



Microsoft Excel for Beginners





Microsoft Excel for Beginners

2.0 hours

This is a basic computer workshop. Microsoft Excel is a spreadsheet program. We use it to create reports that need calculations and charts. In this workshop we will learn how to move around and work inside the spreadsheet.	
Vocabulary	1
Status Bar Modes	1
Keyboard Navigation	2
Ribbon	2
Clipboard	2
Formatting Cells	3
Cells Structures	4
Inserting	4
Deleting	5
Cell Size (Row Height/Column Width)	5
Fill Handle	6
Building an Equation	6
Type in the exact cell address	6
Use the mouse to point to the cell address	7
Mathematical Operations	7
AutoSum	7
Exercise 1: Customers	8
Resizing Columns	8
Freeze Panes (Lock Titles to Top of Page)	8
Format	9
Exercise 2: Quarter Total	10
Fill Handle	. 10
Format	. 10
Chart	. 10
Exercise 3: Items by Quarter	11
Insert Rows	. 11
Merged Title	. 11
Fill Handle Across	. 11
Total Row (AutoSum)	11
Exercise 4: Sales Report	12
Format	. 12
Math	.12
Grand Total	12
UNIVERSITY of	

UF FLORIDA

Pandora Rose Cowart Education/Training Specialist UF Health IT Training

C3-013 Communicore PO Box 100152 Gainesville, FL 32610-0152 (352) 273-5051 prcowart@ufl.edu http://training.health.ufl.edu

Updated: 1/16/2018

Vocabulary

Microsoft Excel is a spreadsheet program. We use it to create reports that need calculations and charts.

- 1. An Excel file is called a **Workbook**.
 - Default title is Book1
- 2. Ribbon broken into Tabs (Home, Insert, Page Layout...)
 - Tabs broken into groups (Clipboard, Font, Alignment)
- 3. Name box (left) and formula bar (right)
 - Name box shows address of current cell
 - Formula bar shows contents of current cell
- 4. **Columns** Headings are Lettered, **Rows** Headings are Numbered
 - Columns of a building, rows of chairs
- 5. Worksheet navigation buttons, Worksheet tabs
 - Sheet1
- 6. Status bar
 - Excel behaves differently depending on the current "mode"

	ت 🖬	- 6-	Ŧ					1	Book1	- Excel		
	File	Home	Insert	Page La	yout F	ormulas	Data	Review	w View	Q 1	Tell me	e what you
5		Calibri		• 11 •	Ă	= = =	≫ -	P	General		¥	E Condit
C	Paste	B I	<u>U</u> -	- 🕭	- <u>A</u> -	= = =	€∃	↔ •	\$ - %	9 €.0	00. 0 0.€ 0	Cell Sty
C	Clipboard	Es .	Fo	nt	r <u>a</u>	Align	iment	G	Nur	nber	G.	
	A1		-3	× v	f _x							
	A		В	С	D	E	F	-	G	Н		Ι
	14											
	2											
	4	2										
		She	et1	(+)		1				1		
	Ready 6											

Status Bar Modes

- *Ready* mode. This means nothing is being *entered* or *edited* on the spreadsheet.
- *Enter* mode. This mode is when you are doing data entry, just typing in the contents.
- *Edit* mode. Edit the contents of the current cell. Double-click on a cell with data in it, or click inside the formula bar for this mode.
- **Point** mode. Used when linking to cell addresses within a formula or from an Excel dialog window.

Keyboard Navigation

Кеу	Ready	Enter	Edit	Point					
Enter	Move	Down	Accept changes and move down						
Shift-Enter	Move	e Up	Accept changes and move up						
Tab	Move	Right	Accept changes and move right						
Shift-Tab	Move	Left	Accept changes	and move Left					
Arrow Keys	Moves to a	nother cell	Moves betweenPoints tocharacters in celladdress of a						
Home	Moves to fi	rst column	Moves to the front of the line in the cell	Points to cell in column A					
Ctrl-Home	Moves to the beg workshe	inning cell of the eet (A1)		Points to the beginning of the worksheet					

<u>Ribbon</u>

The images of Excel in this packet were copied from a wide screen monitor. With the wide screen the ribbon is stretched across the window and I can see all the buttons. If you are working on a narrower window, Excel will try to clump the groups together and the layout may look a little different than the ones shown here, but all the buttons will be there.



Here we can see how the font group is now three buttons high, and how some of the buttons like Cut and Copy have lost their text labels.



Clipboard

Cut, Copy and Paste are clipboard features built into Windows. The clipboard is a temporary storage place for pictures and data. The Windows clipboard can only store one item at a time. Microsoft Office has a Multi-Clipboard that can store 24 items, but the Paste button and the shortcuts for the Paste option only correspond to the most recently copied item. The clipboard pane must be displayed to be able to use this feature.

- Cut Copies selection to the clipboard. If the selection is text or an image, it will disappear. If it's a cell, Excel waits until you paste it to delete the original cell.
- Copy Copies selection to the clipboard.
- Paste Retrieves most recent text/object on the clipboard.



Formatting Cells

The most formatting options are found on the **Home Tab**. All the options can be found in the Format Cells window. This contains several tabs to help us format the contents of our spreadsheet. This window can be opened by using the in **More Options** button at the end of the **Format**, **Alignment** and **Number** groups. You can also use the Keyboard Shortcut – **Ctrl-1** or choose **Format Cells...** from the right-click shortcut menu.

<u>Font</u>

- 1. **Font** Sets the font of the selected cell(s). Fonts are different ways to show the same letters.
- 2. Font Size Sets the size of the letters (the font). Larger numbers give larger fonts.
- 3. Increase Font Increases the font size
- 4. Decrease Font Decreases the font size
- 5. Bold Makes the selected cell(s) Bold
- 6. Italic Makes the selected cell(s) Italicized
- 7. **Underline** Makes the selected cell(s) <u>Underlined</u>. The drop down has a <u>double</u> underline.
- 8. Borders Adds and removes borders for the selected cell(s). The drop down has More Borders...
- 9. Fill Color Changes the background color of the selected cell(s).
- 10. Font Color Changes the color of the font of the selected cell(s).
- 11. More Options This button will open the Format Cells dialog window.

<u>Alignment</u>

- 1. **Top Align** Vertically aligns to the top of the cell.
- 2. Middle Align Vertically aligns to middle of the cell.
- 3. **Bottom Align** Vertically aligns to the bottom of the cell.
- 4. **Orientation** Rotates the contents of the cell to the currently displayed option.
- 5. Wrap Text Displays contents on multiple lines within the cell's column width.
- 6. Align Text Left Horizontally aligns the contents to the left side of the column.
- 7. **Center** Horizontally aligns the contents to the center of the cell.
- 8. Align Text Right Horizontally aligns the contents to the right side of the cell.
- 9. Decrease Indent Decreases the space between the text and the cell border
- 10. Increase Indent Increases the space between the text and the cell border
- 11. **Merge and Center** Joins selected (adjacent) cells into one cell and centers the result. If there is data in more than one cell, Excel will only keep the information from the upper left cell.
- 12. More Options This button will open the Format Cells dialog window to the Alignment Tab.





Number

- 1. **Number Format** Allows you to change the way numeric values are displayed on the spreadsheet. The drop down arrow gives you a list of the most common formats, including a *More Number Formats* option.
- Currency Style Sets the selected cell(s) to the Currency Style, this style keeps the dollar signs on the left side of the cell, and the number on the right side. The drop down arrow gives you a list of other currency formats, such as the Euro (€).



- 3. **Percent Style** Sets the selected cell(s) to the *Percent Style*, this style has zero decimal places. Keyboard shortcut Ctrl-Shift-%. This button can be reset through **Cell Styles** on the Home Tab.
- 4. **Comma Style** Sets the selected cell(s) to the *Comma Style*, this style has a comma for every thousand and two decimal places. This button can be reset through
- 5. Increase Decimal Increases the number of decimal places showing to the right of the decimal.
- 6. **Decrease Decimal** Decreases the number of decimal places showing to the right of the decimal.
- 7. More Options This button will open the Format Cells dialog window to the Number Tab.

Cells Structures

There are a set number of cells within a Microsoft Excel worksheet. In the Ribbon versions (2007 and later) there are 16,384 columns and 1,048,576 rows. As you insert and delete structures, you are not reducing the number of cells, merely shifting where your data lies on the defined worksheet. Think about moving a painting around on a wall. You're not changing the wall, just the position of the painting.

Inserting

We use **Insert** to make new cells, columns, and rows.

Excel determines what you are trying to insert based on your selection. If a full column is selected, Excel will assume you mean a full column and it will skip the Insert window.

You can insert a cell, row, or column by doing one of the following:

- ⇒ Press Shift Ctrl = on the keyboard (ctrl plus)
- ⇒ or from the **Home** tab, in the **Cells** group, choose **Insert**
- ⇒ or open the Right-click menu and choose insert.
- To insert multiple at once, select the number of cells/rows/columns you would like to insert and follow the steps above.



- The size and format of the new space is determined by the previous row or column.
- This will push the existing cells, columns, or rows to the right or down to make room for the new cells.

Deleting

We use **Delete** to remove cells, columns, and rows. Excel determines what you are trying to delete based on your selection. You can delete a cell, row, or column by doing one of the following:

- ⇒ Press Shift Ctrl - on the keyboard (Ctrl Minus)
- ⇒ or from the **Home** tab, in the **Cells** group, choose **Delete**
- ⇒ *or* open the Right-click menu and choose insert.
- To delete multiple at once, select the number of cells/rows/columns you would like to delete and follow the steps above.
- This will completely remove the structure, formatting and all, and the rows/columns/cells will shift into this place. If you only intended to delete the contents not the cells, undo and use the Clear Contents option instead.

Cell Size (Row Height/Column Width)

You cannot resize one cell; the structure is dependent on the entire row and column where it resides. The Row Height and Column Width settings can be found under the **Format** menu in the **Cells** group of the **Home** tab.

Adjusting with the Mouse

When we resize we are growing away from the left.

To resize the column, place your mouse cursor between the lines of the column headings. The current column heading is in a box; all you need to do is resize the box to make it wider. Put your mouse along the right side of the heading box until you see the resizing arrow pointing in two directions. Click and drag away from the column letter. When you let go of the mouse, the column will resize.



To resize the row, place your mouse cursor between the lines of the row headings. The current row heading is in a box; all you need to do is resize the box to make it wider. Put your mouse along the bottom side of the heading box until you see the resizing arrow pointing in two directions. Click and drag away from the row number. When you let go of the mouse, the row will resize.

Auto-fitting

You can use the option found on the Format menu, or place your mouse cursor between the headings, with the two-way arrow to help resize, and double-click. The row or column should AutoFit to the largest data length within its structure.

- To resize multiple at once, select the cells you would like to fit and follow the steps above. If you are using double-click to auto-fit, the entire column/row structures must be selected.





Fill Handle

The **Fill Handle** is in the bottom right corner of the selected cell. When you place your mouse over this *handle*, it changes from a thick white cross, to a thin black cross. Once you see the thin cross (no arrows) you can click and drag the cell to fill its contents in a single direction (up, down, left or right). If you want to go in two directions, you must first complete one way, let go of the mouse and then drag the handle in the second direction.



When you use the **Fill Handle** to pull down a single number or plain text, it will copy the data. When you use the **Fill Handle** to pull down a text with numbers, a date, a month or a weekday it will fill in a series.



When you select two or more numbers (including dates) and then use the **Fill Handle**, Excel will fill in the series, following the original pattern of the selected cells. It can only follow simple addition and subtraction patterns.

123	5	100	2/01/17
124	4	110	2/08/17
125	3	120	2/15/17
126	2	130	2/22/17

Building an Equation

You can directly type in values, but that data stays constant. If you want to have the answers to your equations update as you change your data, you should use the cell addresses. You will see the cell addresses change colors so you can tell which ones are used in your equation.

Type in the exact cell address

Cells are labeled by their row and column headings. Rows are numbered and go horizontally across (rows of chairs) and columns are lettered and go vertically top to bottom (columns of a building). When we refer to the address of a cell, we use the column letter then the row number such as A1.

- Click in the cell where the answer will appear
- Press the Equal sign (=)
- Type in the cell address you want to use in your equation
- Accept the answer or press the next math operator (+, -, *, /, ^)

	А	В	С
1	1	2	=a1+ <mark>b1</mark>
2			

Use the mouse to point to the cell address

The mouse and arrow keys are both "pointers". If you press the equal sign and then use the mouse to click on another cell, Excel will put you into a "POINT" mode, and place the address of the cell you clicked on in your equation.

- Click in the cell where the answer will appear
- Press the Equal sign (=)
- Use the mouse to click on the cell you want to use in your equation
- Accept the answer or press the next math operator (+, -, *, /, ^)

	А	В	С
1	1	2	=A1
2			

Mathematical Operations

To let Excel know you expect it to "do math" you need start your cell with an equal sign (=).

-	Addition, plus sign (+)	= 5+2	result	7
-	Subtraction, hyphen (-)	= 5-2	result	3
	(also used for negative)	= -5	result	-5
-	Multiplication, asterisk (*)	= 5*2	result	10
-	Division, slash (/)	= 5/2	result	2.5
-	Exponent/Power, caret (^)	= 5^2	result	25

AutoSum

We can build equations to do math on a large number of cells, but there are functions built into Excel that can help us automate the most common ones: Sum, Average, Count, Maximum, Minimum. On the far right of the Home tab you'll find the sigma (Σ).

ormulas		Data	Review	View	Developer	Qт	ell me what y	ou want t	o do					. D.		~	Cowart Pan	dora Rose	₽ Shar	re
• A	A T	= =	= »·	₽w	'rap Text lerge & Center	- \$	eneral • % •	▼ 00. 0.• 0.€ 00.	Conditional Formatting ▼	Format as Table •	Normal Good	Bad Neutral	* • •	E Insert	Delete	Format	∑ AutoSum ↓ Fill + Clear +	Sort &	Pind & Select ≠	
	G.		Alig	nment		Es .	Number	Es.			Styles				Cells		E	diting		~

When you click on the word AutoSum, you'll get a sum function. There is a dropdown list at the end of the button that will show more function options.

The AutoSum button looks for numbers above or to the left of the cell to choose the range (the set) of numbers.

Make sure to press enter or click the check to accept as soon as the function shows up. If you click outside the cell while you see the function, you may break the equation.

SUM	- i 🗙	$f_x =$	SUM(A1:A3)
	А	В	С
1	123		
2	456		
3	789		
4	=SUM(A1:	A3)	
5	SUM(number1 , [number2],)	
6			

Exercise 1: Customers

Pate Sopy	Calibri B J U +	rout Formulas + Ⅱ + A* - Ⅲ + Δ* + ▲	044 Rev ▲ = = :::::::::::::::::::::::::::::::::	ov V ≫∙ ⊡⊡	ew Developer V I Wrap Test Ge El Merge & Center • \$	neral • % • *8 ¢	t to do Conditional Format Formatting - Table	Normai as Neutral	8ad Calculation	Good		ent Delete Format	∑ AutoSum ↓ Fill • & Clew •	Cowart Pandora Rot Z Y D Sort & Find & Filter * Select *	se 🤉 Share
clipboard	·	Font	.9.	Aagna	ent 9.	Nuciber	25		20161			Cells	Ed	ning	
A1		CASI C				6	0 8 1	2	1. 225 1		1	11 123			
A	B	C	D	CT.	E F	G	H	1	J	ĸ	L	M	N	0	P
2 Adams	Annia	CO21 NIM	Gainerville	51	216	DALANCE	2/10/2017								
2 Augins	Annie	PO Boy 45	Starka	FI	32633	250	2/10/2017								
A Arlington	Arnold	224 SE 45	Gainerville	EL	32507	407	12/5/2017								
5 Brown	Robbio	234 3E 431	Gainesville	FI	32597	17	2/25/2017								
6 Bruce	Butch	32/13 SE /	Gainesville	FI	32508	106	5/5/2016								
7 Canners	Cathy	RP 2 Boy 6	Waldo	FI	34567	202	9/15/2016								
8 Carlson	Carly	1943 NW/	Gainesville	FI	32567	432	5/25/2018								
9 Clark	Carl	9213 Kiwi	Gainesville	FI	32667	-52	6/10/2016								
10 Dawson	Debbie	832 Hook	Gainesvill	FI	32658	265									
11 Edwards	Edgar	5233 NW	Gainesvill	FL	32653	617	******								
12 Ellis	Emily	PO Box 55	Gainesvill	FL	32689	364	******								
13 Engle	Elizabeth	9420 Zucc	Gainesvill	FL	32684	311	6/20/2016								
14 Finch	Frank	409 SW 92	Jacksonvil	FL	32608	157	2/25/2018								
15 Fuller	Francis	123 South	Gainesvill	FL	32156	368	5/15/2018								
16 Gentle	Gary	9420 Hors	Gainesvill	FL	32684	415	2/15/2017								
17 Glass	Gloria	2343 Kale	Gainesvill	FL	32597	68	2/10/2017								
18 Henderson	Harriet	2980 Radis	Gainesville	FL	32608	501	1/15/2016								
19 Huey	Harley	9023 Hera	Waldo	FL	32658	319	7/5/2016								
20 Iccabob	Isaac	93 Gator R	Jacksonvil	FL	32268	486	9/15/2018								
21 Jacks	Jerry	559 Colbri	Gainesvill	FL	32655	409	7/20/2018								
22 Jacobs	Julie	2039 Lemo	Gainesville	FL	32597	109	7/20/2018								
23 Jacobsen	Jeffery	1398 NE 8	Gainesville	FL	32567	392	****								
24 lenkins	Jennifer	78349 Los	Gainesvill	FI	32658	17	9/10/2016								

Resizing Columns

- Put your mouse on the line between any two <u>Column</u> letters. It will turn into a 2-way arrow.
 - a. Hold down the mouse button and drag to resize
 - b. Double-click between the headings to "AutoFit"



- 2) Select the entire worksheet by clicking on the triangle above the <u>Row</u> 1, left of the <u>Column</u> A
 - a. Try to resize any *Column*; all the selected columns will change
 - b. Double-click between the headings to have it "Auto fit"

Freeze Panes (Lock Titles to Top of Page)

- 1) Press Ctrl-Home on the keyboard to return to <u>Cell</u> A1
- 2) Turn to the View Tab in the Ribbon
- 3) Find the Option Freeze Panes
 - a. Choose Freeze Top Row
 - b. Scroll down through the worksheet to see the titles in <u>Row</u> 1 stay at the top

File	Home	Ins	ert P	age Layout	Formulas	Data	Review	View	Develo	per	Q Tell me	what you v	vant to do	
Normal F	Page Break Preview Workbook	Page Layout Views	Custom Views	✓ Ruler ✓ Gridlines	✓ Formula Bar ✓ Headings how	r Q Zoor	n 100% Zoom	Zoom to Selection	New Window	Arran All	e Freeze Panes *	Split Hide Unhide W	View Side by Side Synchronous Scrolling Reset Window Position Indow	Swi

Format

Ready 📰

- 1) Click on the Row Heading for <u>Row</u> 1 (click on the number 1) to select the entire row
 - From the Home Tab, or right-click menu, choose **B** for bold
- 2) Click on the <u>Column</u> Heading for <u>Column</u> G to select the entire <u>Column</u>
 - From the Home Tab, choose \$ for an accounting format
 - Adjust the <u>Column</u> width again
- 3) Find a street name with a "fruit" address and use the **Fill button** (the bucket 💁) to shade it a peach/orange color
 - Change a few of them to match
- 4) Find a street name with a "vegetable" address and use the Fill bucket to shade a greenish color

aste	Cut Copy -	Calibri •	u - A* A* = = = ≫-	ap Text Gener	al % ,	▼ .00 .00 .00 →0	Conditi Formatt	ional Formata	Normal Neutral
	Clipboard 13	Font	G Alignment	E	Numbe	r Ga	Torriau	ing · Table ·	Sty
1	• I X	√ ƒ _× LA	ST						
	A	B	С	D	E	F		G	Η
1	LAST	FIRST	ADDRESS	CITY	ST	ZIP	BA	LANCE	DUE DATE
2	Adams	Annie	6831 NW 4th Ave	Gainesville	FL	32655	\$	236.00	2/10/2017
3	Appleton	April	PO Box 456	Starke	FL	32689	\$	467.00	9/25/2018
4	Arlington	Arnold	234 SE 45th Road	Gainesville	FL	32597	\$	128.00	12/5/2017
5	Brown	Bobbie	234 Peter Pan Terrace	Gainesville	FL	32597	\$	17.00	3/25/2017
6	Bruce	Butch	3243 SE 4th Terrace	Gainesville	FL	32608	\$	106.00	5/5/2016
7	Cappers	Cathy	RR 2 Box 659	Waldo	FL	34567	\$	392.00	9/15/2016
8	Carlson	Carly	1943 NW Main Street	Gainesville	FL	32567	\$	432.00	5/25/2018
9	Clark	Carl	9213 Kiwi Road	Gainesville	FL	32667	\$	64.00	6/10/2016
0	Dawson	Debbie	832 Hook Place	Gainesville	FL	32658	\$	265.00	11/15/2017
1	Edwards	Edgar	5233 NW 232nd Drive	Gainesville	FL	32653	\$	617.00	12/10/2010
2	Ellis	Emily	PO Box 5544	Gainesville	FL	32689	\$	364.00	12/25/2018
3	Engle	Elizabeth	9420 Zucchini Street	Gainesville	FL	32684	\$	311.00	6/20/2016
.4	Finch	Frank	409 SW 92nd Avenue	Jacksonville	FL	32608	\$	157.00	2/25/2018
5	Fuller	Francis	123 South Main Street	Gainesville	FL	32156	\$	368.00	5/15/2018
6	Gentle	Gary	9420 Horseradish Ave	Gainesville	FL	32684	\$	415.00	2/15/2017
7	Glass	Gloria	2343 Kale Lane	Gainesville	FL	32597	\$	68.00	2/10/2017
8	Henderson	Harriet	2980 Radish Terrace	Gainesville	FL	32608	\$	501.00	1/15/2016
9	Huey	Harley	9023 Hera Terrace	Waldo	FL	32658	\$	319.00	7/5/2016
20	Iccabob	Isaac	93 Gator Road	Jacksonville	FL	32268	\$	486.00	9/15/2018
21	Jacks	Jerry	559 Colbright Road	Gainesville	FL	32655	\$	409.00	7/20/2018
22	Jacobs	Julie	2039 Lemon Tree Way	Gainesville	FL	32597	\$	109.00	7/20/2018
23	Jacobsen	Jeffery	1398 NE 8th Ave, #1245	Gainesville	FL	32567	\$	392.00	10/15/2017
4	lenkins	, Jennifer	78349 Lost Boys Ave	Gainesville	FI	32658	Ś	17.00	9/10/2016

• Change a few of them to match

Exercise 2: Quarter Total

Turn to the next worksheet at the bottom of the window, Quarter Total.

Fill Handle

- 1) If needed, Move to <u>Cell</u> A1
 - a. Hover your mouse over the bottom right corner of the cell until it turns into a thin crosshair/plus sign. This is called the **Fill Handle**.
 - b. Drag the Fill Handle down to the bottom of <u>Row</u> 5
 - c. Cells A1 through A5 now all say Quarter
 - d. *UNDO*!
- 2) Move to <u>Cell</u> A2
 - a. In <u>Cell</u> A2 type: 1st Qtr
 - b. Press Enter or the click the Check to accepti. If needed, return to <u>Cell</u> A2
 - c. Drag the Fill Handle for <u>Cell</u> A2 to the bottom of <u>Row</u> 5
 - i. 1st Qtr, 2nd Qtr, 3rd Qtr, 4th Qtr

Format

- 1) Select titles in <u>Cell</u>s A1 and B1
 - a. Bold
 - b. Bottom Border
 - c. Center
- 2) Select the numbers in <u>Cell</u>s B2, B3, B4, and B5
 - a. Comma Format
 - b. Decrease Decimals to zero/none

Paste *	؇ Format	Painte	B	Ι	<u>U</u> -	
	Clipboard	G.		F	ont	
A1	*	:	\times	\checkmark	f_{x}	C
	А			В		
1	Quarte	er 🕝	# S	old		
2		1		2	079	
3		2		2	095	
4		3		2	076	
5		4		2	058	
~						

	А	В	С	
1	Quarter	# Sold		
2	1st Qtr	2,079		
3	2nd Qtr	2,095		
4	3rd Qtr	2,076		
5	4th Qtr	2,058		
6				
7				

File	Home	Insert	Page Layout	Formulas	Data R	eview 1	View Developer		🖓 Tell me what y	ou want to o	do
Paste	X Cut È Copy → ✓ Format Pai	inter B	ibri 🔹 🗄	11 ▼ A A A		= ≫ - = • = =	🖶 Wrap Text	er 🔻	General \$ - %	•	Cond
0	lipboard		Font	Гэ		Align	ment	- Fa	Number	G.	

Chart

- 1) Return to <u>Cell</u> A1 (Ctrl-Home)
- From the Insert tab, Recommended Charts

 Opens the Insert Chart window



2) Click **OK** to accept the <u>Column</u> Chart option

File Home Insert	Page Layout Formulas Data Review	v View Developer ♀ Te	ell me what you want to do
PivotTable Recommended Table PivotTables Tables	Pictures Online Shapes SmartArt Screenshot Pictures •	Store Bing People Maps Graph	Recommended Charts

Exercise 3: Items by Quarter

Turn to the next worksheet at the bottom of the window, Items by Quarter.

Insert <u>Row</u>s

- 1) Select <u>Row</u> 1 and <u>Row</u> 2
 - Click on the row heading 1 and drag to row heading 2
- 2) Right-click Inside the selection
 - Choose Insert

Merged Title

- 1) In <u>Cell</u> A1 type: Quarterly Sales Report
- 2) Select <u>Cells</u> A1 through E1
 - Click the Merge and Center button
- 3) Format: Bold, Fill, Border

Fill Handle Across

- 1) In <u>Cell</u> B3, delete Qtr 1, and type: 1st Qtr
- 2) Drag the fill handle for <u>Cell</u> B3 across to <u>Cell</u> E3
- 3) Center and Bold the new titles



	А	В	С	D	E				
1	Quarterly Sales Report								
2									
3	Item	Qtr 1	Qtr 2	Qtr 3	Qtr 4				
4	AAA	793	672	701	670				
5	BB	684	644	620	631				
6	С	602	779	755	757				



The **Fill Handle** is the small square in the bottom right corner of a selected cell.

ormulas	Data	Review	View	Developer	♀ Tell	me what y	you want t	o do								Cowart, Pando	a Rose	₽ Shar	e
- A A	= =	- %-	🔐 Wr	ap Text	Gene	eral	-	Ţ		Normal	Bad	<u>^</u>	••••			∑ AutoSum →	AT	ρ	
Ď • <u>A</u> •	≡≡	≡ •≡ •	E Me	erge & Center 🔹	\$.	· % ·	00, 0, → 0,€ 00,	Conditional Formatting *	Format as Table ≠	Good	Neutral	÷ 1	nsert •	Delete •	Format	Clear •	Sort & F Filter ▼ S	Find & Gelect ▼	
Es.		Alig	nment			Number	Fa			Styles				Cells		Edit	ing		^

Total <u>Row</u> (AutoSum)

- 1) In <u>Cell</u> A8 type: TOTAL
- 2) In *Cell* B8 Click on the AutoSum button
 - =SUM(B4:B7)
 - Press Enter or click the check to accept (2079)
- 3) Drag the *Fill handle* in <u>Cell</u> B8 to <u>Cell</u> E8 to fill in the "sum" pattern for each quarter

1	A	В	C	D	E		
1	Quarterly Sales Report						
2							
3	Item	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr		
4	AAA	793	672	701	670		
5	BB	684	644	620	631		
6	С	602	779	755	757		
7							
8	TOTAL	2079	2095	2076	2058		

Exercise 4: Sales Report

Turn to the next worksheet at the bottom of the window, Sales Report.

Format

- 1) <u>Row</u> 1 -> Bold
- 2) <u>Column</u> B -> Accounting (\$)
- 3) <u>Column</u> C -> Centered Aligned
- 4) <u>*Cell*</u> C5 -> Right Aligned

	А	В	C	D
1	Items	Price	Qty	Total
2	Aaa	10	5	
3	Bb	15	10	
4	С	20	20	
5			GRAND TO	TAL:

Math

Total for each line item will be the Price times the Quantity.

- 1) Go to <u>Cell</u> D2
- 2) From the keyboard Type: =
- 3) With the mouse click on <u>*Cell*</u> B2 (\$10.00)
 - <u>Cell</u> D2 should now have =B2
- 4) From the keyboard type: *
- 5) With the mouse click on <u>*Cell*</u> C2 (5)
 - <u>Cell</u> D2 should now have =B2*C2
- 6) Press Enter or click the check to accept
 - Answer: \$50.00
 - If needed return to <u>Cell</u> D2
- Drag the Fill Handle for <u>Cell</u> D2 to <u>Cell</u> D4 to fill in the pattern for the formula

Grand Total

- 1) Move to <u>Cell</u> D5
- 2) From the Home tab click on the AutoSum \sum
 - =SUM(D2:D4)
- 4) Press Enter or click the check to accept
 - Answer: \$600.00
- 3) Change Cell B2 to \$12.50 and press enter or click the check to accept
 - Grand Total should be \$612.50

	А	В	С	D
1	Items	Price	Qty	Total
2	Aaa	\$ 10.00	5	=B2*C2
3	Bb	\$ 15.00	10	
4	С	\$ 20.00		
5		GRA		

	А	В	С	D
1	Items	Price	Qty	Total
2	Aaa	\$ 10.00	5	\$ 50.00
3	Bb	\$ 15.00	10	\$150.00
4	С	\$ 20.00	\$400.00	
5		GRA		

	А	В	С	D
1	Items	Price	Qty	Total
2	Aaa	\$ 12.50	5	\$ 62.50
3	Bb	\$ 15.00	10	\$150.00
4	С	\$ 20.00	20	\$400.00
5		GRAI	\$612.50	





Excel Fundamentals

Contents

Understanding Workbooks	1
Navigating in a File	2
Typing Text or Numbers Into A Worksheet	3
Typing Simple Formulas In A Worksheet	4
Filling A Series	5
Inserting And Deleting Worksheets	6
Copying A Worksheet	7
Renaming A Worksheet	8
Moving or Copying A Sheet To Another Workbook	9
Changing Worksheet Tab Colours 1	0
Grouping Worksheets 1	11
Freezing Rows And Columns 1	12
Selecting Ranges 1	13
Selecting Rows 1	4
Selecting Columns 1	15
Understanding Formatting1	16
Applying General Formatting 1	17
Changing Fonts 1	8
Changing Font Size 1	19
Understanding Borders	20
Applying A Border To A Range 2	21
Wrapping And Merging Text 2	22
PRACTICE EXERCISE	23
PRACTICE EXERCISE	<u>2</u> 4
PRACTICE EXERCISE	25
Understanding Functions	26
Using The SUM Function To Add 2	27
Calculating An Average	28
Finding A Minimum Value 2	29
Common Error Messages	30
PRACTICE EXERCISE	31
Understanding Quick Analysis	32
Quick Formatting 3	33
Quick Charting	34
Quick Totals	35
Quick Sparklines	36
Quick Tables	37
Practice Exercise	38
Printing A Worksheet	39

The Charting Process4	10
Choosing The Right Chart	1
Jsing A Recommended Chart 4	2
Creating A New Chart From Scratch 4	3
Vorking With An Embedded Chart 4	4
Resizing A Chart	-5
Repositioning A Chart 4	6
Printing An Embedded Chart	7
Creating A Chart Sheet 4	8
Changing The Chart Type 4	9
Changing The Chart Layout	0
Changing The Chart Style	51
Printing A Chart Sheet	52
Embedding A Chart Into A Worksheet5	3
Deleting A Chart	64
PRACTICE EXERCISE	5
PRACTICE EXERCISE SAMPLE	6

Microsoft Excel

UNDERSTANDING WORKBOOKS

In Microsoft Excel the data you enter, whether it consists of numbers, text, or formulas, is stored in a file known as a **workbook**. Workbooks are just like huge electronic books with pages (or

sheets) that have been ruled into columns and rows. Before using Excel it is helpful to know what the various parts and elements that make up a workbook are.



A workbook (as you would expect) is made up of pages known as **worksheets**. You can have as many sheets in a workbook as your computer resources can accommodate. As a default, a new blank workbook normally has 3 worksheets labelled *Sheet1*, *Sheet2*, and *Sheet3*. Of course these labels are pretty boring and meaningless and can be changed to something more relevant

The *Insert Worksheet* button here will insert another worksheet into the current workbook should you need it

5

6

NAVIGATING IN A FILE

Arrow Keys	Move one cell to the right, left, up or down
Tab	Move once cell to the right
Ctrl+Home	To beginning file
Ctrl+End	To end of typed information
Home	Beginning of a line
End	End of a line
Page Down	Down one screen
Page Up	Up one screen
F5	To a specific page
Scroll bars	Appear at the right and on the bottom of the screen. You may click the scroll arrows, drag the scroll box or click the scroll bar to move through the document.

TYPING TEXT OR NUMBERS INTO A WORKSHEET

Generally when you start a new spreadsheet project, the first task is to enter some headings into rows and columns. To type anything into a worksheet you need to make the cell into which you wish to enter the data active. This can be done in a number of ways but the most common is to click in it first before typing.



For Your Reference...

To save a new document.

- 1. Click on the *File Tab* and select <u>Save As</u>
- 2. Locate the storage folder in the *Navigation pane*
- 3. Type a *File name* and click on [Save]

Handy to Know...

 In the exercise above we have named the workbook Garden Department Sales and filed it in C:\Course Files for Excel 2010.
 Each time you start Excel it will most likely assume you want to file your workbooks in a folder called Documents which is associated with the user name you use on the computer.

F

SPAIN

63598

53624

48569

25126

75863

SPAIN

63598

53624

48569

25126

75863

SPAIN

63598

53624

48569

25126

75863

Е

SPAIN

63598

53624

48569

25126

75863

TYPING SIMPLE FORMULAS IN A WORKSHEET

The whole idea behind Excel is to get it to perform calculations. In order for it to do this you need to type *formulas* in the worksheet. Usually these formulas reference existing numbers, or even other formulas, already in the worksheet using the cell addresses of these numbers rather than the actual value in them. Formulas must be typed beginning with an equal sign (=).



For Your Reference...

To enter a formula:

- Click the cell pointer on the desired cell and type the formula commencing with =
- 2. Press Enter, an arrow key or Tab to confirm the data entry and to move the cell pointer to another cell

Handy to Know...

Operators

- + Addition
- Subtraction
- * Multiplication
- / Division

FILLING A SERIES

A *series* refers to a sequence of ordered entries in adjacent cells, such as the days of the week or months of the year. The *fill* technique can be used to create these in a worksheet for you, reducing the amount of time taken for data entry, and ensuring that the spelling is correct. Excel provides days and months as special built-in **series** that you can access.



For Your Reference...

To *fill* a *series*:

- 1. Click on the first cell in the series
- 2. Drag from the fill handle across as many columns as required

Handy to Know...

As you drag the fill handle across, a *tool tip* appears below the fill pointer displaying the current value in the series. This is really handy when you want to end on a particular month, day or value.

INSERTING AND DELETING WORKSHEETS

Once you've decided on a structure for your workbook, you may find that there are some worksheets that can be *deleted*. Alternatively, you may find that you need additional blank worksheets *inserted*. However, remember that deletion of worksheets is permanent and can't be undone using *Undo*, so always save your workbook before making these changes.



For Your Reference...

To *insert* a *new worksheet* into a *workbook*:

Click on the *New Sheet* icon to the right of the worksheet tabs

To *delete* a *worksheet* from a *workbook*:

• Right click on the worksheet tab, then select **Delete**

Handy to Know...

 To insert a worksheet between existing worksheets, right-click on the worksheet tab before which you want to insert a new sheet, then click on *Insert* to display the *Insert* dialog box. Select *Worksheet* and click on [OK].

COPYING A WORKSHEET

Just as you can copy the contents of cells and ranges within a worksheet, you can *duplicate* worksheets within a workbook. This technique is ideal for replicating layouts. For example, if you have a budget workbook that contains data for several departments, you can create a worksheet for the first department and then copy it to create identical worksheets for other departments.



For Your Reference...

To copy a worksheet:

- 1. Right-click on the worksheet to copy, then select *Move or Copy*
- 2. Click on *Create a copy* so it appears ticked
- 3. Click on [OK]

Handy to Know...

- You can copy the current worksheet using the *HOME* tab by clicking on *Format* in the *Cells* group, then clicking on *Move or Copy Sheet*.
- The *Before sheet* options in the *Move or Copy* dialog box allow you to position the copied worksheet where you want.

RENAMING A WORKSHEET

By default, Excel names worksheets as **Sheet1**, **Sheet2**, **Sheet3**, etc. These names are fine if you are not planning to share the workbook, but changing these to something more relevant

makes it much easier to understand the purpose of a worksheet. You can also adjust the horizontal scroll bar to make room for longer, more meaningful worksheet names.



For Your Reference...

To rename a worksheet.

- 1. Double click on the current name on the worksheet tab
- 2. Type the new name and press Enter

Handy to Know...

- You can rename a worksheet by right-clicking on the worksheet tab to display the shortcut menu and clicking on *Rename*.
- A worksheet tab name can contain up to 31 characters including spaces, but it is better to keep it short and succinct.

MOVING OR COPYING A SHEET TO ANOTHER WORKBOOK

You can *copy* worksheets to other workbooks as required. For example, you might need to keep records for six different divisions – rather than send each division the entire set of records, you

can copy their worksheet to another workbook and send them their data only. If worksheets exist in the other workbook, you will need to determine the order in which to place the copied worksheet.



For Your Reference...

To copy a sheet to another workbook:

- 1. Right click on the worksheet tab, then click on *Move or Copy*
- 2. Select either *(new book)* or the name of another workbook in *To book*
- 3. Tick Create a copy, then click on [OK]

Handy to Know...

 To copy a worksheet into an existing workbook, make sure that you open the destination workbook first to ensure that it is listed in *To book* in the *Move or Copy* dialog box.

CHANGING WORKSHEET TAB COLOURS

To make it easier for you to distinguish between worksheets, Excel enables you to change the colours of worksheet tabs. This allows you, for example, to quickly distinguish between different financial years, departments or months. The *active sheet* appears as underlined in a gradient version of the selected colour, while inactive tabs will display a solid colour background.



For Your Reference...

To change the colour of a worksheet tab:

- 1. Right-click on the worksheet tab to display the shortcut menu
- 2. Point to *Tab colour* to display a palette of colour options
- 3. Click on the desired colour

Handy to Know...

 To apply the same colour to two or more sheets at once, select them first. Hold down shift to select consecutive worksheets or hold down Ctrl to select non-consecutive worksheets.

GROUPING WORKSHEETS

Worksheet *grouping* enables you to make the same change at once to all selected worksheets. This feature is useful in situations where your worksheets have identical layouts or text. For

example, if you want to format the heading for multiple worksheets, you simply *group* the worksheets, make a change to one worksheet and the other worksheets will reflect the change also.



For Your Reference...

To group worksheet tabs:

- 1. Click on the first worksheet tab
- Hold down Shift, then click on the last worksheet tab

Handy to Know...

- To deselect a group, either click on the tab of a worksheet that is not in the group, or right-click on a tab and select **Ungroup Sheets**.
- Most formatting and text changes done on a worksheet in a group will be applied to other sheets in that grouping.

FREEZING ROWS AND COLUMNS

When you lay out your data in rows and columns, it is most likely that your headings end up at the top or to the left of your data. If you have a large amount of data, you may find that when you scroll across or down to particular cells, the headings scroll out of view. This problem can be resolved by *freezing* the rows and/or columns that hold the headings.



For Your Reference...

To freeze panes in a worksheet.

- 1. Click in the cell below and to the right of the area you want to freeze/unfreeze
- 2. Click on the VIEW tab
- 3. Click on *Freeze Panes* in the *Window* group, then select **Freeze Panes**

Handy to Know...

If you want to freeze only the rows above the selected cell (leaving all columns unfrozen), select the cell in column *A* of that row – e.g. to freeze rows *1* to *6*, click in cell *A7*. The same applies to freezing only columns and leaving the rows unfrozen: select the cell in row *1*.

SELECTING RANGES

A *contiguous range* is any group of selected cells that form either a square or a rectangle. A single cell that is selected is also considered to be a range. Ranges can be selected using the

mouse, the keyboard or a combination of the two. Once selected, you can use the range for input, or apply formatting, or copy the cells as required.



For Your Reference...

To select ranges with the mouse:

- 1. Click in the left-most cell of the range
- 2. Hold down the **Shift** key and click in the last cell, Or
- 3. Drag the mouse pointer to the bottom right corner of the range

Handy to Know...

 When a range has been selected it can be used as an *input range*. You can then enter data into the active cell and move the active cell to either the cell below by pressing Enter,

or the adjacent cell by pressing Tab

SELECTING ROWS

If you want to make changes to an *entire row*, such as bolding all of the headings in a row or changing the font of all the cell entries, you must first select the row. This is done by clicking on the row header to the left of the row. Remember that any changes you make will apply to every cell in the row all the way across to column XFD, so be careful!



For Your Reference...

To *select* an entire *row*:

1. Click on the row header of the row that you want to select

OR

Click in any cell in the row and press
 Home + Shift

Handy to Know...

 When every cell in a row or column is selected, the corresponding row or column header is filled in dark blue. When only some of the cells are selected, the row or column header is filled in orange. These indicators help you locate the active cell(s) on the worksheet.

SELECTING COLUMNS

If you want to make changes to an *entire column*, such as bolding all of the headings in a column or changing the font of all the cell entries, you must first select the column. This is done by clicking on the column header directly above the column. Remember that any changes you make will apply to every cell in the column all the way down to row 1,048,576!



For Your Reference...

To *select* an entire *column*:

1. Click on the column heading of the column that you want to select

OR

Click in any cell in the column and press
 Home + Ctrl

Handy to Know...

 Make sure that you check your worksheet carefully after you've made changes to entire columns. Remember that all of the cells in that column are affected – even those in rows below the visible area.

UNDERSTANDING FORMATTING

In Excel there are always two aspects to a number: how the number presents on the screen (known as *formatting*) and the underlying value of the number. Take 2% as an example – on the

screen it is formatted to appear as a number with a percentage sign, whereas the real value in the cell is .02.

Number Formatting – The Veil Placed Over Numbers

All calculations in Excel are performed using numbers – this is only logical. So, when you want to perform a calculation, you type the numbers in various cells, then create formulas to reference those numbers. How do you show what those numbers represent? For example, how do you show you are working with *currency*, or *percentages*, or even *dates* (which in Excel are really *numbers*)?

Excel allows you to show these representations using *number formatting*. With number formatting you change the way a number looks so that it makes immediate sense to the reader of your worksheet. The underlying value of number, however, remains unchanged. For example, instead of showing sales tax in a worksheet as .1 you show it as 10%, to show 12889.95 as currency it would appears \$12,889.95 or €12,889.95 (depending upon the currency you are working with), and to show 44104 as a date you show it as 30-Sep-2020 (remember, dates are actually *numbers* representing the number of days from January 1, 1900).

The following worksheet contains formatted numbers:

	Α	В	С	D	E	F	G	Н	I
1	Sales Earnings								
2									
	Employee			Date	Height	Weight		Com'n	
3	No	First Name	Last Name	Started	(Mtr)	(Kg)	Total Sales	%	Commission
4	2344	John	Smith	03-Oct-03	16/7	69.30	\$8,220,266.00	2%	164,405.32
5	3433	Mary	Henry	12-Apr-04	2 1/9	75.22	\$12,771,833.00	2%	255,436.66
6	3233	Harry	Ulin	02-Mar-99	14/5	87.90	\$35,324,399.00	2%	706,487.98
7	5445	Jim	Harrison	04-Jul-92	2 1/5	95.66	\$17,338,194.00	2%	346,763.88
8	3333	Larry	Graham	14-May-05	2	89.44	\$9,670,630.00	2%	193,412.60
9	4444	David	Jenkins	06-Feb-07	1 2/3	68.30	\$6,152,310.00	3%	184,569.30
10	3332	lan	Quinn	26-Mar-95	16/7	69.32	\$36,973,644.00	3%	1,109,209.32
11	9887	Horace	Smyth	23-Dec-01	17/9	80.48	\$10,755,146.00	3%	322,654.38
12	4646	Yolanda	Victor	05-Jun-89	15/8	80.52	\$5,061,883.00	4%	202,475.32
13	5555	Quentin	Engels	03-Apr-01	18/9	78.40	\$13,329,586.00	5%	666,479.30
14									

With the formatting removed from the numbers the worksheet looks as follows:

	Α	В	С	D	E	F	G	Н	1
1	Sales Earnings								
2									
	Employee			Date	Height	Weight		Com'n	
3	No	First Name	Last Name	Started	(Mtr)	(Kg)	Total Sales	%	Commission
4	2344	John	Smith	37897	1.85	69.3	8220266	0.02	164405.32
5	3433	Mary	Henry	38089	2.1	75.22	12771833	0.02	255436.66
6	3233	Harry	Ulin	36221	1.797	87.9	35324399	0.02	706487.98
7	5445	Jim	Harrison	33789	2.21	95.66	17338194	0.02	346763.88
8	3333	Larry	Graham	38486	1.935	89.44	9670630	0.02	193412.6
9	4444	David	Jenkins	39119	1.65	68.3	6152310	0.03	184569.3
10	3332	lan	Quinn	34784	1.862	69.32	36973644	0.03	1109209.32
11	9887	Horace	Smyth	37248	1.77	80.48	10755146	0.03	322654.38
12	4646	Yolanda	Victor	32664	1.62	80.52	5061883	0.04	202475.32
13	5555	Quentin	Engels	36984	1.9	78.4	13329586	0.05	666479.3
14									

Formatting can also be applied as you type. For example, if you type **30/9/2020** Excel will place the number **44104** in the cell but will format this number as a date and show it as you typed it. There are also a range of number formatting options on the ribbon that allow you to apply formatting to numbers after they have been entered into a worksheet.
APPLYING GENERAL FORMATTING

The *Number Format* command in the *Number* group on the *HOME* tab contains a drop arrow that provides a gallery of the more commonly used number formats. You can apply these

formats easily and quickly to a selected cell or range of cells in the worksheet.



- 3. Click on the desired number format
- The *Currency* format shows the currency format and symbol appropriate to the country your computer is configured for.

In Excel 2007, font just refers to the typeface or

shape of the letters. Typical classic fonts include

Times New Roman, Arial, Century Gothic and

COPPERPLATE.

CHANGING FONTS

The appearance that you choose for your text is referred to as the *font* or *typeface*. Font traditionally refers to a combination of typeface, style and size in points (e.g. Arial Bold 12 pt).



For Your Reference...

To apply font formatting:

- 1. Select the text
- 2. Click on the drop arrow **Shift** for **Font**
- 3. Point to a font to preview it
- 4. Click on the font to apply it

Handy to Know...

 You can jump directly to a font. For example, if you want to preview Garamond, click on the name of the font in the *Font* command and

press **Ctrl**. Excel will jump to the fonts that start with **G** and **Live Preview** will display the text temporarily. Keep typing the name until you reach the required font.

CHANGING FONT SIZE

One way that text can be emphasised is by changing the *size* of the font. For example, if your normal text is 11 pt, you may like to make the headings 13 pt or larger. Font size may also be changed for small detailed items, such as comments or a caption. Main headings in a worksheet usually appear in a slightly larger font size compared to the rest of the data.

		4	A		В		С	D	E
This Yourself:		1	Alpheius Gl	obal E	Enterpris	25			
		2 F	levenue	Ţ.					
Continue using the previous file with this exercise, or open		3 4 5			Londor	1	Dublin	Melbourne	New Yor
Formatting_2.xlsx									
Click in cell A1 to make the cell with the main heading the active cell	2	9	Home	Inse	ert Page	Layo	ut Formu	E722 F las Data	ont Format
Click on the drop arrow next to		Pa	ste B	omic Sar	ns MS + 11	5	A A = ≡	: 	
the Font Size command		Clip	- 🍼 🖆		Font 10		5	Alignment	5
space in the Font group on			A1		· () 11		🖅 Alpheiu	s Global Enterp	rises
the Home tab to display a			А		B 14		С	D	E
gallery of available sizes		1	Alpheius G	lobal	Enterp 16				
Point to various sizes and		2	Revenue	_	20		-		
notice how <i>Live Preview</i>		3			22		Dublin	Melhourne	New
shows you how the heading		5			24		Dubini	Melbourne	THE W
will look		6	January		1,050, 28		1,547,000	1,488,369	1,523,12
		7	February		1,524, 36		1,685,548	1,599,854	1,789,55
Click on 16 to change the		8	March		3,521, 48		2,985,448	2,741,221	2,521,4
heading to 16 pt		9	1st Quarter		6,096,		6,217,996	5,829,444	5,834,1
You can also change the font		10							
size of parts of a document,									
and you can use the Mini			А		В		С	D	E
toolbar	8	1	Alpheius	s Glo	obal Fr	te	rprises		
						_			
		2	venue			-			
		4			London		Dublin	Melbourne	New Yor
Click with the right-mouse		5			condon		babiiii	menodume	
button to display the mini-		6 J	anuary		1,050,254		1,547,000	1,488,369	1,523,124
toolbar and the shortcut menu		7 F	ebruary		1,524,294		1,685,548	1,599,854	1,789,552
Click on the drop arrow payt to		8 1	/larch		3,521,487		2,985,448	2,741,221	2,521,447
Font Size Calibri		9 1 10	st Quarter		6,096,035		6,217,996	5,829,444	5,834,123
click on 14						T			
Click in cell 13 to hide the									
	1								
	This Yourself: Continue using the previous file with this exercise, or open the file E722 Font Formatting_2.xlsx Click in cell A1 to make the cell with the main heading the active cell Click on the drop arrow next to the Font Size command Spece in the Font group on the Home tab to display a gallery of available sizes Point to various sizes and notice how Live Preview shows you how the heading will look Click on 16 to change the heading to 16 pt You can also change the font size of parts of a document, and you can use the Mini toolbar Click in cell A2 Click with the right-mouse button to display the mini- toolbar and the shortcut menu Click on 14 On the drop arrow next to Font Size Calibri and click on 14	1Continue using the previous file with this exercise, or open the file E722 Font Formatting_2.xlsxClick in cell A1 to make the cell with the main heading the active cellClick on the drop arrow next to the Font Size command Space in the Font group on the Home tab to display a gallery of available sizesPoint to various sizes and notice how Live Preview shows you how the heading will lookClick on 16 to change the heading to 16 ptYou can also change the font size of parts of a document, and you can use the Mini 	1 1 1 2 3 4 4 2 3 4 4 2 5 7 6 7 7 8 9 10 1 1 1 1 1 1 1 2 1 1 1 2 1 2 1 1 1 1<	This Yourself: 1 Appendent Size (alloring the previous file with this exercise, or open the file E722 Font Formatting_2.xlsx 1 Alpheius Gile (alloring the previous file with this exercise, or open the file E722 Font Formatting_2.xlsx 2 Image: Content of the font formatting_2.xlsx Click in cell A1 to make the cell with the main heading the active cell 2 Image: Click on the drop arrow next to the Font Size command 1 Space in the Font group on the Home tab to display a gallery of available sizes 1 Alpheius Gile (alloring the heading will look 1 Click on 16 to change the heading to 16 pt 1 Alpheius Gile (alloring the font size of parts of a document, and you can use the Mini toolbar 8 Allopheius Gile (alloring the font size of parts of a document, and you can use the Mini toolbar 1 Alpheius Gile (alloring the font size of parts of a document, and you can use the Mini toolbar 8 Allopheius Gile (alloring the font size of parts of a document, and you can use the Mini toolbar 1 Alpheius Gile (alloring the font size (alloring the shortcut menu Click on the drop arrow next to Font Size Calloring the shortcut menu Click on 14 1 Alpheius Gile (alloring the shortcut menu toolbar and the shortcut menu toolbar and the shortcut menu toolbar (alloring the shortcut menu toolbar on 14 1 Alpheius Gile (alloring the shortcut menu toolbar toolbar toolbar toolbar toolbar toolbar toolbar toolbar (alloring the shortcut menu toolbar toolbar toolbar toolbar toolbar toolbar toolbar tool	A11	This Yourself: Image: Continue using the previous file with this exercise, or open the file E722 Font Formatting_2.xlsx Image: Click in cell A1 to make the cell with the main heading the active cell Image: Click in cell A1 to make the cell with the main heading the active cell Click on the drop arrow next to the Font Size command specing in the Font group on the Home tab to display a gallery of available sizes Image: Click on 16 to change the heading will look Click on 16 to change the heading to 16 pt Image: Click in cell A2 You can also change the font size of parts of a document, and you can use the Mini toolbar Image: Click in cell A2 Click on the drop arrow next to Font Size Calibri to various sizes and notice how Live Preview shows you how the heading will look Image: Click in cell A2 Click in cell A2 Click in cell A2 Click on the drop arrow next to Font Size Calibri to various and the shortcut menu Click on 14 Image: Click on 14	This Yourself: I Alpheius Global Enterprises Continue using the previous file with this exercise, or open the file E722 Font Formatting_2.xlsx I Alpheius Global Enterprises Click in cell A1 to make the cell with the main heading the active cell I anuary 1050,25 Click on the drop arrow next to the Font Size command Space in the Font group on the Home tab to display a gallery of available sizes I alpheius Global Enterprises Point to various sizes and notice how Live Preview shows you how the heading will look I alpheius Global Enterprise Click on 16 to change the heading to 16 pt I alpheius Global Enterprises You can also change the font size of parts of a document, and you can use the Mini toolbar I alpheius Global Enterprises Click with the right-mouse button to display the minitoolbar and the shortcut menu I alpheius Global Enterprises Click on the drop arrow next to Font Size Calibri and the shortcut menu I alpheius Global Enterprises Click on 14 anuary 1,050,254	This Yourself: A b Continue using the previous file with this exercise, or open the file E722 Font Formatting_2.xlsx Click in cell A1 to make the cell with the main heading the active cell 1 Alpheius Global Enterprises London Dublin Enterprises Inset Formatting_2.xlsx Click in cell A1 to make the cell with the main heading the active cell Click on the drop arrow next to the Font Size command Space in the Font group on the Home tab to display a gallery of available sizes Point to various sizes and notice how Live Preview shows you how the heading will look 1 Alpheius Global Enterprises Click on 16 to change the heading to 16 pt You can also change the font size of parts of a document, and you can use the Mini toolbar Click in cell A2 Click with the right-mouse button to display the minitolobar and the shortcut menu Click on the drop arrow next to Font Size Calibri Colbar and the shortcut menu Click on the drop arrow next to Font Size Calibri and the shortcut menu March 3.521, 42, 2385, 448 March 3.521, 42, 2385, 448 March 3.521, 42, 2385, 448 March 3.521, 42, 2385, 448	This Yourself: I Alpheius Global Enterprises Continue using the previous file with this exercise, or open the file E722 Font. Formatting 2.xlsx I Alpheius Global Enterprises Click in cell A1 to make the cell with the main heading the active cell I anuary Click on the drop arrow next to the Font group on the Home tab to display a gallery of available sizes Point to various sizes and notice how Live Preview shows you how the heading will look Click on 16 to change the heading to 16 pt You can also change the font size of parts of a document, and you can use the Mini toolbar Click with the right-mouse button to display the minitoolbar and the shortcut menu. Click on the drop arrow next to Font Size Calibri and the shortcut menu. Click on the drop arrow next to Font Size Calibri and the shortcut menu. A be anuary 1.050, 254 Click on the drop arrow next to Font Size Calibri and the shortcut menu. A be anuary 1.050, 254 Sould an addition to display the minitoolbar and the shortcut menu. A be anuary 1.050, 254 Click on the drop arrow next to Font Size Calibri and the shortcut menu. A be anuary 1.050, 254 A be anuary 1.050, 254 1.547,000 A be anuary 1.050, 254 1.547,000

For Your Reference...

To change font size:

- 1. Select the cell or range that you want to change
- 2. Click on the drop arrow of Font Size
- 3. Click on the required font size

Handy to Know...

• You may have noticed that the text didn't change size when you used the mini toolbar until you actually clicked on a different font size. This is because *Live Preview* doesn't work with the mini toolbar.

UNDERSTANDING BORDERS

Borders are lines that are placed around the edges of individual cells or ranges. The lines may be thin, thick, solid, dashed, black or coloured, or even double lines. The reason for using borders is that the lines can be used to group together data or indicate totals, or to draw the user's attention to critical cells that may need special data entry. Here are some examples.

A Worksheet without and with Borders

Borders can be used to apply a structure. Here's the same worksheet shown without borders and then with borders applied. The use of borders helps to highlight the totals and separate them from the other data.

2]	A	В	C	D	8	8	F	G	н	1					
			Alph	eius G	lok	ba	l Enterpr	ises							
	Budget Foreca	ast for Year													
	and a second second														
	Sales	lan	Feb	Mar		A	or Mav	Jun	Total SAUS	5 Total S	us				
	Auckland	\$105.025	\$154,700	\$148,837	\$10	53.7	21 \$180.093	\$198,102	\$950.47	7 \$665.3	334				
	Dublin	\$152,429	\$168,555	\$159,985	\$1	75.9	84 \$193,582	\$212,941	\$1.063.476	5 \$744.4	434				
	Melbourne	\$352,149	\$298,545	\$274,122	\$30	01.5	34 \$331,688	\$364,857	\$1,922,894	4 \$1,346.0	026				
	New York	\$253,123	\$262,189	\$245,400	\$20	-	an dans and		4					27-75	NO
	No. I TOTA	· · · · · · · · · · · · · · · · · · ·	VEOR (800	yr 10, 100		K.	A	В	C	D	E	F.	G	Н	1
	Total Sales	\$862,726	\$883,989	\$828,344	\$9				Alpha	eius G	Iohal I	Intern	ises		
					-	1			Alpin	cius u	iobui i	-incipi	1303		
	Costs	Jan	Feb	Mar		2	Budget Foreca	ast for Year							
	Auckland	\$55,100	\$85,055	\$81,887	s	3	1								
	Dublin	\$83,822	\$92,678	\$87,911	Ś	4									
	Melbourne	\$193,688	\$164,155	\$150,777	\$1	5	Sales	Jan	Feb	Mar	Apr	May	Jun	Total \$AUS	Total \$US
ì	New York	\$139,267	\$144.145	\$134,955	\$1	6	Auckland	\$105,025	\$154,700	\$148,837	\$163,721	\$180,093	\$198,102	\$950,477	\$665,334
		1				7	Dublin	\$152,429	\$168,555	\$159,985	\$175,984	\$193,582	\$212,941	\$1,063,476	\$744,434
i	Total Costs	\$471.877	\$486.033	\$455,531	\$5	8	Melbourne	\$352,149	\$298,545	\$274,122	\$301,534	\$331,688	\$364,857	\$1,922,894	\$1,346,026
						9	New York	\$253,123	\$262,189	\$245,400	\$269,940	\$296,934	\$326,627	\$1,654,212	\$1,157,949
	Gross Income	\$390,849	\$397,955	\$372.813	\$4	10									
1						11	Total Sales	\$862,726	\$883,989	\$828,344	\$911,179	\$1,002,297	\$1,102,526	\$5,591,060	\$3,913,742
1	Fixed Costs	\$2,000	\$2,200	\$2,420		12							-		
i			1 against	1-1		13	Costs	Jan	Feb	Mar	Apr	May	Jun	Total \$AUS	Total \$US
	Net Income	\$388,849	\$395,755	\$370,393	\$4	14	Auckland	\$55,100	\$85,055	\$81,887	\$90,076	\$99,084	\$108,992	\$520,195	\$364,136
						15	Dublin	\$83,822	\$92,678	\$87,911	\$96,703	\$106,373	\$117,010	\$584,497	\$409,148
ĺ.						16	Melbourne	\$193,688	\$164,155	\$150,777	\$165,855	\$182,441	\$200,685	\$1,057,602	\$740,321
2						17	New York	\$139,267	\$144,145	\$134,955	\$148,451	\$163,296	\$179,625	\$909,738	\$636,817
1	Exchange Rate	85%				18									
						19	Total Costs	\$471,877	\$486,033	\$455,531	\$501,085	\$551,193	\$606,312	\$3,072,031	\$2,150,422
			-			20									
						21	Gross Income	\$390,849	\$397,955	\$372,813	\$410,094	\$451,104	\$496,214	\$2,519,029	\$1,763,320
						22									
						23	Fixed Costs	\$2,000	\$2,200	\$2,420	\$2,662	\$2,928	\$3,221	\$15,431	\$10,802
						24									
						25	Net Income	\$388,849	\$395,755	\$370,393	\$407,432	\$448,175	\$492,993	\$2,503,598	\$1,752,518
						26									
						27									
						28									
						29	Exchange Rate	85%							
						30									

Border Variations

Borders can be applied to all four sides of a cell, or to individual sides of a cell. The following examples show a cell without a border, with an outside border and a top and double bottom border.



APPLYING A BORDER TO A RANGE

You can apply a border to a *range* of cells. This allows you to place an outline around them to indicate that the cells are somehow related to each other, or to place borders between cells to



indicate that they are in separate groups. Borders can be used in ranges of cells to create a more form-like appearance. The borders available for single cells can also be applied to ranges.

3						
4						
5	Sales	Jan	Feb	Mar	Арг	
6	Auckland	\$105,025	\$154,700	\$148,837	\$163,721	
7	Dublin	\$152,429	\$168,555	\$159,985	\$175,984	
8	Melbourne	\$352,149	\$298,545	\$274,122	\$301,534	
9	New York	\$253,123	\$262,189	\$245,400	\$269,940	
10						
11	Total Sales	\$862,726	\$883,989	\$828,344	\$911,179	\$1
12						

3						
4						
5	Sales	Jan	Feb	Mar	Арг	
6	Auckland	\$105,025	\$154,700	\$148,837	\$163,721	
7	Dublin	\$152,429	\$168,555	\$159,985	\$175,984	
8	Melbourne	\$352,149	\$298,545	\$274,122	\$301,534	
9	New York	\$253,123	\$262,189	\$245,400	\$269,940	
10						
11	Total Sales	\$862,726	\$883,989	\$828,344	\$911,179	\$:
12						

	А	В	С	D	E	F	G	Н	1
1			Alph	eius G	lobal	Enterpi	ises		
2	Budget Foreca	ist for Year							
3									
4									
5	Sales	Jan	Feb	Mar	Apr	May	Jun	Total \$AUS	Total \$U\$
6	Auckland	\$105,025	\$154,700	\$148,837	\$163,721	\$180,093	\$198,102	\$950, 477	\$807,906
7	Dublin	\$152,429	\$168,555	\$159,985	\$175,984	\$193,582	\$212,941	\$1,063,476	\$903,955
8	Melbourne	\$352,149	\$298,545	\$274,122	\$301,534	\$331,688	\$364,857	\$1,922,894	\$1,634,460
9	New York	\$253,123	\$262,189	\$245,400	\$269,940	\$296,934	\$326,627	\$1,654,212	\$1,406,080
10									
11	Total Sales	\$862,726	\$883,989	\$828,344	\$911,179	\$1,002,297	\$1,102,526	\$5,591,060	\$4,752,401
12									
13	Costs	Jan	Feb	Mar	Apr	May	Jun	Total \$AUS	Total \$U\$
14	Auckland	\$55,100	\$85,055	\$81,887	\$90,076	\$99,084	\$108,992	\$520,195	\$442,165
15	Dublin	\$83,822	\$92,678	\$87,911	\$96,703	\$106,373	\$117,010	\$584,497	\$496,822
16	Melbourne	\$193,688	\$164,155	\$150,777	\$165,855	\$182,441	\$200,685	\$1,057,602	\$898,961
17	New York	\$139,267	\$144,145	\$134,955	\$148,451	\$163,296	\$179,625	\$909,738	\$773,278
18									
19	Total Costs	\$471,877	\$486,033	\$455,531	\$501,085	\$551,193	\$606,312	\$3,072,031	\$2,611,227
20									
21	Gross Income	\$390,849	\$397,955	\$372,813	\$410,094	\$451,104	\$496,214	\$2,519,029	\$2,141,175
22									
23	Fixed Costs	\$2,000	\$2,200	\$2,420	\$2,662	\$2,928	\$3,221	\$15,431	\$13,117
24									
25	Net Income	\$388,849	\$395,755	\$370, 393	\$407,432	\$448,175	\$492,993	\$2,503,598	\$2,128,058
26									
27									
28									
29	Exchange Rate	85%							
30									

For Your Reference...

To apply a border to a range:

- 1. Select the range
- 2. Click on the drop arrow for **Borders** 11 in the **Font** group on the **Home** tab
- 3. Click on the border option of your choice

Handy to Know...

You can copy a border between cells, for example, from one table to another, using *Paste Special*. Select the cells, click on *Copy* 11 , click on the first cell of the second range and click on the drop arrow for *Paste* . Select Paste <u>Special</u>, click on *Formats* and then click on [OK].

WRAPPING AND MERGING TEXT

Microsoft Excel will allow long cell entries to spill across to other adjacent cells to the right as long as those cells are empty. If those cells contain data the spill-over will be chopped off. If you need to place long text entries in a cell you can arrange for Microsoft Excel to wrap the text within the cell and also merge that cell with others to accommodate the longer text entry.

T				A	В	C	D	E	
iry	inis fourself:		1	Alpheius G	Global	Enterpi	rises		
_	Before starting this exercise		2	Annual Sales					
oer ile	vou MUST open the file E723		3	Health Service	s				
О Ш	Cell Alianment 9.xlsx		4						
_	0 –		5	The sales figures her	a have been p	repared by ou	r London office	and consolida	te sales fo
	Click in cell A5				, ed	₽°	\$ ²		et a
	This cell contains a long text	3	6		240	2	۲ ×	he	No
	entry that spills across several		7	Midweek					
	columns			•	P				
	Click on the Expand Formula			Alahaina					
2	Bar tool ctril to the right of the		1	Alphelus G					
	formula bar to see all of the		2	Annual Sales					
	text		3	Health Service	S				
	Click on the Wron Toxt		4			_			
3	Click on the wrap lext			The sales figures here have been					
				prepared by our					
	Alignment group on the			London office and consolidate sales					
	nome tab to wrap the text in			for all divisions					
				including London, Sydney, Rome, and					
	Notice how the row height has	5	5	Paris.		_			
	now increased				X	i i			
	Hold down the 🔄 key and		6		Nee				
	click in cell E5 to select the		7	Midweek					
	range A5:E5			Δ	B	C	D	F	F
				Alphoius Gl	obal En	torprise) (L .	-
5	Click on the drop arrow					reipiise			
	for <i>Merge & Centre</i> in the		2	Health Services					
	Alignment group and select		4	ficultin Scivices					
	Merge Cells to merge the cells								
	In the range								
6	Move the mouse pointer to the								
	bottom of the row 5 heading								
	border and drag the row height			The sales figures here h	ave been prepa	ared by our Lond	lon office and co	nsolidate sales	
	up until you reach 30 points		5	for all divisions includi	ng London, Syd	iney, Rome, and	Paris.		
					est?	est.	Jest?	eta	.0
		1	6		h,	2	14.	N.	'n.

For Your Reference...

- To wrap text click in the cell to merge and click on the *Wrap Text* command in the *Alignment* group on the *Home* tab
- To merge text click on the drop arrow shift for Merge & Centre in the Alignment group and select Merge Cells

Handy to Know...

• In the example above, wrapping forced the text into one cell and Excel expanded the row height so that all of the text was accommodated. We then merged the text across several horizontal cells in the exercise above so that we could reduce the row height to a more acceptable level.

the same folder as the student files)

Font Formatting

Tasks:

Before starting this exercise you MUST have completed all of the topics in the chapter Font Formatting...

1

Format the heading in cell A1 as Cambria, 36 pt, bold, Orange Accent 2

Open the workbook called *PE_Font Formatting.xlsx* (it can be found in

- Format the other headings as bold, italic or underline as shown on the 3 following page
- Use Orange, Accent 2, Lighter 80% to fill the area behind the headings 4 as shown on the following page
- Add the superscript ¹ in cell H3 and in cell B27 with the following comment 5

¹ Fee may be reduced as the result of Government Assistance

Your completed worksheet should appear as shown on the following page...

Use the Save As command to save the workbook as PE_Font Formatting (Completed).xlsx

4	A	В	С	D	E	F	G	H I	J
Ĩ.	San	dy Co	ve I	Ioli	day	y P	rogr	am	
2									
3	Reservations	for January 2009				F	ee per Child	per Day ¹ \$33.00	
4				A	ge Group				
5	Date	Day	5-6	7-8	9-12	13-14	Total	Fees	
5	6/01/2014	Monday	10	14	15	8	47	\$1,551.00	
7	7/01/2014	Tuesday	9	14	12	7	42	\$1,386.00	
8	8/01/2014	Wednesday	11	15	13	8	47	\$1,551.00	
9	9/01/2014	Thursday	12	16	12	10	50	\$1,650.00	
0	10/01/2014	Friday	11	15	15	12	53	\$1,749.00	
1									
2	13/01/2014	Monday	15	18	20	14	67	\$2,211.00	
3	14/01/2014	Tuesday	14	19	17	12	62	\$2,046.00	
4	15/01/2014	Wednesday	16	20	18	13	67	\$2,211.00	
5	16/01/2014	Thursday	17	17	17	15	66	\$2,178.00	
6	17/01/2014	Friday	16	20	20	17	73	\$2,409.00	
7									
8	20/01/2014	Monday	16	20	20	13	69	\$2,277.00	
9	21/01/2014	Tuesday	14	18	17	12	61	\$2,013.00	
20	22/01/2014	Wednesday	16	20	18	14	68	\$2,244.00	
1	23/01/2014	Thursday	18	19	17	15	69	\$2,277.00	
22	24/01/2014	Friday	17	20	20	17	74	\$2,442.00	
23									
4	Total Childre	n	81	97	92	71	341	\$11,253.00	
25									
26									
27		¹ Fee may be re	duced as the	result of G	overnmer	nt Assistar	nce		
28									

Cell Alignment

Tasl	ks:	Completed:
	Before starting this exercise you MUST have completed all of the topics in the chapter Cell Alignment	
1	Open the workbook called PE_Cell Alignment1.xlsx (it can be found in the same folder as the student files)	
2	Right-align the fees	
3	Left align the range B6:B21	
4	Centre align cells B23 , B25 and B27	
5	Use the Save As command to save the workbook as PE_Cell Alignment1 (Completed).xlsx	

21	A	В	С	D	E	F
1	Hedg	ehog - Garden M	aintenance S	ervice		
2	Fee Ca	lculator				
3						
4		Please type x for the Serv	ice Required			
5			10.1			
6		Maintenance Type	Service Required	Fee		
7						
8		Garden	x	\$50.00		
9		Hedge	x	\$75.00		
10		Lawns				
11		Tree				
12		All				
13						
14		Frequency				
15		3111/24	-			
16		Weekly				
17		Fortnightly				
18		Monthly				
19		Quarterly	x			
20		Six Monthly				
21		Annually				
22						
23		Fee per visit	\$125.00			
24	-					
25		Annual Fee	\$500.00			
26			5 • • • • • • • • • • • • • • • • • • •			
27	-	Discounted Annual Fee	\$475.00			
28						

Number Formatting

Tasks:		Completed:
Before starting this exercise the chapter Number Format	you MUST have completed all of the topics in ting	
Open the workbook called F in the same folder as the stu	PE_Number Formatting.xIsx (it can be found udent files)	
On the <i>Cargo</i> worksheet, and they appear as shown in sate	pply formatting to the dates and figures so that mple A on the next page	
This will involve applying a number of decimals and app	date format, thousands separator, setting the plying the currency format	
3 On the <i>Purchases</i> workshe as shown in sample B on th	et, apply formatting so that the figures appear e following page	
The currency formats should and ETB Amharic (Ethiopia) a little to make room for the	d be \$, € Euro (€ 123), R English (South Africa)) respectively. You'll need to widen the columns characters added by the formatting	
Use the Save As command Formatting (Completed).x	to save the workbook as PE_Number Isx	

1	A	B	C	D	E	
ï	Af	rican	Adv	entu	re	
2		Cargo	Fees Summa	iry		
3						
4						
5	Trip Dates	2014	7/02/2014	22/02/2014		
ő						
7	Item	Kg	Cost per Kg	\$2,58	\$AUD	
8						
9	Art	2,547	\$6,571.26			
10	Fabric	1,780	\$4,592.40			
11	Clothing	685	\$1,767.30			
12	Furniture	4,850	\$12,513.00			
13	Pottery	3,850	\$9,933.00			
14						
15	Total	13,712	\$35,376.96			
16						
17						

-4	A	B	C	D	ε	£	6	
1			Afri	can	Adven	ture		
2				Purcha	ase Summary			
3:								
4				1	Conversion Rate a	as at February 2014		
5					0.6511	9.714	17,464	
6		2013	2014					
7	Item	\$ AUD	\$ AUD	% Inc	Euros	Rand	Birr	
8								
9	Art	\$45,832.00	\$69,048.00	50.65%	€ 44,957.00	R 670,732.00	ETB1,205,854.00	
10	Fabric	\$75,486.00	\$81,310.00	7.72%	€ 52,941.00	R 789,845.00	ETB1,419,998.00	
11	Clothing	\$66,892.00	\$75,026.00	12.16%	€ 48,849.00	R 728,803.00	ETB1,310,254.00	
12	Furniture	\$87,563.00	\$118,336.00	35.14%	€ 77,049.00	R 1,149,516.00	ETB2,066,620.00	
13	Pottery	\$25,874.00	\$37,755.00	45.92%	€ 24,582.00	R 366,752.00	ET8659,353.00	
14								
15	Total	\$301,647.00	\$381,475.00		€ 248,378.00	R 3,705,648.00	ETB6,662,079.00	
16		15 EXCHANGE OF A CONTROL OF						
17								

UNDERSTANDING FUNCTIONS

Imagine having to create a formula that calculated the monthly payments on a loan, or the average of over 100 cells – these would require complex or long formulas that would be time consuming to develop. This is the role of hundreds of arithmetic functions that have been pre-programmed in Excel for you.

Functions Overview

Functions are simply pre-programmed formulas already provided for you in Excel which can perform calculations covering a wide range of categories including statistics, date and time arithmetic, financial calculations, lists, engineering, and more.

Just like normal formulas that you create, functions must start with an *equal sign*. The equal sign is then followed by the *name* of the function (usually a descriptive name which indicates the purpose of the function). Most functions also require additional information known as *arguments* which are supplied to the function in brackets after the function name. Functions are therefore written as follows:

=name(arguments)

The arguments are quite often cell or range references that contain values that can be used in the function. For example, the commonest function is the *SUM* function which, as its name suggests, is used to sum or add values together. If you wanted to add all of the values in the cells from *B10* to *D15* you would write this function as:

=SUM(B10:D15)

As you can see this is much simpler than writing your own referential formula which would look like:

=B10+B11+B12+B13+B14+B15+D10+D11+D12+D13+D14+D15

Imagine writing and proofing a formula where you had to add 200 cells!

Typing Functions

If you are familiar with the function that you need you can type it into a cell exactly the same way you type any other formula. If you are not sure if Excel has a function or you can't quite remember how it is written you can use the *Insert Function* tool \leftarrow on the Formula Bar to assist you. When you click on this tool the *Insert Function* dialog box will be presented to you which lists the most recently used or common functions and also allows you to search for other functions that you might need.

Insert Function
Search for a function:
Type a brief description of what you want to do and then click
Or select a category: Most Recently Used
Select a function:
AVERAGE
Help on this function OK Cancel

The *Insert Function* dialog box will also type the function out for you and then provide you with a further dialog box to guide you through the process of specifying the arguments that the function needs to perform its calculation.

USING THE SUM FUNCTION TO ADD

One of the most used functions is the **SUM** function. This function allows you to add the values in a range of cells. The function is written as: **=SUM(range or ranges to add)**. You can

type the function, and then use the pointing technique to fill in the arguments. Excel then paints marquees around the cells involved helping you to track your progress.



For Your Reference...

To type a sum function for a contiguous range:

- 1. Type **=sum(**
- 2. Select the range of cells
- 3. Type)
- 4. Press 칠

Handy to Know...

- You can also use the *Sum* command in the *Editing* group on the *Home* tab of the *Ribbon* to have Excel automatically enter a sum function based on a range of cells.
- You can also type the name of a function in upper or lowercase – it is not case sensitive.

G

X

average function can be applied using the

Functions Wizard, a part of Excel that steps you

through the process of creating a function or you

can type it in yourself if you are comfortable with it.

CALCULATING AN AVERAGE

The **AVERAGE** function allows you to average the values in a range of cells. It is written in much the same way as the **SUM** function, for example, **=AVERAGE(range of cells to average)**. The

			Incort Eur	stion			2 22	1
Try ⁻	This Yourself:		Search for	r a function:				
(h)	Continue using the previous file		Type a Go	brief description	of what you want to	do and then click	<u>G</u> o	
Same File	with this exercise, or open the file E710 Formulas 6.xlsx		Or select Select a fu	t a <u>c</u> ategory: M unctio <u>n</u> :	ost Recently Used	•		
1	Click on B29 then click on the Insert <u>F</u>unction tool f to		AVERAG IF HYPERL COUNT MAX SIN	GE INK			=	
	display the <i>Insert Function</i> dialog box		SUM(no Adds all	umber1,numb the numbers in a	er2,) a range of cells.			
2	Click on <i>AVERAGE</i> in <i>Select a</i> <i>function</i> then click on [OK] to display the <i>Function</i> <i>Arguments</i> dialog box		Help on th	is function		ОК	Cancel	
	Olish an the Denne Colostan	A	VERAGE	+ (-)	√ Jx =AVER	AGE(86:88,811:	313,816:818,82	1:823)
3	Click on the Range Selector	6 Jan	A	H 1 050 2	C	D	1 523 124	F
	tool [for Number1 to roll up	7 Febr	uary Narv	1,050,2	1,547,000	1,400,309	1,523,124	
	the wizard then hold down Ctrl	Functi	on Argume	nts	1.000.040	1.000.004	1.100.002	
	and select the following ranges	9 B6:B8,E	311:B13,B16	:B18,B21:B23				
	and select the following ranges	11 April		2,531,2	25 2,621,889	2,453,999	2,547,441	
	B6:B8	12 May		550,9	98 850,554	818,874	837,228	
	B11:B13	13 June	Quarter	3 920 4	23 926,778	879,114	983,225	
	B16:B18	14 2/10	Quarter	3,920,44	4,355,221	4,151,307	4,307,034	
	B21-B23	16 July		1,936,8	32 1,641,554	1,507,774	1,386,448	
	D21.D25	17 Augu	ıst	1,392,6	56 1,441,447	1,349,552	1,400,116	
	Press Enter to complete the	18 Sept	ember	3,332,2	11 223,323	322,332	673,322	
4		19 3ra	Quarter	6,661,7	3,306,324	3,179,658	3,459,666	
	range specifications, then click	21 Octo	ber	2,311,2	1,298,877	1,299,567	1,342,112	
	on [OK] to complete the process	22 Nove	ember	1,234,4	55 2,341,122	1,884,566	324,555	
		23 Dece	ember Oursister	2,590,3	32 3,213,332	844,355	12,665,444	
	Let's use the AutoSum	24 400	Juarter	0,130,0	21 0,053,331	4,020,400	14,332,111	
	function	26 Tota	1	22,814,2	61 20,776,872	17,189,577	27,994,014	
	Click on B34 then click on the	27 28 Mon	thly					
5	drop arrow for the Sum	29 Aver	age	8,B21:B23)	_]			
_	diop allow for the Sum	5 xi	mum					
	command 26 on the Editing		61					
	group, then select Average		28 Mor 29 Ave	n thly rage	1,901,188			
6	Click on B9, hold down Ctrl and		30 Max	imum				
	click on B14 , B19 and B24 then		31 Mini 32	mum				-
	press inter to complete the		33 Qua	rterly				
	press Enter to complete the		34 Ave	rage	=AVERAGE(<mark>B2</mark>	9:B33)		
	tormula		35 Max	imum	AVERAGE(num	ber1, [number2],)	
								-

For Your Reference...

To insert an average function:

- Click in the cell then click on the *Insert* <u>Function</u> tool
- 2. Click on AVERAGE in Select a function
- 3. Insert the required ranges then click on [OK]

Handy to Know...

 You can type queries like "How do I work out the monthly payment for a car loan?" into the *Search* box in the *Insert Function* dialog box. Once you have selected a function from the *Select a function* list, the *Function Arguments* dialog box will help you to enter the values into the function.

FINDING A MINIMUM VALUE

The *Minimum* or *MIN* function allows you to extract the lowest value from a range of values. It is written in much the same way as the *SUM* function. For example, **=MIN(range of cells)**. The function can be applied using the *Function Wizard*, or by typing the function in detail directly into the cell.



- To **insert** a **minimum function**:
 - Click in the cell then click on the *Insert* <u>Function</u> tool
 - 2. Click on *MIN* in *Select a function*
 - 3. Insert the required ranges then click on [OK]
- You might use a *Minimum* function in real life to find the lowest value in a large range of numbers. For example, in a large inventory it can be used to work out which product is the slowest seller.

COMMON ERROR MESSAGES

Microsoft Excel has some in-built messages that can assist you when something goes wrong with a formula. These messages appear in the cell that contains the formula, and sometimes also other formula cells that depend upon it. The messages are always prefixed with a hash sign (#) and appear with a code. The more common error messages are listed below.

A Line of Hash (#) Signs

Sometimes referred to as "tramlines", a line of hash signs usually occurs because a column is not wide enough to display the numbers in the cell or formula. Widening the column will correct this problem – you can drag the column heading until the value in the cell appears as it should.

#DIV/0!

This message means you are trying to divide a value by zero – this is mathematically impossible. In the example at the left we are trying to find the average number of persons per household. All is fine as long as there is a value greater than zero in cell B3 (Houses). As soon as we change this to a zero an error message appears in the formula cell (B5).

To prevent the error you will need to enter a value greater than zero into cell B3, the *divisor* cell.

#VALUE!

In this message Excel is advising that something in the formula is not a value and therefore a calculation can't be made.

A close examination of the example at the left shows cell B3 contains the word "three". Therefore the formula in cell B5 is trying to divide 192,664 (in cell B2) with a word, which doesn't make sense.

To fix the error, a value (a number) will need to be entered in cell B3.

#NAME?

This message appears when text is found in a formula that can't be matched to either a legitimate function or range name.

In the example to the left, the formula has been entered as =SOME(B3:B7) – there is no such function as **SOME**, and presumably the author should have typed =SUM(B3:B7).

B2	1	• : D	× v	<i>f</i> _× 540	000234778	
	А	В	С	D	E	F
1						
2		#########				
3						
4						
5						

BS	5 * :	$\times \checkmark f_x$	=B2/E	33
	А	В	С	D
1				
2	People	192,664		
3	Houses	0		
4				
5	Persons/hote	#DIV/0!		
6				

BS	5 • :	$\times \checkmark f_s$	=B2/E	33
	А	В	С	D
1				
2	People	192,664		
3	Houses	Three		
4				
5	Persons/hote	#VALUE!		
6				

BS	• • :	$\times \checkmark f_s$	=SON	IE(B3:B7)	
	А	В	С	D	E
1					
2		Inventory			
3	Giraffes	34			
4	Tigers	54			
5	Lions	23			
6	Elephants	29			
7	Bats	103			
8					
9	Total 🚯	#NAME?			
10					

Formulas And Functions

Tas	ks:	Completed:
	Before starting this exercise you MUST have completed all of the topics in the chapter Formulas And Functions	
1	Open the workbook called PE_Formulas And Functions.xlsx (it can be found in the same folder as the student files)	
2	Create a formula that calculates the gross pay for each employee, then use a function to calculate the total of the gross pay	
	The total for Gross Pay should appear in E14	
3	Create a formula that calculates the tax as being 20% of the gross pay for each employee, then create a total for the tax	
4	Create a formula to calculate the net pay for each employee and then a total of the net pay	
5	Create a formula that calculates the superannuation as being 8% of the gross pay for each employee, then create a total for superannuation	
6	Use functions to determine the average, maximum and minimum values for each column, setting the number of decimal places to 2	
	Your worksheet should appear as shown on the following page	
7	Use the Save As command to save the workbook as PE_Formulas And Functions (Completed).xlsx	

21	A	В	С	D	E	F	G	Н	1
1		Cl	ever	Quei	ntin's	Used	Cars	i.	
2	Weekly F	Payroll							
3	Departmen	t: Vehicle Sal	es						
4									
5									
6	First Name	Last Name	Hours	Rate	Gross Pay	Tax	Net Pay	Superannu	ation
7	Virginia	Bernard	16	25.90	414.40	82.88	331.52	33.15	
8	Catherine	Harvest	24	16.40	393.60	78.72	314.88	31.49	
9	Steve	Jones	40	28.50	1,140.00	228.00	912.00	91.20	
0	Sam	McGregor	40	25.70	1,028.00	205.60	822.40	82.24	
11	Sandra	O'Shea	35	29.60	1,036.00	207.20	828.80	82.88	
12	Eddie	Smith	40	28.50	1,140.00	228.00	912.00	91.20	
13									
14	Totals				5,152.00	1,030.40	6,182.40	412.16	
15									
16	Average		32.5	25.77	858.67	171.73	686.93	68.69	
17	Maximum		40	29.60	1,140.00	228.00	912.00	91.20	
18	Minimum		16	16.40	393.60	78.72	314.88	31.49	
19	2000								
20									

UNDERSTANDING QUICK ANALYSIS

The **Quick Analysis** tools were developed in response to the fact that users weren't using or even aware of the more powerful analytical tools found in Excel. So Excel decided to combine

Live Preview with some of these tools to create the *Quick Analysis* tools.

The Quick Analysis Button

The *Quick Analysis* button appears when a range is selected in a worksheet. Clicking on the button displays the *Quick Analysis* gallery which contains quick analysis tools that can be applied to the selected data.

The tools have been organised along tabs at the top – *FORMATTING*, *CHARTS*, *TOTALS*, *TABLES*, and *SPARKLINES*.

When you click on a tab, options specific to that tab are presented.



Using Quick Analysis Tools With Live Preview

Most of the *Quick Analysis* tools in the *Quick Analysis* gallery provide a Live Preview of the changes in the worksheet when you point to an option.

This is very useful if you are not sure of the formatting or type of analysis you require as it provides you with a preview of what the data would look like if you selected that specific option.

At the right we have selected only the totals from the worksheet shown above. We have pointed to options from the **TOTALS** tab (% *Total* and *Average*) and from the **FORMATTING** tab (*Data Bars*).

Live Preview has either presented another row of analysed data or has formatted the selection accordingly.

All of these tools are also available on the ribbon but using the *Quick Analysis* tools is much quicker.



Conditional Formatting uses rules to highlight interesting data

QUICK FORMATTING

The first tab in the **Quick Analysis** gallery is **FORMATTING**. This tab provides access to the conditional formatting tools of Excel. These are the tools that allow you to analyse data by

colouring it or presenting it in a slightly different way. In the **Quick Analysis** gallery you can apply data bars, colour high and low values, values over or below a value, and more.



For Your Reference...

To apply Quick Formatting in a worksheet.

- 1. Select the range to be formatted, then click on the *Quick Analysis* button
- 2. Choose the desired formatting from the *FORMATTING* tab

Handy to Know...

- Quick Formatting applies conditional formatting, not the standard formatting.
- The *Clear Format* option in the *Quick Analysis* gallery will clear any conditional formatting that has been applied.

QUICK CHARTING

Charts aren't all that difficult to create in Excel, especially with the *Recommended Charts* feature. However, deciding what style and type of chart can be daunting. Fortunately the *Charts* tools provide a way of seeing what the different charts will look like without having to first create the chart.



For Your Reference...

To use the Quick Charting tools:

- 1. Select the range to be charted, then click on the *Quick Analysis* button
- 2. Choose the desired option from the **CHARTS** tab

Handy to Know...

• When creating a chart you'll need to ensure that the range you select includes the labels to be used on the chart.

QUICK TOTALS

The **TOTALS** tab in the **Quick Analysis** gallery has some useful tools and options to help you build your worksheet. You can use the options to analyse data and perform alternate arithmetic operations (e.g. *AVERAGE* instead of *SUM*) or use the options to create the totals and calculations in the first place.



For Your Reference...

To create Quick Totals in a worksheet:

- 1. Select the range to be totalled/calculated and click on the *Quick Analysis* button
- 2. Choose the desired calculation methodology from the *TOTALS* tab

Handy to Know...

 Always check any operation that performs calculations and embeds formulas for you to ensure that the correct cells and ranges are included in totals.

QUICK SPARKLINES

Sparklines are mini charts that are embedded into a worksheet, usually immediately adjacent to the data. *Sparklines* are only relatively new in Excel and probably haven't gained the

acceptance or understanding that Microsoft would like. So, you'll now find them in the *Quick Analysis* tools where you can easily implement them without too much head scratching.



For Your Reference...

To use Quick Sparklines in a worksheet.

- 1. Select the range to be analysed, then click on the *Quick Analysis* button
- 2. Choose the desired **Sparkline** from the **SPARKLINES** tab

Handy to Know...

 The Win/Loss is a special type of Sparkline that shows positives above an imaginary line and negatives below it. You need to have values range from the negative to the positive to make any good use of it.

QUICK TABLES

In computer terminology a *table* is created when data is organised into rows and columns. You'd think then that a worksheet would be a table but it is not in the Excel definition. In Excel a table does have columns and rows of continuous data. But it must also have headings which provide filter buttons. Creating a table is not hard, but it is much easier using Quick Tables.



- 3. Click on the TABLES table, then click on Table
- command on the **INSERT** tab of the ribbon) only one cell in the table needs to be selected.

The Quick Analysis Tools

Tasl	ks:	Completed:
	Before starting this exercise you MUST have completed all of the topics in the chapter The Quick Analysis Tools	
1	Open the workbook PE_Quick Analysis.xIsx (it can be found in the same folder as the student files)	
2	Use the Quick Analysis tools to apply a colour scale to the data in the worksheet	
3	Use the Quick Analysis tools to create a chart for the Overheads data. This chart should be a clustered column chart that has the column headings as the x axis, and displays the legend at the bottom of the chart. Make the chart title Cost of Overheads .	
4	Reposition the chart below the data	
5	Use the <i>Quick Analysis</i> tools to create <i>Sparklines</i> for the <i>Qtr1</i> to <i>Qtr4</i> and <i>Total</i> columns for <i>Overheads</i>	
	Your worksheet should appear as shown on the following page	
6	Use the Save As command to save the workbook as PE_Quick Analysis (Completed).xlsx	

-sil	A	В	C	D	E	F	G	н	1	J	к
1		Aesop	's Boo	ksho	p						
2											
3	Expendit	ures Bud	aet								
4											
5	Expense Type			2013							
6		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total					
7							1				
8	Wages	19,987	12,090	16,775	20,551	69,403					
9	Raw Materials	6,348	42,032	33,412	51,948	133,740					
10	Freight	3,009	4,418	4,334	2,263	14,024					
11	Direct Costs	29,344	58,540	54,521	74,762	217,167					
12											
13		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total	1				
14	Telephones	110	120	122	533	885					
15	Postage	120	207	90	782	1,199					
16	Stationary	221	564	339	115	1,239					
17	Motor Vehicles	436	434	316	446	1,632					
18	Entertainment	327	327	337	326	1,317					
19	Overheads	1,214	1,652	1,204	2,202	6,272					
20		-									
21	Total	30,558	60,192	55,725	76,964	223,439					
22											
23			Cost of (Overhead	ds						
24	900										
25	800										
26	700										
27	600										
28	500										
29	400	-	_								-
30	300		- 14	-							
31	200										
32	100					_					
33											
34	Qti	1	Qtr 2	4	Qtr 3	Qtr	4				
35	Telephon	es e Postag	e E Station	ary <mark>=</mark> Mote	or Vehicles	Entertain	ment				-
36			et nessante	500 - 0 70-280							
37											
38											

PRINTING A WORKSHEET

Traditionally, *printing* means producing your document on paper, but in today's Web and online world it might mean printing to the Web or to another file. Excel gives you a lot of control

over what and how much to print, as well as enabling you to select the printer to use. You can print one or multiple copies of a document, one or multiple pages and even collate copies.





To close a workbook:

1. Click on the *File Tab* and select <u>Close</u>

Handy to Know...

- If you save your workbook using the close command, the workbook will be closed without the prompting message above.
- Excel allows you to have a number of workbooks open at the same time. When you close a workbook when others are still open one of the others will then appear.

THE CHARTING PROCESS

Charts provide a way of seeing trends in the data in your worksheet. The charting feature in Excel is extremely flexible and powerful and allows you to create a wide range of charts from any of the *Insert* commands in the *Charts* group on the

Inserting Charts

The first step when creating a chart is to select the data from the worksheet that you want to chart. It is important to remember that the selected range (which can be either contiguous or non-contiguous), should include *headings* (e.g. names of months, countries, departments, etc). These become *labels* on the chart. Secondly, the selected range should not (normally) include totals as these are inserted automatically when a chart is created.

The second step is to create a chart using the *INSERT* tab on the ribbon. You can choose a *Recommended Chart* where Excel analyses the selected data and suggests several possible chart layouts.

Alternatively you can create the chart yourself from scratch by choosing one of the *Insert* commands in the *Charts* group. Charts that you create in Excel can be either *embedded* into a worksheet, or they can exist on their own sheets, known as *chart sheets*.

Embedded Charts

Charts that appear within a worksheet are known as embedded charts. A chart is really an object that sits on top of the worksheet – unlike numbers and letters, charts are not actually placed into worksheet cells.



Chart Sheets

If you want to keep your chart separate from the data you can move the chart to its own sheet. Chart sheets make it easier and more convenient to work with your chart because you'll see more of it on the screen – since the data is not there!



CHOOSING THE RIGHT CHART

A chart is far more effective at communicating results, outcomes or trends than a table of figures displaying the same information. Different *chart types* have been created to communicate different types of information. Some charts show simple relationships between values, while others are designed for quite technical purposes. Here is a summary of the use of different chart types.

These chart types, either in 2D or 3D, are used to compare values across categories. For example, they could compare the populations of different countries.

Lines in 2D or 3D are useful for showing trends such as sales or employment figures. An area chart is a line chart with the area below the line filled in.

The surface chart plots trends in two dimensions. You could use this to plot departmental sales figures over time. The chart then shows you the trends between departments, as well as the sales trends over time.

If you want to show proportion, such as the sales figures from different departments that make up a total, then the pie and doughnut charts are for you. The only variation between the doughnut chart and the pie chart is that the doughnut chart can display more than one series of values.

The stock chart type has been designed to show the stock figures for a day, and the trend over time. At its simplest, you can plot the high, low and close figures, and at its most complex, the volume, open, high, low, and close. It can be adapted to show the relationships between any five sets of values.

Scatter diagrams are used to display the relationship between two variables. For example, you could research the age and price of a series of cars, and plot the values you find. You could also investigate the height and weight relationship of a group of people.

A radar diagram is designed to show the change in values from a central point. For example, it can be used to show mobile telephone coverage, including multiple networks and multiple measurements.



Column. Bar







Pie, Doughnut



Stock



XY (Scatter)



Radar



ITTraining@sgul.ac.uk

USING A RECOMMENDED CHART

If you are undecided about the best type of chart for the data you have selected to graph, then you may wish to use Excel's *Recommended Charts* feature. This feature analyses your selected data and presents you with what it considers to be the best way to chart that data. Several alternatives are presented and you simply choose the one you like most.



	Α	В	С	D	E	F	G	н
1	Alpheius Globa	l Enterpris	es					
2								
3	Revenue	Jan	Feb	Mar	Apr	May	Jun	Total
4	Auckland	1,050,254	1,547,000	1,488,369	1,523,124	1,358,654	1,557,147	8,524,548
5	Dublin	1,524,294	1,685,548	1,599,854	1,789,552	1,542,963	1,896,159	10,038,370
6	Melbourne	3,521,487	2,985,448	2,741,221	2,521,447	2,255,665	2,558,666	16,583,934
7	New York	2,531,225	2,621,889	2,453,999	2,547,441	1,977,558	2,477,332	14,609,444
8								⁄室
9	Total Revenue	8,627,260	8,839,885	8,283,443	8,381,564	7,134,840	8,489,304	49,756,296
10								

You can also use the Quick Analysis tool that appears at the bottom right corner of a selected range to create a quick chart. However, this method will not allow you to preview a wide variety of charts.



For Your Reference...

To use the Recommended Charts feature:

- 1. Select the data to be charted
- Click on the *INSERT* tab, then click on *Recommended Charts* in the *Charts* group
- 3. Click on the desired chart and click on [OK]

Handy to Know...

When selecting data for a chart you should include headings (e.g. names of the month, regions, etc.) but not the totals derived from the data. In the example above the names of the months and the cities are selected but the total revenue and the regional totals are not.

CREATING A NEW CHART FROM SCRATCH

The easiest way to create a chart is by using the *Recommended Chart* feature. However, you can create a chart yourself from scratch using

INSERT tab of the ribbon. This may be faster if you have a specific style of chart in mind.



For Your Reference...

To create a chart from scratch:

- 1. Select the range to chart
- 2. Click on the *INSERT* tab, then click on the appropriate *Insert* command in the *Charts* group
- 3. Click on the desired chart type

Handy to Know...

 When a chart gallery appears after you've used the *Insert chart* command, you can point over each image in the gallery to see a Live Preview of the chart in the worksheet. This will help you to select the right chart for your needs.

WORKING WITH AN EMBEDDED CHART

By default, new charts are placed in the active worksheet, which is usually the one that contains the data. Charts are placed over the top of the worksheet, **embedded** as **objects**. When you want to work with a chart you must select it – this can be done by clicking on the chart. The chart itself is made up of many objects and these too can be selected by clicking on them.



RESIZING A CHART

There are two main ways to resize a chart if you are not satisfied with its current size. A chart that has been selected can be resized by dragging one of the sizing handles around its border. These handles appear with dots in them. You can also resize a chart using commands in the *Size* group on the *CHART TOOLS: FORMAT* tab that appears when the chart is selected.



For Your Reference...

To **resize** a **chart**.

 Select the chart, then click on and drag a sizing handle on the border of the chart, or Click on the CHART TOOLS: FORMAT tab, then click on up/down spinner arrows for Shape Height and Shape Width in the Size group

Handy to Know...

 If you wish to change the size of a chart quickly and easily, clicking on and dragging the resize handles is the best option whereas if you want to resize a chart to a specific size it is best to resize the chart using the tools in the *Size* group on the *CHART TOOLS: FORMAT* tab.

REPOSITIONING A CHART

It's unlikely that a chart embedded in the worksheet by Excel will be exactly where you would like it to be. You can easily relocate a chart to a more appropriate position by clicking on and dragging the border of the chart to the desired location. The chart obviously must be selected before it can be dragged to a new position.



For Your Reference...

To *move* a *chart*.

- 1. Click on the chart to select it
- 2. Move the mouse pointer to the border of the chart until the mouse pointer changes to a four-headed arrow
- 3. Drag the chart to a new location

Handy to Know...

• You can use the standard cut and paste commands to move a chart. Select the chart, click on the *HOME* tab, then click on *Cut* in the *Clipboard* group to copy it to the clipboard. Click in a new location and, on the *HOME* tab, click on *Paste* in the *Clipboard* group to paste the chart.

PRINTING AN EMBEDDED CHART

When you print a worksheet, Excel will print whatever is in or **embedded** in that worksheet (including charts). This makes it easy and convenient to print both the chart and its underlying data. All you need to do is to position the chart in the appropriate location then access the print commands in the usual way.

Try This Yourself:	1 Print
Before starting this exercise you MUST open the file E1317 Charting_5.xlsx	Print O
1 Click on the <i>FILE</i> tab, then click on <i>Print</i> to see a preview of the data and the chart <i>Not all of the chart or</i> <i>data may be visible</i> <i>so we'll change the</i> <i>orientation to</i> <i>landscape</i>	HP Universal Printing PCL 6 Toner Low Printer Properties Settings Image: Print Active Sheets Only print the active sheets Page: 1 to 1 Print One Sided Only print on one side of th Collated 1,2,3 1,2,3 1,2,3 Portrait Orientation Ad
 Click on <i>Portrait</i> <i>Orientation</i> in <i>Settings</i> then select Landscape Orientation Click on [Print] to print the chart 	2 Print Copies: 1 +
If you don't have a printer connected or you don't wish to print, click on the Back arrow to display the workbook again	Printer Printer Printer Properties Settings Print Active Sheets Only print the active sheets Pages: to
	At a 21 cm x 29.7 cm

For Your Reference...

To print an embedded chart:

- 1. Click on the FILE tab, then click on Print
- 2. Click on [Print]

Handy to Know...

 If you only want to print the chart and not the data, click on the chart to select it, click on the *FILE* tab, then click on *Print*. You will notice that only the chart will appear in the preview.

CREATING A CHART SHEET

Charts can either be stored in a worksheet or in a separate sheet of their own known as a *chart sheet*. Chart sheets separate the chart from the underlying data and are useful especially if you

are interested in printing the chart on its own page. Charts can be shifted back and forth between a worksheet and a chart sheet.



For Your Reference...

To create a chart sheet.

- Click on the CHART TOOLS: DESIGN tab, then click on Move Chart in the Location group
- 2. Click on *New Sheet*, type a name for the sheet and click on **[OK]**

Handy to Know...

• Keeping charts on their own sheets makes them easier to work with as they do not obstruct the data.

CHANGING THE CHART TYPE

When you create a chart, you may not always achieve the result that you desire. Fortunately, the process for changing a chart type is quite simple. You just need to have an understanding of what each chart type is designed for and to select the format that best suits your purpose. Just be aware that some chart types are designed for specialised applications.



For Your Reference...

To change the chart type:

- 1. Ensure the chart or chart sheet is selected
- Click on the CHART TOOLS: DESIGN tab, then click on Change Chart Type in the Type group
- 3. Click on the desired chart and click on [OK]

Handy to Know...

 You can use Change Chart Type in the Type group on the CHART TOOLS: DESIGN tab for either embedded charts or charts that have their own worksheet tabs.

CHANGING THE CHART LAYOUT

Excel has a gallery of *chart layouts* that can be applied to an existing and selected chart that is either in its own worksheet or embedded into the data worksheet. *Chart layouts* are the way

elements of the chart are placed within the chart. Different layout options can therefore change the appearance of your chart and its readability.



For Your Reference...

To change the chart layout:

- 1. Ensure the chart or chart sheet is selected
- Click on the CHART TOOLS: DESIGN tab, then click on Quick Layout in the Chart Layouts group
- 3. Select the desired layout

Handy to Know...

• **Chart layouts** are predefined themes created by Microsoft. Even if you choose one of these layouts you can still make your own modifications to the way the elements and objects are positioned and how they appear.

CHANGING THE CHART STYLE

The style of a chart refers to its colour scheme and overall appearance and can impact the clarity of the content of the chart. Choosing a predefined chart style can save valuable time and effort. Excel also makes it easy to change chart styles if you decide the style you have chosen is not appropriate.



For Your Reference...

To change the chart style:

- 1. Ensure the chart or chart sheet is selected
- 2. Click on the *Chart Styles* tool to the right of the chart
- 3. Click on the desired style

Handy to Know...

 Instead of using the *Chart Styles* tool to the right of the chart, you can also choose chart styles from the *CHART TOOLS: DESIGN* tab on the ribbon when a chart is selected.

PRINTING A CHART SHEET

You can print an embedded chart simply by printing the worksheet as if it is a standard worksheet. You can also print a chart sheet in exactly the same way. To print a chart sheet, the simply ensure that the chart sheet is active, then click on the *FILE* tab, click on *Print*, apply the print settings as desired and click on [Print].



For Your Reference...

To print a chart sheet.

- 1. Click on the chart sheet tab
- 2. Click on the FILE tab, then click on Print
- 3. Click on [Print]

Handy to Know...

 When you preview a chart prior to printing, it may not appear as clearly as you would like. This is due to the screen resolution, not the chart itself. The printed version of the chart will appear clearer than the preview.
EMBEDDING A CHART INTO A WORKSHEET

Charts can either be presented in their own sheets or they can be embedded into a worksheet that contains data. In fact, you can move a chart back and forth between its own sheet and a worksheet as often as you wish without impacting at all on the chart. Sometimes it is easier to work with a chart in its own sheet, but it may be necessary to print the chart with its data.



For Your Reference...

To embed a chart in a worksheet:

- Click on the CHART TOOLS: DESIGN tab, then click on Move Chart in the Location group
- 2. Click on the drop arrow, select the sheet to embed it into, then click on **[OK]**

Handy to Know...

• Embedding is normally only done when it is necessary to print the worksheet and the data together.

DELETING A CHART

If you no longer require a chart you can easily delete it. With embedded charts you must first select the chart in the worksheet and then press the $\boxed{\text{Del}}$ key to delete the chart. With charts in

chart sheets you can delete the sheet by right clicking on the chart sheet tab and choosing the deletion option.



For Your Reference...

To **delete** a **chart**:

- 1. Click on the worksheet to see the chart, then click on the chart to select it
- 2. Press Del

Handy to Know...

 Because it is so easy to delete a chart object it is also easy to delete it by accident! Remember, you can use the *Undo* feature in Excel to restore accidental deletions.

PRACTICE EXERCISE Creating Charts

Tasks:	Completed:
Before starting this exercise you MUST have completed all of the topics in the chapter Creating Charts	
Open the workbook called <i>PE_Creating Charts.xlsx</i> (it can be found in the same folder as the student files)	
2 Create a <i>Clustered Column</i> chart showing the sales of products for the months of <i>January</i> through to <i>June</i>	
3 Drag the chart down below the data and resize it so that it is the same width as the data, keeping the proportions as far as possible	
4 Change the chart type to 3-D Stacked Column and change the chart title to Sales	
The chart should appear as shown in sample A on the following page	
5 Create a <i>Pie in 3-D</i> chart of the products and their totals then place it on its own chart sheet called <i>Product Sales</i>	
6 Change the Chart Title to Product Sales	
Change the layout to <i>Layout 6</i>	
The chart should appear as shown in sample B on the following page	
8 Print the pie chart	
9 Use the Save As command to save the workbook as PE_Creating Charts (Completed).xlsx	

Files required for exercise:	PE_Creating Charts.xlsx
Files/work created by student:	PE_Creating Charts (Completed).xlsx, 1 printed copy of the Product Sales chart
Exercise Completed:	

PRACTICE EXERCISE SAMPLE Creating Charts





Microsoft EXCEL Training



Introduction

In this introductory course to Excel, participants will explore Excel activities that go beyond the basic. After successful completion of this session, participants can expect to have the skills required to work efficiently in an existing worksheet and to also create new worksheets from a template and from scratch.

Topics Include

- Create a basic worksheet by entering text, values, and formulas.
- Change the appearance of worksheet data by using a variety of formatting techniques.
- Create formulas by using some of Excel's built-in functions.
- Filter and sort Excel data.
- Plan, create and modify charts.
- Prepare a document for printing by using a variety of printing options.

Prerequisite

Comfortable with Windows 7, or OSX

Platform

Windows, OSX

Software

Microsoft Excel 2013, Microsoft Excel 2010 (Windows)

Microsoft Excel 2011 (MAC)

Instructor

Anna Neagu – Application Support Consultant

Table of Contents

1.	0	pening	Excel	
2.	G	etting S	Started	
	2.1.	The	Excel Interface	6
	2.	1.1.	The Application Window	
	2.	1.2.	The Workbook Window	15
	2.2.	Crea	ating and Opening Workbooks	
	2.	.2.1.	Create a new blank workbook	
	2.	.2.2.	Open an existing workbook	
	2.	.2.3.	Compatibility mode	
	2.3.	Savi	ing and Sharing Workbooks	27
	2.	.3.1.	Save and Save As	
	2.	.3.2.	AutoRecover	
	2.	.3.3.	Exporting workbooks	
3.	Ce	ell Basio	CS	
	3.1.	Unc	lerstanding Cells	
	3.2.	Cell	Content	
	3.3.	Finc	and Replace	
4.	Fc	ormatti	ng Cells	
	4.1.	Fon	t Formatting	
	4.2.	Text	t Alignment	
	4.3.	Cell	borders and fill colors	
	4.4.	Cell	styles	
	4.5.	For	matting text and numbers	
5.	Μ	lodifyin	g Columns, Rows and Cells	
	5.1.	Inse	erting, deleting, moving, and hiding rows and columns	51
	5.2.	Wra	apping text and merging cells	
6.	Fc	ormulas	s and Functions	
	6.1.	Sim	ple Formulas	
	6.2.	Con	nplex Formulas	
	6.	.2.1.	Relative and Absolute Cell References	
	6.	.2.2.	Relative cell references	
	6.	.2.3.	Absolute cell references	

6	.3.	Functions	67
	6.3.2	1. Creating a function	69
	6.3.2	2. The Function Library	71
	6.3.3	3. The Insert Function command	
7.	Wor	rking with Data	80
7	.1	Freezing Panes and View Options	80
7	.2	Sorting Data	
7	.3	Filtering Data	
8.	Wor	rking with Charts	
8	.1.	Understanding charts	
8	.2.	Chart layout and style	
8	.3.	Other chart options	87
9.	Prin	iting Workbooks	
9	.1.	Choosing a print area	
9	.2.	Fitting and scaling content	





1. Opening Excel

Using Windows 7

- 1. Click on the **Start** Button.
- 2. In the Search Program and Files box type **Excel**.
- 3. Click on **Excel 2013** from the Program results.
- 4. The Microsoft Excel 2013 program will open.

Using Windows 8

- 1. Press the Windows key on the keyboard.
- 2. Type Excel.
- 3. Click on Excel 2013 under the Apps results.

Using iOS 7

- 1. Click on Launchpad.
- 2. Select Microsoft Excel.

2. Getting Started

When you open Excel 2013 for the first time, the Excel Start Screen will appear. From here, you'll be able to create a new workbook, choose a template, and access your recently edited workbooks.

- 1. From the Excel Start Screen, locate and select Blank workbook to access the Excel interface.
- 2. Click **Open Other Workbooks** to work on an existing workbook.

Excel	? – □ × Anna C Neagu aneagu@AD.MTA.CA Switch account
Recent	Search for online templates 🔎
Steps M: » Town » Council Package Project	Suggested searches: Business Personal Industry Small Business Calculator Finance - Accounting Lists
Plus Time M: » Mine	
User Services Content Type \\HOME = aneagu\$ = SharePoint	Create a new workbook
Record Category \\HOME » aneagu\$ » SharePoint	
SP Dashboard \\HOME » aneagu\$ » SharePoint	2 3
2015 Project List M: » Town » 2015 Town Open an existing workbook	4 5 6 6
Dpen Other Workbooks	7 Blank workbook

To set up Excel so it automatically opens a new workbook

- 1. Click File then Options.
- 2. On the **General** tab, under **Start up options**, uncheck the **Show the Start screen** when this application starts box.
- 3. The next time you start Excel, it opens a blank workbook automatically similar to older versions of Excel.

2.1. The Excel Interface

After starting Excel, you will see two windows - one within the other. The outer window is the **Application Window** and the inner window is the **Workbook Window**. When maximized, the Excel Workbook Window blends in with the Application Window.

After completing this module, you should be able to:

- Identify the components of the Application Window.
- Identify the components of the Workbook Window.

	Quick Acc	ess Toolbar				12		-	
			Bookl - Exc		The Ribl		1.8	na C Neagu	
$\begin{array}{c c} \hline \\ \hline $		nmand Group = = = = + + + + = ≫ + + + + + + + + + + + + + + + + + +	eral • \$ • % * 30 ⇒30 Number ा⊊	TA Col	nditional Forn mat as Table Il Styles * Styles	natting *	Tinsert + Delete + Format + Cells	∑ + ^A Z▼ + ↓ + M + editing	
A1 🔶 Name Box	✓ fx	*	Formula Ba	ar			Colum		~
A Cell	C D	E	F	G	Н	I 🖊	J	к	L
2									
3									
5									-
6 7 A Row									
8									
9									
10									
12					Vertical a	nd Horiz	ontal Scroll B	ars	-
13									
14	Worksheets								
Sheet1	(: .				•
READY 🔠						8 1		+	100%
			Work	sheet Vi	iew Option		Zoom Co	ontrol	

2.1.1. The Application Window

The Application Window provides the space for your worksheets and workbook elements such as charts. The components of the Application Window are described below.

□ The Quick Access Toolbar

The Quick Access Toolbar lets you access common commands no matter which tab is selected.

By default, it includes the **Save**, **Undo**, and **Repeat** commands. You can add other commands depending on your preference.

To add commands to the Quick Access toolbar

1. Click the **drop-down arrow** to the right of the **Quick Access toolbar**.



2. Select the **command** you wish to add from the drop-down menu. To choose from more commands, select **More Commands**.



3. The command will be **added** to the Quick Access toolbar.



□ The Ribbon

Excel 2013 uses a **tabbed Ribbon system** instead of traditional menus. **The Ribbon** contains **multiple tabs**, each with several **groups of commands**. You will use these tabs to perform the most **common tasks** in Excel.



	• @ • 🗅	Ŧ	Book	1 - Excel	-92	-	7	A-1	x
FILE	IOME INSE	RT PAGE LA	YOUT FORMULAS	DATA	REVIEW	VIEW	An	ina C Neagu	
Themes	Margins &	Orientation * Size * Print Area * Page Setup	Greaks → 🚑 Widt Background 🗊 Heig Print Titles 🖳 Scale 13 Scale	h: Automa ht: Automa : 100% ale to Fit	tic - Gridline tic - Viev C Prin Sheet	s Headings v 🗹 View t 🗌 Print Options 1	Arrange		^
H4	- : 🗙	$\int f_x$	Click a tab to see						~
A	В	/ c	more commands	F	G	H	I	J	
1 2 3	Each tab is into gro	divided pups							
4]		
5									
6									_
/									
0									
10									
11									
12									
13									
4 14	Sheet1	÷			: 4				× ×
READY SCRO	DLL LOCK 🛛 🛗					•		+	112%

To minimize and maximize the Ribbon

The Ribbon is designed to respond to your current task, but you can choose to **minimize** it if you find that it takes up too much screen space.

1. Click the **Ribbon Display Options** arrow in the upper-right corner of the Ribbon.

	10 2000	? 🖪 – 🗗 🗙
Insert Delete Format	∑ Autc ↓ Fill ↓ Clea	Auto-hide Ribbon Hide the Ribbon. Click at the top of the application to show it. Show Tabs Show Ribbon tabs only. Click a tab to show the commands.
т		Show Tabs and Commands Show Ribbon tabs and commands all the time.



- 2. Select the desired **minimizing option** from the drop-down menu:
- Auto-hide Ribbon: Auto-hide displays your workbook in full-screen mode and completely hides the Ribbon. To show the Ribbon, click the Expand Ribbon command at the top of screen.



- Show Tabs: This option hides all command groups when not in use, but tabs will remain visible. To show the Ribbon, simply click a tab.
- Show Tabs and Commands: This option maximizes the Ribbon. All of the tabs and commands will be visible. This option is selected by default when you open Excel for the first time.

To Customize the Ribbon in Excel 2013

You can customize the Ribbon by creating your own **tabs** with whichever commands you want. Commands are always housed within a **group**, and you can create as many groups as you want in order to keep your tab organized. If you want, you can even add commands to any of the default tabs, as long as you create a custom group in the tab.

1. Right-click the **Ribbon** and then select **Customize the Ribbon**... from the drop-down menu.



2. The Excel Options dialog box will appear. Locate and select New Tab.



- 3. Make sure the **New Group** is selected, select a **command**, and then click **Add**. You can also drag commands directly into a group.
- 4. When you are done adding commands, click **OK**. The commands will be added to the Ribbon.



The Formula Bar

In the formula bar, you can enter or edit data, a formula, or a function that will appear in a specific cell.

In the image below, cell C1 is selected and 1984 is entered into the formula bar. Note how the data appears in both the formula bar and in cell C1.



The Name box displays the location, or "name" of a selected cell.

In the image below, cell B4 is selected. Note that cell B4 is where column B and row 4 intersect.



□ The Backstage View (The File Menu)

Click the File tab on the Ribbon. Backstage view will appear.





□ The Worksheet Views

Excel 2013 has a variety of viewing options that change how your workbook is displayed. You can choose to view any workbook in **Normal view**, **Page Layout view**, or **Page Break view**. These views can be useful for various tasks, especially if you're planning to **print** the spreadsheet.

To **change worksheet views**, locate and select the desired **worksheet view command** in the bottom-right corner of the Excel window.





Zoom Control

To use the **Zoom control, c**lick and drag the **slider**. The number to the right of the slider reflects the **zoom percentage**.

		•	
▣ ▣	+ 166%		

Challenge!

- 1. Open Excel 2013.
- 2. Click through all of the tabs, and review the commands on the Ribbon.
- 3. Try minimizing and maximizing the Ribbon.
- 4. Add a command to the Quick Access toolbar.
- 5. Navigate to **Backstage view**, and open your **Account settings**.
- 6. Try switching **worksheet views**.
- 7. Close Excel (you do not have to save the workbook).

2.1.2. The Workbook Window

In Excel 2013, when you open up a new workbook it now contains only 1 worksheet There can be a max of 1,048,576 rows and 16,384 columns in an excel work sheet.

□ The Worksheet

Excel files are called **workbooks**. Each workbook holds one or more **worksheets** (also known as "spreadsheets").

Whenever you create a new Excel workbook, it will contain **one worksheet** named **Sheet1**. A worksheet is a grid of columns and rows where columns are designated by letters running across the top of the worksheet and rows are designated by numbers running down the left side of the worksheet.



When working with a large amount of data, you can create **multiple worksheets** to help organize your workbook and make it easier to find content. You can also **group** worksheets to quickly add information to multiple worksheets at the same time.

To rename a worksheet

Whenever you create a new Excel workbook, it will contain **one worksheet** named **Sheet1**. You can rename a worksheet to better reflect its content. In our example, we will create a training log organized **by month**.

1. Right-click the **worksheet** you wish to rename, then select **Rename** from the **worksheet** menu.



2. Type the **desired name** for the worksheet.

34					
35					
36					
37					
20					
	•	$\mathbb{P}^{(1)}$	Januar	\triangleright \oplus	

3. Click anywhere outside of the worksheet, or press **Enter** on your keyboard. The worksheet will be **renamed**.

34							
35							
36							
37							
20							
	•	ŀ	Januar	у		\oplus	
			100	Maria	2		_

To insert a new worksheet

1. Locate and select the **New sheet** button.





- 2. A new, blank worksheet will appear.
- <u>TIP:</u> To change the **default number** of worksheets, navigate to **Backstage view**, click **Options**, and then choose the desired number of worksheets to include in each new workbook.

General	User Interface options
Formulas	Show Mini Toolbar on selection ①
Proofing	Show Quick Analysis options on selection
Save	Enable Live Preview ①
Language	ScreenTip style: Show feature descriptions in ScreenTips
Advanced	When creating new workbooks
Customize Ribbon	Use this as the default font: Body Font
Quick Access Toolbar	Font size: 11 -
Add-Ins	Default view for new sheets: Normal View
Trust Center	Include this many sheets: 1
	Personalize your copy of Microsoft Office
	User name: Anna C Neagu
	Always use these values regardless of sign in to Office.
	Office <u>B</u> ackground: Spring
	The second secon

To delete a worksheet

1. Right-click the **worksheet** you wish to delete, then select **Delete** from the **worksheet** menu.

	25											
	26											
	27									Inse	ert	
	28								×	<u>D</u> el	ete 🕟	
	29									<u>R</u> er	iame 😽	
	30									Mo	ve or Copy	
	31									Vie	v Code	
	32								Q-1	VIC	w code	
	33								U,	<u>P</u> ro	tect Sheet	
	34								Tab	Color	•	
	35									Hid	e	
	36									Uni	nide	
	37									0	nucin	
	20							_		<u>S</u> ele	ect All Sheets	
		•	\mathbb{P}^{-1}	Jar	nuary		Sh	eet2		(+)	

2. The worksheet will be **deleted** from your workbook.

34		
35		
36		
37		
20		
	January	\oplus

Alternatively, from the Home Tab in the Cells Group click on Delete and select Delete Sheet.

Warning: The Undo button will not undo the deletion of a worksheet.

To copy a worksheet

If you need to duplicate the content of one worksheet to another, Excel allows you to copy an existing worksheet.

1. Right-click the worksheet you want to copy, then select **Move or Copy** from the **worksheet** menu.



- 2. The **Move or Copy** dialog box will appear. Choose where the sheet will appear in the **Before sheet**: field. In our example, we'll choose (move to end) to place the worksheet to the right of the existing worksheet.
- 3. Check the box next to Create a copy, then click OK.

Move or Copy	x
Move selected sheets <u>T</u> o book:	
Book1	-
(new book) Book1	*
	-
☑ <u>C</u> reate a copy	<u> </u>
OK Cancel	

4. The worksheet will be **copied**. It will have the same title as the original worksheet, as well as a **version number**.

<u>TIP:</u> You can also copy a worksheet to an entirely different **workbook**. You can select any workbook that is currently open from the **To book:** drop-down menu.

Move or Copy	? 🔀
Move selected sheets <u>T</u> o book:	
Book1	-
(new book) Book1	*
Plus Time.xlsx	
	~
	-
Create a copy	
ОК	Cancel
	Move or Copy Move selected sheets To book: Book1 (new book) Book1 Plus Time.xlsx Create a copy OK

To move a worksheet

Sometimes you may want to **move** a worksheet to rearrange your workbook.

- 1. Select the worksheet you wish to move. The cursor will become a small worksheet icon $\frac{1}{2}$.
- 2. Hold and drag the mouse until a **small black arrow** appears above the desired location.





3. Release the mouse. The worksheet will be moved.



You can change a worksheet's **color** to help organize your worksheets and make your workbook easier to navigate.

- 1. Right-click the desired worksheet, and hover the mouse over **Tab Color**. The **Color** menu will appear.
- 2. Select the desired **color**. A **live preview** of the new worksheet color will appear as you hover the mouse over different options. In our example, we'll choose **Red**.



3. The worksheet color will be **changed**.



The worksheet color is considerably **less noticeable** when the worksheet is selected. Select another worksheet to see how the color will appear when the worksheet is not selected.



□ The Scrolling Buttons

These buttons scroll the display of sheet tabs one at a time or to display the first and last grouping of sheet tabs and are located to the left of the sheet tabs.



□ The Scroll Bars

Your spreadsheet may frequently have more data than you can see on the screen at once. Click, hold and drag the vertical or horizontal scroll bar depending on what part of the page you want to see.



2.2. Creating and Opening Workbooks

Excel files are called **workbooks**. Whenever you start a new project in Excel, you'll need to **create a new workbook**. There are several ways to start working with a workbook in Excel 2013. You can choose to **create a new workbook**—either with a **blank workbook** or a predesigned **template**—or **open an existing** workbook.

2.2.1. Create a new blank workbook

1. Select the File tab. Backstage view will appear.





- 2. Select New, then click Blank workbook.
- 3. A new blank workbook will appear.

2.2.2. Open an existing workbook

In addition to creating new workbooks, you'll often need to open a workbook that was previously saved.

1. Navigate to Backstage view, then click Open.



2. Select **Computer**, and then click **Browse**.





3. The **Open** dialog box will appear. Locate and select your **workbook**, then click **Open**.



<u>TIP</u>: If you've opened the desired workbook recently, you can browse your Recent Workbooks rather than searching for the file.





To pin a workbook

If you frequently work with the same workbook, you can pin it to Backstage view for quick access.

- 1. Navigate to **Backstage view and then c**lick **Open**. Your **recently edited workbooks** will appear.
- 2. Hover the mouse over the **workbook** you wish to pin. A **pushpin icon** will appear next to the workbook. Click the **pushpin icon**.



- 3. The workbook will stay in Recent Workbooks. To **unpin** a workbook, simply click the pushpin icon again.
- <u>TIP</u>: You can also pin folders to Backstage view for quick access. From Backstage view, click Open, then locate the folder you wish to pin and click the pushpin icon.

2.2.3. Compatibility mode

Sometimes you may need to work with workbooks that were created in earlier versions of Microsoft Excel, such as Excel 2003 or Excel 2000. When you open these kinds of workbooks, they will appear in **Compatibility mode**.



Compatibility mode **disables** certain features, so you'll only be able to access commands found in the program that was used to create the workbook. For example, if you open a workbook created in Excel 2003, you can only use tabs and commands found in Excel 2003.

In order to exit Compatibility mode, you'll need to **convert** the workbook to the current version type. However, if you're collaborating with others who only have access to an earlier version of Excel, it's best to leave the workbook in Compatibility mode so the format will not change.

To convert a workbook

If you want access to all of the Excel 2013 features, you can **convert** the workbook to the 2013 file format.

Note that converting a file may cause some changes to the **original layout** of the workbook.

- 1. Click the File tab to access Backstage view.
- 2. Locate and select Convert command.



- 3. The **Save As** dialog box will appear. Select the **location** where you wish to save the workbook, enter a **file name** for the presentation, and click **Save**.
- 4. The workbook will be converted to the newest file type.

Challenge!

- 1. Create a **new blank workbook**.
- 2. Open an **existing workbook** from your computer.
- 3. **Pin** a folder to Backstage view.

2.3. Saving and Sharing Workbooks

Whenever you create a new workbook in Excel, you'll need to know how to save it in order to access and edit it later. As with previous versions of Excel, you can save files **locally** to your computer. But unlike older versions, Excel 2013 also lets you save a workbook to **the cloud** using **OneDrive**. You can also **export** and **share** workbooks with others directly from Excel.

2.3.1. Save and Save As

Excel offers two ways to save a file: **Save** and **Save As**. These options work in similar ways, with a few important differences:

- Save: When you create or edit a workbook, you'll use the Save command to save your changes. You'll use this command most of the time. When you save a file, you'll only need to choose a file name and location the first time. After that, you can just click the Save command to save it with the same name and location.
- Save As: You'll use this command to create a **copy** of a workbook while keeping the original. When you use Save As, you'll need to choose a different name and/or location for the copied version.

To save a workbook

It's important to **save your workbook** whenever you start a new project or make changes to an existing one. Saving early and often can prevent your work from being lost. You'll also need to pay close attention to **where you save** the workbook so it will be easy to find later.

1. Locate and select the Save command on the Quick Access Toolbar.



- 2. If you're saving the file for the first time, the Save As pane will appear in Backstage view.
- 3. You'll then need to choose where to save the file and give it a file name. To save the workbook to your computer, select **Computer**, then click **Browse**. Alternatively, you can click **OneDrive** to save the file to your OneDrive.
- 4. The Save As dialog box will appear. Select the location where you wish to save the workbook.



5. Enter a **file name** for the workbook, then click **Save**.



6. The workbook will be **saved**. You can click the **Save** command again to save your changes as you modify the workbook.

Using Save As to make a copy

If you want to save a **different version** of a workbook while keeping the original, you can create a **copy**. For example, if you have a file named **"Sales Data"** you could save it as **"Sales Data 2"** so you'll be able to edit the new file and still refer back to the original version.

To do this, you'll click the **Save As** command in Backstage view. Just like when saving a file for the first time, you'll need to choose where to save the file and give it a new file name.

2.3.2. AutoRecover

Excel automatically saves your workbooks to a temporary folder while you are working on them. If you forget to save your changes, or if Excel crashes, you can restore the file using **AutoRecover**.

To use AutoRecover

1. Open Excel 2013. If **auto-saved versions** of a file are found, the **Document Recovery** pane will appear.



2. Click to **open** an available file. The workbook will be **recovered**.

	Image: Second secon
GGG	Document Recovery Excel has recovered the following files. Save the ones you wish to keep. Available Files
	family budget.xlsx [Origin Version created last time t 2/11/2013 3:27 PM

<u>TIP:</u> By default, Excel autosaves every 10 minutes. If you are editing a workbook for less than 10 minutes, Excel may not create an autosaved version.

If you don't see the file you need, you can browse all autosaved files from **Backstage view**. Just select the **File** tab, click **Manage Versions**, and then choose **Recover Unsaved Workbooks**.

2.3.3. Exporting workbooks

By default, Excel workbooks are saved in the **.xlsx** file type. However, there may be times when you need to use **another file type**, such as a **PDF** or **Excel 97-2003 workbook**. It's easy to **export** your workbook from Excel in a variety of file types.

To export a workbook as a PDF file

Exporting your workbook as an **Adobe Acrobat document**, commonly known as a **PDF file**, can be especially useful if sharing a workbook with someone who does not have Excel. A PDF will make it possible for recipients to view, but not edit, the content of your workbook.

- 1. Click the File tab to access Backstage view.
- 2. Click Export, then select Create PDF/XPS.

	Info New	Export	
	Open	Create PDF/XPS Document	Create a PDF/XPS Document Preserves layout, formatting, fonts, and images
	Save		Content can't be easily changed
	Save As	Change File Type	
	Print		
	Share		PDF/XPS
	Export		
	Close		

- 3. The **Save As** dialog box will appear. Select the **location** where you wish to export the workbook, enter a **file name**, and then click **Publish**.
- <u>TIP:</u> By default, Excel will only export the active worksheet. If you have multiple worksheets and want to save all of them in the same PDF file, click Options in the Save as dialog box. The Options dialog box will appear. Select Entire workbook, then click OK.

(Options ?
mize for: Standard (publishing online and printing) Minimum size (publishing online) Options Tools Publish Ca	Options Image: Constraint of the second
	ISO <u>1</u> 9005-1 compliant (PDF/A)
	OK Cancel

To export a workbook in other file types

You may also find it helpful to export your workbook in other file types, such as an Excel 97-2003 Workbook if you need to share with people using an older version of Excel, or a .CSV file if you need a plain-text version of your workbook.



- 1. Click the File tab to access Backstage view.
- 2. Click Export, then select Change File Type.
- 3. Select a common file type, then click Save As.
- 4. The Save As dialog box will appear. Select the location where you wish to export the workbook, enter a **file name**, and then click **Save**.

Challenge!

- 5. Create a new blank workbook.
- 6. Use the **Save** command to save the workbook to your desktop.
- 7. Save the workbook to **OneDrive** and **invite** someone else to view it.
- 8. Export the workbook as a PDF file.

3. Cell Basics

Whenever you work with Excel, you'll enter information, or **content**, into **cells**. Cells are the basic building blocks of a worksheet. You'll need to learn the basics of **cells** and **cell content** to calculate, analyze, and organize data in Excel.

3.1. Understanding Cells

Every worksheet is made up of thousands of rectangles, which are called **cells**. A cell is the **intersection** of a **row** and a **column**. Columns are identified by **letters (A, B, C)**, while rows are identified by **numbers (1, 2, 3)**.



Each cell has its own **name**, or **cell address**, based on its column and row. In this example, the selected cell intersects **column C** and **row 5**, so the cell address is **C5**. The cell address will also appear in the **Name box**. Note that a cell's **column** and **row headings** are **highlighted** when the cell is selected.



You can also select **multiple cells** at the same time. A group of cells is known as a **cell range**. Rather than a single cell address, you will refer to a cell range using the cell addresses of the **first** and **last** cells in the cell range, separated by a **colon**. For example, a cell range that included cells A1, A2, A3, A4, and A5 would be written as **A1:A5**.

In the images below, two different cell ranges are selected:

• Cell range A1:A8



• Cell range A1:B8
Mount Allison



To select a cell range

Sometimes you may want to select a larger group of cells, or a cell range.

- 1. Click, hold, and drag the mouse until all of the **adjoining cells** you wish to select are **highlighted**.
- 2. Release the mouse to **select** the desired cell range. The cells will remain **selected** until you click another cell in the worksheet.

3.2. Cell Content

Any information you enter into a spreadsheet will be stored in a cell. Each cell can contain several different kinds of **content**, including **text**, **formatting**, **formulas**, and **functions**.

Text

Cells can contain **text**, such as letters, numbers, and dates.

	Α	В	С
1	Date	Sales	Percentage of Total
2	5/6/2013	65	0.71
3	5/7/2013	78	0.78
4	5/8/2013	112	0.86
5	5/9/2013	54	0.28
6	5/10/2013	99	0.49
7	5/11/2013	189	0.65
8	5/12/2013	120	0.57
9			

unt Allison

□ Formatting Attributes

Cells can contain formatting attributes that change the way letters, numbers, and dates are displayed. For example, percentages can appear as 0.15 or 15%. You can even change a cell's background color.

Formulas and Functions

Cells can contain formulas and functions that calculate cell values. In our example, SUM(B4:B7) adds the value of each cell in cell range B4:B7 and displays the total in cell B8.

	Do	•		$\int \int Jx$	-30101	(64.67)	
		A	В	С	D	E	
	3	Date	Students	Percentage			
	4	1/2/2015	36	36%		100	
	5	1/3/2015	50	50%			
	6	1/4/2015	14	14%			
	7	1/5/2015	55	55%			
	8		155				
o insert content							
o insert content							
<i>To insert content</i> 1. Click a cell to	select it						

2. Type **content** into the selected cell, then press **Enter** on your keyboard. The content will appear in the **cell** and the **formula bar**. You can also input and edit cell content in the formula bar.

e la p	A	1	•	:	\times	\checkmark	fx Fir	st
	à	Α		В		с	D	E
	1	First	-			Cont	tent appea	rs in cell
	2	-				a	nd formula	a bar
	3					-		
	4							
	5							



To delete cell content

- 1. Select the **cell** with content you wish to delete.
- 2. Press the **Delete** or **Backspace** key on your keyboard. The cell's contents will be deleted.

To delete cells

There is an important difference between **deleting the content of a cell** and **deleting the cell itself**. If you delete the entire cell, the cells below it will **shift up** and replace the deleted cells.

- 1. Select the **cell(s)** you wish to delete.
- 2. Select the **Delete** command from the **Home** tab on the **Ribbon**.
- 3. The cells below will shift up.

Ensert	Delete Format	∑ AutoSum ↓ Fill + ◆ Clear +	▼ AZ▼ Sort & Filter ▼	
	Cells	E	diting	
0	Delete Cells Delete cells, ro sheets from yo FYI: To delete columns at a t rows or colum click Delete.	ws, columns, or our workbook. multiple rows or ime, select mult ns in the sheet,	iple and	
7				

To copy and paste cell content

Excel allows you to **copy** content that is already entered into your spreadsheet and **paste** that content to other cells, which can save you time and effort.

- 1. Select the **cell(s)** you wish to **copy**.
- 2. Click the **Copy** command on the **Home** tab, or press **Ctrl+C** on your keyboard.

Mount Allison

FILE	HOME	INSERT	PAGE LAYOUT
Paste	or Cut Copy ▼ Sormat Pai	Calibrinter B j	i - 11 7 <u>U</u> - II -
	Clipboard	G.	Font
D2	Copy (Ctrl+C Put a copy o Clipboard so somewhere	C) f the selection you can past else.	n on the
20	-AND		

- 3. Select the **cell(s)** where you wish to **paste** the content. The copied cells will now have a **dashed box** around them.
- 4. Click the **Paste** command on the **Home** tab, or press **Ctrl+V** on your keyboard.
- 5. The content will be **pasted** into the selected cells.

To access more paste options

You can also access **additional paste options**, which are especially convenient when working with cells that contain **formulas** or **formatting**.

☑ To access more paste options, click the **drop-down arrow** on the **Paste** command.

	XII 🔒 🍤 -	ở <u>à</u> ∓	
	FILE HOM	E INSERT	PAGE LAYOL
1	Paste	Calibri Painter B I	- <u>U</u> -
/ <mark> </mark>	Paste	Es.	Font
		eep Source Form	f _{sr}
	Paste Values		
	Other Paste Opti	ons	
	🖻 🗋 🔂 I		
	Paste <u>S</u> pecial		



<u>TIP:</u> Rather than choosing commands from the Ribbon, you can access commands quickly by rightclicking. Simply select the cell(s) you wish to format, then right-click the mouse. A drop-down menu will appear, where you'll find several commands that are also located on the Ribbon.



To drag and drop cells

Rather than cutting, copying, and pasting, you can drag and drop cells to move their contents.

- 1. Select the **cell(s)** you wish to **move**.
- 2. Hover the mouse over the **border** of the selected cell(s) until the cursor changes from a **white** cross to a **black cross with four arrows**.
- 3. Click, hold, and drag the cells to the **desired location**.
- 4. Release the mouse, and the cells will be **dropped** in the selected location.

To use the fill handle

There may be times when you need to copy the content of one cell to several other cells in your worksheet. You could **copy and paste** the content into each cell, but this method would be very time consuming. Instead, you can use the **fill handle** to quickly copy and paste content to **adjacent cells** in the same row or column.

1. Select the **cell(s)** containing the content you wish to use. The **fill handle** will appear as a small square in the bottom-right corner of the selected cell(s).

Mount Allison

	Α	В	С
1	x	x	
2	x	x	
3			12
4			
5		The fill	handle
		The fill	lanue

2. Click, hold, and drag the fill handle until all of the cells you wish to fill are selected.



3. Release the mouse to **fill** the selected cells.

To continue a series with the fill handle

The fill handle can also be used to **continue a series**. Whenever the content of a row or column follows a sequential order, like **numbers (1, 2, 3)** or **days (Monday, Tuesday, Wednesday)**, the fill handle can guess what should come next in the series. In many cases, you may need to select **multiple cells** before using the fill handle to help Excel determine the series order. In our example below, the fill handle is used to extend a series of **dates** in a column.

MountAllison

-		D	C			~	D
1	Monday	1			1	Monday	
2	Tuesday				2	Tuesday	
3		100			3	Wednesday	
4				<u>→</u>	4	Thursday	
5					5	Friday	
6					6	Saturday	
7		Sunday		14. 18.	7	Sunday	
8	-		·		8		
			X				

3.3. Find and Replace

When working with a lot of data in Excel, it can be difficult and time consuming to locate specific information. You can easily search your workbook using the **Find** feature, which also allows you to modify content using the **Replace** feature.

To find content

1. From the **Home** tab, click the **Find and Select** command, then select **Find...** from the drop-down menu.



- 2. The **Find and Replace** dialog box will appear. Enter the **content** you wish to find.
- 3. Click **Find Next**. If the content is found, the cell containing that content will be **selected**.



1	A	В	C	D	E	F	G	Н	I			
1	Monday											
2	Tuesday											
3	Wednesday								- 12			
4	Thursday	Find and	Replace					2 2				
5	Friday	This and										
6	Saturday	Fin <u>d</u>	Find Replace									
7	Sunday	Find wh	Find what: Friday									
8				,								
9												
10							O	o <u>t</u> ions >>				
11												
12					Find All	<u>F</u> ind	Next	Close				
13		1							-			
14												

- 4. Click **Find Next** to find further instances or **Find All** to see every instance of the search term.
- 5. When you are finished, click **Close** to exit the Find and Replace dialog box.
- <u>*TIP*</u>: You can also access the Find command by pressing **Ctrl+F** on your keyboard.
- <u>*IIP*</u>: Click **Options** to see advanced search criteria in the Find and Replace dialog box.

	liter and state		And the second s
Find and Re	eplace		? 🗙
Find	Re <u>p</u> lace		
Fi <u>n</u> d wha	t: Friday	▼ No Format Set	For <u>m</u> at •
Wit <u>h</u> in: <u>S</u> earch: <u>L</u> ook in:	Sheet By Rows Formulas	Match <u>c</u> ase	Op <u>t</u> ions < <
		Find All <u>Find Next</u>	Close

To replace cell content

At times, you may discover that you've repeatedly made a mistake throughout your workbook (such as misspelling someone's name), or that you need to exchange a particular word or phrase for another. You can use Excel's **Find and Replace** feature to make quick revisions.



- 1. From the **Home** tab, click the **Find and Select** command, then select **Replace...** from the dropdown menu.
- 2. The **Find and Replace** dialog box will appear. Type the text you wish to find in the **Find what:** field.
- 3. Type the text you wish to replace it with in the **Replace with**: field, then click **Find Next**.
- 4. If the content is found, the cell containing that content will be **selected**.
- 5. **Review** the text to make sure you want to replace it.
- 6. If you wish to replace it, select one of the **replace** options:
- **Replace** will replace individual instances.
- **Replace All** will replace every instance of the text throughout the workbook. In our example, we'll choose this option to save time.
- 7. A dialog box will appear, confirming the number of replacements made. Click **OK** to continue.
- 8. When you are finished, click **Close** to exit the Find and Replace dialog box.

Challenge!

- 1. Open an existing Excel 2013 workbook.
- 2. Select cell D3. Notice how the **cell address** appears in the **Name box** and its **content** appears in both the cell and the **Formula bar**.
- 3. Select a cell, and try inserting **text** and **numbers**.
- 4. Delete a cell, and note how the cells below shift up to fill in its place.
- 5. Cut cells and paste them into a different location.
- 6. Try **dragging** and **dropping** some cells to other parts of the worksheet.
- 7. Use the **fill handle** to fill in data to adjoining cells both vertically and horizontally.
- 8. Use the **Find** feature to locate content in your workbook.

4. Formatting Cells

All cell content uses the same **formatting** by default, which can make it difficult to read a workbook with a lot of information. Basic formatting can customize the **look and feel** of your workbook, allowing you to draw attention to specific sections and making your content easier to view and understand. You can also apply **number formatting** to tell Excel exactly what type of data you're using in the workbook, such as percentages (%), currency (\$), and so on.



4.1. Font Formatting

To change the font

By default, the font of each new workbook is set to Calibri. However, Excel provides a variety of other fonts you can use to customize your cell text. In the example below, we'll format our **title cell** to help distinguish it from the rest of the worksheet.

- 1. Select the **cell(s)** you wish to modify.
- 2. Click the **drop-down arrow** next to the **Font** command on the **Home** tab. The **Font** drop-down menu will appear.
- 3. Select the desired **font**. A **live preview** of the new font will appear as you hover the mouse over different options.



- 4. The text will change to the selected font.
- <u>TIP</u>: When creating a workbook in the workplace, you'll want to select a font that is easy to read. Along with Calibri, standard reading fonts include Cambria, Times New Roman, and Arial.

To change the font size

- 1. Select the **cell(s)** you wish to modify.
- 2. Click the **drop-down arrow** next to the **Font Size** command on the **Home** tab. The **Font Size** dropdown menu will appear.
- 3. Select the desired **font size**. A **live preview** of the new font size will appear as you hover the mouse over different options.
- 4. The text will change to the **selected font size**.
- <u>TIP</u>: You can also use the Increase Font Size and Decrease Font Size commands or enter a custom font size using your keyboard.





- 1. Select the **cell(s)** you wish to modify.
- 2. Click the **drop-down arrow** next to the **Font Color** command on the **Home** tab. The **Color** menu will appear.
- 3. Select the desired **font color**. A **live preview** of the new font color will appear as you hover the mouse over different options.



4. The text will change to the **selected font color**.

To use the Bold, Italic, and Underline commands

- 1. Select the **cell(s)** you wish to modify.
- 2. Click the Bold (B), Italic (I), or Underline (U) command on the Home tab. In our example, we'll make the selected cells **bold**.





- 3. The **selected style** will be applied to the text.
- <u>TIP</u>: You can also press Ctrl+B on your keyboard to make selected text bold, Ctrl+I to apply italics, and Ctrl+U to apply an underline.

4.2. Text Alignment

By default, any text entered into your worksheet will be aligned to the bottom-left of a cell. Any numbers will be aligned to the bottom-right of a cell. Changing the **alignment** of your cell content allows you to choose how the content is displayed in any cell, which can make your cell content easier to read.

To change horizontal text alignment

- 1. Select the **cell(s)** you wish to modify.
- 2. Select one of the three **horizontal alignment** commands on the **Home** tab. In our example, we'll choose **Center Align**.



3. The text will **realign**.

To change vertical text alignment

- 1. Select the **cell(s)** you wish to modify.
- 2. Select one of the three **vertical alignment** commands on the **Home** tab. In our example, we'll choose **Middle Align**.





Cell borders and **fill colors** allow you to create clear and defined boundaries for different sections of your worksheet.

To add a border

- 1. Select the **cell(s)** you wish to modify.
- 2. Click the **drop-down arrow** next to the **Borders** command on the **Home** tab. The **Borders** dropdown menu will appear.



- 3. Select the **border style** you want to use.
- 4. The selected border style will appear.
- <u>TIP</u>: You can draw borders and change the line style and color of borders with the Draw Borders tools at the bottom of the Borders drop-down menu.

Mount Allison

Dra	w Borders	
Z	Dra <u>w</u> Border	
	Draw Border 🖄 rid	
۲	Erase Border	
	L <u>i</u> ne Color	►
	Line Style	►
\blacksquare	More Borders	

- 1. Select the **cell(s)** you wish to modify.
- 2. Click the **drop-down arrow** next to the **Fill Color** command on the **Home** tab. The **Fill Color** menu will appear.
- 3. Select the **fill color** you want to use. A **live preview** of the new fill color will appear as you hover the mouse over different options. In our example, we'll choose **Light Green**.



4. The **selected fill color** will appear in the selected cells.

Mount Allison

4.4. Cell styles

Rather than formatting cells manually, you can use Excel's **predesigned cell styles**. Cell styles are a quick way to include professional formatting for different parts of your workbook, such as **titles** and **headers**.

To apply a cell style

- 1. Select the **cell(s)** you wish to modify.
- 2. Click the **Cell Styles** command on the **Home** tab, then choose the **desired style** from the drop-down menu.

▼ 00. 0.4	Conditional Fo Formatting → T	rmat as Cell able • Styles •	Finsert The sert	Delete	Format	∑ AutoSum ↓ Fill + Clear +	Sort &	Find & Select *	
Good, Bad a	nd Neutral								
Normal	Bad	Good		Net	utral				
Data and Mo	odel								
Calculation	Check Ce	II Expla	natory	. Inp	ut	Linked C	ell	Note	
Jutnut	Warning	Text							

- 3. The **selected cell style** will appear.
- <u>TIP</u>: Applying a cell style will **replace** any existing cell formatting except for text alignment. You may not want to use cell styles if you've already added a lot of formatting to your workbook.

4.5. Formatting text and numbers

One of the most powerful tools in Excel is the ability to apply specific formatting for text and numbers. Instead of displaying all cell content in exactly the same way, you can use formatting to change the appearance of dates, times, decimals, percentages (%), currency (\$), and much more.

To apply number formatting

- 1. Select the **cells(s)** you wish to modify.
- 2. Click the drop-down arrow next to the **Number Format** command on the **Home** tab. The Number Formatting drop-down menu will appear.
- 3. Select the **desired formatting option**.
- 4. The selected cells will change to the new formatting style.





Challenge!

- 1. Open an existing Excel 2013 workbook.
- 2. Select a cell and change the font style, size, and color of the text.
- 3. Apply **bold**, **italics**, or **underline** to a cell.
- 4. Try changing the vertical and horizontal text alignment for some cells.
- 5. Add a **border** to a cell range.
- 6. Change the **fill color** of a cell range.
- 7. Try changing the **formatting** of a number.

5. Modifying Columns, Rows and Cells

By default, every row and column of a new workbook is always set to the same **height** and **width**. Excel allows you to modify column width and row height in different ways, including **wrapping text** and **merging cells**.

To modify column width

1. Position the mouse over the **column line** in the **column heading** so the **white cross** ⊕ becomes a **double arrow** ↔.

H	18	-	:	\times	\sim	$f_{\mathcal{K}}$	
	Α +	₽	В		С		
1	First Na	Last	Name	e			- Andrew States - States - Andrew States - And
2	Amanda	Rya	n				
3	Tricia	Mat	thews	5			
4	Josefina	Woo	odard				
5							
6							

- 2. Click, hold, and drag the mouse to increase or decrease the column width.
- 3. Release the mouse. The **column width** will be changed.
- <u>TIP</u>: If you see pound signs (########) in a cell, it means that the column is not wide enough to display the cell content. Simply increase the column width to show the cell content.

To AutoFit column width

The AutoFit feature will allow you to set a column's width to fit its content automatically.

- 1. Position the mouse over the **column line** in the **column heading** so the **white cross** becomes a **double arrow**.
- 2. Double-click the mouse. The **column width** will be changed automatically to fit the content.
- <u>TIP</u>: You can also AutoFit the width for several columns at the same time. Simply select the columns you would like to AutoFit, then select the AutoFit Column Width command from the Format drop-down menu on the Home tab. This method can also be used for Row height.





To modify row height

- 1. Position the cursor over the row line so the white cross \mathbf{G} becomes a double arrow \mathbf{f} .
- 2. Click, hold, and drag the mouse to increase or decrease the row height.
- 3. Release the mouse. The **height** of the selected row will be changed.

To modify all rows or columns

Rather than resizing rows and columns individually, you can modify the height and width of every row and column at the same time. This method allows you to set a **uniform size** for every row and column in your worksheet.

1. Locate and click the **Select All** button just below the **formula bar** to select every cell in the worksheet.

B2		•	: []	XV	
1	А	В	С	D	
1					
2		list	name	e	
3					
4					
5					

- 2. Position the mouse over a row line so the white cross \mathcal{P} becomes a double arrow $\mathbf{+}$.
- 3. Click, hold, and drag the mouse to **increase** or **decrease** the row height.
- 4. Release the mouse when you are satisfied with the **new row height** for the worksheet.



5.1. Inserting, deleting, moving, and hiding rows and columns

After you've been working with a workbook for a while, you may find that you want to **insert new** columns or rows, **delete** certain rows or columns, **move** them to a different location in the worksheet, or even **hide** them.

To insert rows

- 1. Select the **row heading** below where you want the new row to appear.
- 2. Click the **Insert** command on the **Home** tab.

Ce Style	III Insert V V V	∑ · A Z · Z · A • Sort & Find & • Filter • Select •	
	Cells	Editing	
_	Add new cells, rows o your workbook.	r columns to	
	FYI: To insert multiple columns at a time, sel rows or columns in th click Insert.	erows or lect multiple le sheet, and	
	? Tell me more		- Star Star man - man - Star

- 3. The **new row** will appear **above** the selected row.
- <u>TIP</u>: When inserting new rows, columns, or cells, you will see the Insert Options button insert to the inserted cells. This button allows you to choose how Excel formats these cells. By default, Excel formats inserted rows with the same formatting as the cells in the row above. To access more options, hover your mouse over the Insert Options button, then click the drop-down arrow.

	E
• 🍫	
۰	Format Same As <u>L</u> eft
0	Format Same As <u>R</u> ight
0	<u>C</u> lear Formatting



To insert columns

- 1. Select the **column heading** to the right of where you want the new column to appear.
- 2. Click the Insert command on the Home tab.



- 3. The **new column** will appear **to the left** of the selected column.
- <u>TIP</u>: When inserting rows and columns, make sure you select the entire row or column by clicking the heading. If you select only a cell in the row or column, the Insert command will only insert a new cell.

To delete rows

It's easy to **delete** any row that you no longer need in your workbook.

- 1. Select the **row(s)** you want to delete.
- 2. Click the **Delete** command on the **Home** tab.





3. The selected row(s) will be deleted, and the rows below will shift up.

To delete columns

- 1. Select the **columns(s)** you want to delete.
- 2. Click the **Delete** command on the **Home** tab.



- 3. The selected columns(s) will be deleted, and the columns to the right will shift left.
- <u>TIP</u>: It's important to understand the difference between deleting a row or column and simply clearing its contents. If you want to remove the content of a row or column without causing others to shift, right-click a heading, then select Clear Contents from the drop-down menu.

_		
	Ж	Cu <u>t</u>
	Ē	<u>С</u> ору
	Ċ	Paste Options:
-		🖹 📋
_		Paste <u>S</u> pecial
		Insert
		<u>D</u> elete
		Clear Co <u>n</u> tents



To move a row or column

Sometimes you may want to **move** a column or row to rearrange the content of your worksheet.

- 1. Select the desired **column heading** for the column you wish to move, then click the **Cut** command on the **Home** tab or press **Ctrl+X** on your keyboard.
- 2. Select the **column heading** to the right of where you want to move the column. For example, if you want to move a column between columns B and C, select column C.
- 3. Click the Insert command on the Home tab, then select Insert Cut Cells from the drop-down menu.



- 4. The column will be **moved** to the selected location, and the columns to the right will **shift right**.
- <u>TIP</u>: You can also access the Cut and Insert commands by right-clicking the mouse and then selecting the desired commands from the drop-down menu.

To hide and unhide a row or column

At times, you may want to **compare** certain rows or columns without changing the organization of your worksheet. Excel allows you to **hide** rows and columns as needed.

1. Select the **column(s)** you wish to **hide**, right-click the mouse, then select **Hide** from the **formatting** menu.





2. The columns will be hidden. The green column line indicates the location of the hidden columns.



- 3. To **unhide** the columns, select the columns to the **left** and **right** of the hidden columns (in other words, the columns on **both sides** of the hidden columns).
- 4. Right-click the mouse, then select **Unhide** from the **formatting** menu. The hidden columns will reappear.

5.2. Wrapping text and merging cells

Whenever you have too much cell content to be displayed in a single cell, you may decide to wrap the text or merge the cell rather than resizing a column. Wrapping the text will automatically modify a cell's row height, allowing cell contents to be displayed on multiple lines. Merging allows you to combine a cell with adjacent, empty cells to create one large cell.

- 1. Select the cells you wish to wrap.
- 2. Select the Wrap Text command on the Home tab.





- 3. The text in the selected cells will be **wrapped**.
- ✓ <u>TIP</u>: Click the Wrap Text command again to unwrap the text.

To merge cells using the Merge & Center command

- 1. Select the **cell range** you want to merge together.
- 2. Select the Merge & Center command on the Home tab.

F Wrap Text	Text		
🚍 Merge & Center	▼\$ ~ % *	Conditi Formatt	
ient	Number	s l	
Merge & Center			
Excel Excel Excel 1 2	Combine and center the co the selected cells in a new cell. This is a great way to creat that spans multiple column	ontents of larger e a label ns.	
? Tell me more			

3. The selected cells will be merged, and the text will be centered.

To access more merge options

Click the drop-down arrow next to the **Merge & Center** command on the **Home** tab. The **Merge** drop-down menu will appear. From here, you can choose to:

- Merge & Center: Merges the selected cells into one cell and centers the text
- Merge Across: Merges the selected cells into larger cells while keeping each row separate
- Merge Cells: Merges the selected cells into one cell, but does not center the text
- Unmerge Cells: Unmerges selected cells





Challenge!

- 1. Open an existing Excel 2013 workbook.
- 2. Modify the **width** of a column.
- 3. Insert a column between column A and column B, then insert a row between row 3 and row 4.
- 4. **Delete** a column or a row.
- 5. **Move** a column or row.
- 6. Try using the **Text Wrap** command on a cell range.
- 7. Try merging some cells together.

6. Formulas and Functions

One of the most powerful features in Excel is the ability to **calculate** numerical information using **formulas**.

6.1. Simple Formulas

Just like a calculator, Excel can add, subtract, multiply, and divide. In this lesson, we'll show you how to use **cell references** to create simple formulas.

Mathematical operators

Excel uses standard operators for formulas, such as a **plus sign** for addition (+), a **minus sign** for subtraction (-), an **asterisk** for multiplication (*), a **forward slash** for division (/), and a **caret** (^) for exponents.



All formulas in Excel must begin with an **equals sign** (=). This is because the cell contains, or is equal to, the formula and the value it calculates.



Understanding cell references

While you can create simple formulas in Excel manually (for example, =2+2 or =5*5), most of the time you will use **cell addresses** to create a formula. This is known as making a **cell reference**. Using cell references will ensure that your formulas are always accurate because you can change the value of referenced cells without having to rewrite the formula.



By combining a mathematical operator with cell references, you can create a variety of simple formulas in Excel. Formulas can also include a combination of cell references and numbers, as in the examples below:

	08	A RA NAS GRA
	=A1+A2	Adds cells A1 and A2
	=C4-3	Subtracts 3 from cell C4
	=E7/J4	Divides cell E7 by J4
	=N10*1.05	Multiplies cell N10 by 1.05
	=R5^2	Finds the square of cell R5



To create a formula

- 1. Select the **cell** that will contain the formula.
- 2. Type the equals sign (=). Notice how it appears in both the cell and the formula bar.



- 1. Type the **cell address** of the cell you wish to reference first in the formula: cell **D1** in our example. A **blue border** will appear around the referenced cell.
- 2. Type the mathematical operator you wish to use. In our example, we'll type the addition sign (+).
- 3. Type the **cell address** of the cell you wish to reference second in the formula: cell **D2** in our example. A **red border** will appear around the referenced cell.
- 4. Press Enter on your keyboard. The formula will be calculated, and the value will be displayed in the cell.
- <u>TIP</u>: If the result of a formula is too large to be displayed in a cell, it may appear as pound signs (########) instead of a value. This means that the column is not wide enough to display the cell content. Simply increase the column width to show the cell content.

Modifying values with cell references

The true advantage of cell references is that they allow you to **update data** in your worksheet without having to rewrite formulas.

<u>TIP</u>: Excel will not always tell you if your formula contains an error, so it's up to you to check all of your formulas.

Mount Allison

To create a formula using the point-and-click method

Rather than typing cell addresses manually, you can **point and click** on the cells you wish to include in your formula. This method can save a lot of time and effort when creating formulas. In our example below, we'll create a formula to calculate the cost of ordering several boxes of plastic silverware.

A Paper Supply Item tic Silverware (box of 100)	B Inventory Quantity 9	c Orders Price Per Unit \$8.75	D Total Cost	E
Paper Supply Item tic Silverware (box of 100)	Inventory Quantity 9	Orders Price Per Unit \$8.75	Total Cost දා	
Item tic Silverware (box of 100)	Quantity 9	Price Per Unit \$8.75	Total Cost 다	
tic Silverware (box of 100)	9	\$8.75	¢	
		-		
kins (box of 250)	12	\$2.59		
es (box of 50)	6	\$14.25		
s (box of 75)	10	\$11.99		
al				
	l			

1. Select the **cell** that will contain the formula. In our example, we'll select cell **D3**.

- 2. Type the equals sign (=).
- 3. Select the **cell** you wish to reference first in the formula: cell **B3** in our example. The **cell address** will appear in the formula, and a **dashed blue line** will appear around the referenced cell.

B3	\bullet \bullet \vdots \times \checkmark f_x =	B3						
	А	В	С	D	Е			
1	Paper Supply Inventory Orders							
2	Item	Quantity	Price Per Unit	Total Cost				
3	Plastic Silverware (box of 100)	🕂 9	\$8.75	=B3				
4	Napkins (box of 250)	12	\$2.59					
5	Plates (box of 50)	6	\$14.25					
6	Cups (box of 75)	10	\$11.99					
7	Total							
8								

- 4. Type the mathematical operator you wish to use. In our example, we'll type the multiplication sign (*).
- 5. Select the **cell** you wish to reference second in the formula: cell **C3** in our example. The **cell address** will appear in the formula, and a **dashed red line** will appear around the referenced cell.



C3	\checkmark : \times \checkmark f_x =	B3*C3						
	A	В	С	D	E			
1	Paper Supply Inventory Orders							
2	Item	Quantity	Price Per Unit	Total Cost				
3	Plastic Silverware (box of 100)	9	🔂 \$8.75	=B3*C3				
4	Napkins (box of 250)	12	\$2.59					
5	Plates (box of 50)	6	\$14.25					
6	Cups (box of 75)	10	\$11.99					
7	Total							
8								

6. Press **Enter** on your keyboard. The formula will be **calculated**, and the **value** will be displayed in the cell.

		Α	В	С	D	E	
1	1	Paper Supply	Inventory	Orders			New York
2	2	Item	Quantity	Price Per Unit	Total Cost		
3	3	Plastic Silverware (box of 100)	9	\$8.75	\$78.75		
4	4	Napkins (box of 250)	12	\$2.59			
5	5	Plates (box of 50)	6	\$14.25			
6	6	Cups (box of 75)	10	\$11.99			
7	7	Total					
8	8						

Formulas can also be **copied** to adjacent cells with the **fill handle**, which can save a lot of time and effort if you need to perform the **same calculation** multiple times in a worksheet.

To edit a formula

Sometimes you may want to modify an existing formula. In the example below, we've entered an incorrect cell address in our formula, so we'll need to correct it.

- 1. Select the **cell** containing the formula you wish to edit.
- 2. Click the **formula bar** to edit the formula. You can also **double-click** the cell to view and edit the formula directly within the cell.
- 3. A **border** will appear around any referenced cells.
- 4. When finished, press Enter on your keyboard or select the Enter command \checkmark in the formula bar.
- 5. The formula will be **updated**, and the **new value** will be displayed in the cell.
- \checkmark <u>TIP</u>: If you change your mind, you can press the **Esc** key on your keyboard or click the **Cancel** command \times in the formula bar to avoid accidentally making changes to your formula.



<u>TIP</u>: To show all of the formulas in a spreadsheet, you can hold the Ctrl key and press ` (grave accent). The grave accent key is usually located in the upper-left corner of the keyboard. You can press Ctrl+` again to switch back to the normal view.

Challenge!

- 1. Open an existing Excel workbook.
- 2. Create a simple addition formula using cell references.
- 3. Try modifying the value of a cell referenced in a formula.
- 4. Try using the **point-and-click method** to create a formula.
- 5. Edit a formula using the formula bar.

6.2. Complex Formulas

A simple formula is a mathematical expression with one operator, such as **7+9**. A **complex formula** has more than one mathematical operator, such as **5+2*8**. When there is more than one operation in a formula, the **order of operations** tells Excel which operation to calculate first. In order to use Excel to calculate complex formulas, you will need to understand the order of operations.

Order of operations

Excel calculates formulas based on the following order of operations:

- 1. Operations enclosed in **parentheses**
- 2. **Exponential** calculations (3², for example)
- 3. Multiplication and division, whichever comes first
- 4. Addition and subtraction, whichever comes first

Creating complex formulas

In the example below, we will demonstrate how Excel solves a complex formula using the order of operations. Here, we want to calculate the cost of **sales tax** for an invoice. To do this, we'll write our formula as **=(D2+D3)*0.075** in cell **D4**. This formula will add the prices of our items together and then multiply that value by the 7.5% tax rate (which is written as 0.075) to calculate the cost of sales tax.



SUM • : $\times f_x = (D2+D3)^* 0.075$					
2	A	В	с	D	
1	Menu Item	Price	Quantity	Total	
2	Item 1	\$2.2	9 20	\$45.80	
3	Item 2	\$2.2	9 30	\$68.70	
4			Tax	=(D2+D3)*0.075	
5			Total		
	1200				

<u>TIP</u>: It is especially important to enter complex formulas with the correct order of operations. Otherwise, Excel will not calculate the results accurately. In our example, if the parentheses are not included, the multiplication is calculated first and the result is incorrect. Parentheses are the best way to define which calculations will be performed first in Excel.

Challenge!

- 1. Open an existing Excel workbook.
- 2. Create a complex formula that will perform addition before multiplication.

6.2.1. Relative and Absolute Cell References

There are two types of cell references: **relative** and **absolute**. Relative and absolute references behave differently when copied and filled to other cells. 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.

6.2.2. Relative cell references

By default, all cell references are **relative references**. When copied across multiple cells, they change based on the relative position of rows and columns. For example, if you copy the formula **=A1+B1** from row 1 to row 2, the formula will become **=A2+B2**. Relative references are especially convenient whenever you need to **repeat** the same calculation across multiple rows or columns.

To create and copy a formula using relative references

In the following example, we want to create a formula that will multiply each item's **price** by the **quantity**. Rather than creating a new formula for each row, we can create a single formula in cell **D2** and then copy



it to the other rows. We'll use relative references so the formula correctly calculates the total for each item.

- 1. Select the **cell** that will contain the formula. In our example, we'll select cell **D2**.
- 2. Enter the **formula** to calculate the desired value. In our example, we'll type **=B2*C2**.

	Α	В	С	D	
1	Item	Price	Quantity	Total	
2	ltem 1	\$2.00	4	=B2*C2	
3	Item 2	\$4.00	2		
4	Item 3	\$6.00	1		
5	Item 4	\$3.00			
6	Item 5	\$2.00	5		
7	Item 6	\$8.00	3		- Marine -
8	Item 7	\$2.00	3		
9	Item 8	\$1.00	6		
10	Item 9	\$9.00	2		
11	Item 10	\$7.00	5		State and States - 1
12		Total			

- 3. Press **Enter** on your keyboard. The formula will be **calculated**, and the result will be displayed in the cell.
- 4. Locate the **fill handle** in the lower-right corner of the desired cell. In our example, we'll locate the fill handle for cell **D2**.

	А	В	С	D
1	Item	Price	Quantity	Total
2	ltem 1	\$2.00	4	\$8.00
3	Item 2	\$4.00	2	
4	Item 3	\$6.00	1	
5	Item 4	\$3.00		
6	Item 5	\$2.00	5	
7	ltem 6	\$8.00	3	
8	Item 7	\$2.00	3	
9	Item 8	\$1.00	6	
10	Item 9	\$9.00	2	
11	Item 10	\$7.00	5	
12		Total		



5. Click, hold, and drag the fill handle over the cells you wish to fill.

	Click, hold and drag the fill handle to copy the formula to adjacent cells				
1	Item	Plice	Quantity	TUTAL	
2	Item 1	\$2.00	4	\$8.00	
з	Item 2	\$4.00	2		
4	Item 3	\$6.00	1		
5	Item 4	\$3.00			
6	Item 5	\$2.00	5		
7	Item 6	\$8.00	3		
8	Item 7	\$2.00	3		
9	Item 8	\$1.00	6		i Baser
10	Item 9	\$9.00	2		₽
11	Item 10	\$7.00	5		
12		Total			
	1				-

- 6. Release the mouse. The formula will be **copied** to the selected cells with **relative references**, and the values will be calculated in each cell.
- <u>TIP</u>: You can double-click the filled cells to check their formulas for accuracy. The relative cell references should be different for each cell, depending on their rows.

	А	В	С		D
1	Item	Price	Quantity		Total
2	ltem 1	\$2.00		4	\$8.00
3	Item 2	\$4.00		2	\$8.00
4	Item 3	\$6.00		1	\$6.00
5	Item 4	\$3.00			\$0.00
6	ltem 5	\$2.00		5	=B6*C6
7	ltem 6	\$8.00		3	\$24.00
8	Item 7	\$2.00		3	
9	Item 8	\$1.00		6	
10	Item 9	\$9.00		2	
11	Item 10	\$7.00	1	5	
12		Total			

6.2.3. Absolute cell references

There may be times when you do not want a cell reference to change when filling cells. Unlike relative references, *absolute references do not change when copied or filled*. You can use an absolute reference to keep a row and/or column **constant**.

An absolute reference is designated in a formula by the addition of a **dollar sign (\$)**. It can precede the column reference, the row reference, or both.

\$A\$2	The column and the row do not change when copied				
A\$2	The row does not change when copied				
\$A2	The column does not change when copied				

You will generally use the **\$A\$2** format when creating formulas that contain absolute references. The other two formats are used much less frequently.

<u>TIP</u>: When writing a formula, you can press the F4 key on your keyboard to switch between relative and absolute cell references. This is an easy way to quickly insert an absolute reference.

To create and copy a formula using absolute references

In our example, we'll use the 7.5% sales tax rate in cell E1 to calculate the sales tax for all items in column D. We'll need to use the absolute cell reference \$E\$1 in our formula. Since each formula is using the same tax rate, we want that reference to remain constant when the formula is copied and filled to other cells in column D.

- 1. Select the **cell** that will contain the formula. In our example, we'll select cell **D3**.
- 2. Enter the **formula** to calculate the desired value. In our example, we'll type =(B3*C3)*\$E\$1.
- 3. Press Enter on your keyboard. The formula will calculate, and the result will display in the cell.

MountAllison

	4	А	В	С	D	E
	1		7.50%			
:	2	Item	Price	Quantity	Total	Тах
1	3	ltem 1	\$2.00	4	\$8.00	=(B3*C3)*\$E\$1
	4	Item 2	\$4.00	2	\$8.00	
dia.	5	Item 3	\$6.00	1	\$6.00	
19	6	Item 4	\$3.00		\$0.00	
Aller and	7	Item 5	\$2.00	5	\$10.00	
4	8	Item 6	\$8.00	3	\$24.00	
1	9	Item 7	\$2.00	3	\$6.00	
1	10	Item 8	\$1.00	6	\$6.00	
1	11	Item 9	\$9.00	2	\$18.00	
1	12	Item 10	\$7.00	5	\$35.00	
1	13		Total			

- 4. Locate the **fill handle** in the lower-right corner of the desired cell.
- 5. Release the mouse. The formula will be **copied** to the selected cells with an **absolute reference**, and the values will be calculated in each cell.

Challenge!

- 1. Open an existing Excel workbook.
- 2. Create a formula that uses a **relative reference**. Double-click a cell to see the copied formula and the relative cell references.
- 3. Create a formula that uses an **absolute reference**.

6.3. 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 useful for quickly finding 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.

Formula =A1+A2+A3+A4+A5+A6+A7+A8

Function =SUM(A1:A8)

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 an **equals sign (=)**, the **function name** (SUM, for example), and one or more **arguments**. Arguments contain the information you want to calculate.





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.

For example, the function **=AVERAGE(B1:B9)** would calculate the **average** of the values in the cell range B1:B9. This function contains only one argument.



Multiple arguments must be separated by a **comma**. For example, the function **=SUM(A1:A3, C1:C2, E2)** will **add** the values of all the cells in the three arguments.
SI	UM 🕹	: 2	× √ ∫	x =SU	M(A1:A3,0	:1:C2,E
4	Α	В	с	D	E	F
1	34		65		6	
2	21		23			
3	56					
4						
5	=SUM(A1:A3	,C1:C2,E	1)			
6						

6.3.1. Creating a function

Excel has a variety of functions available. Here are some of the most common functions you'll use:

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

To create a basic function

In our example below, we'll create a basic function to calculate the **average price per unit** for a list of recently ordered items using the AVERAGE function.

- 1. Select the **cell** that will contain the function.
- 2. Type the equals sign (=) and enter the desired function name. You can also select the desired function from the list of suggested functions that will appear below the cell as you type. In our example, we'll type =AVERAGE.

	А	В	С	D	
1		Sales Tax	C		
2	Item	Price	Quantity	Total	Тах
3	Item 1	\$2.00	4	\$8.00	
4	Item 2	\$4.00	2	\$8.00	
5	Item 3	\$6.00	1	\$6.00	
6	Item 4	\$3.00		\$0.00	
7	Item 5	\$2.00	5	\$10.00	
8	Item 6	\$8.00	3	\$24.00	
9	Item 7	\$2.00	3	\$6.00	
10	Item 8	\$1.00	6	\$6.00	
11	Item 9	\$9.00	2	\$18.00	
12	Item 10	\$7.00	5	\$35.00	
13				=AVER	
14				🕭 AVERAG	E
15				E AVERAG	EA
16				(f) AVERAG	EIF
17				V AVERAG	EIFS

- 3. Enter the cell range for the argument inside parentheses. In our example, we'll type (D3:D12).
- 4. Press Enter on your keyboard. The function will be calculated, and the result will appear in the cell.

To create a function using the AutoSum command

The **AutoSum** command allows you to automatically insert the most common functions into your formula, including SUM, AVERAGE, COUNT, MIN, and MAX. In our example below, we'll create a function to calculate the **total cost** for a list of recently ordered items using the SUM function.

- 1. Select the **cell** that will contain the function.
- 2. In the **Editing** group on the **Home** tab, locate and select the **arrow** next to the **AutoSum** command and then choose the **desired function** from the drop-down menu. In our example, we'll select **Sum**.





3. The selected **function** will appear in the cell. If logically placed, the AutoSum command will **automatically** select a cell range for the argument. You can also manually enter the desired cell range into the argument.

SL	JM	▼ ÷ 🕽	× 🗸 f	x =SUM(I	D3:D12)
	А	В	С	D	
1		Sales Tax	(
2	Item	Price	Quantity	Total	Тах
3	Item 1	\$2.00	4	\$8.00	
4	Item 2	\$4.00	2	\$8.00	
5	Item 3	\$6.00	1	\$6.00	
6	Item 4	\$3.00		\$0.00	
7	Item 5	\$2.00	5	\$10.00	
8	Item 6	\$8.00	3	\$24.00	
9	Item 7	\$2.00	3	\$6.00	
10	Item 8	\$1.00	6	\$6.00	
11	Item 9	\$9.00	2	\$18.00	
12	Item 10	ltem 10 \$7.00		\$35.00	
13				=SUM(D3:D	12)

4. Press Enter on your keyboard.

6.3.2. The Function Library

While there are hundreds of functions in Excel, the ones you use most frequently will depend on the **type** of data your workbooks contains. There is no need to learn every single function, but exploring some of the different **types of functions** will be helpful as you create new projects. You can search for functions by category, such as Financial, Logical, Text, Date & Time, and more from the Function Library on the Formulas tab.

☑ To access the Function Library, select the Formulas tab on the Ribbon. The Function Library will appear.

XI 📕	5 • ∂	≈ * ∓								
FILE	HOME	INS	ERT	PA	GE LAYOUT	FORMULA	S DA	TA REVI	EW VIEW	
	Cut Copy 🔻		Calit	ori	- 14	• A A			🛱 Wrap Text	
Paste	[°] Format Pair	nter	В	ΙU	! • 🖽 • :	<u>∽ A</u> -		≣∣€≣∳≣	🖽 Merge & (Center 🔻
Clip	board	- Fail			Font	E.		Align	ment	Fai



FILE	HOME	INSER	т ра	GE LAYO	DUT	FORM	JLAS	DA	ATA	REVIEW	
fx	Σ	*		?	Α		\		θ		
Insert	AutoSum	Recently	Financial	Logical	Text	Date &	Looku	p &	Math &	More	
Function	*	Used 🔻	*	*	*	Time *	Referen	ce *	Trig 👻	Functions *	
				Function	n Librar	y					

- □ If you're having trouble finding the right function, the **Insert Function** command allows you to search for functions using keywords.
- □ The AutoSum command allows you to automatically return results for common functions, like SUM, AVERAGE, and COUNT.
- □ The **Recently Used** command gives you access to functions that you have recently worked with.
- □ The **Financial** category contains functions for financial calculations like determining a payment (**PMT**) or interest rate for a loan (**RATE**).
- □ Functions in the Logical category check arguments for a value or condition. For example, if an order is over \$50 add \$4.99 for shipping, but if it is over \$100, do not charge for shipping (IF).
- □ The **Text** category contains functions that work with the text in arguments to perform tasks, such as converting text to lowercase (LOWER) or replacing text (REPLACE).
- □ The **Date & Time** category contains functions for working with dates and time and will return results like the current date and time (**NOW**) or the seconds (**SECOND**).
- □ The Lookup & Reference category contains functions that will return results for finding and referencing information. For example, you can add a hyperlink (HYPERLINK) to a cell or return the value of a particular row and column intersection (INDEX).
- □ The Math & Trig category includes functions for numerical arguments. For example, you can round values (ROUND), find the value of Pi (PI) multiply (PRODUCT), subtotal (SUBTOTAL), and much more.
- □ More Functions contains additional functions under categories for Statistical, Engineering, Cube, Information, and Compatibility.

To insert a function from the Function Library

- 1. Select the **cell** that will contain the function.
- 2. Click the Formulas tab on the Ribbon to access the Function Library.
- 3. From the **Function Library** group, select the desired **function category**.
- 4. Select the **desired function** from the drop-down menu.



J In Fun	f_{x} sert A	∑ utoSum	Recently Used *	Financial Logica	al Text	Date & Look Time • Refere	Ω up& Math& ence∗ Trig∗	More Functions *	Name Manager	
				Functi	on Library	DATE				Defined Nam
D2	2	-	\mathbf{X}	s fx		DATEVA	ALUE			
	hi man				_	DAY		1	1	1 040
1	A		В	C	D	DAYS		G	Н	I
1	Item	Date	Ordere	Date Receive	Delivery	DAVS36	0			
2	Item 1	1/	/5/2015	1/26/2015		ED ATE				
3	Item 2	1/	/9/2015	1/26/2015		EDATE				
4	Item 3	1/	/5/2015	1/25/2015		EOMON	ITH			
5	Item 4	1/	/5/2015	1/26/2015		HOUR				
6	Item 5	1/	/5/2015	1/23/2015		ISOWEE	KNUM			
7	Item 6	1/	/5/2015	1/26/2015			-			
8	Item 7	1/	/5/2015	1/26/2015		MINUTE	5			
9	Item 8	1/	/7/2015	1/15/2015		MONTH	4			
10	Item 9	1/	/6/2015	1/6/2015		NETWO	RKDAYS			
11	Item 10	1/	6/2015	1/8/2015		NETWO	RKDAYSJNTL			
12						NOW	NETWORKE	AYS(start d	ate.end da	te.holidavs)
13						NOW	D			
14						SECON	two dates.	number of wi	nole workd	ays between
15						TIME				

5. The **Function Arguments** dialog box will appear. From here, you'll be able to enter or select the cells that will make up the arguments in the function.

		A	В	c	:	D	E		F	G	н	I
1	Item	n	Date Ordere	Date R	eceive	Delivery Time		Г				
2	Item	1	1/5/2015	1/26	/2015	AYS(B2,C2)						
З	Item	12	1/9/2015	1/26	/2015							
4	Iten	Funct	ion Arguments								2	x
5	Iten	runce										
6	Iten	NET	NORKDAYS									
7	Iten		Start	_date	B2		1	=	42009			
8	Iten		End_date C2						42030.36	94		
9	Iten		Но	lidays			1	=	any			
10	Iten			L				_	16			
11	Iten	Retur	ns the number o	of whole	workd	lavs between two d	lates.	-	10			
12					End da	to is a social data	number the	•	n racante t	he and data		
13					cnu_ua	ite is a serial date	number ina	L Te	presents t	ne enu uate.		
14												
15												
16		Formula result = 16										
17		Help	on this function							ОК	Canc	el
18												

- 6. When you're satisfied with the arguments, click **OK**.
- 7. The function will be **calculated**, and the **result** will appear in the cell.

Like formulas, functions can be copied to adjacent cells. Hover the mouse over the **cell** that contains the function, then click, hold, and drag the **fill handle** over the cells you wish to fill. The function will be copied, and values for those cells will be calculated relative to their rows or columns.

D2	2	• :)	X 🗸	<i>fx</i>	=NETWORKDA	YS(B2,C2)
	А	В	С		D	E
1	Item	Date Ord	ere Date Re	eceive	Delivery Time	
2	ltem 1	1/5/20	15 1/26,	/2015	16	
3	Item 2	1/9/20	15 1/26	/2015	12	
4	Item 3	1/5/20	15 1/25,	/2015	15	
5	Item 4	1/5/20	15 1/26,	/2015	16	
6	Item 5	1/5/20	15 1/23,	/2015	15	
7	Item 6	1/5/20	15 1/26,	/2015	16	
8	Item 7	1/5/20	15 1/26,	/2015	16	
9	Item 8	1/7/20	15 1/15	/2015	7	
10	Item 9	1/6/20	15 1/6,	/2015	1	
11	Item 10	1/6/20	15 1/8,	/2015	3	
12						

6.3.3. The Insert Function command

If you're having trouble finding the right function, the **Insert Function** command allows you to search for functions using **keywords**. While it can be extremely useful, this command is sometimes a little difficult to use. If you don't have much experience with functions, you may have more success browsing the **Function Library** instead. For more **advanced users**, however, the Insert Function command can be a powerful way to find a function quickly.

To use the Insert Function command

- 1. Select the **cell** that will contain the function.
- 2. Click the Formulas tab on the Ribbon, then select the Insert Function command.
- 3. The Insert Function dialog box will appear.
- 4. Type a few keywords describing the calculation you want the function to perform, then click Go.
- 5. Review the **results** to find the desired function, then click **OK**.



F	ILE	HOM	IE	INSERT	Γ PA	GE LAYO	DUT	FORM	ULAS	DA	TA	REV	IEW
	fx	Σ		*	5	?	Α		٩		θ		
In	sert	AutoSu	um R	lecently f	inancial	Logical	Text	Date &	Looku	р & I	Math &	N	/lore
Fun	oction	*		Used 🚽	-	*	-	Time •	Referer	nce ≖	Trig 🔻	Fund	ctions -
						Functio	n Libraŋ	/					
	-	Insert I	und	tion						ſ	?	x	
INI	ETWO	Caprob	for	function									
	A	<u>s</u> earch	101 8	a runctior								_	G
1	Item	cou	nt ce	lls							<u>G</u> o		
2	Item	Orse	elect	a categor	Peron	mended			-	i			
3	Item	013		u <u>c</u> ategor	y. Kecon	menace				1			
4	Item	Select	a fun	nctio <u>n</u> :								_	
5	Item	COL	JNT									^	
6	Item	COL	JNTA										
7	Item		JNTIF	S									
8	Item	DCC	DUNT	A									
9	Item	FRE	QUE	NCY								Ť	
10	Item	COU	NIA(value1,va	nue2,)	in a rand	e that a	ire not e	motv.				
11	Item												
12													
13													
14		Halp	n thi	c function					.				
15		<u>nelp o</u>	n (ni	siunctio	<u>n</u>				ОК		Cancel		
16													
		-											

- 6. The Function Arguments dialog box will appear.
- 7. When you're satisfied, click OK.
- 8. The function will be **calculated**, and the **result** will appear in the cell.

Challenge!

- 1. Open an existing Excel workbook.
- 2. Create a function that contains one **argument**. If you're using the example, use the **SUM** function in cell **B16** to calculate the total quantity of items ordered.
- 3. Use the **AutoSum** command to insert a function.
- 4. Explore the **Function Library**, and try using the **Insert Function** command to search for different types of functions.



Excel Formulas You Should Definitely Know

1. SUM

Formula: =SUM(5, 5) or =SUM(A1, B1) or =SUM(A1:B5)

The SUM formula does exactly what you would expect. It allows you to add 2 or more numbers together. You can use cell references as well in this formula.

2. COUNT

Formula: =COUNT(A1:A10)

The count formula counts the number of cells in a range that have numbers in them.

	Α	В	С	D	
1	1		Formula Result	9	References and the second
2	2		Formula	=COUNT(A1:A10)	
3	3				
4	4				
5	5				
6	6				
7	7				
8	8				
9	doesn't work with text				
10	10				

It only counts the cells where there are numbers.

3. COUNTA

Formula: =COUNTA(A1:A10)

Counts the number of non-empty cells in a range. It will count cells that have numbers and/or any other characters in them.

The COUNTA Formula works with all data types.



	А	В	С	D
1	1		Formula Result	10
2	2		Formula	=COUNTA(A1:A10)
3	3			
4	4			
5	5			
6	6			
7	7			
8	8			
9	This works with text			
10	10			

It counts the number of non-empty cells no matter the data type.

4. LEN

Formula: =LEN(A1)

The LEN formula counts the number of characters in a cell. This includes spaces!

	Α	В	С	D
1	I love Excel		Formula Result	12
2	IloveExcel		Formula	=LEN(A1)
3				j.
4			Formula Result	10
5			Formula	=LEN(A2)

Notice the difference in the formula results: 10 characters without spaces in between the words, 12 with spaces between the words.

5. VLOOKUP

Formula: =VLOOKUP(lookup_value, table_array, col_index_num, range_lookup)

Basically, VLOOKUP lets you **search for specific information** in your spreadsheet. For example, if you have a list of products with prices, you could search for the price of a specific item.

We're going to use VLOOKUP to find the price of the **Photo frame**. You can probably already see that the price is \$9.99, but that's because this is a simple example. Once you learn how to use VLOOKUP, you'll be able to use it with larger, more complex spreadsheets, and that's when it will become truly useful.

		А	В	С	D	E	F
	1	Item	Price				
	2	Spice rack	\$19.99				
	3	Stationery	\$5.49				
	4	Gift basket	\$25.99				
	5	Cutting board	\$24.99				
	6	Landscape painting	\$35.99				
	7	Greeting card	\$4.99				
	8	T-shirt	\$15.49				
	9	Scarf	\$29.99				
	10	Coffee mug	\$8.99				
	11	Tea set	\$16.99				
	12	Serving bowl	\$12.99				
	13	Wrapping paper	\$3.99				
	14	Photo frame	\$9.99				
	15	Handmade soap	\$4.49				
	16	Gourmet hot cocoa	\$5.99				

As with any formula, you'll start with an equal sign (=). Then, type the formula name.

=VLOOKUP("Photo frame"

The second argument is the **cell range that contains the data**. In this example, our data is in A2:B16. As with any function, you'll need to use a comma to separate each argument:

=VLOOKUP("Photo frame", A2:B16

Note: It's important to know that VLOOKUP will **always search the first column** in this range. In this example, it will search column A for "Photo frame". In some cases, you may need to move the columns around so that the first column contains the correct data.

The third argument is the **column index number**. It's simpler than it sounds: The first column in the range is 1, the second column is 2, etc. In this case, we are trying to find the **price of the item**, and the prices are contained in the **second column**. That means our third argument will be **2**:

=VLOOKUP("Photo frame", A2:B16, 2

The fourth argument tells VLOOKUP whether to look for **approximate matches**, and it can be either TRUE or FALSE. If it is TRUE, it will look for approximate matches. Generally, this is only useful if the first column has numerical values that have been sorted. Since we're only looking for exact matches, the fourth argument should be **FALSE**. This is our last argument, so go ahead and close the parentheses:

=VLOOKUP("Photo frame", A2:B16, 2, FALSE)

And that's it! When you press enter, it should give you the answer, which is **9.99**.



f _∞ =∨L	.OOKUP("P	hoto fram	e", A2:B16	i, 2, FALSE)
С	D	E	F	G
		9.99		
			No.	

6. IF Statements

Formula: =IF(logical_statement, return this if logical statement is true, return this if logical statement is false).

Example

Let's say a salesperson has a quota to meet. You used VLOOKUP to put the revenue next to the name. Now you can use an IF statement that says: "IF the salesperson met their quota, say "Met quota", if not say "Did not meet quota"

=IF(C3>D3, "Met Quota", "Did Not Meet Quota")

This IF statement will tell us if the first salesperson met their quota or not. We would then copy and paste this formula along all the entries in the list. It would change for each sales person.

	А	В	С		D	E
1			Master	List		
2	Sales Person ID	Sales Person Name	Sales Person Revenue	2	Quota	Met Quota?
3	1	John	\$ 232,103.00	\$	500,000.00	Did Not Meet Quota
4	2	Joe	\$ 835,477.00	\$	500,000.00	Met Quota
5	3	Jen	\$ 116,371.00	\$	500,000.00	Did Not Meet Quota
6	4	Frank	\$ 393,841.00	\$	500,000.00	Did Not Meet Quota
7	5	Mark	\$ 989,303.00	\$	500,000.00	Met Quota
8	6	Amanda	\$ 641,883.00	\$	500,000.00	Met Quota
9	7	Erik	\$ 525,894.00	\$	500,000.00	Met Quota
10	8	Mike	\$ 732,195.00	\$	500,000.00	Met Quota
11	9	Matt	\$ 513,372.00	\$	500,000.00	Met Quota
12	10	Josh	\$ 961,561.00	\$	500,000.00	Met Quota
13	11	Shea	\$ 235,652.00	\$	500,000.00	Did Not Meet Quota
14						
15			Formula			
16		=IF(C3>D3, "	Met Quota", "Did Not I	Meet	Quota")	

7. Working with Data

Whenever you're working with a lot of data, it can be difficult to **compare** information in your workbook.

7.1 Freezing Panes and View Options

Excel includes several tools that make it easier to view content from different parts of your workbook at the same time, such as the ability to **freeze panes** and **split** your worksheet.

To freeze rows

You may want to see certain rows or columns all the time in your worksheet, especially **header cells**. By **freezing** rows or columns in place, you'll be able to scroll through your content while continuing to view the frozen cells.

- 1. Select the **row** below the row(s) you wish to **freeze**.
- 2. Click the View tab on the Ribbon.
- 3. Select the **Freeze Panes** command, then choose **Freeze Panes** from the drop-down menu.

								(Q) (Q)
F	TLE HO	OME INSERT	PAGE LAYOUT	FORMULAS	DATA	REVIEW	VIEW	Anna C I
No	rmal Page B Previ	Page Layout reak I Custom Views ew	Show Zoom	100% Zoom to Selection	Rew Arra	Window nge All ze Panes 🔻		Switch Macros Windows •
	Wor	kbook Views		Zoom		Un <u>f</u> reeze	Panes	
A	2	▼ E X ✓	fx Item 1			Unlock all i through th	rows and o e entire w	columns to scroll
	Α	В	С	D		Freeze Top Keep the to	p <u>R</u> ow op row visi	ible while scrolling
1	Item	Date Ordered	Date Received			through th	e rest of th	he worksheet.
2	Item 1	1/5/2015	5 1/26/2	015		Freeze Firs	st <u>C</u> olumn	
З	Item 2	1/9/2015	5 1/26/2	015		Keep the fi	rst columi	n visible while
4	Item 3	1/5/2015	5 1/25/2	015	L.,	Scroning a	noughtin	rest of the worksheet.
5	Item 4	1/5/2015	5 1/26/2	015				
6	Item 5	1/5/2015	5 1/23/2	015				
7	Item 6	1/5/2015	5 1/26/2	015				
8	Item 7	1/5/2015	5 1/26/2	015				
9	Item 8	1/7/2015	5 1/15/2	015				
10	Item 9	1/6/2015	5 1/6/2	015				
11	Item 10	1/6/2015	5 1/8/2	015				

The rows will be **frozen** in place, as indicated by the **gray line**. You can **scroll down** the worksheet while continuing to view the frozen rows at the top.

To freeze columns

1. Select the **column** to the right of the column(s) you wish to **freeze**.



- 2. Click the **View** tab on the **Ribbon**.
- 3. Select the Freeze Panes command, then choose Freeze Panes from the drop-down menu.
- 4. The column will be **frozen** in place, as indicated by the **gray line**. You can **scroll across** the worksheet while continuing to view the frozen column on the left.

To **unfreeze** rows or columns, click the **Freeze Panes** command, then select **Unfreeze Panes** from the drop-down menu.

To split a worksheet

Sometimes you may want to compare different sections of the same workbook without creating a new window. The **Split** command allows you to **divide** the worksheet into multiple panes that scroll separately.

- 1. Select the **cell** where you wish to split the worksheet.
- 2. Click the **View** tab on the **Ribbon**, then select the **Split** command.

REVIEW	VIEW			
Zoom to Selection	New Window	Arrange	Freeze Panes *	Split Hide
				W

3. The workbook will be **split** into different **panes**. You can scroll through each pane separately using the **scroll bars**, allowing you to compare different sections of the workbook.

To remove the split, click the **Split** command again.

Challenge!

- 1. Open an existing Excel workbook.
- 2. Try **freezing** a row or column in place.
- 3. Use the **Split** command to split your worksheet into multiple panes.

7.2 Sorting Data

As you add more content to a worksheet, organizing that information becomes especially important. You can quickly **reorganize** a worksheet by **sorting** your data. For example, you could organize a list of contact information by last name. Content can be sorted alphabetically, numerically, and in many other ways.



When sorting data, it's important to first decide if you would like the sort to apply to the **entire worksheet** or just a **cell range**.

- Sort sheet organizes all of the data in your worksheet by one column.
- **Sort range** sorts the data in a range of cells, which can be helpful when working with a sheet that contains several tables. Sorting a range will not affect other content on the worksheet.

To sort a sheet

In our example, we'll sort a T-shirt order form alphabetically by Last Name (column C).

1. Select a **cell** in the column you wish to sort by. In our example, we'll select cell **C2**.

C2	*	$\times \checkmark f_x$	Chen			
	А	В	С	D	E	F
1	Homeroom #	First Name	Last Name	T-Shirt Size	Payment Method	
2	105	Christiana	Chen 🗘	Medium	Cash	
3	105	Melissa	White	Small	Debit Card	
4	105	Esther	Yaron	Small	Check	
5	135	Anisa	Naser	Small	Check	
6	135	Chantal	Weller	Medium	Cash	
7	220-A	Juan	Flores	X-Large	Pending	
8	220-B	Malik	Reynolds	Small	Cash	
9	220-B	Avery	Kelly	Medium	Debit Card	
10	105	Derek	MacDonald	Large	Cash	

Select the Data tab on the Ribbon, then click the Ascending command ^{2↓} to Sort A to Z, or the Descending command ^{X↓} to Sort Z to A. In our example, we'll click the Ascending command.



3. The worksheet will be **sorted** by the selected column. In our example, the worksheet is now sorted by **last name**.



C2	*	$\times \checkmark f_x$	Ackerman			
	А	В	С	D	E	F
1	Homeroom #	First Name	Last Name	T-Shirt Size	Payment Method	
2	110	Kris	Ackerman	Large	Money Order	
3	105	Nathan	Albee	Medium	Check	
4	220-В	Samantha	Bell	Medium	Check	
5	110	Matt	Benson	Medium	Money Order	
6	105	Christiana	Chen	Medium	Cash	
7	110	Gabriel	Del Toro	Medium	Cash	
8	220-A	Brigid	Ellison	Small	Cash	
9	220-A	Juan	Flores	X-Large	Pending	
10	220-В	Tyrese	Hanlon	X-Large	Debit Card	

7.3 Filtering Data

If your worksheet contains a lot of content, it can be difficult to find information quickly. **Filters** can be used to **narrow down** the data in your worksheet, allowing you to view only the information you need.

To filter data

- 1. In order for filtering to work correctly, your worksheet should include a **header row**, which is used to identify the name of each column.
- 2. Select the **Data** tab, then click the **Filter** command.

F	ILE	HOME INSERT	PAGE LAYOUT	FORMULA	S DATA	RE	VIEW	VIEW
Get [External Data *	Refresh All +	^{IS} Ž↓ <mark>Z Z</mark> Z↓ Sort	Filter	lear sapply dvanced	Text to Column	Flash 💽 Flash 📲 Flash	Fill Internation Internatio Internation Internation Internation Internation Internation In
		Connections	S	ort & Filter			Data	Tools
A	1	• : × ~	f_x Item	Filter (Ctrl+	Shift+L)	c.h		
1	A	В	с	The second secon	cel	rn on filt ls.	ering for th	e selected
1	Item	Date Ordered	Date Receive	fart sp Tame E Shan Hanni di Addit				at a set of a
2	Item 1	1/5/20	15 1/2	Contraction	he	en, click ader to n	arrow down	n the data.
З	Item 10	1/6/20	15 1/	0.00000000 0.0000000 0.0000000 0.0000000				
4	Item 2	1/9/20	15 1/2	Constanting Constanting	-			
5	Item 3	1/5/20	15 1/2		Linterio			
6	Item 4	1/5/20	15 1/2	O Tell me	more			
7	Item 5	1/5/20	15 1/2	3/2013		1.1		
8	Item 6	1/5/20	15 1/2	6/2015				
9	Item 7	1/5/20	15 1/2	6/2015				

- 3. A **drop-down arrow** will appear in the header cell for each column.
- 4. Click the **drop-down arrow** for the column you wish to filter.



- 5. The Filter menu will appear.
- 6. Uncheck the box next to Select All to quickly deselect all data.
- 7. Check the boxes next to the data you wish to filter, then click OK.

To remove all filters from your worksheet, click the Filter command on the Data tab.

8. Working with Charts

Creating a chart in Microsoft Office Excel is quick and easy. Excel provides a variety of chart types that you can choose from when you create a chart. Excel offers Pie, Line, Bar, and Column charts to name but a few. Showing data in a chart can make it clearer, more interesting and easier to read. Charts can also help you evaluate your data and make comparisons between different values.

8.1. Understanding charts

Excel has several different **types of charts**, allowing you to choose the one that best fits your data. In order to use charts effectively, you'll need to understand how different charts are used.

Types of Charts:

- □ Column charts use vertical bars to represent data. They can work with many different types of data, but they're most frequently used for comparing information.
- □ Line charts are ideal for showing trends. The data points are connected with lines, making it easy to see whether values are increasing or decreasing over time.
- □ Pie charts make it easy to compare proportions. Each value is shown as a slice of the pie, so it's easy to see which values make up the percentage of a whole.
- **Bar charts** work just like Column charts, but they use horizontal bars instead of vertical bars.
- Area charts are similar to line charts, except that the areas under the lines are filled in.
- Surface charts allow you to display data across a 3D landscape. They work best with large data sets, allowing you to see a variety of information at the same time.

To insert a chart

1. Select the cells you want to chart, including the column titles and row labels. These cells will be the source data for the chart.



8.2.

- 2. From the Insert tab, click the desired Chart command.
- 3. Choose the desired chart type from the drop-down menu.

3	FILE	HOME	SERT F	PAGE LAYOU	T FOF	RMULAS D	ATA	REVIEW V	IEW			
Piv	otTable Re		Table P	ictures Onli		Store		Recommended	2-D Colu	• 🖄 •		
	1	PivotTables Tables		Pictu Illustrati	res 🚳 🔭	Apps		Charts				√i ep
C	hart 4	- : 2	K 🗸	fx					3-D Colu	imn		
1	А	В	с	D	E	F	0	ы н	สก	ลมี	na	
1	Sales	2014	20:	15						相印	相印	
2	Item1	\$8,000.00	\$5,600.0	00					laa			
3	Item 2	\$4,300.00	\$45,300.0	00					1			
4	Item3	\$3,400.00	\$3,400.0	00					1000			
5	Item4	\$5,600.00	\$3,300.0	00					Ind Mor	e Column	Charts	
6	Item5	\$3,400.00	\$3,200.0	00					Lilli, see		1	-
7	Item6	\$2,400.00	\$23,400.0	00								
8	Item7	\$3,300.00	\$200.0	00								
9	Item8	\$4,500.00	\$3,400.0	00								

- 4. The selected chart will be inserted in the worksheet.
- <u>TIP</u>: If you're not sure which type of chart to use, the **Recommended Charts** command will suggest several different charts based on the source data.



After inserting a chart, there are several things you may want to change about the way your data is displayed. It's easy to edit a chart's **layout** and **style** from the **Design** tab.

Excel allows you to add chart elements—such as chart titles, legends, and data labels—to make your chart easier to read. To add a chart element, click the Add Chart Element command on the Design tab, then choose the desired element from the drop-down menu.

FILE HOME	INSERT	PAGE LAYOUT	FORMULAS	DATA	REVIEW	VIEW	DESIGN	FORMAT
Add Chart Quick	Change Colors +			orte				
In Axes	F				Chart St	yles		
db Axis Titles	F	f.						
rth Chart Title		Jx						
ili Data Labels	, 0	D	E	F (G H	I	J	К
ldb Data Table	14	2015						
/// Error Bars	00 \$5,6	00.00						
Gridlines	00 \$45,3	00.00			Chart	Title		
	· 00 00,4		ho oo 🦳					
dia Legena	. Muli !	None	00.00	-				
<u>pp</u> times			00.00					
222 Irendune		Right	00.00					
00 Up/Down Bars	P		00.00					
10	- Idh :	Гор	00.00				-1-	
12	- Ves		00.00					
13	edn !	Left	00.00				_	
14	Ida		00.00			-	100	
15	(17.11.11)	Bottom	\$0.00	n1 Item 2	Item 3 Item	1 Items	Item 5	m7 Item8
16	Mor	e Legend Options	ner	ni nem z	itenio iten	н пешэ	пенно пе	any nemo
17		Jana o puolisii			110			

☑ To edit a chart element, like a chart title, simply double-click the placeholder and begin typing.



- ☑ If you don't want to add chart elements individually, you can use one of Excel's predefined layouts. Simply click the Quick Layout command, then choose the desired layout from the drop-down menu.
- ☑ Excel also includes several different **chart styles**, which allow you to quickly modify the look and feel of your chart. To change the chart style, select the **desired style** from the **Chart styles** group.





<u>TIP</u>: You can also use the chart formatting shortcut buttons to quickly add chart elements, change the chart style, and filter the chart data.



8.3. Other chart options

There are lots of other ways to customize and organize your charts. For example, Excel allows you to **rearrange** a chart's data, change the **chart type**, and even **move** the chart to a different location in the workbook.

To switch row and column data

Sometimes you may want to change the way charts **group** your data. For example, in the chart below, the Book Sales data are grouped **by year**, with columns for **each genre**. However, we could switch the rows and columns so the chart will group the data **by genre**, with columns for **each year**. In both cases, the chart contains the same data—it's just organized differently.

1. Select the **chart** you wish to modify.



2. From the **Design** tab, select the **Switch Row/Column** command.

VIEW DESIGN FORMAT	VIEW DESIGN FORMAT	,									
VIEW DESIGN FORMAT	VIEW DESIGN FORMAT		CHAR	T TOOLS							
e rows and columns will be switched.	e rows and columns will be switched.	VIEW	DESIGN	FORMAT							
e rows and columns will be switched.	e rows and columns will be switched.	Bertha				Denths	· · · · · · · · · · · · · · · · · · ·	Switch Row	Select	Change	
e rows and columns will be switched .	e rows and columns will be switched.							Column	Data	Chart Type	0
e rows and columns will be switched .	e rows and columns will be switched .							Data		type	LU
		e rows a	and colun	nns will be	switched						

To change the chart type

3.

If you find that your data isn't well suited to a certain chart, it's easy to switch to a new **chart type**. In our example, we'll change our chart from a **Column** chart to a **Line** chart.

1. From the **Design** tab, click the **Change Chart Type** command.

CHART TOOLS		
VIEW DESIGN FORMAT		
	Switch Row/ Select Column Data	Change Chart Type
The Change Chart Type dialog box will appear.	Data	Type Location

3. The selected chart type will appear.

To move a chart

2.

Whenever you insert a new chart, it will appear as an object on the same worksheet that contains its source data. Alternatively, you can **move** the chart to a **new worksheet** to help keep your data organized.

- 1. Select the **chart** you wish to move.
- 2. Click the **Design** tab, then select the **Move Chart** command.

CHAR	T TOOLS						
DESIGN	FORMAT						
_ [_	Der 110	Part That	Dentitie A	\$			
				Switch Row/ Column	Select Data	Change Chart Type	
				Data		Type	L



- 3. The Move Chart dialog box will appear. Select the desired location for the chart.
- 4. Click OK.
- 5. The chart will appear in the selected location.

Challenge!

- 1. Open an existing Excel workbook.
- 2. Use worksheet data to create a **chart**.
- 3. Change the chart layout.
- 4. Apply a chart style.
- 5. Move the chart.

9. Printing Workbooks

There may be times when you want to **print a workbook** to view and share your data **offline**. Once you've chosen your **page layout** settings, it's easy to preview and print a workbook from Excel using the **Print** pane.

To access the Print pane

1. Select the File tab. Backstage view will appear.



2. Select **Print**. The **Print** pane will appear.



9.1. Choosing a print area

Before you print an Excel workbook, it's important to decide exactly what information you want to print. For example, if you have multiple worksheets in your workbook, you will need to decide if you want to print the **entire workbook** or only **active worksheets**. There may also be times when you want to print only a **selection** of content from your workbook.



To print active sheets

Worksheets are considered active when selected.

1. Select the **worksheet** you want to print. To print **multiple worksheets**, click the first worksheet, hold the **Ctrl** key on your keyboard, then click any other worksheets you want to select.

		March April May 🕂	
	READY		
2.	Navigate to the Print pan	e. 🔄	
3.	Select Print Active Sheets	from the Print Range drop-down menu	۱.
		Settings	
		Print Active Sheets Only print the active sheets	
		Print Active Sheets Only print the active sheets	
		Print Entire Workbook Print the entire workbook	
		Print Selection Only print the current selection	
4.	Click the Print button.	Print	
		Copies: 1 ‡	

To print the entire workbook

- 1. Navigate to the **Print** pane.
- 2. Select **Print Entire Workbook** from the **Print Range** drop-down menu.

Settings



- 4. A **preview** of your selection will appear in the **Preview** pane.
- 5. Click the **Print** button to print the selection.



Print Print

<u>TIP</u>: If you prefer, you can also set the print area in advance so you'll be able to visualize which cells will be printed as you work in Excel. Simply select the cells you want to print, click the Page Layout tab, select the Print Area command, then choose Set Print Area.

	FILE H	HOME I	NSERT PAG	E LAYOUT	FORMUL	LAS DA	TA REVI
The	A F emes A F • D E • Themes	olors * onts * ffects *	argins Orientati	on Size	Print Brea Area • •	ks Backgroo	und Print Titles
A	1	- : [$\times \checkmark f$	Sale	<u>C</u> lear P	rint Area	
4	Α	В	C	D	E	F	G
1	Sales	201	4 2015				
2	Item1	\$8,000.0	0 \$5,600.00				
3	Item 2	\$4,300.0	0 \$45,300.00				Ch
4	Item3	\$3,400.0	0 \$3,400.00				CII
5	Item4	\$5,600.0	0 \$3,300.00		\$50,000.00		
6	Item5	\$3,400.0	0 \$3,200.00		\$45,000.00		
	Item6	\$2,400.0	0 \$23,400.00		\$40,000.00		
7		\$3 300 0	0 \$200.00		\$30,000.00		
7 8	Item/	90,000.0	155 Contract (1997)				

9.2. Fitting and scaling content

On occasion, you may need to make **small adjustments** from the Print pane to fit your workbook content neatly onto a printed page. The Print pane includes several tools to help fit and scale your content, such as **scaling** and **page margins**.



To fit content before printing

If some of your content is being cut off by the printer, you can use **scaling** to fit your workbook to the page automatically.

- 1. Navigate to the **Print** pane.
- 2. Select the desired option from the **Scaling** drop-down menu. In our example, we'll select **Fit Sheet on One Page**.



- 3. The worksheet will be **condensed** to fit onto a single page.
- 4. When you're satisfied with the scaling, click Print.

To modify margins in the Preview pane

Sometimes you may only need to adjust a **single margin** to make your data fit more comfortably. You can modify individual page margins from the **Preview** pane.

1. Navigate to the **Print** pane, then click the **Show Margins** button in the lower-right corner.



Later Sect. Sect.	100 100 1400 0 1100 0 1400 0 1100 0 1400 0 1410 0		Chart Title			
1111		10.00 m	1			
	JULL HEL					
				-		

- 2. The **page margins** will appear in the **Preview** pane. Hover the mouse over one of the **margin markers** until the cursor becomes a **double arrow +**.
- 3. Click, hold, and drag the mouse to increase or decrease the margin width.
- 4. Release the mouse. The margin will be modified. In our example, we were able to fit an additional column on the page.

Challenge!

- 1. Open an existing Excel workbook.
- 2. Try printing two **active worksheets**.
- 3. Try printing only a **selection** of cells.
- 4. Try the **scaling** feature to condense your workbook content.
- 5. Adjust the margins from the Preview pane.