

# M365 Excel Basics Video 01: Introduction to Excel

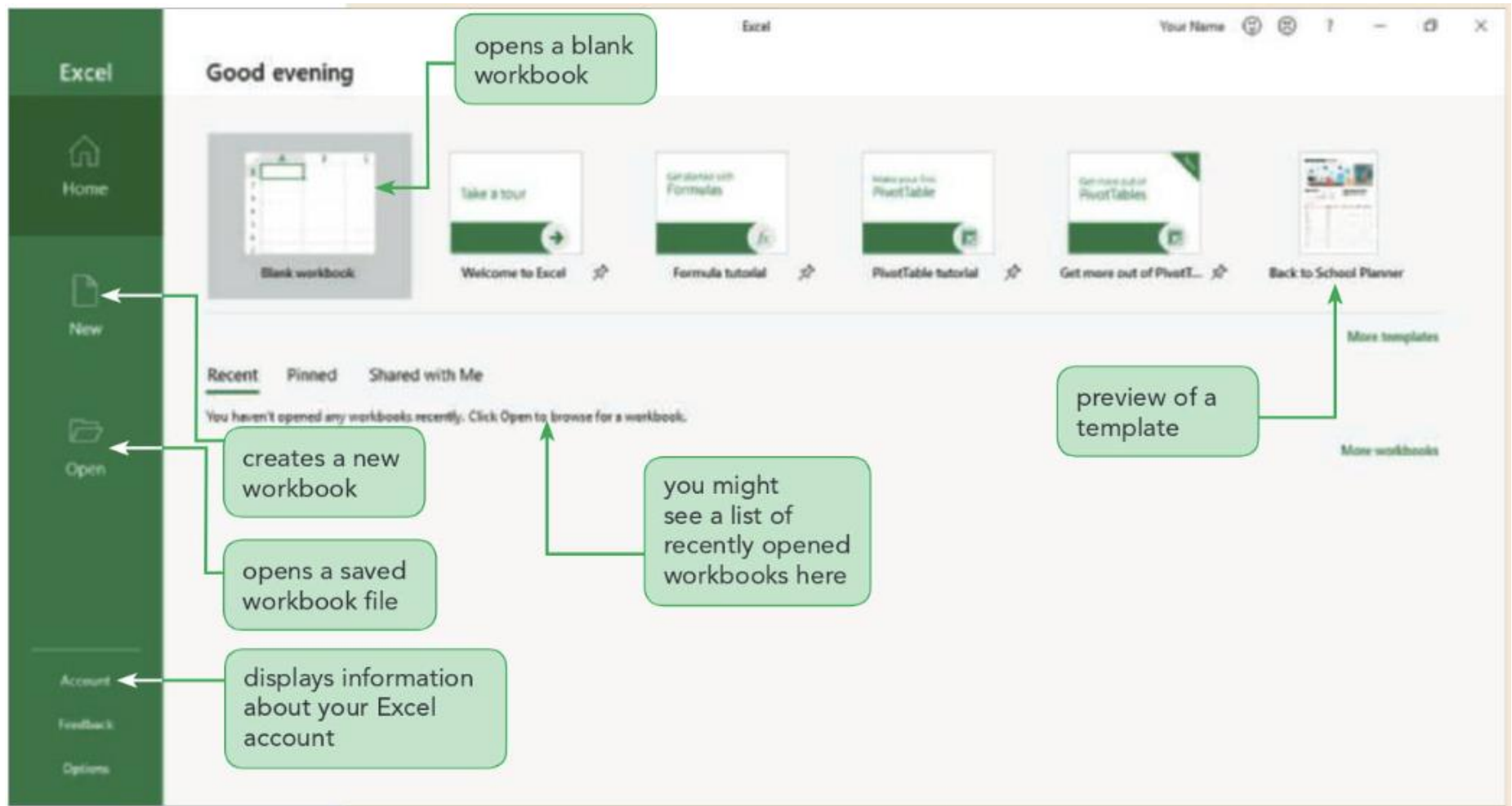
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## Topics Covered in M365 Excel Basics Video 1

- Introducing Microsoft Excel - Start a new Excel workbook
- Visual Overview - Ribbon, Tabs, groups, buttons, Naming a workbook, Columns headings, Rows headings, Cells, name box, formula bar
- Workbook - Saving a new workbook
- Worksheet - Name/Rename, add, move and delete
- Entering Data - Text, Numbers, Boolean, Empty Cell
- Autofill
- Wrap Text - cannot wrap numbers
- Adjusting column widths and Rows
- Inserting and Deleting Columns and Rows
- Cell Reference
- Cell Range or Range Reference
- Formulas
- What Excel does: Calculations, Data Analysis
- Cursors - different type of cursors - Selection, moving and copying
- Keyboard shortcuts
- Minimizing, restoring and Closing Buttons
- Number Formatting
- Formatting a Worksheet
- Page setup and printing

### Visual Overview - Workbook - Saving a new workbook, Backstage View



Visual Overview - Ribbon, Tabs, groups, buttons, Columns headings, Rows headings, name box, formula bar

**Tabs** – Ribbon is organized in Tabs, and each Tab has a group of related commands for particular tasks.

**Groups** – Contains buttons for related commands on each of the Tabs.

**Workbook** – A collection of sheets within a single file. The name of the current workbook will appear in the title bar.

**Search Box** – Used to find a command or access the Office Help system.

**Ribbon** – contains grouped command buttons and you click these buttons to execute commands.

**Name Box** – Displays the cell reference of the active cell.

**Formula Bar** – Displays what is in the active cell. You can enter or edit data in the active cell from the formula bar.

**Column headings** – Letters in boxes along the top of the workbook window that identify the worksheet columns.

**Row headings** – Numbers in boxes along the left side of the workbook window that identify the worksheet rows.

## Visual Overview - Minimizing, restoring and Closing Buttons

The image shows the top portion of a Microsoft Excel window. The title bar is dark green and contains four window control buttons: Ribbon Display Options (four squares), Minimize (horizontal line), Maximize (two squares), and Close (X). Below the title bar is the ribbon, which is divided into several tabs: 'Comments' and 'Share'. The 'Cells' tab is active, showing icons for Insert, Delete, and Format. Other tabs include 'Editing' (with AutoSum, Fill, and Clear), 'Analysis' (with Sort & Filter, Find & Select, and Analyze Data), and 'Sensitivity' (with Sensitivity). The spreadsheet grid is visible below the ribbon, with columns labeled U, V, W, X, Y, Z, AA, AB, and AC.

**Ribbon Display Options Button** – used to show or hide the ribbon and its tabs and commands.

**Minimize Button** – reduces the window so that its program icon is visible on the taskbar.

**Restore Down Button** – returns a window to its previous size. If the **Maximize Button** appears, it expands the window to fill the entire screen.

## Visual Overview: Structure of an Excel Worksheet

### Excel Layout

Excel Layout:
Column Headers = Letters, like Column D, 16,384 columns
Row Headers = Numbers, like row 20, 1,048,576 rows
Cells = Intersection of Column and Row, like cell D20 – this intersects in Column D and Row 20, 16,384*1,048,576 = 17,179,869,184 cells
Horizontal & Vertical Scroll Bars & Buttons = Expose more rows or columns of cells
Worksheets = Sheet = All the Cells
Sheet Tab Names = Name of Sheet, like the name of this sheet "Structure" (see the workbook)
Active Sheet is the Worksheet that is Selected
Double-click Sheet Tab to rename. ALWAYS name a sheet so that it communicates the purpose of the sheet. DO NOT use default names Sheet1, Sheet2
Right-click Sheet Tab, Tab Color to add color to Sheet Tab
Workbooks = All Worksheets (later we will see that a workbook can contain other objects like a Data Model or Query)
File = Workbook, like this workbook file that is named "M365 Excel Basics Video 1.xlsx"
Ribbon Tabs = contains commands. Keyboard to show or hide Ribbon: Ctrl + F1 (toggle)
Quick Access Toolbar = QAT = contains commands Right-click features in Ribbon Tabs, Add To QAT
Right-click QAT to move below or above Ribbon







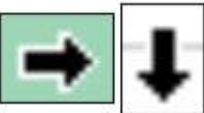



### Navigate a New Worksheet

Navigate to new Worksheets:
1) Click Sheet Tab = Activates a Worksheet
2) Worksheet Scroll Arrow exposes more Worksheets without moving Active Worksheet
3) ... icons selects next hidden worksheet to make it the Active Worksheet
4) Activate dialog box (right-click Worksheet Scroll Arrows)
5) Keyboard to Move Active Sheet = Ctrl + PageDown (Right) or PageUp (Left)

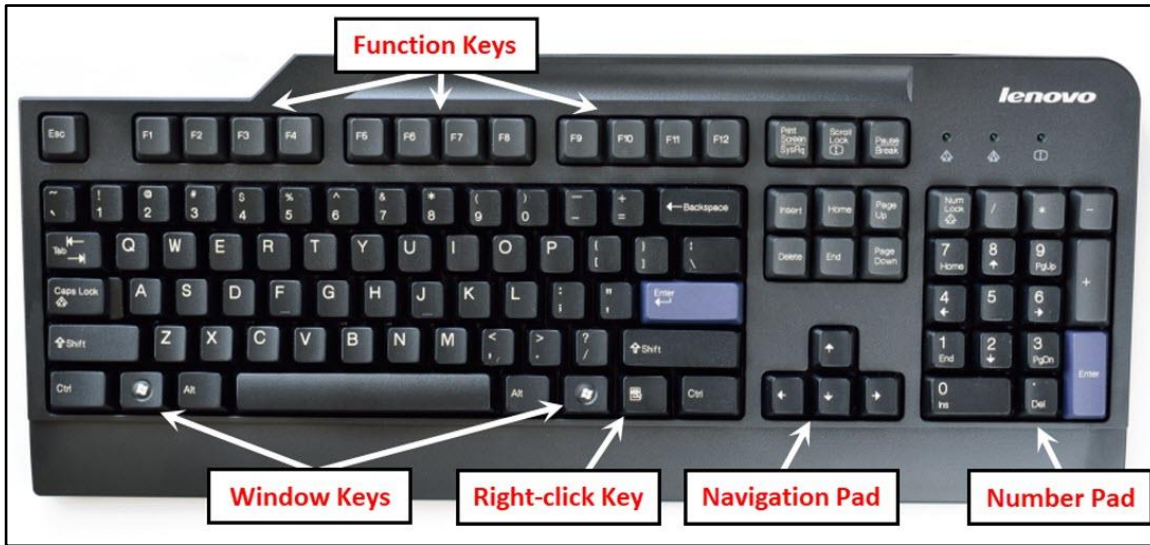
Workbook = Spreadsheet

Workbook ≠ Worksheet

Cursors: Different Types of Cursors

<b>Selection Cursor:</b>		Used to select a cell or range of cells in worksheet or formula.
<b>Move Cursor:</b>		Used to move a cell or range of cells.
<b>Fill Handle:</b>		Allows you to increment data or copy cell content such as text or formulas.
<b>Angry Rabbit (Cross Hair) Cursor:</b>		Grab Fill Handle to increment data or copy cell content.
<b>Change Column Width Cursor:</b>		Changes width of column.
<b>Change Row Height Cursor:</b>		Changes height of row.
<b>Selection Row or Column Cursor</b>		Selects entire row or column.
<b>Select Command Button</b>		Selects commands buttons and other objects.
<b>I Beam Cursor</b>		Allows you to click in a cell that is in Edit Mode.
<b>Insertion Point Cursor</b>		Shows position where you can type when in cell is in Edit Mode.

# Visual Overview: Keyboard Pictures





# Entering Data in Excel

Types of Data you can have in Excel

Data Types in Excel	Default Alignment	Example1	Example2	Example3	
Text Values	Left	Excel	13/01/23	3:45pm	
Number Values	Right	3.45	1/13/2023	3:45:00 PM	<<== In Excel Dates and Times are Numbers
Logical Values (Boolean)	CENTRED AND CAPITALIZED	TRUE	FALSE	TRUE	
Formula Errors	CENTRED AND CAPITALIZED	#VALUE!	#DIV/0!		
Empty Cells					<<== Not really a Data Type, but it is a "thing" in Excel that can sometimes cause problems.
					**Refer to Empty Cells as "Empty Cells", not blanks.

**Important Rule for entering data:**

Don't use Alignment. Always keep Default Alignment.

Default Alignment in Excel is important as it helps to track down errors

**Example 1:** Numbers that have the Excel Default Alignment:

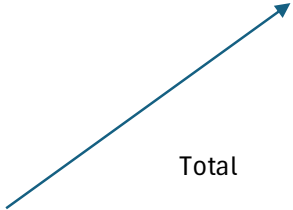
Sales
171.25
40.97
151.29
141.05
98.99
603.55

<<== Excel sees these as Numbers

**Example 2:** Numbers aligned as Text

Sales
171.25
40.97
151.29
141.05
98.99
0

<<== Excel sees these as Text



\*The immediate visual cue is that the numbers are NOT aligned right

Common mistake made in the working world:

\*The numbers are NOT aligned right

Date	Units Purchased	Cost	Units Sold	Price	Running Balance
Balance Forward:					159
10/30/2022			48	\$25.50	111
11/30/2022	299	\$11.55			410
12/30/2022			190	\$24.35	220
1/31/2023		79	24	\$27.00	275
2/27/2023	250				525
3/31/2023		300			825

<b>SUM:</b>
379

# What Excel Does

What does Excel do:

- Store Data
- Make Calculations
- Perform Data Analysis

# What Excel Does

## 1) Store data

Date	SalesRep	Sales (\$)
5/10/2023	Cinderelli	1,605
4/29/2023	Cinderelli	3,677
3/29/2023	Miles	4,272
6/20/2023	Tiana	5,308
5/3/2023	Miles	6,745
4/8/2023	Tiana	4,532
1/14/2023	Tiana	3,152
1/21/2023	Miles	1,609
1/13/2023	Miles	679
1/6/2023	Tiana	4,829
4/15/2023	Miles	2,981
6/5/2023	Miles	6,269
6/18/2023	Tiana	6,948
6/1/2023	Tiana	7,224
4/30/2023	Miles	1,856
4/11/2023	Miles	3,939
6/25/2023	Tiana	3,835
3/9/2023	Tiana	2,201
6/12/2023	Miles	6,083
2/7/2023	Miles	67
4/29/2023	Cinderelli	6,476
3/27/2023	Cinderelli	2,860
5/23/2023	Cinderelli	6,305
5/3/2023	Cinderelli	3,621
6/12/2023	Miles	6,344
2/3/2023	Miles	1,797

## 2) Make calculations

Average Sale	\$3,593.30
Total Sale	\$650,386.69

## 3) Perform data analysis

Converting data into useful information to gain insight and make decisions

Visualization = quick visual impression

Report = all the detail

Months	Sum of Sales (\$)
Jan	\$66,562.44
Feb	\$75,206.29
Mar	\$65,083.32
Apr	\$125,248.28
May	\$126,241.10
Jun	\$192,045.26
<b>Grand Total</b>	<b>\$650,386.69</b>

Report in a PivotTable

Sales Rep	Sum of Sales
Cinderelli	\$217,597.00
Tiana	\$209,433.76
Miles	\$223,355.93
<b>Total Sales</b>	<b>\$650,386.69</b>

Report in a Table

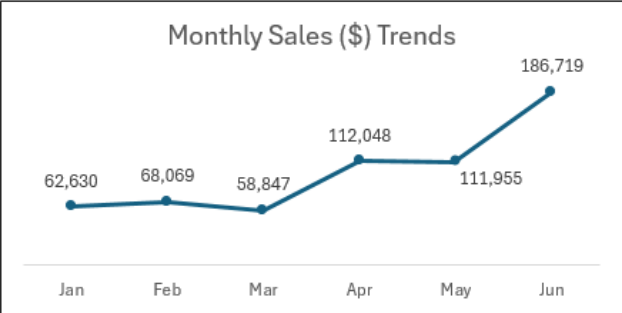


Chart for visualizing data

## Formulas and Formatting

Create a GradeBook for Summer Quarter

Enter Date as seen on the picture below or as seen on the video “M365 Excel Basics Video 1”.

GradeBook for Summer Quarter								
Name	Quiz 1	Quiz 2	Quiz 3	Quiz 4	Test 1	Test 2	Test 3	Test 4
Maximum Possible Points	30	30	30	30	100	100	100	100
Faith	27	18	30	29	70	88	50	100
Mason	15	13	19	10	88	76	72	80
Carmen	21	24	27	30	88	98	100	95
Miles	10	20	20	17	99	99	70	100
Marcus	13	22	12	28	60	70	93	100
Violet	17	18	10	22	65	63	81	100
Cecelia	18	24	30	27	79	98	96	99
RoseMary	20	15	18	27	76	95	80	100
Kaitlyn	28	29	21	16	73	100	100	100

### How to Format:

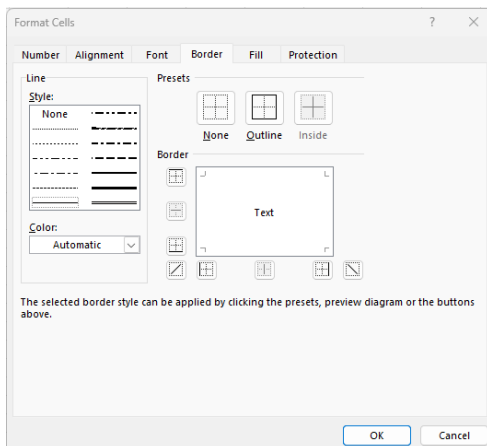
#### Add Borders:

Select the cells that you would like to add borders to

- Go to the Ribbon, on the Home Tab, Font Group, click the All Borders Button Arrow and select All Borders or the type of Borders that you would like to add to your table.

Or

- Use the Keyboard shortcut CTRL +1 to open the Format Cells Dialog Box
- Select the Border Tab
- Select the Line Style that you would like to use
- Select the Color if you would like a different color by clicking on the arrow on the color box [optional]. Default color is Black.
- Click on the Border buttons or inside the Border Box on where you would like your borders to be added.
- Click OK to add the Borders that you have selected and to close the Format Cell dialog box.



## Add Fill Color and Change Font

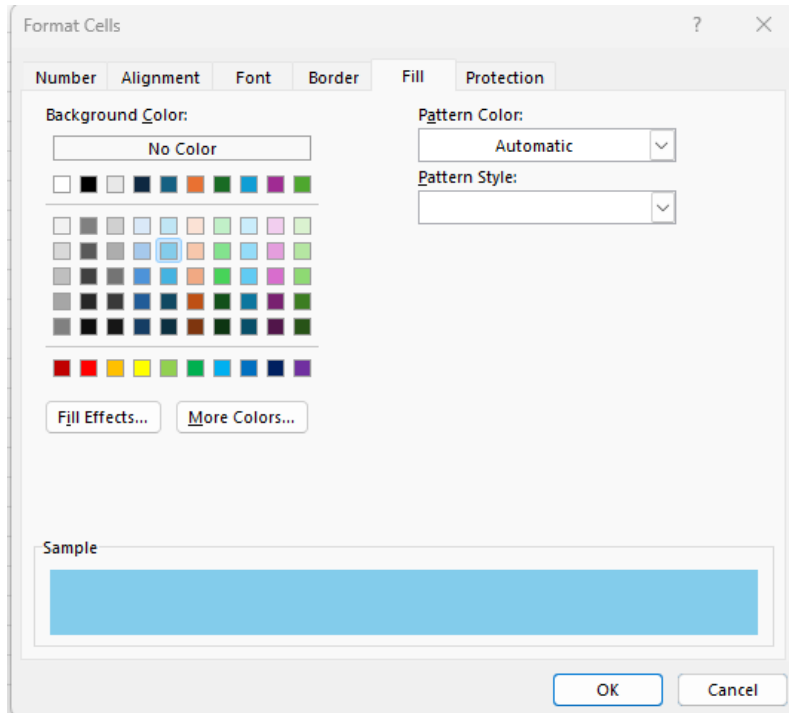
### Add Fill Color

Select the cells that you would like to add Fill Color to

- Go to the Ribbon, on the Home Tab, Font Group, click the Fill Color Button Arrow and select the color that you would like to add to format the selected cells.

Or

- Use the Keyboard shortcut CTRL +1 to open the Format Cells Dialog Box
- Select the Fill Tab
- Select the Color that you would like to use
- Click OK to add the color that you have selected and to close the Format Cell dialog box.



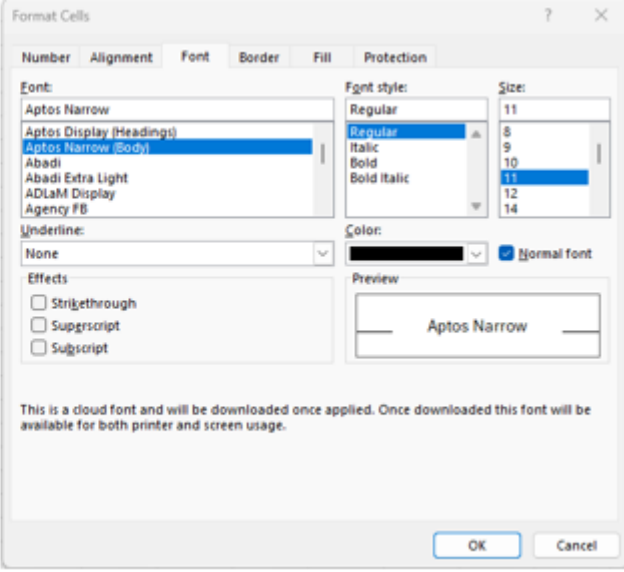
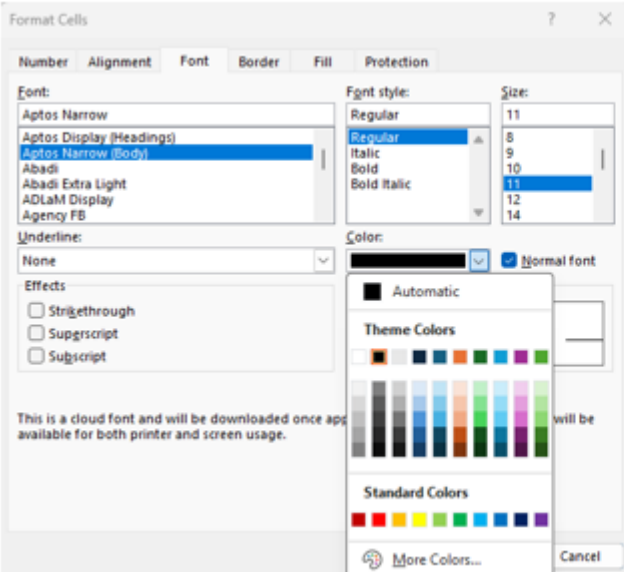
### Change Font Color, Type, Style and Size

Select the cells that you would like to change Font Color to

- Go to the Ribbon, on the Home Tab, Font Group, click the Font Color Button Arrow and select the color that you would like to change format the selected cells.

Or

- Use the Keyboard shortcut CTRL +1 to open the Format Cells Dialog Box
  - Select the Font Tab
  - Select the Color Box Arrow to select the Font Color that you would like to use
  - Click OK to add the color that you have selected and to close the Format Cell dialog box.
- You can also change the Font Type, Font Style and Font Size.
    - Font Type: Select the Font Type from the Font Types included on the Font box
    - Font Style: Select the Font Style from the Font Style box
    - Font Size: Select the Font Size from the Font Size box
    - Click Ok to apply the changes you made and close the Format Cells dialog box.



Complete the calculations for the Total Scores, % Grade and Average Scores as see on the Picture below:

	Traditional Formula	Spill Formula
Total Score	% Grade	% Grade
=SUM(B4:I4)		
=SUM(B5:I5)	=J5/\$J\$4	=J5:J13/J4
=SUM(B6:I6)	=J6/\$J\$4	
=SUM(B7:I7)	=J7/\$J\$4	
=SUM(B8:I8)	=J8/\$J\$4	
=SUM(B9:I9)	=J9/\$J\$4	
=SUM(B10:I10)	=J10/\$J\$4	
=SUM(B11:I11)	=J11/\$J\$4	
=SUM(B12:I12)	=J12/\$J\$4	
=SUM(B13:I13)	=J13/\$J\$4	

Average Scores:

Average Score	=AVERAGE(B5:B13)	=AVERAGE(C5:C13)	=AVERAGE(D5:D13)	=AVERAGE(E5:E13)	=AVERAGE(F5:F13)	=AVERAGE(G5:G13)	=AVERAGE(H5:H13)	=AVERAGE(I5:I13)
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GradeBook for Summer Quarter

	A	B	C	D	E	F	G	H	I	J	K	L	
1													
2		GradeBook for Summer Quarter										Traditional Formula	Spill Formula
3	Name	Quiz 1	Quiz 2	Quiz 3	Quiz 4	Test 1	Test 2	Test 3	Test 4	Total Score	% Grade	% Grade	
4	Maximum Possible Points	30	30	30	30	100	100	100	100	=SUM(B4:I4)			
5	Faith	27	18	30	29	70	88	50	100	=SUM(B5:I5)	=J5/\$J\$4	=J5:J13/J4	
6	Mason	15	13	19	10	88	76	72	80	=SUM(B6:I6)	=J6/\$J\$4		
7	Carmen	21	24	27	30	88	98	100	95	=SUM(B7:I7)	=J7/\$J\$4		
8	Miles	10	20	20	17	99	99	70	100	=SUM(B8:I8)	=J8/\$J\$4		
9	Marcus	13	22	12	28	60	70	93	100	=SUM(B9:I9)	=J9/\$J\$4		
10	Violet	17	18	10	22	65	63	81	100	=SUM(B10:I10)	=J10/\$J\$4		
11	Cecelia	18	24	30	27	79	98	96	99	=SUM(B11:I11)	=J11/\$J\$4		
12	RoseMary	20	15	18	27	76	95	80	100	=SUM(B12:I12)	=J12/\$J\$4		
13	Kaitlyn	28	29	21	16	73	100	100	100	=SUM(B13:I13)	=J13/\$J\$4		
14	Average Score	=AVERAGE(B5:B13)	=AVERAGE(C5:C13)	=AVERAGE(D5:D13)	=AVERAGE(E5:E13)	=AVERAGE(F5:F13)	=AVERAGE(G5:G13)	=AVERAGE(H5:H13)	=AVERAGE(I5:I13)				
15													

										Traditional Formula	Spill Formula
GradeBook for Summer Quarter											
Name	Quiz 1	Quiz 2	Quiz 3	Quiz 4	Test 1	Test 2	Test 3	Test 4	Total Score	% Grade	% Grade
Maximum Possible Points	30	30	30	30	100	100	100	100	520		
Faith	27	18	30	29	70	88	50	100	412	79.23%	79.23%
Mason	15	13	19	10	88	76	72	80	373	71.73%	71.73%
Carmen	21	24	27	30	88	98	100	95	483	92.88%	92.88%
Miles	10	20	20	17	99	99	70	100	435	83.65%	83.65%
Marcus	13	22	12	28	60	70	93	100	398	76.54%	76.54%
Violet	17	18	10	22	65	63	81	100	376	72.31%	72.31%
Cecelia	18	24	30	27	79	98	96	99	471	90.58%	90.58%
RoseMary	20	15	18	27	76	95	80	100	431	82.88%	82.88%
Kaitlyn	28	29	21	16	73	100	100	100	467	89.81%	89.81%
Average Score	18.7777778	20.33333333	20.7777778	22.88888889	77.55555556	87.44444444	82.44444444	97.11111111			





Absolute Cell Reference:	\$A\$1
Mixed Cell Reference with Row Locked:	A\$1
Mixed Cell Reference with Column Locked:	\$A1

## Dynamic Spilled Array Formula

Dynamic Spilled Array formulas deliver a spilled array to the worksheet as the final answer.

Dynamic Spilled Array formulas spill from the top cell and only live in the top cell

If you spill a formula from Cell L5, you refer to the spilled array with the spilled range operator #, for example AVERAGE(L5#) when you want to average the values or SUM(L5#) to add the values.

The advantages of using the Dynamic Spilled Array formula:

- Do not need to lock cell references
- Do not need to manually copy the formula
- Editing a formula is faster and easier

## Page Setup

- Open Page Setup dialog box keyboard = Alt, P, S, P
- Page Setup dialog box
  - Page tab
    - Orientation
    - Scaling
  - Margins tab
    - Horizontal
    - Vertical
  - Header/Footer tab
    - Custom Header:
      - Left Section
      - Center Section
      - Right Section
    - Custom Footer 3 sections:
      - Left Section
      - Center Section
      - Right Section
  - Sheet tab
    - Set Print Area
    - Print Titles
    - Print
    - Page order

- Move Sheet:
  - Right-click, Move/Copy
  - Mouse Click on the Sheet Tab and drag
- Copy Sheet:
  - Right-click, Move/Copy
  - Use Ctrl and Mouse Click on the Sheet Tab, then drag, to copy sheet
    - The + symbol means sheet is being copied

## Keyboard Shortcuts

### Keyboard Shortcuts are Fast! Some useful Keyboard Shortcuts:

- Jump to end of current region => **Ctrl + Arrow**
- Highlight to end of current region => **Ctrl + Shift + Arrow**
- Sum Function => **Alt + =**
- Open Format Cells dialog box if cell or range is selected => **Ctrl + 1**
- Open Chart Format Task Pane if chart is selected => **Ctrl + 1**
- Many, many more that we will learn in class ...

### Entering Data & Formulas into Cells:

- Ctrl + Enter** = Puts the content into active cell and keeps active cell selected. Use this when your goal is to put the content into the active cell and immediately do something to the active cell, like copy or format it.
- Enter** = Puts the content into active cell and moves the selected cell down by one row. Use this when your goal is to put the content into the active cell and immediately do something in the cell below, like enter more content.
- Shift + Enter** = Puts the content into active cell and moves the selected cell up by one row. Use this when your goal is to put the content into the active cell and move the selected cell up by one row, like when you need to enter a formula but the worksheet screen does not show the active cell.
- Tab** = Puts the content into active cell and moves the selected cell to the right by one column. Use this when your goal is to put the content into the active cell and immediately do something in the cell to the right, like enter more content.
- Shift + Tab** = Puts the content into active cell and moves the selected cell to the left by one column. Use this when your goal is to put the content into the active cell and immediately do something in the cell to the left, like enter more content.

### Selection keyboards

- Ctrl + Shift + Arrow** = Selects a range of cell content in the direction of the arrow, stops when it bumps into the first empty cell. Use this when you want to quickly highlight a column or row of cell content. If there is no content when you invoke this keyboard, then this keyboard jumps all the way to the edge of the worksheet.
- Ctrl + \* (Number Pad) = Ctrl + Shift + 8 (Standard Keys)** = Selects the current region, which means everything in all directions from the active cell, up to the first complete row or column of empty cells, or it bumps into the worksheet row numbers or column letters. This is the keyboard shortcut to instantly select a whole table.
- Shift + Arrow** = Highlights one cell at a time in the direction of the arrow, incrementing slowly on each click of the arrow. The trick is to hold the Shift key and then tap the arrow key, once for each character that you want to select. This is useful when you have a small selection to make within a larger block of cells.

## Navigation Keys

**Ctrl + Home** = Jumps the active cell to cell A1. This is convenient when you want to jump to the very top of the worksheet.

**Ctrl + End** = Jumps the active cell to last cell used in entire worksheet. You can use this to jump to the very bottom of your work area.

**Ctrl + Arrow** = Jumps the active cell to last cell with content, in the direction of the arrow, stopping when it bumps into the first empty cell. This keyboard is great when you want to jump to the last bit of data in a row or a column.

**Ctrl + . (period or Decimal key)** = Jumps the active cell to next corner in a selected range. This keyboard only jumps between the four corners of a selected range. It is useful for navigating the four corners of a large table.

**Ctrl + Backspace** = Jumps the screen back to the active cell. This keyboard works whether or not the active cell is in edit mode or the cell is just selected. It is a great keyboard when the active cell is off screen, but you need to instantly jump back to the active cell.

## Other Keyboards

**F2** = put cell in edit mode.

**F4** = Toggles between the different types of cell references in a formula.

**F7** = Spell Check.

**F9** = Evaluate Formula Element.

**Ctrl + C** = Copy.

**Ctrl + V** = Paste.

**Ctrl + X** = Cut.

**Ctrl + Shift + Arrow** = Select everything up to the first empty cell.

**Alt + = (Equal Sign)** = Insert SUM function into cell.

**Ctrl + Backspace** = Jump Back to Active Cell.

**Shift + Enter** = Puts the content into active cell and moves the selected cell up by one row.

**Alt, N, V, T** = Open Create PivotTable dialog box.

**Alt, N, V** = Open Create PivotTable dialog box if you do not have a Power BI Account or you are not logged in.

**Alt, P, S, P** = Open Page Setup dialog box.

**Alt, A, M** = Remove Duplicates.

**Alt, A, D, M** = Open Data Model.

**Right-Click Key, B, V** = Convert Excel Table to Range.

**Alt, "Position of Item in QAT"** = Invoke button from QAT based on position of button in QAT.

**Ctrl + F1** = Toggles Tabs in Ribbon to Show or Hide.

## Laptop Keyboards:

**Fx (Fn) + F12** = Save As when keyboards require the Fx Function Key.

**Fx (Fn) + Esc** = Sets the option on your laptop so that you can access the F keys directly without using the Fx (Fn) key

**F Key Keyboards:**

**F1** = Opens Help Task Pane.

**Ctrl + F1** = Toggles the Ribbon between Collapsed and Showing.

**Alt + F11** = Insert new Default Chart on the Active Worksheet.

**F2** = Puts Cell in Edit Mode.

**F3** = Opens Paste Name dialog Box (When Defined Names exist).

**Ctrl + F3** = Opens Defined Name Manager dialog box.

**Ctrl + Shift + F3** = Opens Create (Defined Names) From Selection dialog box.

**Shift + F3** = When Cell is in Edit Mode, opens Insert Function dialog box.

**Alt + F3** = selects Name Box in Formula Bar.

**F4** = Repeats Last Action.

**F4** = When Cell is in Edit Mode, toggles between the different types of Cell References in a formula.

**F4** = When in the VBA Editor Window, opens Properties Pane.

**F5** = Opens Go To dialog box.

**F6** = Activates Sheet Tab so you can use the Right-Click Key.

**F7** = Spell Check.

**F8** = Toggles Select Range between two clicks.

**Shift + F8** = Toggles Select Noncontiguous Range option.

**Alt + F8** = Opens up Run Macro dialog box.

**F9** = Evaluate Key = Calculates all worksheets in all open workbooks.

**F9** = When Cell is in Edit Mode and a Formula Element is selected, it will evaluate the Formula Element.

**Shift + F9** = Calculates the active worksheet.

**Ctrl + Alt + F9** = Calculates all worksheets in all open workbooks, regardless of whether they have changed since the last calculation.

**F10** = Shows Alt Key Keyboard Screen Tips.

**F11** = Insert new Default Chart as a new Worksheet.

**Shift + F11** = Insert new Worksheet.

**Ctrl + F11** = Insert new Excel 4.0 Macro Worksheet.

**Alt + F11** = Opens VBA Editor Window.

**F12** = Opens Save As dialog box.

**Windows + Shift + S** = opens up the snipping tool to take a screenshot on your screen