie it to a specific row
  ◦ A$1 means always row 1
▸ $A$1 would be absolute column and row.

▸ Relative references change when a formula is copied to another cell. Absolute references, on the other hand, remain constant no matter where they are copied.

## Basic Calculations:

▸ Basic Arithmetic Operators:  * / **+ - ****
▸ * Multiply
▸ / Divide
▸ + Add
▸ – Subtract
▸ ** Exponentiation

Excel calculates Multiplication and Division first, then Addition and Subtraction.

Thus: 3+2*5–1=12. You can enforce order with parentheses ( ).

Now an example using all of this.  (Calorie Calc)

## Multiple Worksheets

- It is simple to add additional worksheets to a workbook. Click on the 'Insert Worksheet (Shift+F11)' icon ⬚ on the bottom worksheet line.
- You can assign a name with a right click on the new 'Sheet#' and select 'Rename'.
- Similarly you can create copies of a worksheet perhaps to create on for each month.
- Cell references may be cross sheet.

## Built in Functions

- A **function** is a **predefined formula** that performs calculations using specific values in a particular order. Excel includes many common functions that can be used to quickly find
  the **sum**, **average**, **count**, **maximum value**,
  and **minimum value** for a range of cells. In order to use functions correctly, you'll need to understand the different **parts of a function** and how to
  create **arguments** to calculate values and cell references.
- There are hundreds of built in Excel functions and here are some common ones.

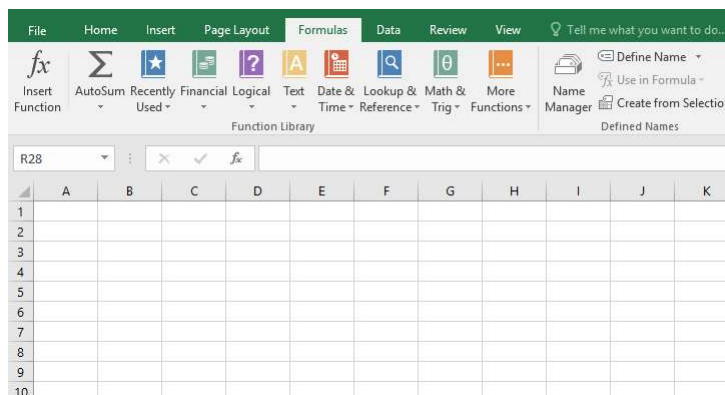| Function | Description |
|---|---|
| SUM function | Use this function to add the values in cells. |
| IF function | Use this function to return one value if a condition is true and another value if it's false. Here's a video about using the IF function. |
| LOOKUP function | Use this function when you need to look in a single row or column and find a value from the same position in a second row or column. |
| VLOOKUP function | Use this function when you need to find things in a table or a range by row. For example, look up an employee's last name by her employee number, or find her phone number by looking up her last name (just like a telephone book). Check out this video about using VLOOKUP. |
| MATCH function | Use this function to search for an item in a range of cells, and then return the relative position of that item in the range. For example, if the range A1:A3 contains the values 5, 7, and 38, then the formula =MATCH(7,A1:A3,0) returns the number 2, because 7 is the second item in the range. |
| CONCATENATE | Use this to combine multiple cells, ranges, or strings of data into one cell. The most common use of this function is to combine first and last name into one cell or join the city, state, and ZIP code into one cell. |

# The parts of a function

▸ In order to work correctly, a function must be written a specific way, which is called the syntax. The basic syntax for a function is the equals sign (=), the function name (SUM, for example), and one or more arguments.

▸ Arguments contain the information you want to calculate. The function in the example below would add the values of the cell range A1:A20.

*Equals sign*

=SUM(A1:A20)

*Function name*    *Argument*

- ▸ Arguments can refer to both individual cells and cell ranges and must be enclosed within parentheses. You can include one argument or multiple arguments, depending on the syntax required for the function.
- ▸ Multiple arguments must be separated by a comma. For example, the function =SUM(A1:A3, C1:C2, E1) will add the values of all of the cells in the three arguments.



# The Function Library



You can insert a function that you know, or select one from a group. See the reference tutorial for more detail

## Show the Developer tab for Macros

The **Developer** tab isn't displayed by default, but you can add it to the ribbon.
- On the **File** tab, go to **Options** > **Customize Ribbon**.
- Under **Customize the Ribbon** and under **Main Tabs**, select the **Developer** check box.
- After you show the tab, the **Developer** tab stays visible, unless you clear the check box or have to reinstall a Microsoft 365 program.
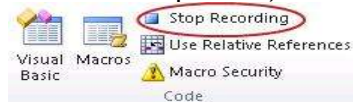


- The **Developer** tab is the place to go when you want to do or use the following:
- Write macros.
- Run macros that you previously recorded.

## Record a macro

- In the Code group on the Developer tab, click Record Macro.
- Optionally, enter a name for the macro in the Macro name box, enter a shortcut key in the Shortcut key box, and a description in the Description box, and then click OK to start recording.



- Perform the actions you want to automate, such as entering boilerplate text or filling down a column of data.
- On the Developer tab, click Stop Recording.



Stop Recording

## Now Some Examples

▸ Schedule Workbook Revision

▸ Highlight Alternate Rows

▸ Excel macro to insert a column before "A" and number the first 50 cells

## References:

▸ Online Tutorials:
▸ https://edu.gcfglobal.org/en/excel/
▸ https://support.microsoft.com/en-us/office/excel-video-training
▸ https://www.pcworld.com/article/402534/excels-top-12-most-popular-formulas-with-examples.html
▸ Excel Macro Examples:
▸ https://excelchamps.com/blog/useful-macro-codes-for-vba-newcomers/
▸ https://exceloffthegrid.com/excel-vba-macros/