



## CHAPTER 5: EXCEL

# Tracking Firefighter Training

**E**xcel is an exciting tool that can perform many tasks, including organizing lists of information, crunching numbers, and creating charts. Organizing lists is a database function. An Excel database is an electronic version of a paper filing system. Examples of databases include name and address lists, patient records, and inventory lists. In Excel, you can quickly sort information alphabetically, numerically, and by date. In this chapter, you will use a database to explore Excel basics such as navigating, entering, and editing data.

### LEARNING OBJECTIVES

- Identify the important parts of an Excel window
- Navigate in a spreadsheet and freeze panes
- Enter and edit data
- Move, copy, and sort data
- Insert, delete, and resize columns and rows

## Project: Creating a Training Database

You are an administrator at a fire department in your county. The chief has asked you to set up a training database for firefighters and emergency personnel. You find that Excel is a first-rate tool for the job because it allows you to sort the database on any column; this is particularly helpful for organizing data in the various ways the chief requests.

Last Name	First Name	Hire Date	Rank	Shift
Alexander	Martin	3/24/1999	Firefighter/EMT-Paramedic	3
Bryan	Henry	3/13/1996	Firefighter	2
Cooper	Douglas	2/12/2013	EMT-Paramedic	2
Elizondo	Jose	1/27/1992	Firefighter/EMT-Paramedic	2
Ellis	Gregory	8/14/1992	Firefighter/EMT-Intermediate	1
Frost	Suzanne	5/19/1996	Firefighter/EMT-Basic	1

Sorted by the Last Name column

Last Name	First Name	Hire Date	Rank	Shift
Smith	Anthony	12/16/1991	Firefighter/EMT-Basic	3
Elizondo	Jose	1/27/1992	Firefighter/EMT-Paramedic	2
Ellis	Gregory	8/14/1992	Firefighter/EMT-Intermediate	1
Paulson	Glenn	6/15/1993	Firefighter	1
Jensen	Oliver	8/25/1994	EMT-Intermediate	2

Sorted by the Hire Date column

Last Name	First Name	Hire Date	Rank	Shift
Ellis	Gregory	8/14/1992	Firefighter/EMT-Intermediate	1
Paulson	Glenn	6/15/1993	Firefighter	1
Malik	Hasan	12/4/1995	Firefighter	1
Frost	Suzanne	5/19/1996	Firefighter/EMT-Basic	1
Morgan	Jack	8/1/1996	Firefighter	1

Sorted by the Shift column

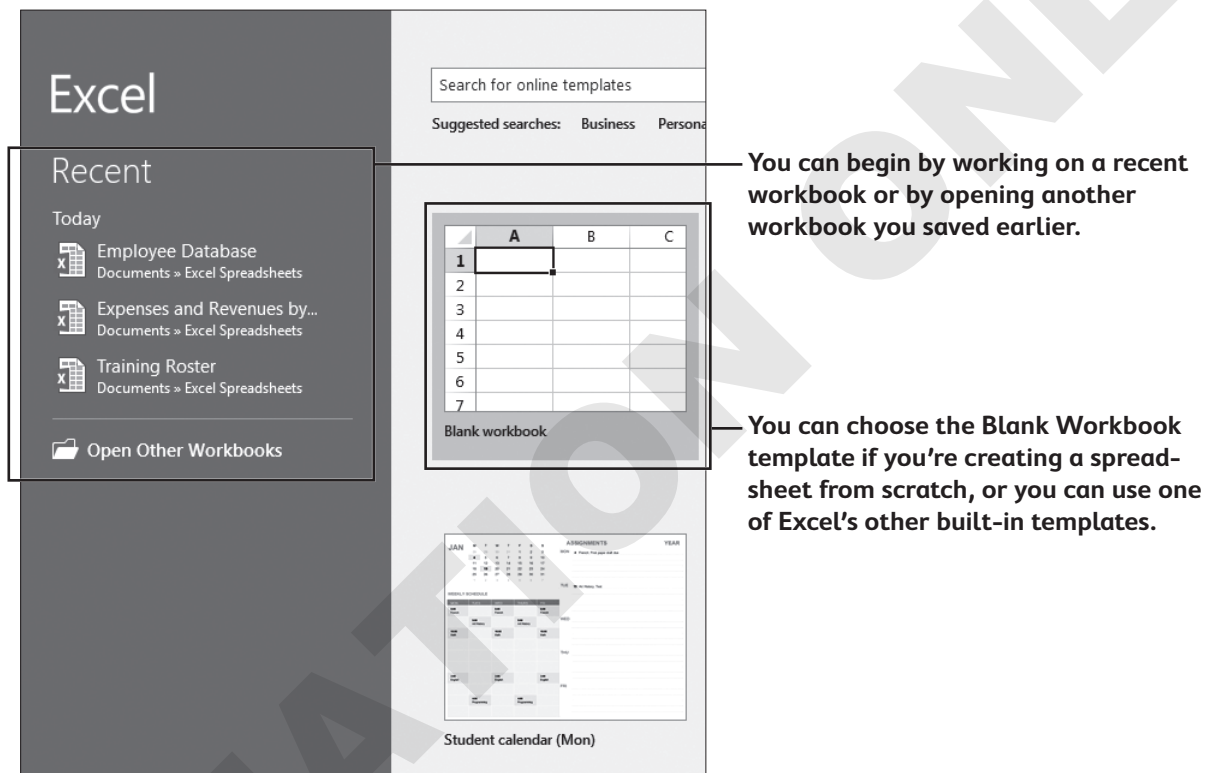
## What Is Excel?

Excel 2016 is a spreadsheet (or worksheet) program that is part of the Microsoft Office 2016 suite of software programs. A spreadsheet program allows you to organize data in columns and rows as well as to analyze the data and perform calculations on it. There are three kinds of entries in spreadsheets: text, numbers, and formulas.

You can use spreadsheets to create a variety of files, including income statements, financial statements, budgets, databases, and invoices.



## The Excel Start Screen

The Excel Start screen is the first screen you see when you start the program. It offers several ways to begin working. Don't be concerned if your Start screen is arranged differently from that shown in this example. If it looks different, it might be because a previous user rearranged the templates on the right side of the screen or because your screen's resolution differs.



### HANDS-ON 5.1 Start Excel

In this exercise, you will start the Excel program.

1. If necessary, start your computer.
2. Click the **Start**  button in the bottom-left corner of the screen.
3. Scroll down the alphabetical list and click **Excel 2016**.  
*The Excel program loads and the Start screen appears.*
4. **Maximize**  the Excel window if it isn't already maximized.
5. Click the **Blank Workbook** template to open the Excel window.  
*Always leave your file open unless directed otherwise.*

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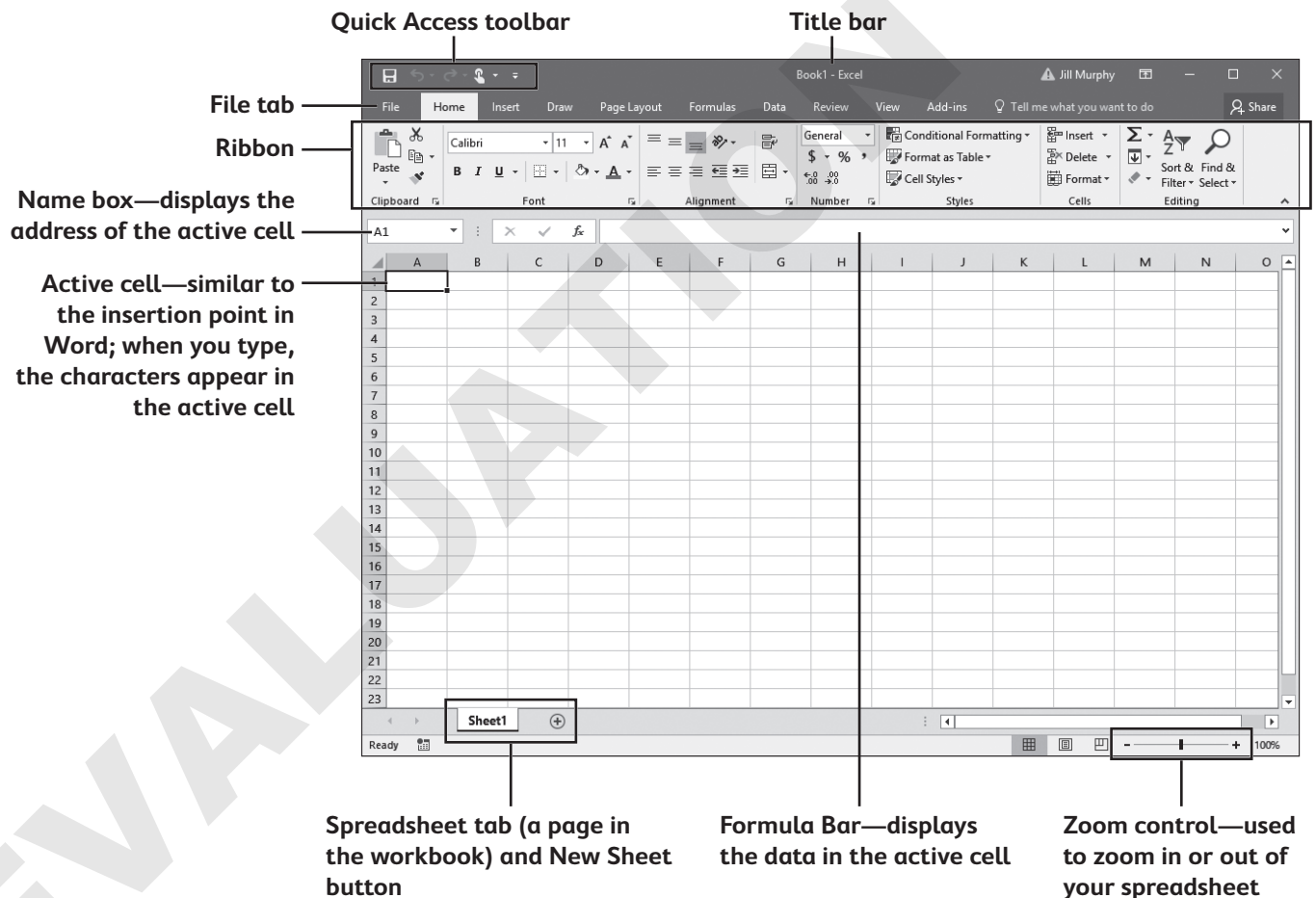
# The Excel 2016 Window

Excel opens with a new, blank workbook that allows you to enter and analyze data, and to maintain lists of information. There are a number of similarities between the Word window and the Excel window. For example, both windows have a File tab, a Ribbon, and a Quick Access toolbar.

## The Suite Advantage

Now you're starting to see the advantage of working with a suite of software programs. When you learn one program, you're a step ahead when it's time to learn the next one.

Don't be concerned if your workbook window looks slightly different from that in the example. Just as in Word, the Excel screen is customizable.



## Workbook Organization

An Excel file is often referred to as a *workbook*. That's because, like a book, it's made up of pages. These pages are known as *spreadsheets* or *worksheets* (see the Sheet 1 tab in the previous illustration).

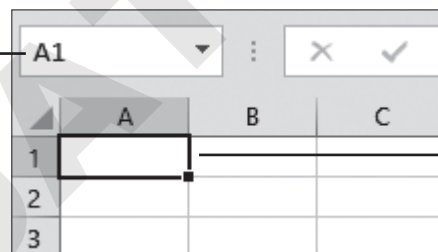
### Spreadsheet

A spreadsheet is made up of a series of columns and rows. The columns are headed with alphabetical characters, and the rows are headed with numbers. There are 16,384 columns and 1,048,576 rows. (That's probably more room than you will ever need!) Since there are only twenty-six letters in the alphabet, when Excel gets to column Z, it starts over, labeling the columns with AA, AB, AC, and all the way through AZ before moving on to BA, BB, BC, and so forth.

### Defining Cells

A small rectangle appears wherever a column and row intersect. These rectangles are known as *cells*. All cells have addresses that are determined by the column and row indicators. The address of the first cell in the upper-left corner of the spreadsheet—in column A and row 1—is A1. A1 is the active cell in the illustration; the active cell has a dark border around it. When you type data, it automatically goes into the active cell.









The address of the active cell appears in the Name box at the left end of the Formula Bar.



This is the active cell (A1).

## Mouse Shapes in Excel

The mouse pointer in Excel takes on many different forms, depending on what you are doing. Excel behaves differently relative to the mouse pointer shape.

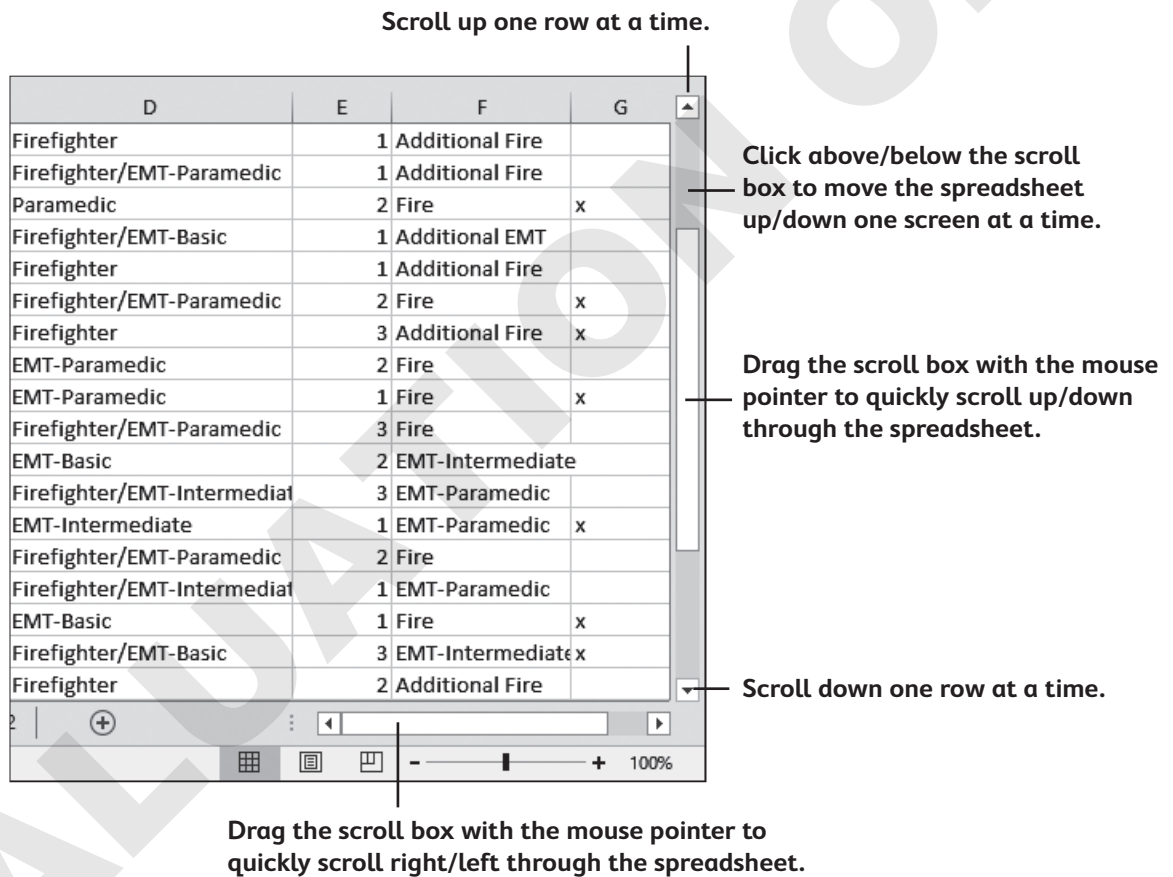
EXCEL MOUSE POINTER SHAPES	
Mouse Shape	Purpose
	The thick, white cross appears when the pointer is over a cell. Clicking with this pointer selects a cell; clicking and dragging selects a range of cells.
	The AutoFill handle (a small, black cross) appears when the mouse pointer is on the tiny square (fill handle) in the bottom-right corner of a selected cell. Dragging the fill handle copies cells or generates a data series (such as 1, 2, 3, 4, etc.) to adjacent cells.
	The mouse pointer looks like a white arrow when moved over the Ribbon or when you use the scroll bars.
	The move pointer appears when the mouse pointer is hovered over the edge of a cell or cell range (except in the bottom-right corner). Clicking and dragging cells allows you to move them to a new location.
	The mouse pointer changes to the resize pointer when placed between row or column headers. Clicking and dragging it allows you to change the size of rows or columns. Double-clicking it makes a row or column as tall or wide as its tallest or widest entry.
	When the mouse pointer is on a row header, it changes to a right-pointing arrow. Clicking it selects the entire row.
	Placing the mouse pointer on a column header changes the pointer to a down-pointing arrow. Clicking it selects the entire column.
	The I-beam appears when you are entering or editing text in the Formula Bar or within a cell.

# Navigating in Excel

If you are working with a large spreadsheet, it's convenient to know some techniques for moving around quickly. There are a number of mouse moves and keyboard techniques you can use, some of which are the same as those used in Word.

## The Scroll Bars

When you navigate using scroll bars, the active cell does not move. After scrolling, you must click in the spreadsheet to reposition the active cell. You can see in the illustration that scrolling in Excel is similar to scrolling in Word.



## HANDS-ON 5.2 Scroll in a Spreadsheet

In this exercise, you will close the blank workbook, open another workbook, and scroll in a spreadsheet.

1. Choose **File**→**Close** and then choose **File**→**Open**.
2. Navigate to the **Chapter 05** folder and open **Training Roster**.

3. Follow these steps to use the scroll bar to navigate within the spreadsheet:

E	F	G	H
<b>Shift</b>	<b>Training</b>	<b>Completed</b>	
	3 EMT-Basic	x	
	1 EMT-Intermediate		
	2 EMT-Basic	x	
	2 Fire	x	
	1 Additional Fire		
	1 Additional Fire		
	2 Fire	x	
	1 Additional EMT		
	1 Additional Fire		
	2 Fire	x	
	3 Additional Fire	x	
	2 Fire		
	1 Fire	x	
	3 Fire		
	2 EMT-Intermediate		
	3 EMT-Paramedic		
	1 EMT-Paramedic	x	

- A** Click the **scroll down** button to move down one row. Press and hold the mouse button to rapidly scroll down.
- B** Click the **scroll up** button once to move up one row. Press and hold the mouse button to rapidly scroll up.
- C** Hold the mouse button and drag the **scroll box** down to quickly move down the spreadsheet. (The change is not dramatic since the spreadsheet is not very long.) Drag the **scroll box** to the top of the scroll bar.
- D** Try similar techniques using the horizontal scroll bar.
- Notice that the active cell does not change position when you scroll through a spreadsheet.*

## The Keyboard

If your hands are on the keyboard, it may be faster to use the keyboard navigation shortcuts provided by Excel. Unlike when scrolling, when you navigate using the keyboard, the active cell moves with you.



EXCEL KEYBOARD NAVIGATION TECHNIQUES	
Command	Description
<b>Ctrl</b> + <b>Home</b>	Moves to cell A1
<b>Ctrl</b> + <b>End</b>	Moves to the end of the data in the spreadsheet
<b>Home</b>	Moves to the beginning of the row
<b>Page Down</b>	Moves down one screen
<b>Page Up</b>	Moves up one screen
<b>→</b> <b>←</b> <b>↑</b> <b>↓</b>	Moves one cell to the right, left, up, or down

## HANDS-ON 5.3 Navigate with the Keyboard

In this exercise, you will use keyboard techniques to move around a spreadsheet.

1. Tap the arrow keys **→** **←** **↓** **↑** on the keyboard a few times to move through the spreadsheet.
2. Press and hold the **down arrow** **↓** to produce a repeat action effect.  
*All four arrow keys perform a repeat action if you hold them down.*
3. Press **Ctrl** + **Home** to move to **cell A1**.  
*Do you remember the same keystrokes in Word? You're getting twice the benefit from one learned task.*
4. Tap **Ctrl** + **End** to move to the end of the data in the spreadsheet.
5. Tap **Home** to move to the beginning of the row.
6. Press **Ctrl** + **Home** to move back to **cell A1**.

## Freezing Panes


You may have a spreadsheet so long that when you scroll down to see the last row of data, the headings at the tops of the columns scroll off the screen, and this can make it difficult to understand the meaning of data. The same is true of a wide spreadsheet and row headings; scrolling to the right could cause the row headings to disappear, again making it difficult to understand what the data represents.

Freezing columns and rows allows you to keep the column and row headings visible while examining data in any part of the spreadsheet—even data that is not close to the headings.

FREEZING COLUMNS AND ROWS	
Command	Description
Freeze Top Row	As you scroll down the spreadsheet, the top row remains visible. The top row is whatever row appears at the top of the screen when you freeze panes; it may not be row 1.
Freeze First Column	As you scroll to the right, the first column remains visible. The first column is whatever column appears at the left edge of the screen when you freeze panes; it may not be column A.
Freeze Panes	Select a cell and choose the Freeze Panes command to freeze everything above and to the left of the selected cell.
Unfreeze Panes	This command unlocks the frozen columns and/or rows.

## HANDS-ON 5.4 Freeze Panes

In this exercise, you will freeze rows and columns so they remain static when you scroll in the spreadsheet.

1. Scroll down the spreadsheet until the column headings disappear off the screen.  
*Without the column headings, it's difficult to understand the meaning of the data.*
2. Press **Ctrl** + **Home** to move to **cell A1**.  
*Now you will freeze the first row.*
3. Choose **View** → **Window** → **Freeze Panes**  and then choose **Freeze Top Row**.  
*Notice the darker line that appears below row 1, indicating that the freeze action is in effect.*

### **Tip!**

The *top row* is the row that happens to appear at the top of the screen at the time you choose Freeze Top Row from the menu; it won't necessarily be row 1.

4. Follow these steps to see the effect of freezing the top row:

	A	B	C	D
1	Last Name	First Name		Rank
16	Alexander	Martin		Firefighter/EMT-Paramedic
17	Mahal	Jasleen		EMT-Basic
18	Wright	Roger		Firefighter/EMT-Intermediate
19	Webster	Alan		EMT-Intermediate
20	Penbrook	Robert		Firefighter/EMT-Paramedic
21	Schultz	Edward		Firefighter/EMT-Intermediate
22	Waldek	John		EMT-Basic
23	Smith	Anthony		Firefighter/EMT-Basic
24	Swan	Edwin		Firefighter
25	Iverson	George		Firefighter/EMT-Basic

- A** Scroll down the screen until **row 16** is just below **row 1**.
- B** Notice that the column headings in **row 1** are still visible, making the meaning of the data easy to understand.

5. Scroll to the top of the spreadsheet.

*Now you will freeze the first column.*

6. Choose **View**→**Window**→**Freeze Panes**  and then choose **Freeze First Column**.

*This unfreezes the first row and freezes the first column. Notice that the darker line is no longer below row 1 and instead appears to the right of column A.*

**Tip!**

The first column is the column that happens to appear at the left edge of the screen at the time you choose Freeze First Column; it won't necessarily be column A.

7. Scroll to the right and notice that the first column remains in place.

*Now you will unfreeze the panes.*

8. Choose **View**→**Window**→**Freeze Panes**  and then choose **Unfreeze Panes**.

*The darker line to the right of column A disappears.*

## Freeze Columns and Rows at the Same Time

9. Select **cell D2** to make it the active cell.

10. Choose **View**→**Window**→**Freeze Panes**  and then choose **Freeze Panes**.

*Notice the darker horizontal and vertical lines that indicate everything above and to the left of the active cell, cell D2, is frozen.*

11. Follow these steps to scroll in both directions:

	A	B	C	F	G
1	Last Name	First Name		Training	Completed
5	Bryan	Henry		EMT-Basic	x
6	Jensen	Oliver		Fire	x
7	Paulson	Glenn		Additional Fire	
8	Sanchez	Barbara		Additional Fire	
9	Gordon	Maxwell		Fire	x
10	Frost	Suzanne		Additional EMT	
11	Morgan	Jack		Additional Fire	

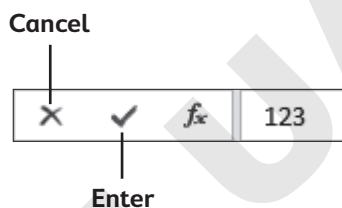
- A Scroll down until **row 5** is just below **row 1**.
- B Scroll right until **column F** is next to **column C**.

12. Choose **View**→**Window**→**Freeze Panes**  and then choose **Unfreeze Panes**.

## Entering Data in a Spreadsheet

Now that you’re getting comfortable with spreadsheet terminology and navigation, it’s time to enter data so you can keep the training roster up to date.

When you start to enter data in a spreadsheet, the Cancel and Enter buttons at the left side of the Formula Bar appear bolder, indicating that you are in the process of entering data.



## Completing and Canceling Entries

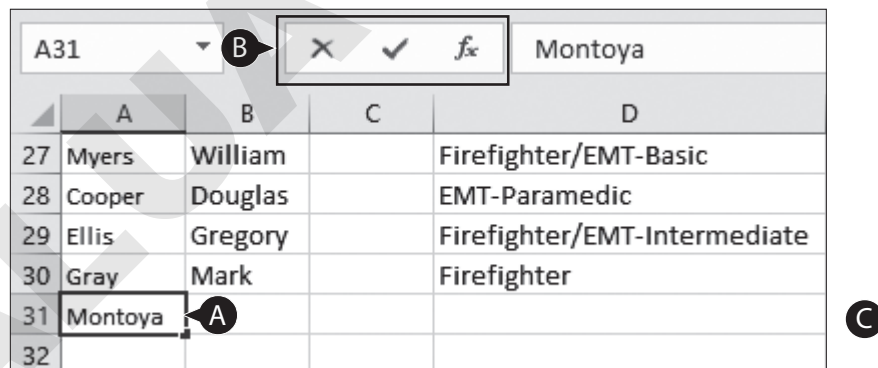
Entering data is a two-step process. Once you type data in a cell, the next step is to complete the entry. If you suddenly realize that you selected the wrong cell, you may want to cancel the entry.

COMPLETING AND CANCELING CELL ENTRIES	
Method	Result
Tap <b>Enter</b>	Excel completes the entry; the active cell moves down one row.
Tap <b>Tab</b>	Excel completes the entry; the active cell moves to the right one column.
Tap an arrow key on the keyboard	Excel completes the entry; the active cell moves in the direction of the arrow.
Click the Enter button on the Formula Bar	Excel completes the entry; the active cell remains active.
Click the Cancel button on the Formula Bar	Excel removes any data typed in the cell; the active cell remains active.
Tap <b>Esc</b>	Excel removes any data typed in the cell; the active cell remains active.

## HANDS-ON 5.5 Enter Data

In this exercise, you will enter data about a new firefighter in a roster spreadsheet using several data entry techniques.

- Follow these steps to enter data in the spreadsheet:



- Select **cell A31** and type **Montoya**. Don't tap **Enter** yet.
- Notice that the Cancel and Enter buttons appear bold on the Formula Bar. This means you have not completed the entry.
- Tap **Enter** to finish entering the data.  
*The Cancel and Enter buttons appear lighter, and the active cell moves down one row.*

- Select **cell A31** again and look at the Formula Bar.

*You see that the data you entered appears in the Formula Bar as well as in the cell. Later in this chapter, you will use the Formula Bar to make editing changes.*

3. Follow these steps to enter data in **cell B31**:

	A	B	C	D
27	Myers	William		Firefighter/EMT-Basic
28	Cooper	Douglas		EMT-Paramedic
29	Ellis	Gregory		Firefighter/EMT-Intermediate
30	Gray	Mark		Firefighter
31	Montoya	Margarita		
32				

**A** Select **cell B31** and type **Margarita**, but don't tap **Enter**.

**B** Click the **Enter** button to complete the entry.

*Cell B31 remains the active cell when you use the Enter button.*

4. Select **cell D31**, type **Firefighter**, and tap **↓** to complete the entry.

*Tapping **↓** has the same effect as tapping **Enter**: The active cell moves down one row. Cell D32 is now the active cell.*

5. Select **cell E31**, type **3**, and complete the entry by tapping **Tab**.

*This moves the active cell one column to the right and makes cell F31 the active cell. You will enter the term Fire in cell F31. Because the word Fire already appears in column F, Excel will use AutoComplete (similar to Word) to enter the term for you.*

6. Type **F** in **cell F31** and watch as Excel autocompletes *Fire*.

7. Tap **Tab** to complete the entry.

**Tip!**

If you want to type something other than what Excel proposes, just keep typing.

8. Save the file.

**QUICK REFERENCE: Deleting, Replacing, and Editing Data**

Task	Procedure
Delete an entry	Select the cell and tap <b>Delete</b> .
Replace an entry	Select the cell, type the new data, and complete the entry.
Edit text in the Formula Bar	Select the cell to make its data appear in the Formula Bar, click to place the insertion point in the Formula Bar, and then modify the data.
Use in-cell editing	Double-click the cell to place the insertion point in it. Modify the data in the cell.

## HANDS-ON 5.6 Edit Data

In this exercise, you will use different editing techniques to modify your spreadsheet. You realize that Mark Gray (row 30) did not complete his Additional Fire training yet, so the first thing you will do is delete the “x” in cell G30.

1. Select **cell G30** and tap **Delete**.  
*Oliver Jensen's last name is incorrect; it should be Jensen, not Justin (row 6).*
2. Select **cell A6**, type **Jensen**, and tap **Enter**.  
*The correct name replaces the original entry. Next you will correct Oliver's title by adding the word Firefighter in front of EMT-Intermediate, editing it in the Formula Bar.*
3. Follow these steps to make the correction:

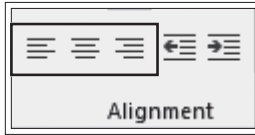
	A	B	C	D	E
1	Last Name	First Name		Rank	Shift
2					
3	Harrington	John		Firefighter	3
4	Kashner	Kevin		Firefighter/EMT-Basic	1
5	Bryan	Henry		EMT-Basic	2
6	Jensen	Oliver		EMT-Intermediate	2
7	Paulson	Glenn		Firefighter	1

- A Select **cell D6**.
  - B Notice that the data appears in the Formula Bar. You will make the correction there.
  - C Click in front of the term *EMT*, type **Firefighter /**, and tap **Enter**.  
*Because Oliver is already a firefighter, he doesn't need Fire training; he needs Additional Fire training. This time you will make the editing change directly in the cell.*
4. Double-click **cell F6**.  
*This places the insertion point in the cell and causes the mouse pointer to change to an I-beam.*
5. If necessary, click in front of *Fire*. Type **Additional**, tap **Spacebar**, and tap **Tab**.  
*The active cell is now cell G6. Oliver has not completed the Additional Fire training.*
6. Tap **Delete** to remove the “x” from **cell G6**.
7. Save the file.

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## Aligning Cell Contents

By default, Excel aligns text to the left edges of cells and numbers to the right edges of cells. You can use the alignment buttons on the Ribbon to modify alignment within cells. They function in a manner similar to the alignment buttons in Word: Align Left, Center, and Align Right.



### HANDS-ON 5.7 Align Data in Cells

In this exercise, you will use the alignment buttons to change the alignment of data in your spreadsheet.

1. Select **cell D1**.
2. Choose **Home**→**Alignment**→**Align Right** .
3. Choose **Home**→**Alignment**→**Center** .
4. Select **cell E1**.
5. Choose **Home**→**Alignment**→**Center** .
6. Center the text in **cell F1**.
7. Save the file.

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## Working with Cell Ranges

A cell range is a group of adjacent cells. You select (highlight) cell ranges when you want to do something with them, such as formatting, moving, or copying them. You can also use cell ranges in formulas, which you will learn about later in the course.

You identify cell ranges by the cell addresses in the upper-left and lower-right corners of the range. A colon is placed between the two cell addresses, such as A1:C10. This is described as A1 *through* C10.

When you select a range of cells, a white cell appears in the upper-left corner of the range. This is the active cell. If you type data, it will appear in the white cell.



**QUICK REFERENCE: Selecting Cell Ranges**

Task	Procedure
Select a range	<ul style="list-style-type: none"> <li>Option 1: Select the first cell in the range, press the mouse button, and drag to the last cell.</li> <li>Option 2: Select the first cell in the range, press <b>Shift</b>, and click the last cell in the range.</li> <li>Option 3: Click the first cell in the range, hold down <b>Shift</b>, and tap the arrow keys to select the range.</li> </ul>
Select a column	<ul style="list-style-type: none"> <li>Click the column header; for example, to select column A, click directly on the A at the top of the column.</li> </ul>
Select a row	<ul style="list-style-type: none"> <li>Click the row header; for example, to select row 1, click directly on the 1 at the beginning of the row.</li> </ul>
Select the entire spreadsheet	<ul style="list-style-type: none"> <li>Click the Select All button (between the row 1 header and the column A header) in the upper-left corner of the spreadsheet.</li> </ul>


**HANDS-ON 5.8 Select Ranges of Cells**

In this exercise, you will use several techniques for selecting cell ranges.

- Follow these steps to select the **range A1:E9**:

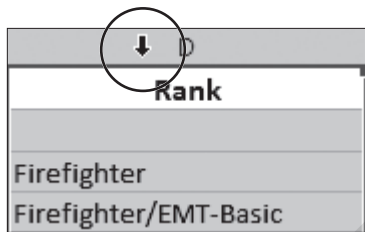
	A	B	C	D	E
1	Last Name	First Name		Rank	Shift
2					
3	Harrington	John		Firefighter	3
4	Kashner	Kevin		Firefighter/EMT-Basic	1
5	Bryan	Henry		Firefighter	2
6	Jensen	Oliver		Firefighter/EMT-Intermediate	2
7	Paulson	Glenn		Firefighter	1
8	Sanchez	Barbara		Firefighter/EMT-Paramedic	1
9	Gordon	Maxwell		Paramedic	2

- Position the mouse pointer in **cell A1**, press the mouse button, and drag down to the right to **cell E9**.
  - Release the mouse button to select the range. If you make a mistake, click anywhere in the spreadsheet to deselect the range and try again.
- Click any cell to deselect the range.
- Select **cell A1**.

4. Hold down **Shift** and click **cell E9** to select the **range A1:E9**.
5. Click any cell to deselect the range.

### Select a Range Using Arrow Keys

6. Click **cell A1** and then hold down **Shift** and tap **→** four times to select through **column E**.
7. While holding down **Shift**, tap **↓** enough times to highlight through **row 9**.  
*Notice that the highlighting of the row headers and column headers helps you see which rows and columns you selected.*
8. Click any cell to deselect the range.  
*Next you will select column D. When you select a column, the mouse pointer looks like a down-pointing black arrow.*
9. Place the mouse pointer over the column header for **column D** and click.



*This selects the entire column—all the way down to row 1,048,576.*

10. Place the mouse pointer over the row header for **row 1** and click.



*This selects the entire row—all the way over to column 16,384.*

11. Click the **Select All** button.

	A	B	C	D
1	Last Name	First Name		Rank
2				
3	Harrington	John		Firefighter
4	Kashner	Kevin		Firefighter/EMT-Basic
5	Bryan	Henry		Firefighter

*This selects the entire spreadsheet.*

12. Press **Ctrl+Home** to deselect and make **cell A1** the active cell.

# Moving and Copying Data

Moving and copying data in a spreadsheet eliminates the need to retype it, thus saving time. When you move data, you remove it from its original position and place it in a new one. When you copy data, the original remains in place while a copy of the data is placed in a new location.

## QUICK REFERENCE: Moving and Copying Data with Cut, Copy, and Paste

Task	Procedure
Move data	<ul style="list-style-type: none"> <li>Select the cell(s) you want to move and then click the Cut button.</li> <li>Click the destination cell and then click the Paste button.</li> </ul>
Copy data	<ul style="list-style-type: none"> <li>Select the cell(s) you want to copy and then click the Copy button.</li> <li>Click the destination cell and then click the Paste button.</li> </ul>

### HANDS-ON 5.9 Move and Copy Data

In this exercise, you will use the Cut, Copy, and Paste buttons to move and copy data.

- Follow these steps to move data from **column F** to **column I**:

E	F	G	H	I	J
Shift	Training	Completed		Training	
	<b>A</b>			<b>C</b>	
3	EMT-Basic	x		EMT-Basic	
1	EMT-Intermediate			EMT-Intermediate	
2	EMT-Basic	x		EMT-Basic	
2	Additional Fire			Additional Fire	<b>D</b>
1	Additional Fire			Additional Fire	
1	Additional Fire			Additional Fire	
2	Fire	x		Fire	
1	Additional EMT			Additional EMT	

- Select the **range F1:F10**.
- Choose **Home**→**Clipboard**→**Cut**.  
*A flashing marquee surrounds the cut cells to indicate that you are in the process of moving them.*
- Select **cell I1**.
- Choose **Home**→**Clipboard**→**Paste**.  
*The data moves from the original range to the new range. At this point there should be no data in the range F1:F10.*

2. Follow these steps to copy data from **column I** to **column K**:

**B**

H	I	J	K	L
	<b>Training</b>		<b>Training</b>	
<b>A</b>				<b>C</b>
	EMT-Basic		EMT-Basic	
	EMT-Intermediate		EMT-Intermediate	
	EMT-Basic		EMT-Basic	
	Additional Fire		Additional Fire	
	Additional Fire		Additional Fire	
	Additional Fire		Additional Fire	<b>D</b>
	Fire		Fire	
	Additional EMT		Additional EMT	

- A** If necessary, select the range **I1:I10**.
- B** Choose **Home**→**Clipboard**→**Copy**.
- C** Select **cell K1**.
- D** Choose **Home**→**Clipboard**→**Paste**.

*Because you copied the data instead of moving it, the data is visible in both columns I and K.*

*The flashing marquee will disappear as you work in the spreadsheet; however, you can make it go away at any time by tapping the **Esc** key.*

3. If desired, tap **Esc**.
4. Save the file.

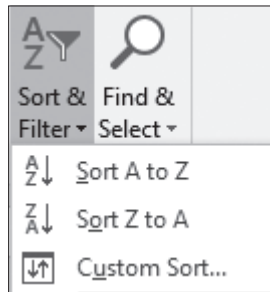
## Sorting Data

Organizing data in a logical sequence often makes the data easier to understand and work with. Sorting information alphabetically or numerically is one of the primary capabilities of a spreadsheet program like Excel. This also means that you can create lists randomly, placing all new entries at the bottom of the list and then asking Excel to sort the list for you.

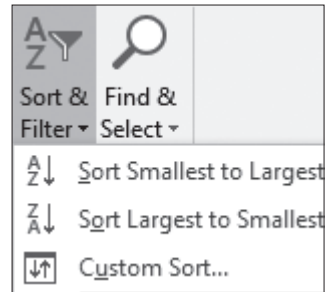
### Kinds of Sorts

The kind of sort Excel offers to perform is based on the type of data in the column by which you want to sort. If you select a cell in a text column, Excel offers to sort from A to Z or from Z to A. If the column contains only numbers, Excel proposes sorting

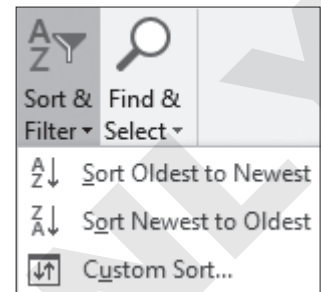
from smallest to largest or from largest to smallest. If the column is populated with dates, Excel will suggest sorting from oldest to newest or from newest to oldest.



Alphabetical sort options



Numeric sort options



Date sort options


## Structuring an Effective List

There are a few things you should keep in mind when creating a list that you can sort effectively.

- **No blanks:** There can be no blank columns or rows in a list. Blanks can cause serious problems when sorting a list. All data must be adjacent. (It's fine to have blank cells *within* a column/row, but the entire column or row cannot be blank.)
- **Consistent terminology:** This ensures that items that are meant to sort together stay together. For example, if you are a car dealer and you sell SUVs, you shouldn't refer to such vehicles as an *SUV* in one row and as a *sport utility* in another row. Excel does not consider these two terms to be the same.


### HANDS-ON 5.10 Sort Data

In this exercise, you will perform an alphabetical sort, a numeric sort, and a date sort. You will begin by switching to the Sheet 2 page in your workbook.

1. Click the **Sheet 2** tab at the bottom of the workbook to switch to that spreadsheet.  
*Notice that there are no blank columns or rows in this list. That's a prerequisite for a successful sort. Now you'll perform an alphabetical sort.*
2. Select any cell in **column A** that is within the list.
3. Choose **Home**→**Editing**→**Sort & Filter**  and then choose **Sort A to Z**.  
*The list is now in alphabetical order by last name. Now you will perform a date sort.*
4. Select any cell in **column C** that is within the list.

- Choose **Home**→**Editing**→**Sort & Filter**  and then choose **Sort Oldest to Newest**.

The oldest date appears at the top of the list. Now you will perform a numeric sort.

- Select any cell in **column E** that is within the list.
- Choose **Home**→**Editing**→**Sort & Filter**  and then choose **Sort Smallest to Largest**.

The shifts are now in numeric order, starting with the first shift.

- Save the file.

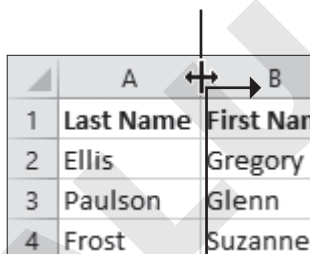
## Working with Columns and Rows

Excel provides the ability to widen and narrow columns and rows, which means you can adjust them to fit the data you enter in them. Rows automatically adapt to the font size you use. You also have the ability to add and delete columns and rows.

### Resizing Columns and Rows

If the data is too wide for a column, you can resize it so all of the data fits the column. If the data is narrow, you can narrow the column width.

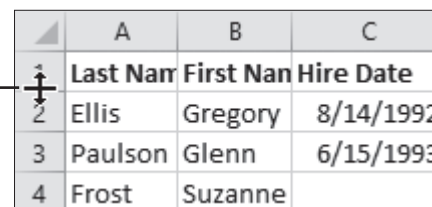
When you position the mouse pointer on the border between the column headers, it changes to a double-headed arrow.



	A	B
1	Last Name	First Name
2	Ellis	Gregory
3	Paulson	Glenn
4	Frost	Suzanne

Pressing the mouse button and dragging to the right/left widens the column or makes it more narrow.

Positioning the mouse pointer on the border between two rows and dragging up/down widens the row or makes it more narrow.



	A	B	C
1	Last Name	First Name	Hire Date
2	Ellis	Gregory	8/14/1992
3	Paulson	Glenn	6/15/1993
4	Frost	Suzanne	

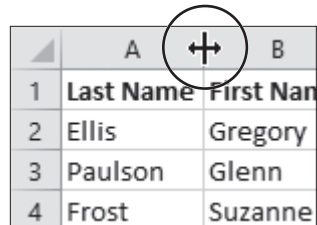
You can also double-click the border between two column or row headers. This makes the column or row wide or tall enough to accommodate the widest or tallest entry in the column. This is known as *Best Fit*.

## HANDS-ON 5.11 Resize Columns

In this exercise, you will resize columns to accommodate the width of the column headings.

1. Position the mouse pointer on the border between **columns A** and **B**.

*The mouse pointer changes to a double-headed arrow.*



	A	B
1	Last Name	First Name
2	Ellis	Gregory
3	Paulson	Glenn
4	Frost	Suzanne

2. Press the mouse button and drag to the right.
3. Release the mouse button when you think *Last Name* is fully visible.
4. If you didn't make the column wide enough, repeat the process until you can see the entire column heading.
5. Position the mouse pointer on the border between **columns B** and **C**.  
*The mouse pointer changes to a double-headed arrow.*
6. Press the mouse button and then drag to the right to widen the column enough to see the complete column heading.
7. Position the mouse pointer between **columns D** and **E**.
8. When the pointer changes to a double-headed arrow, double-click to make the column wide enough for the column data.
9. Use the double-click technique to widen **columns F** and **G**.
10. Save the file.

### Inserting and Deleting Columns and Rows

Once you create a spreadsheet, you may discover that you need to add or remove entire columns or rows. For example, you may need to accommodate a change in the data. You can add or delete a single column or row, or you can add or delete multiple columns or rows at once.

If you select multiple rows or columns before issuing the Insert or Delete command (as described in the table on the next page), the same number of rows or columns that you select will be inserted or deleted.

**Note!** Undo works as well in Excel as it does in Word.

**QUICK REFERENCE: Inserting and Deleting Columns and Rows**

Task	Procedure
Insert rows	<ul style="list-style-type: none"> <li>Select the row where you want the new row to appear.</li> <li>Choose Home→Cells→Insert menu button ▼→ Insert Sheet Rows.</li> </ul>
Insert columns	<ul style="list-style-type: none"> <li>Select the column where you want the new column to appear.</li> <li>Choose Home→Cells→Insert menu button ▼→ Insert Sheet Columns.</li> </ul>
Delete rows	<ul style="list-style-type: none"> <li>Select the row to delete.</li> <li>Choose Home→Cells→Delete menu button ▼→ Delete Sheet Rows.</li> </ul>
Delete columns	<ul style="list-style-type: none"> <li>Select the column to delete.</li> <li>Choose Home→Cells→Delete menu button ▼→ Delete Sheet Columns.</li> </ul>

 **HANDS-ON 5.12 Insert and Delete Columns and Rows**

In this exercise, you will insert and delete columns and rows in your Training Roster file. A firefighter just transferred from another station in your county. He was hired in 1995. Rather than adding him at the bottom of the list and re-sorting the data, you'll add his record above row 4.

- Position the mouse pointer on the row header for **row 4** and then click to select the row.

	A	B	C	D
1	Last Name	First Name	Hire Date	Rank
2	Ellis	Gregory	8/14/1992	Firefighter/EMT-Intermediate
3	Paulson	Glenn	6/15/1993	Firefighter
4	Frost	Suzanne	5/19/1996	Firefighter/EMT-Basic
5	Morgan	Jack	8/1/1996	Firefighter
6	Sanchez	Barbara	9/1/1997	Firefighter/EMT-Paramedic

- Choose **Home→Cells→Insert  menu button ▼** and then choose **Insert Sheet Rows**.

*Row 4 is now a blank row.*





3. Type the information shown in row 4:

	A	B	C	D	E	F	G
1	Last Name	First Name	Hire Date	Rank	Shift	Training	Completed
2	Ellis	Gregory	8/14/1992	Firefighter/EMT-Intermediate	1	EMT-Paramedic	x
3	Paulson	Glenn	6/15/1993	Firefighter	1	Additional Fire	
4	Malik	Hasan	12/4/1995	Firefighter	1	Additional Fire	

Some firefighters are involved in community outreach programs. As part of the database, the chief wants to track which programs the firefighters are involved in. Now you will add a new column for outreach tracking between columns D and E.

- Position the mouse pointer at the top of **column E**.
- When the mouse pointer changes to a down-pointing arrow, click to select the column.

D	E	F
Rank	Shift	Training
Firefighter/EMT-Intermediate	1	EMT-Paramedic
Firefighter	1	Additional Fire

- Choose **Home** → **Cells** → **Insert**  menu button ▼ and then choose **Insert Sheet Columns**.  
After showing the database to the chief, he says he would rather have the Community Outreach column as the last column, so you will now delete the column you just added.
- If necessary, position the mouse pointer on the column header for **column E** and click to select the column.
- Choose **Home** → **Cells** → **Delete**  menu button ▼ and then choose **Delete Sheet Columns**.  
Next you will type the new column heading in cell H1.
- Click **cell H1**, type **Community Outreach**, and tap **Enter**.
- Now you need to widen the column to accommodate the long heading.
- Position the mouse pointer on the border between **columns H** and **I**.
- When the mouse pointer changes to a double-headed arrow, double-click to widen **column H**.
- Save and close the file.



# Self-Assessment

Check your knowledge of this chapter’s key concepts and skills by completing the Self-Assessment.








- |  | true | false | Page number |
|--|------|-------|-------------|
| 1. When you navigate with scroll bars, the active cell does not move.  | true | false | _____       |
| 2. When you’re in the process of entering data in a spreadsheet, the Cancel and Enter buttons appear more bold on the Formula Bar. | true | false | _____       |
| 3. Only the cells in columns A through Z have addresses.   | true | false | _____       |
| 4. Excel’s Sort feature allows you to sort numbers but not dates.  | true | false | _____       |
| 5. If you want to sort a list, you should not have any blank columns or rows in the list.  | true | false | _____       |
| 6. By default, Excel aligns numbers to the left edge of the cell.  | true | false | _____       |
| 7. What are the three kinds of entries in spreadsheets?  |      |       |             |
| A. Formulas, text, and numbers   |      |       |             |
| B. Formulas, numbers, and the Ribbon   |      |       |             |
| C. Numbers, text, and cells  |      |       |             |
| D. Numbers, formulas, and columns  |      |       |             |
| Page number: _____   |      |       |             |
| 8. Use the Freeze Panes feature when _____.  |      |       |             |
| A. you don’t want the data to be modified  |      |       |             |
| B. you want to keep column headings visible while scrolling down   |      |       |             |
| C. you want to select a cell range   |      |       |             |
| D. you want to copy data   |      |       |             |
| Page number: _____   |      |       |             |
| 9. You may want to add columns or rows to a spreadsheet because _____.   |      |       |             |
| A. there aren’t typically enough cells in an Excel spreadsheet   |      |       |             |
| B. you have to add new columns and rows before you can sort data   |      |       |             |
| C. you must add new columns and rows before you can freeze panes   |      |       |             |
| D. you need to accommodate a change in the data  |      |       |             |
| Page number: _____   |      |       |             |
| 10. Which of the following is NOT true about cell ranges?  |      |       |             |
| A. A range of cells is a group of adjacent cells.  |      |       |             |
| B. You must select a range of cells before moving or copying them.   |      |       |             |
| C. When you select a range of cells, the active cell appears in the center of the range.   |      |       |             |
| D. Cell ranges are identified by the cell addresses in the upper-left and lower-right corners of the range.                        |      |       |             |
| Page number: _____   |      |       |             |



# Skill Builders


## SKILL BUILDER 5.1 Enter Data and Work with Columns and Rows


In this exercise, you will review techniques for entering data in a spreadsheet. You will also use this opportunity to change the width of a column and to delete a column and a row. You are keeping a list of places your friends might like to see when they visit you, and you would like to add some more places of interest to your list. Remember, entering data is a two-step process.

1. Open **sb-Tourist Attractions** from your **Chapter 05** folder.
2. Select **cell A17**, type **Blues Festival**, and tap  twice to finish entering the data and move to **column C**.  
*Cell C17 is now the active cell.*
3. Type **Fort Mason** and tap  to finish entering the data.  
*Cell D17 is now the active cell.*
4. Type **September** and tap  to finish entering the data.
5. Tap  to change the active cell to **cell A18**.
6. Type **Grand National Rodeo** and tap  twice to move to **cell C18**.
7. Type **Cow Palace** and then tap  to enter the data and move to **cell D18**.
8. Type **October–November** in **cell D18** and tap  to complete the entry.  
*The data in column A is flowing into column B. You will adjust column A to accommodate the data.*
9. Position the mouse pointer between **columns A** and **B**.
10. When the mouse pointer changes to a double-headed arrow, drag to the right until the vertical line is to the right of the longest entry; release the mouse button.

### Delete a Column and a Row




You no longer need column B, and you would also like to delete the blank row 2.

11. Position the mouse pointer on the column header for **column B**.
12. When the mouse pointer changes to a down-pointing arrow, click to select the column.
13. Choose **Home** → **Cells** → **Delete**  **menu button** ▼ and then choose **Delete Sheet Columns**.



14. Position the mouse pointer on the row header for **row 2**.
15. When the mouse pointer changes to a right-pointing arrow, click to select the row.
16. Choose **Home**→**Cells**→**Delete**  **menu button** ▼ and then choose **Delete Sheet Rows**.
17. Save and close the file.



## SKILL BUILDER 5.2 Navigate, Freeze Panes, and Sort Data

In this exercise, you will move around a spreadsheet, freeze panes, and sort data. Your boss has asked to see the data represented in a few different ways, and Excel's Freeze Panes and Sort features make preparing data for your boss's review a simple matter.

1. Open **sb-Employee Roster** from your **Chapter 05** folder.
2. Click the **scroll down**  button at the bottom of the scroll bar three times to place **row 4** at the top of the spreadsheet.
3. Click the **scroll up**  button at the top of the scroll bar three times to place **row 1** at the top of the spreadsheet.
4. Click the open part of the **scroll bar** below the scroll box to move down one screen.
5. Press **Ctrl**+**Home** to move to **cell A1**.
6. Press **Ctrl**+**End** to move to the end of the data in the spreadsheet.
7. Tap **Home** to move to the beginning of the row.
8. Click **cell C2**.
9. Choose **View**→**Window**→**Freeze Panes**  and then choose **Freeze Panes**.
10. Scroll down and notice that you can still see the column headings.
11. Scroll to the right until **column F** is next to **column B**.




### Unfreeze Panes and Sort Data

12. Choose **View**→**Window**→**Freeze Panes**  and then choose **Unfreeze Panes**.
13. Click anywhere in **column I** within the list.
14. Choose **Home**→**Editing**→**Sort & Filter**  and then choose **Sort A to Z**.  
*The list is now in alphabetical order by department. Next you will sort by zip code.*
15. Click anywhere in **column G** within the list.

16. Choose **Home**→**Editing**→**Sort & Filter**  and then choose **Sort Smallest to Largest**.  
*Finally, you will sort by last name.*
17. Select **cell A2**.
18. Choose **Home**→**Editing**→**Sort & Filter**  and then choose **Sort A to Z**.
19. Save and close the file.



## SKILL BUILDER 5.3 Select Ranges, Edit, and Copy Data

In this exercise, you will make editing changes and copy data from one spreadsheet to three other spreadsheets. Your manager asked you to set up an Expenses and Revenues report she can use to track all four regions she is responsible for. The ability to copy data makes this an easy task.

1. Open **sb-Expenses and Revenues by Region** from your **Chapter 05** folder.  
*Under Expenses, the Rent category should really be Rent/Utilities, so you will make that change first. Then you will add an Advertising category to Expenses.*
2. Select **cell B5** and notice the contents of **cell B5** in the Formula Bar.
3. Click in the **Formula Bar** following the word *Rent*, type **/Utilities**, and tap .  
*Now you'll insert a blank row above row 6 for the Advertising expense category.*
4. Position the mouse pointer on the **row 6 header**.
5. When the mouse pointer changes to a right-pointing arrow, click to select the row.
6. Choose **Home**→**Cells**→**Insert**  **menu button** ▼ and then choose **Insert Sheet Rows**.
7. Select **cell B6**, type **Advertising**, and then tap .

### Copy Data from One Spreadsheet to Another

You've already set up spreadsheet tabs for the South, East, and West Regions. Since all four regions have the same expense and revenue items, you can just copy the data from the North Region into the other spreadsheets.

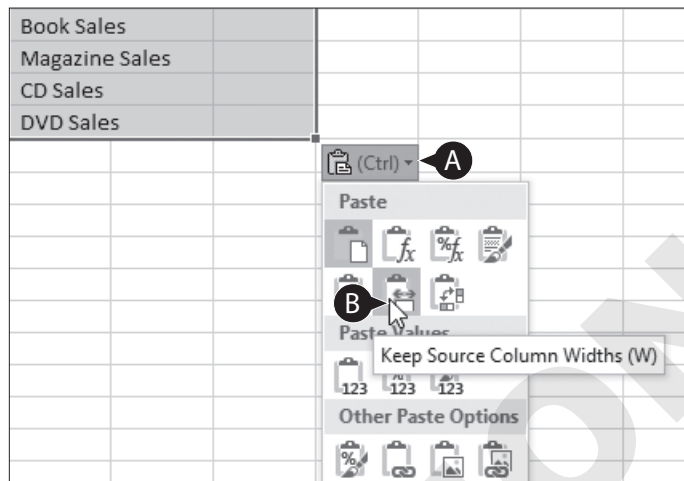
8. Select **cell B2** and then hold down  and click **cell D16** to select a range of cells.
9. Choose **Home**→**Clipboard**→**Copy** .

10. Click the **South Region** tab to switch to that spreadsheet and then select **cell B2**.

11. Choose **Home**→**Clipboard**→**Paste** .

*The data was copied, but notice that the column widths are different from the original. Next you will use the Excel smart tag to keep the column widths the same as those for the North Region.*

12. Follow these steps to keep the original column widths:



**A** Click the **smart tag** to display its menu.

**B** Choose the second icon in the second row, **Keep Source Column Widths**.

*The column widths now match those used for the North Region.*

13. Click the **North Region** tab and notice that the flashing marquee is still active, indicating that the copied material is still in the Clipboard. You don't have to copy it again.

## Copy the Data to the East and West Regions

14. Click the **East Region** tab to switch to that spreadsheet and then select **cell B2**.

15. Choose **Home**→**Clipboard**→**Paste** .

16. Click the **smart tag** at the bottom-right corner of the pasted data and choose the second icon in the second row, **Keep Source Column Widths**.

*You can now go straight to the West Region tab since the copied information is still in the Clipboard.*

17. Click the **West Region** tab and select **cell B2**.

18. Choose **Home**→**Clipboard**→**Paste** .

19. Use the **smart tag** to maintain the column widths from the source data.

20. Switch back to the **South Region** tab and correct the region name in **cell D2**.

21. Now correct the East and West Region names.
  22. Save and close the file.
  23. Exit Excel.
- .....

EVALUATION ONLY

EVALUATION ONLY