

Basic Skills Using Excel 2013

LEARNING OUTCOMES

1. Describe how to insert, delete, merge, and split cells in an Excel worksheet.
2. Describe how to insert and delete rows and columns in an Excel worksheet.
3. Explain how to create and edit formulas in Excel using the formula bar.
4. Describe how to create a chart using Excel.

Introduction to Excel

Microsoft Excel is a spreadsheet program that enables you to enter, manipulate, calculate, and chart data. An Excel file is referred to as a *workbook*, which is a collection of worksheets. Each *worksheet* is comprised of rows and columns of data that you can perform calculations on. It is these calculations that make Excel such a powerful tool.

You can use Excel for a wide variety of purposes, from calculating payments for a personal loan, to creating a personal budget, to tracking employee sales and calculating bonuses for your business.

This plug-in introduces the basics of using Excel 2013. It is designed to show you the nuts and bolts, along with a few fancy features, to get you off to a good start using the program. This plug-in will focus on the following areas:

1. Working with cells and cell data.
2. Formatting worksheets.
3. Formulas.
4. Working with charts and graphics.

Working with Cells and Cell Data

INSERTING AND DELETING CELLS

You may find you want to add some extra space or more information into your worksheet. To do this, you must insert a new cell. This new cell can be left blank, or you can enter information into the cell. When you insert a new cell, you have the option to shift the existing data to the right or down, allowing you to place the new cell exactly where you want it.

To insert a cell:

1. Select the cell or cells where you want to insert the new cell(s).
2. Click the **Home** tab.
3. Click the **Insert** button arrow, and then click **Insert Cells**.
4. Click the **Shift cells right** or **Shift cells down** radio button (see Figure T2.1).
5. Click **OK**.

You can customize your workbook and change the layout of data by deleting cells. Deleting cells not only deletes the information and formatting in the cell, but it also shifts the layout of the workbook. By deleting an empty cell, you shift all the surrounding cells as well.

To delete a cell:

1. Select the cell or cells that you want to delete.
2. Click the **Home** tab.
3. Click the **Delete** button arrow, and then click **Delete Cells**.
4. Click the **Shift cells left** or **Shift cells up** radio button (see Figure T2.2).
5. Click **OK**.

Pressing the **Delete** key on the keyboard will delete the contents of the cell but not the cell itself.

MERGING AND SPLITTING CELLS

Merging and splitting cells is one way to control the appearance of your worksheet. Titles of worksheets are typically centered across the top of the columns of information. Excel allows you to merge and center cells to create a title that appears centered in one cell across the top of your workbook. Excel also allows you to reverse this action by splitting the cell. Splitting a cell converts a merged cell back to several cells, with the information displayed in the uppermost left cell.

To center and merge cells:

1. Select the cells you want to merge, making sure the text you want centered is in the uppermost left cell.
2. Click the **Home** tab.
3. Click the **Merge & Center** button (see Figure T2. 3).

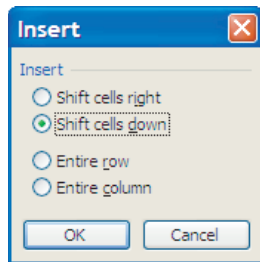


FIGURE T2.1
Inserting a New Cell

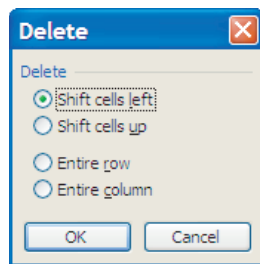


FIGURE T2.2
Deleting a Cell

Select the cells you want to merge and center.

Click the Merge & Center button from the Home tab.

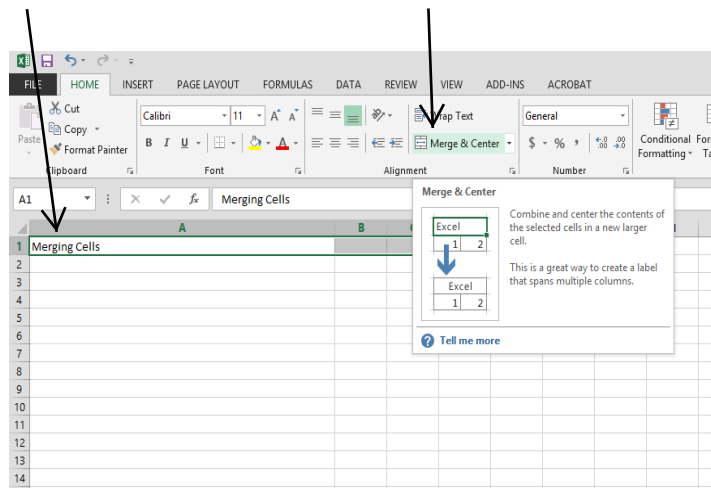


FIGURE T2.3
Merging Cells

To split merged cells:

1. Select the merged cell you want to split into several cells.
2. Click the **Home** tab.
3. Click the **Merge & Center** button arrow, and then click **Unmerge Cells**.

When you select cells to be merged, Excel will center only the data in the upper-most left cell. All other data will be lost.

CUTTING, COPYING, AND PASTING CELLS

The *Cut*, *Copy*, and *Paste* commands are used to move data and other items within a workbook and between applications. Data that are cut are removed from the document and placed on the Clipboard for later use. The Copy command places a duplicate of the selected data on the Clipboard without changing the workbook. The Paste command is used to insert items from the Clipboard into a workbook.

To cut or copy data within a workbook:

1. Select the cell or cells you want to cut or copy.
2. Click the **Home** tab.
3. Click the appropriate toolbar button:
 - a. **Cut** or
 - b. **Copy**
 - c. The cell appears with a flashing dotted line around it.
4. Place the cursor where you want to insert data from the Clipboard.
5. Click the **Paste** toolbar button (see Figure T2.4).

When you cut or copy items, they are placed on the Clipboard. The Clipboard can store up to 24 items for use in the current document or any other application. You can view the contents of the Clipboard at any time by selecting **Clipboard** from the **Home** tab. The icons in the Clipboard identify the type of document from which each item originated (Word, Excel, Paint, etc.). A short description of an item will appear when you select it or move the cursor over its icon.

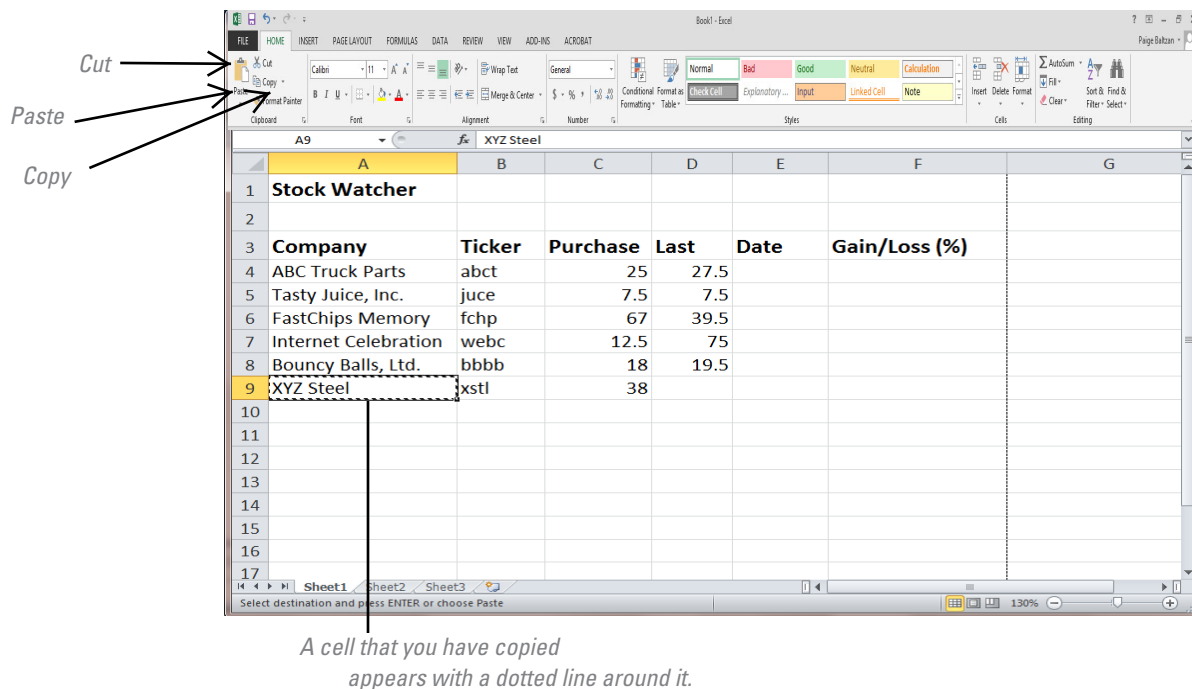


FIGURE T2.4

Copying and Pasting Cells

ENTERING TEXT IN CELLS

Without text headers, descriptions, and instructions, your workbook would consist of numbers and formulas without any structure. Adding text headers to your rows and columns creates the structure for you to enter data into your workbook.

To add text to your workbook:

1. Click in the cell in which you want to add text.
2. Type your text.
3. Click outside the cell to have your entry accepted.

APPLYING NUMBER FORMATS

Formatting your numbers changes the appearance of the data in your worksheet, but does not change their value. The formatted number is displayed in the cell, and the actual value is displayed in the formula bar. Excel provides several numeric formats for you to use in your workbook, including Currency, Percentage, Date, Time, and Accounting.

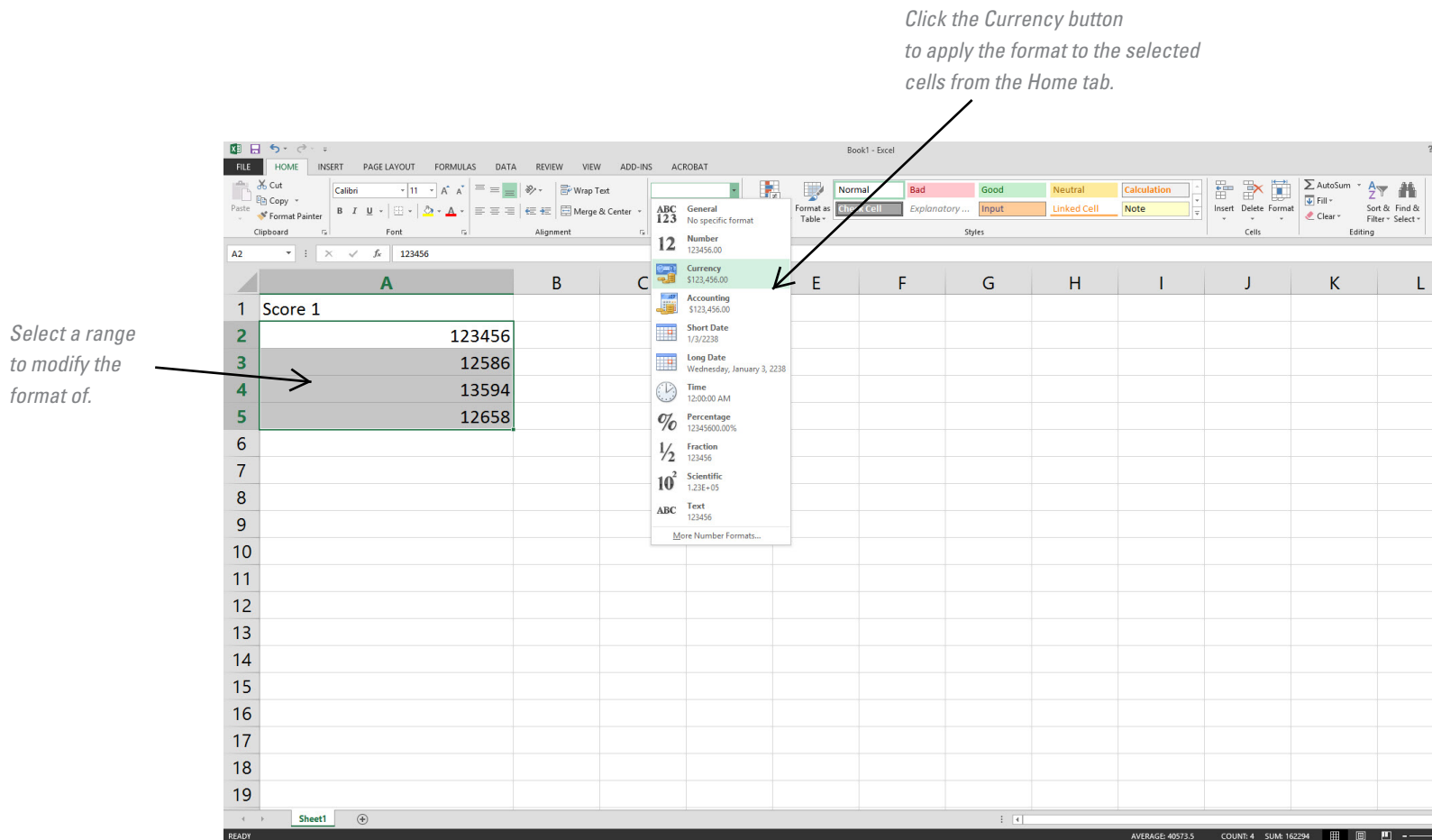
To format numbers:

1. Select the cells you want to format.
2. Click the **Home** tab.
3. Click the **Number** list arrow, and then click the number format from the list (see FigureT2. 5).

Under each number category, you can choose predefined formatting or create and edit formats of your own.

The Formatting toolbar allows you to add default number styles. Select the cell you want to format, and then do one of the following:

- To add the default currency style, click the **Currency Style** button on the **Home** tab.
- To add the default percent style, click the **Percent Style** button on the **Home** tab.
- To add the default comma style, click the **Comma Style** button on the **Home** tab.



APPLYING STYLES

A *style* is the combination of effects that can be applied at one time. Styles can include formatting such as character effects, background color, typefaces, and number formatting. Excel comes with predefined styles including Currency, Comma, and Percent styles, but also gives you the ability to create your own styles in the Style dialog box.

To apply a basic style:

1. Select the cells you want to format.
2. Click the **Home** tab.
3. Click the **Styles** drop down button, and then click the cell style that you want to apply (see FigureT2. 6).

FIGURE T2.5

Applying Number Formats

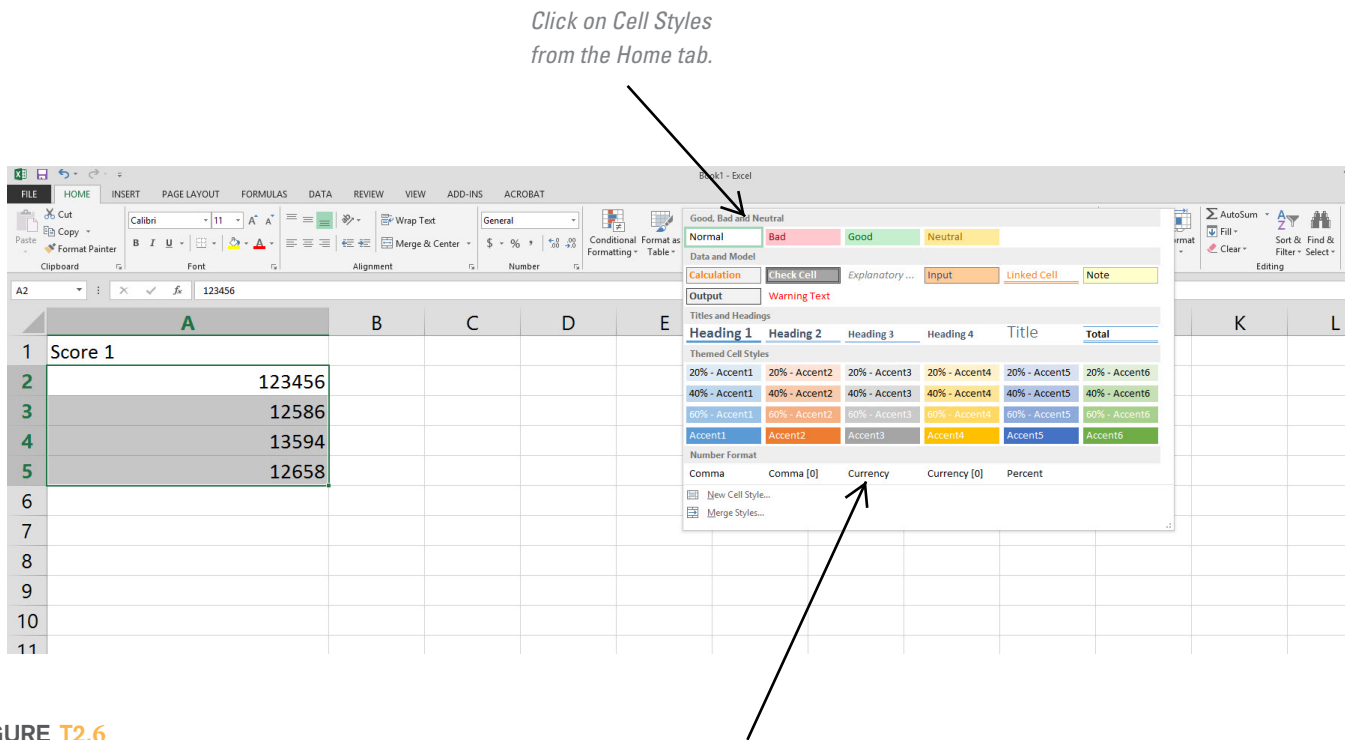


FIGURE T2.6
Applying Styles

Select Currency under the Number Format section.

Formatting Worksheets

INSERTING ROWS AND COLUMNS

You may need to add *rows* or *columns* of new information into your worksheet.

To insert a row:

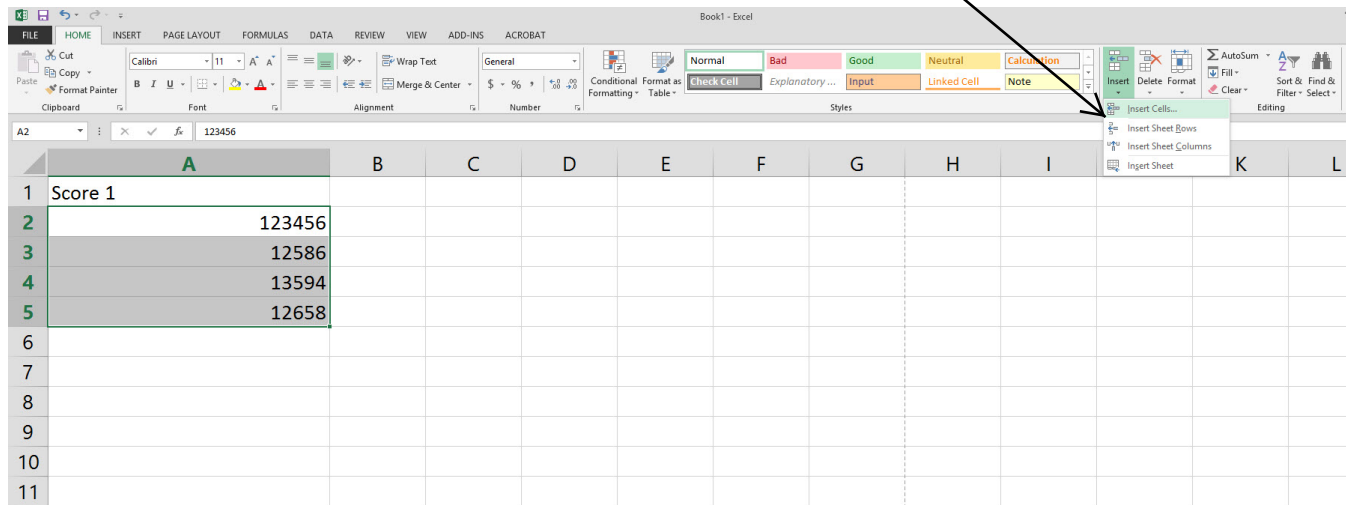
1. Click the row immediately below the location of the row you want to insert.
2. Click the **Home** tab.
3. Click the **Insert** button arrow, and click **Insert Sheet Rows**.

To insert a column:

1. Click to the right of the location of the new column you want to insert.
2. Click the **Home** tab.
3. Click the **Insert** button arrow, and click **Insert Sheet Columns** (see Figure T2.7).

FIGURE T2.7
Inserting a Row or Column

Click rows or columns
from the Insert button.



When you insert a row or column, a smart tag will appear. Click the smart tag to choose formatting options—Format Same As Left, Format Same As Right, or Clear Formatting.

DELETING ROWS AND COLUMNS

When you delete a row or column, you are removing all of those cells from your workbook. Once you have deleted the row or column, it disappears and the rest of the columns and rows move to replace it.

To delete a row or column:

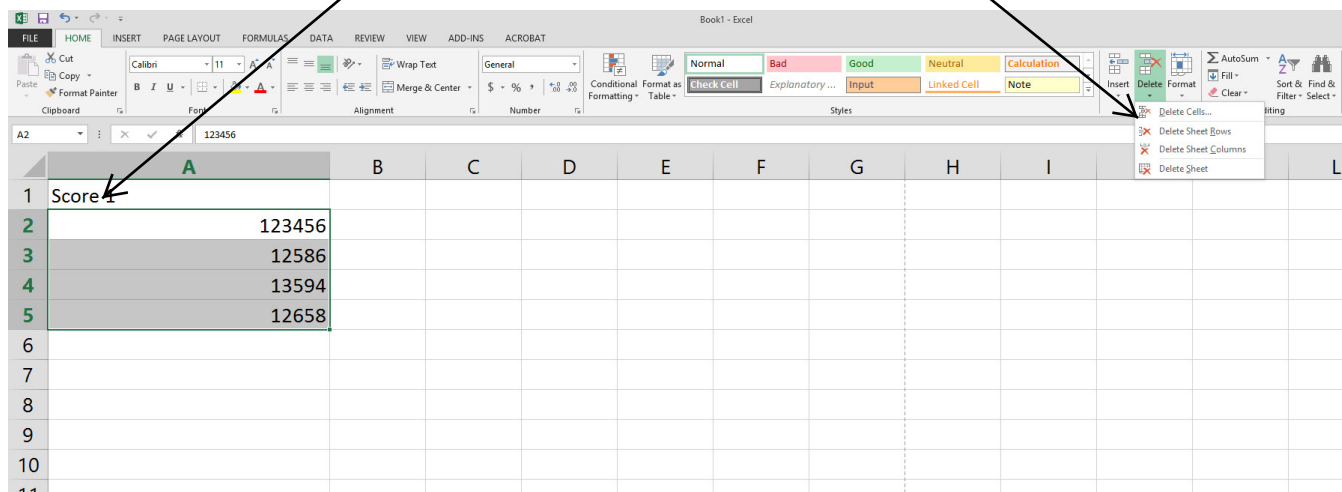
1. Select the row header or column header you want to delete.
2. Click the **Home** tab (see Figure T2.8).
3. Click the **Delete** button arrow and then click **Delete Sheet Rows** or **Delete Sheet Columns**.

Be careful. If you delete a row or column containing data, that data will be lost.

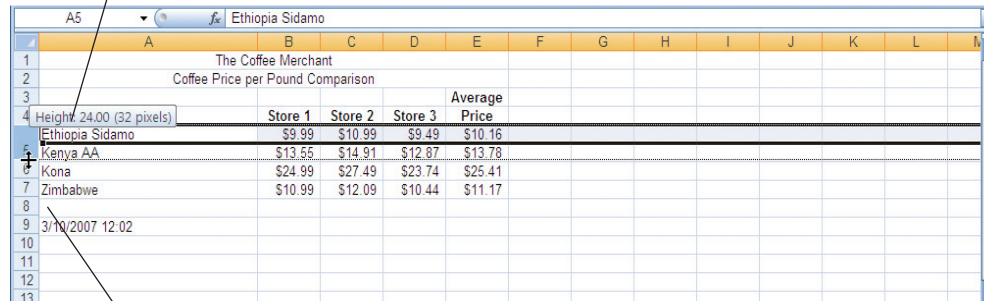
FIGURE T2.8
Delete a Row or Column

Click the row you want to delete.

Click Delete Sheet Rows
from the Delete button.



As you drag, a ToolTip indicates the current height.



When the cursor changes to this shape, drag down to desired height.

FIGURE T2.9
Modifying Row Heights

MODIFYING ROW HEIGHTS

When you first enter data in your workbook, Excel automatically sets the rows of your worksheet according to preferences. You may want to make rows a different height from this default setting.

To modify row heights:

1. Select the row or rows you want to change.
2. Drag the *boundary* (the physical line that separates each column and row) until the row is the height you want (see Figure T2.9).

If you want to change all the rows in your worksheet to the same height, click the **Select All** button (the gray box above Row 1 and to the left of Column A) and then drag the boundary of any row to the height you want.

Double-click the boundary to make the row automatically fit the contents.

MODIFYING COLUMN WIDTHS

When you first enter data in your workbook, Excel automatically sets the widths of the columns. As you type data into multiple columns, you may find that Excel does not display all the text in a cell. You can change the widths of columns in your workbook so that all your information is displayed.

To modify column widths:

1. Select the column or columns you want to change.
2. Drag the boundary until the column is the width you want (see Figure T2.10). If

you want to change all the columns in your worksheet to the same width, click on the **Home** tab, then the **Format** button, and then **Column Width**, and type in the width you want. Alternatively, you can click the **Select All** button (the gray box above Row 1 and to the left of Column A) and then drag the boundary. To make the

FIGURE T2.10 Modifying
Column Widths

When the cursor changes to
this shape, drag across to
desired width.

As you drag, a ToolTip
indicates the current width.

	Store 1	Store 2	Store 3	Average
Ethiopia Sidamo	\$9.99	\$10.99	\$9.49	\$10.16
Kenya AA	\$13.55	\$14.91	\$12.87	\$13.78
Kona	\$24.99	\$27.49	\$23.74	\$25.41
Zimbabwe	\$10.99	\$12.09	\$10.44	\$11.17

column automatically fit the contents of the selected cell, double-click the boundary to the right of the column.

Formulas

ENTERING FORMULAS

A *formula* is an equation that performs calculations between cells in a worksheet or table. A formula always begins with an equal sign. A simple formula may contain cell references and operators.

To enter a formula:

1. Click the cell in which you want to enter the formula.
2. Type = (an equal sign).
3. Type the formula.
4. Click outside the cell or press **Enter** (see FigureT2. 11).

If a formula has more than one operator, Excel will perform mathematical operations in this order:

- Exponentiation.
- Multiplication and division.
- Addition and subtraction.

Adding parentheses around an operation will override this order, forcing Excel to perform calculations within the parentheses first.

USING THE FORMULA BAR

To enter a formula in the formula bar:

1. Select the cell in which you want to add the formula.
2. In the formula bar, type = (an equal sign).

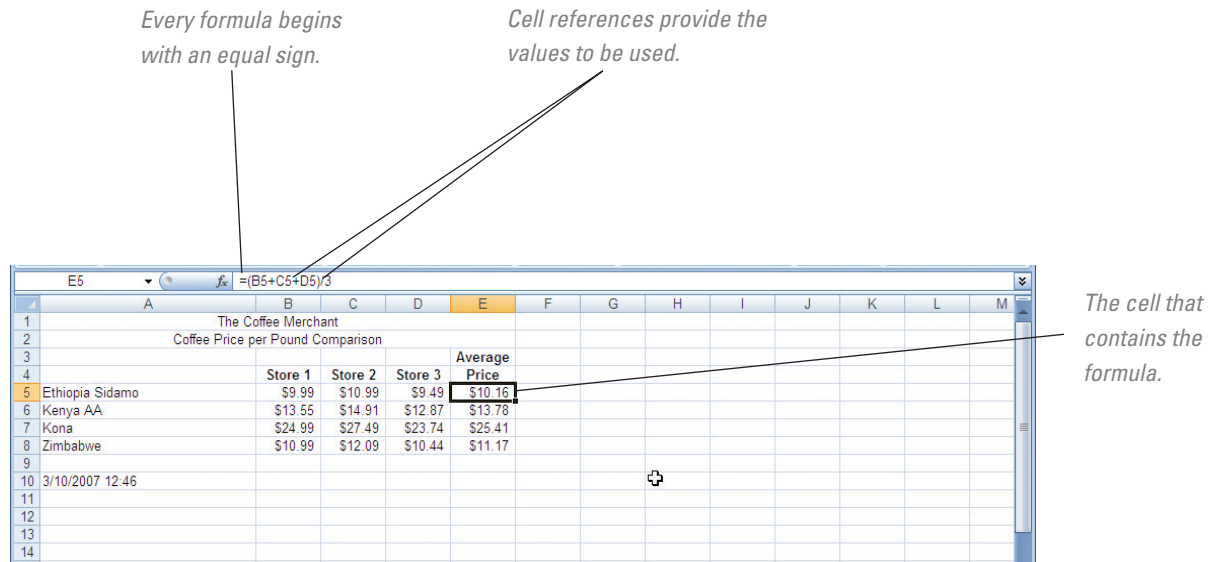


FIGURE T2.11
Entering a Formula

3. Enter the formula (including any functions, operators, references, and/or constants).
4. Click the **Enter Formula** button (see FigureT2. 12).

Formulas can be complex equations. Often when you first enter a formula, you will not get the result you intended. This may be because a cell reference has changed, or because the operations are being performed in an undesired order. Use the formula bar when you need to edit a formula.

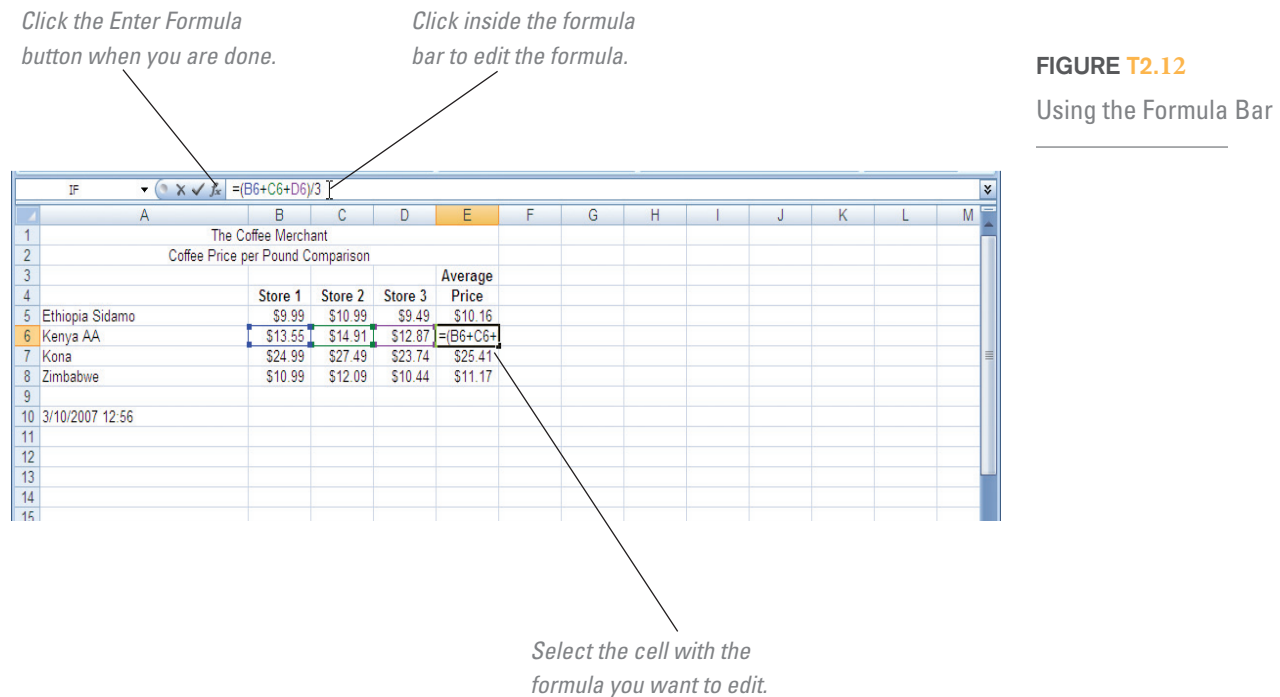
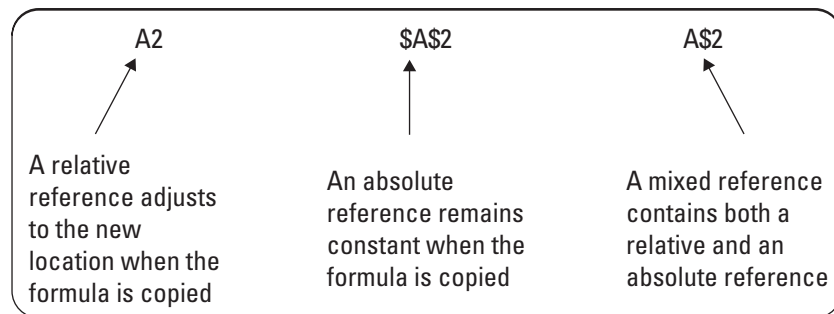


FIGURE T2.12
Using the Formula Bar

FIGURE T2.13
Using Absolute and
Relative References



To edit a formula using the formula bar:

1. Select the cell containing the formula you want to change.
2. Click inside the formula bar.
3. Click and drag to highlight the part of the formula you want to change.
4. Make the changes to the formula.
5. Click the **Enter Formula** button.

USING ABSOLUTE AND RELATIVE REFERENCES

Cell references can be relative, absolute, or mixed. A *relative reference* is a reference that adjusts to the new location in the worksheet when the formula is copied. An *absolute reference* is a reference whose location remains constant when the formula is copied. A *mixed reference* is a reference that contains both a relative and an absolute reference. Figure T2.13 displays an example of each.

To enter an absolute or relative reference:

1. Select the cell to enter a formula.
2. Type the = (equal sign) and the *name of the cell*.
 - To enter an absolute reference, type a \$, the *column name*, another \$, and the *row name* (e.g., \$A\$1).
 - To enter a mixed reference, type a *relative reference* and an *absolute reference* in the cell reference (e.g., A\$1 or A1\$).

By default, formulas use relative references. If you want your formula to have an absolute reference, you must change the reference to absolute.

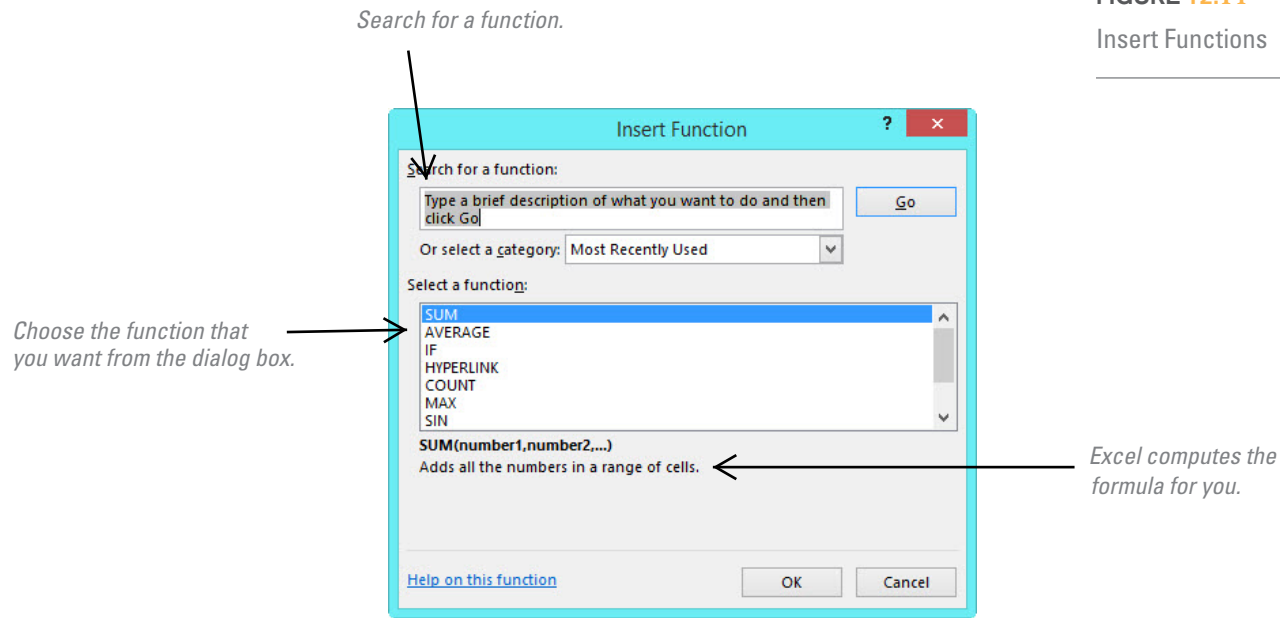
USING THE SUM FUNCTION

The *SUM mathematical function* is used to add several cells together. Instead of writing a formula with several references separated by a plus sign, you can sum a range of cells. A SUM function looks like this: =SUM(A3:A6).

To use the SUM function:

1. Select the cell in which you want to enter the function.
2. Click the **Insert Function** button (*fx*) to the left of the formula bar (view in Figure T2.11).
3. Click **SUM** from the list of **Most Recently Used** in the **Or select a category:** drop-down box, and click **OK**.
4. Enter the range of cells that you want to add.
5. Click **OK** (see Figure T2.14).

FIGURE T2.14
Insert Functions



When you click an *argument box*, a description of the argument appears below the description of the function. An *argument* is a name for a value, expression, or cell reference that is passed to the function for its use in calculating an answer. As you enter arguments, the dialog box will display the results of your formula.

If the SUM function is not in your list of most recently used functions, click the arrow next to the **Or select a category:** box, click **Math & Trig**, and select **SUM** from that list of functions.

USING THE MIN AND MAX FUNCTIONS

The *MIN (minimum) statistical function* will give you the smallest value in a range of values. The *MAX (maximum) statistical function* will give you the largest value in a range of values. These functions look like this:

MIN function: =MIN(A3:A6)

MAX function: =MAX(A3:A6)

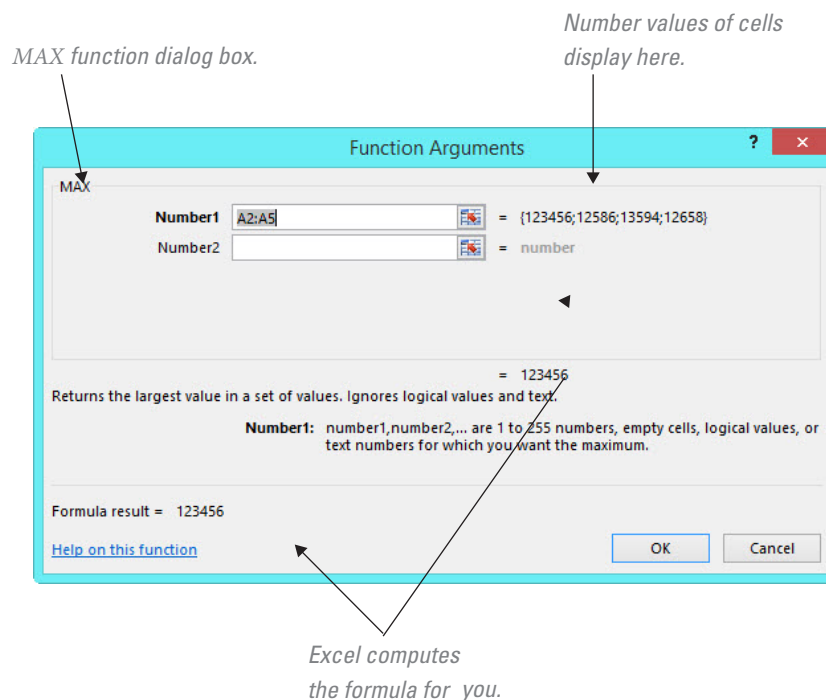
To use the MIN and MAX functions:

1. Select the cell in which you want to enter the function.
2. Click the **Insert Function** button on the formula bar.
3. Click **MIN** or **MAX** from the list of **Most Recently Used** functions and click **OK**.
4. If necessary, enter the range of cells.
5. Click **OK** (see FigureT2. 15).

If the MIN or MAX functions are not in your list of **Most Recently Used** functions, click the arrow next to the **Or select a category:** box, click **Statistical**, and select **MIN** or **MAX** from that list of functions.

When you click an argument box, a description of the argument appears below the description of the function. As you enter arguments, the dialog box will display the results of your formula. By default, Excel will enter a range of contiguous cells for you.

FIGURE T2.15
Using the MIN and MAX
Function



USING THE DATE OR NOW FUNCTION

Use the *Date & Time function* or the *NOW function* to insert the date and time into your workbook. The date and time will be displayed at all times, but will only be updated when the worksheet is calculated. The NOW function looks like this:

=NOW()

To use the NOW function:

1. Select the cell in which you want to enter the function.
2. Click the **Insert Function** button on the formula bar.
3. Click **NOW** from the list of **Most Recently Used** or **Date & Time** functions and click **OK**.
4. The NOW function takes no arguments.
5. Click **OK** (see FigureT2. 16).

The NOW function uses the computer's system clock to determine the date and time.

Working with Charts and Graphics

CREATING A CHART

A *chart* is a visual representation of data from your workbook. Charts add a visual element to your workbook and help convey the information in a simple, easy-to-understand manner (see Figure T2.17).

To create a chart:

1. Select the data you want to use to create a chart.
2. Click the **Insert** tab.
3. Use one of the following methods:

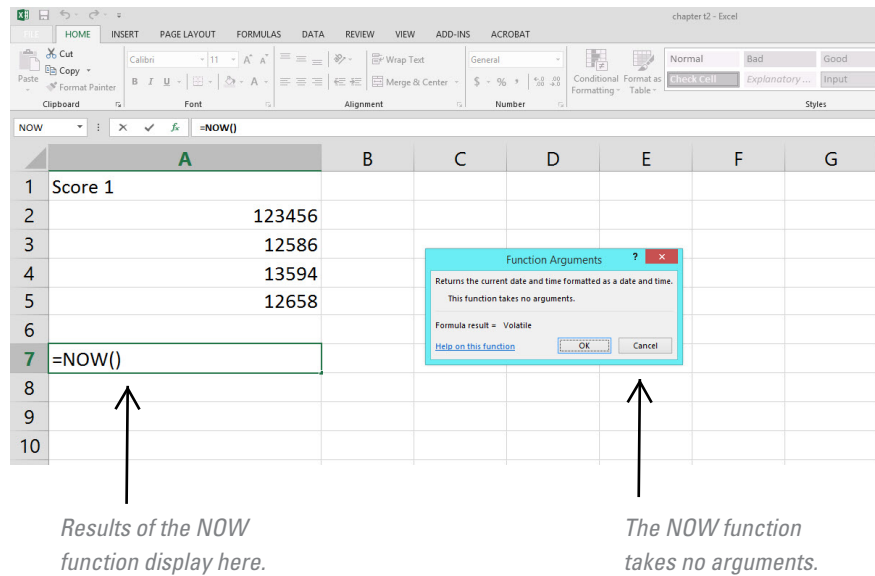


FIGURE T2.16
Using the NOW Function

- **Chart Types.** Click a **chart button** (Column, Line, Pie, Bar, Area, Scatter, Other Charts) in the Charts group, and then click the chart type you want.
- **Recommended Chart.** Click the **Recommended Charts Dialog Box Launcher**, click a **category** in the left pane, click a **chart**, and then click **OK**.

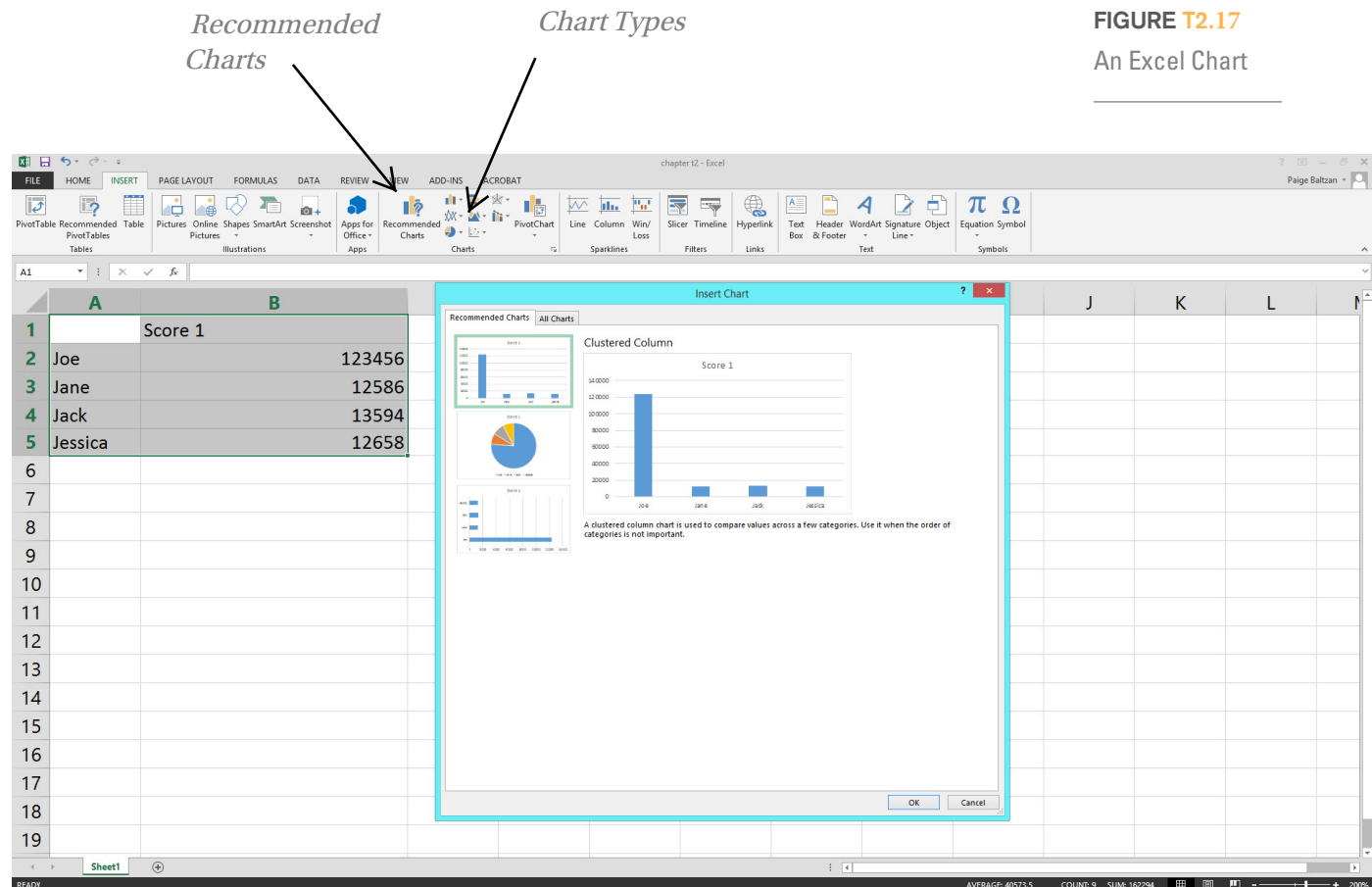
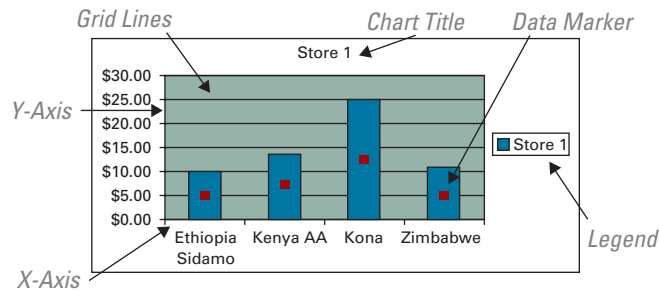


FIGURE T2.17
An Excel Chart

FIGURE T2.18
Modifying Charts



MODIFYING CHARTS

When you modify a chart, you can change any of the options that belong to that chart type. Modifying a chart allows you to change the text of the chart and how it appears on the chart. This includes titles, legends, axes, data labels, and data tables (refer to Figure T2.18).

To change chart elements:

1. Select the chart you want to modify and click the **Design** tab under **Chart Tools**.
 - To change a chart type, click the **Change Chart Type** button.
 - To change a chart layout and style, click the scroll-up or -down arrow, or click the **More** list arrow in the **Chart Layouts** group, and then click the layout you want.
 - To change the chart title, click the **Chart Titles** button.
 - To change the chart labels, click the **Legend** button.

To delete a chart, select the chart and press the **Delete** key.

MOVING A CHART

When you create a chart, Excel places the chart in the middle of the worksheet. However, the chart may be covering data that you want to view. You can move a chart by selecting it and then dragging it anywhere on the worksheet.

To move a chart by dragging:

1. Select the chart you want to move.
2. Click in the chart area margin.
3. With your left mouse depressed, drag the chart to the new location on the worksheet.
4. Release the mouse button.

ADDING GRAPHICS

A *graphic* is a drawing or illustration that can be added to your workbooks. You can add drawing objects such as AutoShapes from the Drawing toolbar. You can also insert clip art and other graphic files into your workbook. These images are embedded objects, meaning they become part of the new document.

To add a graphic to a workbook:

1. Place your cursor where you want the graphic to appear.
2. Click the **Insert** tab.
3. Click the **Picture** button (see Figure T2.19).
4. Select **Insert Picture from File**, then click the **Look in:** list arrow, and then select the drive and folder that contains the file you want to insert.
5. Click the file you want to insert and then click **Insert**.

*Point to Picture
from the Insert tab.*

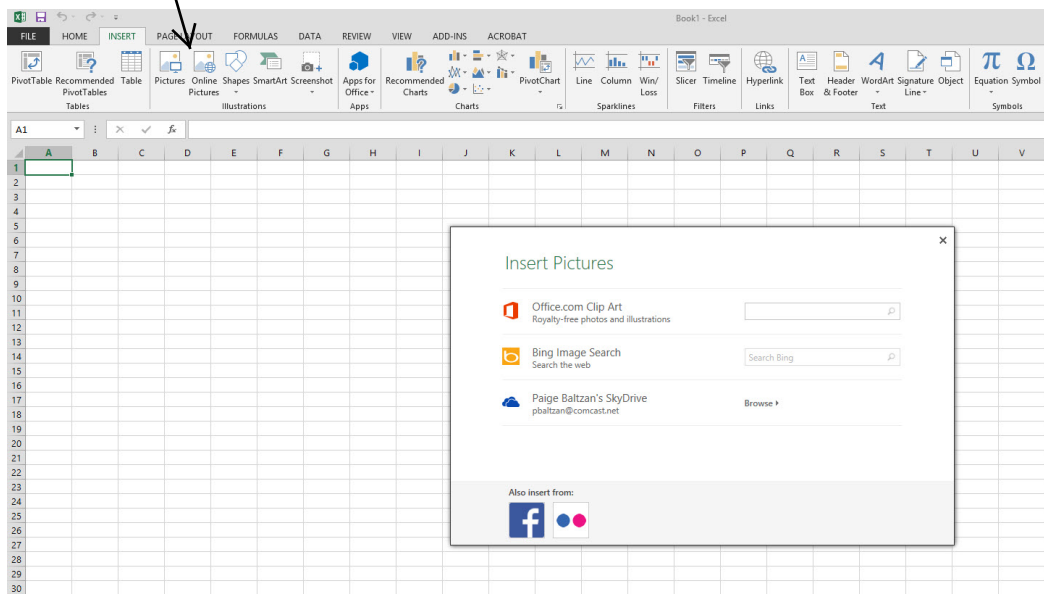


FIGURE T2.19
Adding Graphics

* PLUG-IN SUMMARY

Microsoft Excel 2013 is a general-purpose electronic spreadsheet used to organize, calculate, and analyze data. The tasks you can perform with Excel range from pre-paring a simple invoice to managing an accounting ledger for a business. Areas in Excel were covered in this plug-in:

1. Working with cells and cell data.
2. Formatting worksheets.
3. Formulas.
4. Working with charts and graphics.

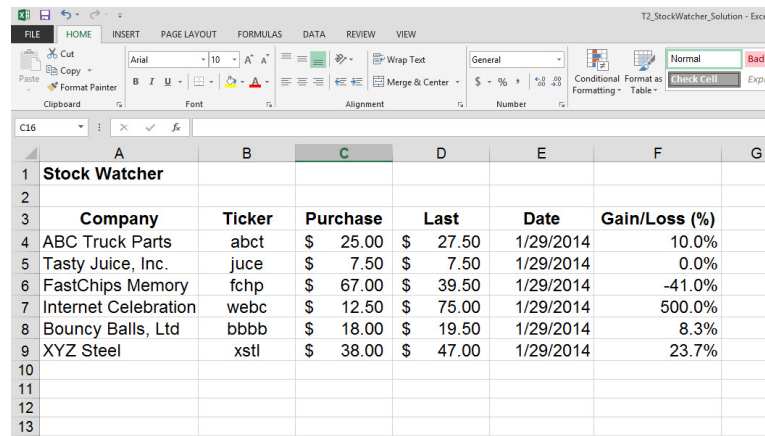
* MAKING BUSINESS DECISIONS

1. Stock Watcher

Mark Martin has created a basic stock watcher worksheet that he uses to report on gains or losses from when he purchased the stock and the last recorded date and price. Mark has given you a snapshot of his spreadsheet (see Figure T2.20) that you can use to re-create this spreadsheet for yourself. Here are some basic steps to follow:

1. Create a new workbook.
2. Enter all the information provided in Figure T2.20.

FIGURE T2.20
Stock Watcher Data



	A	B	C	D	E	F	G
1	Stock Watcher						
2							
3	Company	Ticker	Purchase	Last	Date	Gain/Loss (%)	
4	ABC Truck Parts	abct	\$ 25.00	\$ 27.50	1/29/2014	10.0%	
5	Tasty Juice, Inc.	juce	\$ 7.50	\$ 7.50	1/29/2014	0.0%	
6	FastChips Memory	fchp	\$ 67.00	\$ 39.50	1/29/2014	-41.0%	
7	Internet Celebration	webc	\$ 12.50	\$ 75.00	1/29/2014	500.0%	
8	Bouncy Balls, Ltd	bbbb	\$ 18.00	\$ 19.50	1/29/2014	8.3%	
9	XYZ Steel	xstl	\$ 38.00	\$ 47.00	1/29/2014	23.7%	
10							
11							
12							
13							

3. Apply the Currency format to the respective columns.
4. The date should be entered as a function. **Hint:** Use the NOW function.
5. Enter a formula for the **Gain/Loss (%)** column. **Hint:** You should subtract the **Last** column from the **Purchase** column, and then divide by the **Purchase** column.
6. Format for percent in the **Gain/Loss (%)** column.

2. Total Mischief

Mischief, Inc., is a regional pet toy supplier that tracks its business sales in a spreadsheet. The owner, Lisa Derrick, has provided you with a skeleton worksheet, **T2_TotalMischief_Data.xls**, with the totals for each quarter by sales region. Lisa needs you to total each column and row, and then provide her with a clustered column chart of each region by quarter. See Figure T2.21 for a sample of what Lisa would like you to do.

3. Recycling Can

For the past 10 years, five Colorado cities have held a recycling contest to see which city does the best job of recycling plastic, glass, and aluminum. Those participating in this year's contest are Arvada, Centennial, Lakewood, Highlands Ranch, and Parker.

To make the contest fair for both large and small cities, the winning city will be the one that recycles the largest number of cans per capita—the number of cans recycled divided by the number of city residents.

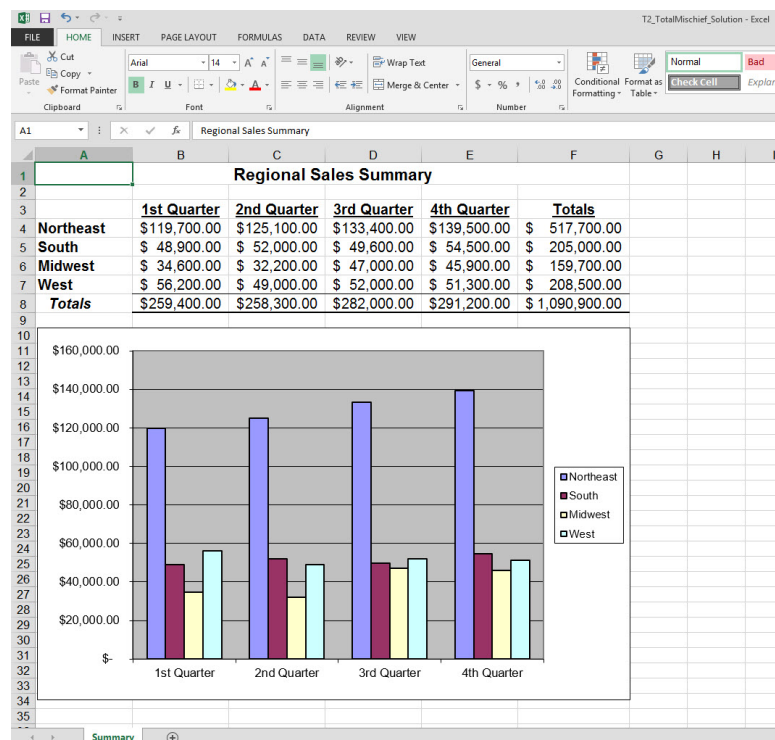


FIGURE T2.21
Total Mischief
Spreadsheet

FIGURE T2.22

Recycling Can Contest Worksheet

City	Population	Jan	Feb	Mar	Total	Per Capita
Arvada	15,855	10,505	24,567	12,567	47,628	3.00
Centennial	28,951	24,567	21,777	26,719	73,063	2.52
Lakewood	142,547	102,376	105,876	121,987	330,239	2.32
Highlands Ranch	2,801,561	2,714,664	2,503,344	1,999,877	7,217,885	2.58
Parker	1,689,908	1,523,665	1,487,660	1,002,545	4,013,870	2.38
Total		4,375,777	4,143,213	3,163,695	11,682,685	
Minimum		10,505	21,777	12,567		
Average		875,155	828,643	632,739		
Maximum		2,714,664	2,503,344	1,999,877		
Potential Revenue		\$ 87,516	\$ 82,864	\$ 63,274		

You have been asked to help the coordinator, Jill Slater, to compile the numbers in an Excel worksheet and create the formulas to compute the total recycling by city each month, total recycling for all cities each month, and the per capita recycling value that determines the contest winner. In addition, Jill wants to know a few statistics about the monthly recycling efforts, including the minimum, average, and maximum number of cans recycled. Jill has provided you with sample data, **T2_RecyclingCans_Data.xls**. Figure T2.22 shows a sample of what Jill would like to see as a completed worksheet.

4. MusicPlayerz Sales Projections

MusicPlayerz is a wholesale MP3 distributor headquartered in Morrison, Colorado. Corporate buyers for the retail stores contract with MusicPlayerz to supply and ship MP3s to warehouses scattered throughout the western United States. MusicPlayerz chief procurement officer Julianne Beekman oversees the purchase and distribution operations for all divisions from the Morrison office.

MusicPlayerz also maintains a small Web site from which it sells to consumers. While the online store is not a large part of the revenue stream, it is an essential and growing part of MusicPlayerz's business. Julianne has developed a sales report for the coming year, using the previous year's figures as the basis of the projection. Julianne wants to investigate sales predictions based on the assumption that next year's wholesale sales will increase by 10 percent for each product included in the projection.

Julianne has asked you to complete the worksheet she has provided you, **T2_MusicPlayerz_Data.xls**, for her presentation at the annual board meeting next month. You will have to calculate the following:

- Projected 2018 sales (this is 10 percent more than 2017 figures).
- Gross sales (this is the projected 2018 sales times the price).
- Profit.
- Percent of sales.

FIGURE T2.23
MusicPlayerz Sales
Projection Worksheet

	Cost	Price	Actual 2017 Sales	Projected 2018 Sales	Gross Sales	Profit	% of Sales
Fruit							
Creative Zen Nano	\$ 59.00	\$ 69.99	121,000	133,100	\$ 9,315,669	\$ 1,462,769	8.8%
Apple iPod Shuffle 512MB	52.99	69.99	159,200	175,120	12,256,649	2,977,040	17.9%
Sandisk e140 Series 1GB	74.99	89.99	98,000	107,800	9,700,922	1,617,000	9.7%
Sony Walkman Bean 512MB	74.99	89.99	100,700	110,770	9,968,192	1,661,550	10.0%
iRiver Jukebox w/Color Display 512MB	82.99	99.99	97,067	106,774	10,676,302	1,815,153	10.9%
Apple iPod nano 1GB	131.99	149.99	197,000	216,700	32,502,833	3,900,600	23.5%
Creative Labs Zen Micro 6GB	177.99	189.99	101,970	112,167	21,310,608	1,346,004	8.1%
Toshiba Silver 20GB	181.99	199.99	92,000	101,200	20,238,988	1,821,600	11.0%
Totals			966,937	1,063,631	\$ 125,970,164	\$ 16,601,716	100.0%

Figure T2.23 shows a sample of what Julianne would like to see as a completed work-sheet.