

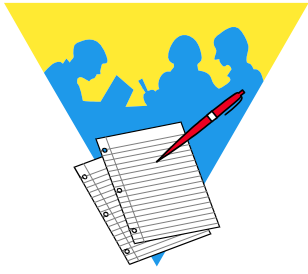


Excel 2016 Level 2

The Computer Workshop, Inc.

800-639-3535

www.tcworkshop.com
training@tcworkshop.com



Lesson Notes

Excel 2016: Level 2
Rel. 2.0, 09/18/2018

Course Number: 0200-200-16-W
Course Release Number: 2.0
Software Release Number: 2016

September 18, 2018

Developed by:
Brian Ireson, Marissa Kain, Thelma C. Tippie

Edited by:
Suzanne Hixon, Chad Carr, and Catherine Destadio

Published by:
The Computer Workshop, Inc.
5131 Post Road, Suite 102
Dublin, Ohio 43017
(614) 798-9505

dba

RoundTown Publishing
5131 Post Road, Suite 102
Dublin, Ohio 43017

Copyright © 2018 by RoundTown Publishing. No reproduction or transmittal of any part of this publication, in any form or by any means, mechanical or electronic, including photocopying, recording, storage in an information retrieval system, or otherwise, is permitted without the prior consent of RoundTown Publishing.

Disclaimer:

Round Town Publishing produced this manual with great care to make it of good quality and accurate, and therefore, provides no warranties for this publication whatsoever, including, but not limited to, the implied warranties of merchantability or fitness for specific uses. Changes may be made to this document without notice.

Trademark Notices:

The Computer Workshop, Inc. and The Computer Workshop logo are registered trademarks of The Computer Workshop, Inc. [Microsoft], [Windows], [PowerPoint], [Excel], [Word], [Word for Windows], and [Works] are registered trademarks of Microsoft Corporation. [InDesign] is a registered trademark of Adobe Systems Incorporated. All other product names and services identified throughout this book are trademarks or registered trademarks of their respective companies. Using any of these trade names is for editorial purposes only and in no way is intended to convey endorsement or other affiliation with this manual.



Contents

Contents.....	ii
Using this Manual.....	vii
Conventions	viii

Lesson 1: Working with Multiple Worksheets and Workbooks

About Workbooks and Worksheets	3
Inserting and Deleting Worksheets.....	5
Inserting a Worksheet	5
Deleting a Worksheet	6
Selecting Worksheets.....	8
Selecting a Single Sheet	8
Selecting two or more adjacent sheets	9
Selecting two or more nonadjacent sheets	9
Selecting all the sheets in a workbook	9
Editing Across Multiple Worksheets	11
Establishing the structure	11
Renaming Worksheets.....	13
Tab Color	14
Hiding and Unhiding Worksheets	16
Hiding the Worksheet	16
Unhiding the Worksheet.....	17
Viewing multiple Worksheets.....	19
Creating New Windows	19
Opening New Windows in a Workbook	19
Viewing Multiple Worksheets from the Same Workbook	19
Opening Multiple.....	21
Workbooks	21
Viewing Workbooks and Worksheets	22
Newer versions of <i>Excel</i> open multiple workbooks in	
their own window, each window is a complete interface.	
Allows for more flexibility when working with more than	
one monitor. When working with several workbooks	
concurrently, you will need to switch between or view	
workbooks at the same time.....	22
Switching Windows.....	22
Arranging the Window	23
Making a Workbook Active	24
Moving & Copying Worksheets	27
Using the Move or Copy Dialog Box	27
Using Dragging	28
Hiding Workbooks	32
Hiding a Window	32
Viewing Data in Workbooks and Worksheets.....	34



Contents, continued

Freeze Panes.....	34
Comparing Workbooks.....	35
Closing Multiple Workbooks	38
Adding the Close All button to QAT	38

Lesson 2: Names

Names	43
Rules for Defining Names.....	43
Scope	43
Defining Names.....	45
Defining a Name	45
Using the Name Box	45
Using Define Name	45
From within the Name Manager	46
From Selections	47
Defining Names for 3-D References.....	48
Name Manager.....	52
Opening and Viewing the Name Manager.....	52
Editing Names.....	54
Editing a Name.....	54
Deleting a Name.....	54
Using Names to Navigate.....	56
The Name Box drop-down	56
The GoTo window	56
Using Names in Formulas	58

Lesson 3: Referring to Data in Another Worksheet/ Workbook

Referring to Another Worksheet	63
Referring to Another Cell.....	63
Referring to Other Worksheets in Formulas	67
Formulas that pull data from other worksheets	67
Formulas with 3-D References	69
Creating a Formula Using a 3-D Reference.....	69
Formulas Using Multiple Varied References.....	71
Formulas Referring to Various Locations.....	71
Referring to Another Workbook.....	73
Creating an External Reference/Link	73
Working with Links.....	77
Updating/Editing External References/Links	77
Updating a Link Manually.....	78
Opening a Source File.....	78
Changing the Source File	78
Breaking a Link	79



Contents, continued

Lesson 4: Working with Data

Conditional Formatting.....	85
Applying Basic Conditional Formatting	85
Managing Conditional Formatting.....	89
Editing a Rule	90
Conditional Formatting Based on Formulas.....	92
Using Formulas in Conditional Formatting.....	92
Clearing Conditional Formats.....	94
Clearing Conditional Formats.....	94
Sorting.....	96
Performing a Sort	96
Performing a Custom Sort	99
Custom Sorting.....	99
Performing a Filter	101
Filtering	101
Performing a Text, Date and Number Filter	102
Turning Off Filters	103
Tables	106
Creating a Table	106
Using Table Tools.....	109
Charts.....	116
Creating a Chart	116
Using Chart Tools	120
Quick Analysis	126

Lesson 5: Protecting the Worksheet/Workbook

Protecting Worksheets	131
Protecting the Contents of a Worksheet	131
Applying Worksheet Protection	132
Unprotecting a Worksheet.....	136
Unprotecting the Worksheet	136
Hidden Cells	137
Hidden Formulas	137
Allow Users to Edit Ranges.....	140
Setting up the ranges	140
Protecting Workbooks.....	143
Protecting a Workbook.....	143
Unprotecting a Workbook	143
Protecting the File with Encryption	145
File Encryption	145
Protecting the File with Passwords	147
Workbook Passwords to Open/Modify	147
Workbooks Versions (optional)	151



Contents, continued

Accessing Workbook Versions.....	151
To Restore a Historical Version.....	151
The AutoRecover Feature	153
Setting the Autosave options	153
Recovery of Unsaved Workbooks	153

Lesson 6: Templates, Inserting Graphics, and Comments

Inserting Graphic Objects	157
Picture Formats	157
Inserting Pictures	158
Inserting Shapes	160
Inserting Smart Art	161
Inserting a Textbox	161
Modifying Graphics.....	166
Using the Format Tab	166
Using the Format Pane.....	166
Comments	169
Inserting a Comment	169
Resizing a Comment.....	169
Formatting a Comment	170
Viewing Comments	170
Moving a Comment.....	171
Editing a Comment.....	171
Deleting a Comment.....	171
Printing Comments.....	172
Templates	175
Creating a Template	175
Using a Template	175
Editing a Template.....	176



Using this Manual

Welcome to the *Excel 2016 Level 2* course. This manual and the data files are designed to be used for learning, review and reference after the class. The data files can be downloaded any time from *The Computer Workshop* website:

<http://www.tcworkshop.com>

There is no login or password required to access these files. You will also find handouts and supplementary materials on the website in the Download section.

To Download Data Files

Once on *The Computer Workshops* website, look at the bottom of any page to find the link *Download*. Clicking this link opens the *Download* page where you can choose either ***Data Files*** or ***Handouts***.

1. ***Data Files*** opens a list of general application types.
2. Click once on the ***Microsoft Office Courses*** link.
3. Click once on the software related to the course.
4. Click once on the version related to the course.
5. If there are multiple folders, click on the ***TCW*** folder.
6. Click on the course name to download the data files.

You can choose to open or save the zipped folders content to your computer.

The handouts are in PDF format and also available to you without login or password. Simply open the PDF and either print or save to your computer.





Conventions

Conventions Used in this Manual

The hands-on exercises (Actions) are written in a two-column format. The left column (“Instructions”) gives numbered instructions, such as what to type, keys to press, commands to choose from menus, etc. The right column (“Results/Comments”), contains comments describing results of, reasons for, quick keys, etc. for the instructions listed on the left.

- ◆ Key names and Functions are bold and enclosed in square brackets:

[Enter], [Tab], [F5], [F10]

- ◆ Keys you press simultaneously are separated by a plus (+) sign, typed in bold and enclosed in square brackets. You do not press the plus.

[Shift + F5]

- ◆ Keys you press in sequence are separated by a space, bold and enclosed in square brackets.

[Home] [Down Arrow]

- ◆ Ribbon tab names are in bold and italic: Example: ***Home***

- ◆ Group names are in bold: Example: **Font**

- ◆ Dialog box names are in italic: Example: *Save As*

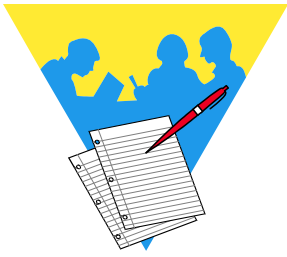
- ◆ Button names are bold and enclosed in square brackets: Example: **[Sort]**

- ◆ Information you are to type will be in bold. Example:

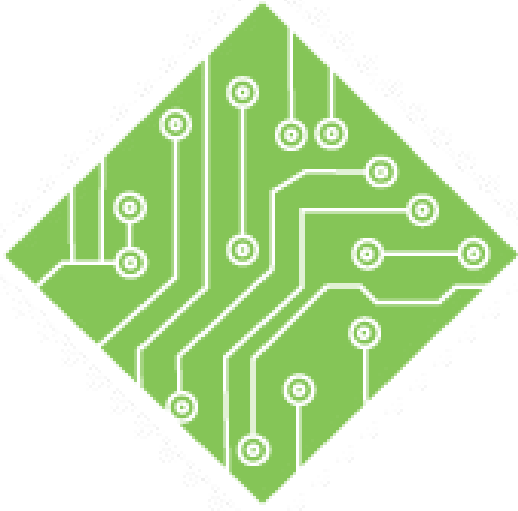
This is the first day of the rest of your life.

- ◆ Information that you need to supply will be indicated with pointed brackets. Example: Type: **<your name>**.





Tips and Notes

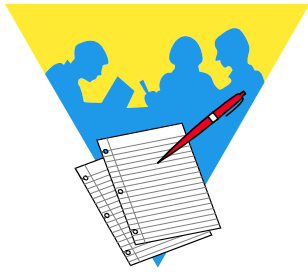


Lesson 1: Working with Multiple Worksheets and Workbooks

Lesson Overview

You will cover the following concepts in this chapter:

- ◆ About Workbooks and Worksheets
- ◆ Inserting and Deleting Worksheets
- ◆ Selecting Worksheets
- ◆ Editing Across Multiple Worksheets
- ◆ Renaming Worksheets
- ◆ Tab Color
- ◆ Hiding and Unhiding Worksheets
- ◆ Viewing multiple Worksheets
- ◆ Opening Multiple
- ◆ Workbooks
- ◆ Viewing Workbooks and Worksheets
- ◆ Moving & Copying Worksheets
- ◆ Hiding Workbooks
- ◆ Viewing Data in Workbooks and Worksheets
- ◆ Closing Multiple Workbooks



Lesson Notes



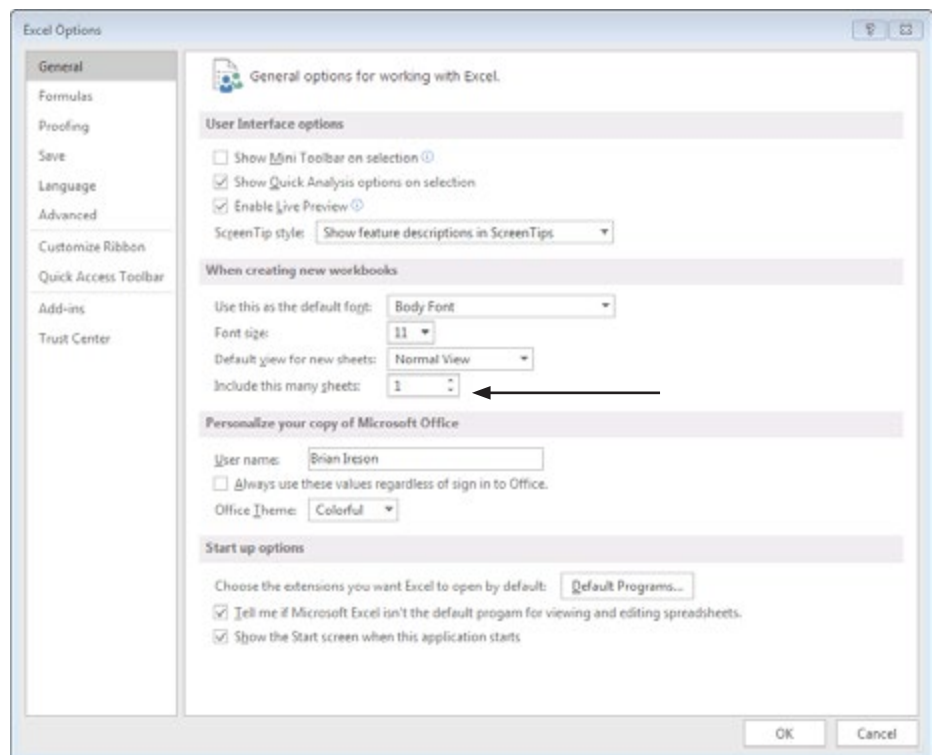
About Workbooks and Worksheets

A workbook is a collection of worksheets. Multiple worksheets in a workbook provide several advantages, including the ability to:

- ◆ Group related data into one workbook, such as a collection of monthly sales reports.
- ◆ Enter and edit data on several worksheets simultaneously.
- ◆ Perform calculations based on data from more than one worksheet.

When creating a new workbook in *Excel*, the workbook opens with one worksheet. You are able to create numerous additional worksheets and are only limited by the amount of available memory.

The default number of worksheets in a workbook can be modified by going into the *Options*, on the *File Tab*, and modifying the **Include this many sheets** in the *General* category.



Action 1.1 - Setting the Default Number of Worksheets



Instructions:

1. Open *Excel*.
2. Open a new workbook.
3. Notice that there is only one worksheet in the workbook.
4. Click the *File Tab* and then choose *Options* from the list of categories on the left.
5. In the general category find the **Include this many sheets** field and change the number from **one** to **five**. Click **[OK]**.
6. Click the *File Tab* and then choose *New* from the list of categories on the left. Create a new workbook.
7. Click the *File Tab* and then choose *Options* from the list of categories on the left.
8. In the general category find the **Include this many sheets** field and change the number back to **one**. Click **[OK]**.
9. Create another new workbook.
10. Close all open workbooks without saving.

Results/ Comments:

You may need to click **[Blank Workbook]** in the Start Screen if needed, or tap the **[Esc]** key to exit the start screen.

Look to the lower left of the worksheet.

The *Options* window opens. You can also use the keyboard sequence shortcut **[Alt] [F] [T]** to open the *Options* window.

This will now be the default number of sheets that new workbooks will have.

[Ctrl + N] The new workbook opens with the desired number of blank worksheets.

The *Options* window opens. We are going to reset the number of worksheets.

[Ctrl + N].

[Ctrl + W] will close the open workbooks without closing the program, use this keyboard shortcut to close each open file.

Inserting and Deleting Worksheets

In a workbook, you can delete worksheets and insert additional worksheets. The default for the number of worksheets in an *Excel* workbook is set to one. As mentioned before, you may insert many more and are only limited by the amount of available memory.

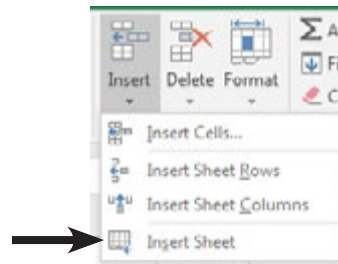
Inserting a Worksheet

- Click on the **[New Sheet]** button found at the end of the worksheet tabs. Using this button will always add one worksheet after the selected worksheet.



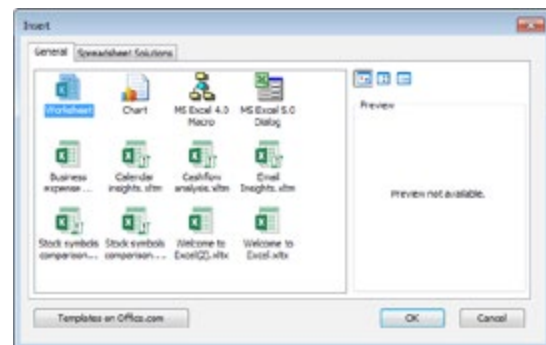
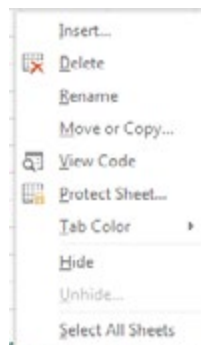
- OR -

- Click on the down arrow on the **[Insert]** button in the **Cells Group** on the **Home Tab**, then select **Insert Sheet** from the menu.



- OR -

- Right-click the mouse on a worksheet tab and select **Insert**. The worksheet icon should be selected. Click **[OK]**.



- If you want to insert more than one worksheet: select the same number of sheet tabs as the number of worksheets you want to add. Click on the down arrow on the **[Insert]** button on the **Home Tab** and select **Insert Sheet** from the menu.

Note

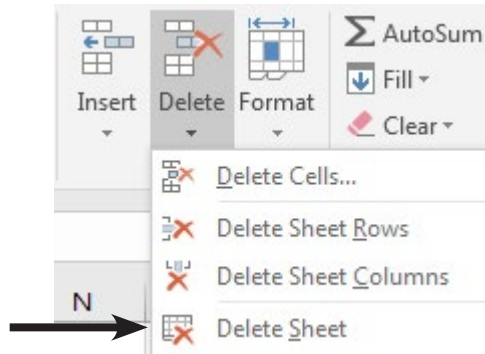
The new sheet will be added to the left of the active sheet when using the ribbon or right click methods of inserting worksheets.



Inserting and Deleting Worksheets, continued

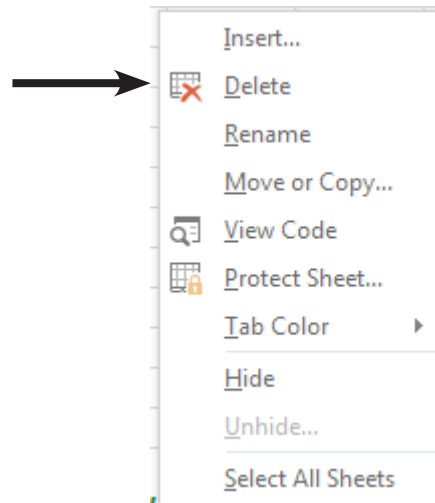
Deleting a Worksheet

- ◆ Select the sheet tab of the worksheet, you would like to delete. You can also select multiple sheet tabs.
- ◆ Click on the down arrow on the **[Delete]** button in the **Cells group** on the *Home Tab*, then select *Delete Sheet* from the list.



- OR -

- ◆ Right-click the mouse on the sheet tab you would like to delete. Select *Delete* from the menu.



Action 1.2 - Inserting and Deleting Worksheets



Instructions:

1. Create a new blank workbook.
2. Click the **[New Worksheet]** button.
3. Right click the *Sheet2* Tab and choose *Insert* from the menu.
4. Click the **[Worksheet]** button and click **[OK]**.
5. Go to the *Home Tab*, in the **Cells Group** click the **[Insert]** button drop-down and click the *Insert Sheet* option.
6. Add two more sheets.
7. Right click the *Sheet6* tab and choose *Delete* from the menu.
8. Save the file as **Month.xlsx** in the lessons folder.

Results/ Comments:

[Ctrl + N] or click the *File Tab* and click the *New* category on the left, then choose *Blank Workbook* from the list of available templates.

A new worksheet is added to the workbook, it is named *Sheet2*.

The *Insert* dialog opens.

Worksheet should be selected by default. When you click the **[OK]** button a new worksheet named *Sheet3* is added. New worksheets added in this manner will be placed to the left of the active worksheet.

A new sheet named *Sheet4* is added to the workbook. New worksheets added in this manner will be placed to the left of the active worksheet.

Use the method you prefer to add the sheets.

Sheet6 is removed from the workbook.

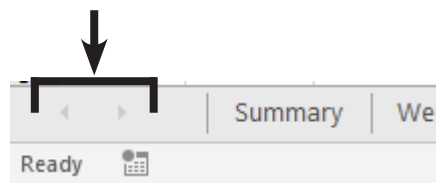
[F12] or use the *File Tab* and choose the *Save As* category.

Selecting Worksheets

In order to work on a worksheet in a workbook, you must first make that worksheet active. To make a worksheet active, simply click on the appropriate sheet from the set of sheet tabs at the bottom of the worksheet. You can select from one sheet to all sheets in the workbook. If you select multiple worksheets, all of the selected worksheets will be changed when you enter or change data.

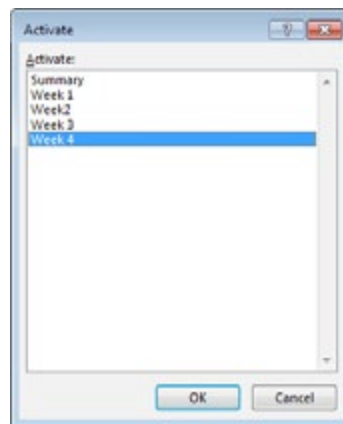
Selecting a Single Sheet

- ◆ Click the sheet tab you want.
- ◆ If you don't see the sheet tab, use the tab scrolling buttons to the left of the sheet tabs.



- OR -

- ◆ Right-click the mouse on the tab scrolling buttons to display a menu of sheet tabs to choose from.



- OR -

- ◆ Press **[Ctrl + Page Up]** to move to the next worksheet to the left. Press **[Ctrl + Page Down]** to move the next worksheet to the right.

Selecting Worksheets, continued

Selecting two or more adjacent sheets

- ◆ Click the tab for the first sheet.
- ◆ Hold down on the **[Shift]** key.
- ◆ Click the tab for the last sheet to be selected.

When using the **[Shift]** key during the selection, all the sheets between the first and last selected sheets are selected.

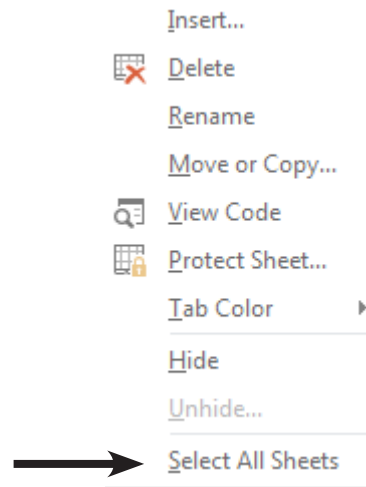
Selecting two or more nonadjacent sheets

- ◆ Click the tab for the first sheet.
- ◆ Hold down on the **[Ctrl]** key.
- ◆ Click the tabs for the other sheets to be selected.

When using the **[Ctrl]** key during the selection of the sheets, only the sheets clicked are included in the selection.

Selecting all the sheets in a workbook

- ◆ Right-click on a sheet tab.
- ◆ Click on *Select All Sheets* from the menu.

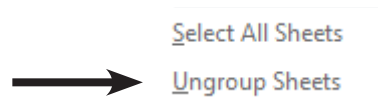


To select only a single sheet when all are active;

- ◆ Click the desired sheet.

-OR-

- ◆ Right click any of the sheet tabs and choose *Ungroup* from the menu.



Action 1.3 - Selecting Worksheets



Instructions:

1. Click on the *Sheet2* tab.
2. Click any other sheet tab to select that worksheet.
3. Select *Sheet1*, hold the **[Shift]** key and click on the *Sheet5* tab.
4. Click the *Sheet3* tab to select that sheet and deselect the others.
5. Hold the **[Ctrl]** key and click the *Sheet4* and *Sheet1* tabs.
6. Right click any sheet tab and choose *Select All Sheets* from the menu.

Results/ Comments:

To select the worksheet. Notice the active worksheet is white with a green bottom border (as opposed to gray), the name is bold, and green.

The sheet tab is white with a green bottom border, the name is bold, and green.

Using the **[Shift]** enables continuous selection, sheets 1 through 5 are all selected. They all share a white tab color and green bottom border, the names are all bold but only the active (visible) worksheets' name is green.

Only *Sheet3* is now selected.

Using the **[Ctrl]** enables non-continuous selection, sheets 1, 4, and 3 all selected. They all share a white tab color and green bottom border, the names are all bold but only the active (visible) worksheets' name is green.

All the sheets are selected.

Editing Across Multiple Worksheets

When you have multiple worksheets selected, you are able to edit and/or add content simultaneously to all the sheets at one time. Selecting and editing a cell on the visible worksheet selects and edits the same cell on all actively selected worksheets.

This is an easy way to setup the base structure and formatting of workbooks that contain multiple worksheets.

Note

Do not try creating formulas when multiple worksheets are actively selected, as this will enter the same formula into all the cells.

Establishing the structure

- ◆ Create the desired number of worksheets.
- ◆ Select all select worksheet that will share the same structure and formatting.
- ◆ Begin adding the structural content on the visible worksheet.
- ◆ Apply the formatting.
- ◆ Deselect the worksheets and you are ready to begin entering data and formulas.

Action 1.4 - Editing Across Multiple Worksheets



Instructions:

1. Select all the worksheets in the workbook using any method you prefer.
2. Select cell **B3**, type < **Monday** >.
3. Use the Autofill handle to pull the rest of the weekdays across to cell **H3**.
4. Format the text as bold.
5. Select cell **A3**, type in < **Regions** >.
6. Select cell **A4** and type in < **Region 1** >.
7. Use the Autofill handle to pull the list of regions down to cell **A10**.
8. Select cells **A3** to **A10**.
9. On the *Home Tab* in the **Font Group** click the **[Cell Color]** button drop-down and choose a light color.
10. Select cell **A1**, type < **ABC Corp-Jan** >.
11. Select cells **A1** through **H1**.
12. On the *Home Tab* in the **Alignment Group** click the **[Merge and Center]** button.
13. Color the cell and format the text as bold.
14. Click any of the other sheet tabs.
15. Save the file.

Results/ Comments:

If necessary.

This is the first day of the week.

The Autofill will enter the rest of the weekdays.

With the cells still selected used the **[Ctrl + B]** shortcut to apply the bold formatting or use the **[Bold]** button on the *Home Tab* or on the *Mini Toolbar*.

This will be the header of the column.

This is the first entry of the regions.

Regions 1 through 7 are entered on the sheets.

These selected cells are formatted.

The document title is added.

You will be merging these cells.

The selected cells are now merged into a single cell for the title.

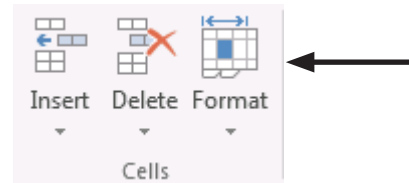
Only the sheet selected is active and all the worksheets share the same structure and formatting.

[Ctrl + S].

Renaming Worksheets

By default, the sheet tabs are named *Sheet1*, *Sheet2*, *Sheet3*. You can, however, rename these to reflect the information on the worksheet.

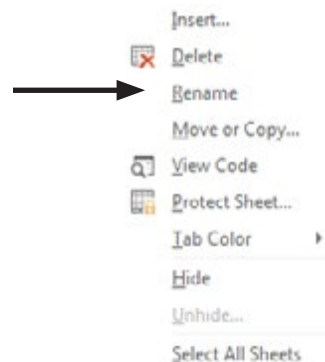
- ◆ Click on the sheet tab you wish to rename.
- ◆ On the **Home Tab** in the **Cells Group**, click on the **[Format]** button. Select **Rename** sheet from the menu.



Note

You must use the **Enter** key to apply the new sheet name.

- ◆ Type in the new name then press **[Enter]**.
- OR -
- ◆ Right-click on the sheet tab you wish to rename, then select **Rename** from the menu.



- ◆ Type in the new name then press **[Enter]**.
- OR -
- ◆ Double-click on the sheet tab.
- ◆ When the sheet name is highlighted, type in the new name then press **[Enter]**.

Tab Color

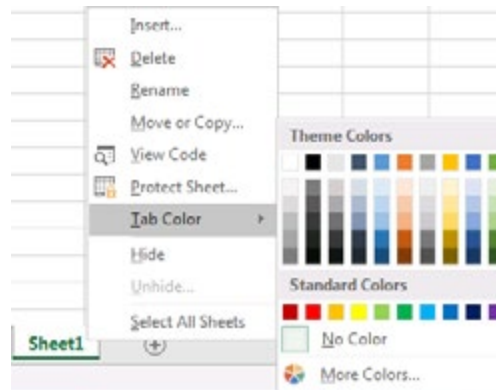
You can also add color to the sheet tabs. This can help, if you wish to color code the worksheet tabs or to simply have certain sheet tabs stand out from the others.

Note

While the sheet is active, the sheet tab will appear white with a colored underline.

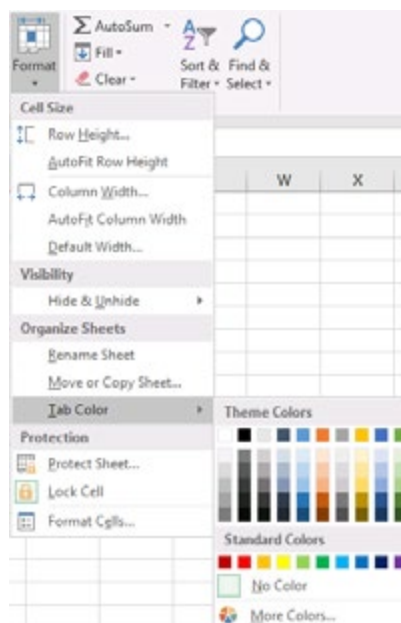
Adding Tab Color

- ❖ Right-click on the tab you wish to add color to.
- ❖ Select **Tab Color** from the menu. The color palette will be displayed.
- ❖ Click on the desired color. The menu will close. The sheet tab will appear with its new color.

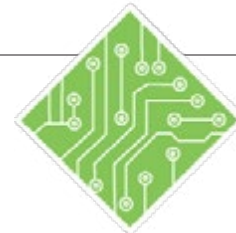


- OR -

- ❖ Click on the tab you wish to add color to.
- ❖ On the **Home Tab** in the **Cells Group**, click on [Format] button, then click **Tab Color**. Select a color from the menu.



Action 1.5 - Renaming Worksheets and Applying Tab Colors



Instructions:

1. Select *Sheet1*.
2. Right click the sheet tab and choose *Rename* from the menu.
3. Type < **Summary** > and tap the **[Enter]** key to apply the name.
4. Select the next worksheet.
5. Double click the sheet tab, type < **Week1** > and tap the **[Enter]** key.
6. Rename the remaining sheets as < **Week2** >, < **Week3** >, and < **Week4** >.
7. Select the *Summary* sheet.
8. Right click the sheet tab , choose a gold color from the *Tab Color* set of options.
9. Select the *Week1* sheet.
10. Hold the **[Shift]** key and select the *Week4* sheet tab.
11. Right click any sheet tab , choose a red color from the *Tab Color* set of options.
12. Save the file.

Results/ Comments:

Click the *Sheet1* tab.

The current name of Sheet1 is highlighted.

The name is entered and the sheet tab should display the new name.

Click the worksheet tab.

The current name of *Sheet2* is highlighted.

Use your preferred method to rename the sheets.

Click the *Summary* tab.

The sheet tab is now colored.

Click the *Week1* tab.

All the week sheets are now selected.

All the week sheets are now colored.

[Ctrl + S].

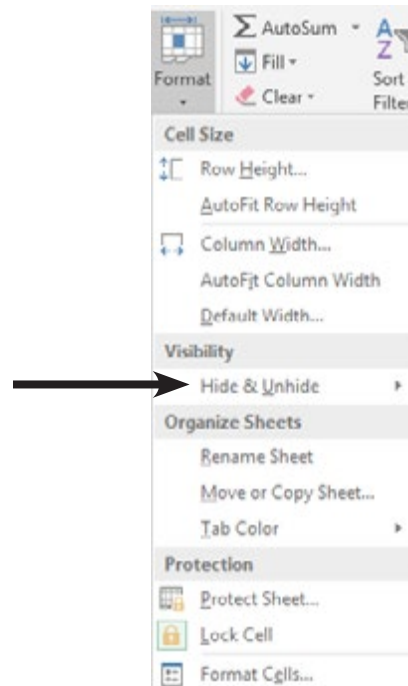


Hiding and Unhiding Worksheets

When there are worksheets that are needed but not necessary to see, you can hide them. This allows you to keep the data in the file without having them in the way. Formulas that pull from the data will not be affected.

Hiding the Worksheet

- ◆ Select the worksheet to be hidden.
- ◆ Click the *Home Tab*, in the **Cells Group**, click the **[Format]** button drop-down arrow.



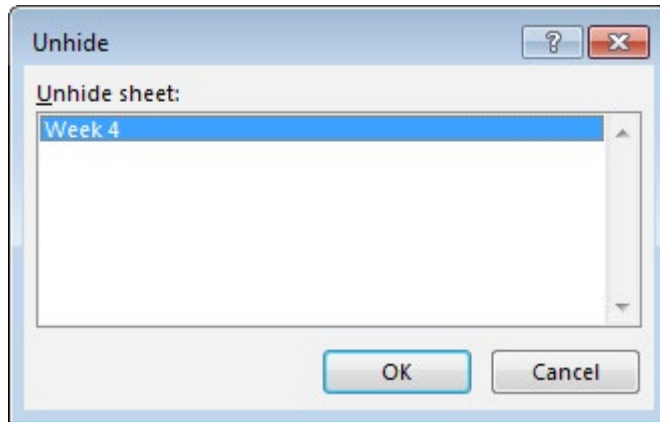
- ◆ The Visibility options, click *Hide & Unhide*, and then click *Hide Sheet*.



Hiding and Unhiding Worksheets, continued

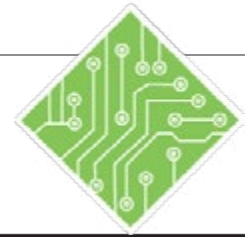
Unhiding the Worksheet

- ◆ Click the *Home Tab*, in the **Cells Group**, click the **[Format]** button drop-down arrow.
- ◆ The *Visibility* options, click *Hide & Unhide*, and then click *Unhide Sheet*.
- ◆ The *Unhide Dialog* opens.



- ◆ In the *Unhide* dialog, double-click the name of the hidden sheet that you want to display and click the **[OK]** button. Only one worksheet can be unhidden at a time.

Action 1.6 - Hiding and Unhiding Worksheets



Instructions:

1. Select only the **Week4** sheet.
2. Right click the sheet tab and choose *Hide* from the menu.
3. Right click the **Week2** sheet tab and choose *Hide* from the menu.
4. Right click any of the remaining sheet tabs and choose *Unhide* from the menu.
5. Select the **Week2** sheet from the list and click the **[OK]** button.
6. Right click any of the remaining sheet tabs and choose *Unhide* from the menu.
7. Select the **Week4** sheet and click the **[OK]** button.
8. Save the file.

Results/ Comments:

Click the **Week4** tab. You may need to deselect the sheets. Right click any of the selected sheets and choose *Ungroup Sheets* from the menu.

The sheet is no longer displayed in the list of worksheets. It is still part of the workbook but currently not accessible.

The **Week2** sheet is removed from the sheet list.

The *Unhide* dialog opens.

You can only select one hidden sheet at a time to unhide. The hidden sheet is redisplayed in the list of sheet and fully accessible.

The *Unhide* dialog opens.

The hidden sheet is redisplayed in the list of sheet and fully accessible.

[Ctrl + S].

Viewing multiple Worksheets

Creating New Windows

Having to constantly switch between worksheets can become confusing, so it may be easier to work with those sheets side by side. This is done by opening new windows from the same workbook.

Note

It is a good idea to minimize the ribbon before opening new windows, to avoid having the full ribbon in view on each new window.

Opening New Windows in a Workbook

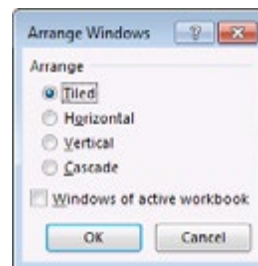
- ◆ Click the *View Tab*, in the **Window Group** click the **[New Window]** button.
- ◆ When the new window opens, take note of the workbook name in the *Excel* title bar.

Book1:2 - Excel

- ◆ A full colon and number are added to the title of the file. The number indicates the number of windows the file has open.

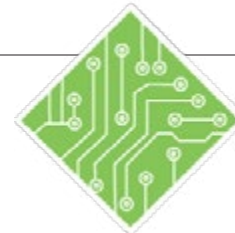
Viewing Multiple Worksheets from the Same Workbook

- ◆ Click the *View Tab*, in the **Window Group** click the **[Arrange All]** button.
- ◆ The *Arrange Windows* dialog opens.



- ◆ Select how you want to arrange the window: *Tiled*, *Horizontal*, *Vertical*, or *Cascade*.
- ◆ If you want to see just the windows of the active workbook, click on *Windows of active workbook*. Otherwise you will see all open workbooks.
- ◆ Click on the worksheet tab in each window that you would like to view.

Action 1.7 - Viewing Multiple Worksheets



Instructions:

1. Select the *Summary* sheet.
2. Double click the *Home Tab* to minimize the ribbon.
3. On the *View Tab* in the **Windows Group**, click the **[New Window]** button.
4. Try the **[Alt] [W] [N]** key sequence to open a new window.
5. Open two more windows.
6. On the *View Tab* in the **Windows Group**, click the **[Arrange All]** button.
7. Choose the *Tiled* option and click the **[OK]** button.
8. Click into each window and select a sheet so that each window will display one of the sheets.
9. Click the window with the *Summary* sheet.
10. Select the merged cell
11. Click the *Home Tab* in the **Font Group** click the **[Font Color]** button drop-down and change the color of the font
12. Save the file and close all the windows.
13. Double click the *Home Tab* to maximize the ribbon.

Results/ Comments:

It is a good idea to minimize the ribbon before opening new windows since each window will have a full ribbon.

Notice the file in the program title bar in the new window, there is a **:2** added to the file name. This indicates that there are two open windows in relation to the file.

Another new opens with the **:3** added to the file name.

Use your preferred method. When done there should be a total of five open windows.

The *Arrange Windows* dialog opens.

The screen is divided into five parts.

You can now see each sheet in the file at the same time.

The active window title bar displays the title in white text.

A1:H1.

The *Summary* sheet title is re-colored.

[Ctrl + S] and **[Ctrl + W]** as needed.

The ribbon will be maximized when the next files are opened.



Opening Multiple Workbooks

There will be many instances where more than one workbook contains needed data. While having many worksheets in a workbook allows for large and varied data sets within a single file, it is still common to have data broken down into smaller more manageable sets in individual files.

Being able to open more than one file at a time is a common necessity. Opening multiple files is done just like open single files. When the needed files are in the same location (folder) using the **[Shift]** and **[Ctrl]** keys to select all the workbooks at one time.

- ◆ Go to the *File Tab*, choose *Open* from the left side of the backstage then navigate to when the files are stored.
- OR -
- ◆ If you have added the **[Open]** button to the *QAT*, click the button.
- OR -
- ◆ **[CTRL+ O]** will open the *Open* dialog, navigate to where the files are stored.
- ◆ **[Shift]** : is used for continuous selection. Select the first file then hold the **[Shift]** key and click the last files and all files between are selected.
- ◆ **[Ctrl]** : is used for non-continuous selection. Select the first file then hold the **[Ctrl]** key down and click each for the other files, only the files that you clicked on are selected.
- ◆ Then click the **[Open]** button





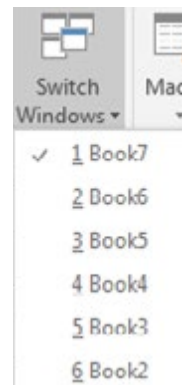
Viewing Workbooks and Worksheets

Newer versions of *Excel* open multiple workbooks in their own window, each window is a complete interface. Allows for more flexibility when working with more than one monitor. When working with several workbooks concurrently, you will need to switch between or view workbooks at the same time.

Switching Windows

When there are several workbooks open and you need to switch between them, there are several methods

- ◆ Go to the **View Tab** and in the **Windows Group** click the **[Switch Windows]** button to show a list of all open workbooks.



- ◆ Click the desired workbook to view it.

- OR -

- ◆ When there are multiple workbooks open in *Excel*, look to the **Task Bar** at the bottom of the screen. The *Excel* icon will appear stacked.



- ◆ Click the *Excel* icon and the list of all open workbooks are displayed.
- ◆ Click the desired one to make it active.

- OR -

- ◆ Hold down the **[Alt]** key and tap the **[Tab]** key to display the list of all open applications and files.
- ◆ Press the **[Tab]** key to move to the next in the list, until the desired application or file is highlighted and let go of the **[Alt]** key.



Viewing Workbooks and Worksheets, continued

Note

In *Excel 2016* when the workbooks or worksheets are tiled, each window will also display the ribbon. At this point you may consider hiding the ribbon in the windows.

Note

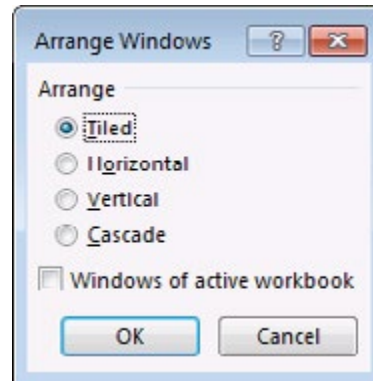
The active file used to start the tiling will be the upper left tile.

Arranging the Window

When working with multiple workbooks and worksheets, it is advantageous to view more than one workbook or worksheet within a workbook on the screen at the same time. This is very useful when comparing data, creating 3D formulas, and/or copying and pasting between workbooks and worksheets.

Viewing Multiple Workbooks

- ◆ Open the workbooks you want to view. Click on the worksheet in each workbook that you would like to see. (If you want to view multiple worksheets in the same workbook, see the next section).
- ◆ On the *View Tab* in the **Window Group** click the **[Arrange All]** button. The *Arrange Windows* dialog box will open.



- ◆ Select one of the following:
 - ◆ *Tile* - places the windows like a tile floor.
 - ◆ *Horizontal* - stacks windows horizontally.
 - ◆ *Vertical* - places windows side by side.
 - ◆ *Cascade* - places the windows so that you can see the title bar of each workbook, much like a stack of file folders.

If the *Windows of active workbook* checkbox is checked all open workbooks and windows will be shown (if there are any workbooks with multiple windows). Otherwise only the open workbooks are arranged.

- ◆ Click **[OK]** or press **[Enter]**.



Viewing Workbooks and Worksheets, continued

If the *Arrange All* feature is not working properly, it could be an issue with having *Excel Add-ins*.

To turn off the Add-ins:

- ◆ Go to the *File Tab* and select *Options*.
- ◆ Select the *Add-ins* category on the left of the options window.
- ◆ Click the **[Go]** button next to the **Manage:** field drop-down. Leave the **Manage:** field set to *Excel Add-ins*.
- ◆ Uncheck any checked Add-ins and click **[OK]**.
- ◆ Try using the *Arrange All* feature again.

Making a Workbook Active

Once you have multiple windows open, only one window will be active at a time. The file names for the inactive windows will be greyed out. To make a window active, simply click in the window.



Action 1.8 - Opening and Viewing Multiple Workbooks



Instructions:

1. Double click the **Home Tab** in the ribbon.
2. Go to the *File Tab* and choose *Open* from the list of categories on the left.
3. Click the **[Browse]** button.
4. Navigate to the lesson folder.
5. Select the **Columbus.xlsx** file.
6. Hold the **[Shift]** key and select the **Detroit.xlsx** file, release the **[Shift]** key.
7. Now hold the **[Ctrl]** key and select the **Report.xlsx** file and click the **[Open]** button.
8. On the *View Tab* in the **Windows Group**, click the **[Switch Windows]** button drop-down.
9. Select any of the open files listed in the menu.
10. Move your mouse down into the *Task-bar* at the bottom of the screen and hover over the *Excel* icon.
11. When the list of open workbooks is displayed, click the workbook you need to work with.

Results/ Comments:

The ribbon is minimized. Doing this before opening the files will allow more of the files to be visible instead of seeing the ribbon in each window.

[Ctrl + O].

If necessary. The *Explorer* window opens.

Click on the file once, double clicking the file will open it.

By holding the **[Shift]** key you are able to select all the files between the first and second selection.

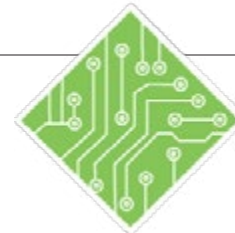
Using the **[Ctrl]** key allows for non-continuous selection. All four file are now opened.

A list of all open workbooks is displayed. The one that has a checkmark next to it, is the active file.

The chosen workbook is now the active one.

A pop-up of thumbnails or list of open workbooks is displayed.

The chosen workbook is now the active one.



Instructions:

12. Hold the **[Alt]** key and tap the **[Tab]** key, keep using the **[Tab]** key to cycle through the list of open files and programs to highlight the desired file and let go of the **[Alt]** key.
13. On the **View Tab** in the **Windows Group**, click the **[Arrange All]** button.
14. Chose *Tiled*, if necessary and click the **[OK]** button.
15. Click the **[Maximize]** button in the upper right corner of the **Columbus.xlsx** workbook.
16. Click the **[Restore Down]** button in the upper right corner of the screen of the **Columbus.xlsx** workbook.
17. Double click the Title Bar of the **Columbus.xlsx** workbook.
18. Double click the Title Bar of the **Columbus.xlsx** workbook.

Results/ Comments:

When holding the **[Alt]** key and tapping the **[Tab]**, windows will display a list of every open application and file. This method allows for quick navigation between everything you are working with. The selected workbook or application is active.

The *Arrange Windows* dialog opens.

All four open workbooks are displayed in a grid pattern. The workbook that was active when using the **[Arrange All]** feature will be located in the upper left of the grid.

That workbook is now displayed full screen. You can also double click in the **Title Bar** of the workbook window to Maximize.

That workbook is now restored down to its tiled position. You can also double click in the **Title Bar** of the workbook window to restore Down.

The workbook is maximized.

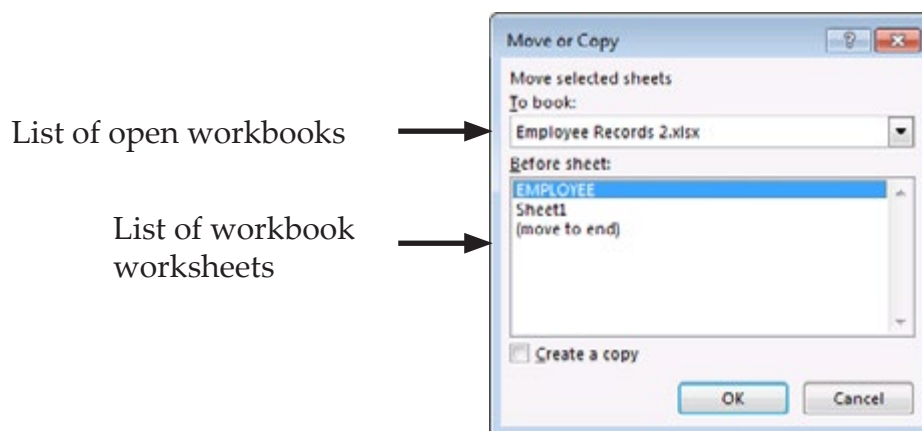
The workbook is restored down to its tiled position.

Moving & Copying Worksheets

You can make a copy of a worksheet and add them to the current workbook or to another workbook. You can also move a worksheet to another location within the workbook or to another workbook. Be careful when you move a worksheet since formulas and other data can be affected by the move and result in inaccurate data or calculations.

Using the Move or Copy Dialog Box

- ❖ Select the worksheet tab to move or copy. If you want to move or copy the worksheet to another workbook, make sure that workbook is open.
- ❖ On the *Home Tab* in the **Cells Group**, click on **[Format]**. Click on *Move or Copy Sheet*. The *Move or Copy* dialog box opens.
- OR -
- ❖ Right-click the mouse on the worksheet tab you want to move or copy. Select *Move or Copy* from the menu. The *Move or Copy* dialog opens.



- ❖ Under *To Book*: Select the book you want to copy to or click on (new book). Skip this if you are moving or copying within the same worksheet.
- ❖ Under *Before sheet*: select the name of the sheet to move the worksheet before; or select [move to end].
- ❖ If you want to make a copy, click on *Create a copy*. (If you forget to do this, the worksheet will be moved and not copied.)
- ❖ Click **[OK]**.



Moving & Copying Worksheets, continued

Using Dragging

A quicker way to move the worksheet is to click and drag the worksheet tab to its new location.

To Move within the same Workbook

- ◆ Click on the worksheet tab you want to move then drag the worksheet tab to its new location. As you drag the worksheet tab, a worksheet icon will appear along with a marker indicating where the worksheet will be placed.
- ◆ When you have reached the new location, release the mouse button.

To Copy within the same Workbook

- ◆ Click the worksheet tab you want to copy
- ◆ Press and hold the **[Ctrl]** key, the worksheet icon will appear with a + sign indicating you are copying.
- ◆ Drag the worksheet tab to the location for the copy to appear, then release the mouse button before releasing the key.

To Move/Copy to another Workbook

- ◆ Arrange the windows of the two workbooks so you can see them at the same time.
- ◆ Click and drag the worksheet icon from one workbook window to the next.
- ◆ Using the **[Ctrl]** key while clicking and dragging will copy the worksheet.



Action 1.9 - Moving and Copying Worksheets in the same Workbook



Instructions:

1. Maximize the **Columbus.xlsx** workbook.
2. Right click the **Columbus-Mar** sheet tab and choose *Move or Copy...* from the menu.
3. Select the (*move to end*) option and click the **[OK]** button.
4. Right click the sheet tab and choose *Move or Copy...* from the menu.
5. Select the (*move to end*) option, check the **Create a copy** checkbox and click the **[OK]** button.
6. Click and hold the mouse key down on the **Columbus-Mar(2)** sheet tab, then drag the new sheet tab to the left of the **Columbus-Jan** sheet tab and release.
7. Holding the **[Ctrl]** key down click and hold the mouse button down on the **Columbus-Mar(2)** sheet tab, then drag the new sheet tab to the right of the **Columbus-Mar** sheet tab and release.
8. Select cell **C2** and type < **April** >.
9. Repeat steps 8 and 9 to create sheets for May and June.
10. Rename the new sheets according to their respective months, name the first sheet as **Summary**.
11. Save the workbook and restore down.

Results/ Comments:

Double click the Title Bar of the Columbus workbook window. Notice worksheets are not in the proper order.

The *Move or Copy* dialog opens.

The worksheet has been repositioned.

The *Move or Copy* dialog opens again.

The worksheet was copied and a number added to the sheet name.

You will see a worksheet icon as you are dragging the sheet tab. A black down arrow will appear above the sheet tabs indicating where the sheet tab will be placed.

You will see a worksheet icon as before but it will include a + in the sheet icon. An exact copy of the sheet is added to the workbook to the right of the **Columbus-Mar** sheet.

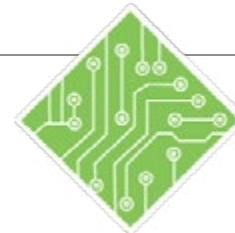
The sheet is updated to the correct month.

The sheet is copied and added to the workbook.

All of the months should now be in order.

[Ctrl + S] and double click the windows' Title Bar.

Action 1.10 - Moving and Copying Worksheets to Another Workbook



Instructions:

1. With all the workbooks tiled.
2. Click on the **Report.xlsx** window.
3. Save **REPORT** workbook as **My REPORT**.
4. Click on the **COLUMBUS** workbook and maximize it.
5. Make sure the *Columbus-Jan* worksheet tab is active.
6. On the *Home Tab* in the **Cells Group**, click the **[Format]** button drop-down and select *Move or Copy Sheet*.
7. Under *To book*: click on the down arrow and select *My REPORT*.
8. In the *Before sheet* list, select *Sheet 2*.
9. Click **[OK]** or press **[Enter]**.
10. Double click the Title Bar to restore down back to its tiled position.
11. Make the **DAYTON** workbook active.
12. Click and hold on the *Dayton* worksheet tab. When you see the worksheet icon, drag the icon to the **My REPORT** workbook and place it after the *Columbus-Jan* worksheet tab.
13. Click in the **DETROIT** workbook.

Results/ Comments:

To make it the active workbook.

Click the *File Tab* and choose *Save As* or **[F12]**.

To make it the active workbook and full screen.

The *Move or Copy* dialog box opens.
Shortcut: Right-Click on the *Columbus* sheet tab and choose *Move or copy* from the menu.

We are going to move this sheet into the **My REPORT** workbook

The *Columbus-Jan* worksheet is moved to the **My REPORT** workbook. Notice the *Columbus-Jan* worksheet is no longer in the **COLUMBUS** workbook because we have moved it.

The workbooks are tiled again.

Click in the **DAYTON** window.

This will move the worksheet to the **My REPORT** workbook.

To make it active.



Instructions:

14. Press the **[Ctrl]** key and then click and hold on the ***Detroit*** worksheet. You will see a worksheet icon with a plus sign in it.
15. Drag the icon to the **My REPORT** workbook and place it after the ***Dayton*** worksheet.
16. Maximize the **My REPORT** window by clicking on the **[Maximize]** button.
17. Save the file.

Results/ Comments:

By holding the **[Ctrl]** key while dragging the worksheet, the ***Detroit*** worksheet is copied to the **My REPORT** workbook.

Notice because we have copied the worksheet, the ***Detroit*** worksheet is now in both windows.

You now have three new worksheets in this workbook. To see all of the worksheets, click on the left arrow on the worksheet scroll buttons.

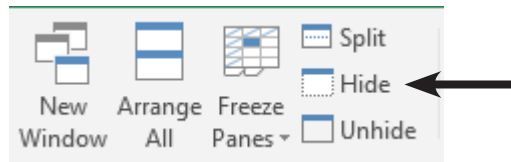
[Ctrl + S].

Hiding Workbooks

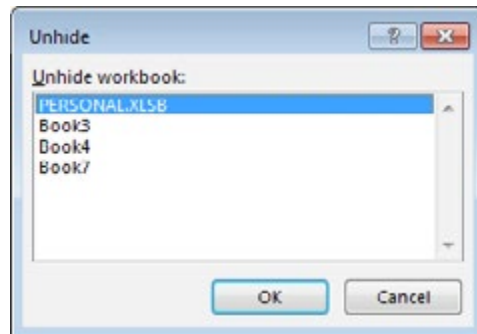
Hiding a Window

With the Hide feature, you can hide a window from view. The window will disappear from the screen, but still remain open. This is a great feature to use when you want less clutter, privacy or to prevent accidental modifications or closure.

- Click the **[Hide]** button in the **Window Group** on the *View Tab*.



- To view the window again, click on the **[Unhide]** button, then select the file name from the *Unhide* dialog box. Click **[OK]**.



- When there is more than one hidden workbook, it is necessary to unhide each workbook since you can only select one workbook in the *Unhide* dialog.



Instructions:

1. Click the **Columbus.xlsx** window to make it the active workbook.
2. On the *View Tab* in the **Windows Group**, click the **[Hide]** button.
3. Click the **Dayton.xlsx** window to make it the active workbook.
4. On the *View Tab* in the **Windows Group**, click the **[Hide]** button.
5. Click the **MyReport.xlsx** window to make it the active workbook.
6. On the *View Tab* in the **Windows Group**, click the **[Unhide]** button.
7. Select the **Columbus** workbook from the list of hidden workbooks and click the **[OK]** button.
8. On the *View Tab* in the **Windows Group**, click the **[Unhide]** button.
9. Select the **Columbus** workbook from the list of hidden workbooks and click the **[OK]** button.
10. Close all the open workbooks.

Results/ Comments:

The **Columbus.xlsx** workbook is now hidden.

The **Dayton.xlsx** workbook is now hidden.

The *Unhide* dialog is displayed. It shows a list of all hidden workbooks, you can only select one workbook at a time to unhide, so select the desired workbook.

The workbook is now visible.

The *Unhide* dialog is displayed.

The workbook is now visible.

[Ctrl + W] or click on the **[Close]** button in each window .

Viewing Data in Workbooks and Worksheets

Freeze Panes

It is sometimes convenient to be able to keep an eye on one part of a spreadsheet while simultaneously viewing other parts of the same spreadsheet. For example, keeping cells with headings in place while scrolling through the data. This is called Freeze Panes.

Freezing a Pane

- ◆ Open a workbook window.
- ◆ Figure out what you want to freeze. Select the cell below and to the right of the area to freeze.
- ◆ On the *ViewTab* in the **Windows Group** click the **[Freeze Panes]** button drop-down and choose the desired option from the menu.
- ◆ **First Column:** On the *View Tab* in the **Windows Group** click the **[Freeze Panes]** drop-down and select *Freeze First Column* from the menu.
- ◆ **Top Row:** On the *View Tab* in the **Window Group**, click on **[Freeze Panes]** drop-down and select *Freeze Top Row* from the menu.
- ◆ **Your own selection:** Select the cell below the rows and to the left of the columns you want frozen. On the *View Tab* in the **Window Group** click on **[Freeze Panes]** drop-down and select *Freeze Panes* from the menu.

	A	B	C	D	E	
1	Emp NO.	M/M	First Name	Last Name	Address	
2	1001	Mr.	Clem			
3	1002	Ms.	Clarissa			
4	1003	Ms.	Monica	Nitron	1849 Turtle Hwy.	Bozen
5	1004	Miss	Pixie	Davis	73 Elm Rd.	Hillsvill
6	1005	Ms.	Sandy	Smothers	1444 Eastern St.	New B
7	1006	Dr	Marilyn	Zale	514 Manganese Ave	Belisle

- ◆ To unfreeze the panes, click on **[Freeze Panes]** drop-down and select *Unfreeze Panes*.

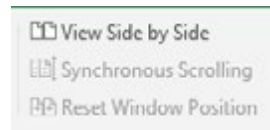
Viewing Data in Workbooks and Worksheets, continued

Comparing Workbooks

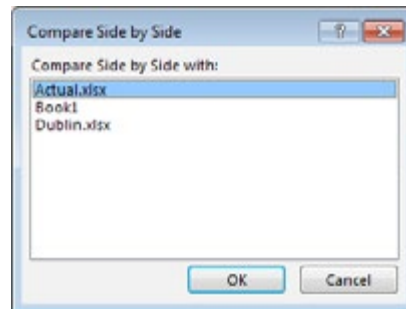
While we have been examining many ways to see more than one workbook at a time, there is still one more option available in *Excel*. The **View Side by Side** option allow for dynamic comparisons between two workbooks unlike any of the other methods discuss earlier. Before starting, it is a good idea to set the zoom level and freeze panes so that both workbooks look and act the same.

Side by Side Viewing

The **[View Side by Side]** button in the **Windows Group** on the **View Tab** allows you to view two windows simultaneously.

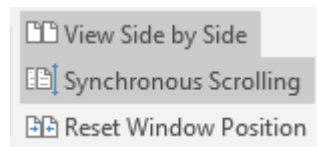


If there is more than one other workbook the *Compare Side By Side* dialog opens. Choose the workbook you want to compare to the active workbook and click the **[OK]** button.



Synchronous Scrolling

The **[Synchronous Scrolling]** button in the **Windows Group** on the **View Tab** is active by default when viewing side by side. Allowing you to scroll through the data on both windows at the same time.

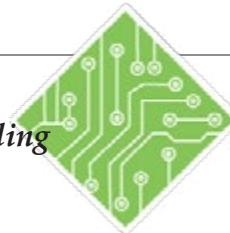


Note

If you turn off Synchronous Scrolling, consider using the **[Ctrl + Home]** keys to reset the position in each window before turning Synchronous Scrolling back on.

The **[Reset Window Position]** button is used if you resize the windows to see one larger than the other.

To turn off the view side by side feature, simply click the **[View Side by Side]** button.



Instructions:

1. Open the file **Sales2007.xlsx**.
2. Scroll to view cell **K465** and then return to the top of the worksheet.
3. Click in cell **B5**
4. On the **View Tab** in the **Window Group**, click on **[Freeze Panes]** button drop-down and select **Freeze Panes** from the menu.
5. Scroll through the worksheet again.
6. Return to the top of the worksheet.
7. Click on **[Freeze Panes]** button drop-down and select **Unfreeze Panes**.
8. Click in cell **A1**.
9. Open the file **Sales2008.xlsx**.
10. In the **Sales2008** window, click in cell **B5** then follow Step 4 to freeze panes.
11. On the **View Tab** in the **Window Group**, click on **[Switch Window]** button and choose the **Sales2007** workbook.
12. Repeat Step 10 to freeze panes in **Sales2007**.

Results/ Comments:

Notice that it would be difficult to know which month or which item you were viewing numbers for.

We are going to freeze panes so we can view both the column and row labels.

Two black lines (horizontal and vertical) will appear showing where the freeze panes are.

Notice that the row and column labels always stay in view.

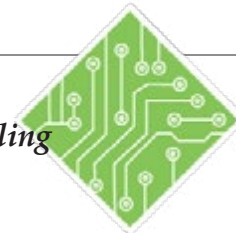
Press **[Ctrl + Home]**.

Before viewing these files side by side, we should turn on Freeze Panes in both files.

To turn on Freeze Panes for **Sales2008**. Both workbooks will appear in the window.

To make the workbook active.

To turn on Freeze Panes for **Projected** at cell **B3**.



Instructions:

13. On the *View Tab* in the **Window Group**, click on the **[View Side by Side]** button.
14. In the **Sales2008** window, click on the down arrow on the scroll bar and scroll down. Scroll back up to the top of the workbook.
15. Scroll through the worksheets.

Results/ Comments:

Both workbooks will appear in the window. If there are multiple files open you will see the ***Compare Side by Side with:*** list select the desired file and click **[OK]** or press **[Enter]**.

Notice now you have synchronous scrolling and you can see both column headers and row labels. By default, scrolling is synchronized.

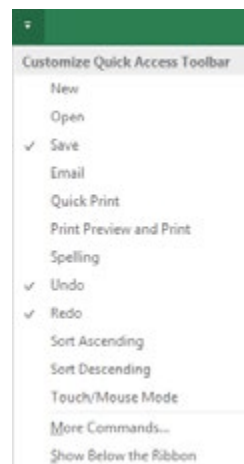
If you do not want the scrolling to be synchronized, click on the **[Synchronous Scrolling]** button. This will deselect the option.

Closing Multiple Workbooks

When you are done working with multiple workbooks and want to close them, you can close each one or by using the **[Close All]** button close all open files at once. This button is one that is hidden until added to the *QAT* or to a custom tab.

Adding the Close All button to QAT

- ◆ Go to the *Excel* Options/ **Quick Access Toolbar** Window.
- ◆ *File Tab / Options / Quick Access Toolbar*.
- ◆ Choose *More Commands* from the *QAT* drop-down menu.

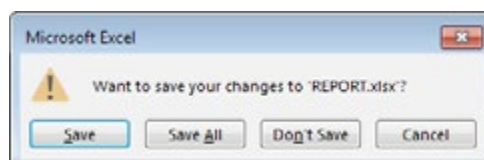


Note

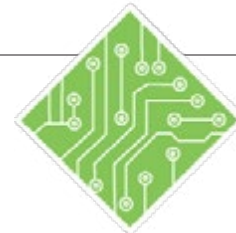
Remember the **[Alt]** keyboard shortcuts are sequential

- ◆ **[Alt] [F] [T]**, then select *Quick Access Toolbar* from the list of categories on the left of the *Options* window.
- ◆ Choose *All Commands* from the **Choose commands from...** field drop-down.
- ◆ Scroll down to find the *Close All* command and double click it to add it to the *QAT*.
- ◆ Click the **[OK]** button to apply the change.

Click the **[Close All]** button in the *QAT* to close all workbooks at once. If any changes have been made in any open files the *Save* dialog opens, choose the appropriate option.



Action 1.13- Closing multiple Workbooks



Instructions:

1. Click the **File Tab** and choose *Options* from the categories on the left.
2. Select *Quick Access Toolbar* from the list of categories on the left.
3. In the **Choose Commands from:** drop-down choose *All Commands*.
4. Scroll down through the list to find and select *Close All*.
5. Click the **[Add]** button and then click the **[OK]** button.
6. In the *QAT*, click the newly added **[Close All]** button. If prompted to save any changes choose *Don't Save*.

Results/ Comments:

The Options window opens.

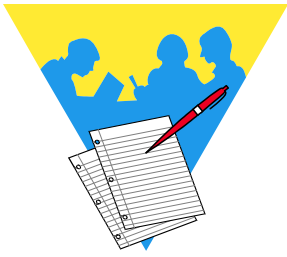
The *Quick Access Toolbar* controls are displayed in the Options window.

The list of available options changes.

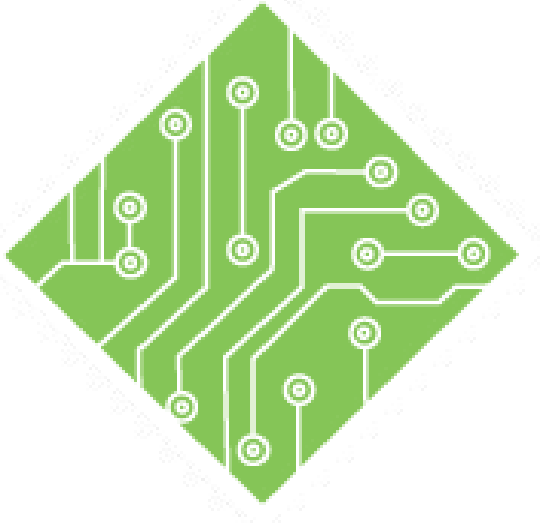
Every command in *Excel* is now available, they are listed in alphabetical order.

The command is now listed in the right column of commands (these are the commands already on the *QAT*). You can also double click a command to add it to the *QAT*.

All open files are now closed. If there are any unsaved changes in a workbook, you will be prompted to save before closing.



Tips and Notes

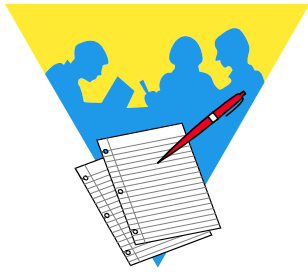


Lesson 2: Names

Lesson Overview

You will cover the following concepts in this chapter:

- ◆ Names
- ◆ Defining Names
- ◆ Name Manager
- ◆ Editing Names
- ◆ Using Names to Navigate
- ◆ Using Names in Formulas



Lesson Notes



Names

When working with a complex formula involving several cell ranges, the formula can be difficult to understand and individual cells containing important data can be hard to find on a large worksheet. Cell references like **D5:D22** or **A33:C33** don't really communicate anything about the data they contain. In *Excel*, you can create a meaningful Name for cells or cell ranges to be used in the place of cell references, making it easier to identify the data contained in the cell. Names can also be used with the *GoTo* command to simplify movement within the worksheet.

Names can be given to individual cells, cell ranges, constants, formulas or tables. By default, Names are absolute, so if you copy or AutoFill a formula using a Name, it will maintain its original cell references. Names will make formulas much more readable and they will make it easier to find and reference individual cells, improving clarity, organization to the overall design.

Rules for Defining Names

The following are guidelines to use when naming a cell or range of cells. If you do not enter the name in the correct manner, an error message will be displayed.

- ◆ The first character in the name must be a letter, underscore or backslash.
- ◆ You cannot use a C, c, R, or r as a defined name.
- ◆ You cannot have spaces between words. You must use the underscore or period as word separators instead.
- ◆ *Excel* does not distinguish between upper and lower case letters. For example, *Excel* will see **Profit** and **PROFIT** as the same word.
- ◆ A Name can contain up to 255 characters.
- ◆ A Name cannot be the same as a cell reference.

Scope

The scope of a Name refers to where the Name will be recognized. A workbook scope means that the Name is recognized on any worksheet within the workbook and is considered a global level. A worksheet scope means that the Name will only be recognized on a designated worksheet and is considered the local level.



Names, continued

A Name must always be unique within its scope. You can use the same name in different scopes. If you use the same Name on the local level and global level, the local level name takes precedence on the worksheet in which it was created. A local name can be used on another worksheet, but you must use the name of the worksheet along with the range name. Example: **Sheet1!rangename**.



Defining Names

Defining a Name

There are several different ways to define a name. Using the *Name Box* on the Formula Bar, creating names from existing column or row labels and using the *New Name* dialog.

Using the Name Box

- ◆ Select a cell or range of cells that you want to name. You can select a nonadjacent group of cells as long as the selected cells form a rectangular shape.
- ◆ Click in the *Name Box* located to the left of the Formula Bar to activate it.

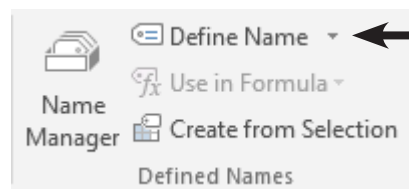


- ◆ Type the name for the range following the “Rules for Defining Names”.
- ◆ Press **[Enter]**. The new name is added to the Name list. The list can be accessed by clicking the down arrow on the *Name Box*.
- ◆ By default, the scope of Names created using the *Name Box* will be global.

Using Define Name

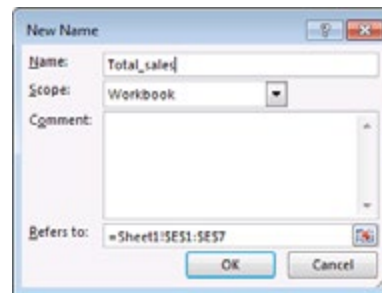
Use the *New Name* dialog when you want to specify the scope of a name and if you want to create a comment.

- ◆ Select the cell or ranges of cells you want to create a Name for. You can also skip this step and select the cells in the *New Name* dialog.



Defining Names, continued

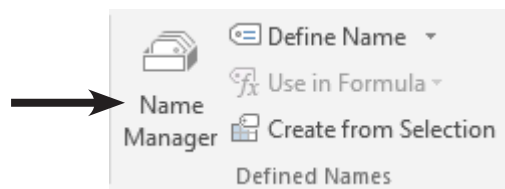
- Click on **[Define Name]** button in the **Defined Names Group** on the *Formulas Tab*. The *New Name* dialog opens.



- In the **Name** field, type in the name for the formula or cells. *Excel* will suggest a name if there is text in the active cell, above the cell or to the left of the cell.
- In the **Scope** field select a scope. By default, the scope will be workbook. To select worksheet, click on the down arrow and then select the worksheet from the list.
- In the **Comment** field, add a comment that helps you remember the purpose of the name.
- In the **Refers to** field - If you have already selected a range, the cell reference should be shown. If you have not, enter the cell reference or click on the **[Collapse dialog box]** button on the right side of the box. You will be returned to the worksheet. Highlight the cell or range of cells, then press **[Enter]** or click on the **[Expand dialog]** button.
- Click **[OK]** or press **[Enter]**.

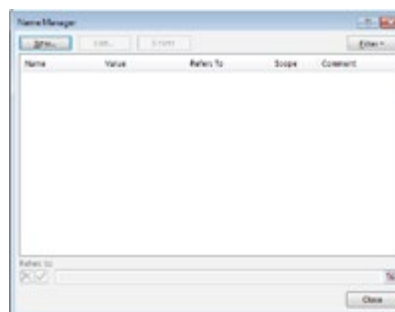
From within the Name Manager

- Click on **[Name Manager]** button in the **Defined Names Group** on the *Formulas Tab*.



Defining Names, continued

- ◆ The *Name Manager* dialog opens.



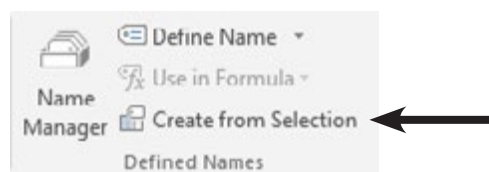
- ◆ In this dialog click the **[New]** button to open the *New Name* window.

From Selections

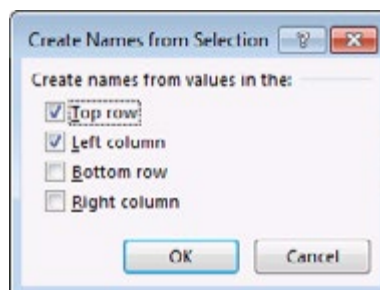
- ◆ Select the range that you want including the row and/or column headings.

	Total Sales	Avg Sale	Highest Sale
Ohio	\$ 100,000.00	\$ 7,500.00	\$ 9,000.00
Indiana	80,000.00	7,500.00	8,000.00
Michigan	75,000.00	6,000.00	8,500.00
Pennsylvania	85,000.00	7,000.00	7,500.00
Total	\$ 340,000.00	\$ 7,000.00	\$ 9,000.00

- ◆ Click on **[Create from Selection]** button in the **Defined Names Group** on the *Formulas Tab*.



- ◆ The *Create Names from Selection* dialog opens.



- ◆ In the *Create Names from Selection* dialog, designate the location that contains the labels selecting from *Top row*, *Left column*, *Bottom row* and *Right column*. (Can be row, column or both).



Defining Names, continued

- ◆ Click **[OK]** or press **[Enter]**. The names have been added to the Names List. Check the *Name Box* drop-down to verify.
- ◆ If the Labels had blank spaces in the text, those have been replaced by underscores in the names.
- ◆ Names created using this procedure refer only to the cells that contain values and not the row and column labels. By default, the scope of the names will be at the global (workbook) level. If you create another set of names using the same labels, then that set will be created at the local (worksheet) level.

Note

3-D references can span many sheets but must always refer to the same cell or range of cells on all the sheets.

Defining Names for 3-D References

In the previous chapter, you learned how to create a 3-D reference and use it in a formula. You can also give that 3-D reference a name. This makes it much easier to remember the data that you are using and is highly recommended.

- ◆ Click on **[Define Name]** button in the **Defined Names Group** on the *Formulas Tab*. The *New Name* dialog opens.
- ◆ In the *Name* field, enter the name for the 3-D reference.
- ◆ In the **Comment** field, enter a comment to describe what the data is, if desired.
- ◆ In the *Refers to:* field, click on the **[Collapse dialog box]** button.
- ◆ In the workbook, click on the first worksheet tab that you want included in the reference.
- ◆ Hold down the **[Shift]** key then click on the last worksheet tab that you want included in the reference.
- ◆ Select the cell or range of cells to be referenced.
- ◆ Click on the **[Expand dialog box]** button.
- ◆ Click **[OK]**. The *New Name* dialog closes and you are returned to the worksheet.



Action 2.1 - Defining Names



Instructions:

1. Open the **YTD Ohio.xlsx** file.
2. Click the *Name Box* drop-down.
3. Select the *Mar* sheet.
4. Select cell **B8**.
5. Click into the *NameBox* and type < **Mar_Avg** > and tap the **[Enter]** key to apply the name.
6. Select cell **B9**.
7. Click into the *NameBox* and type < **Mar_Highest** > and tap the **[Enter]** key to apply the name.
8. Select cells **B3:B6**.
9. On the *Formulas Tab* in the **Defined Names Group**, click the **[Define Name]** button.
10. Type in < **MarSales** > in the **Name:** field. Leave the **Scope:** field set to *Workbook*.

Type in < **These are the March Sales** > in the **Comment:** field.
Check that the **Refers to:** field reads `=Mar!B3:B6` and click the **[OK]** button.
11. Select the *Feb* sheet and select cells **A8:B9**.
12. On the *Formulas Tab* in the **Defined Names Group**, click the **[Create from Selection]** button.

Results/ Comments:

[Ctrl + O].

Since this file does not have any named cells, ranges, or values this drop-down is empty.

The cell has been named. Remember names can not contain blank space or special characters.

The cell has been named.

The *New Name* dialog opens.

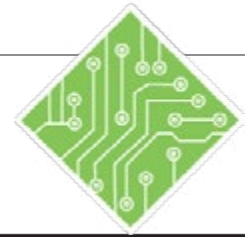
This will be the name of the cell range. This means that you can refer to this name in any worksheet in this workbook. This will help users understand the name.

These are the cells being named.

The cell range is named.

The *Create Names from Selection* dialog opens.

Action 2.1 - Defining a Name, continued



Instructions:

13. With only the *Left Column* checkbox checked click the [OK] button.
14. Click the *Name Box* Drop-down.
15. On the *Formulas Tab* in the **Defined Names Group**, click the [Name Manager] button.
16. Click the [New] button in the *Name Manager* dialog.
17. Type < **Products** > in the **Name:** field.
Set the **Scope:** field to *Feb*.
Check that the **Refers to:** field reads
=Feb!\$B\$11:\$B\$15
and click the [OK] button.
18. Click the [New] button in the *Name Manager* dialog.
19. Type < **Products** > in the **Name:** field.
Set the **Scope:** field to *Mar*.
Check that the **Refers to:** field reads
=Mar!\$B\$11:\$B\$16
and click the [OK] button.
20. The new names are added to the list of names in the *Name Manager*, click the [Close] button.
21. Select the *YTD* sheet and select cells **B3:B10**.
22. Name these cells and **YTD _Total**.
23. Save the File.

Results/ Comments:

Cells **B8** and **B9** are named with the text in cells **A8** and **A9** respectively.

The new names have added underscores.

The *Name Manager* dialog opens. You should see all existing names listed in the dialog.

The *New Name* dialog opens.

You are defining a new name.

The *New Name* dialog opens.

You are defining a new name.

The name is added to the file and the dialog closes.

Use whatever method you prefer to name the cells.

[Ctrl + S].

Action 2.2 - Defining a 3-D Name



Instructions:

1. Select the *YTD* sheet.
2. On the *Formulas Tab* in the **Defined Names Group**, click the **[Define Name]** button.
3. Type in < **Widget1Total** > in the **Name:** field.
Leave the **Scope:** field set to *Workbook*.

Type in < **The total of Widget1 sales** > in the **Comment:** field.
Click into the **Refers to:** field and click the *Jan* sheet and click the *Mar* sheet then select cell **B11** and click the **[OK]** button.
4. Save the file.

Results/ Comments:

It really does not matter what sheet is active when creating 3-D named ranges.

The *New Name* dialog opens.

When adding the references in the **Refers to:** field, using a comma allows you to add a cell or range on one sheet and add others from other sheets.

[Ctrl + S].

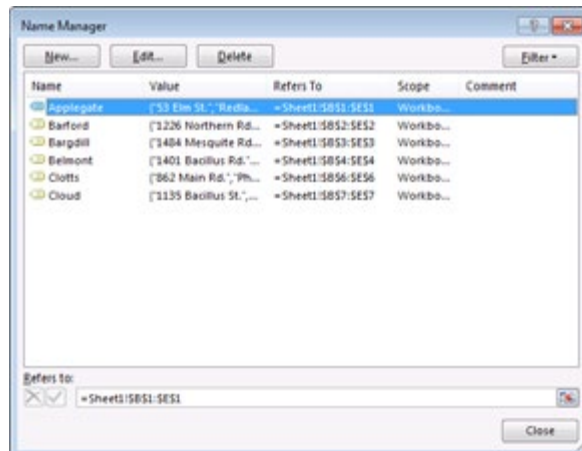


Name Manager

Once you have created names in the workbook, you can organize, rename and delete them using the Name Manager.

Opening and Viewing the Name Manager

- Click the [Name Manager] button in the **Defined Names Group** on the *Formulas Tab*. The *Name Manager* dialog opens.



Note

Should a name be deleted, any formulas using the name will now have #Name errors since the name can no longer be found.

- The *Name Manager* has four buttons across the top:
 - [New]**: Allows you to create new names.
 - [Edit]**: Allows you to edit the name, comments, or reference.
 - [Delete]**: Allows you to remove the name from the file.
 - [Filter]**: Allows you to quickly filter the list of Names in the names list.
- A list of existing Names, broken down into several columns
 - Name**: The range name.
 - Value**: The actual values in the name.
 - Refers to**: The worksheet and cells references that the name refers to.
 - Scope**: Whether the name is local (worksheet) or global (workbook).
 - Comments**: A preview of comments are displayed here.



Name Manager, continued

- ◆ If you want to see all of the information in a column, double-click the right side of the column header. The column will automatically widen so that you can see everything in the column.
- ◆ The cursor will change to a double headed arrow cursor.

Name	Value	Refers To	Scope	Comments
Applegate	{ "53 Elm St.", "Redla...	=Sheet1!\$B\$1:\$E\$1	Workbo...	
Barford	{ "1226 Northern Rd...	=Sheet1!\$B\$2:\$E\$2	Workbo...	
Bargdill	{ "1484 Mesquite Rd...	=Sheet1!\$B\$3:\$E\$3	Workbo...	
Belmont	{ "1401 Bacillus Rd."...	=Sheet1!\$B\$4:\$E\$4	Workbo...	
Clotts	{ "862 Main Rd.", "Ph...	=Sheet1!\$B\$6:\$E\$6	Workbo...	
Cloud	{ "1135 Bacillus St."	=Sheet1!\$B\$7:\$E\$7	Workbo...	

- ◆ You can sort in ascending or descending order by clicking on any one of the column headings.
- ◆ At the bottom of the *Name Manager* dialog is the **Refers to:** field, this changes in relation to the selected name.
- ◆ If you make edits in this field, you must remember to click the **[Checkmark]** button to apply the edit.
- ◆ If the edit is incorrect, click the **[X]** button to clear any changes.

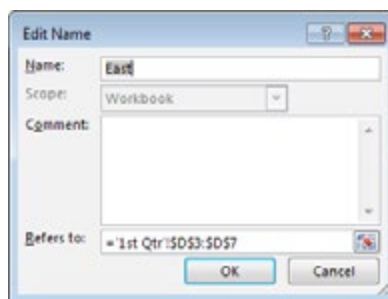
Refers to:

Editing Names

Editing a Name

Once you have created a name you can go back and change the name. For example, you can change a name that is more general like **Costs** to one that is more specific like **January.Costs**. You can also change the cells the name refers to if you have moved or added data.

- ◆ Click the **[Name Manager]** button in the **Defined Names Group** on the *Formulas Tab*. The *Name Manager* dialog opens.
- ◆ In the Name list, click on the name you want to edit.
- ◆ Click on **[Edit]**. The *Edit Name* dialog will open.

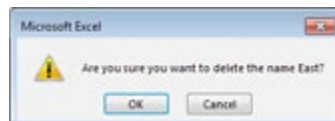


- ◆ Change the name or cell references as desired.
- ◆ Click **[OK]**.

Deleting a Name

If you no longer need a name, you can delete it in the *Name Manager*. When you delete a name that is used in a cell or in a formula, you will see the error message **#NAME?** If you have a local (worksheet) name and a global (workbook) name that are the same, the local level takes precedence over the global name. If you delete that local name, the global name will automatically be used instead.

- ◆ Click the **[Name Manager]** button in the **Defined Names Group** on the *Formulas Tab*. The *Name Manager* dialog opens.
- ◆ In the Name list, click on the name you want to delete.
- ◆ Click on **[Delete]**. A warning box will appear.
- ◆ If you are sure you want to delete the name, click **[OK]**.



Action 2.3 – Using the Name Manager to Edit or Delete Names



Instructions:

1. On the *Formulas Tab* in the **Defined Names Group**, click the **[Name Manager]** button.
2. Resize the dialog so that all the columns are visible.
3. Set your cursor between the columns header, when the double headed arrow appears, click and drag to resize the width of the column.
4. Select the *YTD_Total* name.
5. In the **Refers To:** field below the list, change the **\$B\$10** cell reference to **\$B\$8** and click the **[Check]** button.
6. Select the *YTD_Total* name.
7. Click the **[Edit]** button above the list.
8. In the *Edit Name* dialog, click into the **Refers To:** field and change the cell reference of **\$B\$8** to **\$B\$6** and click the **[OK]** button.
9. Click the **[Close]** button to exit the *Name Manager*.
10. Save the file.

Results/ Comments:

The *Name Manager* dialog opens.

The dialog may not be wide enough to show all the columns.

You are able to adjust the width of the columns so you are able to see the information in the column.

This name needs to be edited to refer to the correct range of cells.

When using the **Refers To:** field in the *Name Manager*, you must remember to click the **[Check]** button in order to apply the edit.

The name still need to be corrected.

The *Edit Name* dialog opens.

The cell range the name refers to is now correct, clicking the **[OK]** button applies the edit.

The *Name Manager* dialog closes.

[Ctrl + S].



Using Names to Navigate

The Name Box drop-down

Before names are created, the Name Box drop-down arrow will only show an empty field. When the workbook has names, they can be quickly accessed by clicking the Name Box drop-down arrow. Once a name is listed from the list, the cell or cell range will be actively selected.

Names with Global Scopes can be accessed from the Name Box list in any worksheet. Local names are only available on the Name Box list when working on the worksheet.

Note

Press [F5] to open the *Go To* dialog box - this is another way to get to a Name.

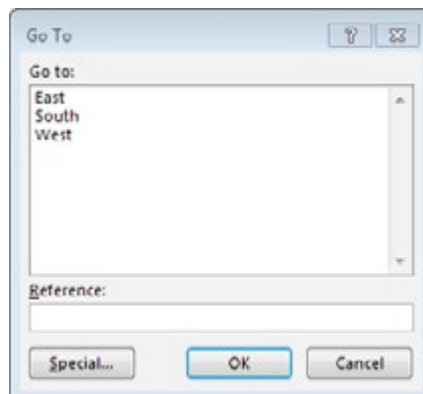
The GoTo dialog

Open the *Go To* dialog by:

- ◆ Going to the *Home Tab* in the **Editing Group**, click the **[Find & Select]** button drop-down and choose *Go To* from the menu.

- OR -

- ◆ [Ctrl + G]
- ◆ The *Go To* dialog opens.



- ◆ Choose the named cell or range and click the **[OK]** button.





Instructions:

1. Click the *Name Box* drop-down and choose **Mar_Avg** from the list.
2. Click the *Name Box* drop-down and choose **YTD_Total** from the list.
3. On the *Home Tab* in the **Editing Group**, click the **[Find & Select]** button drop-down and choose *Go To* from the list.
4. Choose the **MarSales** name and click the **[OK]** button.
- 5.
6. Use the **[Ctrl + G]** keys to open the *Go To* dialog and choose another name from the list.
7. Save the file.

Results/ Comments:

You are now on the on the *Mar* sheet with cell **B8** selected.

You are now on the on the *YTD* sheet with cell **B3:B6** are selected.

The *Go To* dialog opens. A list of all names whose scope is to the workbook or the sheet you are in are displayed. If there is a name with a scope outside the sheet it will not be included on the list.

The *Mar* sheet is active and cells **B3:B6** are selected.

The cell or cells on the sheet you selected in the *Go To* dialog are active.

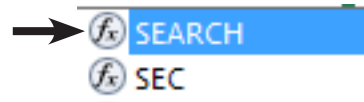
[Ctrl + S].



Using Names in Formulas

Since names are absolute references they are ideally suited for use in formulas instead of cell references. By using a name in place of a cell address in your formulas, you get several benefits:

- ◆ When looking over a workbooks formulas, they are much easier to read and understand.
- ◆ There is no need to worry about converting the cell address from relative to absolute.
- ◆ Names appear in the functions list as you type in the cells formula.
- ◆ Functions are displayed with the silver FX circle icon



- ◆ Names are displayed with the Tag icon



- ◆ It is much easier to remember there is a cell named *Tax* instead of remembering the address **PP2345**.
- ◆ Add Apply Name from Define Name drop-down



Action 2.5 - Using Names in Formulas



Instructions:

1. Select the **YTD** sheet.
2. Select cell **B10**.
3. Type an **=** and then the word **=sum**.
4. As the Function **SUM** is highlighted, tap the **[Tab]** key.
5. Type the letter **= M**.
6. Use the down arrow key to highlight **Mar_Sales** and tap the **[Tab]** key, then tap the **[Enter]** key.
7. Select cell **A14** and type;
= Widget 1 Total.
8. Select cell **B14**,
enter the following formula;
=SUM(Widget1_Total)
9. Save the file.

Results/ Comments:

Click the **YTD** sheet tab.

This cell is where you need to total all the sales for the month of March.

The list of functions beginning with the letter S are displayed. As you continue to type the name of the function the list narrow in relation to the available functions

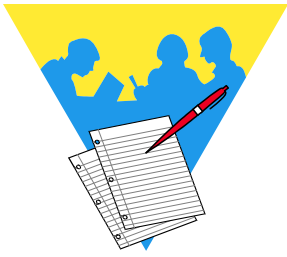
Using the **[Tab]** key will enter the highlighted function and also add the open parenthesis, you are now ready to enter the arguments of the function.

The list of functions also shows names. The names are have a yellow tag next to them.

The arrow keys allow you to move through the list of available functions and names. The formula is completed and the results are shown in cell **B10**.

The formula now returns the total number of Widget1 unit sold over the three months.

[Ctrl + S].



Tips and Notes

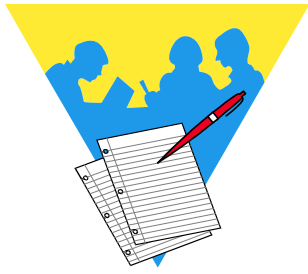


Lesson 3: Referring to Data in Another Worksheet/Workbook

Lesson Overview

You will cover the following concepts in this chapter:

- ◆ Referring to Another Worksheet
- ◆ Referring to Other Worksheets in Formulas
- ◆ Formulas with 3-D References
- ◆ Formulas Using Multiple Varied References
- ◆ Referring to Another Workbook
- ◆ 3-D Formulas Referencing Other Workbooks
- ◆ Working with Links



Lesson Notes



Referring to Another Worksheet

We have learned that a cell reference is used to identify the location of a cell or range of cells on a worksheet. For example **A1** is the cell reference for the first cell in the worksheet grid, column A and row 1. When you reference cells or cell ranges from another worksheet you are able to:

- ◆ Quickly create summaries.
- ◆ Break the data down into more manageable units.
- ◆ Combine information from several sources.
- ◆ Updated data automatically.

Referring to Another Cell

You can create a reference to another cell, either in this or another worksheet in a couple of ways. The first method is to create a formula that references a cell in another location in the workbook. Another method is to copy the cell and paste it into another cell as a link. In either case the syntax is the same;

=WorksheetName!CellAddress

Text followed by an exclamation point indicates the worksheet in the workbook where the cell being referenced is located. If the cell being referenced is on the same worksheet, then there is no need to refer to what worksheet it is on.

=CellAddress

Note

When referring to cells on other worksheets, remember to not click back onto the sheet where the formula is being entered, use the **[Enter]** or **[Ctrl + Enter]** key(s) to enter the formula and you will be back where you started.

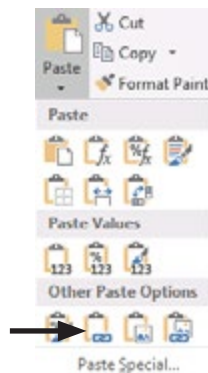
Entering the Reference Manually

- ◆ Select the cell that will be pulling information into from another cell. You want to place the reference (where you want the data).
- ◆ Type an **= >** sign.
 - ◆ If the cell being referred to is on the same worksheet: click the cell and tap the **[Enter]** to apply the formula.
 - ◆ If the cell being referenced is on another worksheet: click on the worksheet tab that contains the data you want and then the cell, then tap the **[Enter]** key to apply the formula.

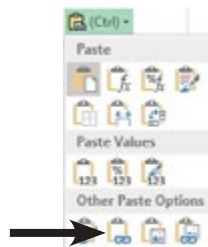
Referring to Another Worksheet, continued

Using Copy & Paste

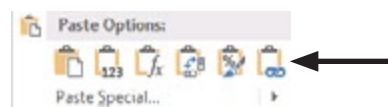
- ◆ Select the cell that contains this desired information.
- ◆ Copy the cell by:
 - ◆ Click the **[Copy]** button in the **Clipboard Group** on the *Home Tab*.
 - ◆ Right click the cell and choose *Copy* from the menu.
 - ◆ Use the **[Ctrl + C]** keyboard shortcut.
- ◆ Click on the worksheet tab and cell where the copied data is to be pasted.
- ◆ Paste the content as a link, by:
 - ◆ Clicking the lower half of the **[Paste]** button in the **Clipboard Group** on the *Home Tab*, choose *Paste Link* from the menu.



- ◆ Use the **[Ctrl + V]** shortcut, then click the *Paste Options* that appears after pasting, choose *Paste As Link* from the menu.



- ◆ Right click into the cell where you want the data placed and choose *Paste Link* from the menu.



Action 3.1 - Creating a Reference from Another Worksheet



Instructions:

1. Open the **YTD_Ohio** file.
2. Save as **My_YTD_Ohio.xlsx**.
3. On the **YTD** sheet click in cell **E2**.
4. Type: **<=>**.
5. Click on the **JAN** worksheet tab.
6. Click in cell **B8**. Press **[Ctrl + Enter]**.
7. Click on the **JAN** sheet and select cell **B9**.
8. Copy the cell using whatever method you prefer.
9. Click on the **YTD** sheet and right click on cell **E3**. Choose *Paste as Link* from the menu.
10. Go to the **Jan** worksheet. In cell **B5** change the number to **9500**.

Results/ Comments:

If necessary.

We are going to record the average sale for January.

To start the formula.

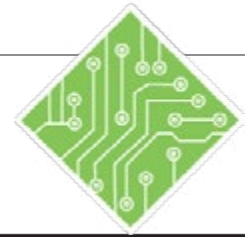
The formula now reads **=Jan!**.

Notice the Formula Bar, it shows the formula: **=JAN!B8**. This tells you the name of the worksheet - in this case **JAN** and the cell reference. Worksheet names are always followed by an exclamation point. Using the **[Ctrl + Enter]** keys applies the formula and keeps the active cell selected.

You will use the Copy & Paste method to create the 3D reference.

Right click / Copy, or click the **[Copy]** button in the **Clipboard Group** on the **Home Tab**, or **[Ctrl C]**.

From the menu choose the icon showing a chain link.



Instructions:

11. Return to the *YTD* worksheet.
12. Select cell **G2** and type;
<=> ,
click the *Mar* sheet and select cell **B8** then
tap the **[Enter]** key.
13. Select cell **G3** and type;
<= **Mar_Highest** >
14. Save the file.

Results/ Comments:

Notice both the Highest Sale and Average Sale reflect the change. This illustrates the advantage of referring to other cells versus typing in data manually. The worksheet using referenced cells will automatically update as the data changes.

Notice when done that the formula reads **=Mar_Ave**. Since cell **B8** on the *Mar* sheet was named, the formula uses the name instead of the cell address.

Use the arrow keys to select the appropriate name and use the **[Tab]** key to apply it.

[Ctrl + S].

Referring to Other Worksheets in Formulas

Note

If the data changes in the referenced cell(s), formulas referencing those cells will automatically be updated.

Note

When you select another worksheet while entering a formula, *Excel* displays the selected worksheet even though you are still really on the same worksheet where you are entering the formula.

Formulas that pull data from other worksheets

We have learned that when you create a formula, you use cell addresses in the formula, such as **=Sum(A1:A5)** to add the contents of the cells from **A1** to **A5** of the same worksheet where the formula is being entered. Formulas can also calculate data from cells on a different worksheets or even from multiple worksheets using worksheet and cell references.

The syntax of a function formula that uses data on other worksheets is:

=Function(WorksheetName!CellAddress:CellAddress)

Calculations based on values in cells on other worksheets are created by:

- ◆ Select the cell where the formula needs to be entered, on the current worksheet.
- ◆ Choose the desired function by:
 - ◆ Using the **[Insert Function]** button on the *Formula Bar* or *Tab* to open the *Function Library* window.
 - ◆ Use the **[AutoSum]** button drop-down on the *Home* or *Formula Tab* (for standard functions).
 - ◆ If you know the function to be used, begin typing the formula in- when the function you need is highlighted use the **[Tab]** key to enter the function.
- ◆ Click on the worksheet tab that contains the data you want.
 - ◆ The formula should read something like: **=Function(Worksheet!**
 - ◆ Select the cells containing the values to be calculated and tap the **[Enter]** key to finish entering the formula. **=Function(Worksheet!Cell:Cell)**
- ◆ After entering the formula, you should see the cell now returns a value based on data from other worksheets.

Action 3.2 - Creating a Formula Using Another Worksheet



Instructions:

1. You should have **My_YTD_Ohio**.
2. Select the **YTD** sheet and click in cell **B8**.
3. Click on the **[AutoSum]** button in the **Editing Group** on the **Home Tab**.
4. Click on the **JAN** sheet tab.
5. Select cells **B3:B6**.
6. Press **[Enter]**.
7. Click in cell **B8** and observe the formula:
=SUM(JAN!B3:B6)
8. Repeat steps 2 through 6 to find the total sales for February in cell **B9**.
9. Select cell **B10**, enter the formula;
<=SUM(MarSales) >.
10. Save the file.

Results/ Comments:

If not , open the file.

We are going to total the sales for **January**.

You will see **=SUM()**.

The worksheet that contains the data we need.

All of the Sale Associates data for January.

The answer in cell **B8** is 33,000.

This shows the function, sheet name and range of cells.

Referring to names in formulas can make them easier to create and understand later.

[Ctrl + S].

Formulas with 3-D References

Creating a Formula Using a 3-D Reference

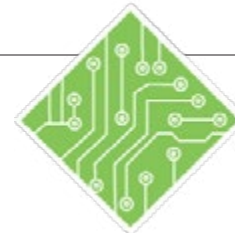
A very effective way of consolidating data from different worksheets is by creating formulas using 3-D references. A 3-D reference refers to the same cell or range of cells on multiple worksheets.

The workbook must be set up so that each worksheet contains the same type of data located in the same range. Formulas using a 3-D reference can be affected by changes to the location of the source cell or by the addition of worksheet tabs in the workbook. The 3-D reference contains a beginning point and an ending point (the two worksheets named in the formula). If you move or delete a worksheet outside of the two endpoints, then that data will be removed from the calculation. Conversely, if you move or copy a worksheet anywhere in between the two end points, that data is added to the calculation. If you move the ending point to include more worksheets, then those worksheets are included in the calculation as well.

Creating a 3-D Reference

- ◆ Click in the cell where you want the formula, on the current worksheet.
- ◆ Begin entering the needed function as before:
 - ◆ Select the Function that you want to use from the Function Library.
 - ◆ Enter the formula manually by typing.
- ◆ Click on the worksheet tab of the first worksheet you would like to include in the formula, the formula should read as ; **=Function(Worksheet!**
- ◆ Hold the **[Shift]** key and select the last worksheet contains values to be used in the calculation, the formula should read as; **=Function(Worksheet:Worksheet!**
- ◆ Select the cell or cell range on the visible worksheet (*Do not click back to the sheet where the formula is being entered.*) and tap the **[Enter]** key to finish entering the formula, it should now read as;
=Function(Worksheet:Worksheet!CellAddress)
 or
=Function(Worksheet:Worksheet!CellAddress:CellAddress)

Action 3.3 - Creating a Formula Using Multiple Worksheets



Instructions:

1. **My_YTD_Ohio** should still be open.
2. Click the **YTD** sheet.
3. Click in cell **B3**.
4. Click the **[AutoSum]** button in the **Editing Group** on the **Home Tab**.
5. Click on the **JAN** tab, hold the **[Shift]** key, then click on the **MAR** tab, Click in cell **B3**.

Press **[Ctrl + Enter]**.
6. Observe the formula:
=SUM(JAN:MAR!B3).
7. Following Steps 3-7, find the total sales for Gene.
8. Use the fill handle in cell **B4** to fill in the calculations for Kathy and Henry.
9. Observe the **Total Sales** numbers for each salesperson.
10. Click on the **FEB** tab and drag it behind the **MAR** tab.
11. Undo the change just made.

Results/ Comments:

If not, open it.

We are going to create a formula to calculate the total sales for James.

You can also type: **<=Sum(>**.

This selects all worksheets between **JAN** and **MAR**. In this case just **FEB**.

This cell contains common data from all three spreadsheets.

This returns you to cell **B3** on the **YTD** spreadsheet.

SUM is the function.

JAN:MAR! tells you the worksheets included in the calculation. In this case, all the worksheets between **JAN** and **MAR**. **B4** is the cell that is used in the calculation. You could also select a range of cells to include in the calculation.

Click on the fill handle and drag down. Notice the formula changes to reflect the correct cell references: **B5** and **B6**.

This moves **FEB** outside the endpoints of the 3-D reference.

[Ctrl + Z].

Formulas Using Multiple Varied References

Formulas Referring to Various Locations

Information is not always laid out in a way that allows 3-D referencing in formulas. In cases where the data is in differing cells on different worksheet the structure of the formula will change only slightly.

If the formula is using straight mathematic operators then enter the worksheet and cell address, add the operator, add the next worksheet and cell, etc. You can manually type in the formula or use the mouse to select each worksheet and cell. Continue adding all the references needed to complete the formula.

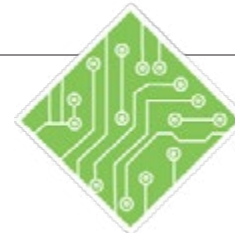
=Worksheet!CellAddress+Worksheet!CellAddress

- ◆ Select the cell where the formula is needed.
- ◆ Type an equal sign (=) to begin the formula.
- ◆ Select the first worksheet and cell. Type the desired operator such as +, -, * etc.
- ◆ Select the second worksheet and cell. If required, type another operator and then select the next cell.
- ◆ Once you are finished, tap the **[Enter]** key.
The formula will look something like this:
=Sheet2!D3*Sheet3!A5.

If using a function formula, use the comma to separate each worksheet cell address combination.

- ◆ Select the cell where the formula is needed.
- ◆ Enter the function to begin the formula.
=Function(
- ◆ Select the first worksheet and cell.
=Function(Worksheet!CellAddress
- ◆ Type a comma.
=Function(Worksheet!CellAddress,
- ◆ Select the next worksheet and cell
**=Function(Worksheet!CellAddress,
Worksheet!CellAddress**
- ◆ Until all of the cells have been selected.
- ◆ Tap the **[Enter]** key. The formula will appear as:
=AVERAGE(Sheet2!C3,Sheet3!A2).

Action 3.4 - Creating a Formula Using Varried 3-D References



Instructions:

1. **My_YTD_Ohio** should be open.
2. Click the **YTD** sheet.
3. Click in cell **B12**.
4. Click the **[AutoSum]** button in the **Editing Group** on the **Home Tab**.
5. Click on the **JAN** sheet,
Click on cell **B15**,
Type: ,
6. Click on the **FEB** sheet,
Click on cell **B16**,
Type: ,
7. Click on the **MAR** sheet,
Click on cell **B17**,
Press **[Enter]**.
8. Click in cell **B12** and observe the formula:
=SUM(JAN!B15,FEB!B16,MAR!B17)
9. Save the file.

Results/ Comments:

If not, open it.

We are going to total all the number of Products sold each month. The location of that total number is different on each worksheet.

The cells above will be selected, just ignore this.

The comma is important It shows the end of the cell reference and sets you up to enter another one.

This is the end of the formula. You are returned to the **YTD** worksheet. The answer in **B12** is 305.

This shows the Function (**SUM**), followed by each worksheet and cell reference used in the formula.

[Ctrl + S].

Referring to Another Workbook

Note

Consider arranging the workbooks to make referring other workbooks in your formulas easier.

You can also refer to other cells or range of cells on worksheets from another workbook. These reference cells are called external references or links. Similar to referring to cells in another worksheet, an external reference/link is created with a formula.

The workbook that contains the cell you wish to reference is called the Source Workbook. The workbook that contains the external reference/link is called the Destination Workbook. If the referenced data in the Source Workbook is updated, it will also be updated in the Destination Workbook. However, any changes made in the Destination Workbook will not effect the Source Workbook.

Creating an External Reference/Link

Just as when referencing a cell on another worksheet within a workbook is done by either copy/pasting or manually, the same method are used when referring to data in other workbooks.

Manual Entry

- ◆ Open all workbooks that are being linked.
- ◆ In the Destination Workbook, click in the cell that will contain the formula or referenced cells.
- ◆ If you are going to refer to a single cell, type an equal (=) sign to start the formula.
- ◆ Click on the Source Workbook and then the worksheet that contains the cell to be referenced.
=[Book.xlsx]Worksheet!CellAddress
- ◆ Tap the **[Enter]** key to complete the reference.

Copy/Paste

- ◆ Open all workbooks that are being linked.
- ◆ Click on the Source Workbook and then the worksheet that contains the cell to be referenced.
- ◆ Copy the cell using any of the copy methods.
- ◆ In the Destination Workbook, click in the cell that will contain the formula or referenced cells.
- ◆ Paste the copied data as a link, use any of the method discussed earlier.

Action 3.5 - Creating an External Reference/Link



Instructions:

1. **My_YTD_Ohio** should be open.
2. Open the **Midwest Summary** file.
3. Click the **[Enable Content]** button.
4. Save as **My_Midwest_Summary**.
5. Click the **[Arrange All]** button in the **Window Group** on the *Home Tab*.
6. Choose *Tiled* in the *Arrange All* dialog box and click **[OK]**.
7. Click on the **My Midwest Summary** window.
8. Click in cell **D3**.
9. Type: **<=>**.
10. Click on **My_YTD_Ohio** window.
11. Make the **YTD** worksheet active, then click in cell **H3**.
12. Press **[Enter]**.
13. Click the **My_YTD_Ohio** window.
14. Click in cell **H2**.

Results/ Comments:

If not, open it.

This file summarizes data from different states. The Ohio data is missing.

The *Arrange All* dialog opens.

When working with multiple files it is easier to simply tile the windows.

This makes this file active.

We are going to pull the information for the Highest Sales figure first.

To start our formula.

When you are creating an external reference, the source file always has to be open.

Notice the Formula Bar shows **='[My YTD Ohio.xlsx]YTD'!\$H\$3**. The name of the workbook is in brackets followed by the name of the worksheet and then the cell. Notice the cell address is absolute.

You are returned to **My Midwest Summary** and the number appears in cell **D3**.

This file is now active.

This is the cell that contains the data we need in the Midwest Summary file.



Instructions:

15. Copy the cell using any method you prefer.
16. Click the **My_Midwest_Summary** window.
17. Select cell **C3**.
18. Right click the cell and choose **Paste As Link** from the menu.
19. Observe the formula.
20. Select cell **B3** in the **My_Midwest_Summary** window.
21. Click on the **[AutoSum]** button in the **Editing Group** on the **Home Tab**.
22. Click on **My_YTD_Ohio** window.
23. Select cells **B3:B6**.
24. Press **[Ctrl + Enter]**.
25. Observe the formula:
=SUM('[My YTD Ohio.xlsx]YTD'!YTD_Total).
26. Click the **MY_YTD_Ohio** window.

Results/ Comments:

Right click and select *Copy*, **[Ctrl + C]**, or click the **[Copy]** button in the **Clipboard Group** on the **Home Tab**.

This file is now active.

This is the cell where we want the data placed.

Choose the icon showing the chain link.

The formula is the same as in cell **D3** but refers to cell **\$H2\$**.

We are going to create a formula to calculate the total sales.

You can also type: **<=SUM(>**.

To go to the Source Workbook.

To set the range of cells in the source file you want to total.

You are returned to cell **B3** and keeps the cell active.

SUM is the function used. **My_YTD_Ohio**, the Source Workbook is shown in brackets. The worksheet **YTD!** is next followed by the name allpied to the cell range.

Notice the values in **My_Midwest_Summary** are updated to reflect the changes. When both files are open, any changes made in the source file are instanting updated in the destination file.

Action 3.5 - Creating an External Reference Link, continued



Instructions:

27. Click on the *JAN* worksheet tab. Change the number in cell **B6** to **5000**.
28. Activate the **My_Midwest_Summary** file.
29. Save and close the file.
30. In the **My_YTD_Ohio** file change the value in cell **B4** on the *Jan* sheet to **35000**.
31. Save and close the file.

Results/ Comments:

[Ctrl + S] and **[Ctrl + W]**.

[Ctrl + S] and **[Ctrl + W]**.

Working with Links

Once you have created links in the document, you can update the link, view a list of Source Workbooks, change the source of a link and break a link.

Note

If you have more than one **Source Workbook**, make sure all **Source Workbooks** are closed to ensure that updates are uniform.

Note

The security warning appears only once if the file is not in the trusted documents list. Once the update is performed, it is added to the list and you will not see the Trust Bar again.

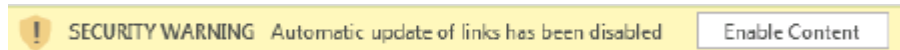
Updating/Editing External References/Links

When you make changes to the Source Worksheet in a linked cell, updates to the Destination Worksheet will occur in two ways:

- ◆ **Immediately:** If the Destination and Source Workbook are open, changes made to the linked cells in the Source Workbook will immediately be updated in the Destination Workbook.

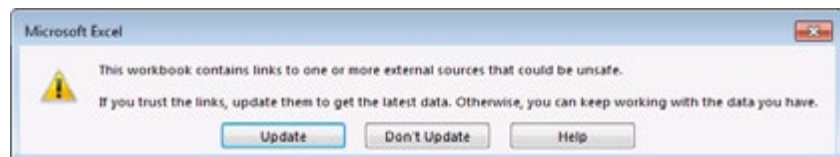
-OR-

- ◆ **Upon opening:** when opening a Destination File, the Trust Bar will appear above the worksheet.



- ◆ Destination and Source Workbooks are not open, and automatic updates have been disabled.

Otherwise, you will get a dialog message prompting you to **Update Links** or **Don't Update**.



- ◆ To update the links now: Click [**Enable Content**] in the Trust Bar or click the [**Update**] button in the dialog.

- OR -

- ◆ To update the links later: Click [**Don't Update**] in the dialog box, or ignore the Trust Bar and update the links manually in the *Edit Links* dialog. This is discussed in the next section, **Updating References/Links Manually**.

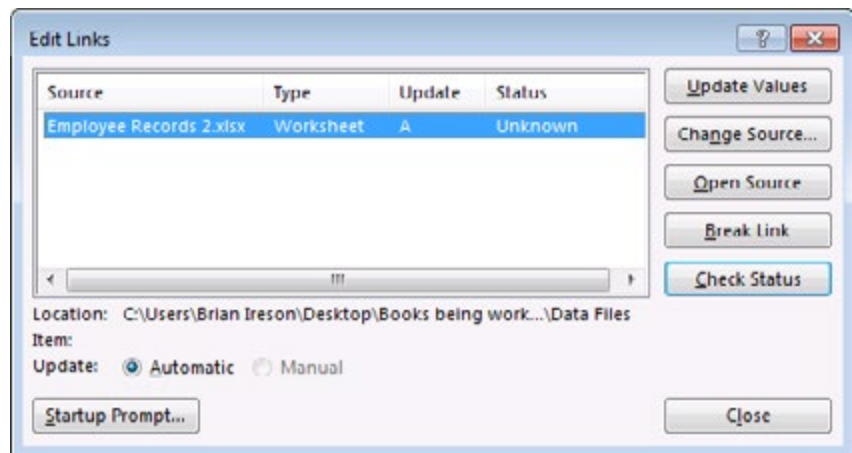
Referring to Another Workbook, continued

Note You will also find an **[Edit Links]** button on the right side of the **Info** page, when you click on the **File Tab**.

Updating a Link Manually

To make changes to the links and/or view the Source Workbooks, you need to open the *Edit Links* dialog. From here, you can update values, change the source of a link, open a source, break a link and even check the status of a link.

- Click on the **[Edit Links]** in the **Connections Group** on the **Data Tab**. This will open the *Edit Links* dialog.



- In the *Edit Links* dialog, click on the Source Workbook you would like to update.
- Click on **[Update Values]** to manually refresh the data from external sources.
- When you are finished working in the *Edit Links* dialog, click **[Close]**.

Opening a Source File

- In the *Edit Links* dialog, click on the Source Workbook you would like to open.
- Click **[Open Source]** to open the Source Workbook file.

Changing the Source File

- In the *Edit Links* dialog, click on the Source Workbook you want to change.
- Click on **[Change Source]**. The *Change Source* dialog will open.
- Select the new source file. Click **[OK]**. This will change the Source Workbook for all links that used the original Source Workbook.

Referring to Another Workbook, continued

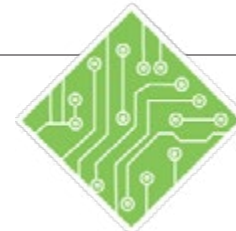
Breaking a Link

Breaking a link in the Destination Worksheet will remove the linking formulas in the worksheet cells and replace them with their values. You can not undo a Break Link so make a copy of the file before you break the link.

- ◆ In the *Edit Links* dialog, click on the Source Workbook whose link you want to break.
- ◆ Click on **[Break Link]**. A warning will appear:



- ◆ Click **[Break Links]** to continue with the break or click **[Cancel]** to quit the operation.



Instructions:

1. Open **My_Midwest_Summary**.
2. Click on the **[Enable Content]** button or **[Update Links]**.
3. On the **Data Tab** in the **Connections Group**, click the **[Edit Links]** button.
4. Make sure the **My_YTD_Ohio** file is selected, click on **[Open Source]**.
5. Click on the **FEB** worksheet tab. Change cell **B3** to **9,000**.
6. Make **My_Midwest_Summary** workbook active.
7. Make **My YTD Ohio** active.
8. Save as **My_YTD_Ohio_2**.
9. Select the **My_Midwest_Summary** file.
10. On the **Data Tab** in the **Connections Group**, click the **[Edit Links]** button.
11. Click on **[Change Source]**.
12. In the *Change Source* dialog, select **My_YTD_Ohio**. Click **[OK]**.

Results/ Comments:

The Trust Bar will appear above the worksheet or the *Links* dialog will open.

Because we know what changes we have made and know that this source file can be trusted, it is OK to update the links here. If you are unsure of the source file, then you would want to manually update them in the *Edit Links* dialog. The links have been updated. The Trust Bar is removed from the screen.

The *Edit Links* dialog opens.

This is a quick and easy way to open and update a Source Workbook.

Notice the change in the **Total Sales** and **Average** are changed.

The changes are reflected here as they are made in the source file.

[F12].

Notice that when you renamed **My_YTD_Ohio** to **My_YTD_Ohio_2** the link source file was automatically updated.



Instructions:

13. The *Edit Links* dialog should be open.
14. Select the **My_YTD_Ohio** link.
15. Click on **[Break Links]**.
16. Click on **[Break Links]**.
17. Click **[Close]**.
18. Click in cells **B3, C3, D3** and look in the Formula Bar.
19. Save and close **My_Midwest_Summary**.
20. Close **My_YTD_Ohio_2**.

Results/ Comments:

You will see the new source workbook listed in the *Edit Links* dialog box.

A warning box will appear. Be careful when you break a link. Save the file beforehand. You cannot use the Undo command to restore a link.

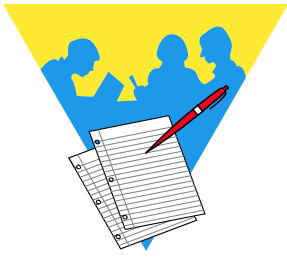
Notice the Source Workbook is removed from the *Edit Links* dialog box.

The dialog closes.

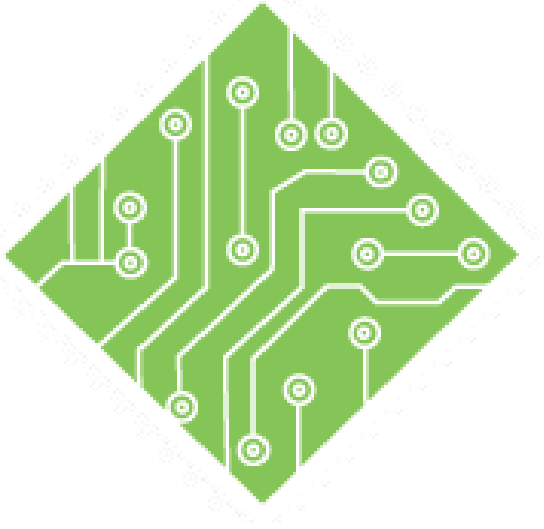
Notice the link information has been replaced with values.

[Ctrl + S] and **[Ctrl + W]**.

[Ctrl + W].



Tips and Notes



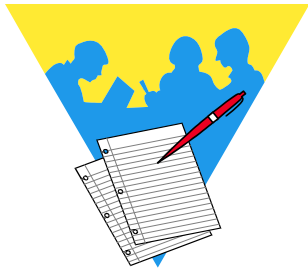
Lesson 4: Working with Data

Lesson Overview

You will cover the following concepts in this chapter:

Contents

- ◆ Conditional Formatting
- ◆ Managing Conditional Formatting
- ◆ Conditional Formatting Based on Formulas
- ◆ Clearing Conditional Formats
- ◆ Sorting
- ◆ Custom Sorting
- ◆ Filtering
- ◆ Tables
- ◆ Charts
- ◆ Quick Analysis



Lesson Notes

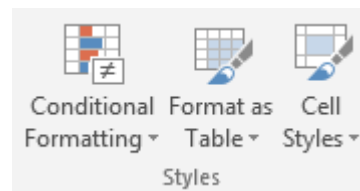


Conditional Formatting

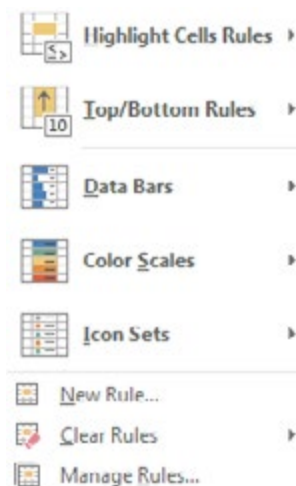
It is not easy to see specific things within large worksheets of data. *Excel* allows users to apply formatting to cells when they fit within defined parameters to make seeing or finding data simpler. In the newer versions of *Excel* you can apply as many conditional checks as needed to understand the data at a glance. As the value in the cell is entered or modified the formatting will change in relation to the parameters defined in the conditional formatting.

Applying Basic Conditional Formatting

- ◆ Select the cell or cells to be formatted.
- ◆ Condition formatting is accessed from the *Home Tab* in the **Styles Group**.



- ◆ Clicking the drop-down of the [**Conditional Formatting**] button reveals the list of options.

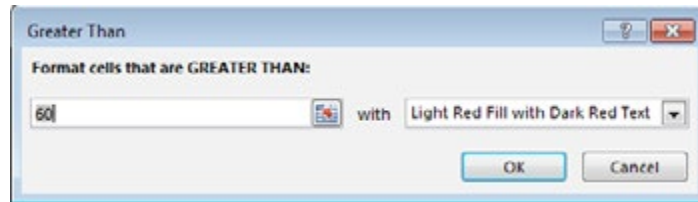


- ◆ The *Highlight Cell Rules* and *Top/Bottom Rules* offer lists of commonly used conditional formatting rules.
- ◆ The *DataBars*, *Color Scales*, and *Icon Sets* are all live preview galleries, allowing you to see the formatting before choosing it.



Conditional Formatting, continued

- ◇ When you use rules from the top two Option sets you may see an options dialog open. This is where you are able to set the parameters you want.



- ◇ The window will offer choices in relation to the conditional formatting chosen.
- ◇ Set the values and choose the formatting from the drop-down list, then click the [OK] button.
- ◇ If you are using any of the *DataBars*, *Color Scales*, and *Icon Sets* options, the formatting is applied right away.



Action 4.1 - Using Conditional Formatting



Instructions:

1. Open the **Test Scores** file.
2. Select cells: **B2:K21**.
3. On the *Home Tab* in the **Styles Group**, click the **[Conditional Formatting]** button.
4. In the menu, point to *Highlight Cells Rules* then select *Less Than....*
5. Leave all settings as is and click **[OK]**.
6. On the *Home Tab* in the **Styles Group**, click the **[Conditional Formatting]** button. In the menu, point to *Highlight Cells Rules* then select *Between....*
7. Set the values to **60** and **69**, from the **With** field drop-down choose *Yellow* then click **[OK]**.
8. On the *Home Tab* in the **Styles Group**, click the **[Conditional Formatting]** button. In the menu, point to *Highlight Cells Rules* then select *Between....*
9. Set the values to **70** and **79**, from the **With** field drop-down choose *Green* then click **[OK]**.

Results/ Comments:

The data in this spreadsheet is a series of 10 test scores for 20 students. As the course instructor, you would like a color coded grading scale applied.

You must always select the cells that you want to apply conditional formatting to first, either all or just part of the data.

The **Conditional Formatting** drop-down menu will open.

This opens the *Less Than* dialog. Observe the change to the worksheet.

All grades less than 60 are now filled with red, these are the failing grades.

This opens the *Between* dialog. Allowing you to set the upper and lower parameters and choice of formatting.

All grades between 60 and 69 are now formatted with a yellow fill and text, these are the D grades.

The *Between* dialog is re-opened.

All the C level grades are formatted Green.

Action 4.1 - Using Conditional Formatting, continued



Instructions:

10. On the *Home Tab* in the **Styles Group**, click the **[Conditional Formatting]** button. In the menu, point to *Highlight Cells Rules* then select *Between....*
11. Set the values to 80 and 89, from the **With** field drop-down choose *Custom Format*.
12. Select the *Fill Tab* in the *Format Cells* dialog, choose a light blue fill color and click the **[OK]** button twice to finish.
13. On the *Home Tab* in the **Styles Group**, click the **[Conditional Formatting]** button. In the menu, point to *Highlight Cells Rules* then select *Greater Than....*
14. Set the greater than value to 90, from the **With** field drop-down choose *Custom Format*.
15. Select the *Fill Tab* in the *Format Cells* dialog, choose a light purple fill color and click the **[OK]** button twice to finish.
16. Save the file.

Results/ Comments:

The *Between* dialog is re-opened.

The *Format Cells* dialog opens, here you are able to change number and text formatting as well as fills and borders.

The B level grades are formatted with a light blue fill.

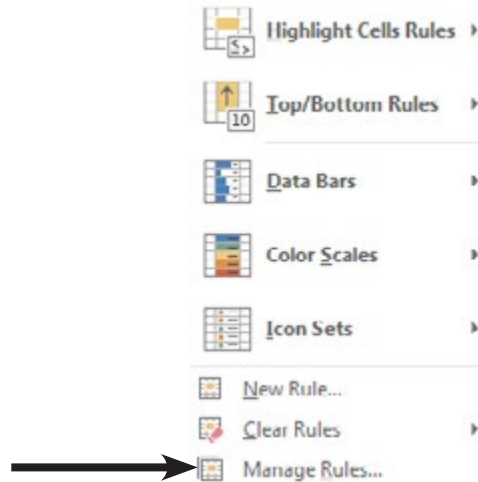
The *Greater Than* dialog opens.

All grades above 89 are formatted.

[Ctrl + S].

Managing Conditional Formatting

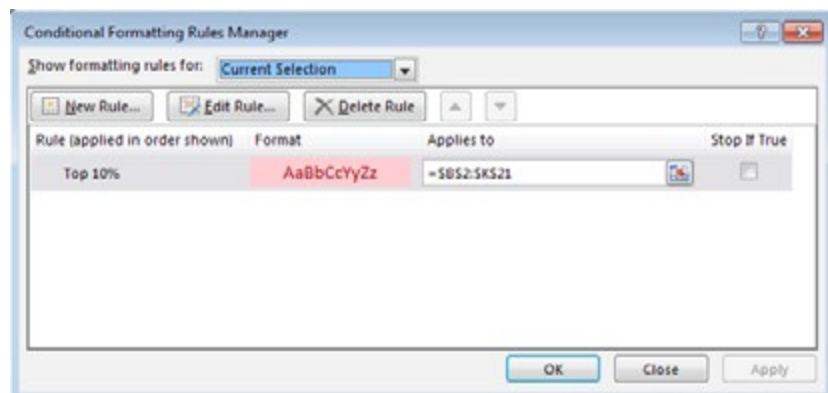
Should you need to modify any conditional formatting rules that have been applied you are able to see and modify any existing rule. This is done by choosing the *Manage Rules* option from the Conditional Formatting drop-down menu.



Note

From within this dialog you are able to create and define new rules to the selected cells, edit any existing rule, or delete rules by using the buttons below the **Show formatting rules for:** field.

The *Manage Rules* dialog opens. In this dialog you can define where you are searching for rules from the **Show formatting rules for:** field drop-down. Any existing rules in use within the defined scope in **Show formatting rules for:** field are displayed below.

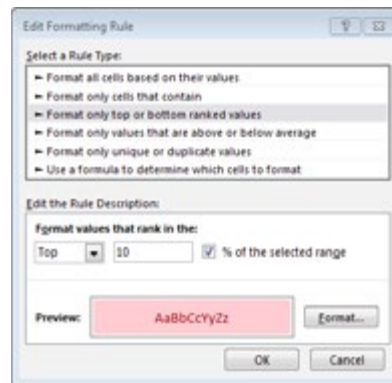


- ◆ Choices in the **Show formatting rules for:** field include:
 - ◆ *Current Selection*: the selected cell or range of cells.
 - ◆ *This Worksheet*: any rules anywhere on the worksheet.
 - ◆ *Other Worksheets*: all rules on the specific worksheet chosen.

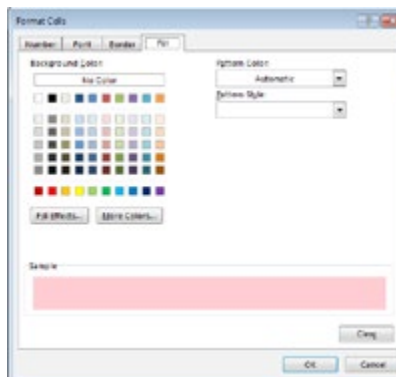
Managing Conditional Formatting, continued

Editing a Rule

- ✦ Click the cell containing the rule in need of modification.
- ✦ Click the **[Conditional Formatting]** button drop-down and choose *Manage Rules* from the menu.
- ✦ In the *Conditional Formatting Rules Manager* dialog select the appropriate region from the **Show formatting rules for:** field.
- ✦ Select the rule to be modified.
- ✦ Click the **[Edit]** button to open the *Edit Formatting Rule* dialog.



- ✦ Choose the type of rule in the **Select Rule Type:** field.
- ✦ The controls of the rule will be displayed in the **Edit the Rule Description:** field.
- ✦ To change the formatting choices, click the **[Format]** button, the *Format* dialog opens.



- ✦ Apply the formatting and click the **[OK]** button.
- ✦ Click the **[Apply]** button to see the edits.
- ✦ Click the **[Close]** button when done.

Action 4.2 - Editing Conditional Formatting



Instructions:

1. With any cell selected.
2. On the **Home Tab** in the **Styles Group**, click the **[Conditional Formatting]** button. In the menu, select *Manage Rules*.
3. In the **Show formatting rules for:** field drop-down choose *This Worksheet*.
4. Select the *Cell Value > 89* rule and click the **[Edit Rule]** button.
5. In the **Edit the Rule Description:** area change the greater than operator to *Greater than or equal to* and set the value to **90** then click the **[OK]** button.
6. Click the **[Apply]** button to see how the change effects the formatting. Click the **[OK]** button.
7. Save the file.

Results/ Comments:

It does not matter what cell is active in this case.

The *Conditional Formatting Rules Manager* dialog opens.

By choosing *This Worksheet*, any rules used on the sheet are displayed in the list of rules.

This is the rule to edit, the rule currently allow a gap for any value of 90. The *Edit Formatting Rule* dialog opens.

By changing the rule from *greater than* to *greater than or equal to* any grade of 90 will also be formatted.

It is a good idea to check to see how the edits work before closing the dialog.

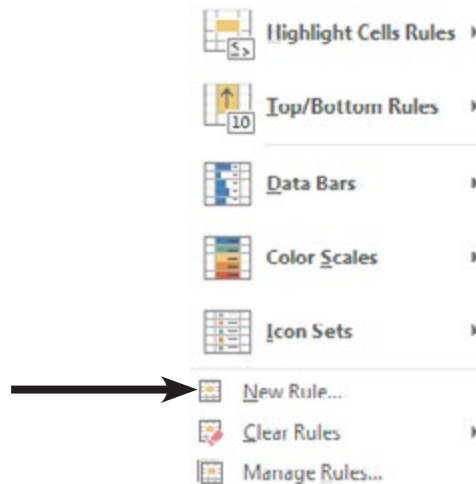
[Ctrl + S].

Conditional Formatting Based on Formulas

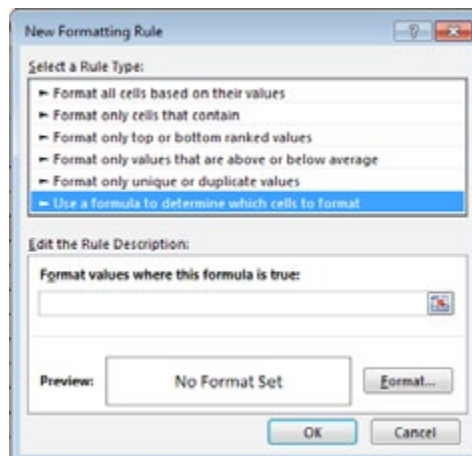
While the list of available conditional formatting rules will cover most needs, there will still be times when they are not up to the task. In these instances you are able to create conditional formatting rules that use formulas to determine when to apply formatting. Formulas can be used to compare the values in the cell against the values in others or other more complex formulas.

Using Formulas in Conditional Formatting

- ◆ Select the cell where the conditional formatting is needed.
- ◆ Click the [**Conditional Formatting**] button drop-down and choose *New Rule...* from the menu.



- ◆ The *New Formatting Rule* dialog opens.



- ◆ Select *Use a formula to determine which cells to format* option in the **Select a Rule Type:** field at the top of the dialog.

Conditional Formatting Based on Formulas, continued

Note

You can use the **[F4]** key to convert the cell address type while entering the formula.

- ◆ To lower half of the dialog changes to allow you to enter a formula.
- ◆ In the **Format values where this formula is true:** field is where you enter the formula.
 - ◆ Enter formula is just like every other formula in *Excel*.
 - ◆ Do not use the point and click method to select cells as the references will come in as absolute addresses.
- ◆ When the formula is complete, click the **[Format]** button to set the formatting of the cell when the formula is true.
- ◆ Click the **[OK]** button to apply your conditional formatting.

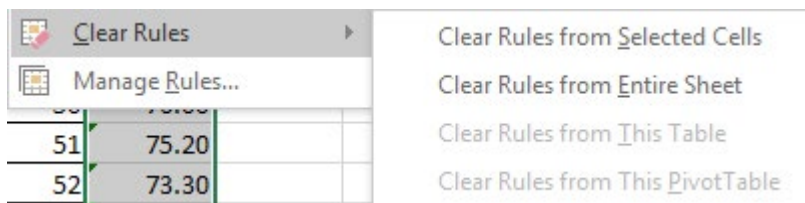


Clearing Conditional Formats

Clearing Conditional Formats

If there are specific cells from which you want to clear the rules, select the cells first.

- ◆ Click the **[Conditional Formatting]** button drop-down.
- ◆ Select *Clear Rules* from the menu.
- ◆ Choose one of the following — *Clear Rules from Selected Cells* or *Clear Rules from Entire Sheet*.



Action 4.3 - Clearing Conditional Formatting



Instructions:

1. Select any cell on the worksheet.
2. On the **Home Tab** in the **Styles Group**, click the **[Conditional Formatting]** button. In the menu, point to **Clear Rules** then select *Clear Rules from Entire Sheet*.
3. Select cells **A2:K21**.
4. On the **Home Tab** in the **Styles Group**, click the **[Conditional Formatting]** button. In the menu select *New Rule...*
5. In the **Select a Rule Type:** area, select the *Use a formula to determine which cells to format* option.
6. In the **Format values where this formula is true:** field enter;
=average(\$b2:\$k2)>70
click the **[Format]** button, choose a yellow fill and click **[OK]** twice.
7. Save and close the file.

Results/ Comments:

Here again it is not important to select the formatted cells first.

All formatting is removed from the entire sheet.

You will be formatting the entire row of data if a specific condition is met.

The *New Rule* dialog opens.

As you choose the type of rule above the lower half of the dialog offers the controls related to your choice.

In this formula it is necessary to set the columns as absolutes while the rows are relative.

[Ctrl +S] and **[Ctrl +W]**.

Sorting

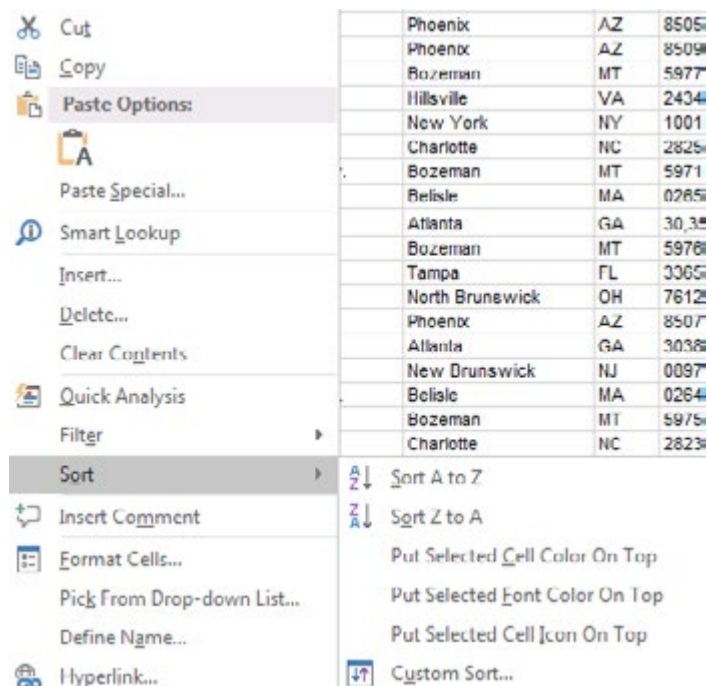
Once the data has been entered into the worksheet, you can organize it in a different order from the way it was entered using Sort. For example, you could alphabetize a list of companies, or list items by date order.

Performing a Sort

A regular sort will sort by the first column in a range of columns. It will sort by the type of content in the column. If the content is text, you can sort from A to Z; or Z to A. If the content is numbers, you can sort by Smallest to Largest; or Largest to Smallest.

When sorting in a worksheet, you must make sure that all of the data is contiguous or that you select all of the data. This will ensure that information in the rows that you need to keep together will stay together. For example, if you perform a sort on a list including names and addresses and you select just the first name and last columns or you have a blank column dividing the data, *Excel* will sort the names and not move the addresses with them. Therefore, it is always a good idea to save the file first before performing a sort.

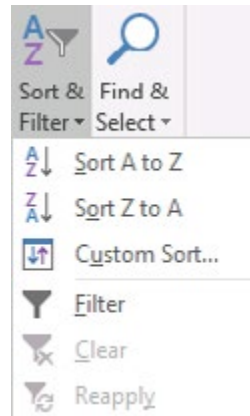
◆ Right click the cell and choose the from the **Sort** menu.



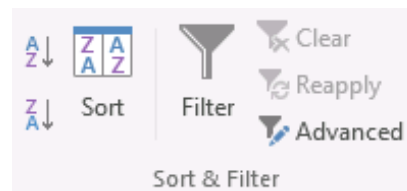
- OR -

Sorting, continued

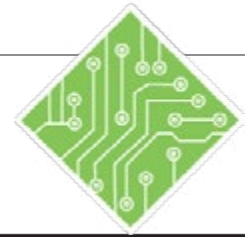
- ◇ Click one of the cells that you wish to sort.
- ◇ Click on the **[Sort & Filter]** button in the **Editing Group** on the *Home Tab*, a menu will appear.



- ◇ Select the Sort you want to perform. The sort options available are based upon the data in the column.
 - ◇ **Numbers:** *Smallest to Largest* or *Largest to Smallest*
 - ◇ **Text:** *A to Z* or *Z to A*
 - ◇ **Dates:** *Newest to Oldest* or *Oldest to Newest*
- OR -
- ◇ After selecting the cells, click the **[Sort Smallest to Largest]** button in the **Sort & Filter Group** on the *Data Tab*.



Action 4.4 - Performing a Basic Sort



Instructions:

1. Open the file **Employee Records2**.
2. Save the file as **My Employee Records2**.
3. Observe the list.
4. Select cell **A3**.
5. Click the **[Sort & Filter]** button drop-down in the **Editing Group** on the **Home Tab** and select *Sort Smallest to Largest* from the menu.
6. Make sure cell **A3** is still selected.
7. Click on the **[Sort Largest to Smallest]** button in the **Sort & Filter Group** on the **Data Tab**.
8. Save the file.

Results/ Comments:

[Ctrl + O].

We are going to be sorting this worksheet, it is a good idea to save the file first.
[F12].

Make sure the **Home Tab** is selected.

It is currently alphabetized by name. We are going to sort it by Employee ID.

Notice the change in the list. Now all the Employee ID's are in order.

We are going to look at another location to do the sort.

We have now reversed the Employee ID order. You can choose to perform sorts and filters on either the **Data Tab** or **Home Tab**. Choose the most convenient for you.

[Ctrl + S].

Custom Sorting

Performing a Custom Sort

A custom sort allows you to specify what column you want to sort or to sort by several non-adjacent columns at one time. For example, you can sort by a last name column and then sort by a first name column.

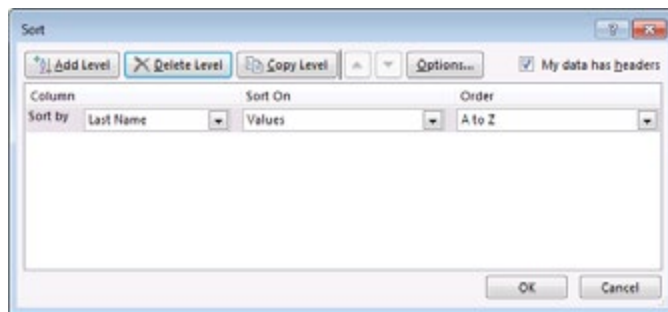
Note

If you wish to sort by rows, in the *Sort* dialog box, click on **[Options]** and then select *Sort left to right*. You can then set up the sort using rows instead of columns.

- ◆ Save the file, then select the cells in the worksheet that you wish to sort.
- ◆ Click the **[Sort & Filter]** button drop-down in the **Editing Group** on the *Home Tab*, and select *Custom Sort* from the menu.

- OR -

- ◆ Click the **[Sort]** button in the **Sort & Filter Group** on the *Data Tab*. The *Sort* dialog box opens.



- ◆ If you have given the columns headers titles, make sure that the *My data has headers* box is checked. This will use the header names in the **Column** lists.
- ◆ Under **Column**, in the *Sort by* field, click on the down arrow to select the column by which you want to sort.
- ◆ Under **Sort On** select what you want to sort on. You will most often keep the default of **Values**, but you can also sort by cell color, font color or cell icon.
- ◆ Under **Order**, select the order that you want to perform the sort such as A to Z or Z to A.
- ◆ If you want to sort by another column, click the **[Add Level]** button. Then, make the selections for **Column**, **Sort On** and **Order**. Continue until you have all of the columns that you want included in the sort. You can have a maximum of 64 levels in the sort.
- ◆ Click **[OK]**.

Action 4.5 - Performing a Custom Sort



Instructions:

1. **My Employee Records 2** should be open.
2. Select cell **A2**.
3. Click on the **[Sort]** button in the **Sort & Filter Group** on the *Data Tab*.
4. In the *Sort by* text box, click on the down arrow and select *Dept.* (The last item on the list).
5. Under *Column*, in the *Sort On* text box **Values** should be selected.
6. In the *Order* text box, click on the down arrow and select *A to Z*.
7. Click on **[Add Level]**.
8. Click on the down arrow on the *Then by* text box and select *Last Name*.
9. Add another level and set the *Then by* to *First Name*.
10. Click **[OK]**.
11. Save the file.

Results/ Comments:

If not, open the file.

The *Sort* dialog box opens. We are going to do a custom sort and sort by *Dept.* and then alphabetize by name.

Observe the *Sort On* and *Order* fields.

We want to sort by values, however, you can sort by cell color, font color and cell icon.

You can also sort by a custom list you have created.

Located at the top of the dialog box. This gives you another level to sort by.

We are leaving all other selections the same.

Leave all other selections the same.

Observe the list. Notice the departments are listed in alphabetical order. Employees in each department are then listed in alphabetical order.

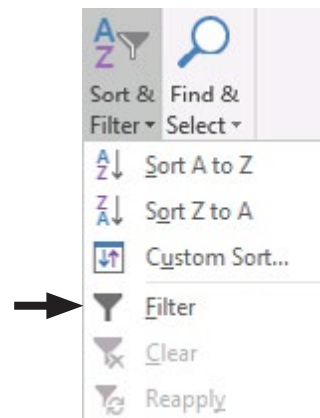
[Ctrl + S].

Filtering

Filtering allows you to pull information from the worksheet that you wish to see and filter out all of the other information. For example, you can use the filter on a large list of employees to see only those employees who work in the marketing department or find the employees whose anniversary date falls in June. When you are finished with the filter, you can turn the filter off and the entire list will come back into view.

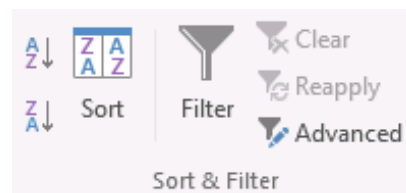
Performing a Filter

- ◆ Click into the range of cells you would like to perform the filter on.
- ◆ Click the **[Sort & Filter]** button drop-down in the **Editing Group** on the *Home Tab*, select *Filter* from the menu.



- OR -

- ◆ Click the **[Filter]** button in the **Sort & Filter Group** on the *Data Tab*.



- ◆ The column headers will appear with menu arrows. This allows you to perform a filter or sort on any of the columns.
- ◆ Click on the down arrow for the column that you want to perform the filter on. A menu will appear for you to choose what you want to filter.



Filtering, continued

- ◆ At the bottom of the menu, you will see all the variables in the column. Deselect *Select All*. This will clear all of the check boxes.
- ◆ Click in the check box or boxes of the items that you want to include in the filter. Click **[OK]**. Only the items you selected will appear. You will see a Filter icon on the column you performed the filter on.

Performing a Text, Date and Number Filter

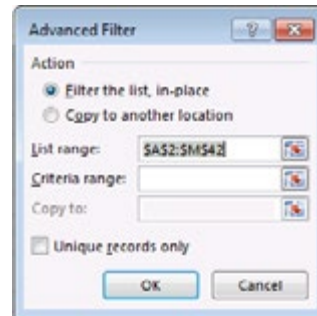
Text, Date and Number filters help you create a filter that is much more precise by allowing you to really zero in on the data you are looking for. *Excel* offers the appropriate type of filter based on the type of data in the given column.

Date Filters	Number Filters	Text Filters
<u>E</u> quals...	<u>E</u> quals...	<u>E</u> quals...
<u>B</u> efore...	Does <u>N</u> ot Equal...	Does <u>N</u> ot Equal...
<u>A</u> fter...		<u>B</u> egins With...
<u>B</u> etween...	<u>G</u> reater Than...	<u>E</u> nds With...
<u>T</u> omorrow	Greater Than <u>O</u> r Equal To...	<u>C</u> ontains...
<u>T</u> oday	<u>L</u> ess Than...	<u>D</u> oes Not Contain...
<u>Y</u> esterday	Less Than Or Equal To...	<u>C</u> ustom Filter...
<u>N</u> ext Week	<u>B</u> etween...	
<u>T</u> his Week	<u>T</u> op 10...	
<u>L</u> ast Week	<u>A</u> bove Average	
<u>N</u> ext <u>M</u> onth	<u>B</u> elow Average	
<u>T</u> his Month	<u>C</u> ustom Filter...	
<u>L</u> ast Month		
<u>N</u> ext <u>Q</u> uarter		
<u>T</u> his Quarter		
<u>L</u> ast Quarter		
<u>N</u> ext Year		
<u>T</u> his Year		
<u>L</u> ast Year		
<u>Y</u> ear to Date		
All Dates in the <u>P</u> eriod ▸		
<u>C</u> ustom Filter...		



Filtering, continued

- ◆ Start the filter as shown in **Performing a Filter**. You can apply number and text filters to selected items or all of the items in the list.
- ◆ In the Filter menu, click on *Number Filters* (if the values in the column are numbers), *Text Filters* (if the values in the column are text) or *Date Filters* (if the values in the column are dates). A menu will appear giving you filter options.
- ◆ Select an option from the menu. The *Custom AutoFilter* dialog will open.



- ◆ In the first text box, you will see the filter option you selected in the menu. If you wish, you can change the option. In the text box to the right, enter the value that you want the filter based on or click on the down arrow and select a value from the list.
- ◆ Click [OK]. *Excel* will perform the filter and bring up those rows meeting the criteria.

Turning Off Filters

- ◆ To turn off the filter, click on the filter icon on the column on which you performed the filter. From the menu, select *Clear Filter*.
- ◆ To turn the filter off from the worksheet, click the [Sort & Filter] button in the **Editing Group** on the *Home Tab*, and click on *Filter*. The worksheet will return to normal.

- OR -

- ◆ Click on the [Filter] button in the **Sort & Filter Group** on the *Data Tab*.

Action 4.6 – Filtering Data



Instructions:

1. **My Employee Records 2** should still be open.
2. Select cell **A2**.
3. Click on the **[Filter]** button in the **Sort & Filter Group** on the *Data Tab*.
4. Click on the filter arrow on the **ST** column.
5. At the bottom of the menu, you will see a list of the states in the worksheet. Click on *Select All*.
6. Click on *MA*.
7. Click **[OK]**.
8. Click on the filter arrow on the **ST** column and select *Clear Filter from ST*.
9. Click on the filter arrow on the **Pay Rate** column .
10. Point to Number Filters and then click on *Greater Than Or Equal to*
11. In the top right text box, click on the down arrow and select *\$40.00* from the list.
12. Click **[OK]**.

Results/ Comments:

If not, open the file.

Notice the header row now has filter arrows on each header label.

A menu will open up. (Notice you can also sort here.)

This will deselect all of the states by removing all the check marks.

This will tell *Excel* to show only those employees living in Massachusetts.

Notice *Excel* filtered out all other employees. Notice the row numbers. This shows you the row numbers where these employees are on the list.

The full worksheet comes into view. This did not affect the custom sort you did in Action 3.

We are going to find all employees whose pay rate is \$40.00 or greater.

This opens the *Custom AutoFilter* dialog.

You can also just type it into the text box.

Excel finds employees earning \$40.00 or greater. You could also create a filter that finds numbers between two values.



Instructions:

13. Click on the filter icon on the **Pay Rate** column and select *Clear Filter from Pay Rate*.
14. Click on the **[Filter]** button.
15. Save and Close the file.

Results/ Comments:

Now let's turn off the Filter from the worksheet.

This deselects the filter and returns the worksheet to normal.

[Ctrl + S] & [Ctrl + W].




Tables

If you are going to be spending a great deal of time sorting and filtering the data in the worksheet, you may want to consider creating a Table. When you create a table, it is automatically set up to conduct sorts and filters. A table also gives you more functionality, such as the ability to use table styles and table style options, easily add columns and rows, add a total row, and check for duplicates.

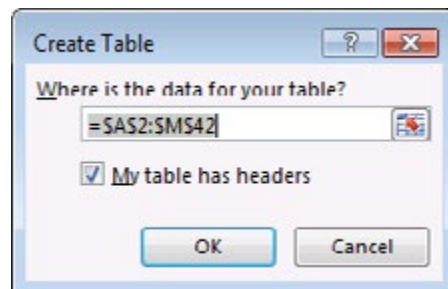
Creating a Table

You can create a table from an existing set of data or you can create a table and then add the data. Normally a table is made from adjacent columns of data, with a unique label or heading for each column. You can create a table by inserting a table or by applying a table style.



[Ctrl + T]
or
[Ctrl + L]
will both open the
Create Table dialog
box.

- ◆ Select a cell in the set of data. Make sure all the data and headings are in adjacent columns and rows.
- ◆ Click on the **[Table]** button in the **Tables Group** on the *Insert Tab*.
- ◆ The *Create Table* dialog opens.



- ◆ The range of cells you have selected should be shown in the text box. Correct this if needed. Make sure that you have the *My table has headers* check box selected.
- ◆ Click **[OK]**.
- ◆ The range will appear as a table using the default table format. The *Table Tools/Design Tab* will be displayed.

- OR -

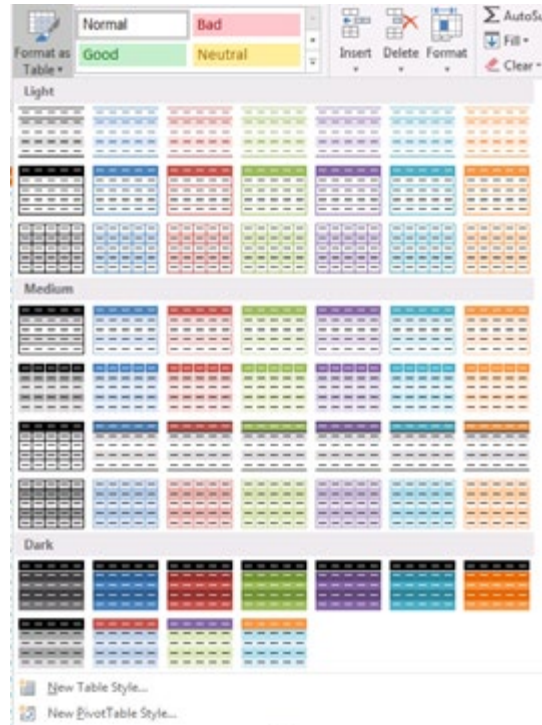


Tables, continued

Note

In *Excel 2016*, the Table Tools now only has a *Design Tab*.

- ❖ Select a cell in the set of data. Make sure all the data and headings are in adjacent columns and rows.
- ❖ Click on the **[Format as Table]** button in the **Styles Group** on the *Home Tab*. The *Table Style Gallery* is displayed.



- ❖ Click on a Table Style of your choice. The *Format As Table* dialog opens. Make sure the *My table has headers* check box is selected. Click **[OK]**.



- ❖ The table will appear like the one shown on the previous page. The *Table Tools/Design Tab* will be displayed.

Action 4.7 - Creating a Table



Instructions:

1. Open the file **Orders**.
2. Save the file as **My Orders**.
3. Select cell **A1**
4. Click on **[Format as Table]** button in the **Styles group** on the *Home Tab*.
5. From the menu select *Table Style Medium 2*.
6. In the *Format as Table* dialog, check to make sure that the *My table has headers* check box is selected.
7. Click **[OK]**.
8. Scroll to the bottom of the table.
9. Click outside the table.
10. Click in the table. Click on the *Table Tools/Design Tab*.

Results/ Comments:

[F12].

This is in the range we want for our table.

This is the quickest way to create a table. You can also click on the *Insert Tab* and then select **[Table]** or use the **[Ctrl + T]** or **[Ctrl + L]** shortcuts.

This is the second style in the first row of the Medium section.

You can select the range in this text box. We have already selected a cell in our range, so we do not need to do anything else.

The range is converted to a table. It has the Table Style you selected. Notice that the Table Tools are now available. You can see the same filter menu arrows on the column labels that you used when filtering data.

Notice that the column labels always remain in view. A great benefit of creating a table.

The *Table Tools/Design Tab* is no longer displayed.

The *Table Tools/Design Tab* is displayed. We will be working with these tools in the next Action.

Tables, continued

Using Table Tools

Once you have created the table, you may change the table style, add or subtract style options, increase or decrease the size of the Table, and insert or delete rows or columns as needed. Note that the Table must be selected in order to use the Table Tools under the *Design Tab*.

Changing the Table Style

- ◆ Click in the table to access the *Table Tools/Design Tab*.
- ◆ In the **Table Styles Group**, click on a new style. Use the scroll arrows to view more styles. To see all of the styles at once, click on the **[More]** button (the bottom most arrow).

Formatting with Table Style Options

Another way to format the table is by selecting individual items from the **Table Style Options Group** in the *Table Tools/Design Tab*. Each item works like a toggle switch. If a check appears in the check box next to an option, that option is applied or “on”. To turn an option “off”, click in the box again and the check will be removed.

Table Style Option	Function
Header Row	Turns on/off the header
Total Row	This will insert a row at the end of the table and automatically totals the last column. From the down arrow, you can also select other functions such as Avg., Min., Max., Count etc. For more on the Total Row see: Adding a Total Row .
Banded Rows	If this is selected, the row color will alternate between two colors. If this is turned off, all of the rows will be the same color.
First Column	Will apply formatting to distinguish the first column.
Last Column	Will apply formatting to distinguish the last column.
Banded Columns	The column color will alternate between two colors. If this is turned off all of the column colors will be the same.

Tables, continued

Adding a Total Row

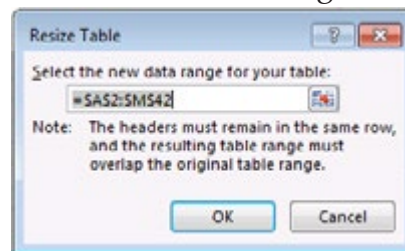
When you add a row to the table, the Total Row will update automatically. If you sort the table, the Total Row will not be affected. If you apply a filter to the table, the Total Row will appear, but will include only those items in the filter in its calculation and not the entire table.

- ◆ Click in the table to access the *Table Tools/Design Tab*.
- ◆ In the **Table Style Options Group**, click on the *Total Row* check box. A Total Row will appear at the bottom of the table with a menu arrow next to it and the last column will be totaled.
- ◆ To change the function used in the formula, click on the menu arrow and select a new function.
- ◆ To insert a formula in the total row for other columns, click in the cell at the bottom of the desired column, then click on the down arrow and select the appropriate function for the column.
- ◆ By default, the Row label is **Total**. To change the label, click in the cell and change the label name.

Resizing a Table

You can resize the table to include worksheet columns or rows that were not previously included in the table. This can include columns and rows that already contain data as well as empty columns and rows.

- ◆ Click in the table to access the *Table Tools/Design Tab*.
- ◆ Click on **[Resize Table]** button in the **Properties Group**. The *Resize Table* dialog will open.



- ◆ In the text box, enter the new range or click on the **[Collapse Dialog]** button to highlight a new range in the worksheet. The current range will be surrounded by a flashing border.
- ◆ Click and drag to change the range, or hold the **[Shift]** key and press the right and down arrow keys

Tables, continued

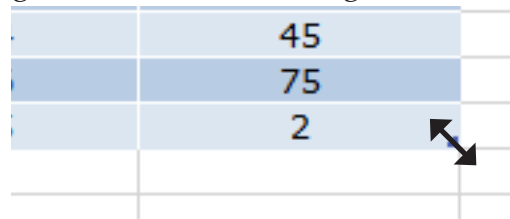
to increase the range; the left and up arrow keys to decrease the range.

- Click in the **[Expand Dialog]** button to return to the dialog box. Click **[OK]**.

Adding/Inserting a Row or Column

You can add a new column or row in the following ways:

- Click in the last cell of the table. Press the **[TAB]** key. A new row will be inserted.
- Click in the next available column/row in the worksheet and begin entering the text. The Column will automatically be added to the Table.
- Position the mouse over the re-size handle in the bottom right hand corner of the last cell of the table. When you see a double-headed arrow drag, the mouse to the right to add columns drag down to add rows.



	45
	75
	2

You can add multiple columns and rows with this method.

- Click **[Insert]** button the down arrow in the **Cells Group** on the **Home Tab**. Select *Insert Table Rows Above* or *Insert Table Columns to the Left*.
- Select the row or column heading and then right-click the mouse and select **Insert** from the shortcut menu.

Deleting a Row or Column

You can delete a column or row in the following ways:

- Click in the row or column you want to delete. Click the **[Delete]** button down arrow in the **Cells Group** on the **Home Tab**. Select *Delete Table Rows* or *Delete Table Columns*.
- Select the row or column heading and then right-click the mouse and select **Delete** from the shortcut menu.



Tables, continued

Using Calculated Columns

In a table, when you enter a formula into one of the column cells, *Excel* will automatically place the same formula in the rest of the column adjusted for each row. This is called a Calculated Column. The column will expand automatically when new rows are added.

What if you don't want a calculated column? When a calculated column is created the **[Auto Correct Options]** button appears. Click on this to select one of the following: *Undo Calculated Column* or *Stop Automatically Creating Calculated Columns*.

Using the Convert to Range

If you like the Table Style formatting, but do not need the functionality of the table, you can convert the table to a normal range of cells.

- ◆ Right-click the mouse. Select **Table**, then select *Convert to Range*

- OR -

- ◆ Make sure the Table Tools are visible. In the **Tools group**, click on **[Convert to Range]**.
- ◆ Click **[Yes]** in the dialog.





Instructions:

1. **My Orders** should still be open.
2. Click in cell **H2**. Enter the following formula using the pointing method:

Type: =
Click once on cell **F2**
Type: *
Click once on cell **G2**
Press: **[Enter]**
3. Click on **Banded Rows** in the **Table Style Options Group** on the **Table Tools/ Design Tab**.
4. Click on **Banded Columns**.
5. Click on **Total Row**.
6. Click in cell **G66**. Click on the down arrow and select **Sum**.
7. To add a row, click in cell **H65**. Press the **[Tab]** key.

Results/ Comments:

If not open it.

If you enter a formula using the pointing method, *Excel* uses Table references for you. This is helpful when you want to reference table data in other formulas or worksheets.

The entire column is completed with the formula. This is a calculated column. If you did not want a calculated column, you can click on the **[AutoCorrect]** options button that appears when the column is created and select *Undo Calculated Column* from the menu.

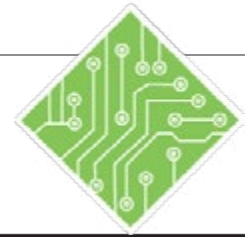
This removes the check mark. Notice the rows are all the same color.

The columns should now show alternating colors.

A Total Row is added to the bottom of the table. By default, the last column was totaled. You can add a formula at the bottom of any column.

Notice that you can choose from a number of different functions. This will give you the total number of items ordered.

A row is added to the table.



Instructions:

1. Enter the following information in the new row. Press **[Tab]** after each entry:
12/1/08
Sandy
Smothers
Product 2
3224
36
7
2. Click in cell **I65**, then press **[Ctrl + ↑]**
3. In cell **I1**, type **Date Paid** then press **[Enter]**.
4. Double-click between I and J and display the label.
5. Click on the down arrow on the Last Name column. Point to **Text Filters** then select **Equals**.
6. In the text box type **Walters**. Click **[OK]**.
7. Enter the following dates in the four cells under Column I. Press **[Enter]** after each date.
3/19/08
6/30/08
8/14/08
9/12/08

Results/ Comments:

Notice that the formatting carried through to the new row and the calculated amount for Total Order was automatically entered as soon as you tabbed to that column.

This will take you to cell **I1**

The column is automatically added to the Table.

To increase the column size.

We are going to perform a filter to find all of the orders for Linda Walters.

This brings up all of the Walters in the list. This is great, because we do not have to search the entire list to find this data. If you had more than one Walters, you could conduct a second filter using the first name. Notice that the Total Row now shows just the total for these four orders.

By filtering our records, we are able to easily mark when the orders were paid, without having to look through the entire list.



Instructions:

8. Click on the Filter Icon on the **Last Name** column. From the menu, select *Clear Filter from Last Name*.
9. On the *Table Tools/Design Tab*, in the **Tools Group**, click on **[Convert to Range]** button.
10. Click **[Yes]**.
11. Save the file.
12. Close the file.

Results/ Comments:

The entire table comes into view. If you scroll through the table, you can see the dates that you entered.

If you want the formatting of the table, but do not need the functionality, you can convert the table to a normal range of cells.

Notice the filter buttons are removed from the screen. If you click in the calculated column, the formula no longer references the table. The Total Row is now just an ordinary row. The formatting remains.

[Ctrl + S].

[Ctrl + W].



Charts

A chart is a graphic representation of the worksheet data. Using a chart creates a better understanding of the data than simply presenting the numbers in a spreadsheet.

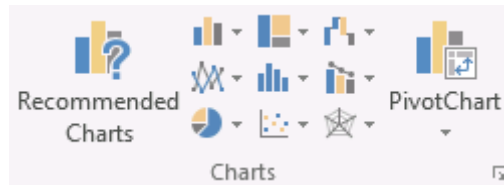
In *Excel 2016*, Charts are created using the **Insert Tab**. On the tab is the **Charts Group** which contains a great array of charts from which to choose. Before you select a chart, first consider the type of chart that you require. Pie charts and bar charts are good for showing comparisons. Line graphs can be useful for showing trends and plotting relationships between variables. Each chart has a menu of variations from the basic 2 dimensional charts to 3-D charts.

Note

Select the range of the data. Then press [F11]. A bar chart will be created on a new worksheet.

Creating a Chart

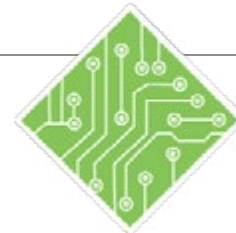
- ❖ Select the data and labels that you want to base the chart on. Note: When creating a pie chart, select only one set of numbers (variable) and labels.
- ❖ On the **Insert Tab** in the **Charts Group**, click on the type of chart you would like to create. This will display a list of possible chart options to choose from.



- ❖ Click on the chart option you would like to create. The chart will appear in the worksheet below the data. The **Chart Tools** will open under the **Design Tab** and **Format Tab**.
- ❖ You can use the tools to customize the chart. We will cover these tools in more detail later. To accept the chart as is, click in the worksheet outside the chart area. The **Chart Tools** will close.



Action 4.9 - Creating a Pie Chart



Instructions:

1. Open the **Unit Usage** file.
2. Save the file as **My Unit Usage**.
3. Select cells **A2:B7**.
4. Click the **[Pie]** button drop-down in the **Chart Group** on the *Insert Tab*, and select the *3-D Pie* from the menu.
5. Point to the left border of the chart. When you see a four headed arrow, click and drag the chart to the left until it is lined up with cell **A9**.
6. Place the mouse pointer over the bottom right hand corner of the chart box. When the pointer turns into a double-headed arrow, drag the mouse toward the center of the chart until the chart is the same width as the worksheet data.
7. Click outside the chart.
8. Change the number in cell **B7** to **3,000**.
9. Now let's create another pie chart using the South set of data.

Results/ Comments:

[F12].

When creating a pie chart, only choose one set of variables (select labels and one set of numbers).

The pie chart will appear in the worksheet. The chart represents the unit usage per product for the North region. Notice that when the chart is added to the spreadsheet, additional tabs appear above the ribbon for Chart Tools. We will be working with these later.

You can move the chart anywhere you want in the worksheet.

This is how a chart is resized.

The worksheet is now active again. The Chart Tabs and controls are no longer displayed. To work with the chart, you simply click in the chart to make it active and bring back the Charting tabs and controls.

Notice that the chart changed as well reflecting the new amount.

You can create numerous charts and place them in one worksheet.

Action 4.9 - Creating a Pie Chart, continued



Instructions:

10. Select cells **A2:A7** press and hold the **[Ctrl]** key and select cells **C2:C7**.
11. Create a 3-D Pie Chart.
12. Click in the worksheet.

Results/ Comments:

In a pie chart, always select one set of labels and one set of data.

If you want to see the data for one of the products lines (rows) such as Conduit, you would select cells **A2:E3**.

Follow the steps on the previous page. Place the South Chart below the North Chart. Resize as necessary.

This deselects the chart.

Action 4.10 - Creating a Column Chart



Instructions:

1. You should have **My Unit Usage** open on the screen.
2. Select cells **A2:E7**.
3. Click on **[Column]** button drop-down in the **Chart Group** on the *Insert Tab*, and select *3-D Clustered Column* from the menu.
4. Drag the Column Chart to the top of the spreadsheet and to the right of the data.
5. Keep the chart selected.
6. Save the file.

Results/ Comments:

If not, open it.

A column chart is able to compare several variables at one time.

This chart compares the unit usage for each region for each product type.

In the next lesson, we are going to learn how to use some of the easy design features to change the appearance of the chart.

[Ctrl + S].

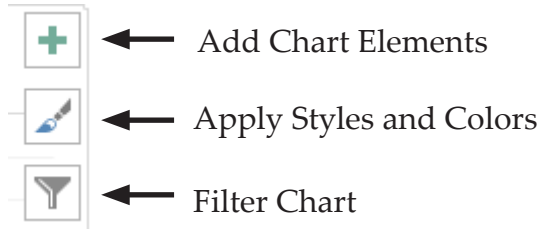


Charts, continued

Using Chart Tools

After you create a chart, you can alter its appearance by using the Chart Tools. Note that the Chart must be selected in order to use the Chart Tools located under the *Design Tab* and the *Format Tab*.

Charts in *Excel 2016* have three buttons added along the upper right side of the chart for quick access to basic formatting and now filtering of the chart and its data.



Adding Chart Elements

- ◆ Click anywhere into the chart.
- ◆ Click the **[Add Chart Elements]** button drop-down in the **Chart Layouts Group** on the *Chart Tools/Design Tab* to open the menu.
- ◆ Select the element you wish to either add or remove.
- OR-
- ◆ Click the new **[Add Chart Elements]** button on the right side of the chart.
- ◆ Check or uncheck the element checkboxes to turn those elements on or off.

Using a Quick Layout

Excel offers a few pre-built chart configurations from this button menu. These layouts have different chart elements already in position so you may not need to manually set them up.

- ◆ Click the **[Quick Layout]** button drop-down in the **Chart Layouts Group** on the *Chart Tools/Design Tab* and choose from the menu.



Charts, continued

Changing Chart Styles

- ◆ Click anywhere into the chart, then click the **[Chart Styles]** button on the right side of the chart.
- ◆ At the top of the menu choose **Styles** and scroll through the list to find one you like.

-OR-

- ◆ Click the **[More]** button on the Styles gallery in the **Chart Styles Group** on the **Chart Tools/Design Tab** and choose the style you like.

Changing Chart Colors

- ◆ Click anywhere into the chart, then click the **[Chart Styles]** button on the right side of the chart.
- ◆ At the top of the menu choose **Colors** and scroll through the list to find one you like.

-OR-

- ◆ Click the **[Change Colors]** button drop-down in the **Chart Styles Group** on the **Chart Tools/Design Tab** and choose the one you like from the menu.

Changing Chart Type

This button allows you to change the chart type of the current chart.

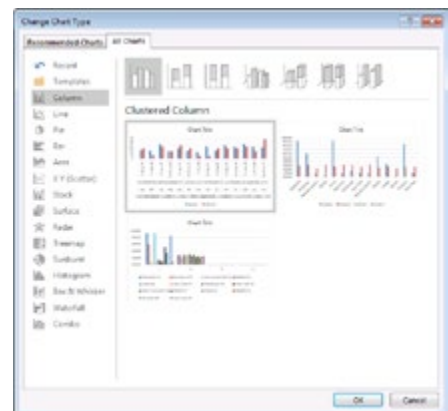
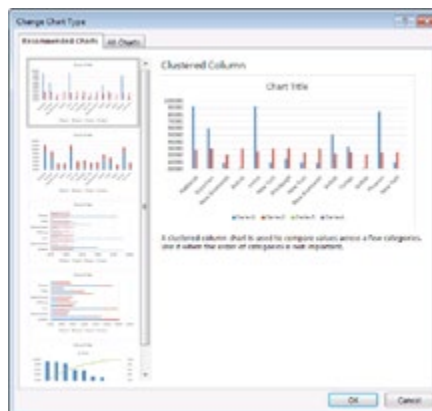
- ◆ Right click into the chart and choose **Change Chart Type** from the menu to open the *Change Chart Type* dialog.

-OR-

- ◆ Click on the **[Change Chart Type]** button in the **Type Group** on the **Chart Tools/Design Tab**. This opens the *Change Chart Type* dialog.

Note

When you change the chart type, *Excel 2016* will suggest a chart type based on the data. These suggestions are listed under the *Recommended Charts*.





Charts, continued

Note

When a **Chart Template** is saved, do not change the location where it is being saved. Once it is saved into the default **Charts** folder, it can be used in any of the other *Office* programs.

- ◆ Click the tab for either *Recommended Charts* or *All Charts*.
- ◆ Click the desired chart type.
- ◆ Click **[OK]** or press **[Enter]**.

Saving as a Template

Once the chart has been completely formatted to your needs or you could open an already formatted chart and save the formatting for future use. In *Excel 2016*, the button is not readily available on the ribbon, but it is now accessed by right clicking the chart and found in the contextual menu.

- ◆ Right-click on the chart and select *Save as Template*.
- ◆ Name the template.
- ◆ Click **[OK]** or press **[Enter]**.

Switching a Row/Column

By default *Excel* will plot the data in the chart by rows. Each row represents a “series”. This means, you are comparing row data that is then grouped in columns. The column labels will appear in the legend and the row labels appear on the x axis.

When you click the **[Switch Row/Column]** button, the data will switch so that now you are comparing the column data. The legend will show the row labels and the column labels will appear on the x axis. You can switch back and forth as much as you want.

Selecting Data

You will find at times that you do not wish to plot all of the data, wish to change the data you have selected or add additional data in the chart. Use this button to accomplish all of this by selecting a new data range. To do this:

- ◆ Click the **[Select Data]** button in the **Data Group** on the *Chart Tools/Design Tab*. This opens the *Select Data Source* dialog.
- ◆ Select the new range in the worksheet or use the Chart data range text box.
- ◆ Click **[OK]**.



Charts, continued

Filtering Chart Data

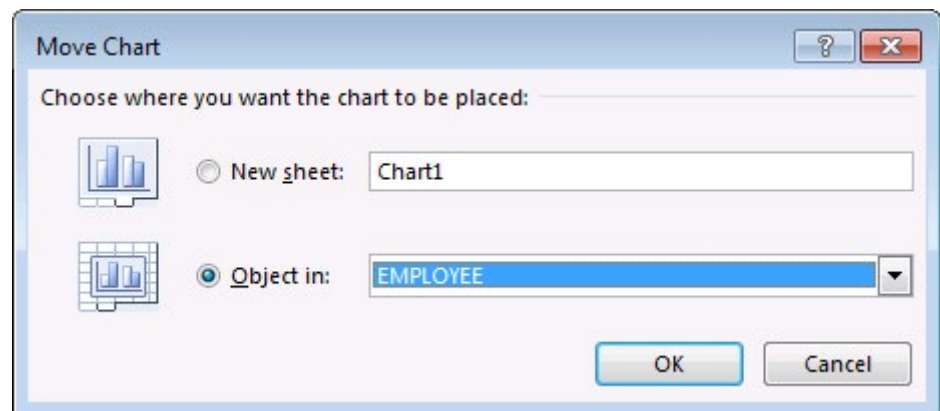
While it is easy to redefine the data that is shown in the chart, *Excel 2016* now allows you to filter the chart. The third button on the right side of the chart will allow you to choose what data will be displayed in the chart without having to redefine the chart's original data set.

- ◆ Click into the chart.
- ◆ Click the **[Chart Filters]** button.
- ◆ Check or uncheck the boxes for the data and click **[Apply]**.

Moving a Chart

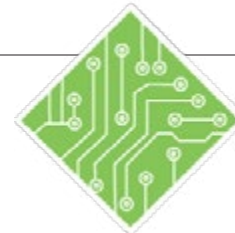
By default *Excel* will place a chart into the worksheet that contains the data. However, you can place the chart on a different worksheet by itself or with other charts. To do this:

- ◆ Click on the **[Move Chart]** button in the **Location Group** on the *Chart Tools/Design Tab*.
- ◆ The *Move Chart* dialog opens.



- ◆ To put it on a new sheet, click on *New sheet* and then type a name in the text box.
- OR -
- ◆ To move it to an existing worksheet, click on *Object in* (this may already be selected). Click on the down arrow and select from the list of existing sheets.
- ◆ Click **[OK]** or press **[Enter]**. The chart will move to the new location.

Action 4.11 - Using Chart Tools



Instructions:

1. **My Unit Usage** should be open.
2. Click in the Column chart to access **Chart Tools/Design Tab**.
3. Click on the **[Change Chart Type]** button in the **Type Group** on the **ChartTools/Design Tab** or right click the chart and choose **Change Chart Type** from the menu.
4. Select **Bar** on the left. Click on **Clustered Bar** at the top (first one in the row). Click **[OK]**.
5. Click on the **[Switch Row/Column]** button in the **Data Group** on the **Chart Tools/Design Tab**.
6. Click on the **[Select Data]** button in the **Data Group** on the **Chart Tools/Design Tab**.
7. Click in the worksheet and highlight cells **A2:C7**. In the dialog box, click **[OK]**.
8. Click on **Layout 1** from the **[Quick Layout]** button drop-down in the **Chart Layouts Group** on the **Chart Tools/Design Tab**.
9. Select the placeholder for Chart Title and type: **1st Qtr Unit Usage**. Press **[Enter]**
10. Click in the **North Pie Chart**.
11. Click the **[Quick Layout]** button drop-down in the **Chart Layouts** group on the **Chart Tools/Design Tab**, select **Layout 1** from the menu.

Results/ Comments:

If not, open it.

The *Change Chart Type* dialog opens.

The chart is changed to chart type you chose.

Notice that the row labels (products) are in the legend. The column labels are on the y axis.

The data in the chart will have a flashing border around it. You may need to drag the dialog out of the way to see it.

Notice the change in the chart. We are now comparing just two of the regions.

A text box for a chart title has been added. You can now add a title to the chart.

You could also double click to highlight and change the title. Note the new title may only appear after you press **[Enter]**.

You can now see the percentage usage for each product.



Instructions:

12. Click the **[Chart Styles]** button on the upper right side of the chart.
13. Click the word *Styles* at the top of the menu and try different chart style types
14. Click the word *Color* at the top of the menu and try different color schemes.
15. Click the **[Filter Chart]** button on the upper right side of the chart.
16. Uncheck some of the boxes and click the **[Apply]** button.
17. Click the **[Filter Chart]** button on the upper right side of the chart.
18. Check the select all checkboxes and click the **[Apply]** button.
19. Select the **Bar Chart**.
20. Click the **[Move Chart]** button in the **Location Group** on the *Chart Tools/Design Tab*.
21. Click the *New Sheet* button.
In the text box type: **North & South**.
Click **[OK]**.
22. Click on the **1st Qtr** worksheet tab.
23. Save and close the file.

Results/ Comments:

The Style menu is displayed

The Color menu is displayed

The Filter menu is displayed.

Only the data fields that were checked are shown in the chart.

The Filter menu is displayed again.

All the data is redisplayed in the chart.

This chart is active.

The *Move Chart* dialog opens.

You are creating and naming a new sheet all at once. The chart is moved to its own sheet.

You are back in the first worksheet. The column chart does not appear on the worksheet. Any changes that you make to the data in the worksheet will still effect the column chart.

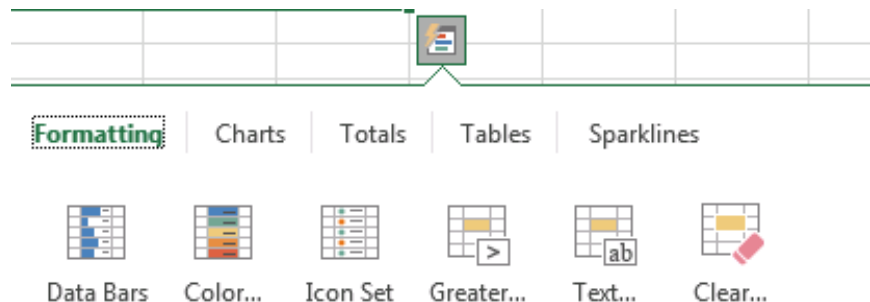
[Ctrl + S] & [Ctrl + W].



Quick Analysis

Excel 2016 has a new feature called **Quick Analysis**. When you select a cell range a new smart tag is displayed at the lower right of the selected range. When clicked, it offers suggestions of how you may want the data to be displayed. There are five main categories in the tag:

- ◆ **Conditional Formatting:** uses rules to highlight interesting data
- ◆ **Charts:** helps to visualize data
- ◆ **Totals:** automatically calculates totals
- ◆ **Tables:** helps sort, filter, and summarize data
- ◆ **Sparklines:** mini charts placed in single cells



Conditional Formatting uses rules to highlight interesting data.

This feature is designed to help you get started with data analysis but it is just a beginning point. For more control you will still use the tools as before.



Action 4.12: Using the Quick Analysis tag



Instructions:

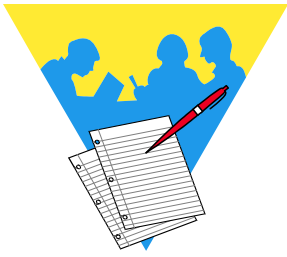
1. Open the **Quick Analysis** file.
2. Select cells **A3:E7**.
3. Click on the **[Quick Analysis]** tag.
4. Scroll over some of the recommended formatting options to see what *Excel* suggests as viable **Conditional Formats**.
5. Click on the **Charts** and scroll over some of the recommended charts to see what *Excel* suggests as viable chart types and styles.
6. Click on the **Totals** and scroll over some of the recommended totals to see what *Excel* suggests as viable totals.
7. Click on the **Tables** and scroll over some of the recommended tables to see what *Excel* suggests as viable tables and pivottables.
8. Click on the **Sparklines** and scroll over some of the recommended sparklines to see what *Excel* suggests as viable sparklines.
9. Click on any option to see it fully applied.
10. Close the file without saving.

Results/ Comments:

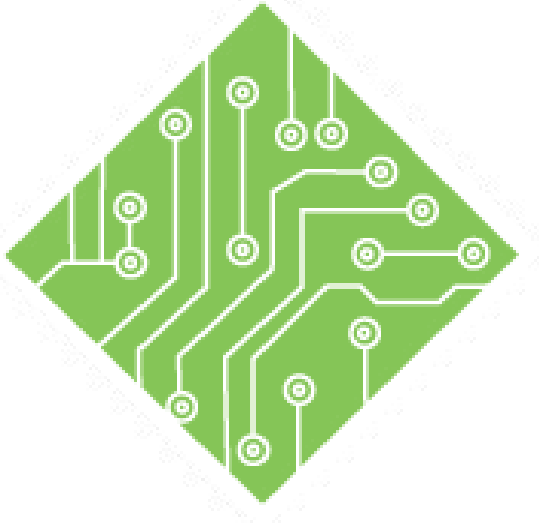
The Quick Analysis smart tag is displayed when you select a range of cells.

[Ctrl + Q] also opens the Quick Analysis when a range is selected

[Ctrl + W].



Tips and Notes

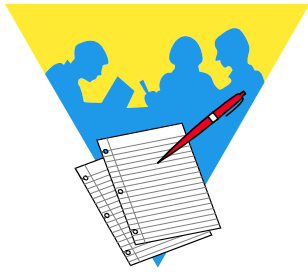


Lesson 5: Protecting the Worksheet/Workbook

Lesson Overview

You will cover the following concepts in this chapter:

- ◆ Protecting Worksheets
- ◆ Unprotecting a Worksheet
- ◆ Hidden Cells
- ◆ Allow Users to Edit Ranges
- ◆ Protecting Workbooks
- ◆ Protecting the File with Encryption
- ◆ Protecting the File with Passwords
- ◆ Workbooks Versions (optional)



Lesson Notes



Protecting Worksheets

Note

You have the option of protecting the entire worksheet and not allowing any changes to be made. To do this, keep all the cells and objects locked then apply protect the worksheet.

There are times when you will need to protect the worksheet or workbook from unwanted changes and yet still allow others access to the worksheet or workbook. This can happen when you have created a worksheet in which you need to have others provide additional data (i.e. budget numbers, expenses, sales figures, etc).

Protecting the Contents of a Worksheet

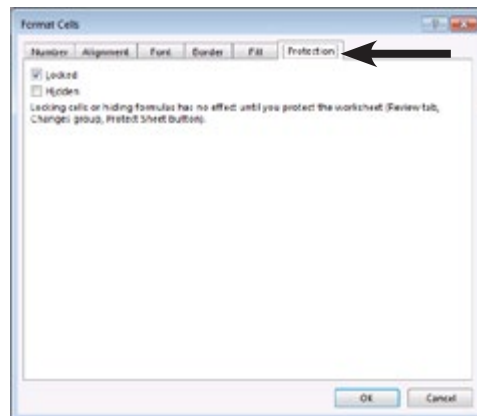
You can protect content and attributes of the worksheet data, such as formatting, data, formulas, graphic objects, etc., from unwanted changes by allowing changes only to selected ranges on a worksheet.

Protecting the contents of a worksheet is a two-step process:

1. Unlock the cells and graphic objects you want to be able to edit after the worksheet is protected. By default, all cells and objects are locked.
2. Apply Protection to the worksheet.

Unlocking Cells

- ◆ Right click on any selected cell or range and choose *Format Cells*. In the *Format Cells* dialog, select the *Protection* tab.



- ◆ Uncheck the *Lock Cell* box. This will unlock the cells so you can change them after the worksheet is protected.

-OR-

- ◆ Highlight the cell or cells where users are to edit.
- ◆ From the *Home Tab*, in the **Cells Group**, click the **[Format]** button drop-down and click *Lock Cell* to unlock the cell or cells.

Protecting Worksheets, continued

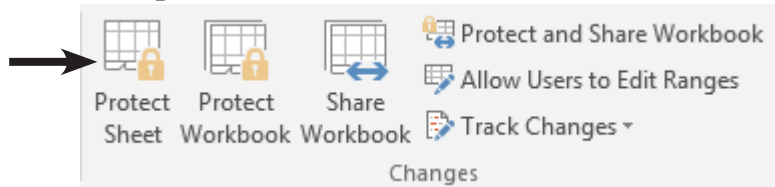
Applying Worksheet Protection

Once you have protected the document, you will only be allowed to change those cells that have been unlocked. Many of the commands will be gray because the cells are locked.

Note

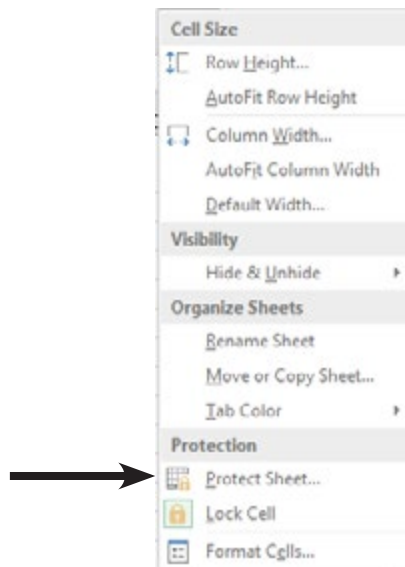
Be careful not to forget your password. If you lose it or forget it, there is nothing you can do. You are locked out until you can remember it.

- Click on the **[Protect Sheet]** button in the **Changes Group** on the **Review Tab**.

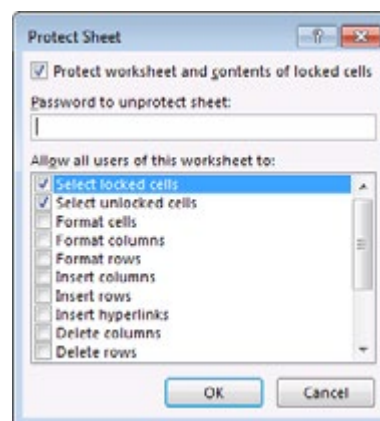


- OR -

- Click on **[Format]** button in the **Cells Group** on the **Home Tab**, , select **Protect Sheet** from the menu.



- The **Protect Sheet** dialog will open.



Protecting Worksheets, continued

- ◆ Under *Password to unprotect sheet*: enter a password, if desired. (Passwords are case sensitive.)
- ◆ Under *Allow all users of this worksheet to*: select those items you wish users of the worksheet to do. The default selections are:
 - ◆ *Select locked cells* - You can select the locked cells in a worksheet, but not change them.
 - ◆ *Select unlocked cells* - You can select these cells and change them.
- ◆ Click **[OK]** or press **[Enter]**. If you have entered a password, the *Confirm Password* dialog is displayed. Type the password again then click **[OK]** or press **[Enter]**.

Examine the ribbon and notice that there are many commands that are no longer available since the worksheet is protected.

Action 5.1 - Protecting Worksheet Elements



Instructions:

1. Open the file **Protection**.
2. Save the file as **My Protection**.
3. Select cell **F1**.
4. On the **Home Tab** in the **Cells Group**, click on **[Format]** button drop-down and select *Lock Cell*.
5. Select cells **B7:D7**.
6. Right click the selected cells and choose *Format Cells* from the menu.
7. In the *Format Cells* dialog, activate the **Protection** tab.
8. Uncheck the **Locked** checkbox and click the **[OK]** button.
9. Click on **[Format]** button drop-down again, then click on *Protect Sheet*.
10. In the **Password:** field enter **< Test >**.
11. Examine the options for **Allow all users of this worksheet to:** *Select locked cells* and *Select unlocked cells* are checked. These are the default settings.
12. Click **[OK]** or press **[Enter]**.
13. Re-enter the password in the *Confirm Password* dialog and click the **[OK]** button.
14. In cell **B2**, type **< 100000 >**.

Results/ Comments:

[F12].

The Target Growth value cell.

This unlocks the selected cells. These cells will be unprotected when we protect the worksheet.

These cells need to be unlocked.

The *Format Cells* dialog will appear.

The Protection options are displayed in the dialog.

The cells are unlocked

The *Protect Sheet* dialog opens.

You can leave this blank if you want.

If an option is checked, you are allowing users to preform that action.

The Comfirm Password dialog opens.

The worksheet is now protected.

The following message will be displayed:
“The cell or chart you are trying to change is on a protected sheet.”.



Instructions:

15. Click **[OK]**.
16. Change **F1** to **0.25** and press **[Tab]**.
17. Click the **[Format]** button and try to change the column width.
18. Select cell **D7** and notice the formula is displayed in the formula bar.
19. On the *Formulas Tab* in the **Formula Auditing Group**, click the **[Show Formulas]** button.
20. On the *Formulas Tab* in the **Formula Auditing Group**, click the **[Show Formulas]** button.
21. Save the file.

Results/ Comments:

To bypass the message.

Since this cell is unprotected, you can type in it. Notice column **C** now needs to be widened.

Because we have protected the document, many of the menu choices are not available.

Because the cell is not Hidden, the formulas are still visible.

The formulas are all displayed in their cells.

The values are now displayed.

[Ctrl + S].

Unprotecting a Worksheet

Note

Turning off worksheet protection does not lock the cells you have unlocked. Therefore, to protect the same cells again, you can simply turn the protection back on.

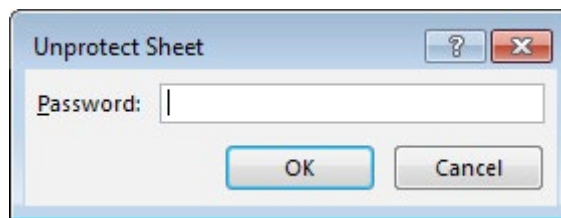
Unprotecting the Worksheet

When more changes are needed than allowed while the worksheet is protected, it will be necessary to unprotect the worksheet in order to make those changes. If you want to make changes to the worksheet again, you will need to turn off the protection or unprotect the worksheet.

- ◆ Click on **[Format]** button drop-down in the **Cells Group** on the *Home Tab*, click *UnProtect Sheet*.

- OR -

- ◆ Click the **[Unprotect Sheet]** button in the **Changes Group** on the *Review Tab*.
- ◆ If a password was used to protect the worksheet, you will be prompted to enter the password to Unprotect the worksheet.



- ◆ Type the password, if needed and press **[Enter]**.

Hidden Cells

Note

If the cell is unlocked, hiding a formula does not protect it..

Note

When cells have a mix of Locked and Unlocked or Hidden and Unhidden states the checkboxes show as filled boxes.

Hidden Formulas

While worksheet protection prevents others from changing formulas it does not necessarily prevent them from seeing the formulas. If users are allowed to select locked cells while the worksheet protection is on, they can look in the formula bar to see the cells contents. Even if they are not allowed to select locked cells while worksheet protection is on, they can use the **[Show Formulas]** button and see all formulas in the worksheet.

It is possible to prevent users from seeing the formulas on protected worksheets by using the **Hidden** checkbox on the **Protection Tab** of the **Format Cells** window. Checking this checkbox will prevent formulas from being displayed when the worksheet is protected.

- ◆ If you have already protected the worksheet, you will need to unprotect the sheet following the previous instructions.
- ◆ Select the cells containing formulas that need to be hidden.
- ◆ Right click selected cells and choose *Format Cells*.

- OR -

- ◆ Click the **[Format]** button drop-down in the **Cell Group** on the **Home Tab**, select *Format Cells*.
- ◆ The *Format Cells* dialog displays. Click on the **Protection** tab.
- ◆ Check the Hidden checkbox. Click **[OK]** or press **[Enter]**.
- ◆ Re-protect the worksheet.
- ◆ Select a cell containing a formula and notice the **Formula Bar** is empty.
- ◆ Try using the **[Show Formulas]** button on the **Formulas Tab**. the cells with formulas are blank.

Action 5.2 - UnProtecting Worksheet



Instructions:

1. The **My Protection** workbook should still be open.
2. On the **Home Tab** in the **Cells Group**, click on **[Format]** button drop-down and select *Unprotect Sheet*.
3. Enter the password in the **Password:** field and click the **[OK]** button.
4. On the **Home Tab** in the **Cells Group**, click on **[Format]** button drop-down to see that all the options are available.
5. Select column **C** set the cursor between columns **C & D** and double click when the double headed arrow appears.
6. Select cell **B7** and enter,
< =SUM(B3:B6) >
Use the **[Ctrl + Enter]** shortcut to enter the formula.
7. Use Autofill over to cell **D7**.
8. Save the file.

Results/ Comments:

If not, reopen the file.

The *Unprotect Worksheet* dialog opens.

The worksheet is unprotected.

All the options are available.

The column width is auto-adjusted.

[Ctrl +S].

Action 5.3 - Hidding Formulas



Instructions:

1. The **My Protection** workbook should still be open.
2. Select cells **B3:D6**.
3. Right click the selected cells and choose *Format Cells* from the menu.
4. In the *Format Cells* dialog, activate the Protection tab.
5. Check the **Hidden** checkbox and click the **[OK]** button.
6. On the **Review Tab** in the **Changes Group**, click on **[Protect Sheet]** button.
7. Leave the defaults as is and **Password:** field blank and click the **[OK]** button.
8. Select cell **D6** and notice the formula is not displayed in the formula bar.
9. On the **Formulas Tab** in the **Formula Auditing Group**, click the **[Show Formulas]** button.
10. Notice cells **B2** displays the formulas of **TODAY()**. and the formulas in cells **B7:D7** are also displayed.
11. On the **Formulas Tab** in the **Formula Auditing Group**, click the **[Show Formulas]** button.
12. Save the file.

Results/ Comments:

If not, reopen the file.

You will hide the formulas in these cells from view while the worksheet is protected.

The *Format Cells* dialog opens.

If necessary.

The *Protect Sheet* dialog opens.

The worksheet is now protected.

When cells are formatted as hidden formulas are not displayed in the formula bar.

The values in cells containing formulas are hidden but,since cells **B3:D7** are not displaying anything.

Since these cells were not formatted as hidden, the formulas are displayed.

The values in cells **B3:D7** are redisplayed.

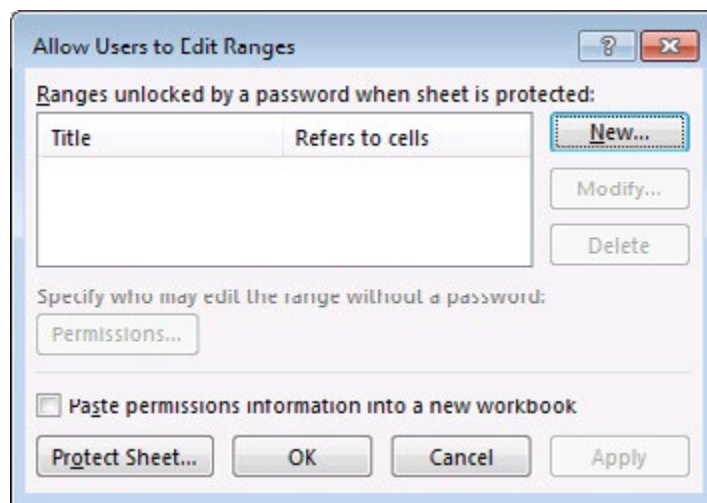
[Ctrl + S].

Allow Users to Edit Ranges

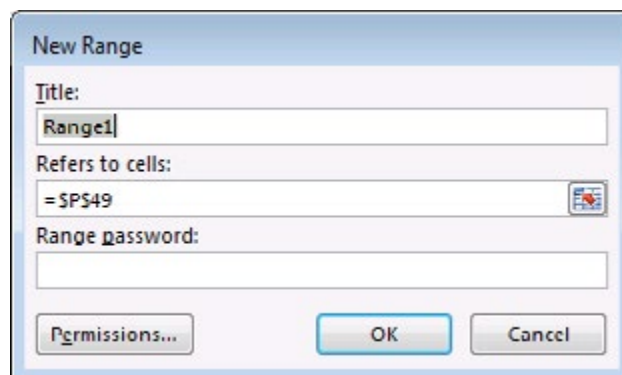
Sometimes you may want different users to have access to only their input ranges in a workbook, for these situations the tool to use will be the **Allow Users To Edit Ranges**. This will allow you to select input ranges and assign individual passwords for each user so there is no chance the anyone will enter their specific information in an incorrect area of the worksheet.

Setting up the ranges

- ✦ Click the **[Allow Users to Edit Ranges]** button in the **Changes Group** on the *Review Tab*.
- ✦ The *Allow Users to Edit Ranges* dialog opens.



- ✦ Click the **[New]** button.
- ✦ The *New Range* dialog opens.



Allow Users to Edit Ranges, continued

Note

For a more detailed explanation of the permissions options go to:
<https://technet.microsoft.com/library/dn789205>

- ◆ Give the range a Name.
- ◆ If necessary highlight the cell or range of cells.
- ◆ Assign a password to the selected cells.
- ◆ Repeat these steps until all the users who need access to the worksheet are included in the list.
- ◆ Click the **[Protect Sheet]** button to open the *Protect Sheet* dialog.
- ◆ Assign your password and choose what actions users can perform while working in the worksheet.
- ◆ Click the **[OK]**.
- ◆ Reenter your password in the *Password Confirmation* dialog and click the **[OK]**.
- ◆ Save the workbook.
- ◆ Remember to send each user their password so they can access the part of the worksheet they need to access.

Action 5.4 - Allowing Multiple Users Access to a Worksheet



Instructions:

1. The **My Protection** workbook should still be open.
2. Select the *Sales* sheet.
3. On the **Review Tab** in the **Changes Group**, click on **[Allow Users to Edit Ranges]** button
4. Click the **[New]** button in the *Allow Users to Edit Ranges* dialog.
5. In the **Title:** field enter **< James >**.
Click into the **Refers to cells:** field, then highlight cells **B3:M3** on the *Sales* sheet.

Click into the **Range Password:** field enter **< James >**.
6. Click to **[OK]** button.
7. Re-enter the password and click the **[OK]** button.
8. Repeat steps 4 through 9 for the other three sales reps accordingly.
9. Click the **[ProtectSheet]** button in the *Allow Users to Edit Ranges* dialog
10. The the **Password:** field enter **< 12345 >**
and clcik the **[OK]** button.
11. Try changing the value in cell **B3**.
12. Save the file.

Results/ Comments:

If not, then reopen it.

The second worksheet.

The *Allow Users to Edit Ranges* dialog opens.

The *New Range* dialog opens.

These are the cells which James will be able to edit.

This is his unique password to access his range of cells.

The *Confirm Password* dialog opens.

The *Allow Users to Edit Ranges* dialog is displayed again.

Apply the names as both Title and Password for each.

The *Protect Sheet* dialog opens.

The *Confirm Password* dialog opens.

The *Unlock Range* dialog opens. If the user does not know the correct password, they can not modify the data.

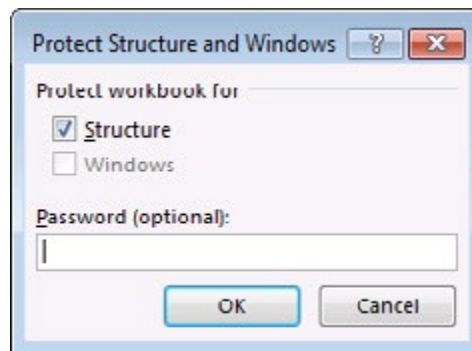
[Ctrl + S].

Protecting Workbooks

Protecting a Workbook

Protecting a workbook prevents other users working in the workbook from moving, deleting, hiding, unhiding, renaming or inserting worksheets. This should be done after all the worksheets have been structured and protected.

- ◆ Open the workbook you would like to protect.
- ◆ Click on the **[Protect Workbook]** button in the **Changes Group** on the *Review Tab*.
- ◆ The *Protect Structure and Windows* dialog opens.



- ◆ Select *Structure* - to prevent the deletion, inserting, renaming, moving, hiding and unhiding of worksheets.
- ◆ *Password* - to keep others from removing workbook protection. (this is optional)
- ◆ When using a password you will be prompted to confirm the password.
- ◆ Click **[OK]** or press **[Enter]**.

Unprotecting a Workbook

- ◆ Open the workbook.
- ◆ Click on the **[Protect Workbook]** button in the **Changes Group** on the *Review Tab*.
- ◆ The button is highlighted to let you know the workbook is currently protected.
- ◆ If a password use used to protect the workbook, you will be prompted to enter the password.

Action 5.5 - Protecting a Workbook



Instructions:

1. The **My Protection** workbook should still be open.
2. Right click either of the sheet tabs and examine the menu.
3. On the **Review Tab** in the **Changes Group**, click the **[Protect Workbook]** button.
4. Leave the **Password:** field blank, check the **Structure** checkbox and click the **[OK]** button.
5. Click the **[New Sheet]** button.
6. Right click either of the sheet tabs and examine the menu.
7. Save the file.

Results/ Comments:

If not, then reopen it.

All the options in the menu are available.

The *Protect Workbook* dialog opens.

The workbook is now protected. If you had entered a password the *Confirm Password* dialog would have opened.

The **[New Sheet]** button is greyed out.

Most of the menu options are greyed out.

[Ctrl + S].

Protecting the File with Encryption

File Encryption

Some of the workbooks you create may contain confidential information that you might want to protect against unauthorized access. Using Password Protection allows documents to only be accessed if the user enters the correct password. *Excel 2007* through *2016* provide greater security than previous versions by adding file encryption. Encryption is a standard method used to help make the file more secure.

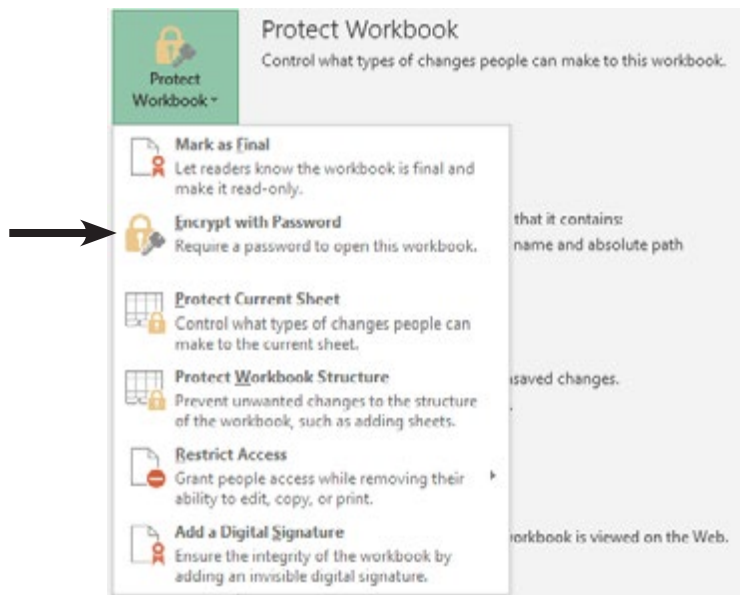
Although it is NOT a rule, it is strongly recommended that you create a password that uses both upper and lower case letters, numbers, and symbols. Your password can contain up to 255 characters.

Encrypting a File

- Click the **File Tab**, select **Info**, from the **Protect Workbook** drop-down choose **Encrypt with Password**.

Note

Worksheet and workbook protection can also be accessed from this menu.



- The **Encrypt Document** dialog opens.





Protecting the File the File with Encryption, continued

Note

When selecting a password, make sure it is a password that you can remember.

- ◆ Enter a password in the *Password* field. Click [OK].
- ◆ Re-enter the password in the *Confirm Password* dialog. Click [OK].
- ◆ Save the file.
- ◆ Once the worksheet is saved with a password, any future attempt to open the workbook will cause *Excel* to display a dialog prompting the user for the password.

Removing a File Encryption

- ◆ The workbook you would like to remove the password from should be open.
- ◆ Click the *File Tab*, select **Info**, from the *Protect Workbook* drop-down menu choose *Encrypt with Password*.
- ◆ The *Encrypt Document* dialog opens.
- ◆ Highlight the password, then press [Delete]. Click [OK].
- ◆ Save the file.



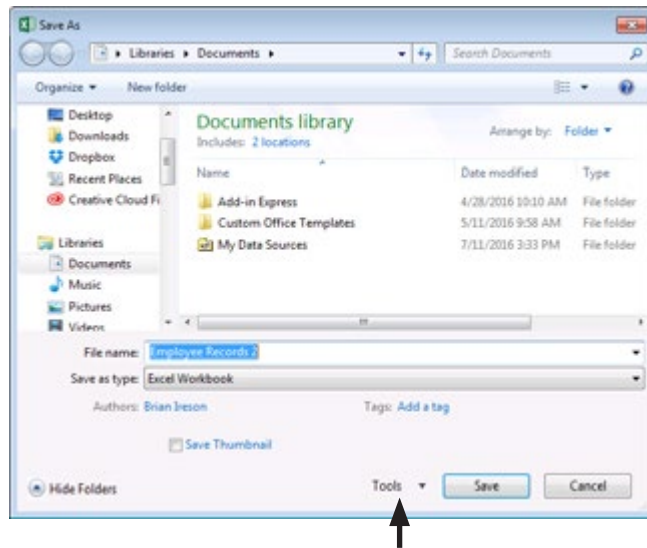
Protecting the File with Passwords

Workbook Passwords to Open/Modify

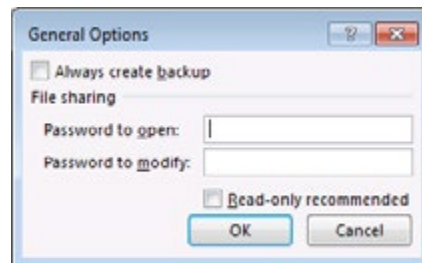
Setting a password to open and/or modify a document does not use encryption and therefore is not as secure. This is designed to share the document with individuals you trust.

Setting Passwords

- ◆ Click on the *File Tab*.
- ◆ Select **Save As** and the *Save As* dialog opens. Choose a location to save the document.
- ◆ Click on *Tools*, then select *General Options*.



- ◆ The *General Options* dialog opens.



- ◆ Enter a Password up to 15 characters to open the file. This will limit access to the file
- ◆ If you wish, you can also enter a Password up to 15 characters to modify the file.

-OR-

- ◆ If you want to make the file a Read-only file, click on the check box.



Protecting the File with Passwords, continued

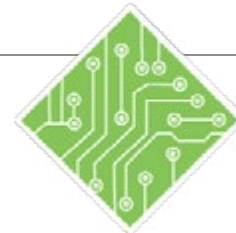
- ◆ Click [OK].
- ◆ Re-enter the password(s) in the *Password Confirmation* dialogs and click [OK].
- ◆ In the *Save As* dialog, click [Save] or press [Enter].

Removing Workbook Passwords

- ◆ Click on the *File Tab*.
- ◆ Select **Save As**. The *Save As* dialog opens.
- ◆ Click on **Tools** (lower right hand corner), then select *General Options*. The *General Options* dialog opens.
- ◆ Highlight the password(s) and press [Delete]. Click [OK].
- ◆ Click [Save].



Action 5.6 - Protecting an Excel file



Instructions:

1. The **My Protection** workbook should still be open.
2. Click the *File Tab*.
3. Select the *Info* category on the right side of the Backoffice view.
4. Click the **[Protect Workbook]** button to expand the choices.
5. Select the *Encrypt with Password* option.
6. In the **Password:** field enter, < **Protected** > and click the **[OK]** button.
7. Re-enter the the password. and click the **[OK]** button.
8. Save and close the workbook.
9. Open the **My Protection** workbook.
10. Enter the password to open the file.
11. Click the *File Tab*.
12. Select the *Info* category on the right side of the Backoffice view.
13. Click the **[Protect Workbook]** button to expand the choices.
14. Select the *Encrypt with Password* option.
15. Delete the password and click the **[OK]** button.
16. Save the file.

Results/ Comments:

If not, then reopen it.

The Backoffice view opens.

If necessary.

The list of workbook protection options is displayed.

The *Encrypt Document* dialog opens.

The *Confirm Password* dialog opens.

The **[Protection]** button is highlighted and informs you that a password will be required to open the workbook in the future.

The *Password* dialog opens.

The Backoffice view opens.

If necessary.

The list of workbook protection options is displayed.

The *Encrypt Document* dialog opens.

The Password Encryption is removed.

[Ctrl + S].



Instructions:

17. Click the **File Tab** and choose *Save As* from the left side of the Backoffice view.
18. Click the **[Browse]** button, if necessary to open an explorer window.
19. Click the **[Tools]** button drop-down and choose *General Options* from the list.
20. Enter a password in the **Password to open:** and **Password to modify:** fields.
21. Click the **[OK]** button twice.
22. Close the file.
23. Reopen the file.
24. Enter the passwords as the dialogs appears.
25. Tap the **[F12]** key to open the *Save As* dialog.
26. Click the **[Tools]** button drop-down and choose *General Options* from the list.
27. Delete the passwords in both fields.
28. Click the **[OK]** button twice.

Results/ Comments:

[F12], the *Save As* dialog opens.

The *General Options* dialog opens.

The first **[OK]** will take you back to the *Save As* dialog and the second will save the file.

[Ctrl + W].

[Ctrl + O].

You must enter the passwords to open and modify the file.

This will remove the passwords from the file and basically unprotect the file.

Workbooks Versions (optional)

Note

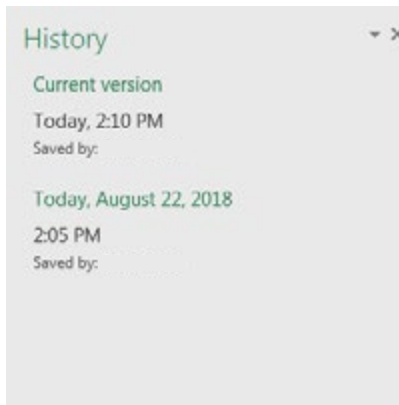
If the *History* category is not listed among the categories on the left side of the Backstage, it's possible that you don't have a subscription version of Office. Click the Info button on the navigation pane and see if you can access Version History there.

Office 2016 automatically saves versions of your *SharePoint*, *OneDrive*, and *OneDrive for Business* files while you're working on them. These versions allow you to look back and understand how your files evolved over time and allow you to restore older versions in case you have made a mistake.

Accessing Workbook Versions

Important: Version history in Office only works for files stored in *OneDrive*, *OneDrive for Business* or *SharePoint Online*. If you don't see this option it's possible your file is stored in a different service or on a local device.

- ◆ Open the file stored on *SharePoint*, *OneDrive*, and *OneDrive for Business* you were previously working on.
- ◆ Click the **File Tab** then click the *History* category on the left to open the **History Pane**.



- ◆ In this pane you can view and restore previous versions.
- ◆ To open and view an earlier version simply double click the file version. The file will open in a separate window as a *Read Only* copy.

To Restore a Historical Version

- ◆ When viewing the version you want to restore, click **[Restore]** button in the message bar just below the ribbon.

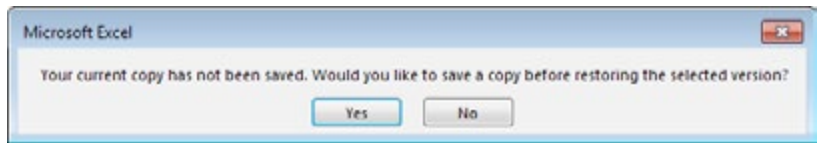
PREVIOUS VERSION To make this previous version become the latest version, click Restore.

Restore

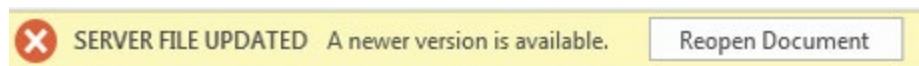


Workbooks Versions (optional), continued

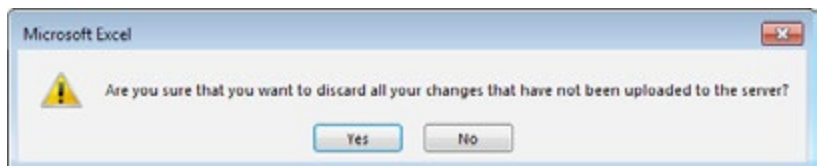
- ◆ A *Save Warning* dialog opens.



- ◆ Clicking the **[Yes]** button will update the file to the version being restored, overwriting the newer version with the older.
- ◆ Clicking the **[No]** button will open the restore copy without saving changes.
- ◆ The Message Bar will now inform you that a newer version is available.



- ◆ Click the **[Reopen Document]** button to open the latest version.
- ◆ A warning dialog opens to verify that you wish to overwrite the current version with changes from the newer version, that was just created.



- ◆ Restore will save your current file as a new version and then replace your current file with the contents of the version you chose to restore.



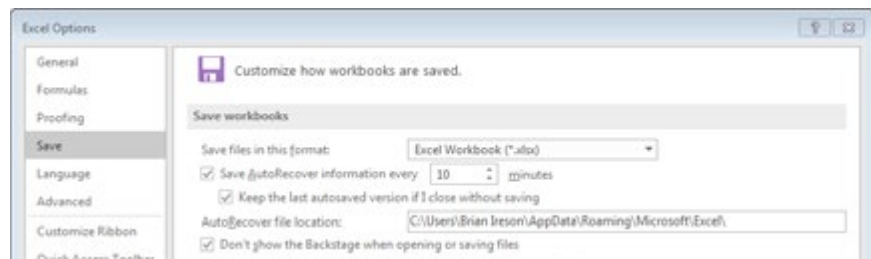
Workbooks Versions (optional), continued

The AutoRecover Feature

When your computer crashes or locks up before you were able to save the workbook, *Excel's* autosave can come to the rescue. In the Options window of *Excel* you are able to set the time increment from the Autosave feature. *Excel* is saving a copy of the workbook in a temporary location for retrieval.

Setting the Autosave options

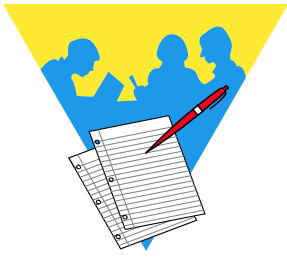
- ◆ Open the *Excel Options* window.
- ◆ Select Save from the list of categories on the left.



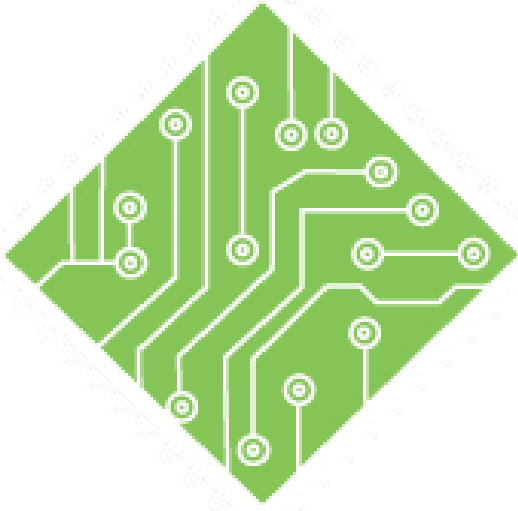
- ◆ Set the time interval you want in the **Save AutoRecover information every ___ minutes** field.
- ◆ You can also change where the files are store by enter a new folder location in the **AutoRecover file location:** field.
- ◆ Click the [OK] button to apply your modifications.

Recovery of Unsaved Workbooks

- ◆ When *Excel* is restarted you will see the AutoRecover Pane.
- ◆ Select the file being worked on last to reopen it.
- ◆ The [Manage Versions] button in the Backstage view (*File Tab*) lets you restore earlier versions of your document.
- ◆ The *Open* window will automatically go to the default folder location where any unsaved files are stored.
- ◆ If you changed the folder, you will need to navigate to the folder to access your unsaved files.



Tips and Notes

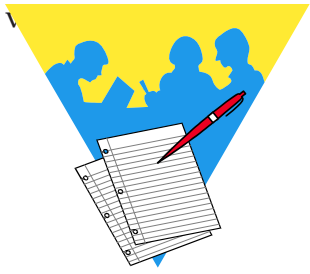


Lesson 6: Templates, Inserting Graphics, and Comments

Lesson Overview

You will cover the following concepts in this chapter:

- ◆ Inserting Graphic Objects
- ◆ Modifying Graphics
- ◆ Comments
- ◆ Templates



Lesson Notes



Inserting Graphic Objects

Picture Formats

Images stored on the local drive or other network drives can be inserting into workbooks. *Excel* allows for a wide variety of image formats to be inserted into workbooks, see the list below.

Format	Extension
Windows Enhanced Metafile	.EMF
Windows Metafile	.WMF
JPEG File Interchange Format	.JPG - JPEG - JFIF - .JPE
Portable Network Graphics	.PNG
Windows Bitmap	.BMP - .DIB - .RLE
Graphics Interchange Format	.GIF
Compressed Windows Enhanced Metafile	.EMZ
Compressed Windows Metafile	.WMZ
Compressed Macintosh PICT	.PCZ
Tag Image File Format	.TIF - .TIFF
Computer Graphics Metafile	.CGM
Encapsulated PostScript	.EPS
Macintosh PICT	.PCT - .PICT
WordPerfect Graphics	.WPG

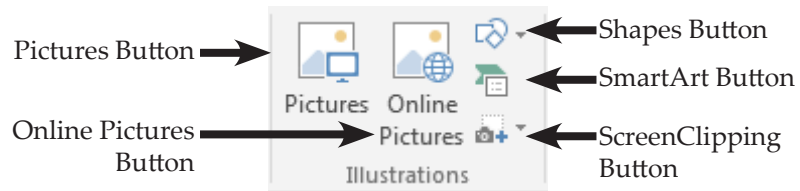
Inserting Graphic Objects, continued

Note

Images can also be used as fills of shapes. This option allows you to adjust the transparency of images.

Inserting Pictures

You can add images to the worksheet that add some design interest or branding. Images can be inserted from files stored on your computer or network, from online images, or taken by the screen clipping tool. All of these options are found on the *Insert Tab* in the **Illustrations Group**.



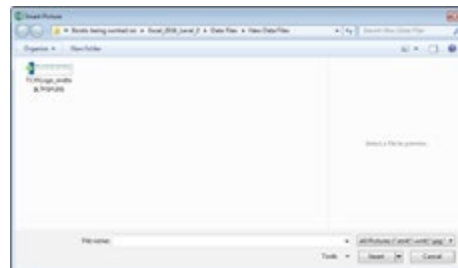
When an image is actively selected the *Picture Tools Format Tab* is added to the ribbon, if the image is deselected the *Picture Tools Format Tab* is removed from the ribbon.



If you right click any graphic elements (Pictures, Shapes, SmartArt, or Text Boxes) you can open the *Formatting pane* by choosing *Format (type of object)* from the menu. In the *Format* pane you can easily access all the controls available on the *Format Tab* in the ribbon. When there are more than one graphic element which needs to be edited, keep the pane open and simply select the next object to continue editing.

Inserting Pictures Stored on your system

- ❖ Click the *Insert Tab*.
- ❖ Click the **[Pictures]** button in the **Illustrations Group**.
- ❖ The *Insert Picture* dialog opens.

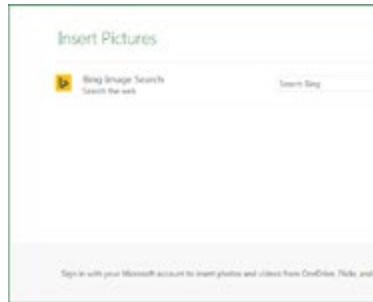


- ❖ Navigate to the folder containing the images.
- ❖ Select the desired image.
- ❖ Click the **[Insert]** button or double click the image.

Inserting Graphic Objects, continued

Inserting Online Images

- ◆ Click the *Insert Tab*.
- ◆ Click the **[Online Pictures]** button in the **Illustrations Group**.
- ◆ A *Bing Search* window opens.



- ◆ Type in the type of images you are searching for in the *Search* field (examples: people, business, buildings, holidays) and press the **[Enter]** key or click on the **[Search]** button to start the search.
- ◆ If you want to try a new search enter a new keyword and press the **[Enter]** key or click on the **[Search]** button.
- ◆ Scroll through the thumbnails to find a picture.



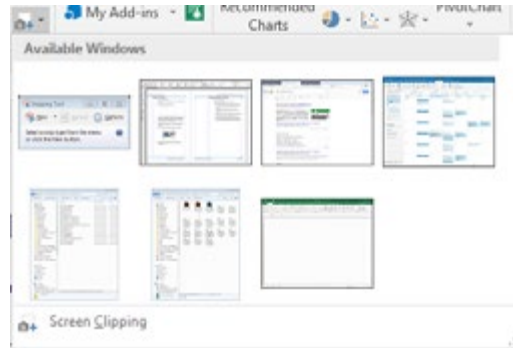
- ◆ Double-click on the picture to insert it into the worksheet or select several pictures and click on **[Insert]** button.



Inserting Graphic Objects, continued

Inserting a Screenshot or Screen Clip

- ◆ Click the *Insert Tab*.
- ◆ Click the [Take a Screenshot] button in the **Illustrations Group**.



- ◆ A list of all open windows is displayed, choosing any of these will insert the entire window as an image.
- ◆ Choosing *Screen Clipping* will allow you to determine only the section of the open window needed.
- ◆ Before using the *Screen Clipping* option make sure that the screen you need is the last other screen or program in use before working in *Excel*.
- ◆ Activate the desired program then switch back to *Excel* before choosing the *Screen Clipping* option.

Inserting Shapes

- ◆ Click the *Insert Tab*.
- ◆ Click the [Shapes] button in the **Illustrations Group**.
- ◆ A list of different shapes is displayed.
- ◆ Choose the desired shape.
- ◆ The cursor changes from an arrow to a crosshair, click and drag diagonally to create the shape. It does not have to be exact to start with since you can resize it after.

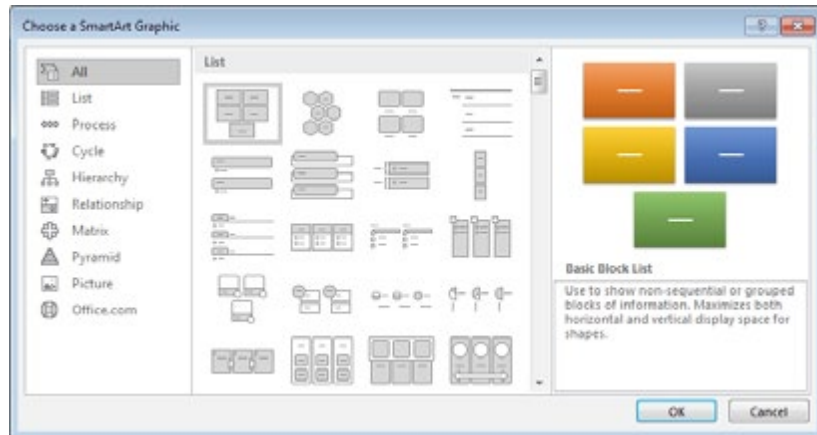


Inserting Graphic Objects, continued

Inserting Smart Art

SmartArt offers a set of pre-built and formatted complex shapes; Org Charts, Processes, Flow Charts, etc..

- ◆ Click the *Insert Tab*.
- ◆ Click the **[Smart Art]** button in the **Illustrations Group**.
- ◆ The *Choose SmartArt* dialog opens.

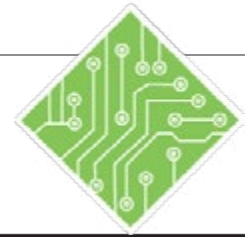


- ◆ Select the required type of SmartArt and click the **[OK]** button .
- ◆ Edit as needed.

Inserting a Textbox

- ◆ Click the *Insert Tab*.
- ◆ Click the **[Shapes]** button in the **Illustrations Group** or the **[Text Box]** button in the **Text Group**.
 - ◆ If using the Shapes option, select the first option from the menu.
- ◆ The cursor will change to a crosshair. Click and drag diagonally to create the text box the size needed. It does not have to be exact to start with since you can resize it after.
- ◆ The *Drawing Formatting Tab* is added to the ribbon.

Action 6.1 - Inserting an Picture from File



Instructions:

1. Open the **Billing1.xlsx** file.
2. Save the file as **Billing_Template.xlsx**.
3. On the **Insert Tab** in the **Illustrations Group**, click the **[Pictures]** button.
4. Navigate to the lessons folder and choose the **Logo.jpg** file.
5. Click the **[Insert]** button.
6. Notice the **Picture Tools Format Tab** in the ribbon.
7. Click on one of the corner controls of the image and drag to resize the image.
8. Hover over the image. When the cursor is a four sided move arrow, click and drag the image to the upper left corner of the spreadsheet.
9. Continue resizing the image to fit into the available space.
10. Save the file.

Results/ Comments:

[F12].

The *Insert Picture* dialog opens.

The picture is inserted. It is very large and needs to be resized and moved into position.

Since the image is actively selected, the tab is available. Try deselecting and reselecting the image to see the tab is only available while the image is selected.

While the image is selected, control handles are visible. They allow you to resize and rotate the image.

The four sided arrow cursor is the move tool.

The image should not cover any of the existing text.

[Ctrl + S].

Action 6.2 - Inserting an Online Picture



Instructions:

1. The **Billing_Template** file should still be open.
2. On the **Insert Tab** in the **Illustrations Group**, click the **[Online Pictures]** button.
3. Click into the **Bing Image Search:** field and type,
< **book icon** >
Click the **[Search]** button.
4. From the choose the one you like and click the **[Insert]** button.
5. Notice the **Picture Tools Format Tab** in the ribbon.
6. Click on one of the corner controls of the image and drag to resize the image.
7. Hover over the image. When the cursor is a four sided move arrow, click and drag the image to the right of the logo image.
8. Continue resizing the image to fit into the available space beside the logo.
9. Save the file.

Results/ Comments:

If not, reopen it.

The *Bing Insert Pictures* dialog opens.

The **[Search]** button is the small magnifying glass icon or tap the **[Enter]** key.

The image is inserted. Double clicking the chosen image will also insert it.

The image is a picture so the same tools are used to edited it.

[Ctrl + S].

Action 6.3 - Inserting a Screen Clipping Image



Instructions:

1. The **Billing_Template** file should still be open.
2. Open a browser window and navigate to **www.tcworkshop.com**
3. Switch back to the **Billing_Template** file in *Excel*.
4. On the **Insert Tab** in the **Illustrations Group**, click the **[Take a Screenshot]** button drop-down.
5. Choose *Screen Clipping* from the menu.
6. Draw a selection around the **Welcome Guest text and icon** in the upper right of the web page.
7. Notice the **Picture Tools Format Tab** in the ribbon.
8. Click on one of the corner controls of the image and drag to resize the image.
9. Hover over the image. When the cursor is a four sided move arrow, click and drag to move the image.
10. Tap the **[Delete]** key.
11. Save the file.

Results/ Comments:

If not, reopen it.

The window containing the content to clip must be the last active window before using the *Screen Clipping* tool.

Hold the **[Alt]** key and tap the **[Tab]** key to switch between programs.

In the drop-down menu, a list of all open windows are shown.

Excel should move to the background and the browser window is visible. The window is greyed out and the cursor will be a crosshair.

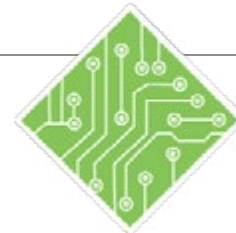
As soon as you let go of the mouse button, the captured image is inserted.

This is another image and as such you use the same editing tools

The image is not needed at this point.

[Ctrl + S].

Action 6.4 - Inserting a Text Box



Instructions:

1. The **Billing_Template** file should still be open.
2. On the **Insert Tab** in the **Illustrations Group**, click the **[Shapes]** button.
3. Choose the *Text Box* from the menu.
4. Click and drag diagonally to create the shape of the text box.
5. Type,
< **All invoices must be paid within ten days.** >
6. Notice the **Drawing Tools Format Tab** in the ribbon. in the ribbon.
7. Click off the text box.
8. Reselect the text box and use the corner control handle to resize the box to fit the text.
9. Hover over the text box. When the cursor is a four sided move arrow, click and drag to move the text box.
10. Position it so it is below the spreadsheet data, in line with row 24.
11. Save the file.

Results/ Comments:

If not, reopen it.

You can also use the **[Text Box]** button in the **Text Group** on the **Insert Tab**.

It is the first option from the menu.

The text box is created.

The text is entered in the text box.

The tab is automatically added to the ribbon when the shape is selected.

The **Picture Tools Format Tab** in the ribbon. is removed.

The **Picture Tools Format Tab** in the ribbon. is redisplayed. The control handles are also ready for use.

[Ctrl + S].



Modifying Graphics

Once a graphic element has been added to the file it may require modifications to achieve the final appearance. This can be done by using the **Format Tab** in the ribbon or the *Formatting* pane. When the element is selected, the ribbon displays the appropriate formatting tab automatically. Right clicking the object to access the contextual menu will offer the formatting pane related to the object type.

In the *Formatting* pane, the options change in accordance to the type of object. Some objects are only graphic in nature, while others also offer the ability to add and modify text.

Note

Text can be edited using the **Font** and **Paragraph Groups** on the *Home Tab*.

Elements of a graphic object that can be modified include: borders, fills, 3D effects, artistic effects, and shape to name a few. Formatting objects offer more options than there is time to cover within this course, so it is recommended to explore all the available options when you have time. Try playing with all the available controls to see what is possible.

Using the Format Tab

- ◆ Select the object to be edited.
- ◆ Click the **Format Tab** in the ribbon.
- ◆ Explore the available options in the tab.
 - ◆ The galleries offer live preview of the selected effects.

Using the Format Pane

- ◆ Right click the object.
- ◆ In the contextual menu, choose *Format ...* from the menu.
- ◆ The *Format* pane opens on the right side of the screen.
- ◆ Depending on the type of object selected notice there are **Shape Options** and **Text Options** listed at the top of the pane.
 - ◆ Selecting either of the options will display tools related to the type of option chosen.

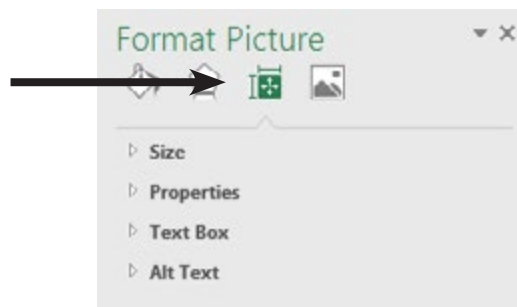


Modifying Graphics, continued

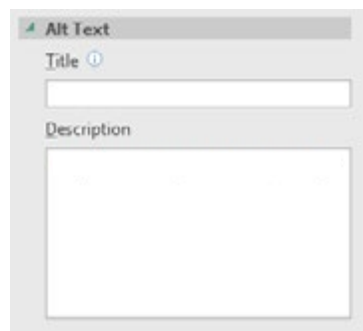
It is also important to make your documents accessible to the visually impaired community. Adding Alt Text to graphic elements will help in this regard. Users who use screen reading software will hear the title and description you add to graphic elements in the file.

Adding Alt Text

- ◆ Select the graphic element.
- ◆ Right click the object and choose *Format (object type)* from the menu.
- ◆ In the *Format* pane click the **[Properties]** button.



- ◆ Expand the *Alt Text* options.



- ◆ Enter a title and brief description of the object.

Action 6.5 - Modifying Objects



Instructions:

1. The **Billing_Template** file should still be open.
2. Select the *Logo* image.
3. Click the **Format Tab** in the ribbon.
4. Expand the **Picture Styles Gallery** drop-down.
5. Hover over each of the pre-built styles.
6. Click the **[Picture Effects]** button in the **Picture Styles Group**.
7. Scroll down to the **Reflections** option and select the first of the reflections from the menu.
8. Right click the *Book* image and choose **Format Picture** from the menu.
9. Click the **Paint Bucket** icon and then click the arrow next to **Line**.
10. Click the **Solid** radio button.
11. Click the **[Color Picker]** button drop down and choose a *Green* color.
12. Click the **[Increase Width]** spinner to set the width to *1.5pt*.
13. Click the **[Effects]** button.

Results/ Comments:

If not, reopen it.

The **Picture Tools Format Tab** is added to the ribbon.

Formatting controls are displayed in the ribbon.

The gallery is expanded, showing the pre-built styles.

This is a Live Preview Gallery.

The list of Effects are displayed in a menu.

The image now has a reflection effect applied.

The **Format Picture** pane opens.

The **Line** options are displayed.

Options related to formatting the line are displayed.

The **Color Picker** dialog is displayed, when you make a choice a border of that color is added to the picture or object.

The width of the border is now 1.5pt's.

The **Pentagon** button at the top of the **Format Picture** pane.

Action 6.5 - Modifying Objects, continued



Instructions:

14. Expand the *Artistic Effects* options.
15. Click the **[Effects]** button and choose *Pencil Sketch* from the menu.
16. Adjust the *Transparency* slider.
17. Select the Text Box.
18. Select *Text Options* at the top of the *Format Shape* pane.
19. Click the **[Text Box]** button.
20. Expand the *Text Box* options if necessary and set the *Vertical alignment* to *Middle*.
21. On the *Home Tab* in the **Paragraph Group** click the **[Center Align]** button.
22. Select *Shape Options* at the top of the *Format Shape* pane.
23. Click the **Paint Bucket** icon and then click the arrow next to *Line*.
24. Click the *Solid* radio button.
25. Click the **[Color Picker]** button drop down and choose a *Green* color.
26. Click the **[Increase Width]** spinner to set the width to *1.5pt*.
27. Click the **[Close]** button in the *Format Shapes* pane.
28. Save the file.

Results/ Comments:

The **[Effects]** button is active.

All the *Artistic Effects* are displayed in the menu. The selected effect is applied.

The original image shows through the effect.

The *Format* pane changes to *Format Shape* pane.

The Text formatting controls are displayed in the pane.

The last of the three buttons near the top of the pane.

The text is now vertically aligned.

The text is now center aligned in the text box.

The text box shape controls are displayed in the pane.

The Fill and Line options are displayed.

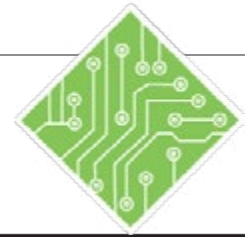
The Line options are displayed.

A green border is applied to the text box.

The width is set.

The *Format Shape* pane closes.

[Ctrl + S].



Instructions:

1. The **Billing_Template** file should still be open.
2. Right click the *Logo* image and choose *Format Picture* from the menu.
3. In the *Format Picture* pane, click the **[Properties]** button.
4. Click the arrow next to the *Alt Text* options.
5. In the **Title:** field type, < **Company Logo** >.
6. In the **Description:** field type, < **This is The Comptuer Workshop Logo** >.
7. Select the Book icon and repeat steps 3 through 6.
8. Select the Text Box and add the *Alt Text*.
9. Save the file.

Results/ Comments:

If not, reopen the file.

The *Formast Picture* pane opens.

The list of picture or object properties is displayed.

The *Alt Text* options are displayed.

Simple titles are a good idea.

The description should also be short and concise.

Add a title and description of your own.

Since this is another graphic elelment, it too should have Alt Text applied.

[Ctrl + W].



Comments

A comment is a note that you can attach to a cell that can describe the cell contents or give instructions for the user. A cell that has a comment attached to it has a red triangle in the upper right hand corner.

Inserting a Comment

- ◆ Click in the cell you want a comment attached to.
- ◆ Select the *Review Tab* and click the **[New Comment]** button; or Right-click on the cell and choose *Insert Comment* from the shortcut menu.
- ◆ In the text box enter your comment. You will see your name at the top of the comment box. If you don't want your name to appear, you can delete it.
- ◆ Resize and format as desired (see below).
- ◆ When you are finished, click outside the box. A small red triangle is placed in the upper right corner of the cell to indicate a comment is attached to the cell.

Resizing a Comment

When you have entered all of the text into the comment box, you may find that you need to enlarge the comment box to view all of the text. You can simply resize the box to the size and shape you desire.

To Resize the Comment:

- ◆ Point to a resize handle (similar to the resize handles on the clip art). When you see a double-headed arrow click and drag it outward (to make the box larger) until you have reached the desired size. Dragging the handle inward will make the box smaller. The choice of resize handle will depend upon the box shape you desire.





Comments, continued

Formatting a Comment

Once you have entered the text into the comment, you can also format the text and other aspects of the comment box such as borders and shading.

- ◆ Click the **Border** of the Comment box.
- ◆ Right-click to get the shortcut menu, select *Format Comment*. You can also use the **Home Tab** to select many of the features you have for formatting text (you will not have all of the formatting options that you have in the *Format Comment* dialog.) In the dialog you can change the style of text as well as the direction of text, the color of the box, or add a border among other things.

Viewing Comments

A cell that has a comment attached to it has a red triangle in the upper right hand corner.

Viewing a Single Comment

- ◆ Pass the mouse over the cell with the triangle to view the comment. This will keep the comment in view as long as you are pointing to it. In order to keep a comment in view, you must show a comment.

Showing a Comment

- ◆ Right-click on the cell containing the comment and select *Show/Hide Comment* from the shortcut menu. The comment will remain in view until you select *Hide Comment* from the shortcut menu. You can also find a **[Show/Hide Comment]** button on the **Review Tab** in the **Comment Group**.

Showing All Comments

- ◆ From the **Review Tab**, click the **[Show All Comments]** button.
- ◆ Click on the **[Next]** button to see the next comment. Click on the **[Previous]** button to see the comments that came before.

Hiding All Comments

- ◆ Click on the **[Show All Comments]** button again - this is a toggle command that toggles between showing and hiding comments.





Comments, continued

Moving a Comment

- ◆ Show the comment(s) you want to move using the **[Show All Comments]** button.
- ◆ Point to the edge of the comment box you want to move. When you see a four-headed arrow, click and drag the box to the desired location.

Editing a Comment

You may find that you want to go back to a comment box later to change the text, resize the comment box or add/change the formatting.

- ◆ Right-click in the cell which contains the comment you want to edit. A shortcut menu will appear. Select *Edit Comment* from the menu.

- OR -

- ◆ Click in the cell containing the comment. Click on the **[Edit Comment]** button in the **Comment Group** on the *Review Tab*.
- ◆ Make any changes you desire.
- ◆ Click outside the box when you are finished.

Deleting a Comment

- ◆ Right-click in the cell which contains the comment you want to edit. A shortcut menu will appear. Select *Delete Comment* from the menu.

- OR -

- ◆ If the *Review Tab* is visible, click in the cell containing the comment. Click on the **[Delete Comment]** button.





Comments, continued

Printing Comments

- ◆ If you want the comments to be printed as they are on the worksheet, click on **[Show/Hide Comment]** or the **[Show All Comments]** button in the **Comments Group** on the *Review Tab* to display the comments on the worksheet.
- ◆ Adjust the size and placement of the comments, so that all of the comments can be seen.
- ◆ Select the *File Tab* and choose **Print**.
- ◆ Click the **[Page Setup]** link.
- ◆ On the *Sheet* tab. Click on the down arrow on the Comments box and select *As displayed on sheet*.
- ◆ Click **[OK]**.
- ◆ Print the worksheet as you normally would.
- OR -
- ◆ If you want them printed at the end of the sheet, select the *File Tab* and choose **Print**.
- ◆ Click the **[Page Setup]** link.
- ◆ On the *Sheet* tab. Click on the down arrow on the Comments box and select *At end of sheet*.
- ◆ Click **[OK]**.
- ◆ Print the worksheet as you normally would.



Action 6.6 - Inserting and Using Comments



Instructions:

1. The **Billing_Template file** should still be open.
2. Click in cell **F5**.
3. On the **Review Tab** in the **Comment Group**, click the **[New Comment]** button.
4. Type the following:
< to enter today's date use the [Ctrl + ;] shortcut. >
5. Click on the worksheet to deselect the Comment Box.
6. Point to the red triangle in the cell.
7. Move the mouse away from the triangle.
8. Right-click in cell **F6**. Select *Insert Comment* from the menu.
9. Type the following:
< This must be entered using the correct formatting. >
then click in the worksheet.
10. On the **Review Tab**, in the **Comment Group**, click the **[Show All Comments]** button.
11. Click the **[Show All Comments]** button again.
12. Click in cell **F6**.
13. Click the **[Edit Comment]** button in the **Comments Group** on the **Review Tab**.

Results/ Comments:

If not, open it.

This is the cell we want to insert our first comment.

A comment box will appear on the screen.

If you wish, you can delete the author's name at the top of the comment box.

A red triangular dot will appear in the upper right corner of the cell to indicate that the cell has a note attached to it.

The comment will appear.

The comment will disappear.

The shortcut menu is an easy way to insert, edit, delete and view comments.

All the comments on the worksheet are displayed.

To hide all the comments.

We need to edit the comment.

The comment box opens.



Instructions:

14. In the comment box, set the cursor at the end of the existing text and type:
< ##-##-## >
when finished, click outside the box.
15. Click in cell F5.
16. On the **Review Tab** in the **Comments Group**, click the **[Show/Hide Comment]** button.
17. Click on the comment box.
18. Point to the resize handle that is located at center bottom of the comment box. When you see a two headed arrow, click and drag down until the entire comment comes into view.
19. Click in the worksheet to deselect the comment box. Right-click on cell F5 and select *Hide Comment*.
20. Click on the **[Next Comment]** button. Continue clicking **[Next Comment]** until you have viewed all of the comments.
21. Click on cell F6.
22. On the **Review Tab** in the **Comments Group**, click on the **[Delete Comment]** button.
23. Save the file.

Results/ Comments:

The comment is edited and disappears when not selected.

The comment hides.

To show a single comment on the screen.

You are now ready to edit the comment. We can not see all of this comment, so we are going to enlarge this box.

This is just like resizing other graphic elements.

This is a way of moving through all of the comments in a worksheet. You can also use this to select a comment to edit.

The comment is deleted. You can also delete comments by right clicking the cell and choosing *Delete Comment* from the menu.

[Ctrl + S].

Templates

Note

You can unlock cells that users' are to enter data into and applying sheet protection to the file before saving it as a template.

A template is a master document which may contain standard formulas, styles, and formats for repeated use. When opened, a copy of the template is opened as a new file, any changes made in the new file will not affect the original template.

Templates help maintain consistency of document structure and content among users and files. Consider developing customized files using range names and macros that run automatically to save time creating similar documents.

Creating a Template

- ◆ Create a new worksheet including any standard text, styles, formats, and macros or open an existing document that you want to convert to a template.
- ◆ Click on the **File Tab**, choose *Save as*.
- ◆ In the *File name* field, type the name for the template.
- ◆ From the *Save as* type drop down list, choose *Excel Template*.
- ◆ Click **[Save]**. The file will automatically be saved in the **Custom Office Templates** file folder.

Using a Template

- ◆ From the **File Tab**, choose the *New* category.
- ◆ In *Excel 2016*, there are 2 categories to choose from - **Featured** and **Personal**
 - ◆ **Featured**: are a set of pre-built templates from Microsoft that have been used in the past. You can also search for pre-built templates by choosing a category below the Search for online templates: field. When you select a category templates related to your choice are displayed.
 - OR -
 - ◆ **Personal**: these are the templates that you have created.
- ◆ Select a Template and then click **[Create]** or simply double-click the Template.
- ◆ A new file based on the template is opened.



Templates, continued

Editing a Template

- ◆ From the *File Tab*, select *Open*. [Ctrl + O]
- ◆ Select the original template from the *Custom Office Templates* in the My Documents folder.
- ◆ Edit the template.
- ◆ Save the file with the original template name to update the template with your changes.



Action 5.1 - Creating a Template



Instructions:

1. The **Billing_Template file** should still be open.
2. From the **File Tab**, choose **Save As**.
3. In the **File name:** field, type **< Billing >**.
4. In the **Save as type:** field, select **Excel Template** from the drop down list.
5. Click **[Save]**.
6. Close the file.
7. Click the **File Tab** and choose **New** from the left side of the backoffice view.
8. Below the Search bar and Suggested Searches, click the **[Personal]** button.
9. Double click the Billing template.
10. Notice the file name in the **Titlebar**.
11. Repeat steps 7 through 9.
12. Save the file as Invoice1.

Results/ Comments:

If not, reopen it.

[F12]. The **Save As** dialog opens.

This will create a document that will open as if it is a new document which will require you to give it a new name when saving.

The file will automatically be saved in the **Custom Office Templates** folder. Until you close the file and open it back up, you are working with the original template. Any changes made can be saved to the original.

The BackOffice view is displayed and when New is chosen the template list and search tools are shown.

The templates saved and stored in the **Custom Office Templates** folder are shown.

A new file based on the template is opened.

Since this is a new file, it uses the template name with a number. This is just like creating a new blank workbook.

A second file is opened and numbered accordingly.

[Ctrl + S]. Save it as an **Excel Workbook**.

Action 5.4 - Using a Template



Instructions:

1. Click the *File Tab* and choose *New*.
2. Click on **[Personal]**. Double-click on **Billing**.

Type the following in the cells designated:

F5	Todays date
F6	12-25-33
B5	YYZ
B6	Limelight Rd.
B7	Columbus, OH 43215
A11	15157
A12	15159
B11	Shrubbery
B12	Nii
C11	F
C12	B
D11	42
D12	6
E11	500
E12	7
3. From the *File Tab*, choose *Save As* or *Save*.
4. Click **[Save]** to accept **Billing1** as the file name.
5. Close all open files.

Results/ Comments:

The BackOffice view is shown.

A new file based on the template is opened.

Use the **[Ctrl + ;]** keyboard shortcut.
Formatted as the comment states.

The totals are calculated.

The *Save As* dialog is displayed.

You can accept the default name given by *Excel* or rename it. You can save it to the default folder (**My Documents**) or another folder of your choosing.

[Ctrl + W] as needed to close all files or use the **[Close All]** button in the QAT.