UNIT 2 Advanced Excel 2010: Business Finances

Unit Objectives:

After completing this Unit, you will understand:

LESSON 1

Advanced Data Organization

LESSON 2

Advanced Data Analysis

LESSON 3

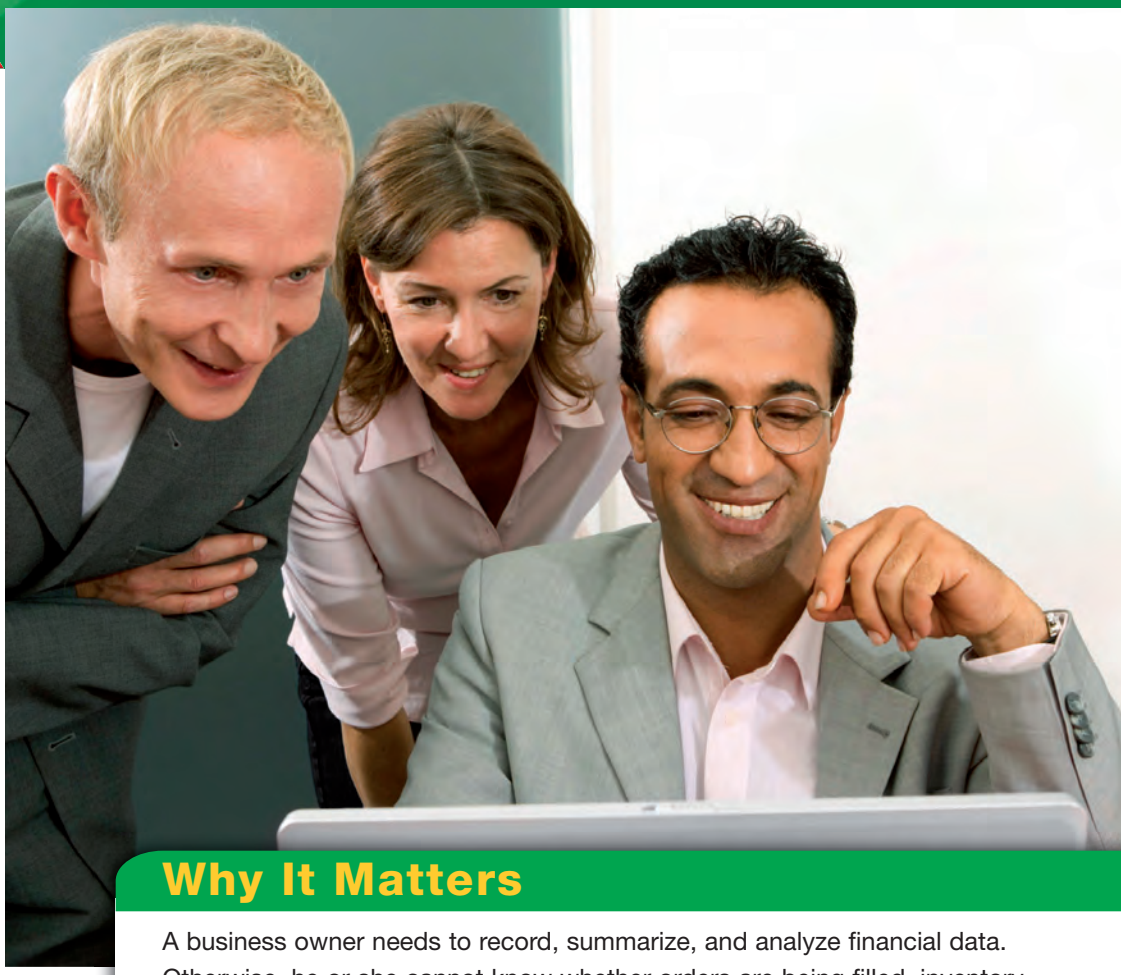
Advanced Data Formatting

LESSON 4

Advanced Collaboration

LESSON 5

Advanced Data Management



Why It Matters

A business owner needs to record, summarize, and analyze financial data. Otherwise, he or she cannot know whether orders are being filled, inventory is being stocked, or profits are being made. A spreadsheet application like Excel will enable you to take control of business data. Knowing how to use Excel to control business data will help you get a job in business or start a business of your own. ***What would you like to learn to do with Excel?***

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UNIT 2 Careers and Technology

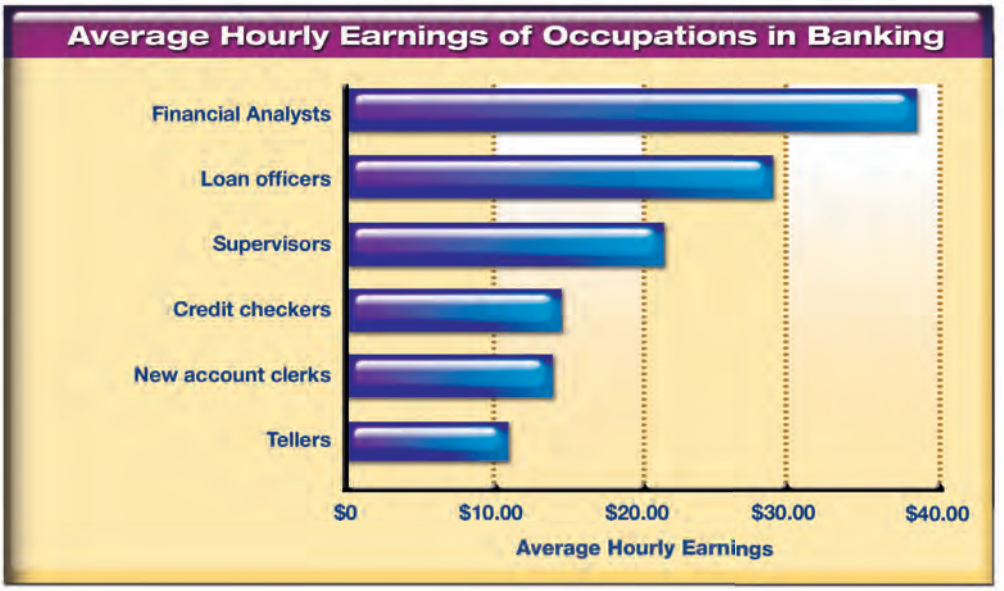
How Can You Use Excel to Make Decisions in the Workplace?

Career Checklist

To use Excel as an effective decision-making tool in the workplace, remember to:

- ✓ Combine, interpret, and summarize data from more than one source.
- ✓ Use formatting options to highlight key information.
- ✓ Perform complicated calculations.
- ✓ Use math skills and tools to validate and correct data.
- ✓ Compare alternative data and evaluate alternatives.
- ✓ Use your interpersonal skills to explain your recommendations to others.

For many businesses, Excel is used to analyze and interpret data. Based on this analysis, important decisions can be made. For example, the banking industry requires employees at every level to analyze data and to make decisions accordingly. Employees may use Excel to decide whether to take on a new customer, accept a loan application, or invest in a particular stock.



Using Excel At Work

Every bank employee will probably use Excel at some point in his or her career. A teller may use Excel to track customer transactions. Supervisors can use Excel to create internal budgets and to track payroll. Loan officers and financial analysts will use Excel's advanced tools to calculate loan rates and to evaluate potential financial investments. The more familiar an employee is with Excel's advanced data analysis tools, the more complicated his or her responsibilities and decisions are likely to be.

READING CHECK

1. **Evaluate** Choose one of the banking careers in the chart above. List three ways that you think Excel skills might help you prepare for that occupation.
2. **Calculate** Determine the annual full-time salary for a new account clerk. Assume that the pay is based on a 40-hour work week for 52 weeks per year.
3. **Explain** Why do you think a financial analyst makes more than a teller?

LESSON 1 Advanced Data Organization

Key Concepts

- Create and modify list ranges
- Create advanced filters
- Create subtotals and grand totals
- Group and outline data
- Apply data validation
- Circle invalid data
- Remove duplicate values
- Name a cell range

Standards

The following standards are covered in this lesson. Refer to pages xxiv and 715 of the Student Edition for a description of the standards listed here.

ISTE Standards Correlation

NETS•S

1c, 3d, 4a, 4c, 4d, 6a

Microsoft Office Specialist

Excel

1.1, 2.1, 3.1, 3.2, 3.3, 5.5, 5.6, 8.1, 8.2

An Excel worksheet is laid out like a huge grid with 16,384 columns and 1,048,576 rows. This makes it an ideal place to store the huge amount of data that businesses require today. Knowing how to organize this data is just as important as gathering the information. In this lesson, you will learn how to use Excel's advanced tools and features to help manage data. You will also learn to group and outline data, name a cell range, and use a name in a formula.

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21st CENTURY SKILLS

Learn by Doing If you want to learn to dance, you can read or listen to instructions, but unless you try doing it yourself, you will never really know how. The same is true about learning Excel. Watching your teacher demonstrate new concepts or reading about them will give you a general idea of how to use Excel. However, the best way to understand the program thoroughly is to use the features to check your work. You may make mistakes, but with practice you can perfect your skills! *Name a skill that you recently learned well by practicing.*

LESSON 1 Reading Guide

Before You Read

Prior Knowledge The more you know about a subject, or can put it in context, the more you understand. Look over the Key Concepts at the beginning of the lesson. Then, write down what you already know about each objective and what you want to find out by reading the lesson. As you read, find examples for both categories.

Read To Learn

- Use list ranges to manage and organize related data.
- Explore how Excel filters allow you to show or hide specific records.
- Consider how to group your data and create subtotals per group.
- Learn how to use data validation to control how the user keys in records to help prevent errors.

Main Idea

Excel has many advanced tools and features to improve the way you manage, access, and organize data.

Vocabulary

Key Terms

advanced filter
criteria
data validation
duplicate value
Evaluate Formula
name
Name Manager
subset
subtotal

Academic Vocabulary

These words appear in your reading and on your tests. Make sure you know their meanings.

convert
error
interpret
sum

Quick Write Activity

Describe On a separate sheet of paper, describe why Excel is an ideal place to store a huge amount of data. Create a list of the different types of information that a business may need to save.

Study Skills

Review Your Notes You can improve your recall at exam time if you look over your notes the same day you take them. Make sure they are clear and add any information that you forgot to add in class.

Academic Standards

Language Arts

NCTE 5 Employ a wide range of strategies while writing to communicate effectively with different audiences.

Math

NCTM (Number and Operations) Understand numbers, ways of representing numbers, relationships among numbers, and number systems.

NCTM (Number and Operations) Understand meanings of operations and how they relate to one another.

Step-By-Step

EXERCISE 1-1
Create and Modify List Ranges

In Microsoft Excel 2010, you can use a table to manage and organize related data. You can select a range, or sequence, of cells that you want to make into a table. Since many tables have a huge amount of data in them, you can use the AutoFilter tool to find and work with a smaller amount, or **subset**, of data. In this exercise, you will create a table and use the AutoFilter to sort and filter information in the table. You will then convert, or change, the table back to a normal range of data.

1. Choose **Start>All Programs>Microsoft Office®>Microsoft Excel 2010**.
2. Open the data file **Blues.xlsx**. Click **Enable Editing**, if necessary. Save as: Blues-[your first initial and last name]. (For example, *Blues-erusso*.)
3. Select the **Merchandise sales** tab. Click cell **B6**. Choose **Insert>Tables>Table**. In the **Create Table** dialog box, select cells **A1:D52**. Click **OK**.
4. CHECK Your screen should look like Figure 1.1.
5. With cells **A1:D52** still selected, click the **Concert Date** drop-down arrow. Choose **Sort Newest to Oldest**. Scroll to the top of the worksheet.
6. CHECK Your screen should look like Figure 1.2.
7. Click the **Location** drop-down arrow. Click the **Select All** check box. Click the **New York** check box. Click **OK**.
8. Click the **Sales** drop-down arrow. Choose **Number Filters>Custom Filter**.

Continued on the next page.

FIGURE 1.1 Table created from range

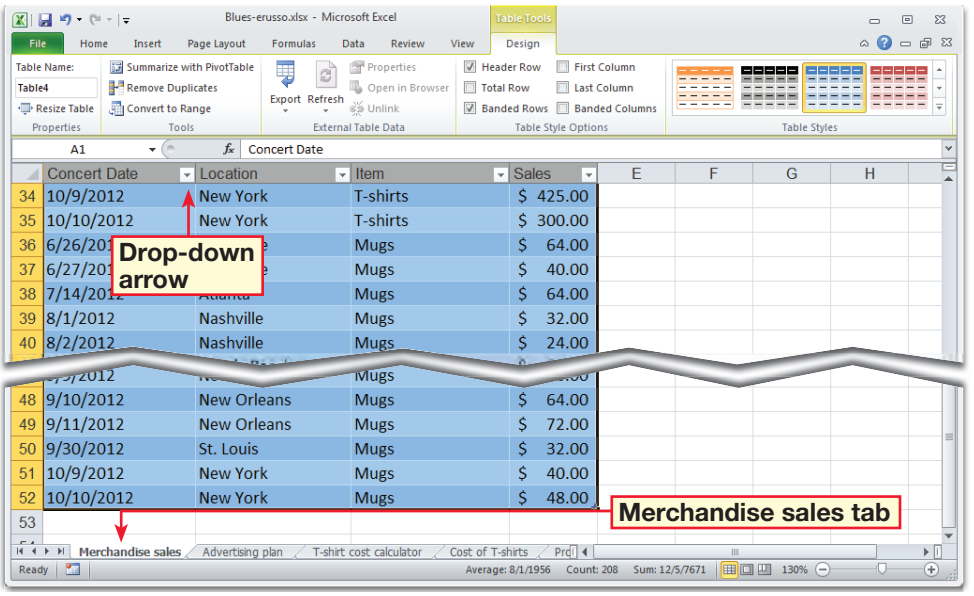
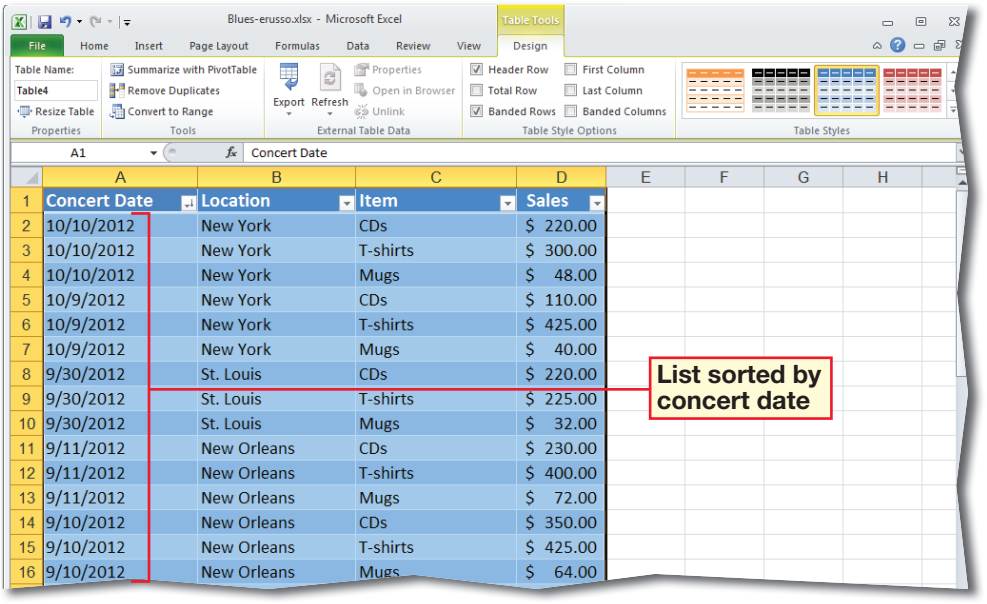


FIGURE 1.2 List sorted by concert date



Step-By-Step

EXERCISE 1-1 (Continued)
Create and Modify List Ranges

9. In the **Custom AutoFilter** dialog box, click the first drop-down arrow and select **is less than**. Click the second drop-down arrow and select **$425.00**. Select **And**.

10. Click the first drop-down arrow in the second row and select **is greater than** (see Figure 1.3). In the right box, key: 200. Click **OK**.

11. Click the **Location** filter icon. Select **Clear Filter From "Location"**. Select **Sales filter**. Select **Clear Filter From "Sales"**.

12. Click the **Sales** drop-down arrow. Choose **Number Filters>Above Average**. Select **Sales filter**. Select **Clear Filter From "Sales"**.

13. With the table still selected, choose **Table Tools> Design>Tools>Convert to Range**. Click **Yes.**

14. CHECK Your screen should look like Figure 1.4. Save your file.

Continue to the next exercise.

FIGURE 1.3 Custom AutoFilter dialog box

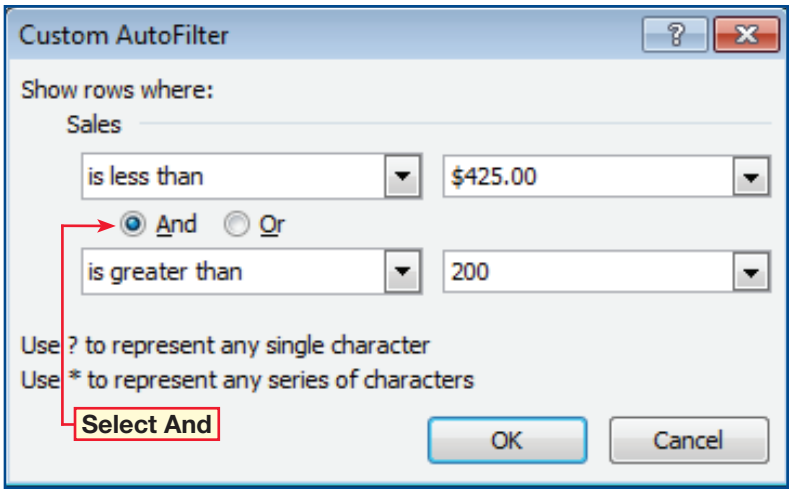
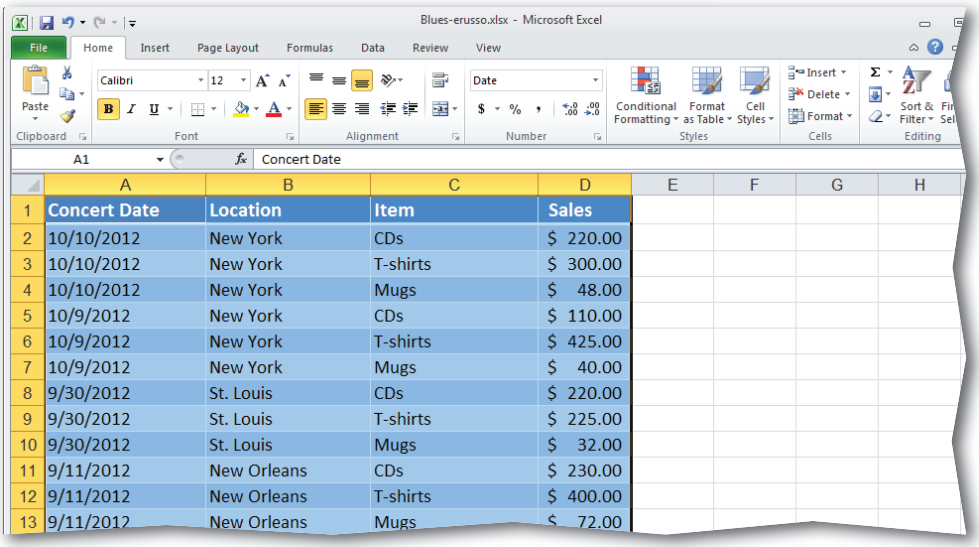


FIGURE 1.4 Table converted back to normal range of data



Shortcuts

Press PAGE UP to move up one screen. Press PAGE DOWN to move down one screen.

Tech Tip

After you create a table, the **Table Tools** contextual tab appears and the **Design** tab is displayed on the ribbon. You can use the **Table Tools** to customize or edit your table.

Step-By-Step

EXERCISE 1-2
Use Advanced Filters

AutoFilter allows you to filter data based on simple, preset **criteria**, or conditions. When you use an **advanced filter**, however, you can specify more criteria, and only those items in a range of cells or table that meet the criteria will be displayed. The criteria range contains the conditions that the data must meet in order to be displayed. The range of cells contains the list of data items. There must be a blank row between the criteria range and the list range.

1. In your **Blues** file, in your **Merchandise sales** worksheet, select **A1:A3**. Choose **Home>Cells** and click the **Insert Cells** drop-down arrow. Select **Insert Sheet Rows**. Three rows are inserted above the list.
2. Select **A4:D4**. Click **Copy**. Click cell **A1**. Press ENTER to paste the column heads in row **1**.
3. In cell **B2**, key: Cincinnati. In cell **C2**, key: CDs. Click any cell to deselect cell **C2**.
4. CHECK Your screen should look like Figure 1.5.
5. Choose **Data>Sort & Filter>Advanced**.
6. In the dialog box, in the **Criteria range** box, key: A1:D2. Click **OK**.
7. CHECK Your screen should look like Figure 1.6.
8. Click **Filter** twice to turn off the filter. Save your file.

Continue to the next exercise.

FIGURE 1.5 Criteria range above the list range

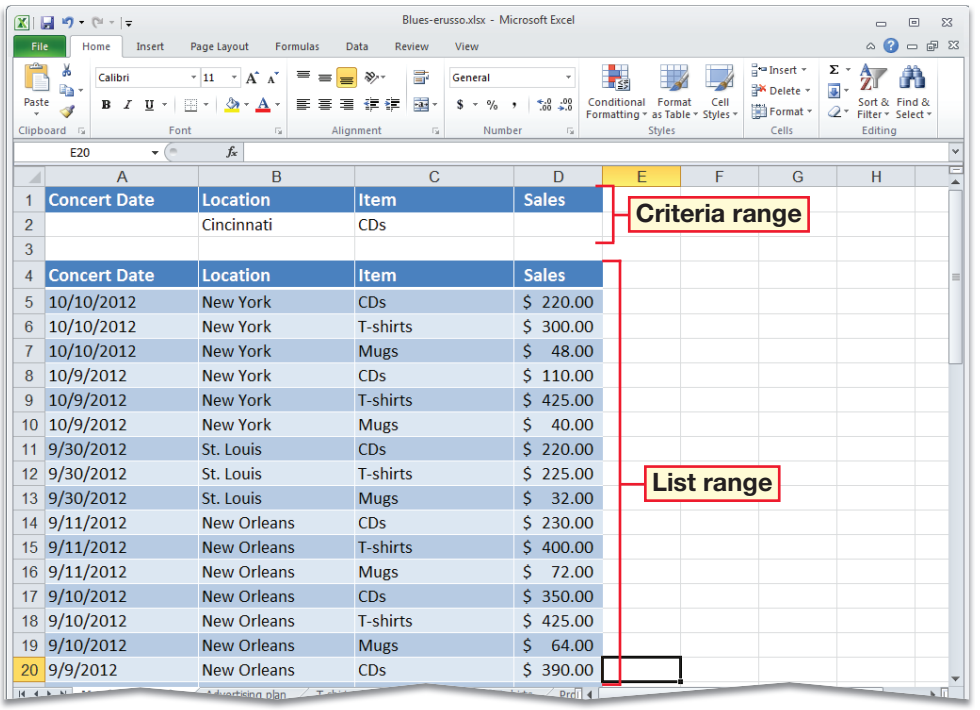
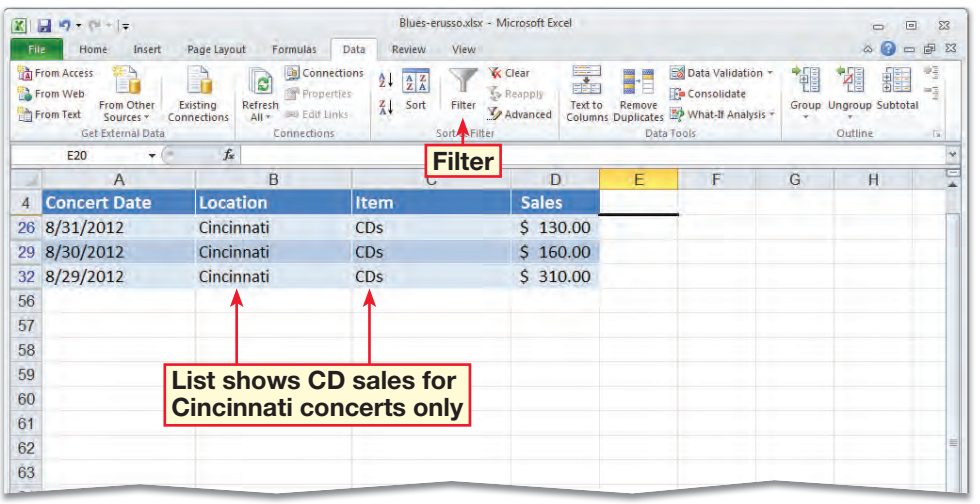


FIGURE 1.6 Filtered list



You Should Know

When you change criteria, the most recent criteria range will not be deleted. You can use the advanced filter more than once.

Step-By-Step

EXERCISE 1-3
Create Subtotals

A **subtotal** is the total, or **sum**, of a group of items within a larger set of items. To create subtotals in a worksheet, make sure the list is sorted so that similar items are grouped together. Excel will then automatically create the subtotals for you. In this exercise, you will find the subtotal for the sales for each concert in the Blues file.

1. In your **Blues** file, in the **Merchandise sales** worksheet, select **A4:D55**.
2. Choose **Data>Sort & Filter>Filter**.
3. Click the **Concert Date** drop-down arrow and deselect the **Select All** check box. Click the **August** check box. Click **OK**. Click **Filter** to clear the filter from the **Concert Date** column.
4. Click cell **C13**. Choose **Data>Outline>Subtotal**.
5. In the **Subtotal** dialog box, in the **At each change in** box, make sure that **Concert Date** is selected (see Figure 1.7).
6. In the **Use function** box, select **Average**. Click **OK**.
7. Click **Subtotal**. In the **Use function** box, select **Count**. Click **OK**.
8. Click **Subtotal**. In the **Use function** box, select **Sum**. Click **OK**.
9. CHECK Your screen should look like Figure 1.8. Save your file.

Continue to the next exercise.

FIGURE 1.7 Subtotal dialog box

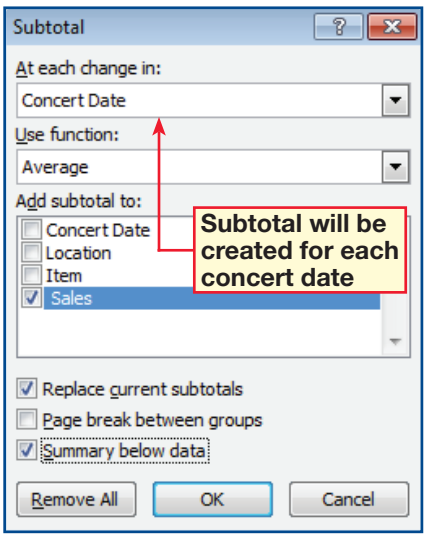
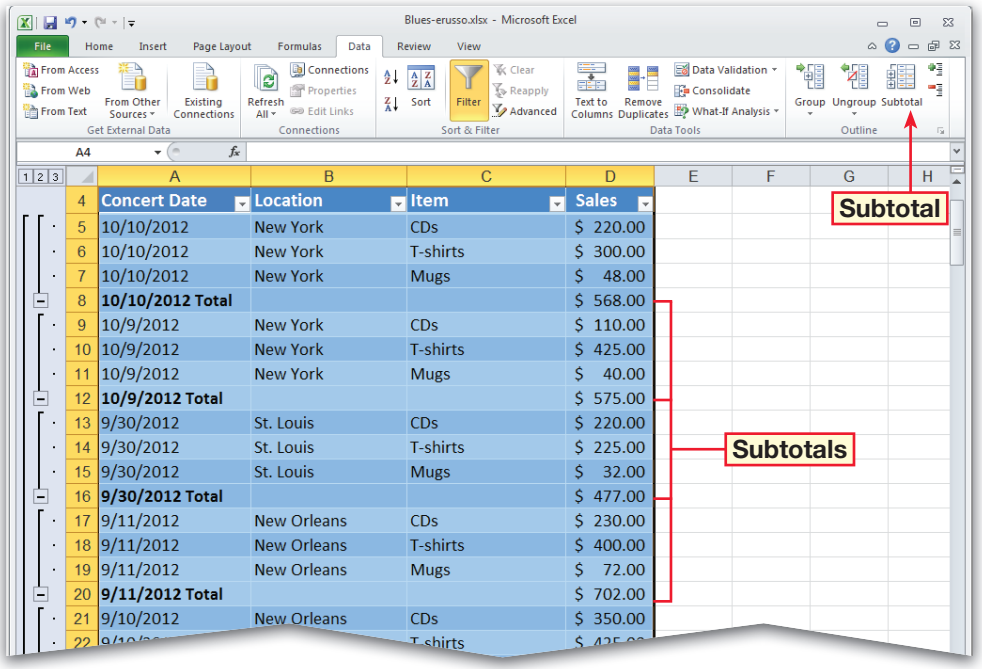


FIGURE 1.8 Subtotals added to list



Step-By-Step

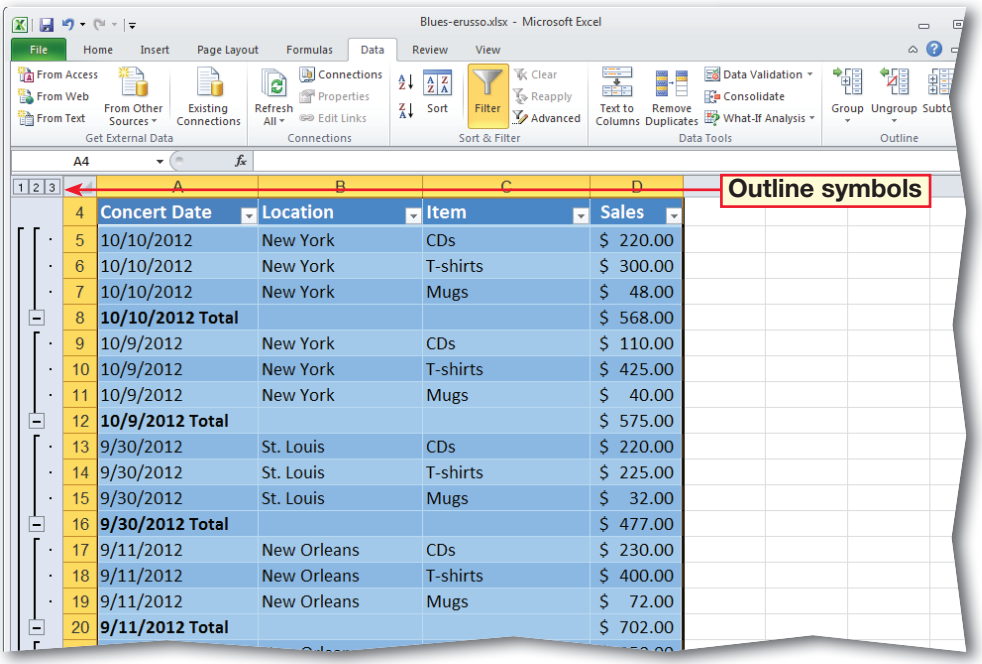
EXERCISE 1-4
Group and Outline Data

Grouping and outlining data allows you to show and hide details in a long list of data. When you create subtotals, grouping and outlining is turned on automatically.

1. In your **Blues** file, in the **Merchandise sales** worksheet, scroll so that row **4** is the first visible row in the worksheet pane.
2. Notice the **Outline symbols** for the three outline levels (see Figure 1.9).
3. Click the **Outline symbol** 1 for level **1**. Only the **Grand Total** displays.
4. Click the **Outline symbol** 2 for level **2**. The subtotal for each concert date and the **Grand Total** are displayed.
5. Click **Show Detail** + to the left of row **24**.
6. CHECK Your screen should look like Figure 1.10.
7. Click **Hide Detail** − to the left of row **24**.
8. Click the **Outline symbol** 3 for level **3** to return to the original view.
9. Save your file.

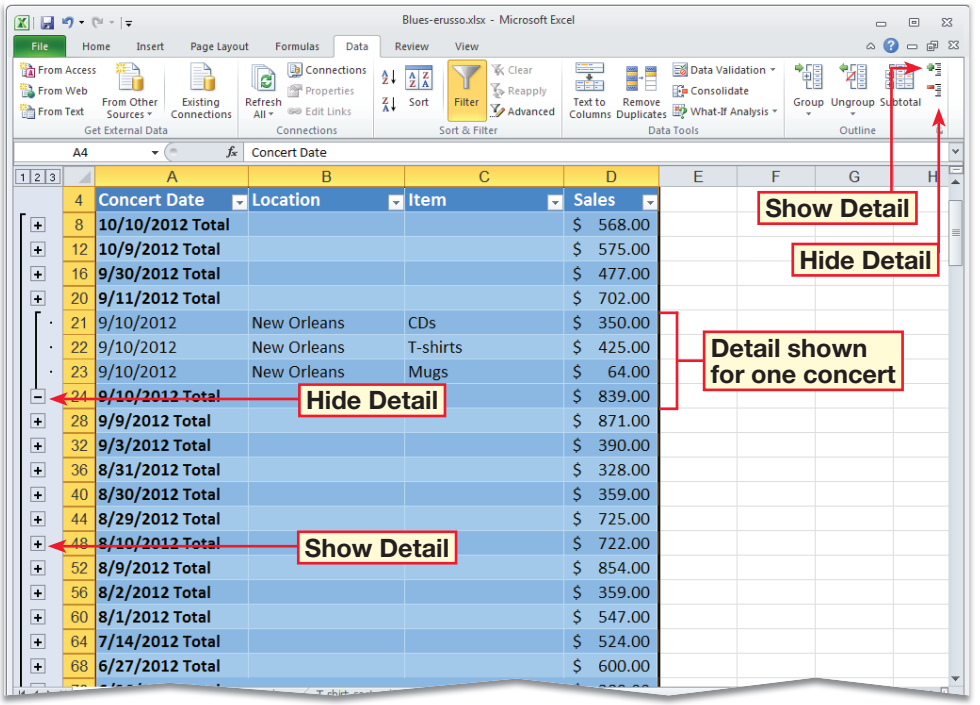
Continue to the next exercise.

FIGURE 1.9 Outline symbols



	Concert Date	Location	Item	Sales
5	10/10/2012	New York	CDs	$ 220.00
6	10/10/2012	New York	T-shirts	$ 300.00
7	10/10/2012	New York	Mugs	$ 48.00
8	**10/10/2012 Total**			$ 568.00
9	10/9/2012	New York	CDs	$ 110.00
10	10/9/2012	New York	T-shirts	$ 425.00
11	10/9/2012	New York	Mugs	$ 40.00
12	**10/9/2012 Total**			$ 575.00
13	9/30/2012	St. Louis	CDs	$ 220.00
14	9/30/2012	St. Louis	T-shirts	$ 225.00
15	9/30/2012	St. Louis	Mugs	$ 32.00
16	**9/30/2012 Total**			$ 477.00
17	9/11/2012	New Orleans	CDs	$ 230.00
18	9/11/2012	New Orleans	T-shirts	$ 400.00
19	9/11/2012	New Orleans	Mugs	$ 72.00
20	**9/11/2012 Total**			$ 702.00

FIGURE 1.10 Detail shown for one concert



	Concert Date	Location	Item	Sales
8	**10/10/2012 Total**			$ 568.00
12	**10/9/2012 Total**			$ 575.00
16	**9/30/2012 Total**			$ 477.00
20	**9/11/2012 Total**			$ 702.00
21	9/10/2012	New Orleans	CDs	$ 350.00
22	9/10/2012	New Orleans	T-shirts	$ 425.00
23	9/10/2012	New Orleans	Mugs	$ 64.00
24	**9/10/2012 Total**			$ 839.00
28	**9/9/2012 Total**			$ 871.00
32	**9/3/2012 Total**			$ 390.00
36	**8/31/2012 Total**			$ 328.00
40	**8/30/2012 Total**			$ 359.00
44	**8/29/2012 Total**			$ 725.00
48	**8/10/2012 Total**			$ 722.00
52	**8/9/2012 Total**			$ 854.00
56	**8/2/2012 Total**			$ 359.00
60	**8/1/2012 Total**			$ 547.00
64	**7/14/2012 Total**			$ 524.00
68	**6/27/2012 Total**			$ 600.00

Tech Tip

You can use two commands to show or hide details. Choose **Data>Outline> Ungroup** to remove the **Outline symbols**.

Step-By-Step

EXERCISE 1-5
Apply Data Validation Criteria

An Excel worksheet is an ideal place to store the huge amount of data that businesses require today. If the data has typos and mistakes, the filters and reports will not function properly. To control the type of data entered into cells, apply **data validation** criteria. Data validation is the process of ensuring that data is correct based on specific criteria. In this exercise, you will apply data validation to require the amount for each advertising method to be $2,000 or less. You will then add a drop-down list from a range of cells to limit the data that can be entered into a column.

1. In your **Blues** file, click the **Advertising plan** sheet tab.
2. Select **B4:B14**. Choose **Data>Data Tools>Data Validation**.
3. In the **Data Validation** dialog box, click the **Allow** drop-down arrow. Choose **Decimal**.
4. From the **Data** drop-down list, choose **less than or equal to**. In the **Maximum** box, key: 2000.
5. CHECK Your dialog box should look like Figure 1.11. Click **OK**.
6. Click cell **B5**. Key: 3000. Press ENTER. An error alert appears.
7. Click **Retry**. Key: 2000. Press ENTER.
8. CHECK Your screen should look like Figure 1.12.

Continued on the next page.

FIGURE 1.11 Data Validation dialog box

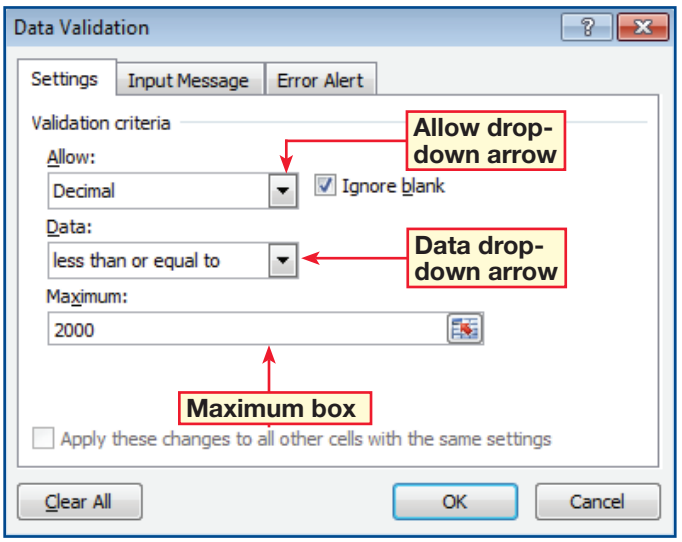
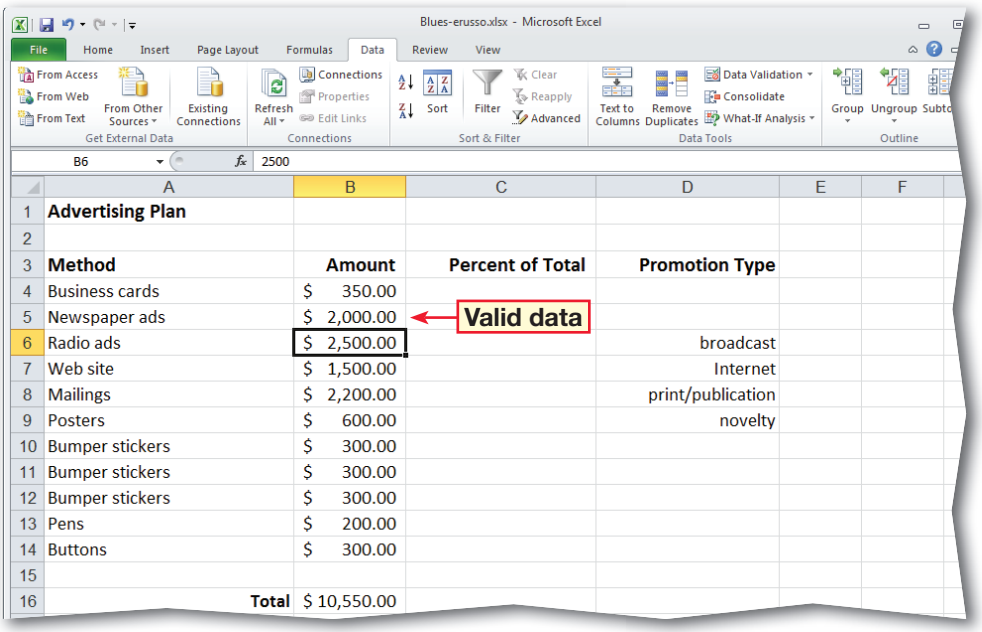


FIGURE 1.12 Valid data entered in cell B5



You Should Know

Data validation is designed to prevent invalid data entries only when users key data directly into a cell. It does not prevent incorrect data from being copied or filled into a cell.

EXERCISE 1-5 (Continued)
Apply Data Validation Criteria

Step-By-Step

9. Select cells **D4:D14** and choose **Data>Data Tools> Data Validation**.

10. In the **Data Validation** dialog box, click the **Allow** drop-down arrow. Choose **List**.

11. Click the icon on the right side of the **Source** box (see Figure 1.13). Select **D6:D9**. Press ENTER.

12. CHECK Your dialog box should look like Figure 1.13. Click **OK**.

13. Click the drop-down arrow to the right of cell **D4**.

14. CHECK Your screen should look like Figure 1.14.

15. Select **print/publication** from the list. Save your file.

Continue to the next exercise.

FIGURE 1.13 Data Validation dialog box

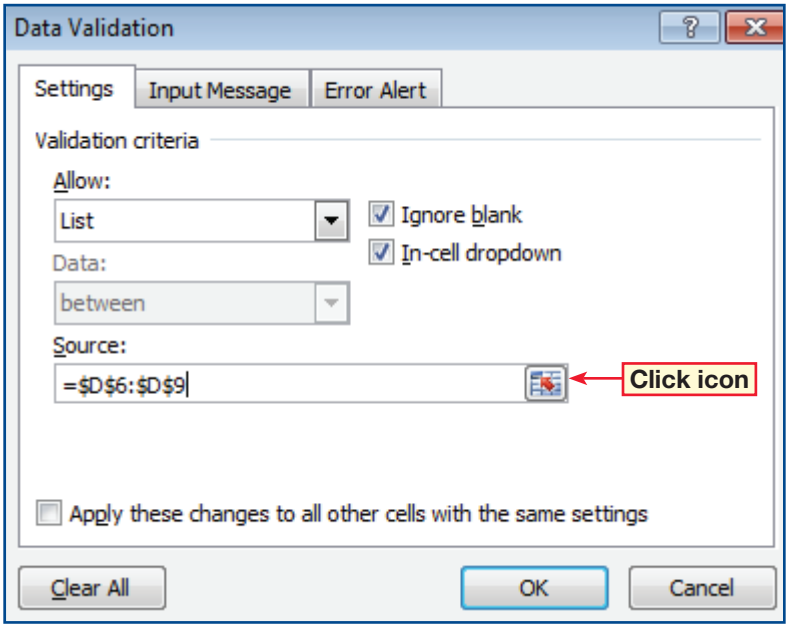
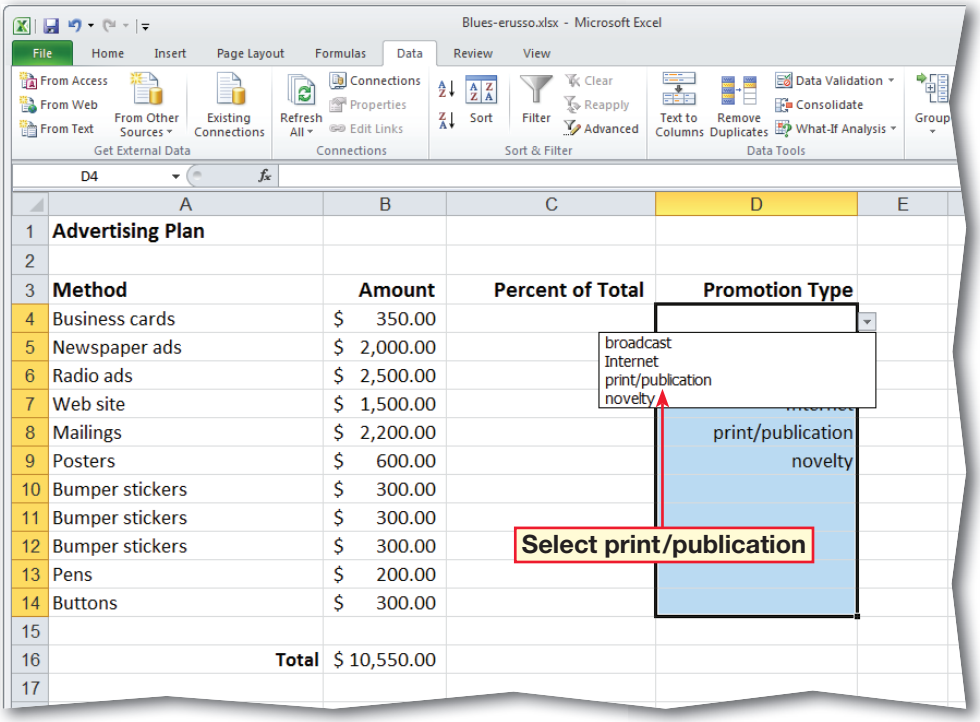


FIGURE 1.14 Drop-down list added to Promotion Type column



You Should Know

To specify whether a cell can be left blank, select or clear the **Ignore blank** check box in the **Data Validation** dialog box.

Shortcuts

Press CTRL + HOME to go to the first cell in a data region. Press CTRL + END to got to the last cell in a data region.

Step-By-Step

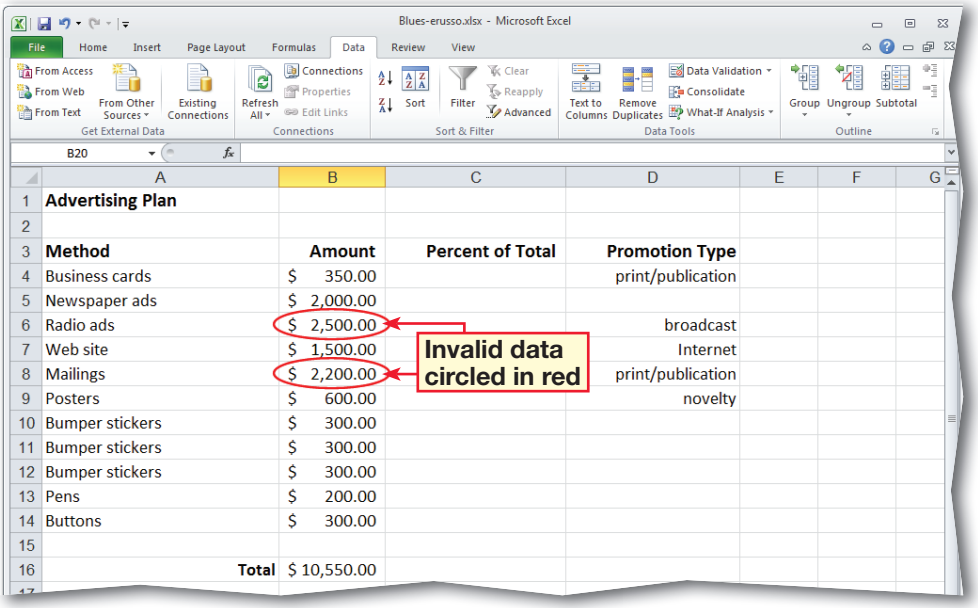
EXERCISE 1-6
Circle Invalid Data

Data validation is designed to prevent a user from keying invalid data into a cell. It does not prevent an **error**, or mistake, when you enter data in a cell by copying or filling. If you apply data validation after keying data into a worksheet, you can use the Circle Invalid Data tool to locate and highlight data that do not meet the criteria. This tool puts a red circle around any data that is not allowed so that you can easily find and correct problems.

1. In your **Blues** file, in the **Advertising plan** worksheet, choose **Data>Data Tools** and click the **Data Validation** drop-down arrow.
2. Select **Circle Invalid Data**.
3. CHECK Your screen should look like Figure 1.15.
4. Click cell **B6**. Key: 2000.
5. Press ENTER. The red circle around cell **B6** disappears, indicating that the data are now valid.
6. Click cell **B8**. Key: 2000. Press ENTER.
7. CHECK Your screen should look like Figure 1.16.
8. Save your file.

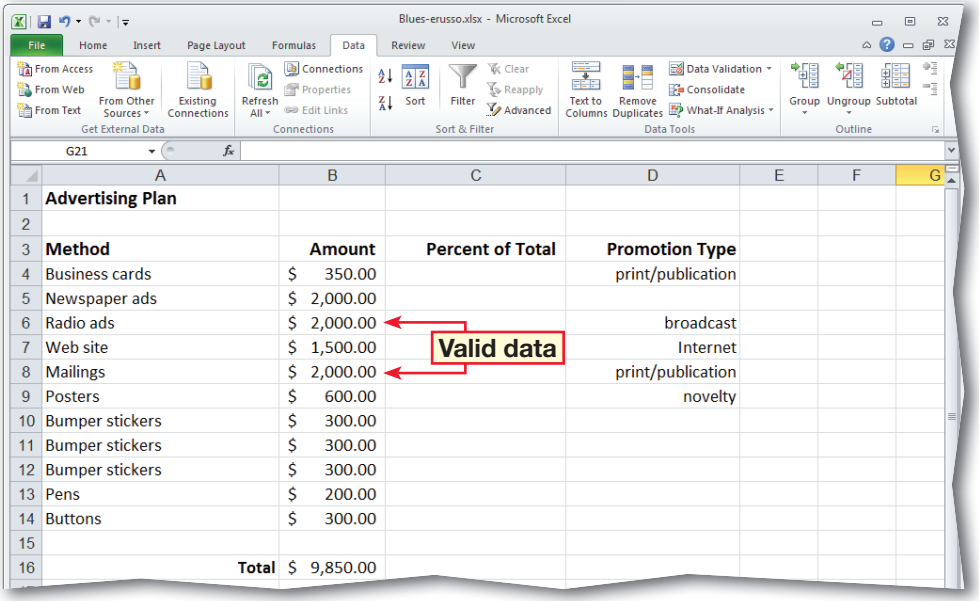
Continue to the next exercise.

FIGURE 1.15 Invalid data circled



	A	B	C	D
1	**Advertising Plan**			
2				
3	**Method**	**Amount**	**Percent of Total**	**Promotion Type**
4	Business cards	$ 350.00		print/publication
5	Newspaper ads	$ 2,000.00		
6	Radio ads	$ 2,500.00		broadcast
7	Web site	$ 1,500.00		Internet
8	Mailings	$ 2,200.00		print/publication
9	Posters	$ 600.00		novelty
10	Bumper stickers	$ 300.00		
11	Bumper stickers	$ 300.00		
12	Bumper stickers	$ 300.00		
13	Pens	$ 200.00		
14	Buttons	$ 300.00		
15				
16	**Total**	$ 10,550.00		

FIGURE 1.16 Worksheet after data corrected



	A	B	C	D
1	**Advertising Plan**			
2				
3	**Method**	**Amount**	**Percent of Total**	**Promotion Type**
4	Business cards	$ 350.00		print/publication
5	Newspaper ads	$ 2,000.00		
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7	Web site	$ 1,500.00		Internet
8	Mailings	$ 2,000.00		print/publication
9	Posters	$ 600.00		novelty
10	Bumper stickers	$ 300.00		
11	Bumper stickers	$ 300.00		
12	Bumper stickers	$ 300.00		
13	Pens	$ 200.00		
14	Buttons	$ 300.00		
15				
16	**Total**	$ 9,850.00		

Troubleshooter

The **Circle Invalid Data** feature circles any cells that do not meet their data validation criteria, including values that were keyed, copied, or filled in the cells, or calculated by formulas.

Step-By-Step

1. In your **Blues** file, in the **Advertising plan** worksheet, select cells **A4:B14**.
2. Choose **Data>Data Tools>Remove Duplicates**.
3. In the **Remove Duplicates** dialog box, click **Select All** to delete the duplicate values in the **Method** and **Amount** columns.
4. CHECK Your dialog box should look like Figure 1.17. Click **OK**.
5. A warning message indicates how many duplicate values were removed and how many unique values remain. Click **OK**.
6. CHECK Your screen should look like Figure 1.18. Note the duplicate values for **Bumper stickers** are no longer listed in the **Advertising Plan**.
7. Select rows **14** and **15**. Choose **Home>Cells** and click the drop-down arrow for **Delete Cells**. Select **Delete Sheet Rows**.
8. Save your file.

Continue to the next exercise.

EXERCISE 1-7
Remove Duplicate Values

You may want to delete duplicate values from a sheet. A **duplicate value** is one where all values in a row are an exact match of all the values in another row. Using the Remove Duplicates filter allows you to specify which columns should be checked for duplicate information. In this exercise, you will remove the duplicate advertising methods that appear in the Advertising Plan.

FIGURE 1.17 Remove Duplicates dialog box

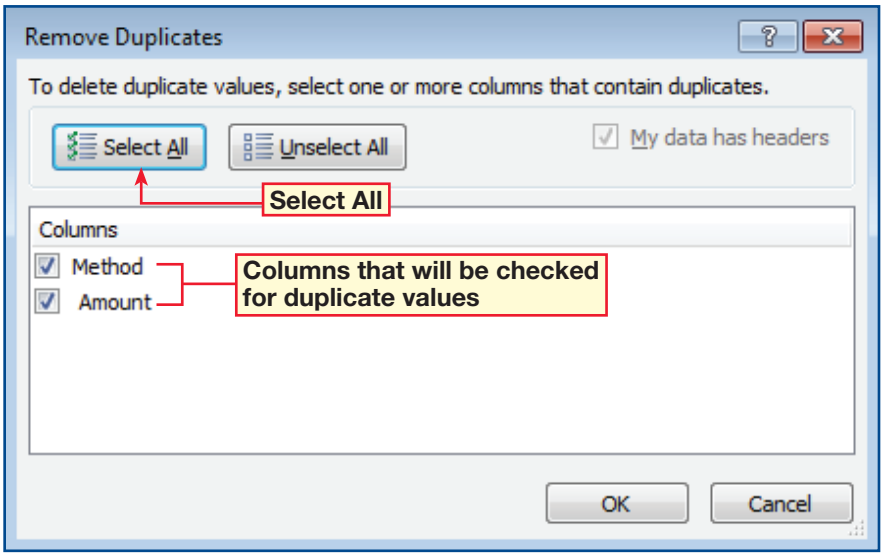
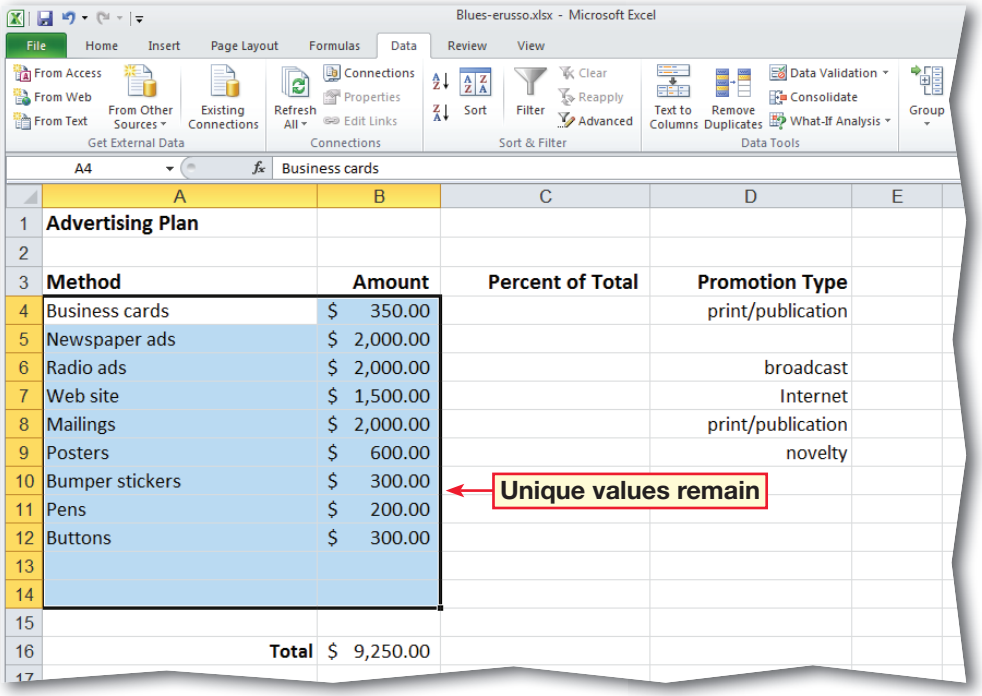


FIGURE 1.18 Duplicate values removed from Advertising Plan



	A	B	C	D	E
1	**Advertising Plan**				
2					
3	**Method**	**Amount**	**Percent of Total**	**Promotion Type**	
4	Business cards	$ 350.00		print/publication	
5	Newspaper ads	$ 2,000.00			
6	Radio ads	$ 2,000.00		broadcast	
7	Web site	$ 1,500.00		Internet	
8	Mailings	$ 2,000.00		print/publication	
9	Posters	$ 600.00		novelty	
10	Bumper stickers	$ 300.00			
11	Pens	$ 200.00			
12	Buttons	$ 300.00			
13					
14					
15					
16	**Total**	$ 9,250.00			

Step-By-Step

1. In your **Blues** file, click the **Advertising plan** sheet tab. Click cell **C4**. Key: =B4/B14. Press ENTER.

2. Click cell **C4**. Choose **Home>Number** and click **Percent Style** %.

3. Click **Increase Decimal**. Click cell **C4**. Choose **Home>Clipboard>Copy**.

4. Click the **Paste** drop-down arrow and select **Paste Special**. Note the different options for constructing cell data using **Paste Special**. Click **OK**. Drag the fill handle down to copy the formula to cells **C5:C12**.

5. Click cell **C5**. Choose **Formulas>Formula Auditing>Evaluate Formula**.

6. CHECK Your screen should look like Figure 1.19.

7. In the **Evaluate Formula** dialog box, click **Evaluate** twice. Click **Evaluate** again. The evaluation now reads **#DIV/0!**. Click **Close**.

8. CHECK Your screen should look like Figure 1.20. Save your file.

Continue to the next exercise.

EXERCISE 1-8
Use the Evaluate Formula Feature

The Evaluate Formula feature is the most complete error-checking tool available in Excel. You can use the Evaluate Formula tool to locate invalid formulas and see how Excel attempted to calculate the formula. The Evaluate Formula tool will show you what part of the formula is not working and help you to correct errors in formulas. Then you can make changes so that the calculation function will work properly when copying and pasting the formula to other cells.

FIGURE 1.19 Click Evaluate to see result of underlined part of formula

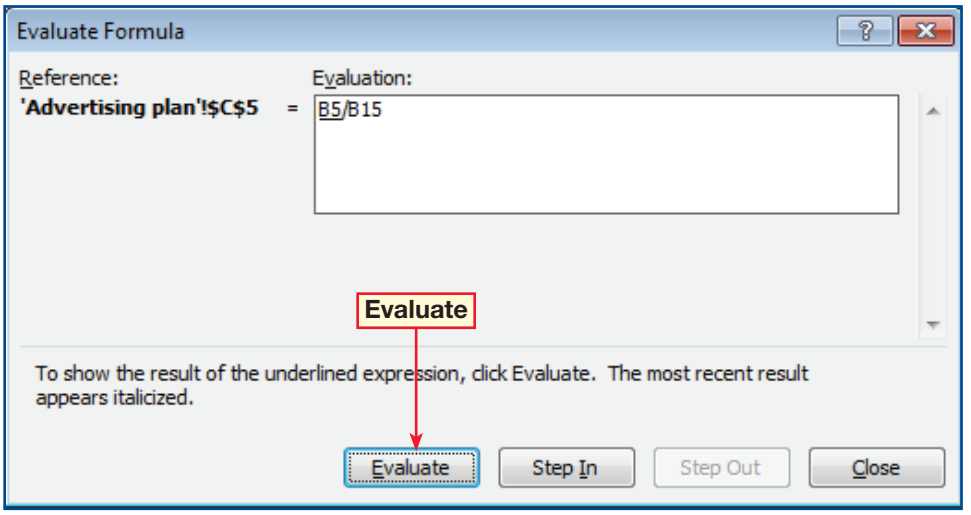
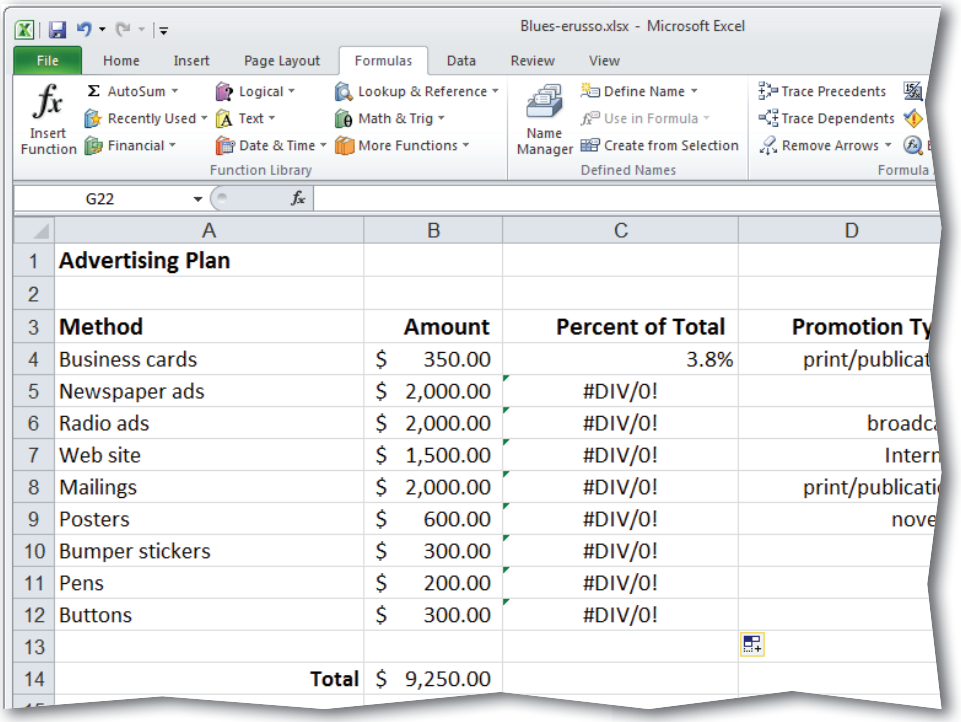


FIGURE 1.20 Copied, pasted, and evaluated formula



	A	B	C	D
1	**Advertising Plan**			
2				
3	**Method**	**Amount**	**Percent of Total**	**Promotion Ty**
4	Business cards	$ 350.00	3.8%	print/publicat
5	Newspaper ads	$ 2,000.00	#DIV/0!	
6	Radio ads	$ 2,000.00	#DIV/0!	broadc
7	Web site	$ 1,500.00	#DIV/0!	Intern
8	Mailings	$ 2,000.00	#DIV/0!	print/publicati
9	Posters	$ 600.00	#DIV/0!	nove
10	Bumper stickers	$ 300.00	#DIV/0!	
11	Pens	$ 200.00	#DIV/0!	
12	Buttons	$ 300.00	#DIV/0!	
13				
14	**Total**	$ 9,250.00		

Step-By-Step

1. In the **Advertising plan** worksheet of your **Blues** file, select **A3:A12**.
2. Choose **Formulas> Defined Names> Define Name**.
3. In the **New Name** dialog box, in the **Name** box, delete **Method** and key: data.
4. CHECK Your dialog box should look like Figure 1.21.
5. Click **OK**. The selected range is now named **data**.
6. Click cell **B14**. Click **Define Name**.
7. The word **Total** should appear in the **Name** box. Click **OK**. The cell is now named **Total**.
8. CHECK Your screen should look like Figure 1.22. Save your file.

Continue to the next exercise.

Academic Skills

If a formula does not work, reword the formula in mathematical terms on a sheet of paper. Then try to solve the problem and find the source of your error. Use **Evaluate Formula** to check your work.

EXERCISE 1-9
Name a Cell Range

If you need to refer to a certain cell or range of cells often, define it, or give it a **name**. You can then refer to the cell or range by the name instead of by the cell reference. You can enter the cell or range name into the Name box to navigate through a worksheet quickly and easily.

FIGURE 1.21 New Name dialog box

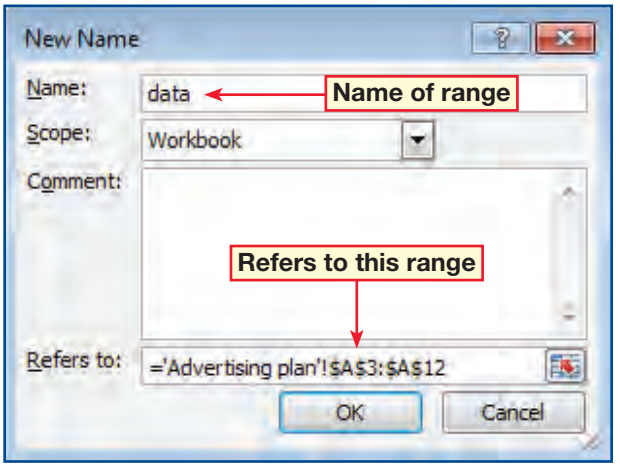
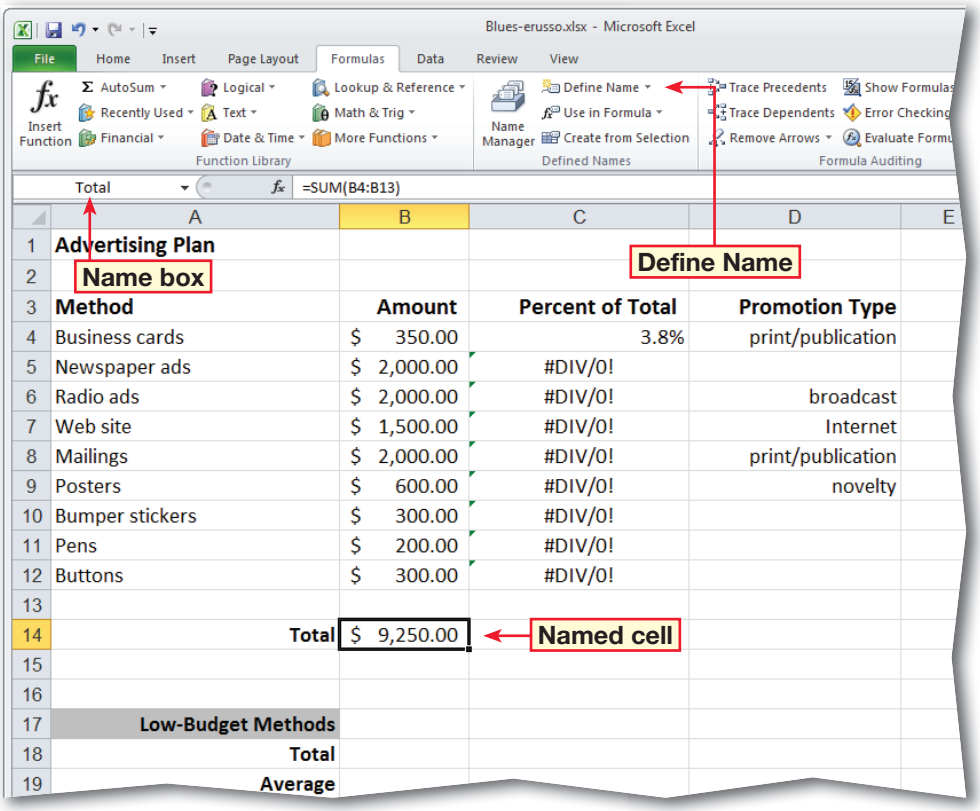


FIGURE 1.22 Named cell



EXERCISE 1-10
Use a Name in a Formula

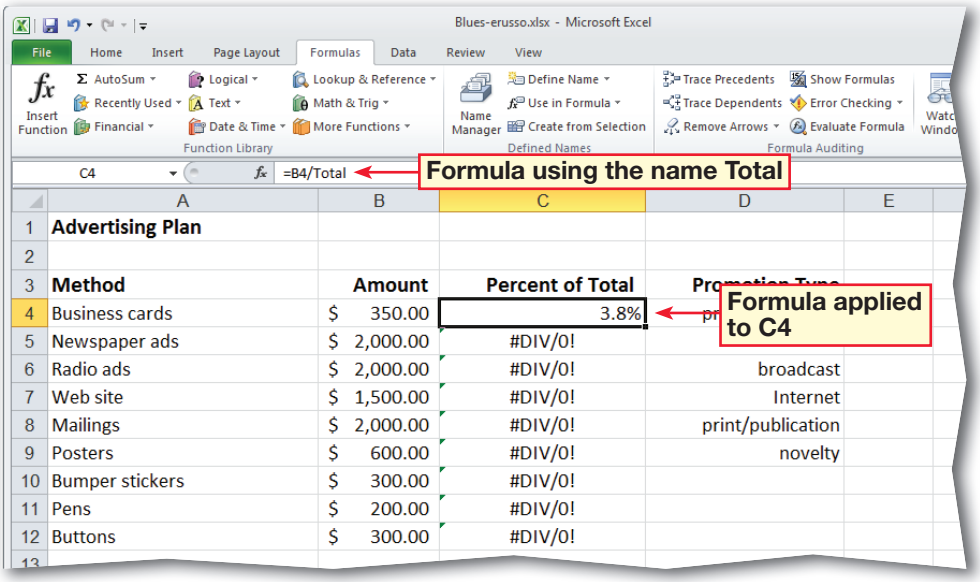
It is often convenient to use a name in a formula as a substitute for cell references. For example, the name *January* is easier to remember than B4:B67—and less likely to be miskeyed into the worksheet or formula bar! Choose meaningful names so formulas will be easy to read and **interpret**, or understand, when you analyze data. The Use in Formula command also allows you to select a defined name from a list of names used in the current workbook and quickly insert it into a formula.

Step-By-Step

1. In your **Blues** file, click the **Advertising plan** sheet tab. Click cell **C4**.
2. Key: =B4/Total.
3. Press ENTER. The percent of the total advertising expenses for **Business cards** reappears (see Figure 1.23).
4. Click cell **C4**. Drag the fill handle down to copy the formula to cells **C5:C12**.
5. CHECK Your screen should look like Figure 1.24.
6. Click cell **C12**. Look in the formula bar. The formula is **B12/Total**.
7. Click cell **C6**. Look in the formula bar. The formula is **B6/Total**.
8. Save your file.

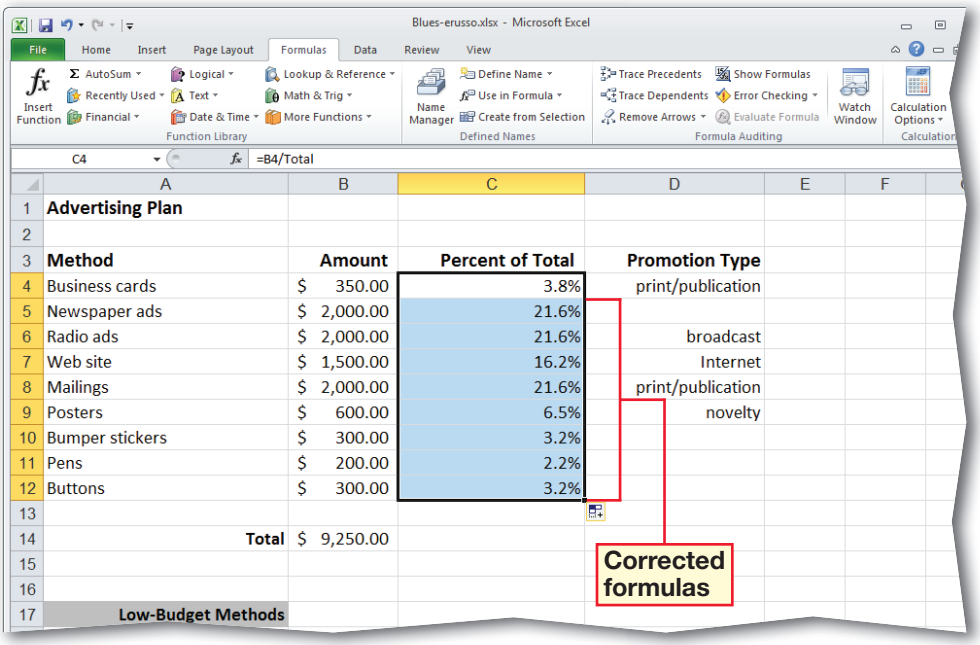
Continue to the next exercise.

FIGURE 1.23 Formula using a name



	A	B	C	D	E
1	**Advertising Plan**				
2					
3	**Method**	**Amount**	**Percent of Total**	**Promotion Type**	
4	Business cards	$ 350.00	3.8%		
5	Newspaper ads	$ 2,000.00	#DIV/0!		
6	Radio ads	$ 2,000.00	#DIV/0!	broadcast	
7	Web site	$ 1,500.00	#DIV/0!	Internet	
8	Mailings	$ 2,000.00	#DIV/0!	print/publication	
9	Posters	$ 600.00	#DIV/0!	novelty	
10	Bumper stickers	$ 300.00	#DIV/0!		
11	Pens	$ 200.00	#DIV/0!		
12	Buttons	$ 300.00	#DIV/0!		

FIGURE 1.24 Corrected formulas



	A	B	C	D	E	F
1	**Advertising Plan**					
2						
3	**Method**	**Amount**	**Percent of Total**	**Promotion Type**		
4	Business cards	$ 350.00	3.8%	print/publication		
5	Newspaper ads	$ 2,000.00	21.6%			
6	Radio ads	$ 2,000.00	21.6%	broadcast		
7	Web site	$ 1,500.00	16.2%	Internet		
8	Mailings	$ 2,000.00	21.6%	print/publication		
9	Posters	$ 600.00	6.5%	novelty		
10	Bumper stickers	$ 300.00	3.2%			
11	Pens	$ 200.00	2.2%			
12	Buttons	$ 300.00	3.2%			
13						
14	**Total**	$ 9,250.00				
15						
16						
17	**Low-Budget Methods**					

You Should Know

Names adjust automatically as you insert and delete rows and columns. For example, suppose the name **July** refers to **H5:H24**. If you delete three rows from the middle of the range, **July** would then refer to **H5:H21**.

Step-By-Step

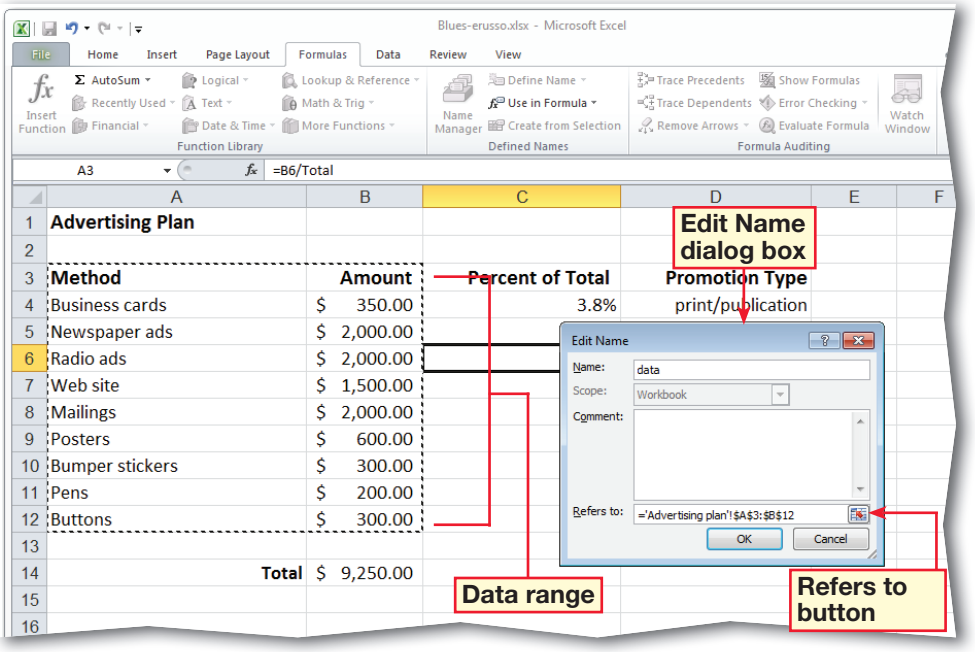
EXERCISE 1-11
Modify and Delete a Named Cell Range

If you need to change the name of a cell or a range of cells, you can use the **Name Manager** to find, modify, or delete the defined names used in a workbook. For example, you may want to locate and edit customer names with errors, confirm the value or cell reference of a name, add a new name to a database, or rename an existing name range.

1. In the **Advertising plan** sheet, choose **Formulas> Defined Names>Name Manager**.
2. In the **Name Manager** dialog box, select **data**. Click **Edit**. In the **Edit Name** dialog box, click the **Refers to** button (see Figure 1.25).
3. Select **A3:B12**. Press ENTER.
4. CHECK Your screen should look like Figure 1.25. Click **OK**.
5. Close the **Name Manager** dialog box. Select cells **A3:B12**. Note that **data** appears in the **Name** box.
6. Click **C3:C12**. Click **Name Manager**. In the **Name Manager** dialog box, click **New**.
7. In the **Name** box, key: Percentage. Click **OK**. Click **Close**.
8. CHECK Your screen should look like Figure 1.26.
9. Click **Name Manager**. Select **Percentage** and click **Delete**. Click **OK**.
10. Close the **Name Manager**. Save and close your file.

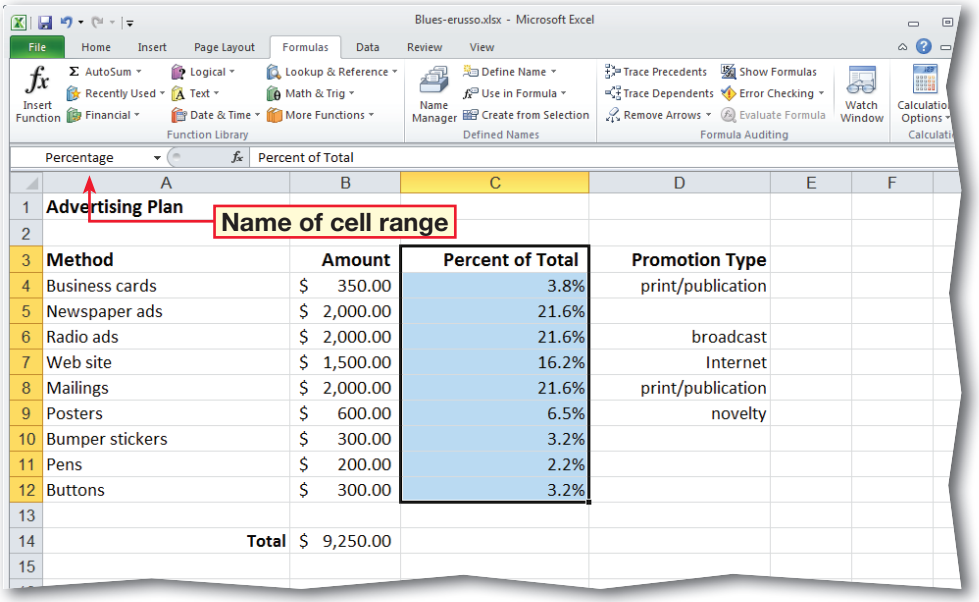
Continue to the next exercise.

FIGURE 1.25 Amount column added to data range



	A	B	C	D
1	**Advertising Plan**			
2				
3	**Method**	**Amount**	**Percent of Total**	**Promotion Type**
4	Business cards	$ 350.00	3.8%	print/publication
5	Newspaper ads	$ 2,000.00		
6	Radio ads	$ 2,000.00		
7	Web site	$ 1,500.00		
8	Mailings	$ 2,000.00		
9	Posters	$ 600.00		
10	Bumper stickers	$ 300.00		
11	Pens	$ 200.00		
12	Buttons	$ 300.00		
13				
14	**Total**	$ 9,250.00		
15				
16				

FIGURE 1.26 Percentage name in Name box



	A	B	C	D
1	**Advertising Plan**			
2				
3	**Method**	**Amount**	**Percent of Total**	**Promotion Type**
4	Business cards	$ 350.00	3.8%	print/publication
5	Newspaper ads	$ 2,000.00	21.6%	
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7	Web site	$ 1,500.00	16.2%	Internet
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9	Posters	$ 600.00	6.5%	novelty
10	Bumper stickers	$ 300.00	3.2%	
11	Pens	$ 200.00	2.2%	
12	Buttons	$ 300.00	3.2%	
13				
14	**Total**	$ 9,250.00		
15				

EXERCISE 1-12
Merge and Split Cells in a Range

In some cases, you may need to merge cells together in order to make your workbook look better. When cells are merged, two or more cells are combined and the information inside the cells is either centered in that area or left-aligned. If you decide that you no longer want cells to be merged, you can split the merged cells back into their normal sizes.

Step-By-Step

1. In your **Blues** file, select cells **A1:D1**.
2. On the **Home tab, in the Alignment** group, click the **Merge & Center** drop-down arrow. Select **Merge Cells**. The cells are merged but not centered.
3. Choose **Home> Alignment>Merge & Center**. Cells **A1:D1** are now unmerged. Click **Merge & Center** again.
4. CHECK Your screen should look like Figure 1.27.
5. Choose **Home> Alignment** and click the **Merge & Center**. **A1:D1** are now unmerged.
6. CHECK Your screen should look like Figure 1.28.
7. Save and close your workbook. Exit **Excel**.

Continue to the next exercise.

FIGURE 1.27 Merged and centered cells

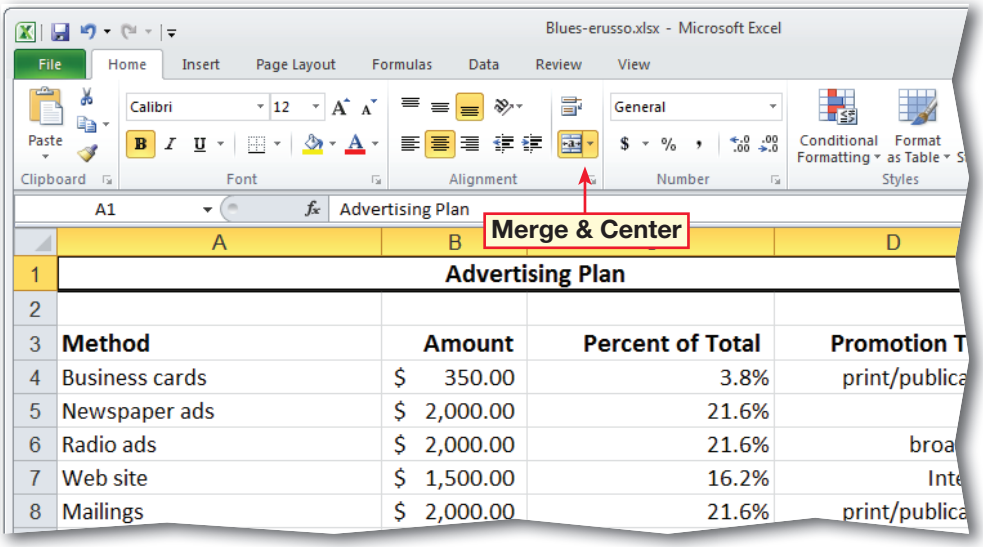
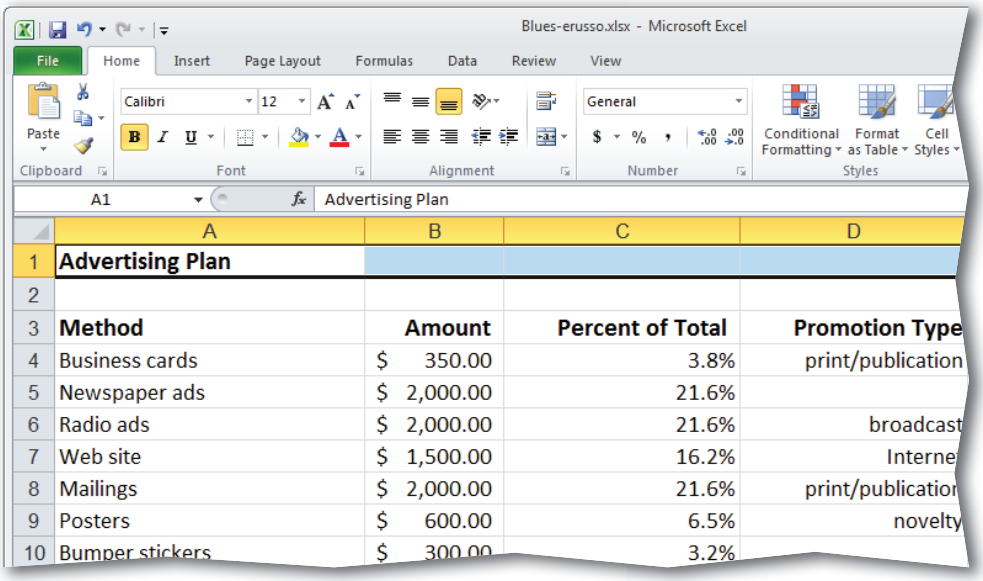


FIGURE 1.28 Unmerged cells



You Should Know

To save time, use the **Create from Selection** command in the **Defined Names** group to select and create names from existing row and column labels.

Shortcuts

Press TAB to move to the next cell in a row.

Step-By-Step

1. Open **Excel 2010**. Open the data file **Household Budget.docx.** Click **Enable Editing**, if necessary.
2. Save the file as: Household Budget-[your first initial and last name]. (For example, *Household Budget-wlester*.)
3. Select all the data in the table at the top of the page and choose **Home> Clipboard>Copy**. Click the **Insert Worksheet** tab at the bottom of the page.
4. In **Sheet1**, click **Select All**. Choose **Home> Clipboard>Paste** drop-down arrow. Select **Paste Special**.
5. CHECK Your screen should look like Figure 1.29. Note all the options in the **Paste Special** dialog box.

Continued on the next page.

You Should Know

If you click **Paste Link** to link the pasted data to the original data, Excel will enter an absolute reference to the copied cell or range of cells in the new location.

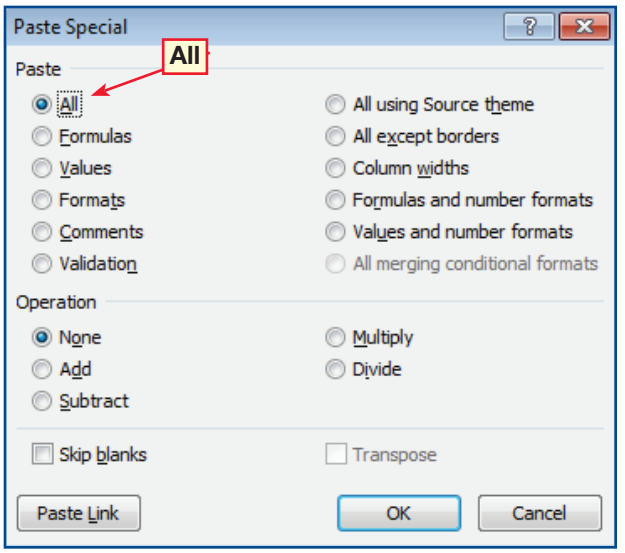
EXERCISE 1-13
Use Paste Special

The Paste Special command allows you to copy and paste specific cell contents or attributes, such as formulas, formats, or comments, from the Clipboard in a worksheet. You can also choose to perform simple mathematical calculations based on the values of copied cell(s) and the values of target cell(s). A few examples of Paste Special options for cell contents and attributes are shown in Table 2.1. Microsoft Excel 2010's Paste Preview feature also allows you to select from a variety of options when pasting formats, formulas, and values within the same worksheet, between workbooks, or from other programs, including keeping the source column widths, having no borders, and keeping the source formatting.

TABLE 2.1 Examples of Paste Special options

Attribute	Pastes…
All	All cell contents and formatting.
Formulas	Only the formulas as entered in the formula bar.
Values	Only the values as displayed in the cells.
Formats	Only cell formatting.
Comments	Only comments attached to the cell.
Validation	Data validation rules for the copied cells to the paste area.

FIGURE 1.29 Paste Special dialog box



Step-By-Step

6. Under **Paste**, select **All**. Click **OK**. The table is copied and pasted in its entirety.

7. Click **Undo**. Click the **Paste** drop-down arrow. Select **Paste Special**. Click **Formulas**. Click **OK**. Click cell **C10**.

8. Your screen should look like Figure 1.30. Note that the formulas have been copied and pasted into the values for row **10**. Click **Undo**.

9. Repeat step 7 and select **Values**. Note that only the values have been copied and pasted into row **10**. The formulas are no longer included. Click **Undo**.

10. Repeat step 7 and select **Formats**. Note that only the table's formatting is pasted into the worksheet. Click **Undo**.

11. Repeat step 7 and select **Comments**. Scroll to cell **O3** to see the comment.

12. CHECK Your screen should look like Figure 1.31.

Continued on the next page.

EXERCISE 1-13 (Continued)
Use Paste Special

FIGURE 1.30 Formulas pasted into worksheet

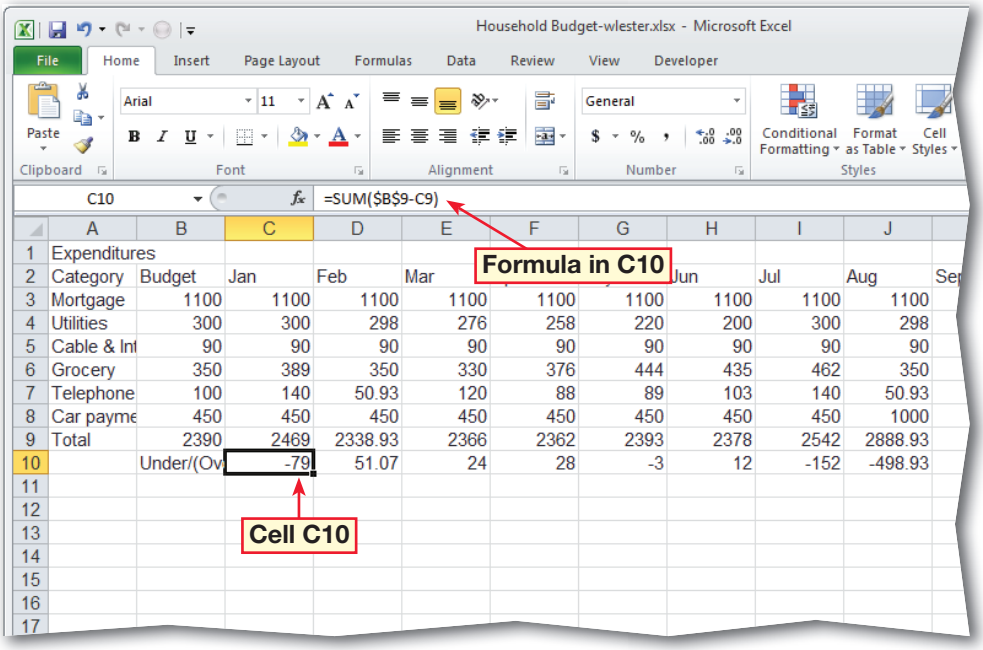
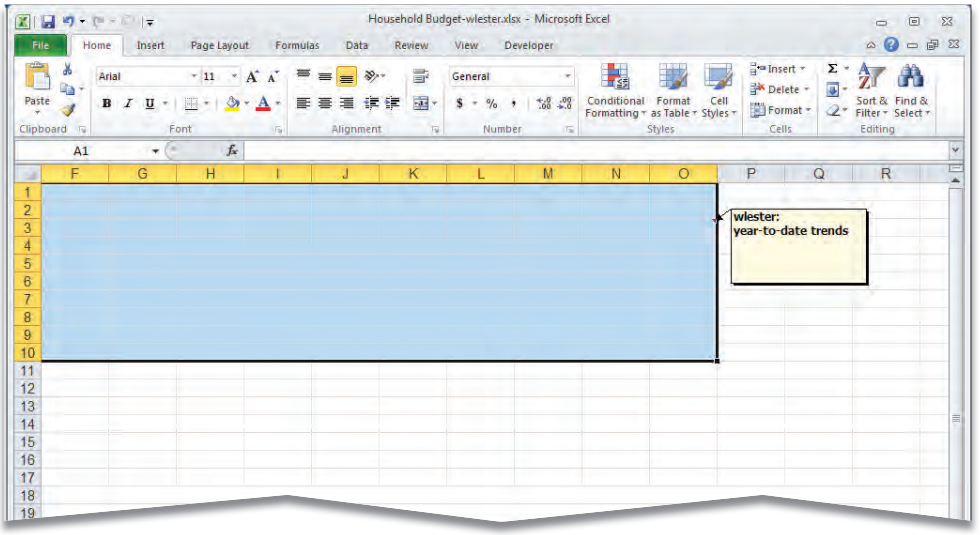


FIGURE 1.31 Comment pasted into worksheet



Tech Tip

To avoid replacing values in your existing data when a blank cell occurs in the data, click **Skip blanks** in the **Paste Special** dialog box. Select **Transpose** to change columns of copied data to rows, or rows of copied data to columns.

Step-By-Step

EXERCISE 1-13 (Continued)
Use Paste Special

13 Repeat step 7 for each of the remaining **Paste Special** options listed in the **Paste Special** dialog box.

14 After you have finished step 13, repeat step 7 and select **All using Source theme**. Under **Operation**, check **Skip blanks**. Click **OK**.

15 Select cells **A2:B9**. Click **Copy**. Click cell **A13**. Click the **Paste** drop-down arrow and select **Paste Special**. Under **Operation**, click **Transpose**. Click **OK**.

16 Repeat step 15 to move the expenditures for January (**C2:C9**) into cells **A15:H15**.

17 CHECK Your screen should look like Figure 1.32.

18 Click **Undo**. Reselect cells **C2:C9**. Click **Copy**. Click cell **A14**. Choose **Paste Special**. Click **Subtract** and click **Transpose**. Click **OK**.

19 CHECK Your screen should look like Figure 1.33. Save your file. Exit **Excel**.

FIGURE 1.32 First three columns of data transposed to rows

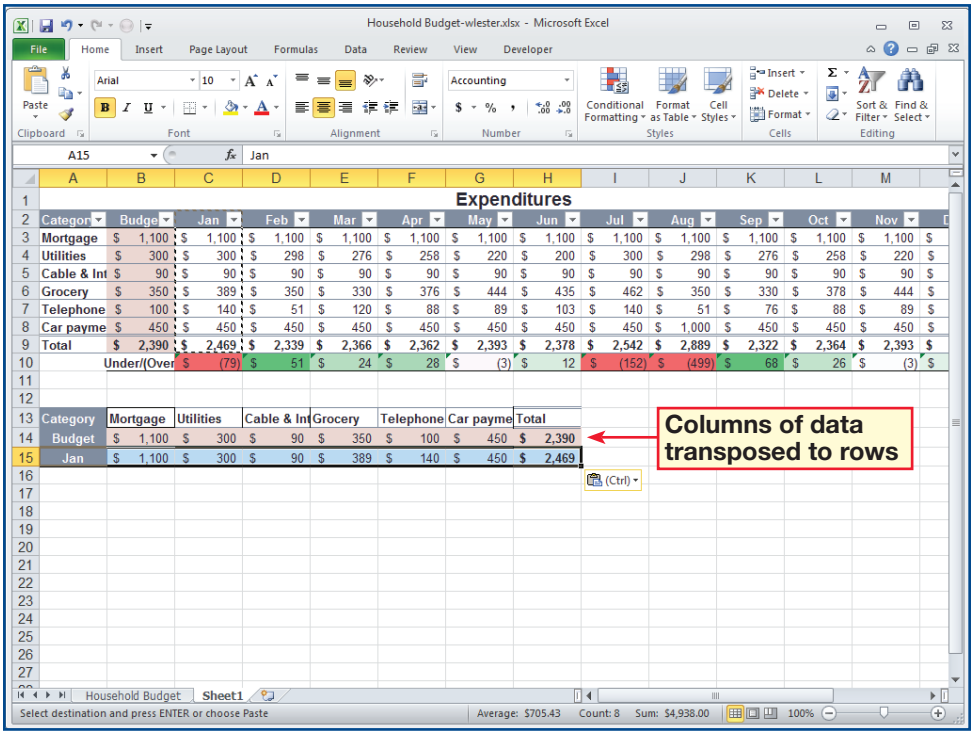
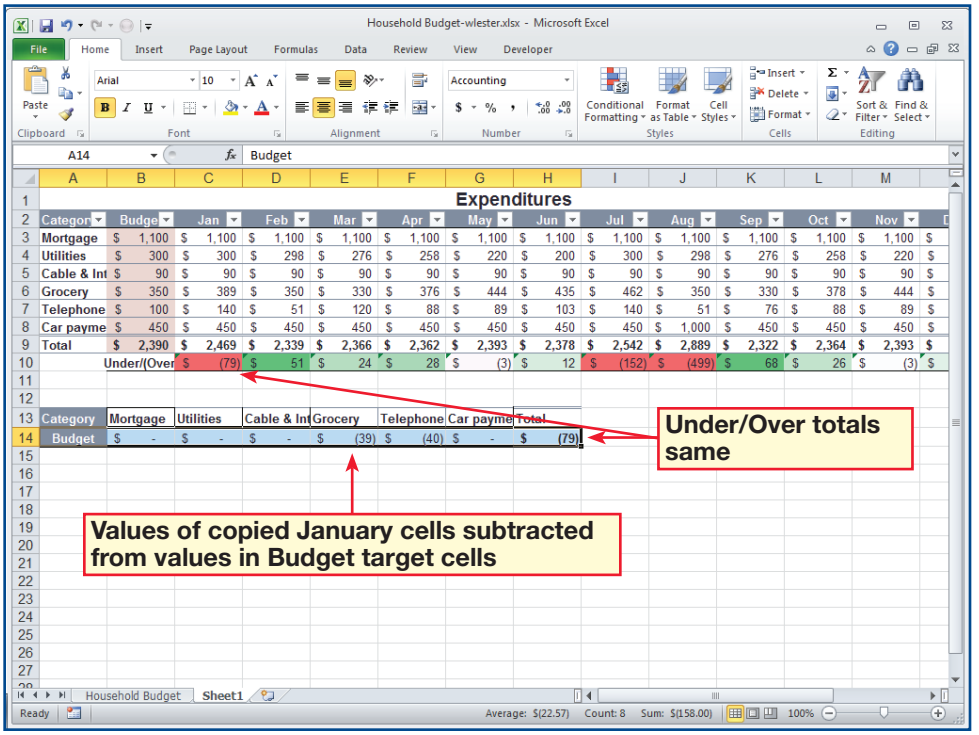


FIGURE 1.33 Mathematical calculation performed and pasted in target cells



21st Century WORKPLACE

Making Complex Choices

At home, at school, and at work, making tough choices is a part of everyday life. For example, Sarah's teacher is encouraging her to take an advanced math course next fall. Taking the course will mean a lot of extra homework. Sarah already has an after-school job, and she plans to try out for the school play next fall.

When Sarah asks for advice, her parents say taking the math course might help her get into college. Her friends are worried that Sarah will not try out for the play. Sarah weighs the pros and cons and follows some simple problem-solving and decision-making steps she learned at school. Finally, Sarah decides to take the course and cut back her hours at work.

Deciding among favorite activities is a choice most of us make every day.

MEET THE MANAGER

Making complex choices is an important part of running a business. My employees often have to make difficult decisions about books, says Leo Landry, manager of Children's Book Shop in Brookline, Massachusetts. They sometimes decide not to carry a popular book they think is low quality, even though they risk losing sales. Other times they try something else. For example, the staff once decided to stock just two copies of a best-selling book that they did not think was very well-written. "We knew people were going to ask for it. Instead of sending customers elsewhere, we gave them a chance to decide about the book here. Most of them looked at it and just handed it back."

SKILLBUILDER

1. **Identify** What factors does Sarah have to consider when she makes her decision?
2. **Describe** What is one decision that has been made at Children's Book Shop?
3. **Apply** When have you had to make a complex choice? Describe what factors you considered when making your decision. Would you make the same decision if you had it to do again?

Jack Hollingsworth/Getty Images

LESSON 1

After You Read

Vocabulary

Key Terms

advanced filter
criteria
data validation
duplicate value
Evaluate Formula
name
Name Manager
subset
subtotal

Academic Vocabulary

convert
error
interpret
sum

Review Vocabulary

Complete the following statements on a separate piece of paper. Choose from the Vocabulary list on the left to complete the statements.

1. If you create a table from a list of items, you can _____ the table back to a normal range of data. (p. 113)

2. When you use an advanced filter, only those items in a range of cells or table that meet certain _____ will be displayed. (p. 115)

3. A(n) _____ can be used in a formula in the same way as a conventional cell reference. (p. 123)

4. To control the type of data entered into cells, apply _____. (p. 118)

5. A(n) _____ is when all values in a row are an exact match of all the values in another row. (p. 121)

Vocabulary Activity

6. Make flash cards based on the vocabulary terms from this lesson.
A. On the front of the card, write the vocabulary word.
B. Look at each vocabulary word. On the back of the card, write the definition.
C. Team up with a classmate and take turns using the flash cards to quiz each other.

Review Key Concepts

Answer the following questions on a separate piece of paper.

7. When you use an advanced filter, what happens to data that does not meet the criteria you set? (p. 115)
A. It is displayed dimly.
B. It is temporarily hidden.
C. It is deleted.
D. Its value is changed.

8. What is the total of a group of items within a larger set of items? (p. 116)
A. subtotal
B. grand total
C. AutoSum
D. total

9. Which of the following tools identifies inaccurate data? (p. 120)
A. data validation
B. Group and Outline Data
C. Circle Invalid Data
D. Evaluate Formula

10. What does Evaluate Formula do? (p. 122)
A. points to possible sources of an error
B. displays tracer arrows
C. steps through a calculation
D. displays an explanation of an error

11. Which of the following hot key commands will move you down one screen? (p. 114)
A. CTRL + Page UP
B. Page Up
C. CTRL + Page Down
D. Page Down

LESSON 1 Practice It Activities

1. Create a List and Use Advanced Filters

DATA FILE

Follow the steps to complete the activity.

Step-By-Step

1. Open the data file **Jobs.xlsx**. Save as: Jobs-[your first initial and last name]1.
2. Click any cell in the list of data. Choose **Data> Sort & Filter>Filter**.
3. Click the drop-down arrow to the right of **Date**. Choose **Sort Oldest to Newest**. The list is sorted in ascending order by date.
4. In cell **C2**, key: Child care. In cell **D2**, key: >20.
5. CHECK Your screen should look like Figure 1.34.
6. Click any cell in the list. Choose **Data>Sort & Filter>Advanced**.
7. In the **Criteria range** box, key: A1:D2. Click **OK**.
8. CHECK Your screen should look like Figure 1.35.
9. Click **Clear** in the **Sort & Filter** group to turn off the filter.
10. Save and close your file.

FIGURE 1.34 Criteria range above list

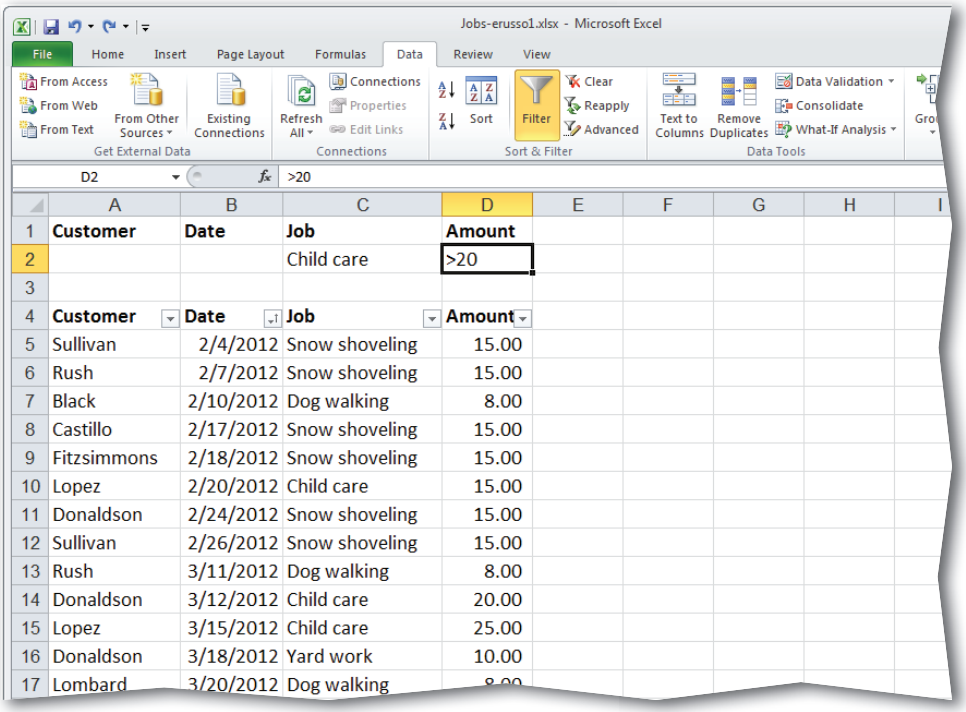
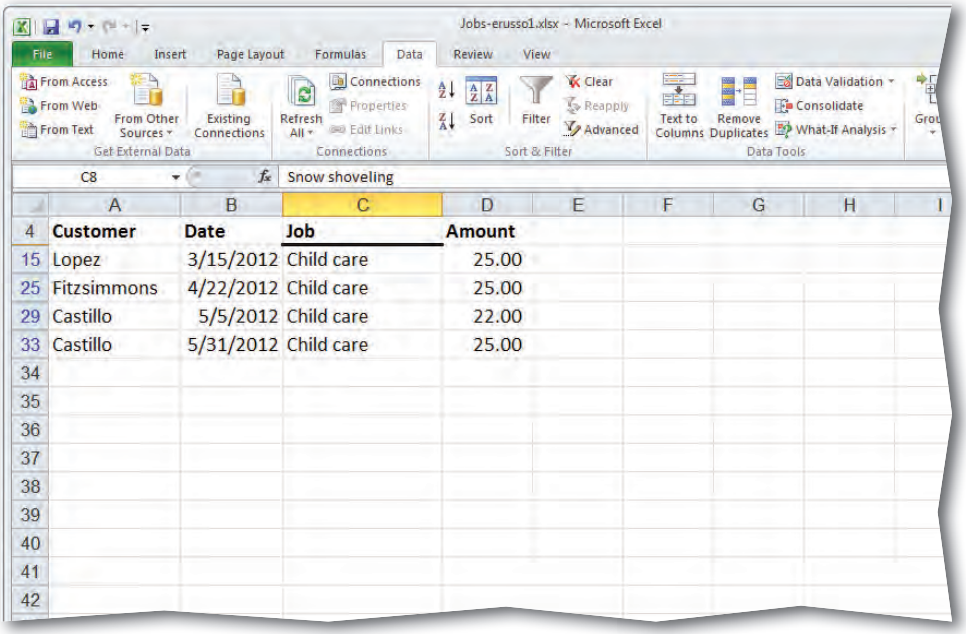


FIGURE 1.35 Filtered list



LESSON 1

Practice It Activities

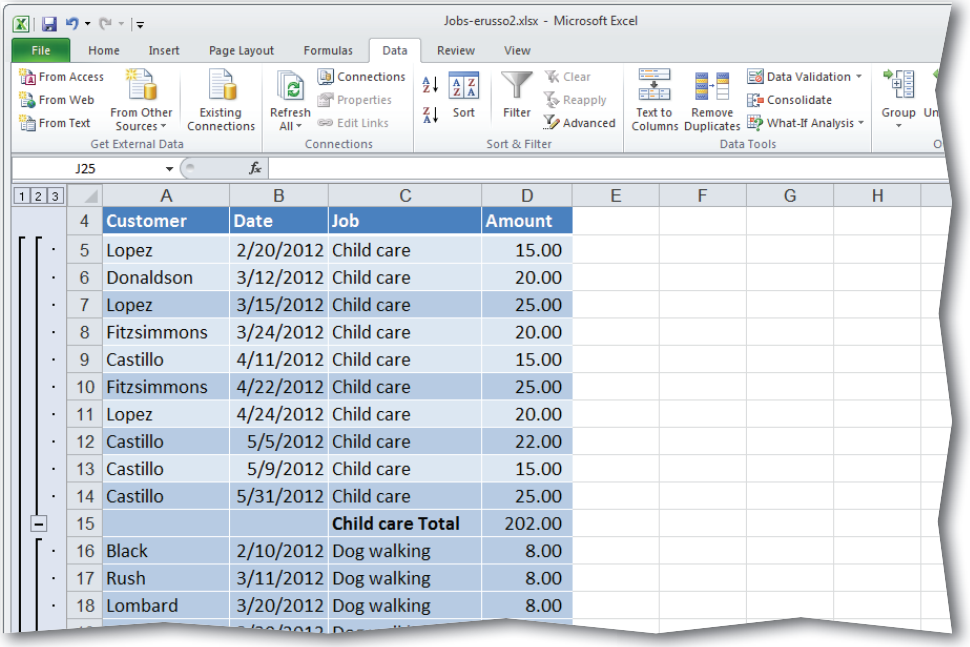
2. Create Subtotals and Group and Outline Data

Follow the steps to complete the activity. You must complete Practice It Activity 1 before doing this activity.

Step-By-Step

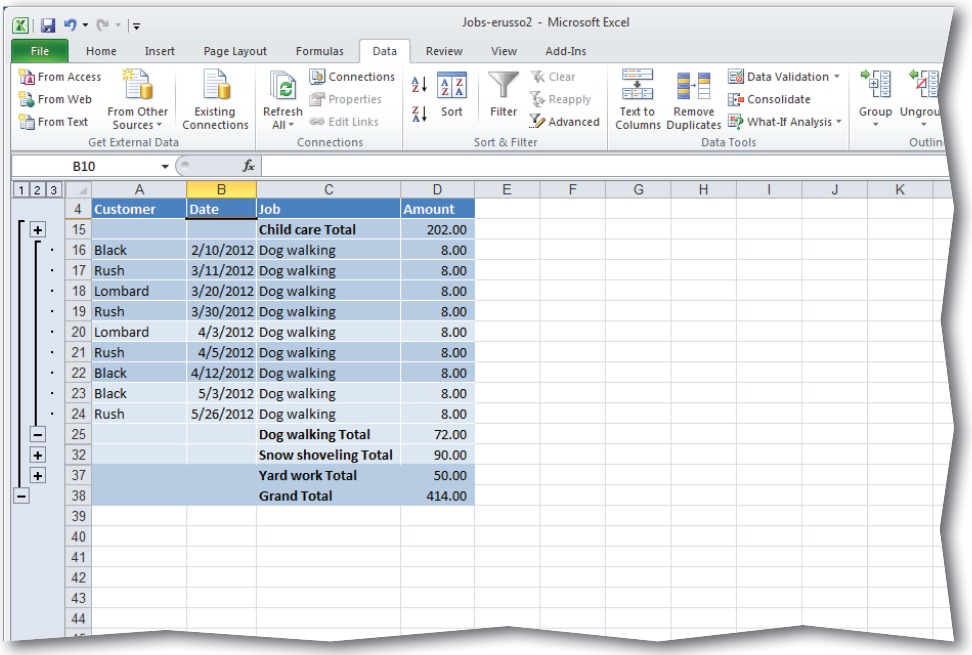
1. Open your **Jobs-1** file. Save as: Jobs-[your first initial and last name]2.
2. Select cells **A4:D33**. Choose **Insert>Tables> Table**. Click **OK**.
3. In the **Tools** group, click **Convert to Range**. Click **Yes**.
4. Click any cell in the **Job** column. Choose **Home> Editing>Sort & Filter**. Click **Sort A to Z**.
5. Click any cell in the list. Choose **Data>Outline> Subtotal**. From the **At each change in** drop-down list, choose **Job**. Click **OK**.
6. CHECK Your screen should look like Figure 1.36.
7. Click the **Outline symbol** 1 for level **1**. Click the **Outline symbol** 2 for level **2**. Click **Show Detail** to the left of row **25**.
8. CHECK Your screen should look like Figure 1.37.
9. Save and close your file.

FIGURE 1.36 Subtotals for each type of job



	A	B	C	D
4	Customer	Date	Job	Amount
5	Lopez	2/20/2012	Child care	15.00
6	Donaldson	3/12/2012	Child care	20.00
7	Lopez	3/15/2012	Child care	25.00
8	Fitzsimmons	3/24/2012	Child care	20.00
9	Castillo	4/11/2012	Child care	15.00
10	Fitzsimmons	4/22/2012	Child care	25.00
11	Lopez	4/24/2012	Child care	20.00
12	Castillo	5/5/2012	Child care	22.00
13	Castillo	5/9/2012	Child care	15.00
14	Castillo	5/31/2012	Child care	25.00
15			Child care Total	202.00
16	Black	2/10/2012	Dog walking	8.00
17	Rush	3/11/2012	Dog walking	8.00
18	Lombard	3/20/2012	Dog walking	8.00

FIGURE 1.37 Detail shown for dog walking



	A	B	C	D
4	Customer	Date	Job	Amount
15			Child care Total	202.00
16	Black	2/10/2012	Dog walking	8.00
17	Rush	3/11/2012	Dog walking	8.00
18	Lombard	3/20/2012	Dog walking	8.00
19	Rush	3/30/2012	Dog walking	8.00
20	Lombard	4/3/2012	Dog walking	8.00
21	Rush	4/5/2012	Dog walking	8.00
22	Black	4/12/2012	Dog walking	8.00
23	Black	5/3/2012	Dog walking	8.00
24	Rush	5/26/2012	Dog walking	8.00
25			Dog walking Total	72.00
32			Snow shoveling Total	90.00
37			Yard work Total	50.00
38			Grand Total	414.00

LESSON 1

Practice It Activities

Step-By-Step

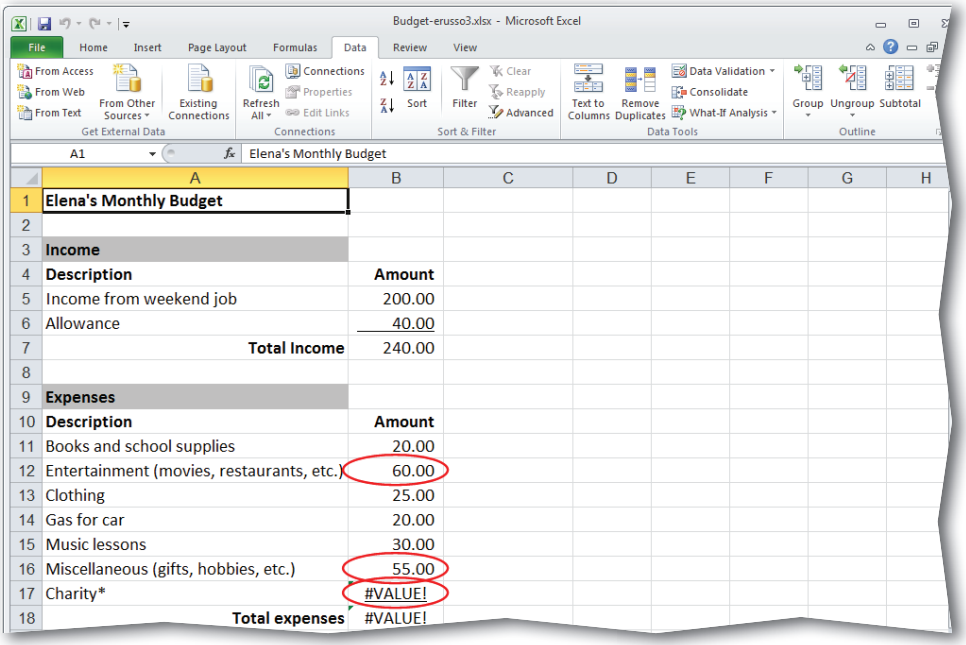
1. Open the data file **Budget.xlsx**. Save as Budget-[your first initial and last name]3.
2. Use **Circle Invalid Data** to find the expenses that are too high.
3. CHECK Your screen should look like Figure 1.38.
4. Click **B12**. Choose **Data> Data Tools>Data Validation**.
5. In the **Data Validation** dialog box, click **OK**.
6. Repeat steps 4 and 5 for **B16** and **B17**.
7. Click **B12**. Key: 50.
8. Press ENTER. The red circle around cell **B12** disappears, indicating that the data are now valid.
9. Click cell **B16**. Key: 50. Press ENTER.
10. CHECK Your screen should look like Figure 1.39.
11. Save and close your file.

3. Circle Invalid Data and Use Data Validation

DATA FILE

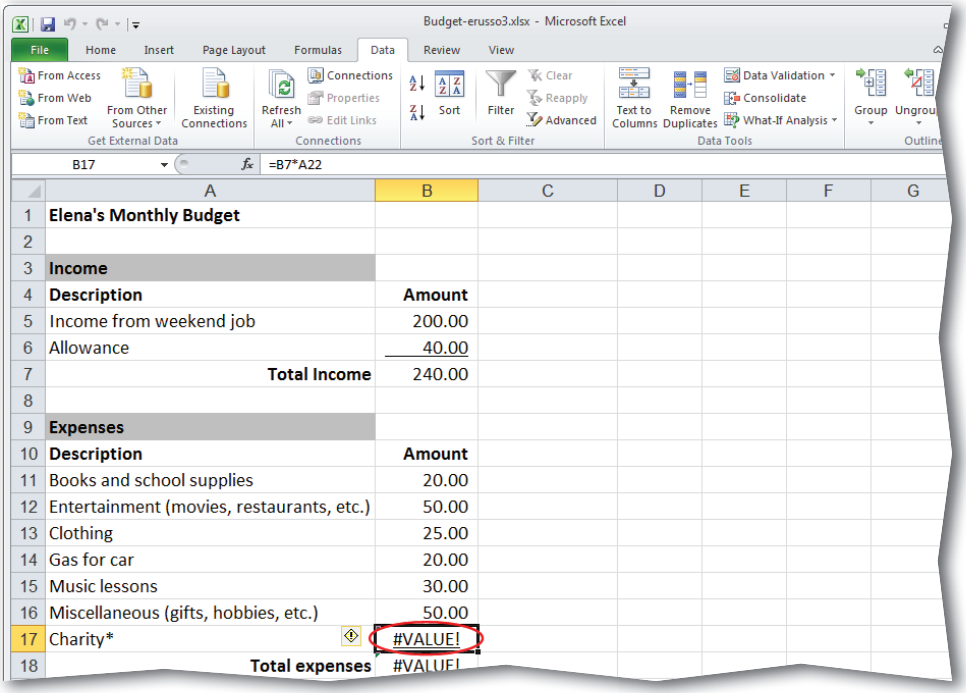
Follow the steps to complete the activity.

FIGURE 1.38 Invalid data circled



	A	B
1	Elena's Monthly Budget	
2		
3	Income	
4	Description	Amount
5	Income from weekend job	200.00
6	Allowance	40.00
7	Total Income	240.00
8		
9	Expenses	
10	Description	Amount
11	Books and school supplies	20.00
12	Entertainment (movies, restaurants, etc.)	60.00
13	Clothing	25.00
14	Gas for car	20.00
15	Music lessons	30.00
16	Miscellaneous (gifts, hobbies, etc.)	55.00
17	Charity*	#VALUE!
18	Total expenses	#VALUE!

FIGURE 1.39 Worksheet after expense data is corrected



	A	B
1	Elena's Monthly Budget	
2		
3	Income	
4	Description	Amount
5	Income from weekend job	200.00
6	Allowance	40.00
7	Total Income	240.00
8		
9	Expenses	
10	Description	Amount
11	Books and school supplies	20.00
12	Entertainment (movies, restaurants, etc.)	50.00
13	Clothing	25.00
14	Gas for car	20.00
15	Music lessons	30.00
16	Miscellaneous (gifts, hobbies, etc.)	50.00
17	Charity*	#VALUE!
18	Total expenses	#VALUE!

LESSON 1 You Try It Activities

Step-By-Step

1. Open your **Budget-3** file. Save as: Budget-[your first initial and last name]4.
2. Choose **Formulas> Formula Auditing> Evaluate Formula**.
3. CHECK Your dialog box should look like Figure 1.40. The evaluation reads **B7*A22**.
4. In the **Evaluate Formula** dialog box, click **Evaluate** (see Figure 1.40).
5. The evaluation now reads **240*A22**.
6. Click **Evaluate**.
7. In the **Evaluate Formula** dialog box, click **Close**.
8. To fix the formula, double-click in cell **B17** and change **A22** to B22. Press ENTER.
9. Fix the formula in **B20**.
10. CHECK Your screen should look like Figure 1.41.
11. Save and close your file.

4. Evaluate Formulas

Elena has created a monthly budget. She knows that there are errors in her worksheet and she has asked for you to help her fix them. Use the Evaluate Formula tool to help her correct the errors.

FIGURE 1.40 Evaluate Formula dialog box

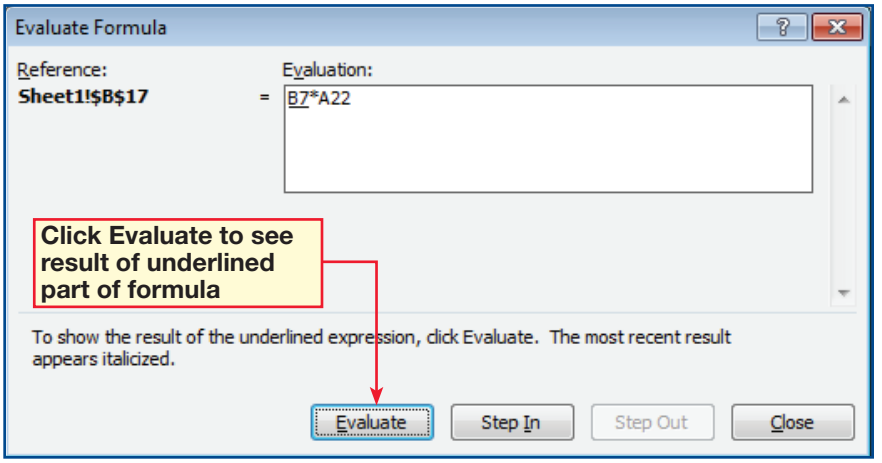
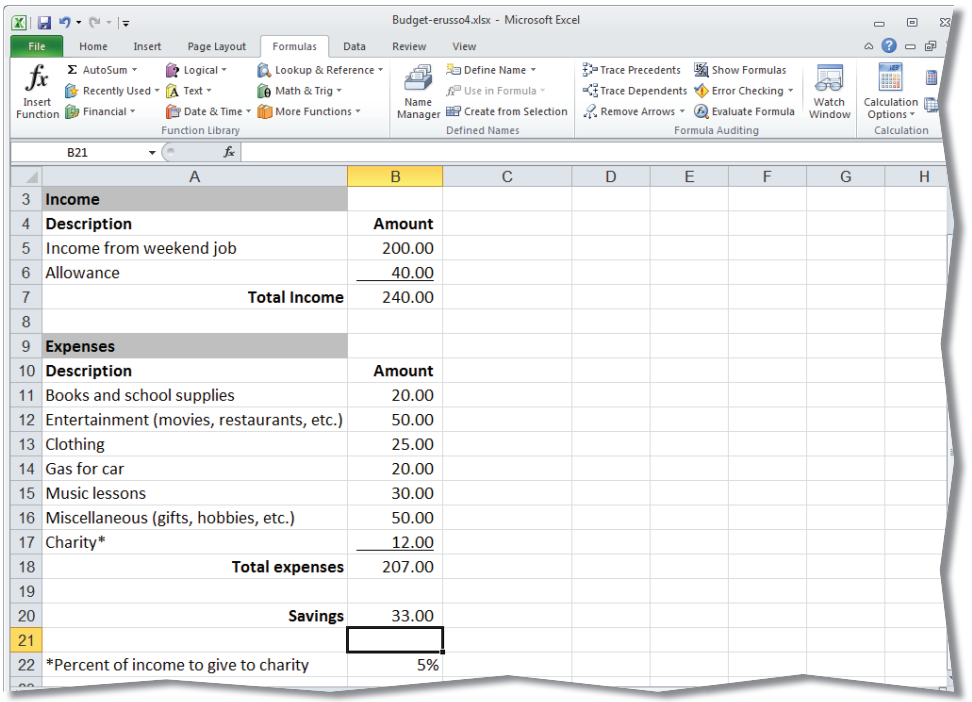


FIGURE 1.41 Corrected formulas



LESSON 1 You Try It Activities

Step-By-Step

1. Open your **Budget-4** file. Save as: Budget-[your first initial and last name]5.
2. Select **A9:B17**. Choose **Formulas>Defined Names>Define Name**.
3. In the **New Name** dialog box, in the **Name** box, key: Expenses (if necessary).
4. CHECK Your dialog box should look like Figure 1.42. Click **OK**.
5. Click in a blank cell outside the Expenses range. Click inside the **Formula bar**. Key: =Expenses. The range you defined is highlighted. Click **Undo**.
6. Click cell **B18**. Click **Define Name**. In the **New Name** dialog box, key: Total. Click **OK**.
7. Click **B7**. Click **Define Name**. In the **Name** box, key: Income. Click **OK**.
8. CHECK Your screen should look similar to Figure 1.43.
9. Save and close your file.

5. Name a Cell Range

Now that you have helped Elena correct the errors in her monthly budget, she wants the budget to be simpler and more efficient. She has asked you to use the Name Manager to create names for some of the data in the workbook to prevent errors when keying in data.

FIGURE 1.42 New Name dialog box

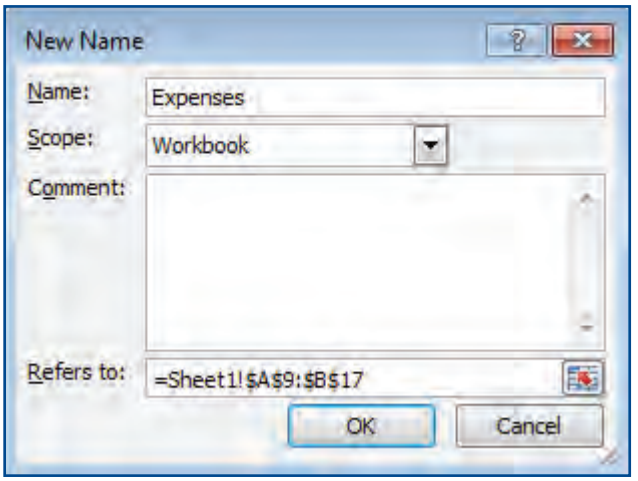
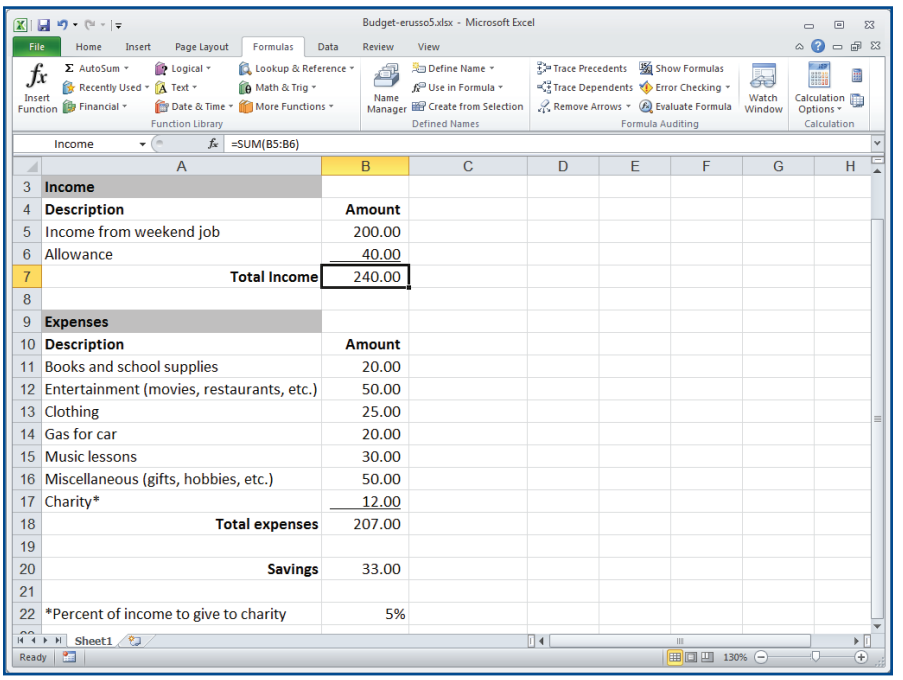


FIGURE 1.43 Cell B7 with name defined



	A	B
3	**Income**	
4	**Description**	**Amount**
5	Income from weekend job	200.00
6	Allowance	40.00
7	**Total Income**	240.00
8		
9	**Expenses**	
10	**Description**	**Amount**
11	Books and school supplies	20.00
12	Entertainment (movies, restaurants, etc.)	50.00
13	Clothing	25.00
14	Gas for car	20.00
15	Music lessons	30.00
16	Miscellaneous (gifts, hobbies, etc.)	50.00
17	Charity*	12.00
18	**Total expenses**	207.00
19		
20	**Savings**	33.00
21		
22	*Percent of income to give to charity	5%

LESSON 1 Critical Thinking Activities

6. Beyond the Classroom Activity

DATA FILE

Math: Validate Data You have volunteered to sell refreshments at your high school football games. Open the data file **Refreshments.xlsx**, which lists items that you sell and their prices. In the file:

- Use data validation criteria so that each price is a whole number.
- Circle invalid data and round the invalid data to the nearest dollar.

Save your file as: Refreshments-[your first initial and last name]6.xlsx.

7. Standards at Work Activity

DATA FILE

Microsoft Office Specialist Correlation

Excel 5.5 *Apply named ranges in formulas.*

Select and Name a Range of Cells You are in charge of selling souvenirs at the high school football games. Locate and open the data file **Merchandise.xlsx**. Use the Name Manager to name cells or cell ranges for the following cell(s):

- B3:B14
- C3:C14
- C18
- C19

Save your file as: Merchandise-[your first initial and last name]7.xlsx. Open a Word document and key a paragraph about why working with names makes it easier to understand the purpose of data in a worksheet and work with formulas.

8. 21st Century Skills Activity

Identify and Correct Errors You can learn by correcting your mistakes. Although Excel comes with many error-checking functions, you should verify the accuracy of the data yourself. Always proofread your worksheets. You need to specify which columns should be checked for duplicate information in the football souvenir's list. Open your **Merchandise-7** file. In the file:

- Review the worksheet and delete any duplicate data.
- Use the **Remove Duplicates** data tool to check your work. Enter and label the number of duplicate values in cell **F3**.
- Delete the remaining duplicate rows from the souvenir list.

Click cell **F4** and key a paragraph describing how you can incorporate Excel tools and proofreading skills to prevent errors in your data. Reflect on how correcting your errors helped you learn from you mistakes. Save as: Merchandise-[your first initial and last name]8.xlsx.

LESSON 1 Challenge Yourself Projects

Before You Begin

Make Sense of Data In school, at work, and even at home, organization makes life easier. These projects teach you how to use Excel's tools to sort, filter, and validate data in a concise and logical format.

Reflect Once you complete the projects, open a Word document and answer the following questions:

1. In what ways do you think data validation can help you better organize and quickly manage data?
2. Think about something that you had to organize in your life. What strategies did you use to complete the task?
3. What are some other ways you can use Excel to organize data logically?

Stone/Getty Images

9. Organize a Donations Workbook

DATA FILE

Math: Convert a Table to a Range of Data You are on the fundraising committee at your local zoo. You need to create a sorted list for your donations data. Open the **Zoo.xlsx** data file. In the file:

- Create a table.
- Sort the donations in ascending order.
- Convert the table to a range of data.

Save your file as: Zoo-[your first initial and last name]9.xlsx.

10. Monitor Donation Totals

Math: Use Advanced Filters The fundraising committee has decided to set a minimum donation of $30. Before they make a decision, they would like to know who contributed less than $30 to the zoo. Open your **Zoo-9** file.

- Sort the donations by last name.
- Use **advanced filters** to identify all the donations that are less than $30.
- Make sure you leave a blank row between the criteria range and the data range.

Save your file as: Zoo-[your first initial and last name]10.xlsx.

11. Analyze Donations Data

Math: Use Data Validation The fundraising committee has decided to set the minimum donation at $30. You need to apply data validation to require the amount for each donation to be $30 or more.

- Open your **Zoo-10** file. If necessary, turn off the filter from the previous activity.
- Use **Data Validation** to control the amount of data entered into cells in your table.
- Change all of the donations that are less than $30 to $30.
- In your file, identify:
  - **A.** The number of donations you changed.
  - **B.** The total amount the donations increased after the minimum donation was changed to $30.

Save your file as: Zoo-[your first initial and last name]11.xlsx.

LESSON 2 Advanced Data Analysis

Key Concepts

- Use a PivotTable and PivotChart
- Modify text formatting and text content using formulas
- Perform What-If Analysis
- Use conditional logic in a formula
- Display and print formulas
- Use LOOKUP and Reference functions

Standards

The following standards are covered in this lesson. Refer to pages xxiv and 715 of the Student Edition for a description of the standards listed here.

ISTE Standards Correlation

NETS•S

1a, 1c, 3d, 4a, 4b, 4c, 4d, 6a

Microsoft Office Specialist

Excel

1.1, 1.2, 1.3, 2.1, 5.4, 6.1, 6.4, 8.2

The analytical tools in Excel allow you to summarize data and test how various options affect data. Using PivotTables, conditional logic, scenarios, and What-If Analysis, you can make predictions and solve complex problems. This lesson also covers modifying text formatting and text content with formulas, using the Solver tool, and creating database functions—all of which will enable you to effectively analyze your data.

Stone/Getty Images

21st CENTURY SKILLS

Consider the Consequences Making decisions can be a hard task. Consider the following scenario: A video game you really want has just gone on sale. You have enough money to buy it because you have been saving up to buy a portable music player. If you buy the video game now, you will have to wait another month before you can afford to buy the portable music player. Are you willing to wait for the portable music player in order to buy the video game? Analyzing your choices will help you make the best decision. *What is an example of a difficult decision that you made recently?*

LESSON 2 Reading Guide

Before You Read

Vocabulary Knowing the definition of a word does not always help you understand its full meaning. To gain a more complete understanding of the meaning, use a Vocabulary Journal. Divide a piece of paper into four columns. Label the first column *Vocabulary*. Label the other columns: *What is it?*, *What else is it like?*, and *What are some examples?*. List each vocabulary word and answer the questions as you read.

Read To Learn

- Learn to create and customize reports and charts of data with PivotTables and PivotCharts.
- Evaluate which decision to make using data analysis tools.
- Consider how LOOKUP functions can be used to automate tasks in Excel.

Main Idea

Excel has many tools and features to help you analyze the huge amount of data that businesses work with today.

Vocabulary

Key Terms

argument
conditional logic
constraint
criteria
database function
LOWER
PivotChart
PivotTable
PROPER
scenario
SUBSTITUTE
UPPER
What-If Analysis

Academic Vocabulary

These words appear in your reading and on your tests. Make sure you know their meanings.

generate
locate

Quick Write Activity

Describe On a separate sheet of paper, describe why analysis can lead you to make better decisions. Think about a time when you had to change or rearrange data to answer questions. Perhaps you had to look at the data from different angles. Explain how you think Excel might have helped you analyze your data to make the best decision.

Study Skill

Use a Whiteboard Put up a whiteboard where you do your homework. If you have an unfinished assignment or project, jot a reminder on the board. Erase each reminder when you complete the task. These reminders will be visible until you complete each assignment or project.

Academic Standards

Language Arts

NCTE 3 Apply strategies to interpret texts.

Math

NCTM (Number and Operations) Understand numbers, ways of representing numbers, relationships among numbers, and number systems.

NCTM (Number and Operations) Understand meanings and operations and how they relate to one another.

NCTM (Connections) Understand meanings and operations and how they relate to one another.

Step-By-Step

EXERCISE 2-1

Create a PivotTable with PivotChart Reports

A **PivotTable** is a sophisticated tool that creates a concise report summarizing large amounts of data based on ranges you select. The data in a PivotTable can then generate, or create, a **PivotChart**. In this exercise, you will create a PivotTable and a PivotChart to show the total amount of each item sold at each location, and then use a slicer to quickly filter the data in the PivotChart without having to open a drop-down list to find the items that you want to filter.

1. Open the data file **Blues2.xlsx**. Save your file as: Blues2-[your first initial and last name]. (For example, *Blues2-erusso*.) Click the **Merchandise sales** sheet tab.

2. Select cells **A4:D73**. Choose **Data>Outline> Subtotal**. In the **Subtotal** dialog box, click **Remove All**.

3. Select any cell in the list, such as cell **C6**.

4. Choose **Insert>Tables** and click the **Insert PivotTable** drop-down arrow. Select **PivotTable**.

5. CHECK Your dialog box should look like Figure 2.1 Click **OK**.

6. The PivotTable is created in a new worksheet. In the **PivotTable Field List**, click and drag **Location** to the box labeled **Row Labels** (under **Drag fields between areas below:**).

7. In the **PivotTable Field List**, drag **Item** to the **Column Labels** box.

8. CHECK Your screen should look like Figure 2.2.

Continued on the next page.

FIGURE 2.1 Create PivotTable dialog box

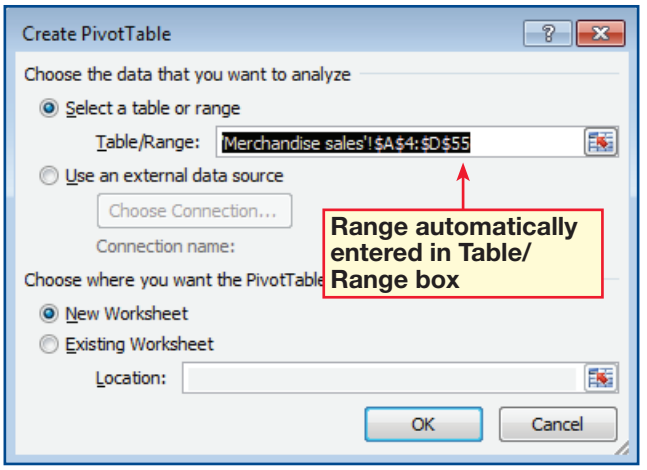
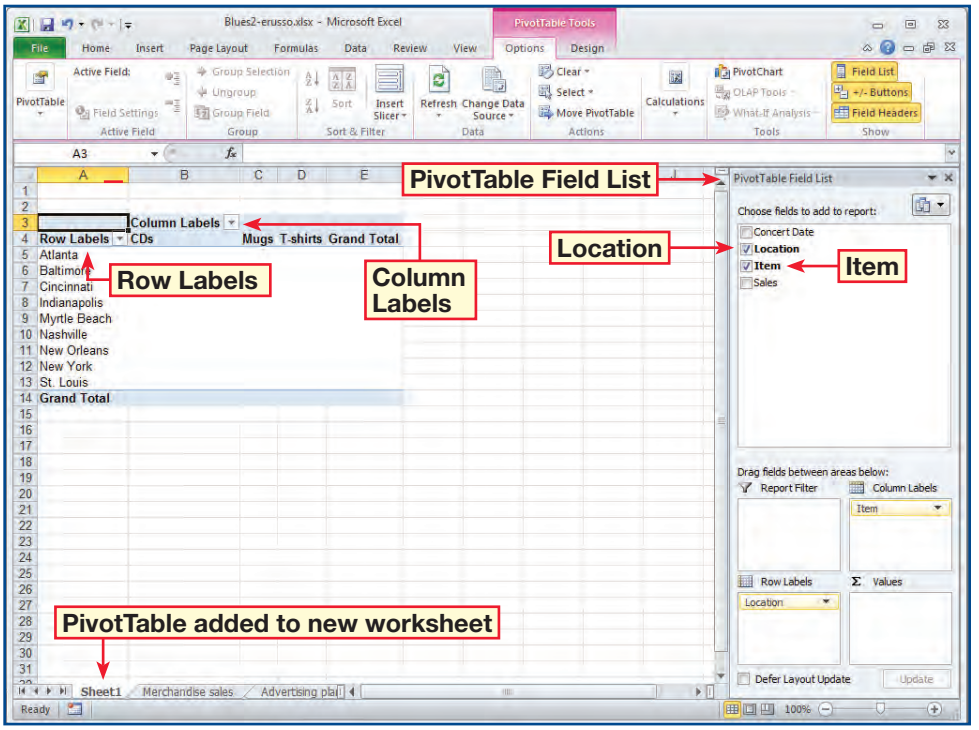


FIGURE 2.2 Unfinished PivotTable



Step-By-Step

EXERCISE 2-1 (Continued)

Create a PivotTable with PivotChart Reports

9. In the **PivotTable Field List** drag **Sales** to the **Values** box (see Figure 2.3).

10. Choose **Options>Tools> PivotChart**. Under **Column**, select **Stacked Column in 3D**. Click **OK**.

11. Close the **PivotTable Field List**. Choose **Analyze>Show/Hide> Field Buttons** to turn off the field filters.

12. Click the **Layout** tab. Choose **Labels>Axis Titles>Primary Horizontal Axis Title> Title Below Axis**. Key: Location. Press ENTER.

13. Choose **Labels>Axis Titles>Primary Vertical Access Title>Rotated Title**. Key: Sum of Sales. Press ENTER.

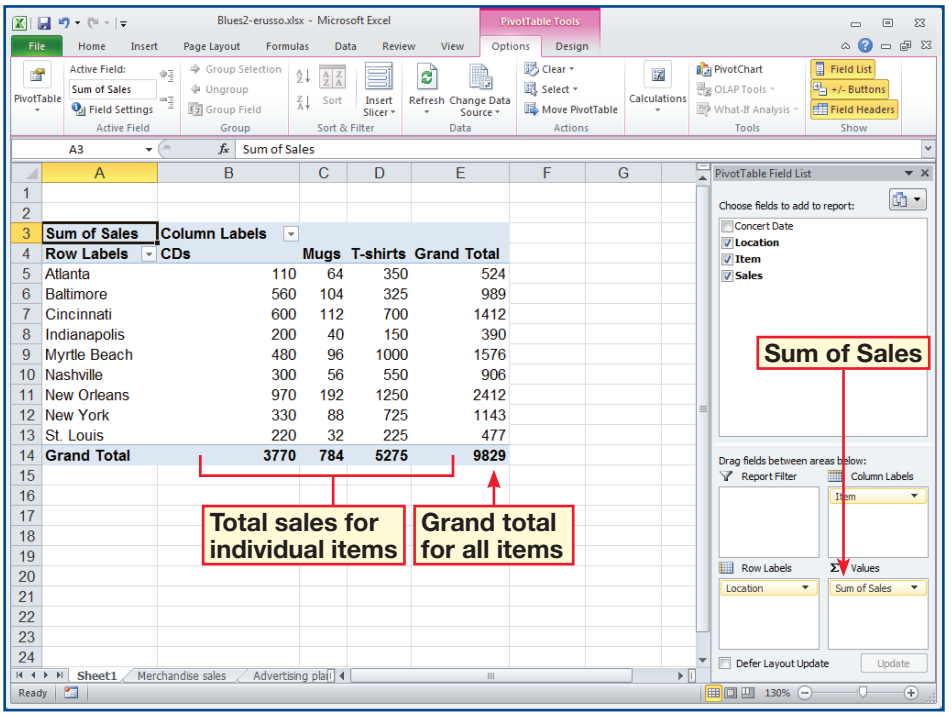
14. CHECK Your screen should look like Figure 2.4.

15. Choose **Analyze>Data> Insert Slicer**. Check **Item** and click **OK**. Click **CDs**. Drag the **Item** box off the chart. The chart displays CD sales in each city.

16. Click the **Sheet1** tab and rename the sheet **Chart1**. Save your file.

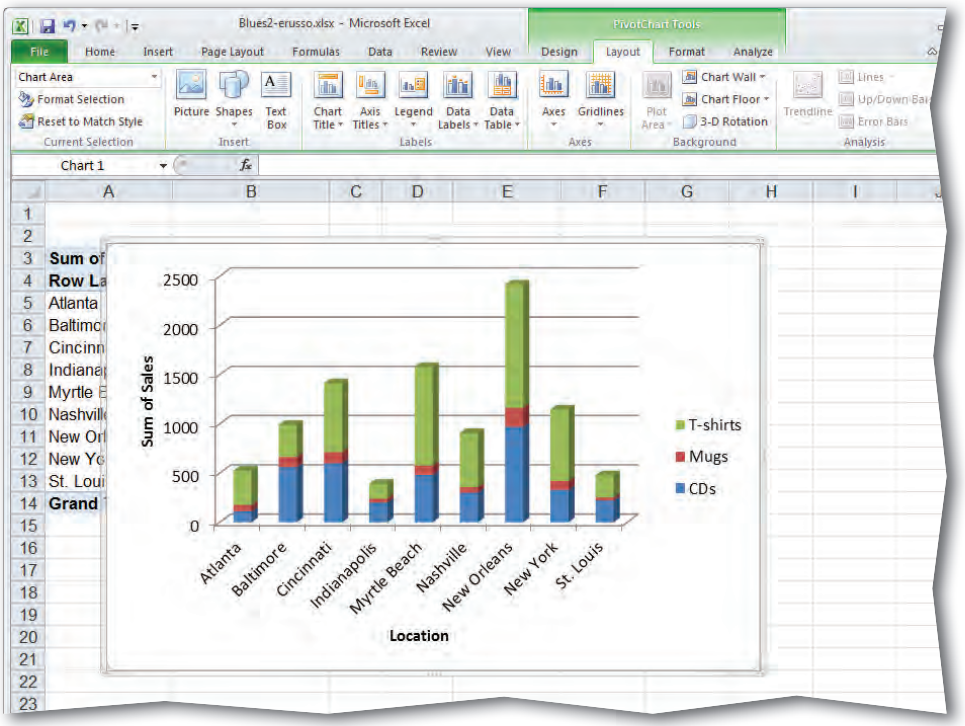
Continue to the next exercise.

FIGURE 2.3 Finished PivotTable



Sum of Sales	Column Labels			
Row Labels	CDs	Mugs	T-shirts	Grand Total
Atlanta	110	64	350	524
Baltimore	560	104	325	989
Cincinnati	600	112	700	1412
Indianapolis	200	40	150	390
Myrtle Beach	480	96	1000	1576
Nashville	300	56	550	906
New Orleans	970	192	1250	2412
New York	330	88	725	1143
St. Louis	220	32	225	477
Grand Total	3770	784	5275	9829

FIGURE 2.4 PivotChart



Step-By-Step

1. In your **Blues2** file, click the **Advertising plan** sheet tab. Select row **4**. Choose **Home>Cells> Insert Cells** to add a row in the **Advertising Plan**.
2. Click cell **A4**. Key: =LOWER(A3). Press ENTER.
3. CHECK Your screen should look like Figure 2.5.
4. Click **A4** and drag the fill handle to **D4**. The new row of headings is in lowercase.
5. Click cell **A4**. Key: =PROPER(A3). Press ENTER. Select cell **A4** and drag the fill handle to **D4**.
6. Click **A4** and change the formula to: =UPPER(A3). Press ENTER.
7. Copy the formula to cells **B4:D4**. Select row **3**. Right-click and select **Hide**.
8. CHECK Your screen should look like Figure 2.6. Save your file.

Continue to the next exercise.

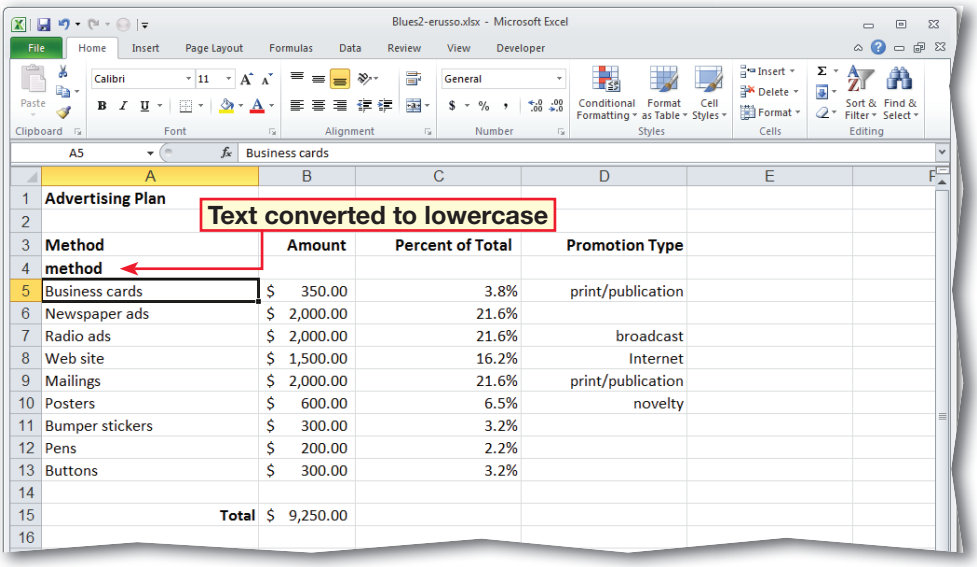
Academic Skills

Proper case refers to the capitalization of a name. Your name, and the name of the town or city where you live, are proper nouns.

EXERCISE 2-2
Modify Text Formatting Using Formulas

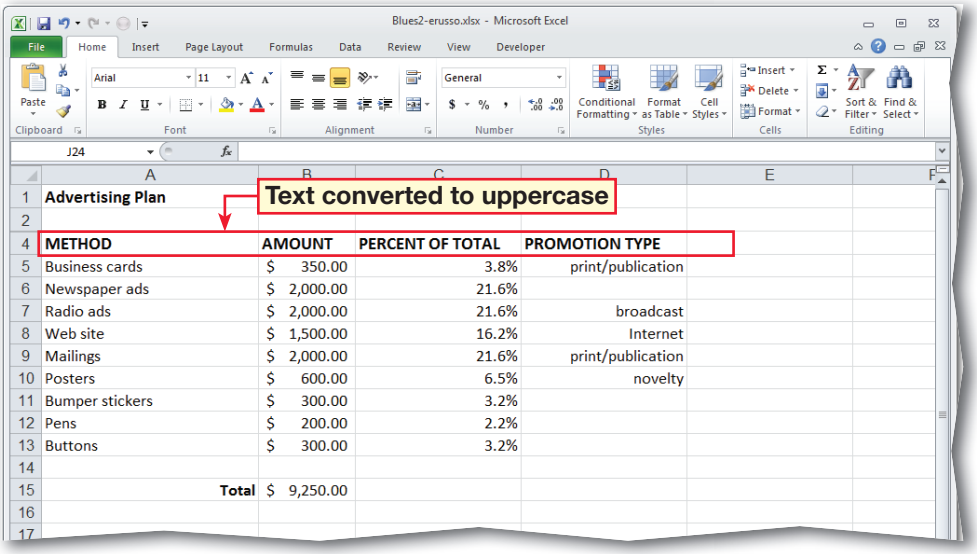
You can use database functions to analyze and modify data. A **database function** is a formula that acts on only those items that meet certain **criteria** or conditions. Each of those items is called an **argument**. To make analyzing data easier, you may want to convert the text from uppercase to lowercase or to proper case to improve the worksheet's readability. To modify text with a formula, you can use the **UPPER** function to make the text uppercase, the **LOWER** function to change text to lowercase, or the **PROPER** function to make only the first letter uppercase.

FIGURE 2.5 Text modified using formula



	A	B	C	D
1	Advertising Plan			
2				
3	Method	Amount	Percent of Total	Promotion Type
4	method			
5	Business cards	$ 350.00	3.8%	print/publication
6	Newspaper ads	$ 2,000.00	21.6%	
7	Radio ads	$ 2,000.00	21.6%	broadcast
8	Web site	$ 1,500.00	16.2%	Internet
9	Mailings	$ 2,000.00	21.6%	print/publication
10	Posters	$ 600.00	6.5%	novelty
11	Bumper stickers	$ 300.00	3.2%	
12	Pens	$ 200.00	2.2%	
13	Buttons	$ 300.00	3.2%	
14				
15	Total	$ 9,250.00		
16				

FIGURE 2.6 Text modified to uppercase using formula



	A	B	C	D
1	Advertising Plan			
2				
4	METHOD	AMOUNT	PERCENT OF TOTAL	PROMOTION TYPE
5	Business cards	$ 350.00	3.8%	print/publication
6	Newspaper ads	$ 2,000.00	21.6%	
7	Radio ads	$ 2,000.00	21.6%	broadcast
8	Web site	$ 1,500.00	16.2%	Internet
9	Mailings	$ 2,000.00	21.6%	print/publication
10	Posters	$ 600.00	6.5%	novelty
11	Bumper stickers	$ 300.00	3.2%	
12	Pens	$ 200.00	2.2%	
13	Buttons	$ 300.00	3.2%	
14				
15	Total	$ 9,250.00		
16				
17				

Step-By-Step

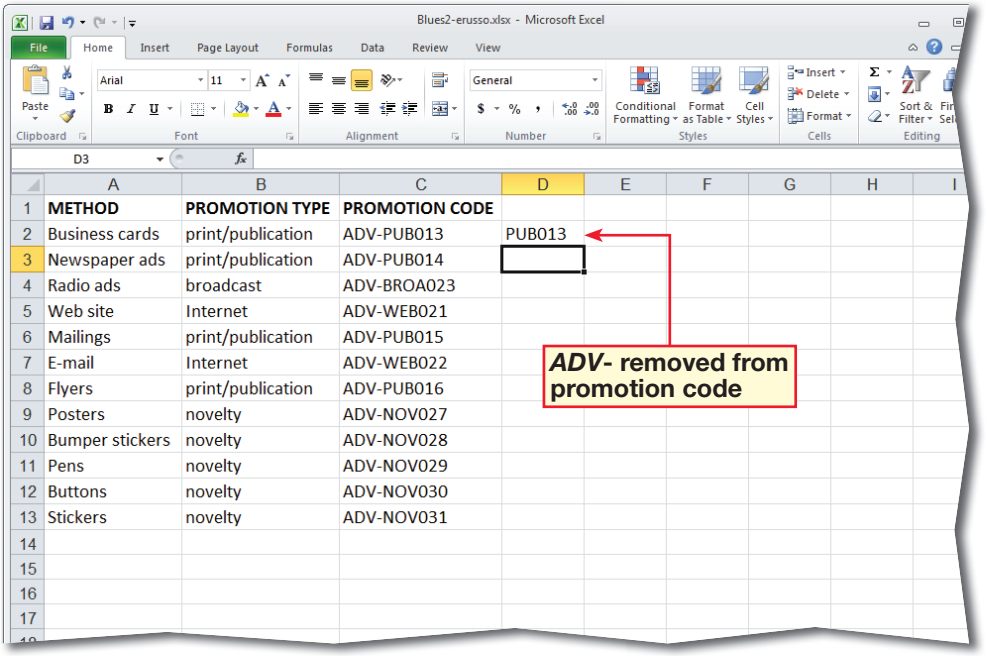
EXERCISE 2-3
Modify Text Content Using Formulas

You can use formulas to change the content of your worksheets. For instance, the SUBSTITUTE function allows you to substitute one word for another quickly. As the data in your worksheet continues to change, this function can be very helpful.

1. In your **Blues2** file, click the **Promotional codes** sheet tab.
2. Click cell **D2**. Key: =SUBSTITUTE(C2:C13, "ADV-", "").
3. Press ENTER.
4. CHECK Your screen should look like Figure 2.7. Note that **ADV-** has been removed from the business cards promotion code.
5. Click cell **D2**. Drag the fill handle down to **D13**.
6. CHECK Your screen should look like Figure 2.8. The remaining promotion codes are filled in without **ADV-**.
7. Save your file.

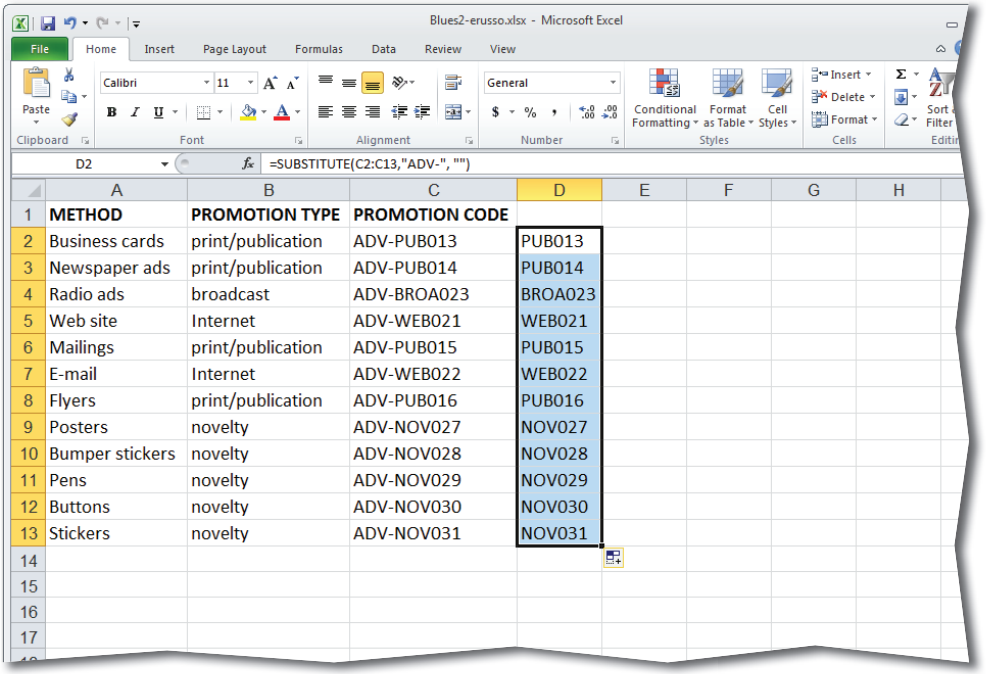
Continue to the next exercise.

FIGURE 2.7 Formula using the SUBSTITUTE function



	A	B	C	D
1	METHOD	PROMOTION TYPE	PROMOTION CODE	
2	Business cards	print/publication	ADV-PUB013	PUB013
3	Newspaper ads	print/publication	ADV-PUB014	
4	Radio ads	broadcast	ADV-BROA023	
5	Web site	Internet	ADV-WEB021	
6	Mailings	print/publication	ADV-PUB015	
7	E-mail	Internet	ADV-WEB022	
8	Flyers	print/publication	ADV-PUB016	
9	Posters	novelty	ADV-NOV027	
10	Bumper stickers	novelty	ADV-NOV028	
11	Pens	novelty	ADV-NOV029	
12	Buttons	novelty	ADV-NOV030	
13	Stickers	novelty	ADV-NOV031	

FIGURE 2.8 ADV- removed from promotion codes



	A	B	C	D
1	METHOD	PROMOTION TYPE	PROMOTION CODE	
2	Business cards	print/publication	ADV-PUB013	PUB013
3	Newspaper ads	print/publication	ADV-PUB014	PUB014
4	Radio ads	broadcast	ADV-BROA023	BROA023
5	Web site	Internet	ADV-WEB021	WEB021
6	Mailings	print/publication	ADV-PUB015	PUB015
7	E-mail	Internet	ADV-WEB022	WEB022
8	Flyers	print/publication	ADV-PUB016	PUB016
9	Posters	novelty	ADV-NOV027	NOV027
10	Bumper stickers	novelty	ADV-NOV028	NOV028
11	Pens	novelty	ADV-NOV029	NOV029
12	Buttons	novelty	ADV-NOV030	NOV030
13	Stickers	novelty	ADV-NOV031	NOV031

Microsoft Office 2010

To **AutoFit**, or change the column width to fit the contents of a cell, double-click the boundary between two column headings. To quickly **AutoFit** all columns in a worksheet, click **Select All** and then double-click any boundary between two column headings.

Step-By-Step

1. In your **Blues2** file, click the **Advertising plan** sheet tab. Click cell **B6**.
2. Choose **Data>Data Tools>What-If Analysis**. Select **Scenario Manager**.
3. In the **Scenario Manager** dialog box, click **Add**.
4. In the **Add Scenario** dialog box, in the **Scenario name** box, key: ads high (see Figure 2.9).
5. Click **OK**. The **Scenario Values** dialog box opens.
6. If necessary, key: 2000. Click **OK**.
7. The **Scenario Manager** dialog box reopens. The scenario **ads high** has been added to the **Scenarios** list.
8. In the **Scenario Manager** dialog box, click **Close**.
9. CHECK Your screen should look like Figure 2.10.

Continued on the next page.

Shortcuts

To open the **Scenario Manager** dialog box, press ALT + T + E.

EXERCISE 2-4
Use the What-If Analysis Tool to Create Scenarios

You can perform a **What-If Analysis** to test possible outcomes. Excel allows you to create What-If scenarios for each possible situation so that you can compare the scenarios and make a decision. A **scenario** is a version of your data that you save and name. What-If scenarios are useful if some values in your worksheet cannot change but others can. For example, if you have a budget that contains nine advertising options, you can change the values of each option without changing the budget total. In this exercise, you will create two scenarios in which you set your upper and lower spending limits on newspaper ads.

FIGURE 2.9 Add Scenario dialog box

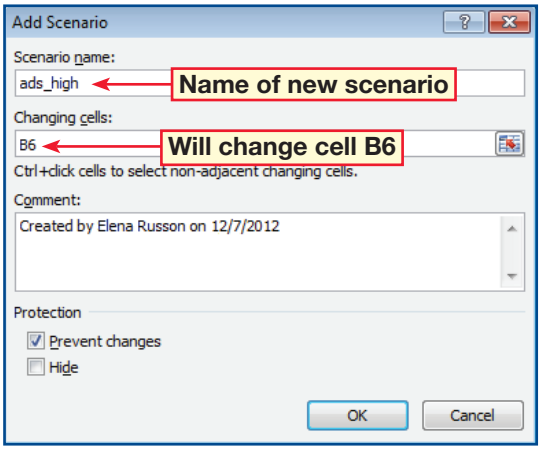
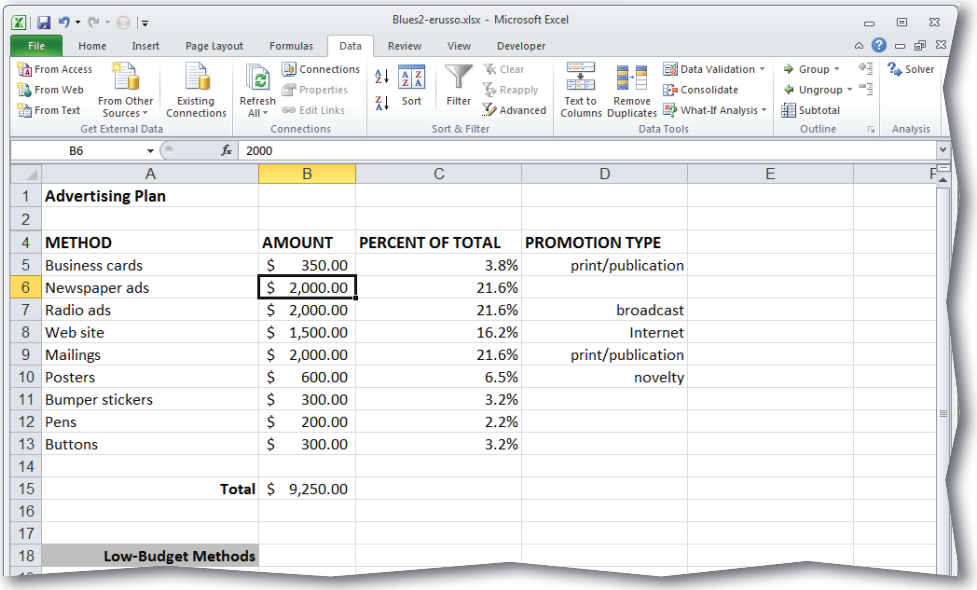


FIGURE 2.10 Worksheet with original values



EXERCISE 2-4 (Continued)

Use the What-If Analysis Tool to Create Scenarios

Step-By-Step

10. In your **Blues2** file, click cell **B6**.
11. Choose **Data>Data Tools>What-If Analysis**, and then select **Scenario Manager**.
12. In the **Scenario Manager** dialog box, click **Add**.
13. In the **Add Scenario** dialog box, in the **Scenario name** box, key: ads low (see Figure 2.11). Click **OK**.
14. In the **Scenario Values** dialog box, key: 500. Click **OK**.
15. CHECK Your dialog box should look like Figure 2.12. Under **Scenarios**, notice that the scenario **ads low** has been added to the **Scenarios** list.

Continued on the next page.

Troubleshooter

When you create a scenario, your original worksheet is not saved. If you want to restore the worksheet after showing a scenario, you must create a scenario that uses the original values.

FIGURE 2.11 Add Scenario dialog box

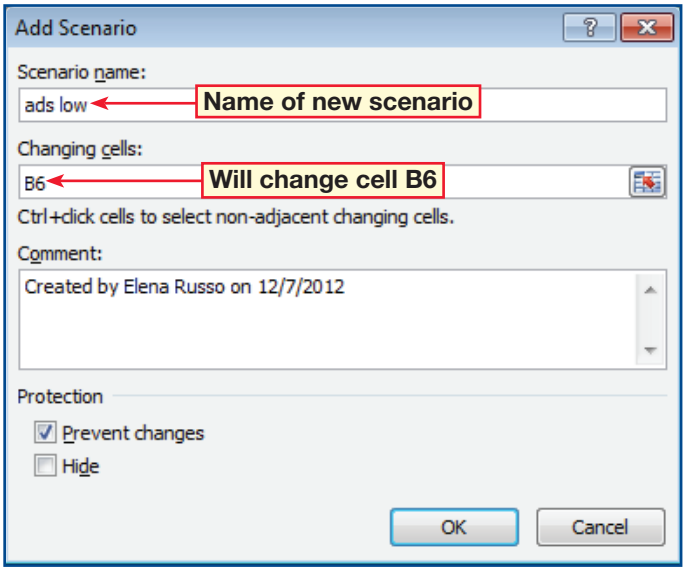
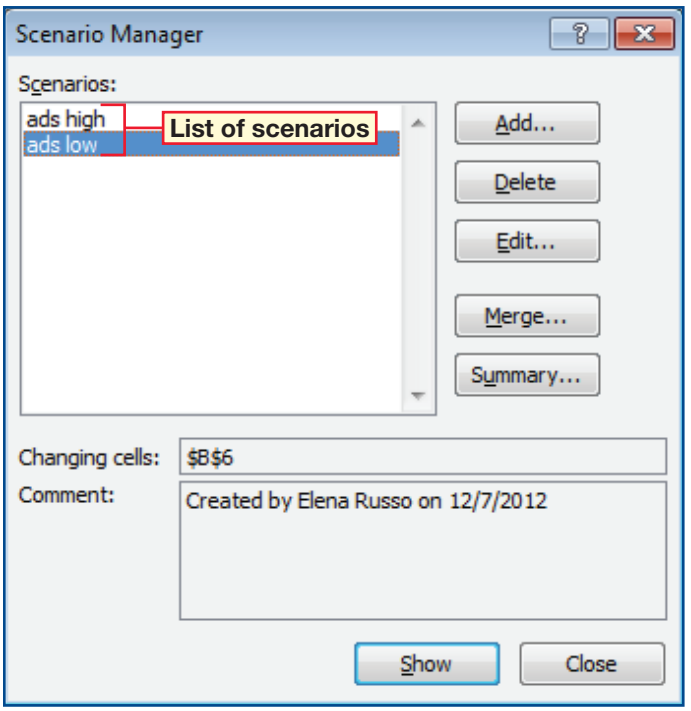


FIGURE 2.12 Scenarios listed in the Scenario Manager dialog box



Step-By-Step

EXERCISE 2-4 (Continued)

Use the What-If Analysis Tool to Create Scenarios

16 If necessary, move the **Scenario Manager** dialog box so you can see the data in the worksheet.

17 In the **Scenarios** list, double-click **ads low**. Excel runs the scenario where you have $500 to spend on newspaper ads.

18 CHECK Your screen should look like Figure 2.13. Notice that your total budget is now $7,750.

19 In the **Scenarios** list, double-click **ads high**.

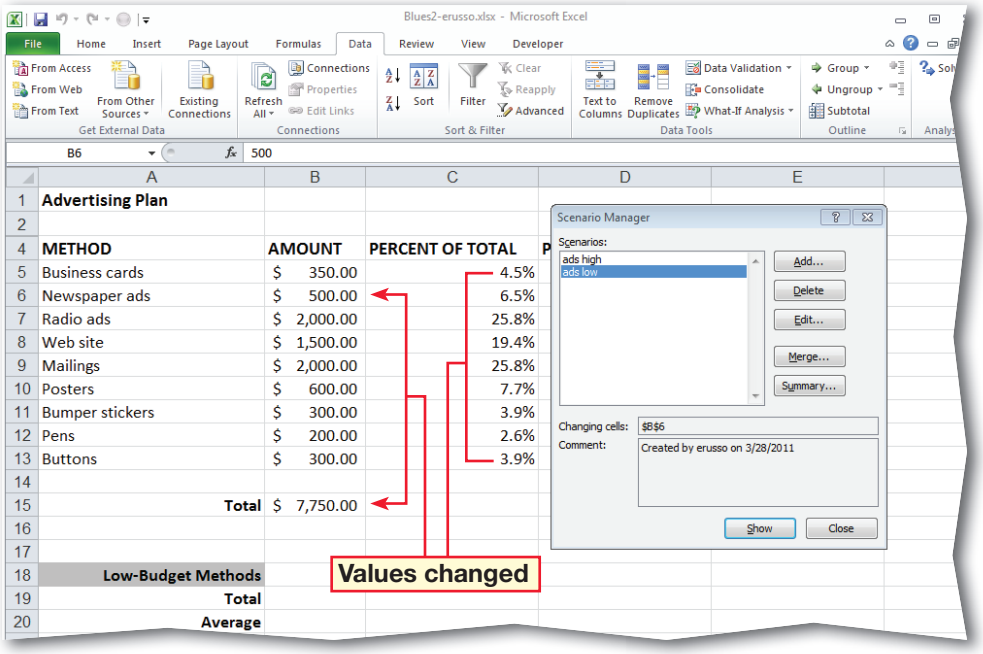
20 CHECK Your screen should look like Figure 2.14. Notice that the **ads high** scenario changes your total budget to $9,250.

21 In the **Scenario Manager** dialog box, click **Close**.

22 Save your file.

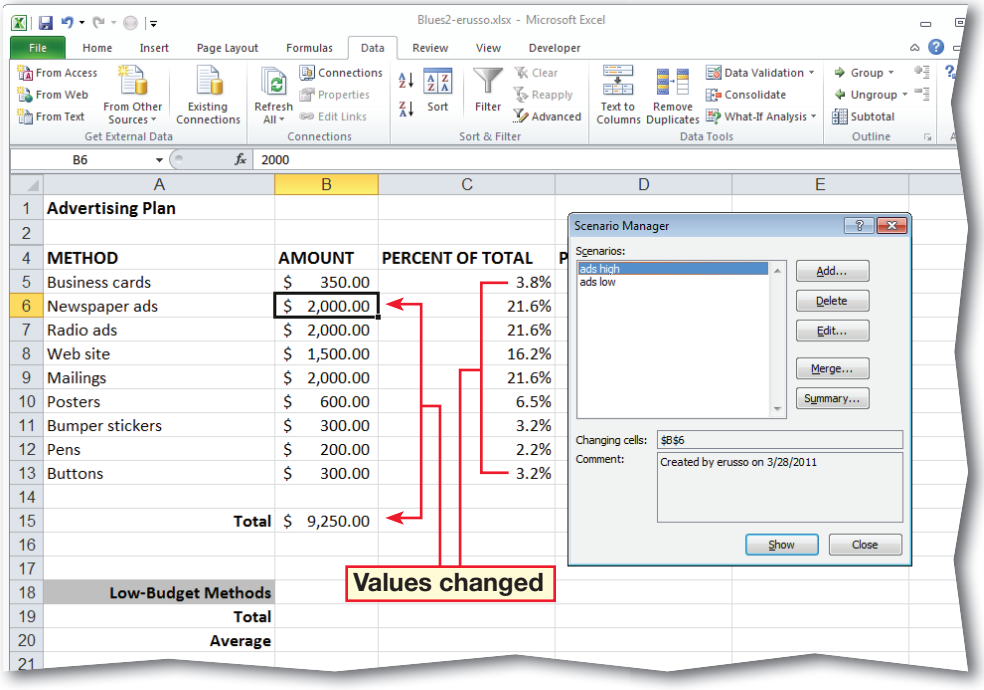
Continue to the next exercise.

FIGURE 2.13 The ads low scenario



	A	B	C
1	Advertising Plan		
2			
4	METHOD	AMOUNT	PERCENT OF TOTAL
5	Business cards	$ 350.00	4.5%
6	Newspaper ads	$ 500.00	6.5%
7	Radio ads	$ 2,000.00	25.8%
8	Web site	$ 1,500.00	19.4%
9	Mailings	$ 2,000.00	25.8%
10	Posters	$ 600.00	7.7%
11	Bumper stickers	$ 300.00	3.9%
12	Pens	$ 200.00	2.6%
13	Buttons	$ 300.00	3.9%
14			
15	Total	$ 7,750.00	
16			
17			
18	Low-Budget Methods		
19	Total		
20	Average		

FIGURE 2.14 The ads high scenario



	A	B	C
1	Advertising Plan		
2			
4	METHOD	AMOUNT	PERCENT OF TOTAL
5	Business cards	$ 350.00	3.8%
6	Newspaper ads	$ 2,000.00	21.6%
7	Radio ads	$ 2,000.00	21.6%
8	Web site	$ 1,500.00	16.2%
9	Mailings	$ 2,000.00	21.6%
10	Posters	$ 600.00	6.5%
11	Bumper stickers	$ 300.00	3.2%
12	Pens	$ 200.00	2.2%
13	Buttons	$ 300.00	3.2%
14			
15	Total	$ 9,250.00	
16			
17			
18	Low-Budget Methods		
19	Total		
20	Average		
21			

You Should Know

When you change a value that is used in one or more formulas, it affects every cell that uses those formulas. Cell **B6** is part of the **Total** formula. The **Total** formula is in turn part of the formulas used in **Column C**.

Step-By-Step

EXERCISE 2-5
Use the Solver Add-In

Excel includes several extra features, called add-ins, that can be installed as needed. For example, the Solver add-in changes one or more cells to find a solution based on criteria that you set. In this exercise, you will use the Solver to change the values for posters and buttons so five percent of the advertising expenses is spent on posters. You will also set the **constraint**, or limit, that the total cannot exceed.

1. In your **Blues2** file, click the **Advertising plan** tab. Choose **File>Info> Options>Add-Ins**. Select **Excel Add-Ins** in the Manage drop-down list and click **Go**. In the **Add-Ins** dialog box, select **Solver Add-In** (see Figure 2.15).
2. Click **OK**. Choose **Data> Analysis>Solver**.
3. In the **Solver Parameters** dialog box, in the **Set Objective** box, key: C10. The dollar signs will be inserted automatically.
4. Under **To**, click **Value Of**. In the **Value Of** box, key: .05. In the **By Changing Variable Cells** box, key: B10, B11.
5. CHECK Your dialog box should look like Figure 2.16. Click **Add**.

Continued on the next page.

FIGURE 2.15 Add-Ins dialog box

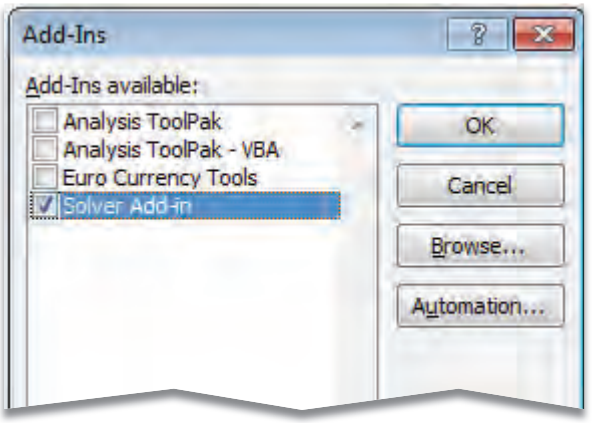
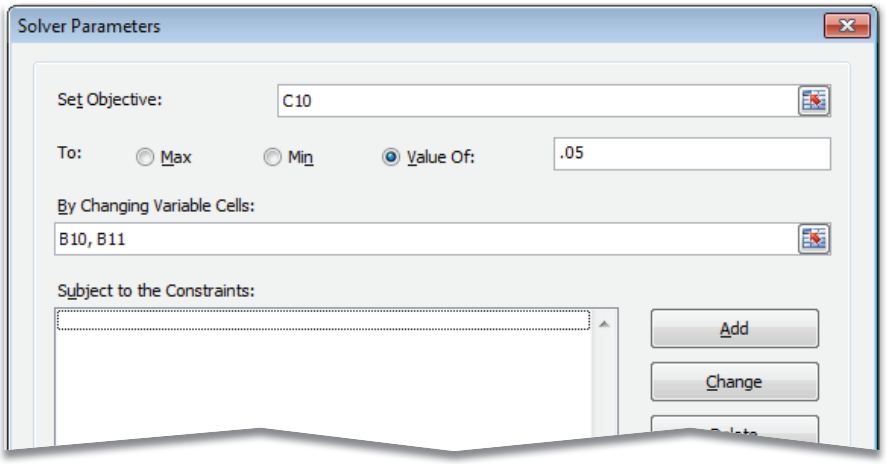


FIGURE 2.16 Solver Parameters dialog box



Academic Skills

In Step 4, the value .05 represents 5 percent, or 5%. In order to figure percentages mathematically, you need to express the percentage in its proper decimal form. For example, 50% would be 0.5, while 25% would be 0.25.

You Should Know

There are several arithmetic operators used in formulas. Excel will compute percent (%) first, then exponentiation (^) or raising to a power, then multiplication (*) and division (/), and then addition (+) and subtraction (–). In absence of parentheses, operators at a higher level of precedence precede operators at a lower level of precedence.

Step-By-Step

6. In the **Add Constraint** dialog box, in the **Cell Reference** box, key: Total.

7. Click the drop-down arrow in the middle box. Choose **=**.

8. In the **Constraint** box, key: 9250 (see Figure 2.17).

9. In the **Add Constraint** dialog box, click **OK**. The **Solver Parameters** dialog box reopens.

10. Click **Solve**. The **Solver Results** dialog box opens. A message displays that the **Solver** found a solution. Click **OK**.

11. CHECK Your screen should look like Figure 2.18. Save your file.

Continue to the next exercise.

Troubleshooter

If the **Solver** reports no solution, check the criteria that you set. Make sure the situation is logical. For example, if you set the target cell equal to **Max** (largest possible value) without any constraints, there may be no solution. The **Solver** can only find a solution that is a definite value.

EXERCISE 2-5 (Continued)
Use the Solver Add-In

FIGURE 2.17 Add Constraint dialog box

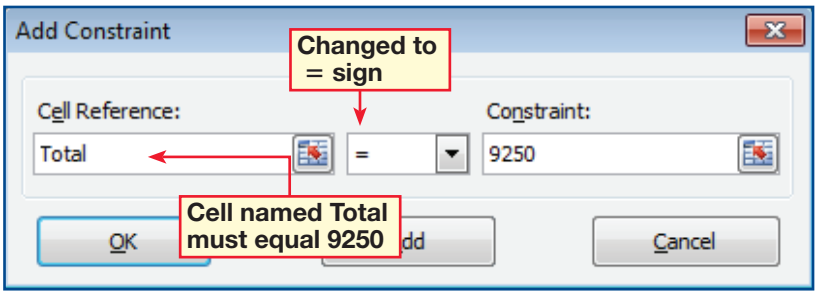
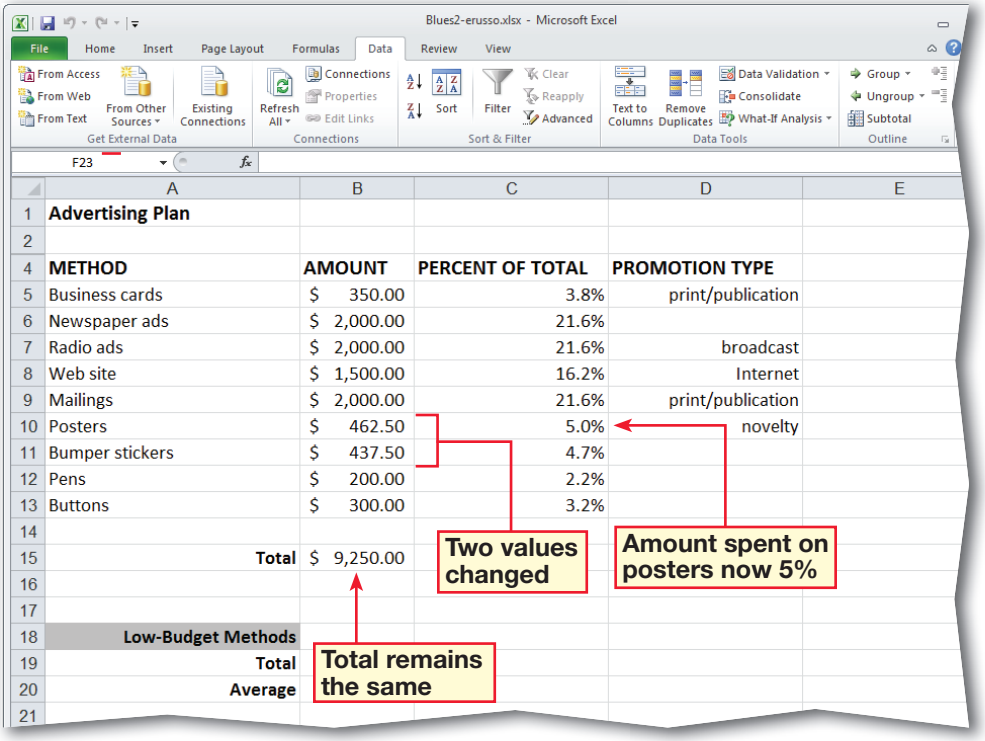


FIGURE 2.18 Solution found



	A	B	C	D
1	**Advertising Plan**			
2				
4	**METHOD**	**AMOUNT**	**PERCENT OF TOTAL**	**PROMOTION TYPE**
5	Business cards	$ 350.00	3.8%	print/publication
6	Newspaper ads	$ 2,000.00	21.6%	
7	Radio ads	$ 2,000.00	21.6%	broadcast
8	Web site	$ 1,500.00	16.2%	Internet
9	Mailings	$ 2,000.00	21.6%	print/publication
10	Posters	$ 462.50	5.0%	novelty
11	Bumper stickers	$ 437.50	4.7%	
12	Pens	$ 200.00	2.2%	
13	Buttons	$ 300.00	3.2%	
14				
15	**Total**	$ 9,250.00		
16				
17				
18	**Low-Budget Methods**			
19	**Total**			
20	**Average**			
21				

Academic Skills

Look at the different methods of advertising that are listed on this spreadsheet. Each of them is designed for a different target audience. Imagine you are in charge of setting the budgets. Which methods do you think are most effective? Can you think of any additional advertising methods that you might use?

Step-By-Step

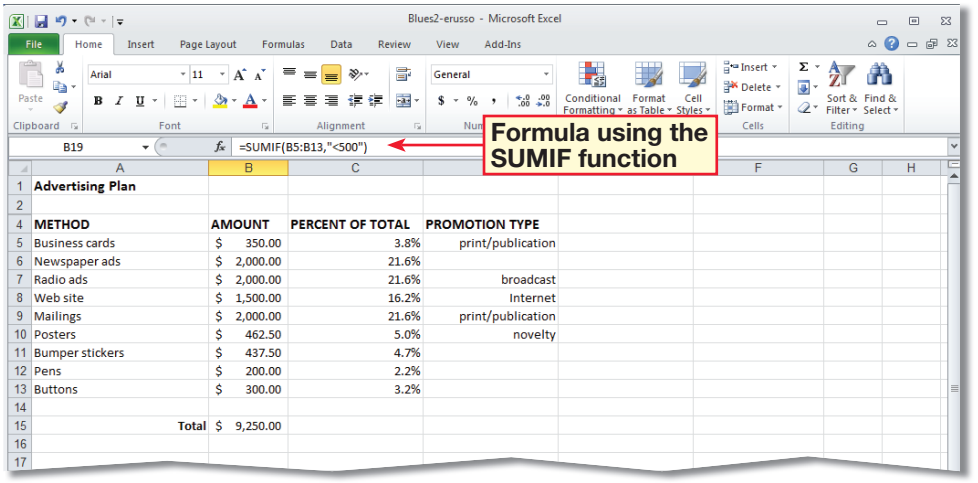
EXERCISE 2-6
Use SUMIF and SUMIFS in a Formula

In Excel, the SUMIF, or SUM and IF, function, adds all numbers in a range of cells, based on given criteria. You can also use SUMIFS to add values in a range based on multiple conditions. In this exercise, you will find the sum of the advertising methods that cost less than $500. You will then use the SUMIFS function to find the sum of the low-budget methods that accounted for less than 5% of the total cost spent on advertising in June, but more than 4% of the total cost spent on advertising in July.

1. In your **Blues2** file, on the **Advertising plan** sheet, click cell **B19**.
2. Key: =SUMIF(B5:B13, "<500"). Press ENTER. Click cell **B19**.
3. CHECK Your screen should look like Figure 2.19.
4. Select column **D** and insert 2 new sheet columns. Key the headers and the data for the month of **July 2012** into the worksheet, as shown in Figure 2.20.
5. Click cell **A22**. Key: June <5.0%, July > 4.0%.
6. Click cell **B22**. Key: =SUMIFS(B5:B13,C5:C13, "<5.0%",E5:E13,">4.0%"). Press ENTER.
7. CHECK Your screen should look like Figure 2.20. Save your file.

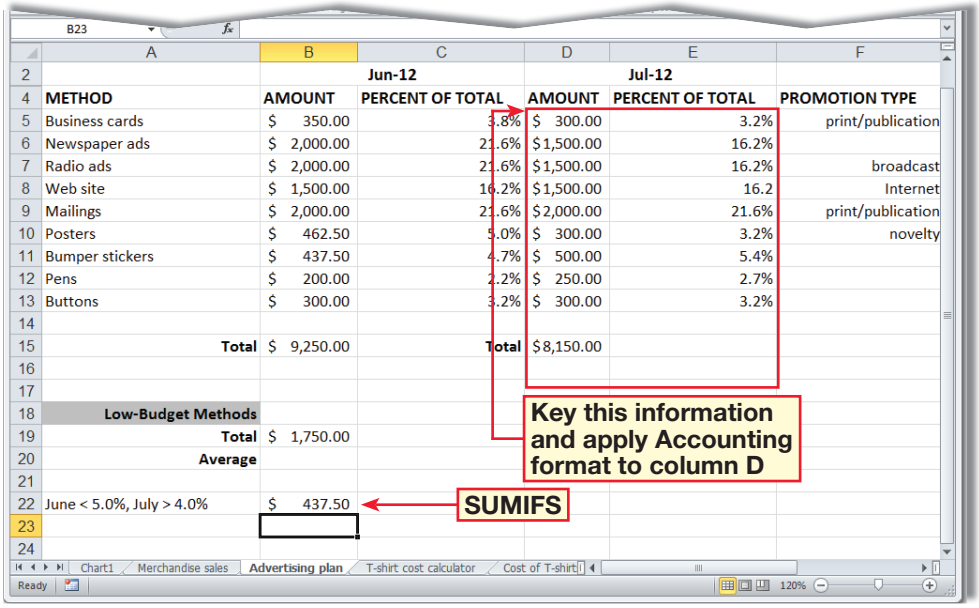
Continue to the next exercise.

FIGURE 2.19 Sum of advertising methods $500 or less



	A	B	C	D
1	Advertising Plan			
2				
4	METHOD	AMOUNT	PERCENT OF TOTAL	PROMOTION TYPE
5	Business cards	$ 350.00	3.8%	print/publication
6	Newspaper ads	$ 2,000.00	21.6%	
7	Radio ads	$ 2,000.00	21.6%	broadcast
8	Web site	$ 1,500.00	16.2%	Internet
9	Mailings	$ 2,000.00	21.6%	print/publication
10	Posters	$ 462.50	5.0%	novelty
11	Bumper stickers	$ 437.50	4.7%	
12	Pens	$ 200.00	2.2%	
13	Buttons	$ 300.00	3.2%	
14				
15	Total	$ 9,250.00		
16				
17				

FIGURE 2.20 Methods that cost less than 5% in June but more than 4% in July



	A	B	C	D	E	F
2			Jun-12		Jul-12	
4	METHOD	AMOUNT	PERCENT OF TOTAL	AMOUNT	PERCENT OF TOTAL	PROMOTION TYPE
5	Business cards	$ 350.00	3.8%	$ 300.00	3.2%	print/publication
6	Newspaper ads	$ 2,000.00	21.6%	$1,500.00	16.2%	
7	Radio ads	$ 2,000.00	21.6%	$1,500.00	16.2%	broadcast
8	Web site	$ 1,500.00	16.2%	$1,500.00	16.2	Internet
9	Mailings	$ 2,000.00	21.6%	$2,000.00	21.6%	print/publication
10	Posters	$ 462.50	5.0%	$ 300.00	3.2%	novelty
11	Bumper stickers	$ 437.50	4.7%	$ 500.00	5.4%	
12	Pens	$ 200.00	2.2%	$ 250.00	2.7%	
13	Buttons	$ 300.00	3.2%	$ 300.00	3.2%	
14						
15	Total	$ 9,250.00	Total	$8,150.00		
16						
17						
18	Low-Budget Methods					
19	Total	$ 1,750.00				
20	Average					
21						
22	June < 5.0%, July > 4.0%	$ 437.50				
23						
24						

Academic Skills

A condition is a description of characteristics. For example, you might describe a person's health by saying that she has a heart condition. In Excel, a condition describes characteristics that must be met in order for a function to work.

Step-By-Step

EXERCISE 2-7
Use COUNTIF and COUNTIFS in a Formula

1. In your **Blues2** file, click the **Merchandise sales** sheet tab. Scroll down and click cell **A58**. Key: CD count.

2. Press TAB. Key: =COUNTIF(C5:C55,"CDs"). Press ENTER.

3. CHECK Your screen should look like Figure 2.21. The number of cells in column **C** that contain CDs appears in cell **B58**. Scroll down and click cell **A59**. Key: CD count >$300.

4. Press TAB. Key: =COUNTIFS(C5:C55,"=CDs",D5:D55,">300"). Press ENTER.

5. CHECK Your screen should look like Figure 2.22. The number of times the sales for CDs exceeded $300 appears in cell **B59**. Save your file.

Continue to the next exercise.

The COUNTIF function is a formula that counts the number of cells within a range that meet a given criteria. Criteria can be in the form of a number, expression, or text that defines which cells will be added. For example, criteria can be expressed as 12, "12", >12, "data", or C4. It is often convenient to use the COUNTIFS function to count the number of cells within a range that meet multiple criteria as well. For example, a business can use the COUNTIFS function to count the number of times its sales personnel exceed a sales quota or sales goal. In this exercise, you will count the number of times CD sales appear in the table and how many times the sales for CDs exceed $300.

FIGURE 2.21 Formula using COUNTIF

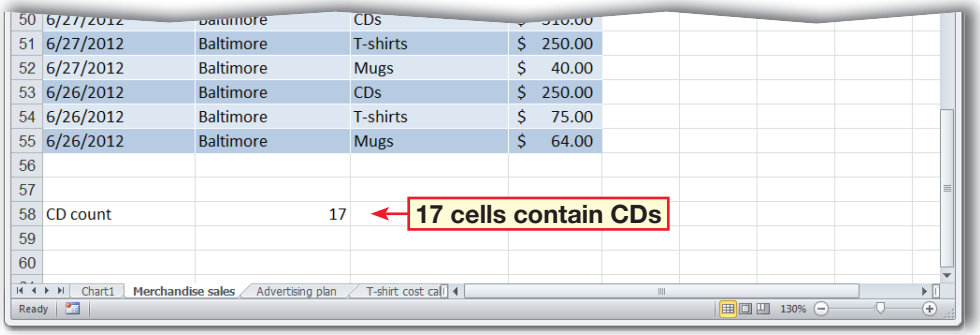
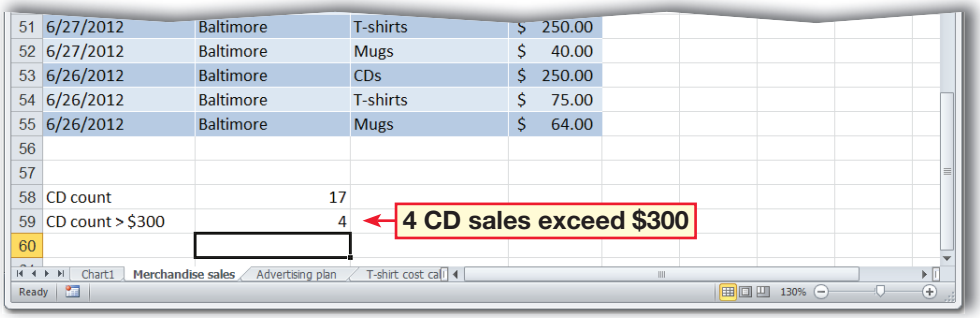


FIGURE 2.22 Formula using COUNTIFS



You Should Know

If a formula includes parentheses, the natural order of precedence among the operators changes. For example, in the formula 3 + 2 * 3, you multiply 2 times 3 first, then do the other operations from left to right to get 9. However, if the formula were (3 + 2) * 3, you would evaluate the expression inside the parentheses first, and then do the other operations from left to right. The answer is 15. Inside the parentheses, multiplication has precedence over addition. How would you compute the following? (3 + 2 * 3) / 3, and what is the answer?

Step-By-Step

EXERCISE 2-8
Use AVERAGEIF and AVERAGEIFS in a Formula

The AVERAGEIF function returns the average of all the cells in a range that meet a given set of criteria. The AVERAGEIFS function averages cells that meet multiple criteria. In this exercise, you will find the average of the advertising methods that cost less than $500. You will then use the AVERAGEIFS function to find the average of the low-budget methods that account for greater than 5% of the total cost spent on advertising in June but less than 4% of the total cost spent on advertising in July.

1. In your **Blues2** file, click the **Advertising plan** sheet tab.
2. Click cell **B20**. Key: =AVERAGEIF(B5:B13, "<500").
3. Press ENTER.
4. CHECK Your screen should look like Figure 2.23.
5. Click cell **A23**. Key: June > 5.0%, July < 4.0%.
6. Press TAB.
7. In **B23**, key: =AVERAGEIFS (B5:B13,C5:C13,">=5.0%", E5:E13,"<4.0%").
8. Press ENTER.
9. CHECK Your screen should look like Figure 2.24. Save your file.

Continue to the next exercise.

FIGURE 2.23 Formula using AVERAGEIF

	A	B	C	D	E	F
2			Jun-12		Jul-12	
4	METHOD	AMOUNT	PERCENT OF TOTAL	AMOUNT	PERCENT OF TOTAL	PROMOTION TYPE
5	Business cards	$ 350.00	3.8%	$ 300.00	3.2%	print/publication
6	Newspaper ads	$ 2,000.00	21.6%	$1,500.00	16.2%	
7	Radio ads	$ 2,000.00	21.6%	$1,500.00	16.2%	broadcast
8	Web site	$ 1,500.00	16.2%	$1,500.00	16.2	Internet
9	Mailings	$ 2,000.00	21.6%	$2,000.00	21.6%	print/publication
10	Posters	$ 462.50	5.0%	$ 300.00	3.2%	novelty
11	Bumper stickers	$ 437.50	4.7%	$ 500.00	5.4%	
12	Pens	$ 200.00	2.2%	$ 250.00	2.7%	
13	Buttons	$ 300.00	3.2%	$ 300.00	3.2%	
14						
15	Total	$ 9,250.00	Total	$8,150.00		
16						
17						
18	Low-Budget Methods					
19	Total	$ 1,750.00				
20	Average	$ 350.00	← Average of methods costing less than $500			
21						
22	June < 5.0%, July > 4.0%	$ 437.50				
23						
24						

Chart1 | Merchandise sales | Advertising plan | T-shirt cost cal

Ready 120%

FIGURE 2.24 Formula using AVERAGEIFS

B24

	A	B	C	D	E	F
4	METHOD	AMOUNT	PERCENT OF TOTAL	AMOUNT	PERCENT OF TOTAL	PROMOTION TYPE
5	Business cards	$ 350.00	3.8%	$ 300.00	3.2%	print/publication
6	Newspaper ads	$ 2,000.00	21.6%	$1,500.00	16.2%	
7	Radio ads	$ 2,000.00	21.6%	$1,500.00	16.2%	broadcast
8	Web site	$ 1,500.00	16.2%	$1,500.00	16.2	Internet
9	Mailings	$ 2,000.00	21.6%	$2,000.00	21.6%	print/publication
10	Posters	$ 462.50	5.0%	$ 300.00	3.2%	novelty
11	Bumper stickers	$ 437.50	4.7%	$ 500.00	5.4%	
12	Pens	$ 200.00	2.2%	$ 250.00	2.7%	
13	Buttons	$ 300.00	3.2%	$ 300.00	3.2%	
14						
15	Total	$ 9,250.00	Total	$8,150.00		
16						
17						
18	Low-Budget Methods					
19	Total	$ 1,750.00				
20	Average	$ 350.00				
21						
22	June < 5.0%, July > 4.0%	$ 437.50	← Average costing more than 5% of June but less than 4% of July			
23	June > 5.0%, July < 4.0%	$ 462.50				
24						
25						

Chart1 | Merchandise sales | Advertising plan | T-shirt cost cal

Ready 120%

Academic Skills

You can figure the average of a group of numbers by adding them together and then dividing the sum by the total count of numbers. The AVERAGEIF function allows you to exclude from the average any numbers that do not meet certain criteria.

Step-By-Step

EXERCISE 2-9
Use Conditional Logic in a Formula

Conditional logic tests whether statements are true or false and makes logical comparisons between outcomes. You can use the AND, OR, NOT, and IF functions (described in Table 2.1) to specify what should happen if a cell has one value rather than another. In this exercise, you will test whether conditions are true or false and make logical comparisons about the costs and quantities of T-shirts.

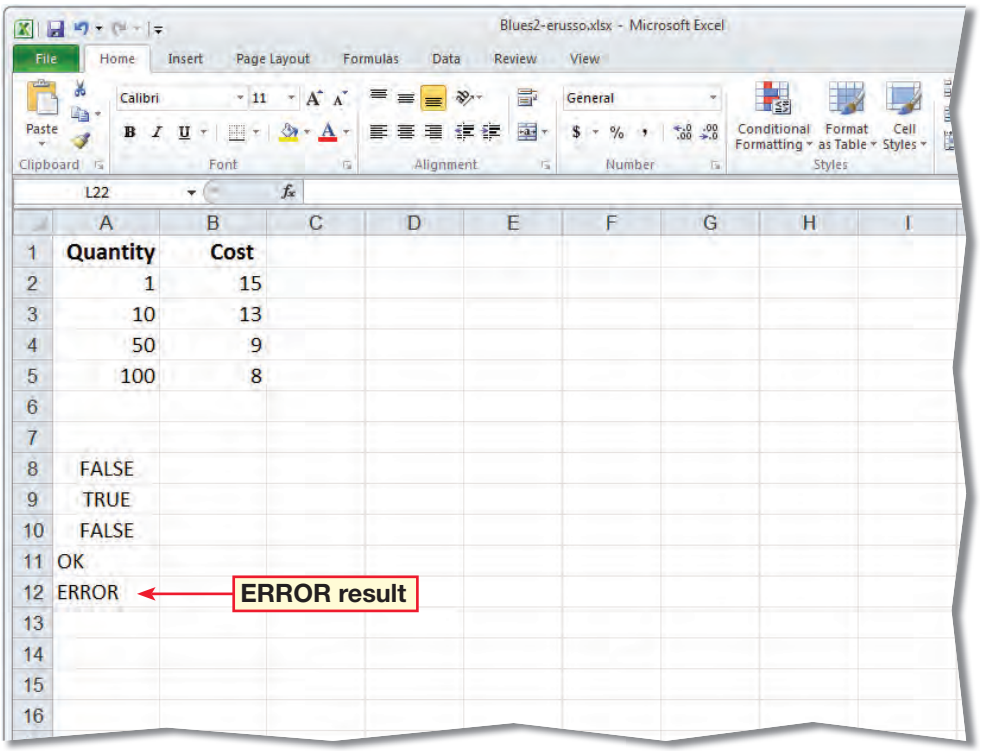
TABLE 2.1 Conditional functions

Function	Meaning
AND	Excel returns a TRUE result if both criteria are met. A FALSE result is returned if one or both of the criteria are not met. (126 is >100 **AND** <150 = TRUE.)
OR	Excel returns a TRUE result if one of the criteria is met. It returns a FALSE result if neither or both of the criteria are met. (126 is >100 **OR** 99 is <150 = TRUE.)
NOT	Excel returns a TRUE result if data *does not* meet specified criteria and a FALSE result if it *does* meet specified criteria. (All data that is **NOT** <1 = TRUE).
IF	Excel determines whether criteria are met. If criteria are met, Excel returns a specified result. If criteria are not met, it returns a different result. (**IF** a quantity is >100, **THEN** Excel inserts a specified word or symbol into the cell.)

1. In your **Blues2** file, click the **Cost of T-shirts** tab.
2. Click cell **A8**. Key: =AND(A2>A3,A2<A4). Press ENTER. The formula returns a FALSE result because the quantity 1 is not greater than 10 and less than 50.
3. Click cell **A9**. Key: =OR(A2>A3,A2<A4). Press ENTER. The formula returns a TRUE result because although the quantity 1 is not greater than 10, it is less than 50.
4. Click cell **A10**. Key: =NOT(A4+A5=150). Press ENTER. The formula returns a FALSE result because 50 plus 100 equals 150.
5. Click cell **A11**. Key: =IF(B2=15,"OK","Not OK").
6. Press ENTER. The formula returns an OK result because the value in cell **B2** equals 15.
7. Click cell **A12**. Key: =IFERROR(A2/C2, "ERROR"). Press ENTER. The formula returns an ERROR result.
8. CHECK Your screen should look like Figure 2.25. Save your file.

Continue to the next exercise.

FIGURE 2.25 Result of IFERROR function



Step-By-Step

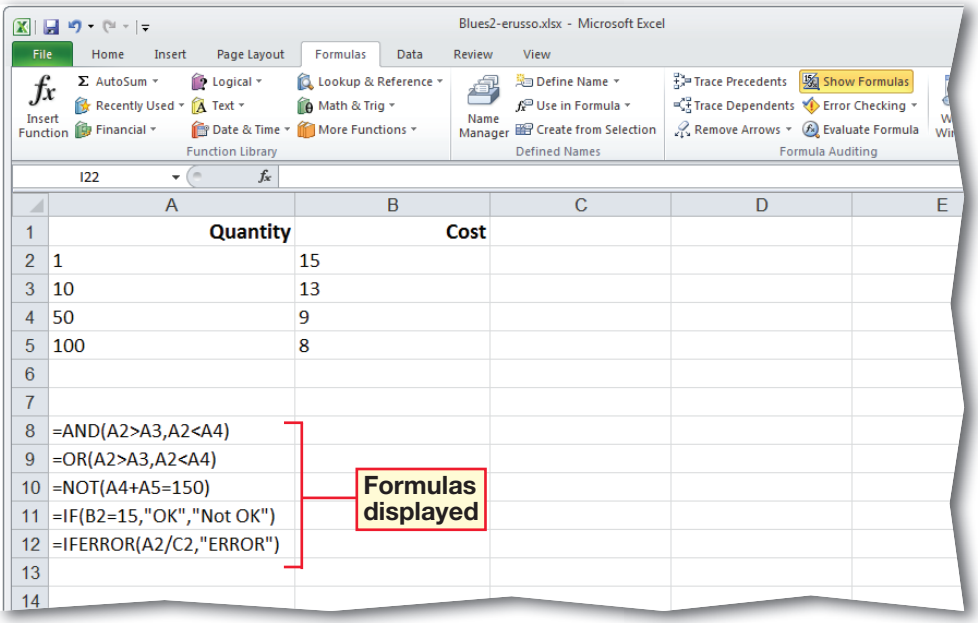
EXERCISE 2-10
Display and Print Formulas

You may want to view or print all the formulas on a worksheet to check for errors, or you may want to hide formulas for security or privacy. In Excel, you can easily switch between displaying formulas and their values in a worksheet. You can also print the formulas that you have previously created. Use the shortcut CTRL + ` to quickly display or hide the formulas on a worksheet.

1. In your **Blues2** file, choose **Formulas>Formula Auditing>Show Formulas**. **AutoFit** column **A**, if necessary, to show all of the displayed formulas.
2. CHECK Your screen should look like Figure 2.26.
3. Choose **File>Print**. Ensure that the correct printer name is selected. Check that there is a **1** in the **Copies** box. Click **Print**.
4. Click **Show Formulas** to hide the formulas. Select **A8:A12**. Choose **Home>Cells>Format** and select **Format Cells**.
5. Click the **Protection** tab. Select **Hidden**. Click **OK**.
6. In the **Cells** group, click **Format** and select **Protect Sheet**. Select the **Protect worksheet and contents of locked cells** check box. Click **OK**.
7. CHECK Your screen should look like Figure 2.27.
8. Click cell **A8**. Click each cell that contains a formula in column **A**. The formulas do not display in the **Formula Bar**. Click **Format**. Click **Unprotect Sheet**. Save your file.

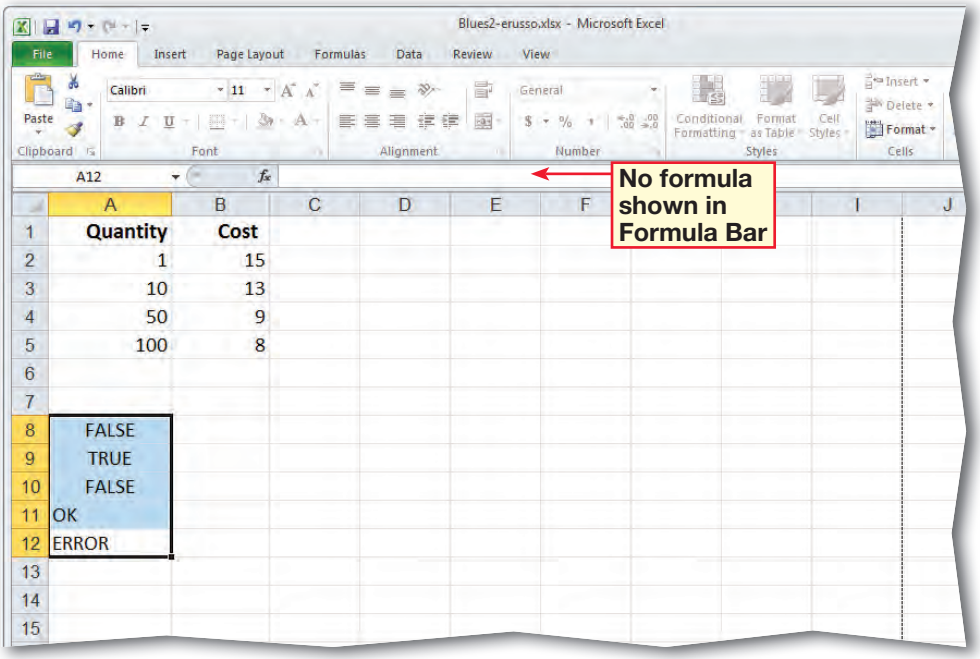
Continue to the next exercise.

FIGURE 2.26 Displayed formulas



	A	B	C	D	E
1	Quantity	Cost			
2	1	15			
3	10	13			
4	50	9			
5	100	8			
6					
7					
8	=AND(A2>A3,A2<A4)				
9	=OR(A2>A3,A2<A4)				
10	=NOT(A4+A5=150)				
11	=IF(B2=15,"OK","Not OK")				
12	=IFERROR(A2/C2,"ERROR")				
13					
14					

FIGURE 2.27 Hidden formulas



	A	B	C	D	E	F	I	J
1	Quantity	Cost						
2	1	15						
3	10	13						
4	50	9						
5	100	8						
6								
7								
8	FALSE							
9	TRUE							
10	FALSE							
11	OK							
12	ERROR							
13								
14								
15								

Step-By-Step

EXERCISE 2-11
Use LOOKUP and Reference Functions

LOOKUP functions **locate**, or find, a value in a table. HLOOKUP looks for a value in the top row. VLOOKUP looks for a value in the left column. When you use LOOKUP functions, you must specify three arguments: the value you are looking for, the LOOKUP table, and the row or column in the LOOKUP table that contains the value. In this exercise, you will use LOOKUP functions to create a price calculator for T-shirts.

1. In your **Blues2** file, click the **Cost of T-shirts** sheet tab, if necessary.
2. Select **A1:B5**. Choose **Formulas>Defined Names>Define Name**. In the **Name** box, key: lookup_table. Click **OK**.
3. CHECK Your screen should look like Figure 2.28.
4. Click the **T-shirt cost calculator** sheet tab. Click cell **B4**.
5. Key: =VLOOKUP(A4, lookup_table,2,TRUE).
6. Press ENTER. Cell **B4** displays **#N/A** because **A4** is empty. Click cell **A4**. Key: 2.
7. Press ENTER. The cost per shirt for two shirts is $15.
8. Select cells **B4:B6**. Choose **Home>Number**. Select **Accounting** again from the **Number Format** list.
9. Click cell **A4**. Key: 55. Press ENTER.
10. CHECK Your screen should look like Figure 2.29.
11. Click cell **B5**. Key: =VLOOKUP(A5, lookup_table,2,FALSE).

Continued on the next page.

FIGURE 2.28 The lookup table

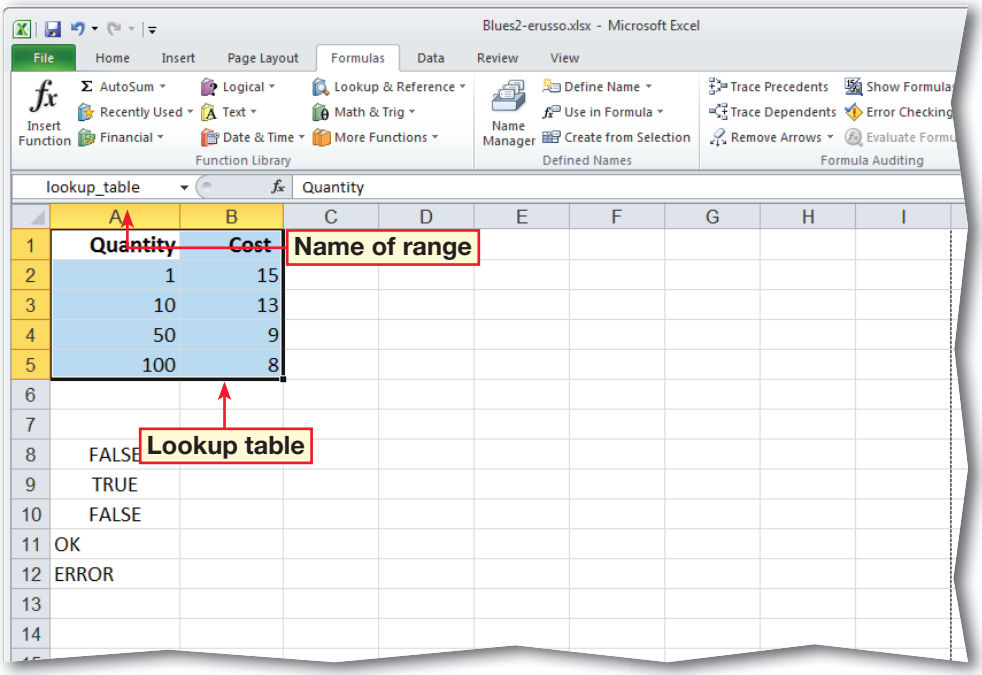
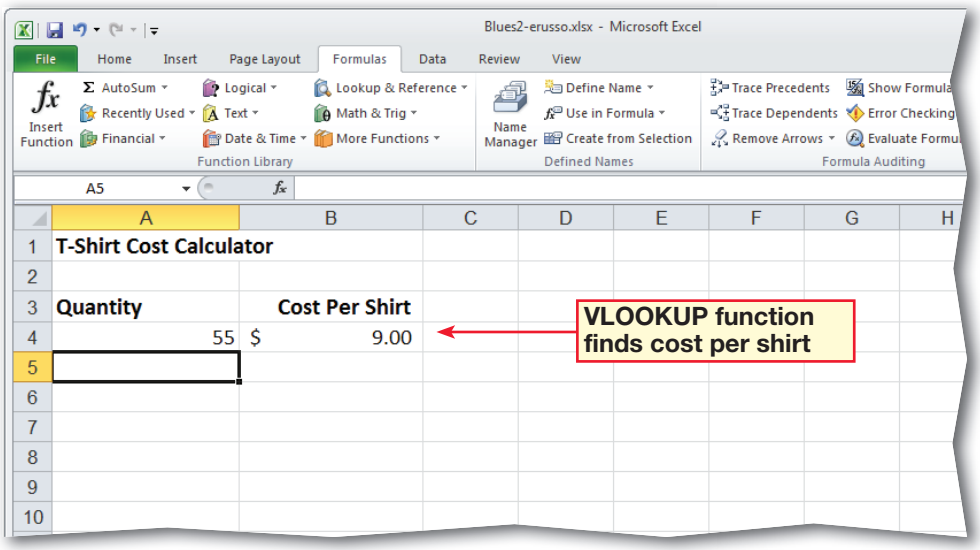


FIGURE 2.29 Using a VLOOKUP function



EXERCISE 2-11 (Continued)
Use LOOKUP and Reference Functions

12. Press ENTER. Cell **B5** displays **#N/A** because **A5** is empty. Click cell **A5**. Key: 99. Press ENTER. Cell **B5** displays **#N/A** because 99 does not have an exact match in the **lookup_table**.

13. Click cell **A5**. Key: 100. ENTER.

14. CHECK Your screen should look like Figure 2.30.

15. Click cell **B6**. Key: =HLOOKUP("Cost",lookup_table,3,FALSE). Press ENTER.

16. Excel looks up **Cost** in row **1** and returns the value from row **3** (13) that is in the same column.

17. Click cell **A7**. Key: =HLOOKUP("Quantity",lookup_table,4,TRUE). Press ENTER.

18. CHECK Your screen should look like Figure 2.31.

19. Save and close your file.

You Should Know

Functions that look up values in a list by using an approximate match only work if the values in the first column (column **A**) or row (row **1**) have been sorted in *ascending order*, or from smallest to largest.

FIGURE 2.30 VLOOKUP function finds cost per shirt for 100 shirts

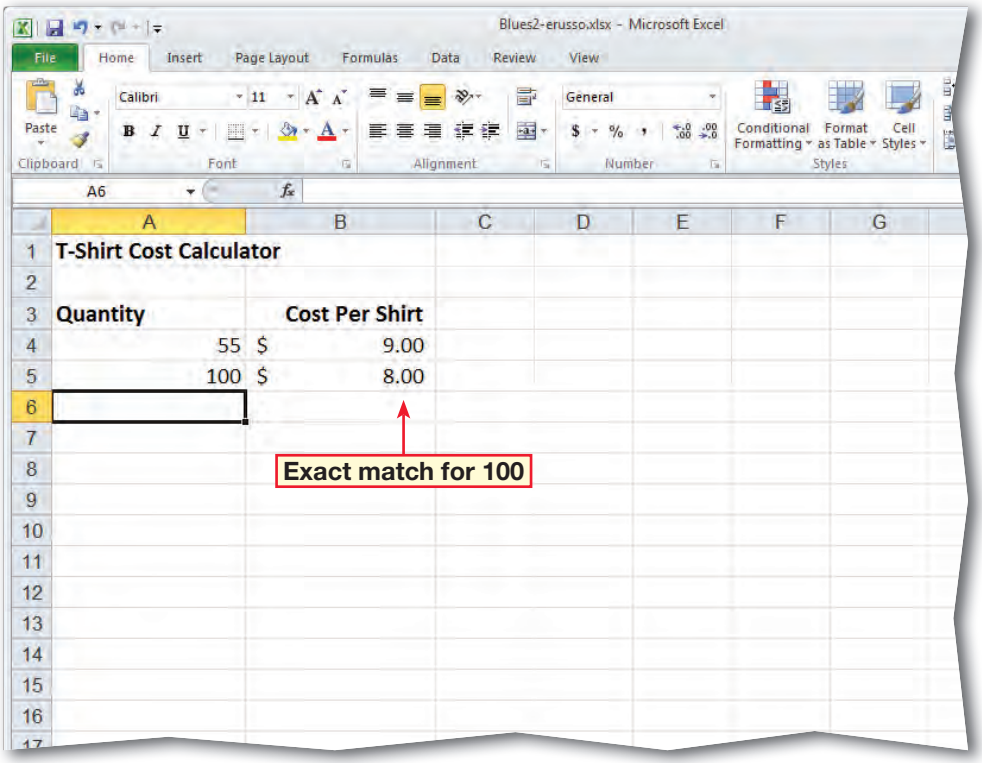
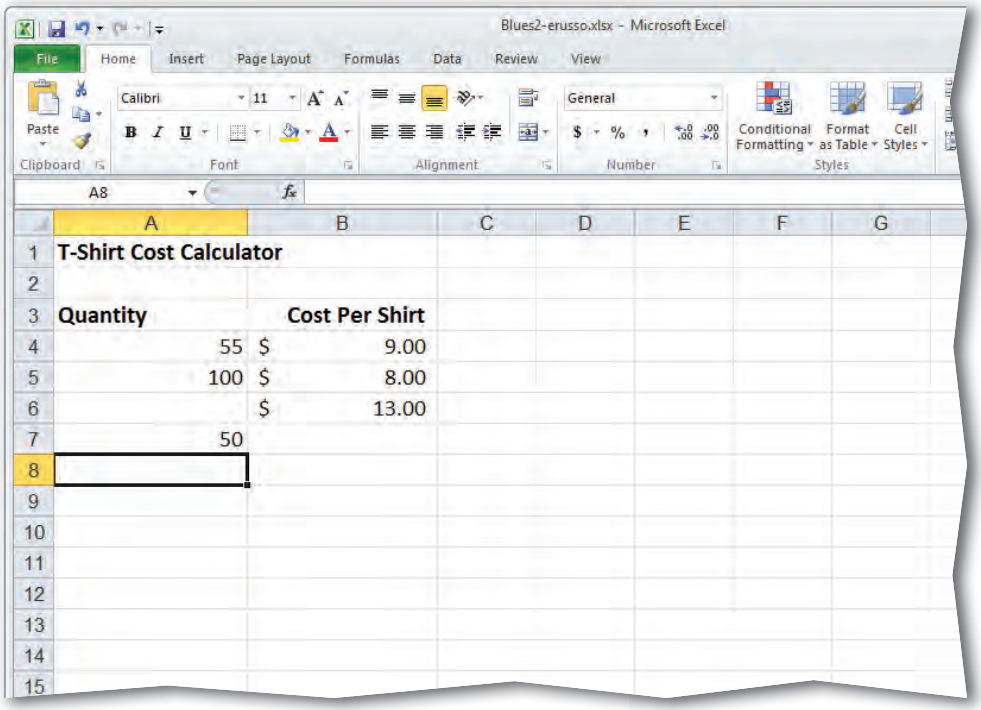


FIGURE 2.31 Using the HLOOKUP function



Writing MATTERS

Writing an Itinerary

Mr. Clark's history class is going on a trip to Washington, D.C. What do his students need before they leave? They need an itinerary!

What Is an Itinerary?

An itinerary is a detailed schedule for a trip. It gives information about arrangements for transportation, hotels, meetings, and meals. An itinerary helps you keep track of where you are supposed to be and when. It can also be helpful to others who may want to get in touch with you while you are gone.

Creating an Itinerary

The first step is to plan your trip. Once you have planned your trip, double-check all names, addresses, flight numbers, and so on, for accuracy. Be sure to include phone numbers on your itinerary, in case travel plans change.

Here are some guidelines for formatting an itinerary:

- Use a two-column format.
- Center the heading.
- Use side headings if the itinerary covers more than one day.
- Double-space between entries.

ITINERARY
For Mr. Clark's History Class
April 2-4, 2012

Tuesday, April 2

5:00 a.m.	Meet at Marshall Airport. Get your ticket from Mr. Lewis or Ms. Hernandez.
7:00 a.m.	Depart, Flight 555.
9:15 a.m.	Arrive Washington, D.C. Take Metro to McPherson Square stop to check in at the Plaza Hotel (202) 555-1671.
10:45 a.m.-1:30 p.m.	Meet at Smithsonian stop and divide into groups.

This itinerary includes a detailed schedule of times and places for part of the class trip.

SKILLBUILDER

1. **List** What does an itinerary include?
2. **Explain** Why are itineraries useful documents?
3. **Apply** What are some special kinds of itineraries that travelers might use?
4. **Plan** Find an online tourist site with information about Washington, D.C. Use the formatting suggestions above to create the itinerary for the second day of Mr. Clark's class trip. Include events or destinations that really interest you.

LESSON 2 After You Read

Vocabulary

Key Terms

argument
conditional logic
constraint
criteria
database function
LOWER
PivotChart
PivotTable
PROPER
scenario
SUBSTITUTE
UPPER
What-If Analysis

Academic Vocabulary

generate
locate

Review Vocabulary

Complete the following statements on a separate piece of paper. Choose from the Vocabulary list on the left to complete the statements.

1. The _____ function will change the case of text in a cell or range of cells to capital letters. (p. 143)

2. When you use the Solver, you can set a(n) _____, or limit. (p. 148)

3. To test whether conditions are true or false and make logical comparisons between outcomes, use _____. (p. 153)

4. To test out a possible situation, use the _____ tool. (p. 145)

5. A(n) _____ is a formula that acts only on cells that meet certain criteria. (p. 143)

Vocabulary Activity

6. Make flash cards based on the vocabulary from this lesson.
A. On the front of the card, write the vocabulary word.
B. Look at each vocabulary word. On the back of the card, write the definition.
C. Team up with a classmate and take turns using the flash cards to quiz each other.

Review Key Concepts

Answer the following questions on a separate piece of paper.

7. Which of the following displays and hides the formulas on a worksheet? (p. 154)
A. CTRL + ‘
B. CTRL + `
C. ALT + ~
D. ALT + `

8. What is the second argument of the LOOKUP function? (p. 155)
A. the LOOKUP table
B. the value in the worksheet you are looking for
C. the row or column in the LOOKUP table that contains the value
D. the database

9. How do you perform a What-If Analysis? (p. 145)
A. create a PivotChart
B. group and outline data
C. trace errors
D. compare scenarios

10. What does the SUMIFS function do? (p. 150)
A. returns the average of cells in a range that meet criteria
B. adds all numbers in a range of cells, based on a given criteria
C. adds values in a range based on multiple conditions
D. averages cells that meet multiple criteria

LESSON 2 Practice It Activities

1. Create a PivotTable and a PivotChart

DATA FILE

Follow the steps to complete the activity.

Step-By-Step

1. Open the **Jobs2.xlsx** data file. Save as: Jobs2-PivotChart-[your first initial and last name]1.
2. Click any cell in the list. Choose **Insert>Tables> PivotTable**. Click **OK**.
3. In the **PivotTable Field List**, drag **Customer** to the **Row Labels** box.
4. In the **PivotTable Field List**, drag **Job** and drop it in the **Column Labels** box. Drag **Amount** to the **Values** box.
5. Choose **Options>Tools> PivotChart** and click **Stacked Column in 3D**. Click **OK**.
6. CHECK Your screen should look like Figure 2.32.
7. Close the **PivotTable Field List**. Hide the filters for the **Field Buttons**.
8. Use the **Layout** tab under the **PivotChart Tools** to label the axes according to Figure 2.33.
9. CHECK Your screen should look like Figure 2.33. Save and close your file.

FIGURE 2.32 Unfinished PivotChart

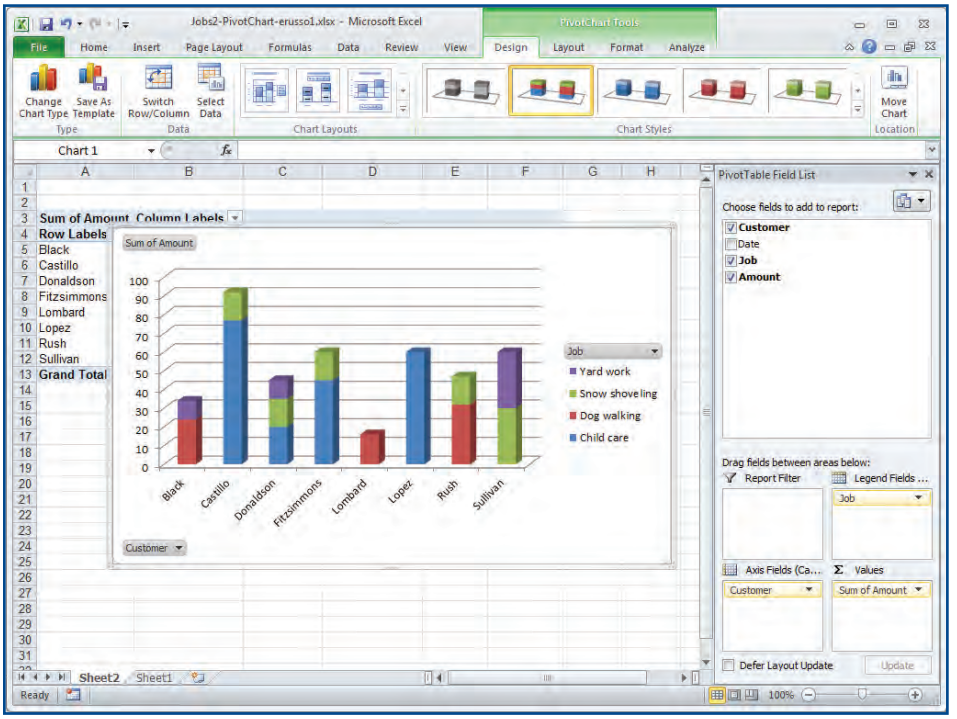
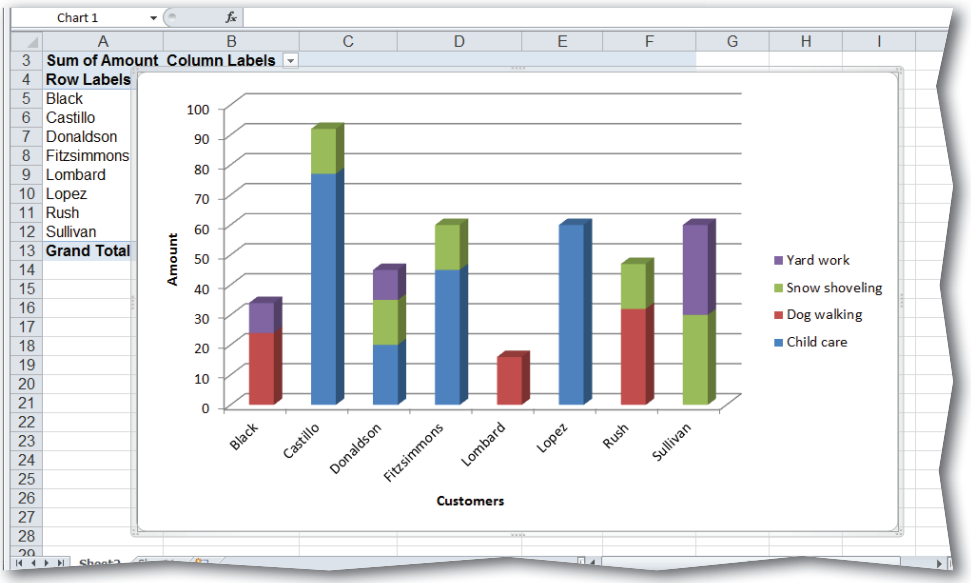


FIGURE 2.33 Finished PivotChart



LESSON 2 Practice It Activities

2. Use a Name and SUMIF in a Formula

DATA FILE

Follow the steps to complete the activity.

Step-By-Step

1. Open the **Budget2.xlsx** data file. Save as: Budget2-Names-[your first initial and last name]2.
2. Click cell **B20**. Key: =Income-Total. Press ENTER. Click cell **B20**.
3. CHECK Your screen should look like Figure 2.34.
4. Click cell **B18**. Key: =SUM(Expenses). Press ENTER.
5. Click cell **C18**. Key: Expenses <50. Bold the text you keyed into cell **C18**.
6. Click cell **D18**. Key: =SUMIF(Expenses, "<50.00"). Press ENTER.
7. Click cell **D18**. Click **Increase Decimal** twice to format the formula results in **D18**.
8. CHECK Your screen should look similar to Figure 2.35.
9. Save and close your file.

FIGURE 2.34 Using names in a formula

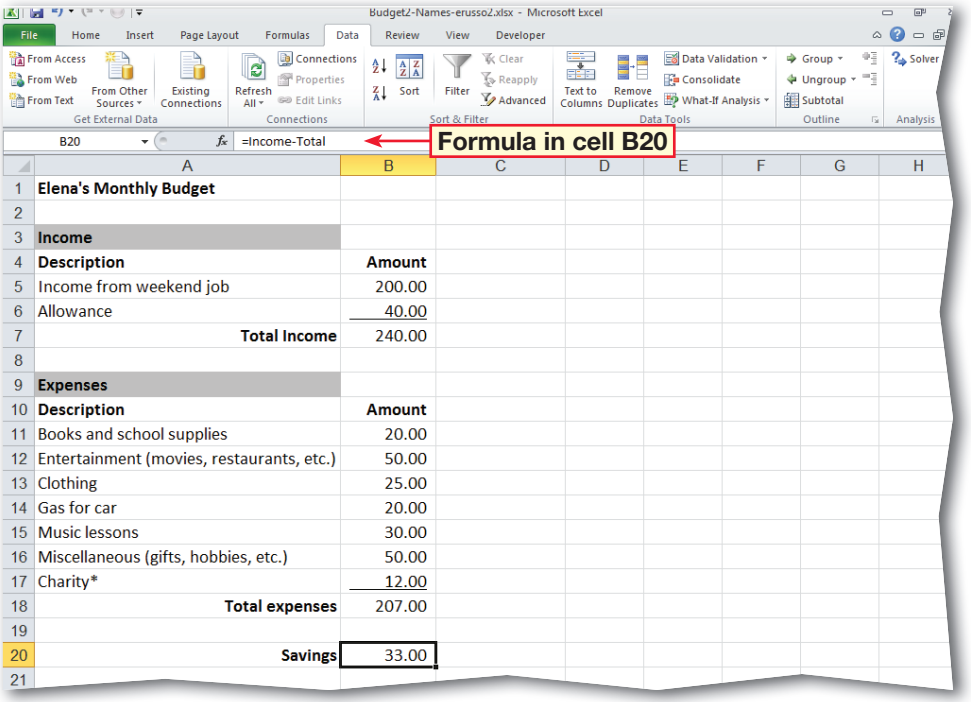
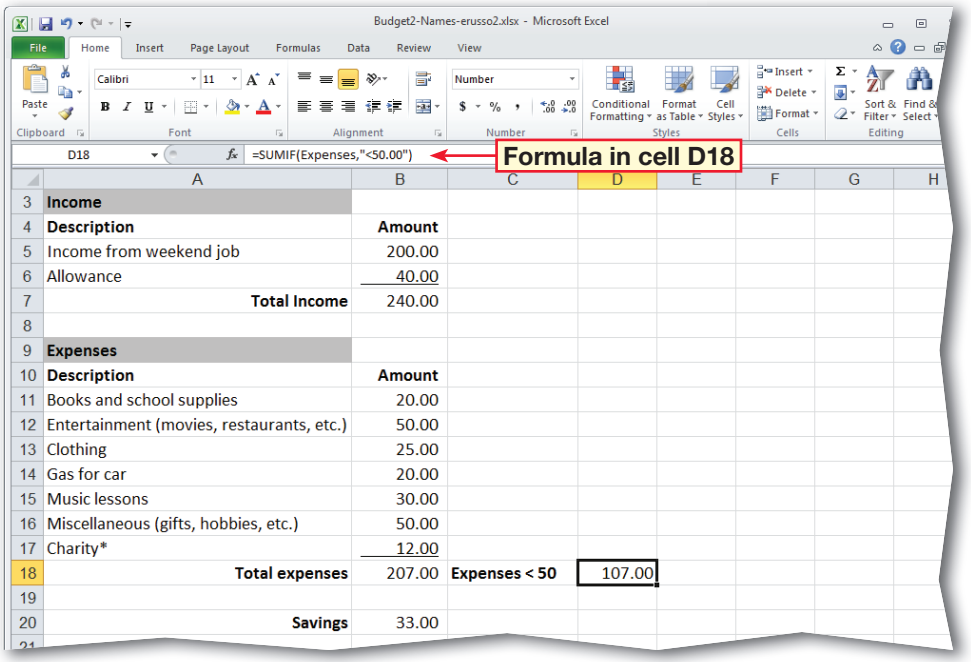


FIGURE 2.35 Formula using names



LESSON 2 Practice It Activities

3. Create Scenarios

Follow the steps to complete the activity. You must complete Practice It Activity 2 before doing this activity.

Step-By-Step

1. Open your **Budget2-Names-2** file. Save as: Budget2-Scenario-[your first initial and last name]3.
2. Click cell **B14**. Choose **Data>Data Tools>What-If Analysis**. Click **Scenario Manager**.
3. Click **Add**.
4. In the **Scenario name** box, key: gas high.
5. CHECK Your dialog box should look like Figure 2.36.
6. Click **OK**. The **Scenario Values** dialog box opens.
7. Key: $40. Click **OK**.
8. CHECK Your dialog box should look like Figure 2.37.
9. Close the **Scenario Manager** dialog box.
10. Save and close your file.

FIGURE 2.36 Add Scenario dialog box

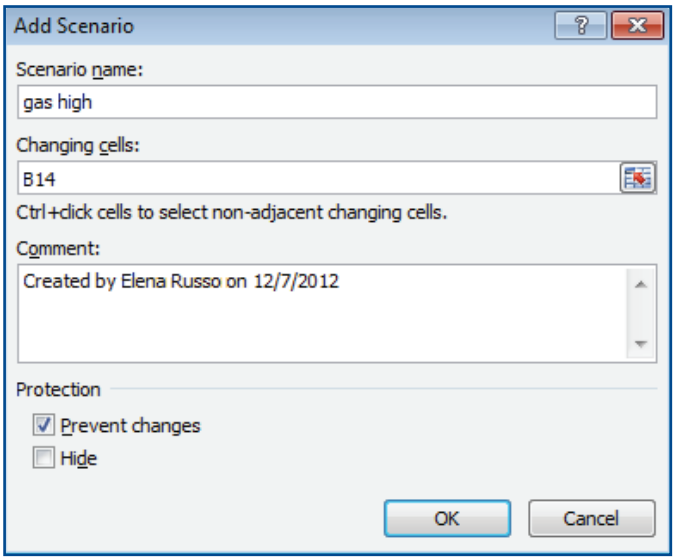
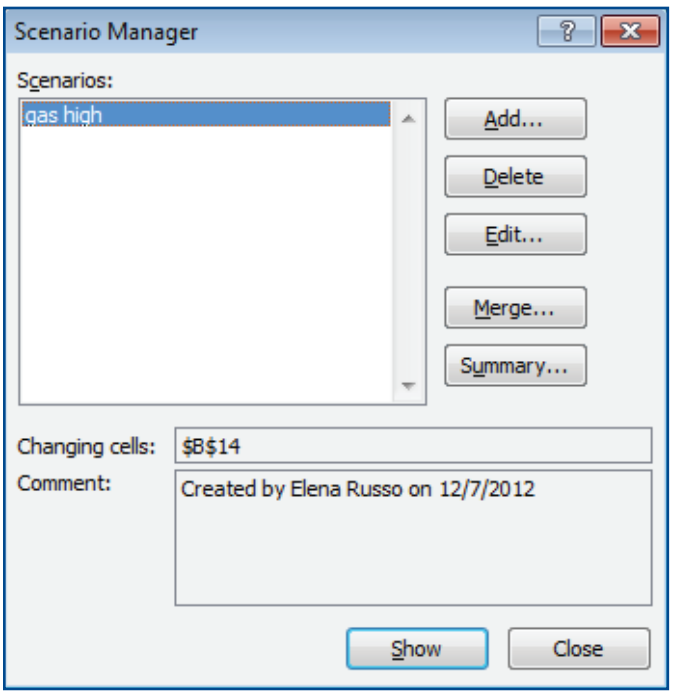


FIGURE 2.37 Scenario Manager dialog box



LESSON 2 You Try It Activities

Step-By-Step

1. Open your **Budget2-Scenario-3** file. Save as: Budget2-Scenario-[your first initial and last name]4.
2. Click cell **B14**. Choose **Data>Data Tools>What-If Analysis** and select **Scenario Manager**.
3. Add a scenario called: gas low. Click **OK**. In the **Scenario Values** box, key: 15. Click **OK**.
4. In the **Scenarios** list, click **gas low**. Click **Show**.
5. CHECK Your screen should look like Figure 2.38.
6. In the **Scenarios** list, click **gas high**. Click **Show**.
7. CHECK Your screen should look like Figure 2.39. Close the **Scenario Manager**. Save and close your file.
8. Open **Word**. Key a paragraph that explains how parentheses can control the order of precedence. Use examples. Save the file as: Precedence[your first initial and last name]4.

4. Perform a What-If Analysis

You have helped Elena correct the errors in her monthly budget to make it simpler and more efficient. Due to fluctuating gas prices, Elena has now asked you to use a What-If Analysis to compare the results of scenarios in which she plans to spend $40 on fuel for her car and $15 on fuel for her scooter.

FIGURE 2.38 The scooter scenario

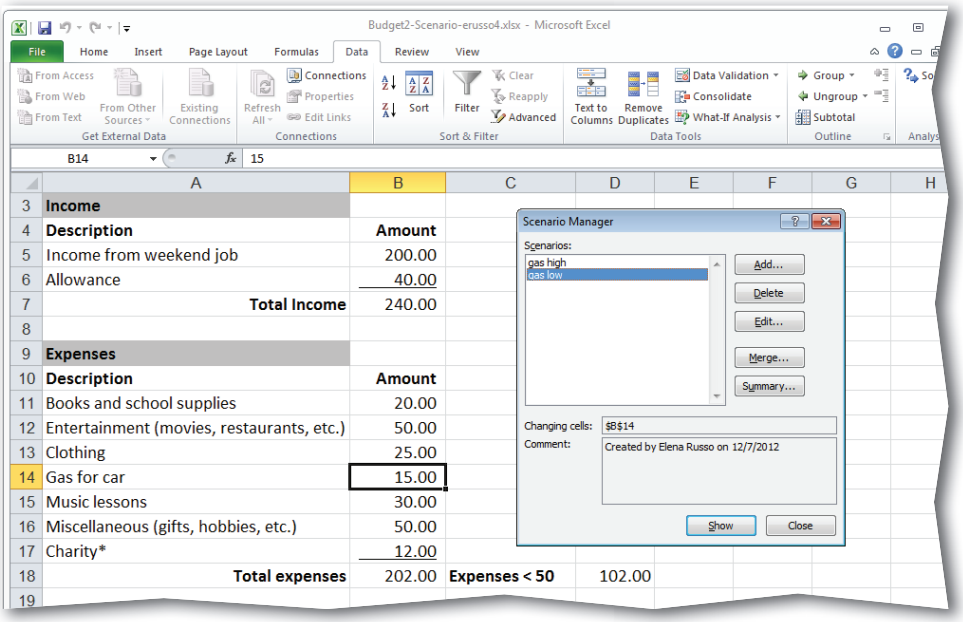
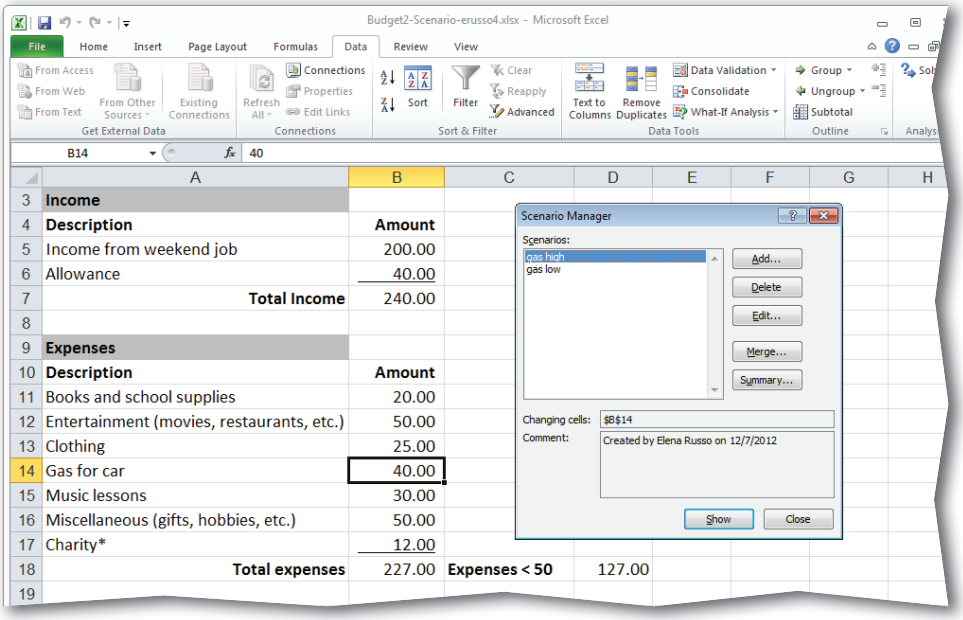


FIGURE 2.39 The car scenario



LESSON 2 You Try It Activities

Step-By-Step

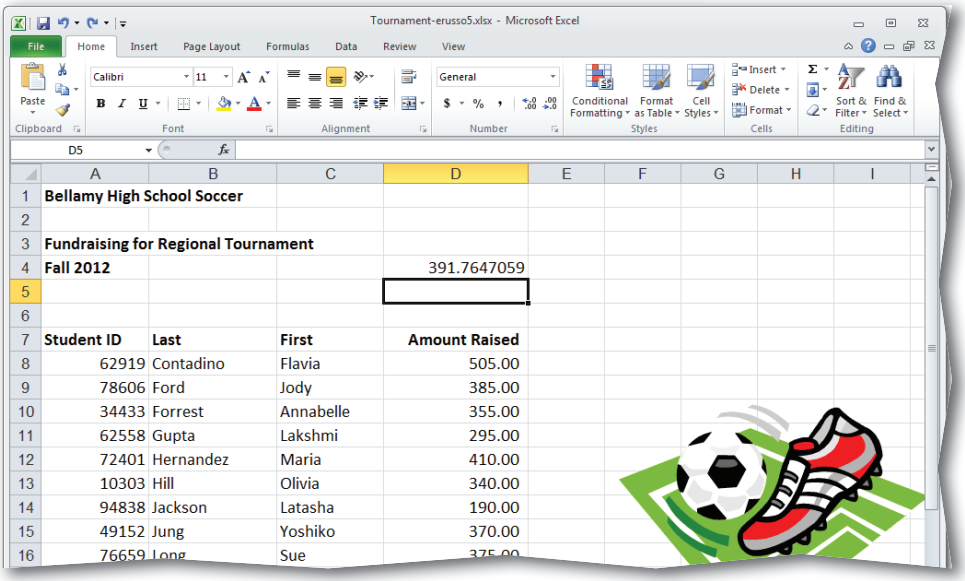
1. Open the data file **Tournament.xlsx.** Save as: Tournament-[your first initial and last name]5.
2. Click cell **D4**. Key: =AVERAGEIF(D8:D27, ">200"). Press ENTER.
3. CHECK Your screen should look like Figure 2.40.
4. Click cell **D4**. Choose **Home>Number** and click the **Number Format** drop-down arrow. Select **Currency**.
5. Click cell **E4**. Key: =COUNTIF(D8:D27,">400"). Press ENTER.
6. Click cell **D3**. Key: Average Raised. Click cell **E3**. Key: Over $400.
7. CHECK Your screen should look like Figure 2.41. Save and close your file.
8. Open **Word**. Key a paragraph that explains whether exponentiation has precedence over percent in an Excel formula. Save the file as: Precedence[your first initial and last name]5.

5. Use AVERAGEIF and COUNTIF in a Formula

DATA FILE

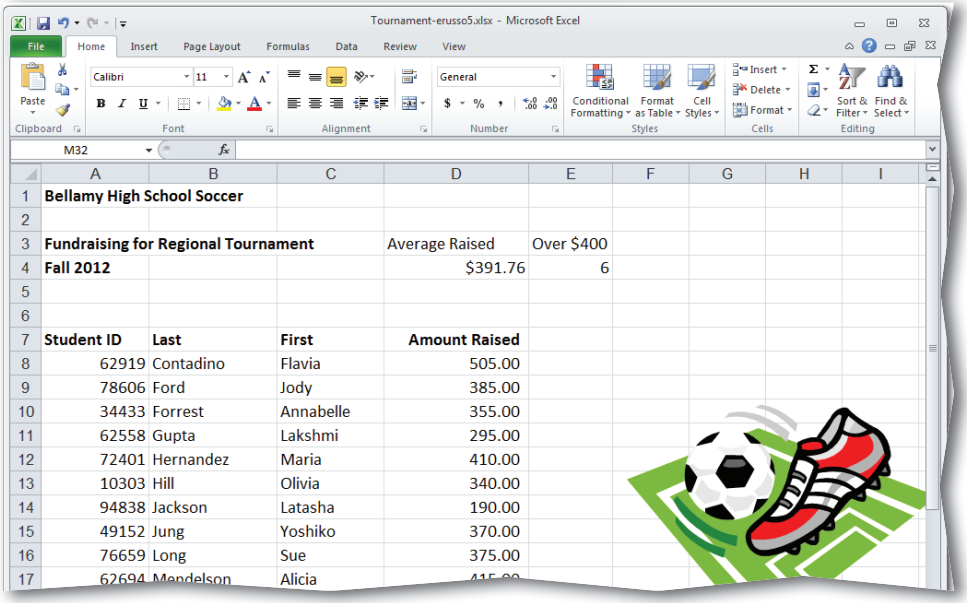
Over the last year, the soccer team has raised money for a regional tournament. You charted the amount of money raised over the year. Now you want to recognize players' fundraising achievements at the next team meeting. First, you must find the average amount per player raised over $200. Then, you must find the number of times the amount raised per player exceeds $400.

FIGURE 2.40 Average contribution raised over $200



	A	B	C	D
1	**Bellamy High School Soccer**			
2				
3	**Fundraising for Regional Tournament**			
4	**Fall 2012**			391.7647059
5				
6				
7	**Student ID**	**Last**	**First**	**Amount Raised**
8	62919	Contadino	Flavia	505.00
9	78606	Ford	Jody	385.00
10	34433	Forrest	Annabelle	355.00
11	62558	Gupta	Lakshmi	295.00
12	72401	Hernandez	Maria	410.00
13	10303	Hill	Olivia	340.00
14	94838	Jackson	Latasha	190.00
15	49152	Jung	Yoshiko	370.00
16	76659	Long	Sue	375.00

FIGURE 2.41 Count of contributions raised that exceed $400



	A	B	C	D	E
1	**Bellamy High School Soccer**				
2					
3	**Fundraising for Regional Tournament**			Average Raised	Over $400
4	**Fall 2012**			$391.76	6
5					
6					
7	**Student ID**	**Last**	**First**	**Amount Raised**	
8	62919	Contadino	Flavia	505.00	
9	78606	Ford	Jody	385.00	
10	34433	Forrest	Annabelle	355.00	
11	62558	Gupta	Lakshmi	295.00	
12	72401	Hernandez	Maria	410.00	
13	10303	Hill	Olivia	340.00	
14	94838	Jackson	Latasha	190.00	
15	49152	Jung	Yoshiko	370.00	
16	76659	Long	Sue	375.00	
17	62694	Mendelson	Alicia		

LESSON 2 Critical Thinking Activities

6. Beyond the Classroom Activity

Math: Create a PivotTable with a PivotChart You want to create a visual to show the members of the soccer team the amount of money that they raised over the year. You decide to create a PivotChart so that they can see how much they have raised. Open your **Tournament-5** file.

- Create a PivotTable. Generate a PivotChart from the data in the table.
- Choose a field to represent each student's contribution in the report. For example, **Last name** or **Student ID**.
- Choose a chart type to display the data and label each axis.
- Delete the Legend and title your chart Fundraising for Regional Tournament Fall 2012. (Scale and resize your chart, as necessary.)
- Using Help, if necessary, key a paragraph into the Excel sheet that explains how to use the slicer to filter the PivotTable data.

Save your file as: Tournament-[your first initial and last name]6.xlsx.

7. Standards at Work Activity

Microsoft Office Specialist Correlation

Excel 5.1 *Create formulas.*

Modify Text Using a Formula Modifying text with a formula is a great way to clarify information that may be difficult to read. You want the last names in your worksheet to stand out from the first names and student IDs. Open your **Tournament-6** file. Use a formula to format the names in the **Last** column in **uppercase**. Save your file as: Tournament-[your first initial and last name]7.xlsx.

8. 21st Century Skills Activity

Use Decision-Making Tools Excel's What-If Analysis tool is helpful for evaluating options and making the most informed decision. You work at the school bookstore. You need to decide how much you want to increase the price of the sweatshirts you will sell next year. Open the **Bookstore.xlsx** data file. On **Sheet 1**, create two new What-If scenarios by changing cell **C14**. One scenario should show what next year's prices will be if the price increases by 4 percent. The second scenario should show what next year's prices will be if the price is increased by 8 percent.

Display each scenario. Use the results to decide how much you will increase the price of sweatshirts. Key your decision into the Excel sheet and briefly explain your decision.

Save your file as: Bookstore-[your first initial and last name]8.xlsx.

LESSON 2 Challenge Yourself Projects

Before You Begin

Analyze Data Gathering and organizing data is just the start of creating a useful spreadsheet. You also need to learn how to analyze the data you have gathered. These projects teach you how to quickly and efficiently analyze data.

Reflect Once you complete the projects, open a Word document and answer the following questions:

1. In what ways do you think displaying a formula can help you better coordinate and quickly manage data?
2. How might a business use What-If scenarios in its daily activities?

9. Monitor Price Changes

Math: Display and Print Formulas The school bookstore is considering raising prices and wants to analyze possible changes. To make analyzing the price change easier, you want to see all the worksheet's formulas at once. Display and print the formulas for **Sheet 1** of your **Bookstore-8** file.

Save your file as: Bookstore-[your first initial and last name]9.xlsx.

10. Analyze Scenarios

Math: Use What-If Analysis Now that you know the prices are going to increase next year, you want to buy some items from the school bookstore before the prices go up. You are thinking of buying a school sweatshirt and two T-shirts. Create What-If scenarios to help you analyze your options and make a decision.

- Open your **Bookstore-9** file. Click **Sheet2** tab.
- Add a scenario called **shirts**. Change cells **C9** and **C10** so that you buy two T-shirts and one sweatshirt.
- Add another scenario called **supplies only**. Change cells **C9** and **C10** so that you buy no T-shirts or sweatshirts.
- Display each scenario.

Use the results to decide what you will buy. Key your decision into the Excel sheet and briefly explain your decision.

Save your file as: Bookstore-[your first initial and last name]10.

11. Analyze Price Increase

Math: Use SUMIF Your school principal is concerned that the price increase will be too high. She has asked you to complete an analysis that summarizes the impact of the price increase. In particular, you need to find the total of all the 2012 priced items that will cost less than $3.

- Open your **Bookstore-10** file.
- Click the **Sheet1** tab. Hide the formulas if necessary.
- Click **A18**. Create a formula using the **SUMIF** function.
- Format and label your findings.

Open a Word document and key a paragraph describing whether the price increase is too high based on your analysis of the Excel data.

Save as: Bookstore-[your first initial and last name]11.xlsx.

Indexstock/Photolibrary

LESSON 3 Advanced Data Formatting

Key Concepts

- Create custom formats
- Use conditional formatting
- Change the brightness and contrast of a picture
- Resize and rotate a graphic
- Format parts of a chart

Standards

The following standards are covered in this lesson. Refer to pages xxiv and 715 of the Student Edition for a description of the standards listed here.

ISTE Standards Correlation

NETS•S

1a, 1b, 1c, 3d, 4c, 6a, 6b

Microsoft Office Specialist

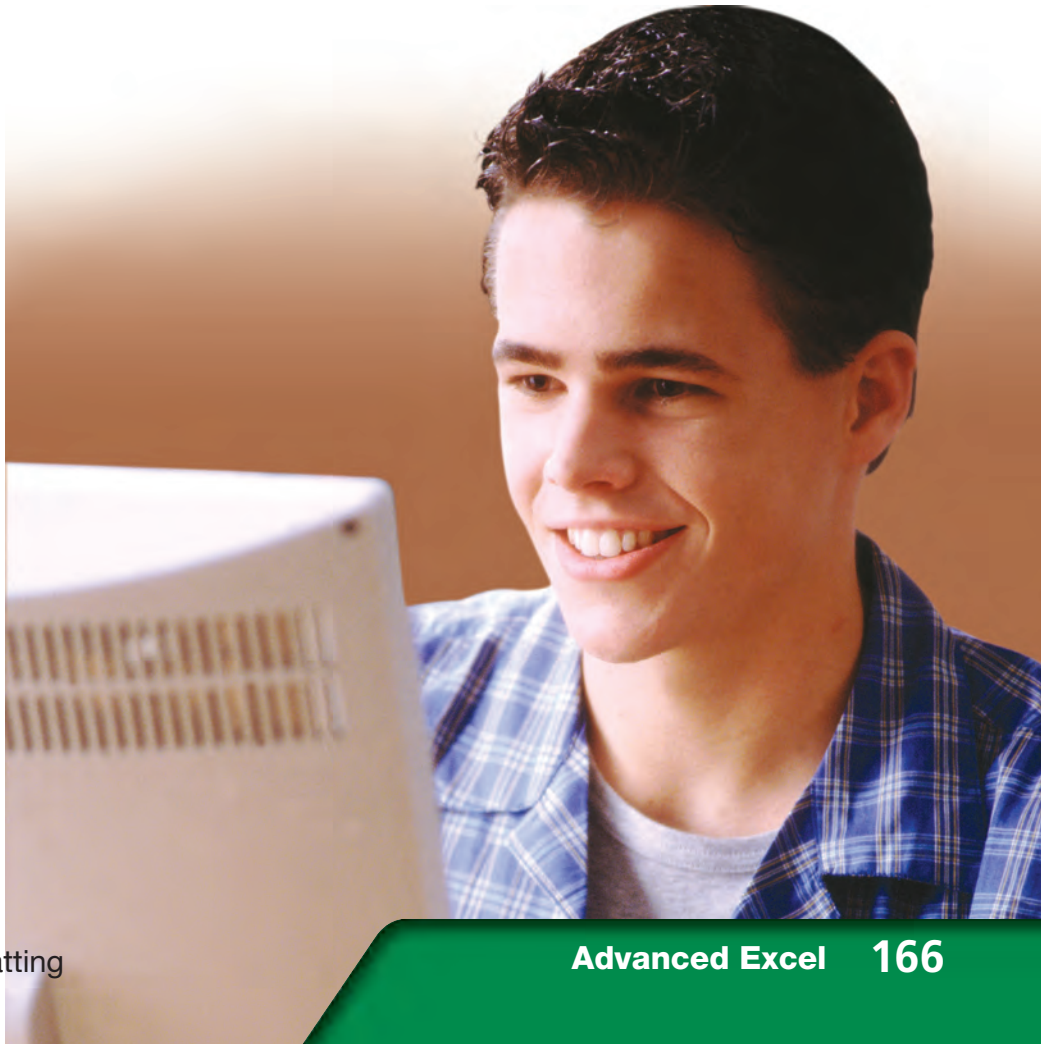
Excel

1.1, 2.1, 3.1, 3.3, 4.3, 6.1, 6.2, 6.3, 6.4, 8.2, 8.3

Data in Excel worksheets can have a stronger visual impact if you apply advanced formatting techniques. In this lesson, you will learn sophisticated ways to format data. You will create custom formats and use conditional formatting so that if data has a specified value, it appears a certain way. You will also learn to change the contrast of the pictures in your worksheets, as well as how to scale and rotate graphics. Charts are very important because they make complicated data easier to understand. In this lesson, you will learn to format the axes, the legend, and other parts of a chart.

21st CENTURY SKILLS

Choose the Right Tool When you are faced with a task, often the first step towards completion is to determine which tool is the best for the job. Choosing the right tool initially will save you time and keep you on track. When you are using Excel to show others how data has changed, you may have to choose between formatting content and using graphics to get your message across. *Can you think of a task in your schoolwork for which Excel would be the best tool?*



Jose Luis Pelaez, Inc./CORBIS

LESSON 3 Reading Guide

Before You Read

Think of an Example To make learning easier, think of an example of how or when you could use formatting to improve the presentation of complicated data. Thinking of examples of how you can apply skills demonstrates their importance and can help motivate your learning.

Read To Learn

- Evaluate how creating and saving a custom format can meet business needs.
- Consider how to use conditional formatting to make specific data stand out in a worksheet.
- Explore how to arrange and format graphics and charts to express information in your worksheet.
- Apply design concepts to enhance workbooks.

Main Idea

In Excel, you can create custom and conditional formats. You can also use graphics, charts, and themes to give your worksheet a polished look.

Vocabulary

Key Terms

brightness
color scale
conditional formatting
Conditional Formatting Rules Manager
contrast
custom number format
data bar
icon set
legend
rotate
scale
sizing handle

Academic Vocabulary

These words appear in your reading and on your tests. Make sure you know their meanings.

conflict
trend
utilize

Quick Write Activity

Describe On a separate sheet of paper, describe interesting graphics and well-designed charts that you have seen in advertisements. What drew you to the advertisement? Did the graphics stand out? How do the graphics support the message of the advertisement? Did the colors in the advertisement work together? Why or why not? Include any other details you can remember.

Study Skills

Look It Up If you hear or read a word that you do not know, look it up in the dictionary or on your computer. Before long, this practice will become a habit. You will be amazed at how many new words you learn.

Academic Standards

English Language Arts

NCTE 3 Apply strategies to interpret texts.

Math

NCTM (Number and Operations) Understand meanings and operations and how they relate to one another.

NCTM (Representation) Create and use representations to organize, record, and communicate mathematical ideas.

Step-By-Step

EXERCISE 3-1
Create a Custom Number Format

Using the Format Cells dialog box, you can format data in a variety of number formats, including Accounting, Currency, and Scientific. However, you might need a number format that is not listed in the Format Cells dialog box. For example, you might want all student ID numbers to end with the letter *Z*. You can create a **custom number format** so that the *Z* appears automatically.

1. Launch **Excel**.
2. Open the data file **Toys.xlsx**. Save as: Toys-[your first initial and last name]. (For example, *Toys-erusso*.)
3. Click cell **A5**. Choose **Home>Number Dialog Box Launcher**.
4. In the **Format Cells** dialog box, select the **Number** tab. In the **Category** list, click **Custom**.
5. Double-click in the **Type** box to select the text. Key: "E"###-###.
6. CHECK Your dialog box should look like Figure 3.1. Click **OK**.
7. CHECK Your screen should look like Figure 3.2.
8. Save your file.

Continue to the next exercise.

FIGURE 3.1 Format Cells dialog box

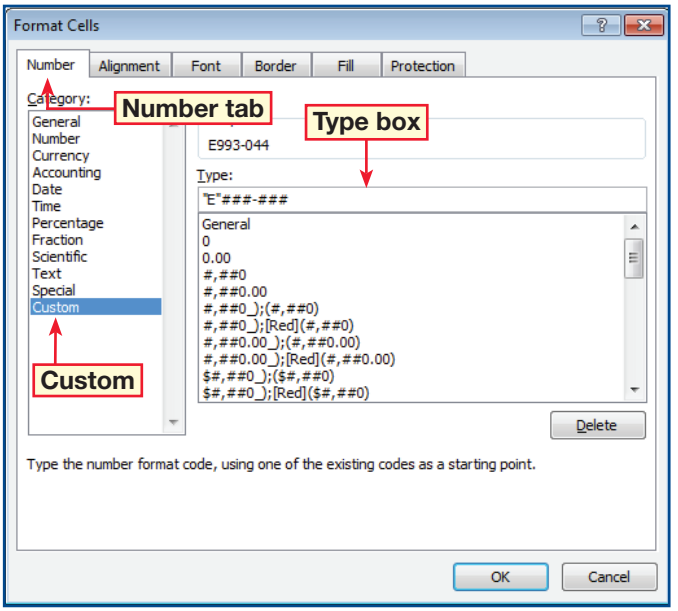
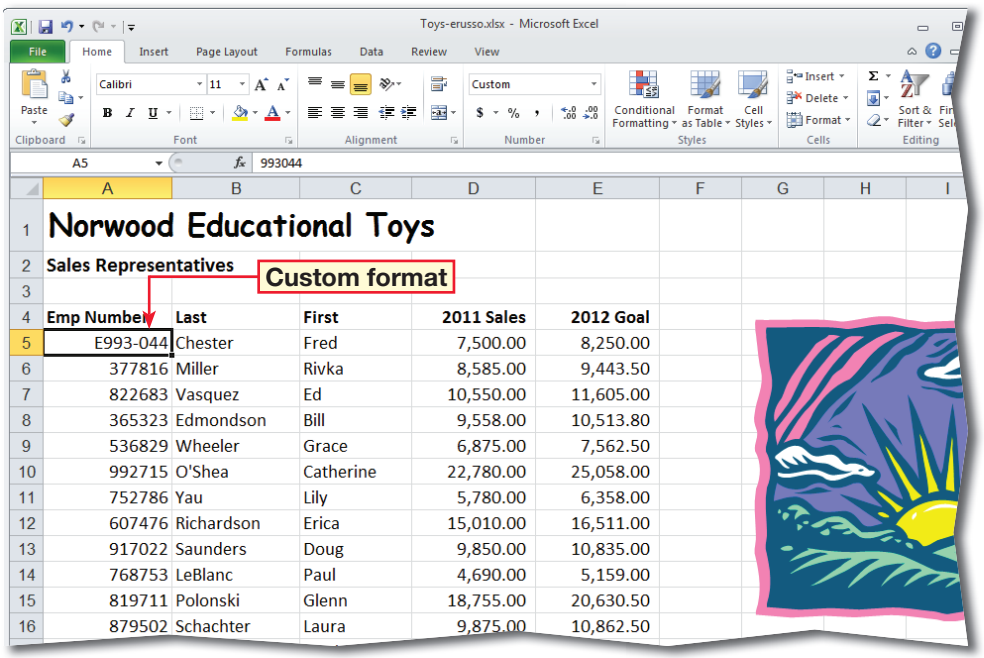


FIGURE 3.2 Number formatted using custom format



You Should Know

When you create a number format for a cell, it does not affect the actual cell value **Excel** uses to perform calculations. The actual value displays in the **Formula Bar**.

Step-By-Step

EXERCISE 3-2
Apply a Custom Number Format

Once you create a custom format, you can apply it to any cell in the current workbook. You can find your custom format listed in the Format Cells dialog box. Custom formats are saved within the workbook so you can **utilize**, or use, them repeatedly.

1. In your **Toys** file, click **A6**. Choose **Home>Cells> Format>Format Cells**. In the **Format Cells** dialog box, click the **Number** tab.
2. In the **Category** list, click **Custom**. Scroll to the bottom of the **Type** box. Click **"E"###-###**.
3. CHECK Your dialog box should look like Figure 3.3. Click **OK**.
4. Double-click **Format Painter**. Select **A7:A26**.
5. Deselect the range. Click cell **A26**. Key: 241067. Press ENTER.
6. Click cell **E1**. Click the **Number Format** drop-down arrow (see Figure 3.4). Select **Short Date**. Key: June 8, 2012.
7. Select **D5:E26**. Click the **Number Format** drop-down arrow. Select **Currency** from the list.
8. Click cell **D28**. Click **Increase Decimal** twice. Select **D28:E28**. Apply the **Currency** number format.
9. CHECK Your screen should look like Figure 3.4. Save your file.

Continue to the next exercise.

FIGURE 3.3 Format Cells dialog box

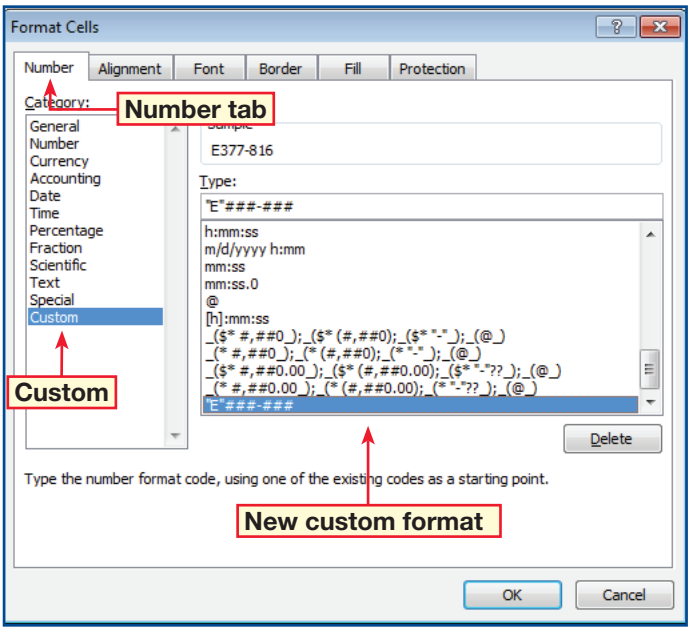
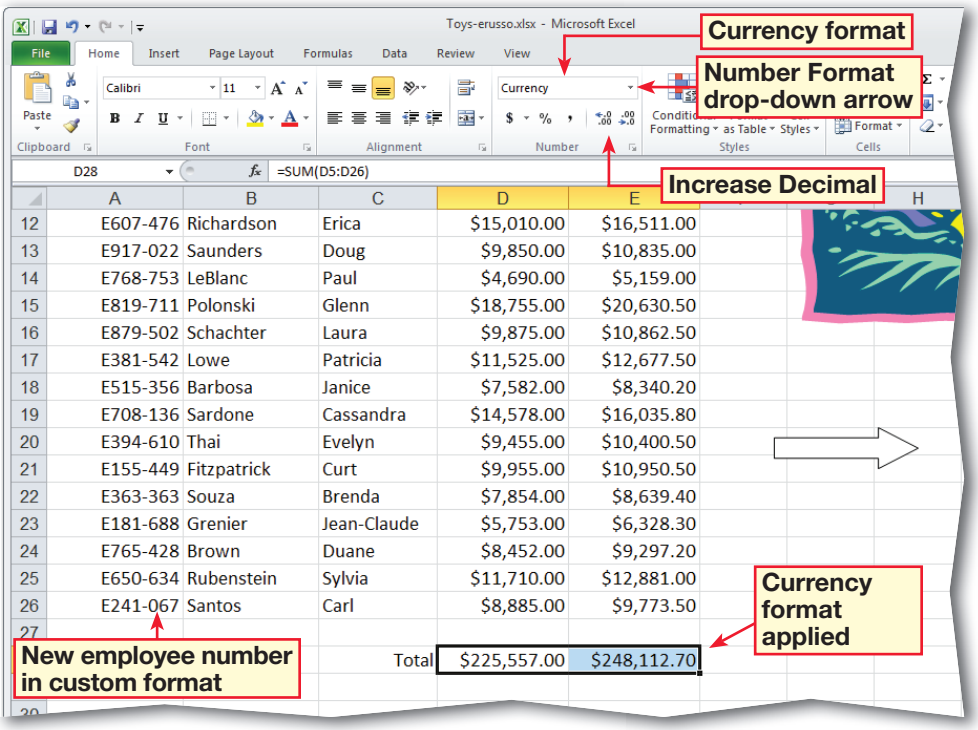


FIGURE 3.4 Number formatted using custom and Currency formats



	A	B	C	D	E
12	E607-476	Richardson	Erica	$15,010.00	$16,511.00
13	E917-022	Saunders	Doug	$9,850.00	$10,835.00
14	E768-753	LeBlanc	Paul	$4,690.00	$5,159.00
15	E819-711	Polonski	Glenn	$18,755.00	$20,630.50
16	E879-502	Schachter	Laura	$9,875.00	$10,862.50
17	E381-542	Lowe	Patricia	$11,525.00	$12,677.50
18	E515-356	Barbosa	Janice	$7,582.00	$8,340.20
19	E708-136	Sardone	Cassandra	$14,578.00	$16,035.80
20	E394-610	Thai	Evelyn	$9,455.00	$10,400.50
21	E155-449	Fitzpatrick	Curt	$9,955.00	$10,950.50
22	E363-363	Souza	Brenda	$7,854.00	$8,639.40
23	E181-688	Grenier	Jean-Claude	$5,753.00	$6,328.30
24	E765-428	Brown	Duane	$8,452.00	$9,297.20
25	E650-634	Rubenstein	Sylvia	$11,710.00	$12,881.00
26	E241-067	Santos	Carl	$8,885.00	$9,773.50
27					
			Total	$225,557.00	$248,112.70

Step-By-Step

EXERCISE 3-3
Use Conditional Formatting

You can apply conditional formatting to a cell range or table to help you analyze data. **Conditional formatting** changes the appearance of a cell or cell range only if it meets certain conditions. The formatting can include changes such as cell or font color, italics, strikethrough, borders, highlighting, or shading to emphasize values. For example, a **data bar** adds a colored bar to cells based on the value of the data. A **color scale** varies colors based on the values in a range. An **icon set** allows you to highlight specific values with preset icons, such as arrows, flags, and symbols. All these tools make it much easier to see a **trend**, or pattern, in the data.

1. In your **Toys** file, select **D5:D26**. Choose **Home> Styles>Conditional Formatting**. Choose **Highlight Cells Rules** and select **Greater Than** (see Figure 3.5).
2. In the **Greater Than** dialog box, in the **Format cells that are GREATER THAN** box, key: 10000. Click **OK**.
3. Choose **Styles> Conditional Formatting> Manage Rules**. In the **Conditional Formatting Rules Manager**, click **Edit Rule**. Click **Format**.
4. In the **Format Cells** dialog box, click the **Color** drop-down arrow and change the font to **Black, Text 1**. Click the **Fill** tab. Under **Background Color**, choose yellow.
5. Click **OK**. The dialog box previews the formatting. Click **OK** twice. Deselect the range.
6. CHECK Your screen should look like Figure 3.6.
7. Select **E5:E26**.

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FIGURE 3.5 Conditional Formatting drop-down list

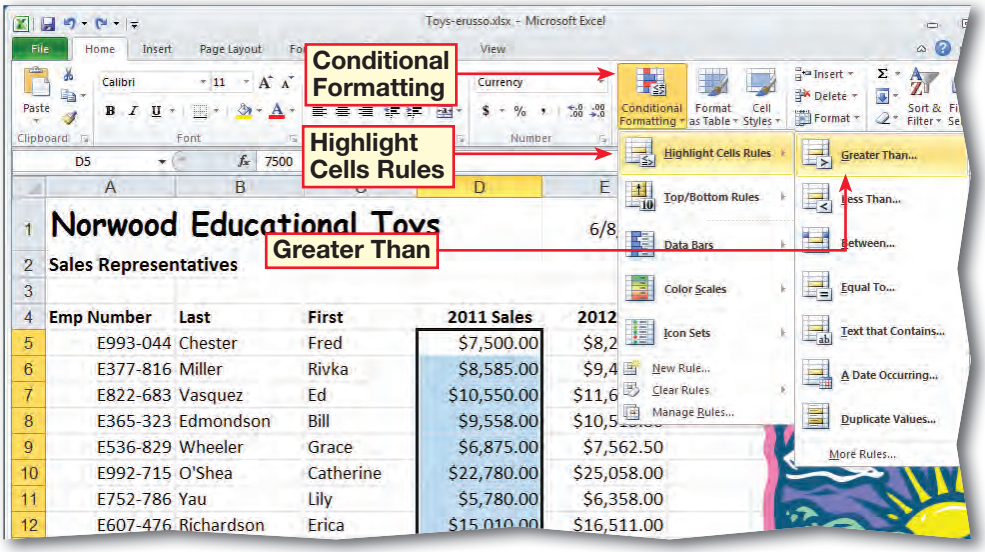
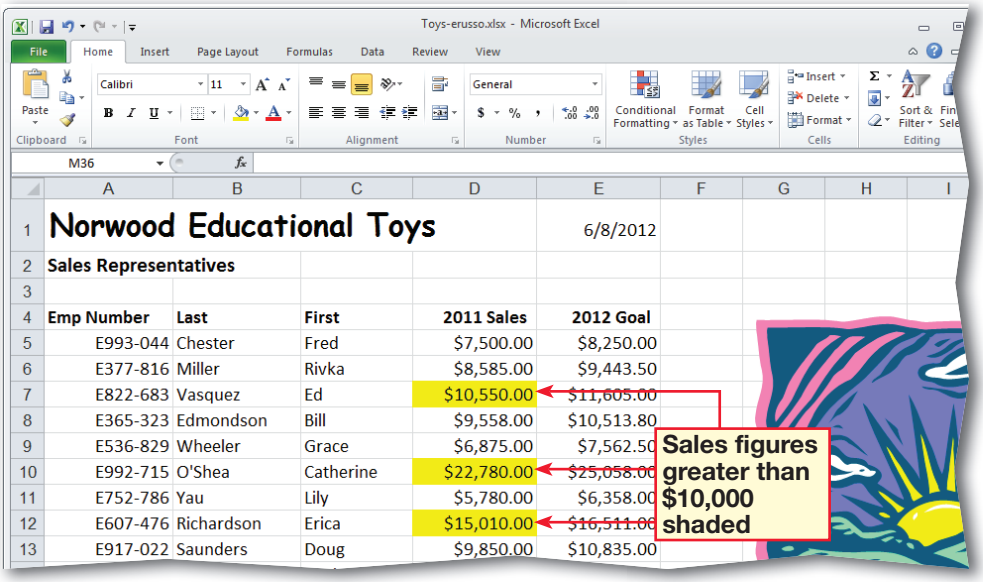


FIGURE 3.6 Sales figures formatted using conditional formatting



Emp Number	Last	First	2011 Sales	2012 Goal
E993-044	Chester	Fred	$7,500.00	$8,250.00
E377-816	Miller	Rivka	$8,585.00	$9,443.50
E822-683	Vasquez	Ed	$10,550.00	$11,605.00
E365-323	Edmondson	Bill	$9,558.00	$10,513.80
E536-829	Wheeler	Grace	$6,875.00	$7,562.50
E992-715	O'Shea	Catherine	$22,780.00	$25,058.00
E752-786	Yau	Lily	$5,780.00	$6,358.00
E607-476	Richardson	Erica	$15,010.00	$16,511.00
E917-022	Saunders	Doug	$9,850.00	$10,835.00

Step-By-Step

EXERCISE 3-3 (Continued)
Use Conditional Formatting

8. Click **Conditional Formatting**. Select **Top/Bottom Rules>Top 10 Items**. Click the **with** box drop-down arrow. Select **Green Fill with Dark Green Text**. Click **OK**.

9. Click **Conditional Formatting**. Select **Top/Bottom Rules>Bottom 10 Items**. Click **OK**.

10. Click **Undo** twice. Click **Conditional Formatting** and select **Data Bars**. Scroll over each formatting option.

11. CHECK Your screen should look like Figure 3.7.

12. Click **Conditional Formatting** and select **Color Scales**. Scroll over each option.

13. Click **Conditional Formatting** and select **Icon Sets**. Click **3 Arrows (Colored)**.

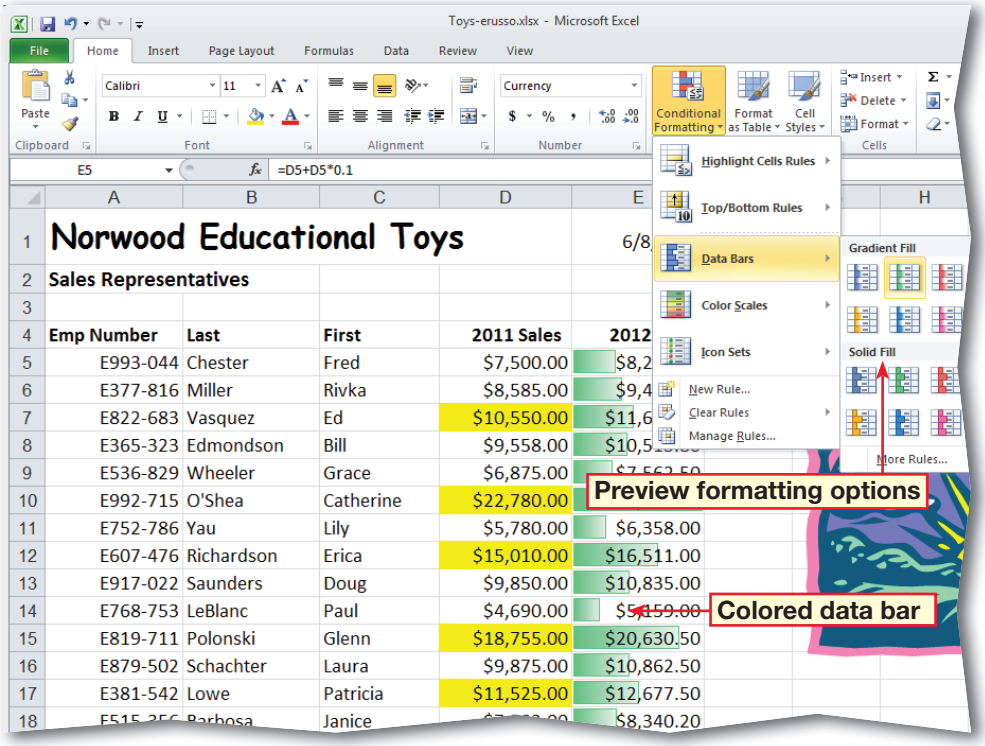
14. CHECK Your screen should look like Figure 3.8. Save your file.

Continue to the next exercise.

Academic Skills

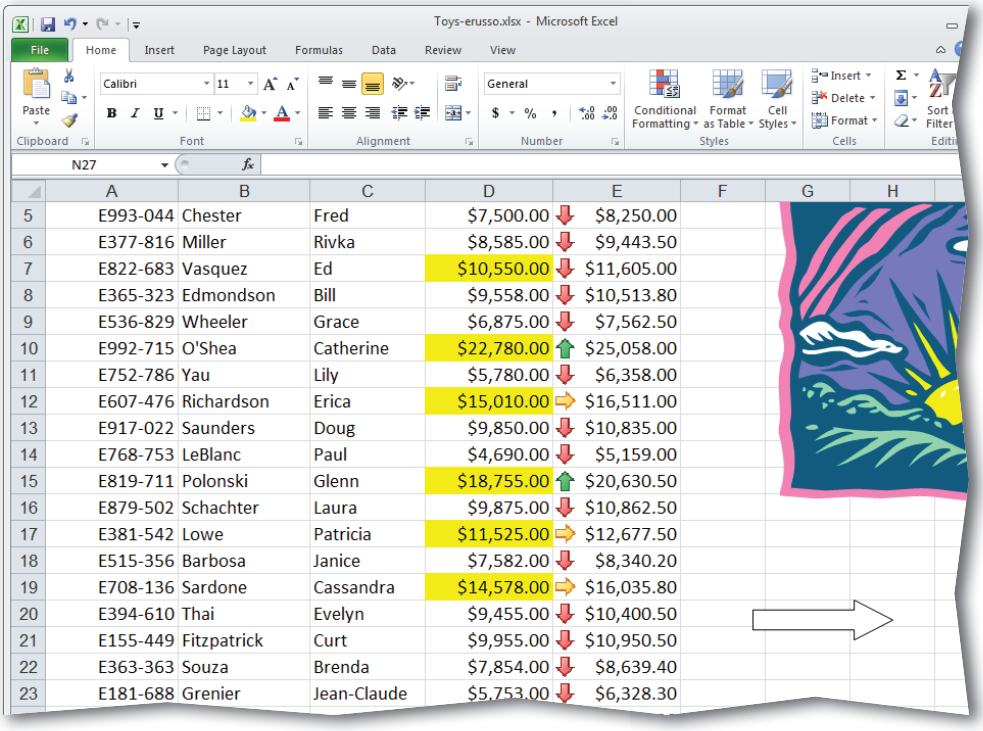
Sorting and filtering by format is helpful for analyzing data. You can see data changes and trends at a glance.

FIGURE 3.7 Data Bars menu



Emp Number	Last	First	2011 Sales	2012
E993-044	Chester	Fred	$7,500.00	$8,2
E377-816	Miller	Rivka	$8,585.00	$9,4
E822-683	Vasquez	Ed	$10,550.00	$11,6
E365-323	Edmondson	Bill	$9,558.00	$10,5
E536-829	Wheeler	Grace	$6,875.00	
E992-715	O'Shea	Catherine	$22,780.00	
E752-786	Yau	Lily	$5,780.00	$6,358.00
E607-476	Richardson	Erica	$15,010.00	$16,511.00
E917-022	Saunders	Doug	$9,850.00	$10,835.00
E768-753	LeBlanc	Paul	$4,690.00	$5,159.00
E819-711	Polonski	Glenn	$18,755.00	$20,630.50
E879-502	Schachter	Laura	$9,875.00	$10,862.50
E381-542	Lowe	Patricia	$11,525.00	$12,677.50
E515-356	Barbosa	Janice		$8,340.20

FIGURE 3.8 Sales figures formatted with 3 Arrows (Colored) icon set



E993-044	Chester	Fred	$7,500.00	$8,250.00
E377-816	Miller	Rivka	$8,585.00	$9,443.50
E822-683	Vasquez	Ed	$10,550.00	$11,605.00
E365-323	Edmondson	Bill	$9,558.00	$10,513.80
E536-829	Wheeler	Grace	$6,875.00	$7,562.50
E992-715	O'Shea	Catherine	$22,780.00	$25,058.00
E752-786	Yau	Lily	$5,780.00	$6,358.00
E607-476	Richardson	Erica	$15,010.00	$16,511.00
E917-022	Saunders	Doug	$9,850.00	$10,835.00
E768-753	LeBlanc	Paul	$4,690.00	$5,159.00
E819-711	Polonski	Glenn	$18,755.00	$20,630.50
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E381-542	Lowe	Patricia	$11,525.00	$12,677.50
E515-356	Barbosa	Janice	$7,582.00	$8,340.20
E708-136	Sardone	Cassandra	$14,578.00	$16,035.80
E394-610	Thai	Evelyn	$9,455.00	$10,400.50
E155-449	Fitzpatrick	Curt	$9,955.00	$10,950.50
E363-363	Souza	Brenda	$7,854.00	$8,639.40
E181-688	Grenier	Jean-Claude	$5,753.00	$6,328.30

Step-By-Step

1. In your **Toys** file, select **E5:E26**, if necessary. Choose the **Home> Styles>Conditional Formatting** drop-down menu.
2. Click **Manage Rules**. In the **Conditional Formatting Rules Manager**, click **New Rule**.
3. In the **New Formatting Rule** dialog box, make sure **Format all cells based on their values** is selected.
4. Click the **Format Style** drop-down arrow. Select **Data Bar**. Click **OK** twice.
5. Click **Conditional Formatting** and select **Manage Rules**. Select the **Data Bar** rule in the list. Click **Edit Rule**.
6. Click the **Format Style** drop-down arrow and select **Icon Sets** (see Figure 3.9).
7. Click the **Icon Style** drop-down arrow and select **3 Symbols (Uncircled)** (see Figure 3.9) Click **OK** twice.
8. CHECK Your screen should look like Figure 3.10.

Continued on the next page.

EXERCISE 3-4
Use the Conditional Formatting Rules Manager

Use the **Conditional Formatting Rules Manager** to create, edit, delete, and view all conditional formatting rules in a worksheet or workbook. When formatting rules do not conflict, both rules are applied to the range of cells. For example, if one rule formats a cell range with a yellow background and another rule formats the same range with a bold font, both rules are applied. If the rules are in conflict, or are not in agreement, the Conditional Formatting Rules Manager applies the rule that appears higher in the list. To clear a rule from selected cells or from an entire sheet using the Ribbon, choose Home>Styles>Conditional Formatting>Clear Rules.

FIGURE 3.9 Edit Formatting Rule dialog box

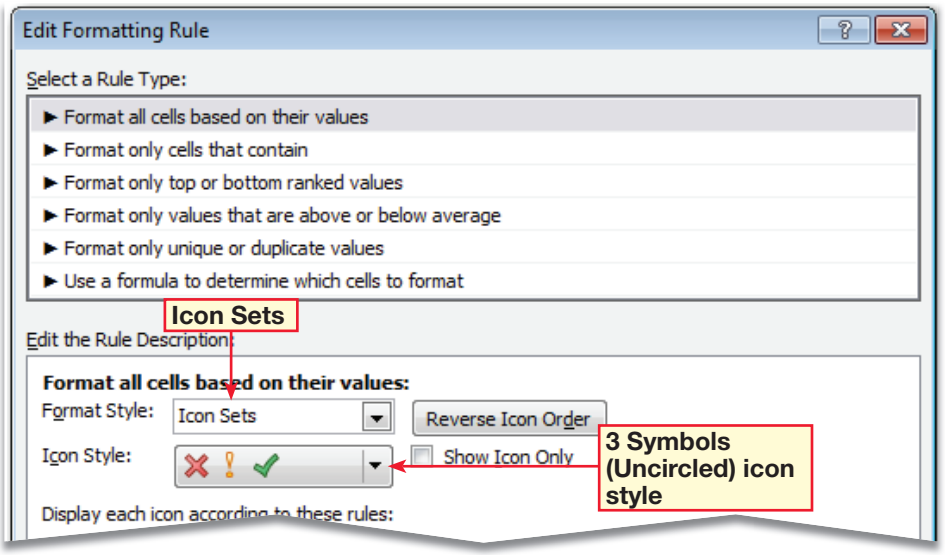
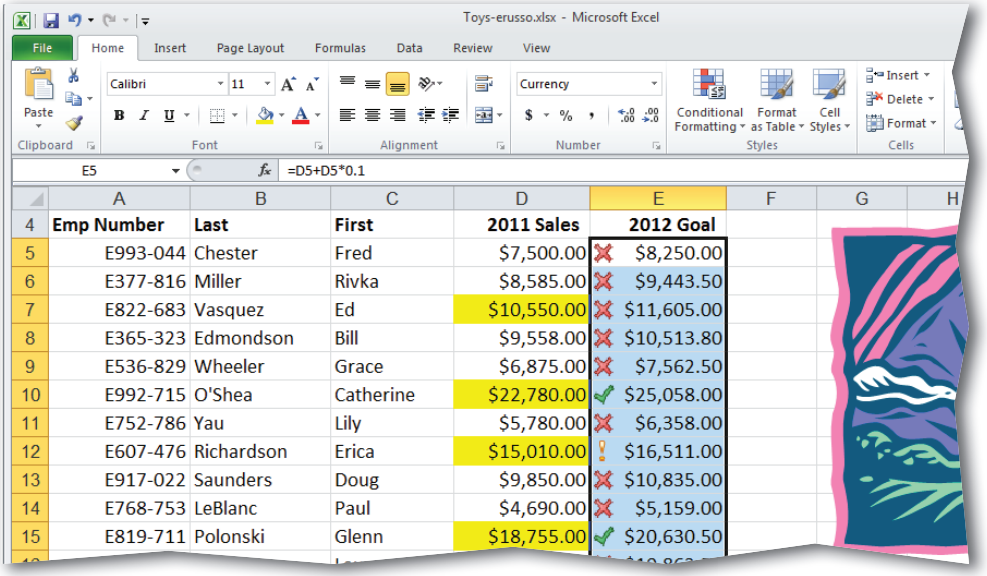


FIGURE 3.10 Sales figures formatted using 3 Symbols (Uncircled)



	A	B	C	D	E	F	G
4	Emp Number	Last	First	2011 Sales	2012 Goal		
5	E993-044	Chester	Fred	$7,500.00	$8,250.00		
6	E377-816	Miller	Rivka	$8,585.00	$9,443.50		
7	E822-683	Vasquez	Ed	$10,550.00	$11,605.00		
8	E365-323	Edmondson	Bill	$9,558.00	$10,513.80		
9	E536-829	Wheeler	Grace	$6,875.00	$7,562.50		
10	E992-715	O'Shea	Catherine	$22,780.00	$25,058.00		
11	E752-786	Yau	Lily	$5,780.00	$6,358.00		
12	E607-476	Richardson	Erica	$15,010.00	$16,511.00		
13	E917-022	Saunders	Doug	$9,850.00	$10,835.00		
14	E768-753	LeBlanc	Paul	$4,690.00	$5,159.00		
15	E819-711	Polonski	Glenn	$18,755.00	$20,630.50		

Step-By-Step

EXERCISE 3-4 (Continued)

Use the Conditional Formatting Rules Manager

9. Click **Conditional Formatting** and select **Manage Rules**.

10. Click **Move Down**. Click **OK**.

11. Click **Conditional Formatting** and select **Manage Rules**. Select the **3 Symbols** rule. Click **Delete Rule**. Click **OK**.

12. Select **A4:E26**. Choose **Home>Editing>Sort & Filter>Filter**.

13. Click the drop-down arrow next to **2012 Goal**. Choose **Filter by Color> Filter by Cell Icon** and select the green up arrow from the list.

14. CHECK Your screen should look like Figure 3.11.

15. Click the **2012 Goal** filter icon and select **Clear Filter From "2012 Goal"**.

16. Click the **2011 Sales** drop-down arrow. Choose **Sort by Color**. Click the yellow rectangle. Deselect the cells.

17. CHECK Your screen should look like Figure 3.12. Save your file.

Continue to the next exercise.

FIGURE 3.11 Sales goals filtered using conditional formatting

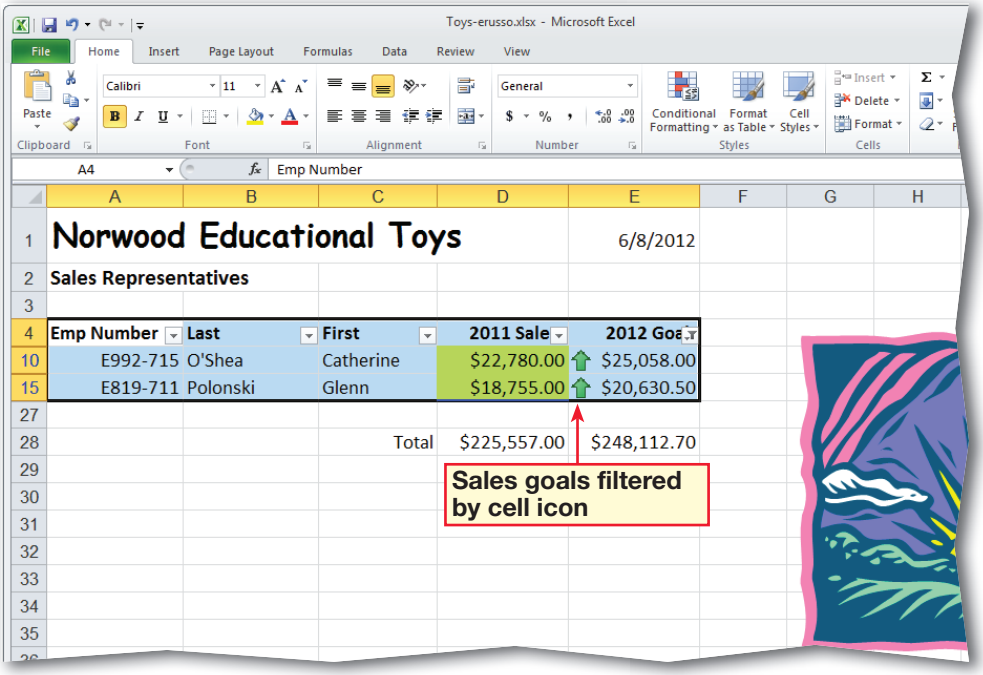
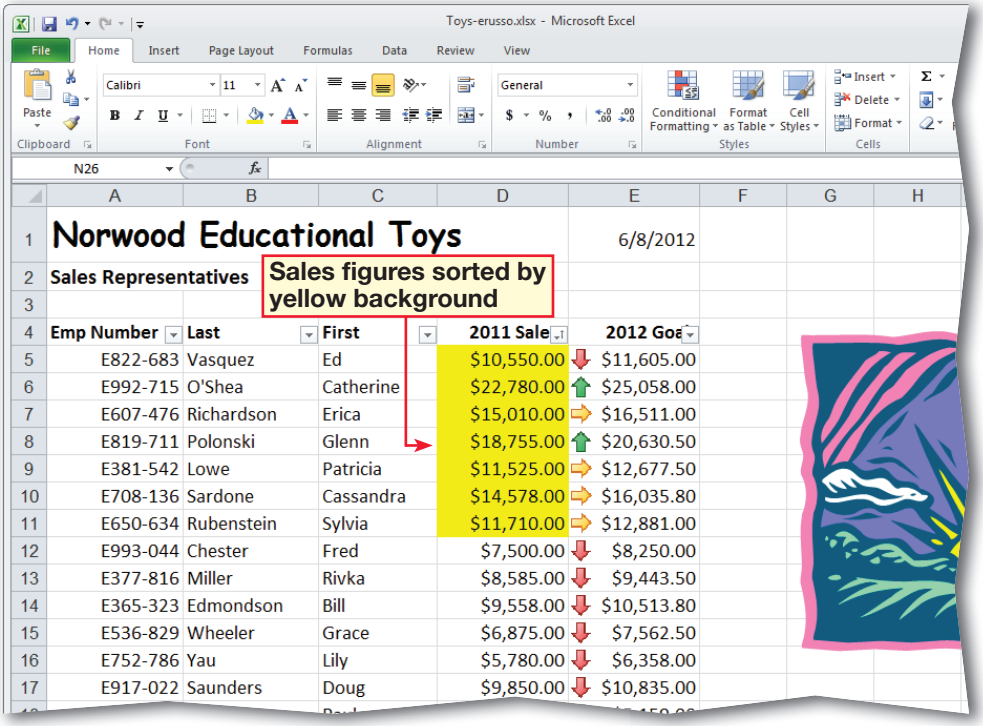


FIGURE 3.12 Sales figures sorted using conditional formatting



Step-By-Step

1. In your **Toys** file, scroll to the right to display the entire graphic of the sun.
2. Click the graphic. Choose **Insert>Illustrations> Picture**.
3. Navigate to and select the **fireworks.jpg** data file. Click **Insert**. Click the sun graphic.
4. CHECK Your screen should look like Figure 3.13. Press DELETE.
5. Drag the fireworks picture up to where the sun graphic was located.
6. Click the graphic. Choose **Picture Tools>Format> Adjust>Corrections**. Click **Soften: 50%**. Note the change to the photo. Click **Sharpen: 0%**. Then, select **Brightness: +20% Contrast: +40%**.
7. Choose **Picture Tools> Format>Picture Styles** and click the **More** drop-down arrow.
8. Select **Soft Edge Rectangle**. Click **Artistic Effects** and select **Glow Diffused**.
9. CHECK Your screen should look like Figure 3.14.
10. In your **Toys** file, click the graphic of the fireworks.

Continued on the next page.

EXERCISE 3-5
Insert and Modify a Graphic

A graphic is often a picture file, but tables, charts, screenshots, and shapes are also graphics. When you select a graphic or illustration, the Picture Tools contextual tab opens. You can use the tools on this tab to insert and modify pictures. You can sharpen or soften an image, or change the picture's **contrast**, or difference between light and dark. You can also change the **brightness**, or overall lightness or darkness, of a picture. You can resize a graphic by dragging its **sizing handles**. Sizing handles are dots or boxes that appear around the edges of the graphic you have selected. Corner sizing handles resize graphics proportionally.

Royalty_Free/Corbis

FIGURE 3.13 Picture inserted

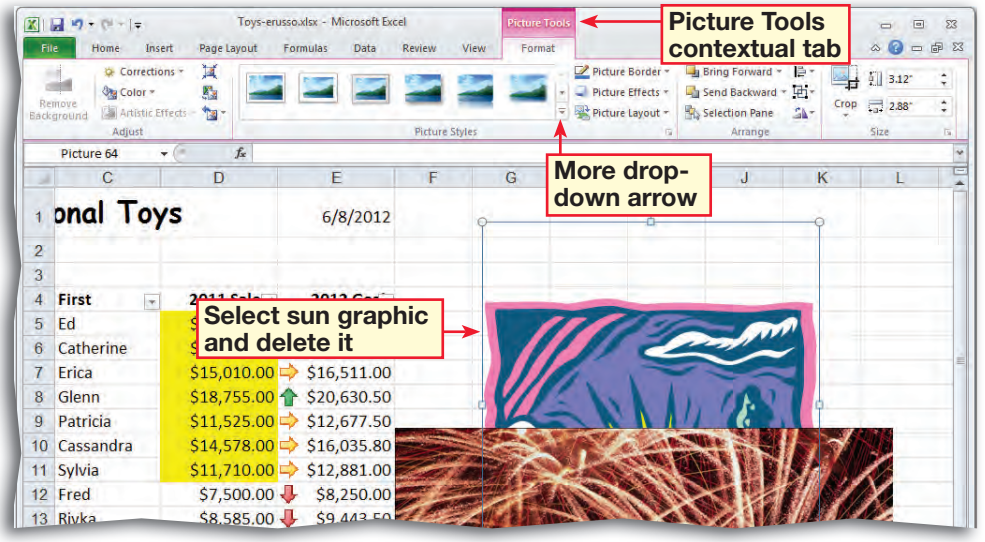
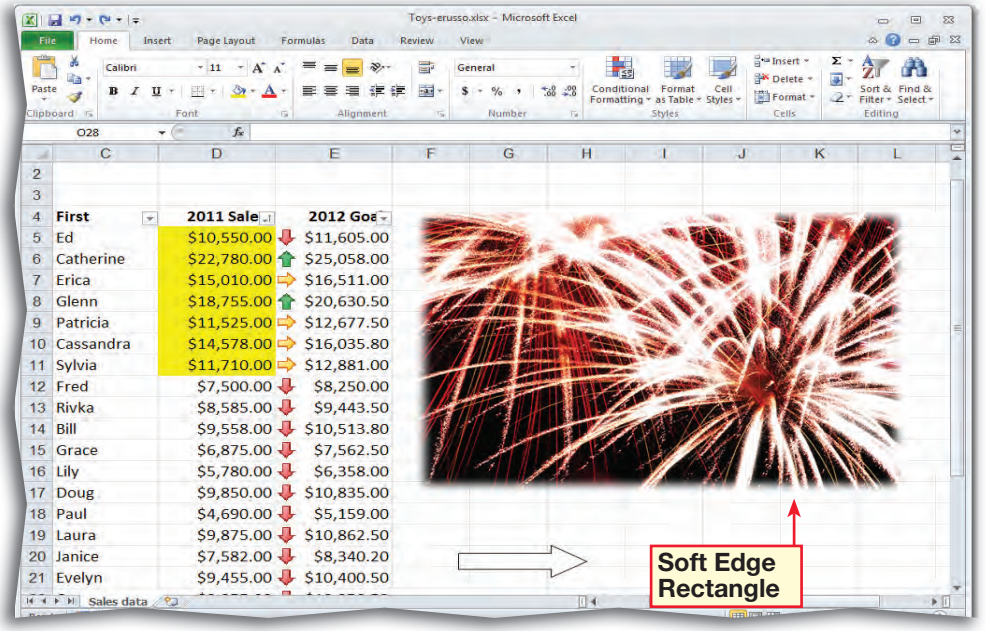


FIGURE 3.14 Graphic after adding a picture style and artistic effects



Step-By-Step

11. Point to the sizing handle in the lower-right corner of the graphic.
12. CHECK Your screen should look like Figure 3.15.
13. Drag the sizing handle toward the center of the picture. Release the mouse button.
14. Point to the lower-right sizing handle again. Drag the sizing handle into Column J.
15. CHECK Your screen should look similar to Figure 3.16. Save your file.

Continue to the next exercise.

Microsoft Office 2010

You can also take and insert a screenshot, or picture, of all or part of the windows open on your computer by choosing **Insert>Illustrations>Screenshot**.

Academic Skills

Contrast is the difference between two things. When you change the contrast of an image, for example, you make it easier to see the difference between the light areas and the dark areas because you make the light areas lighter and the darker areas darker.

EXERCISE 3-5 (Continued)
Insert and Modify a Graphic

FIGURE 3.15 Resizing a graphic

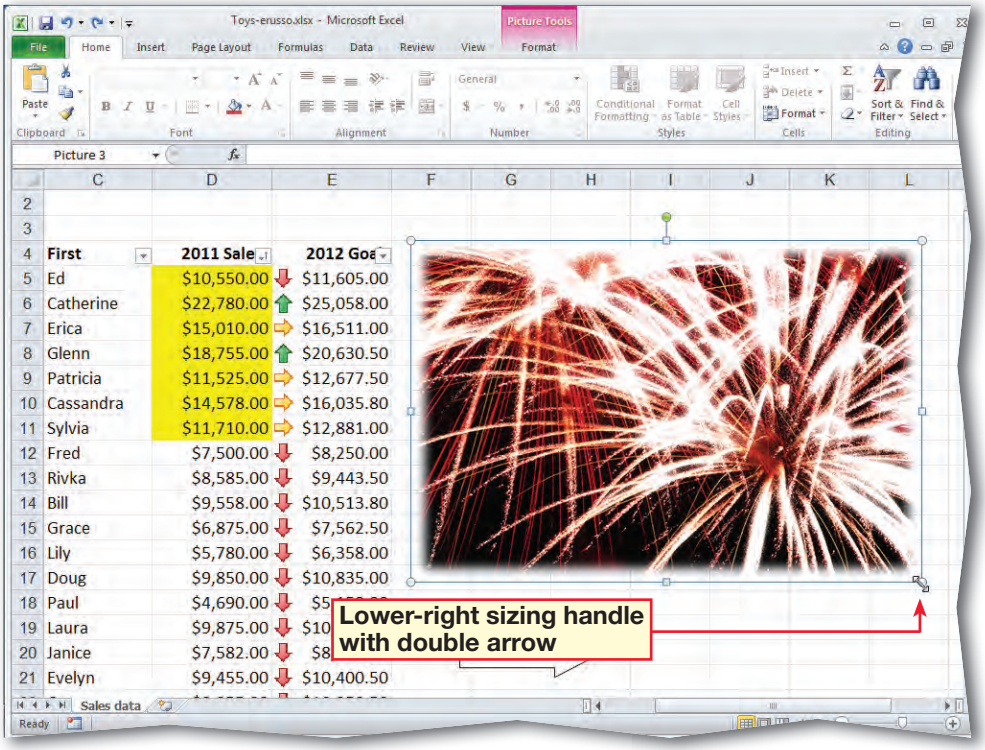
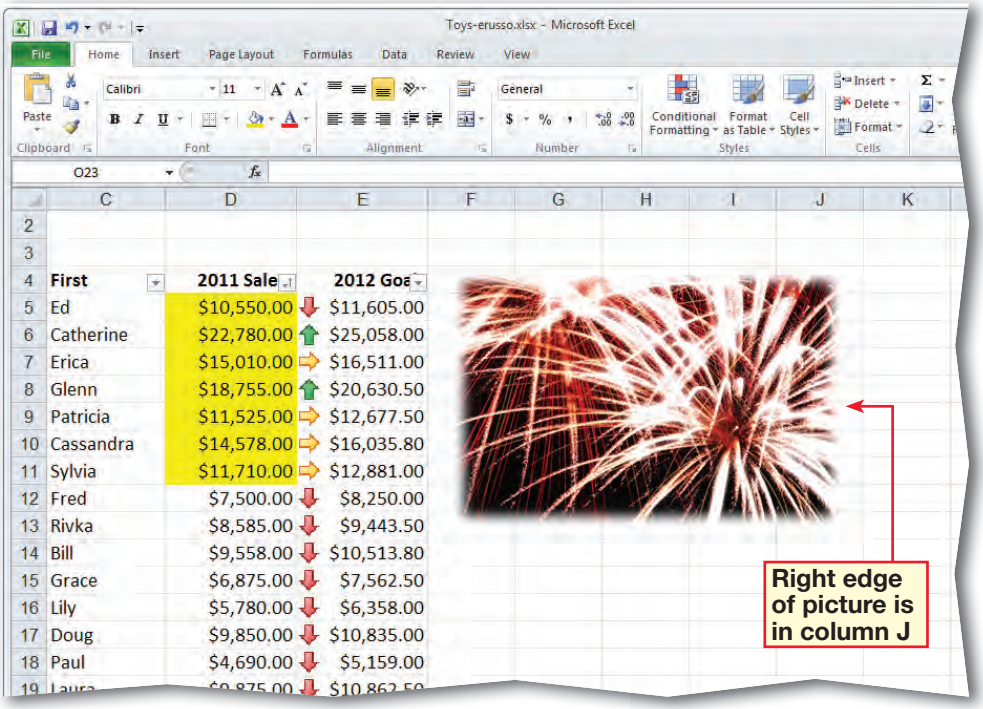


FIGURE 3.16 Resized graphic



Step-By-Step

EXERCISE 3-6
Scale a Graphic

Increase or decrease the **scale** of a graphic if you want to change its size in percentages. For instance, you can make a graphic 10 percent bigger or 15 percent smaller. To change the graphic back to its original size, change the scale to 100 percent.

1. In your **Toys** file, click the graphic of the fireworks. Select **Picture Tools> Format>Size Dialog Box Launcher**.
2. In the **Format Picture** dialog box, under **Scale**, select the number in the **Height** box and key: 25. Press TAB.
3. CHECK Your dialog box should look similar to Figure 3.17.
4. Click **Close.**
5. Click and drag the graphic up so it fits in cells **F1:G2**. Resize if necessary. Deselect the graphic.
6. CHECK Your screen should look like Figure 3.18.
7. Save your file.

Continue to the next exercise.

FIGURE 3.17 Format Picture dialog box

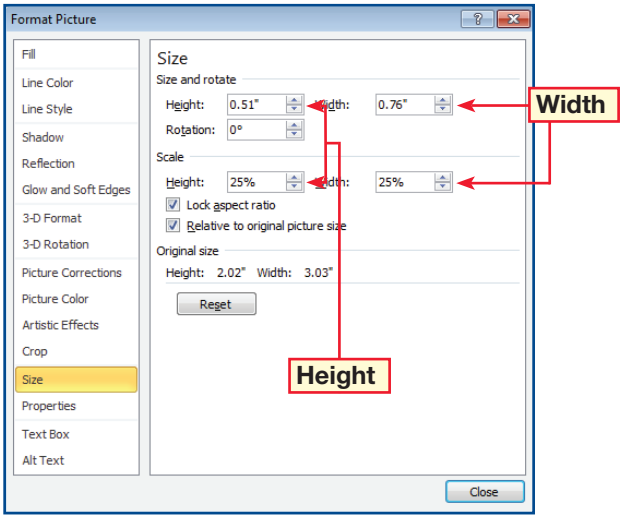
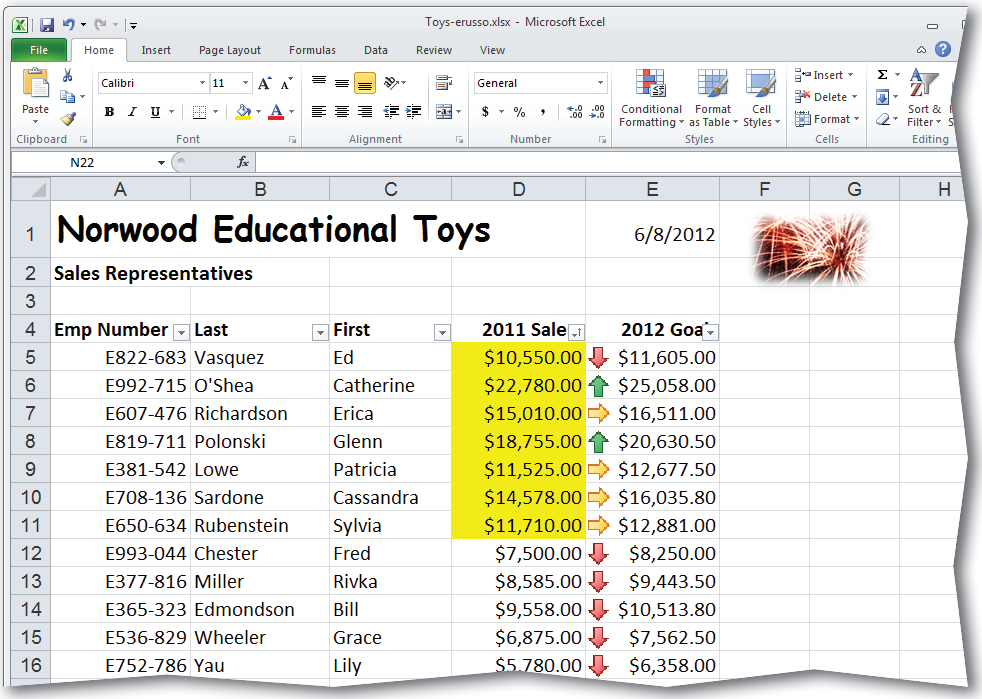


FIGURE 3.18 Resized graphic



You Should Know

When printing worksheets, you can configure row and column titles to skip the first worksheet page or print only on odd or even pages by choosing **Page Layout>Page Setup> Print Titles**.

Step-By-Step

EXERCISE 3-7
Rotate a Graphic

1. In your **Toys** file, scroll down and click the block arrow graphic. The **Drawing Tools** contextual tab opens (see Figure 3.19).
2. Choose **Format> Arrange>Rotate**. Select **Rotate Left 90º**. The arrow points up.
3. Move your pointer over the green dot to the left of the arrow. Your pointer becomes a rotate arrow.
4. Click and drag in a circular motion until the block arrow is pointing down and to the left. Deselect the block arrow.
5. Drag the block arrow so that it is pointing to cell **E6**. Deselect the block arrow.
6. CHECK Your screen should look like Figure 3.20. Save your file.

Continue to the next exercise.

Rotate a graphic to turn it clockwise (to the right) or counterclockwise (to the left). You can rotate a graphic 90 degrees or you can use the rotation handle to rotate it as many degrees as you want. You can also flip a graphic horizontally or vertically. You can remove a picture and replace it with a new picture. To keep the size and formatting of the original picture, choose Format>Adjust>Change Picture on the Picture Tools tab. To discard all the formatting changes you made to the image and return to its original formatting, choose Format>Adjust>Reset Picture.

FIGURE 3.19 Drawing Tools contextual tab

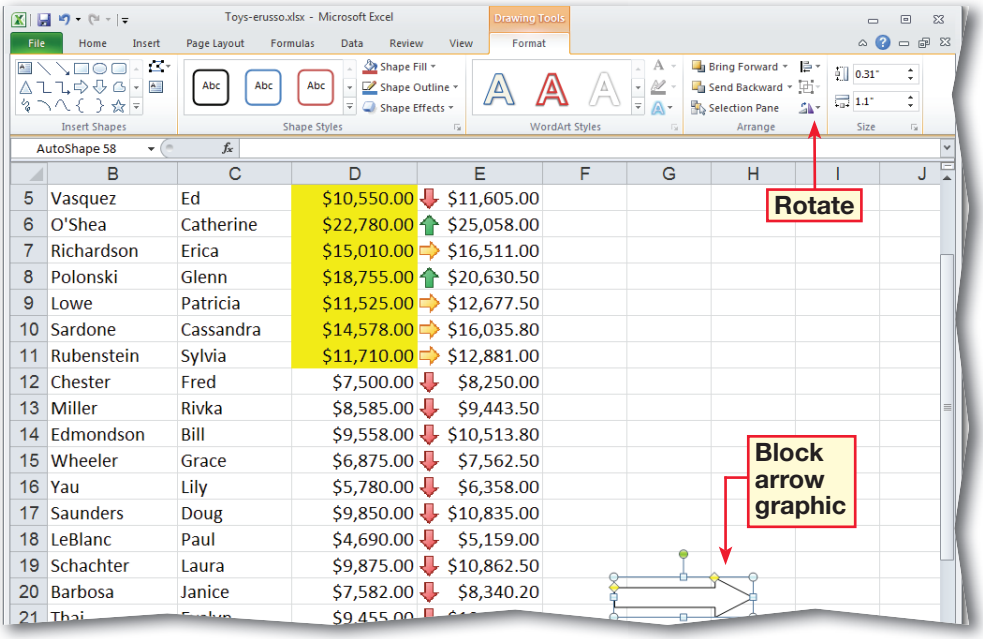
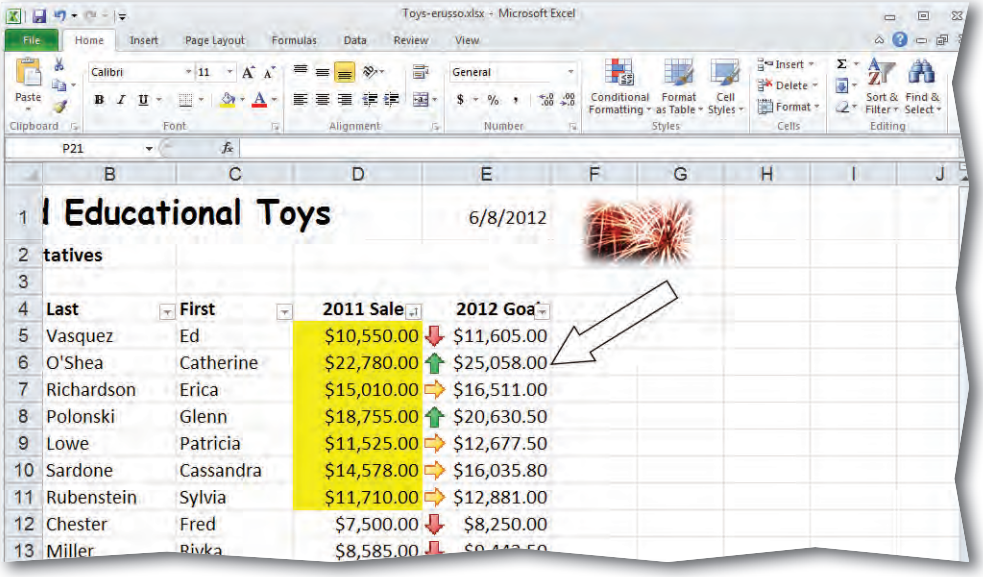


FIGURE 3.20 Rotated block arrow



Academic Skills

A complete rotation is 360 degrees. If you rotate a graphic 90 degrees counterclockwise, the top of the image will point to the left side of the page.

Step-By-Step

EXERCISE 3-8
Apply Formats to Charts and Diagrams

Charts and diagrams offer a graphical representation of data that helps you better visualize and analyze it. After you create a chart, there are many different ways it can be formatted and modified. For example, you could change the font size of the chart title, alter the color and appearance of the background, or add shading to the legend. The legend is the part of a chart that indicates what each color or pattern represents. To format part of a chart, double-click it. In this exercise, you will create and format a chart that displays the 2011 sales and 2012 sales goals.

1. In your **Toys** file, select column **C**. Right-click and select **Hide**. With column **C** hidden, select **B4:E26**. Choose **Insert>Charts> Column**. Under **3-D Column**, select **3-D Clustered Column**.
2. CHECK Your screen should look like Figure 3.21.
3. Click and drag the chart's sizing handles until all 22 names are visible.
4. Choose **Layout>Axes> Axes**. Choose **Primary Vertical Axis>More Primary Vertical Axis Options**. In the **Format Axis** dialog box, change the **Minor tick mark type** to **Cross** (see Figure 3.22).
5. CHECK Your screen should look like Figure 3.22.
6. Click **Number** in the **Format Axis** dialog box. Click **Currency**. In the **Decimal places** box, key: 0. Click **Close**.
7. Choose **Layout>Axes> Primary Horizontal Axis** and select **More Primary Horizontal Axis Options**.
8. Click **Alignment**. Set the **Custom angle** to **-60°**.

Continued on the next page.

FIGURE 3.21 Sales data in 3-D Clustered Column chart

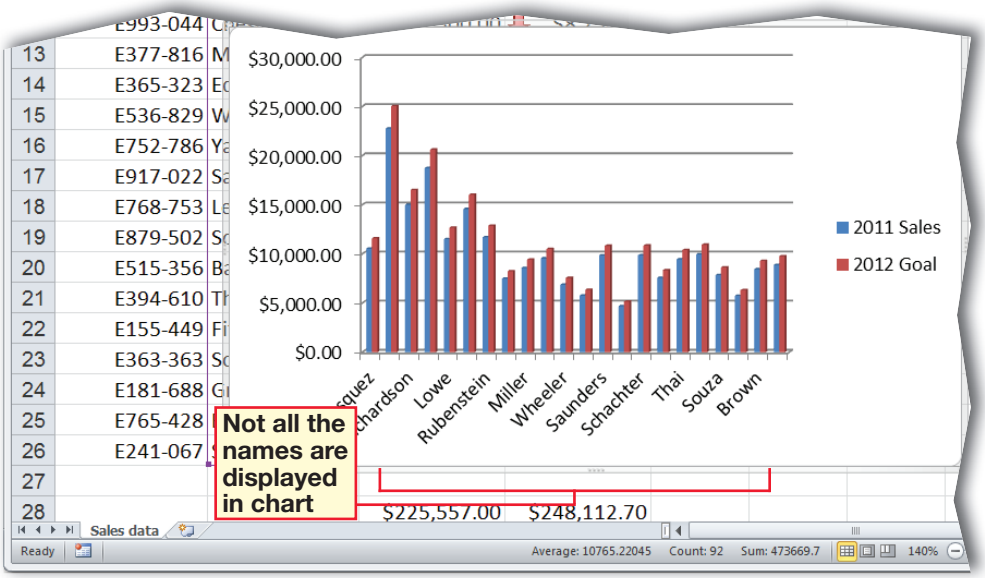
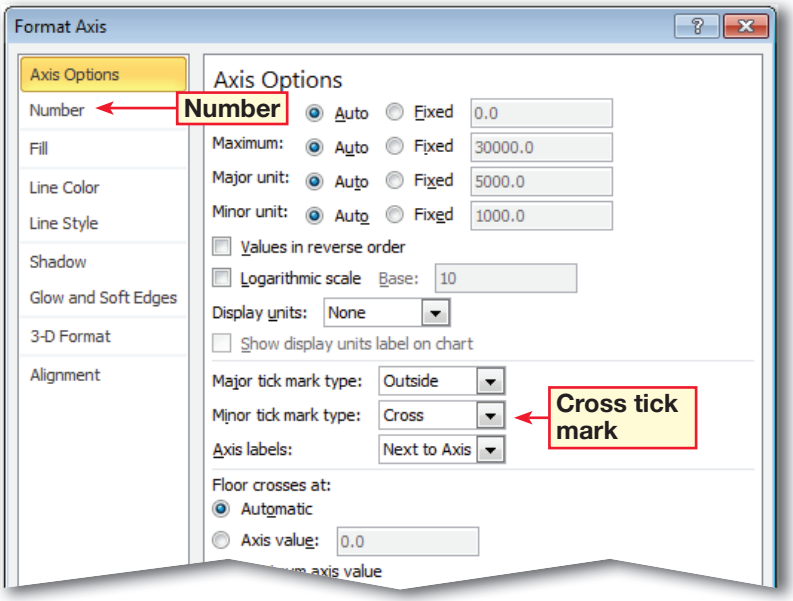


FIGURE 3.22 Format Axis dialog box



Step-By-Step

EXERCISE 3-8 (Continued)
Apply Formats to Charts and Diagrams

9. Click **Close**. Use the sizing handles to resize the chart so that all the data is shown on the horizontal axis.

10. Choose **Layout>Labels> Legend**. Select **None**.

11. Click **Legend**. Select **Show Legend at Right**. Choose **Legend> More Legend Options**. In the dialog box, click **Border Color**. Select **Solid line**.

12. Click **Shadow**. Choose **Presets>Outer>Offset Diagonal Bottom Right**. Click **Close**. Click a blank area of the chart.

13. CHECK Your screen should look like Figure 3.23.

14. Select the chart. Choose **Layout>Labels>Chart Title**. Select **Above Chart**. Name the chart **Sales Data**.

15. Choose **Layout> Background>Chart Wall**. Select **More Walls Options**. Click **Fill** and select **Gradient fill**. Click **Close**.

16. CHECK Your screen should look like Figure 3.24. Save your file.

Continue to the next exercise.

FIGURE 3.23 Partially formatted chart

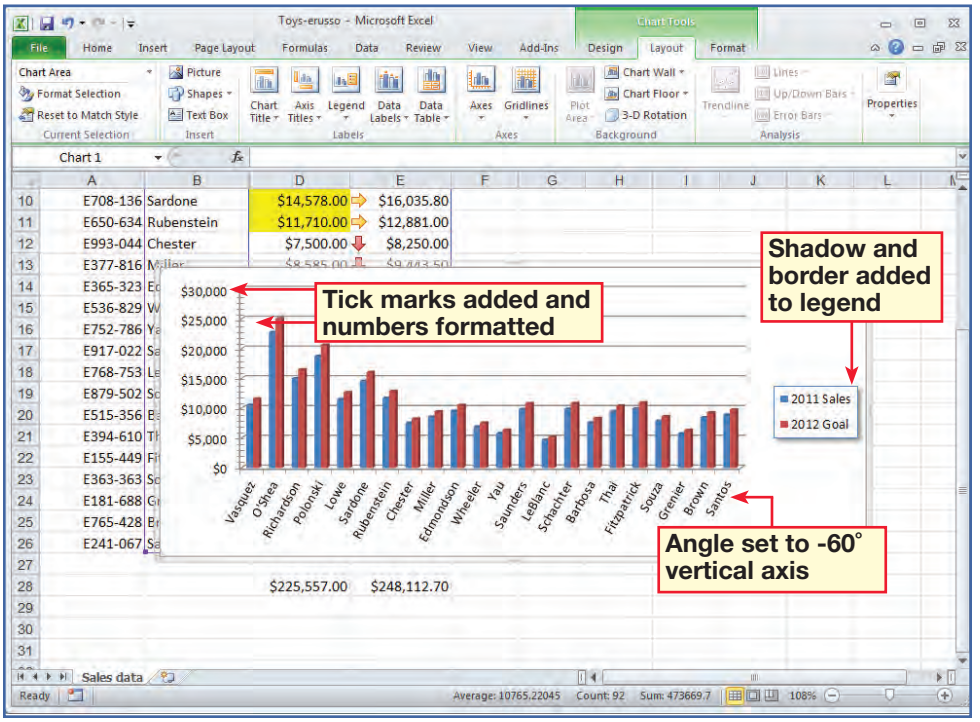
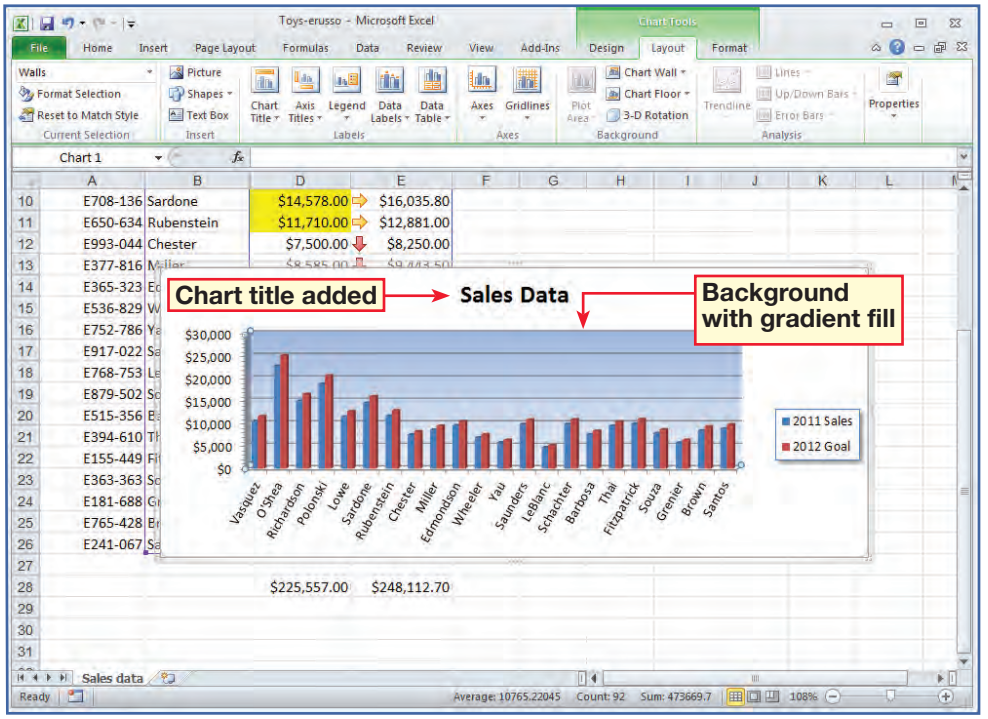


FIGURE 3.24 Formatted chart



Step-By-Step

EXERCISE 3-9
Apply Themes to Worksheets

You can enhance your workbooks by using built-in styles and themes to ensure that cells have consistent formatting and design. A theme allows you to automatically apply several formats such as 3-D effects, colors, boldface, and shading to an entire workbook in one step. Themes also allow you to change the colors, fonts, and effects used in a table, graph, or worksheet to make the entire workbook consistent.

1. In your **Toys** file, click the **Sales Data** chart to open the **Chart Tools** contextual tab. Choose **Design>Location>Move Chart**.
2. In the **Move Chart** dialog box, select **New sheet**. Click **OK**. A new sheet tab is created for the sales data chart.
3. With the **Chart1** sheet tab selected, choose **Page Layout>Themes** and click **Themes**. Click the **Metro** theme thumbnail (see Figure 3.25).
4. CHECK Your screen should look like Figure 3.25.
5. Click the **Sales data** sheet tab. Click the block arrow graphic. Click the **Shape Fill** drop-down arrow. Click the theme color **Pink, Accent 2**.
6. CHECK Your screen should look like Figure 3.26.

Continued on the next page.

FIGURE 3.25 Themes drop-down list

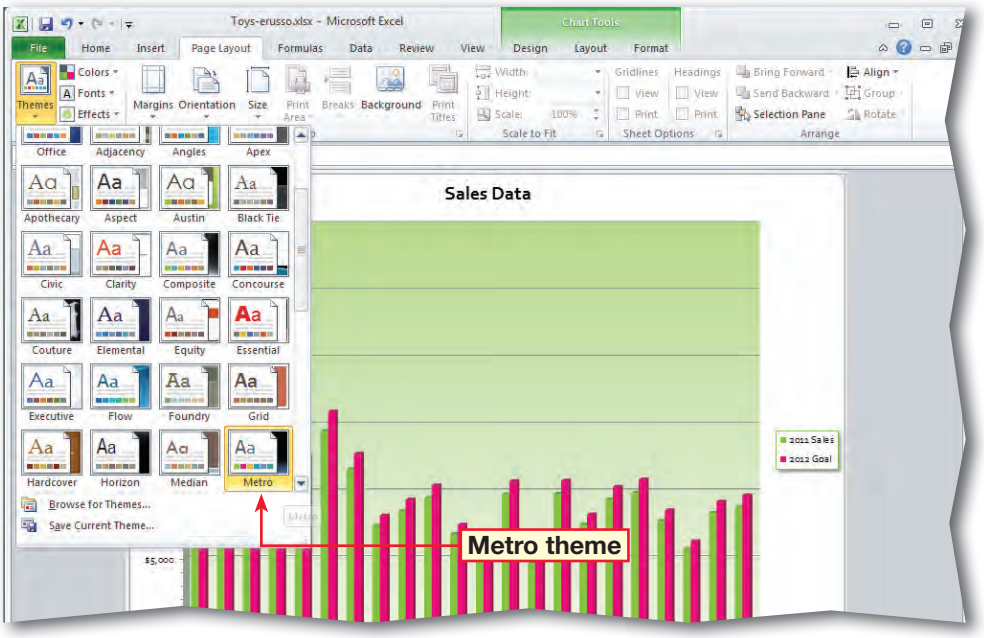
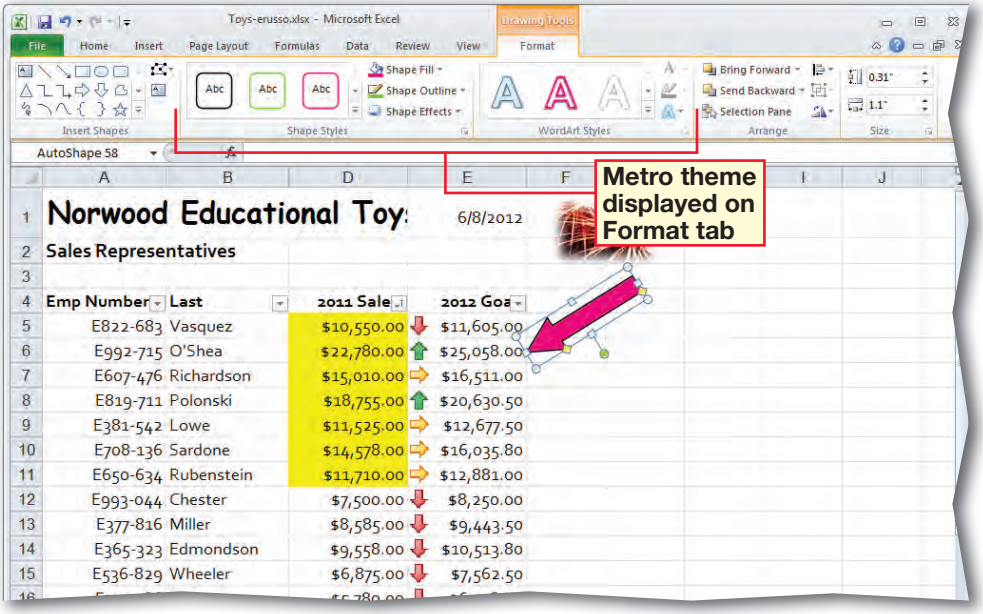


FIGURE 3.26 Metro theme applied to Sales data worksheet



Emp Number	Last	2011 Sale	2012 Goa
E822-683	Vasquez	$10,550.00	$11,605.00
E992-715	O'Shea	$22,780.00	$25,058.00
E607-476	Richardson	$15,010.00	$16,511.00
E819-711	Polonski	$18,755.00	$20,630.50
E381-542	Lowe	$11,525.00	$12,677.50
E708-136	Sardone	$14,578.00	$16,035.80
E650-634	Rubenstein	$11,710.00	$12,881.00
E993-044	Chester	$7,500.00	$8,250.00
E377-816	Miller	$8,585.00	$9,443.50
E365-323	Edmondson	$9,558.00	$10,513.80
E536-829	Wheeler	$6,875.00	$7,562.50

Microsoft Office 2010

You can also use and customize a sparkline, or tiny chart, to show data trends within the background of a single cell. Sparklines allow you to see data trends at a glance alongside data.

Step-By-Step

EXERCISE 3-9 (Continued)
Apply Themes to Worksheets

7. Click the **Chart1** sheet tab. Choose **Page Layout>Themes** and click **Theme Colors**.

8. Select **Create New Theme Colors**. Under **Theme colors**, click the **Accent 1** button and change it to **Blue** under **Standard Colors**.

9. Click the **Accent 2** button and change it to **Green, Accent 1**. In the **Name** box, key: Sales Data. Click **Save**. Click **Theme Colors**.

10. CHECK Your screen should look like Figure 3.27.

11. In the **Themes** group, click **Theme Fonts**. Select **Create New Theme Fonts**.

12. Click the **Body font** drop-down arrow. Select **Arial**. In the **Name** box, key: Sales Data. Click **Save**.

13. CHECK Your screen should look like Figure 3.28.

14. Click **Themes**. Select **Save Current Theme**. In **File name** box, key: Sales Data. Click **Save**. Click **Themes**. Note the **Sales Data** theme in the thumbnails. Save and close your file.

Continue to the next exercise.

FIGURE 3.27 Chart1 formatted with Sales Data theme

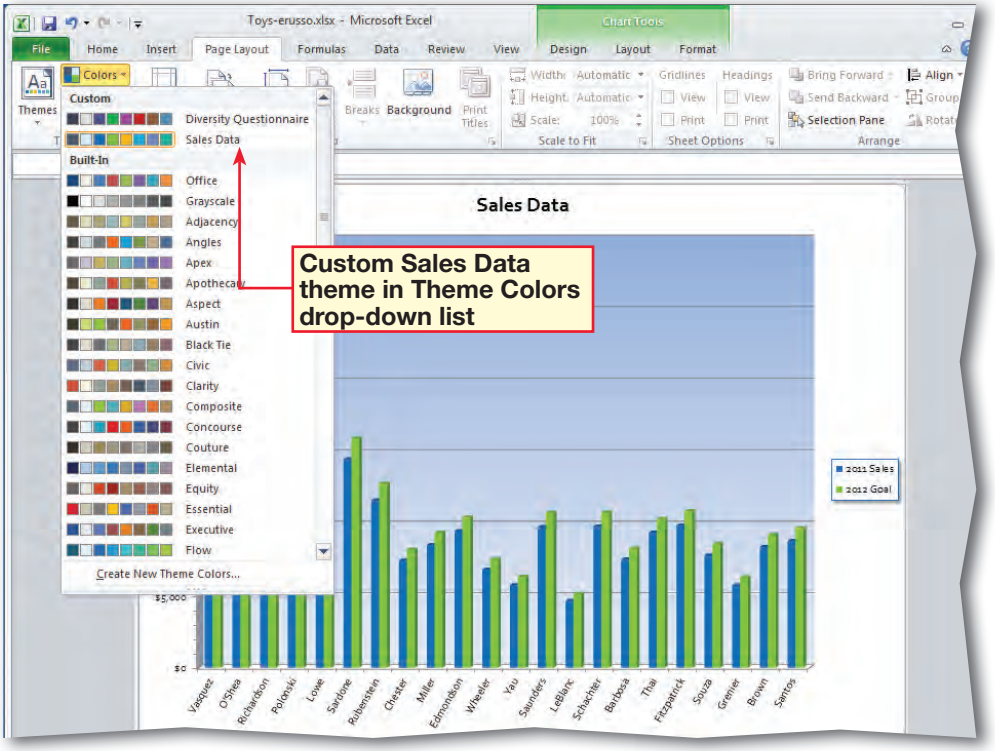
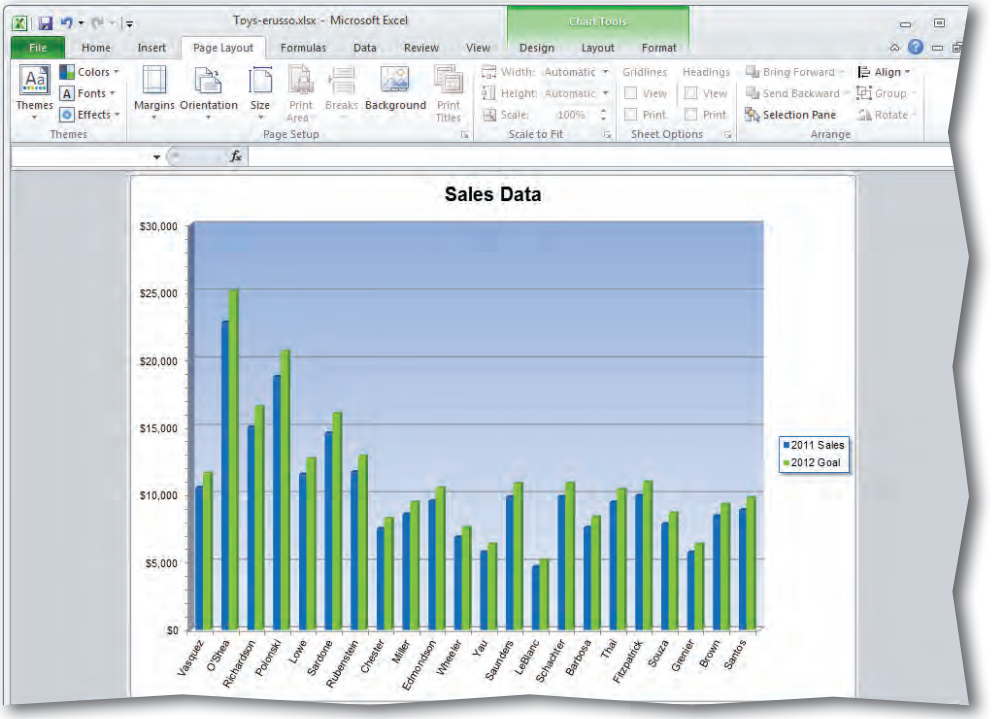


FIGURE 3.28 Formatted Sales Data chart



Step-By-Step

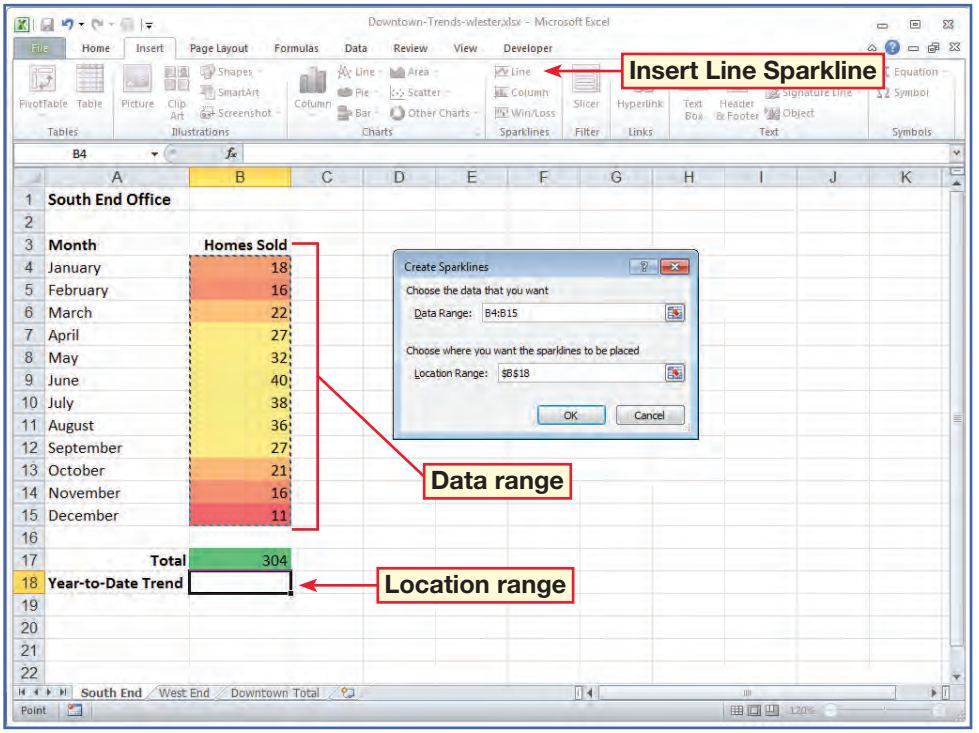
EXERCISE 3-10
Apply and Modify Sparklines

To make analyzing data easier, you can use Microsoft Office 2010's new sparkline feature to show data trends with just one click. A sparkline is a tiny chart that shows data trends within the background of a single cell. Excel 2010 includes three types of sparkline charts (Line, Column, or Win/Loss), which allow you to see trends, or patterns, at a glance. You can also use the Sparkline Tools to change a sparkline's type, show or hide data points, or format the axes. To apply specific formatting to a sparkline chart, choose the Sparkline Color or Marker Color commands.

1. Launch **Excel**.
2. Open the data file **Downtown.xlsx**. Click **Enable Editing**, if necessary. Save the file as: Downtown Trends-[your first initial and last name]. (For example, *Downtown Trends-wlester*.)
3. In the **South End** worksheet, click cell **A18**. Key: Year-to-Date Trend. Make the text bold. **AutoFit** column **A** so that you can see all of the text that you keyed into cell **A18**.
4. Click **B18**. Choose **Insert>Sparklines>Insert Line Sparkline**. The **Create Sparklines** dialog box opens.
5. Click in the **Data Range** box, select cells **B4:B15**. Your screen should look like Figure 3.29. Note that the **Location Range** is **B18**. This means that your sparkline will be added to cell **B18**.
6. Click **OK**. A line chart is added to cell **B18**. Note that the **Sparkline Tools** and **Design** tab are now available.

Continued on the next page.

FIGURE 3.29 Data Range entered into Create Sparklines dialog box



Step-By-Step

7. Choose **Design> Style>More** . In the last row of the drop-down menu, select **Sparkline Style Colorful #4**.

8. Choose **Design>Show** and check the **High Point** and **Low Point** check boxes. To show all values in the range, select the **Markers** check box.

9. CHECK Your screen should look like Figure 3.30

10. Choose **Design>Type> Insert Column** .

11. Click the **Downtown Total** worksheet tab. Click cell **C7**. Key: -2500. Press ENTER.

12. Click cell **F7**. Choose **Insert>Sparklines>Insert Win/Loss Sparkline** .

13. Select the data range **B7:E7**. Click **OK**.

14. CHECK Your screen should look similar to Figure 3.31.

15. Note the negative point displayed in the **Win/Loss Sparkline** chart. Save and close your file.

EXERCISE 3-10 (Continued)
Apply and Modify Sparklines

FIGURE 3.30 Sparkline formatted to show high and low data markers

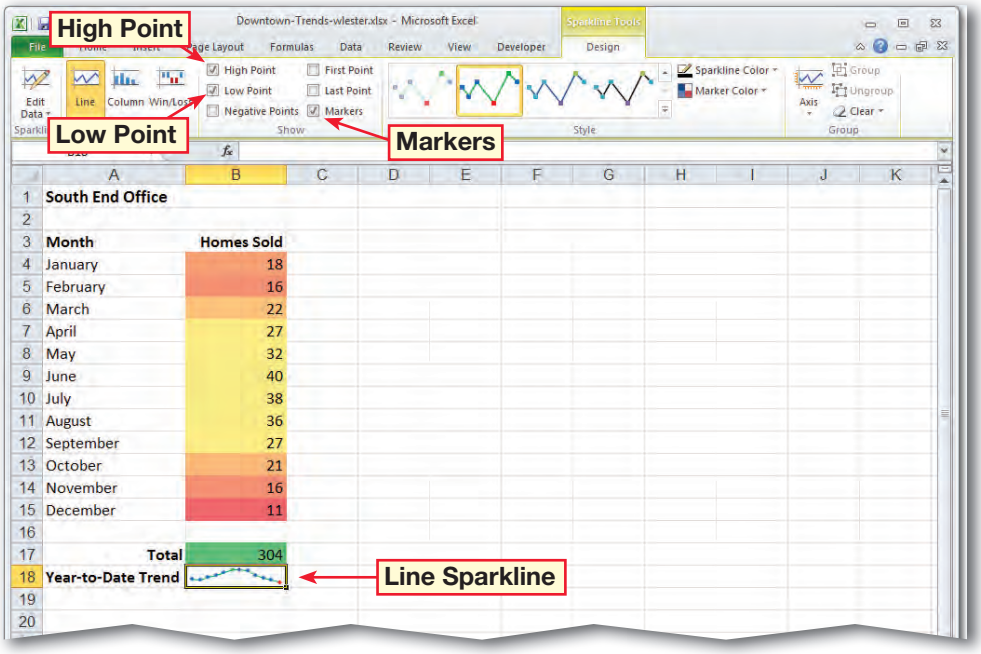
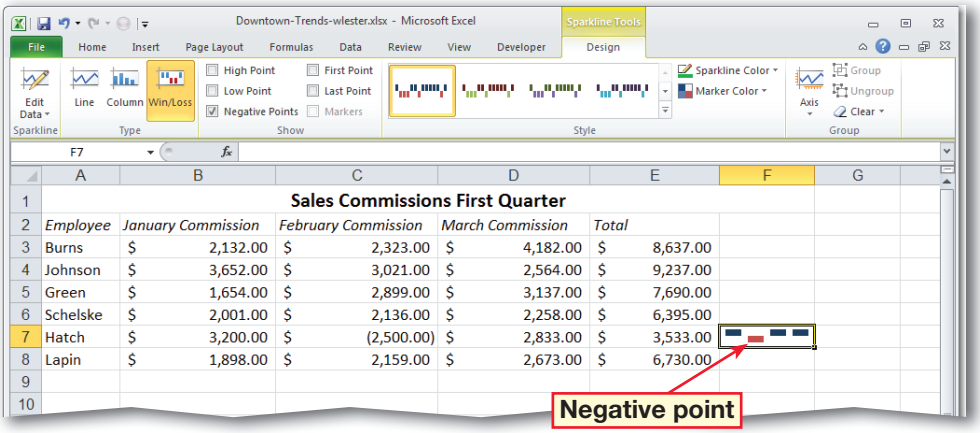


FIGURE 3.31 Win/Loss Sparkline chart



You Should Know

You can enter text in a cell and use a sparkline as its background.

Tech Tip

To customize a sparkline, apply a predefined style; add high and low points, first and last points, or points for negative values; or modify the scaling and visibility of the axis.

Writing MATTERS

How to Read a Technical Document

You have probably seen booklets explaining how something works or how to operate something, such as a digital camera. Manuals such as these are types of technical documents.

What is a Technical Document?

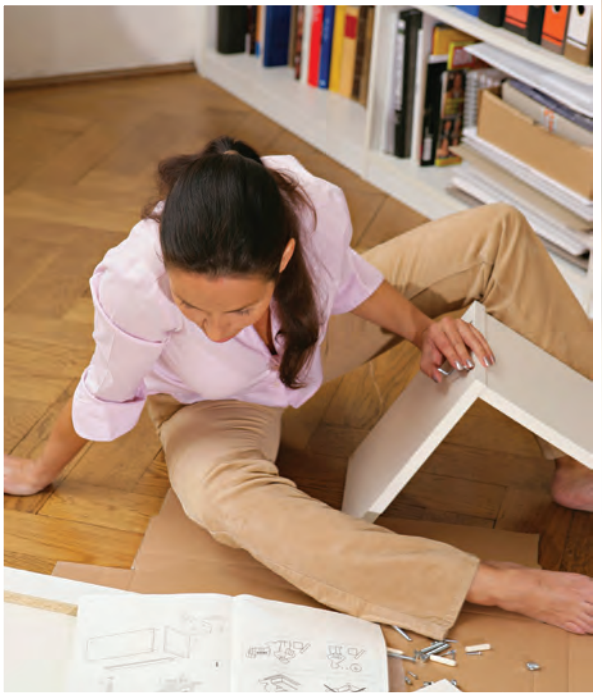
Technical documents provide step-by-step instruction on how to complete specific tasks. They often include diagrams, numbered or bulleted lists, and headings. The text and illustrations work together to show the reader how to perform the steps being described.

Reading a Technical Document

You often need to read and understand technical documents in order to learn new processes or how to use new equipment. In fact, the lessons in this textbook are written to provide you with technical knowledge. Think of a technical manual that you read recently. Ask yourself the following questions about the manual:

- What was I trying to learn how to do?
- How did the figures or graphics help me understand the process?
- How did the headings or organization of the text add to my understanding?
- Did the manual include step-by-step instructions, or numbered or bulleted lists? How were these helpful?

Knowing how to read technical documents is the first step toward gaining technical knowledge.



Learning to read and understand technical documents can help you in everyday life skills, such as putting together furniture.

SKILLBUILDER

1. **List** What are some of the features of a technical document?
2. **Compare** Think about two sets of instructions you have read recently. Which document was clearer? Why?
3. **Assess** Find and evaluate a technical document. (For example, a page in a manual, the instructions for an appliance you own, etc.) In what ways do you think the document can be improved?

LESSON 3 After You Read

Vocabulary

Key Terms

brightness
color scale
conditional formatting
Conditional Formatting Rules Manager
contrast
custom number format
data bar
icon set
legend
rotate
scale
sizing handle

Academic Vocabulary

conflict
trend
utilize

Review Vocabulary

Complete the following statements on a separate piece of paper. Choose from the Vocabulary list on the left to complete the statements.

1. Applying conditional formatting can help you see a(n) _____ in the numbers on a spreadsheet. (p. 170)
2. _____ a graphic to change the size to a certain percent of its original size. (p. 176)
3. _____ applies only to cells that meet certain conditions. (p. 170)
4. The difference between lighter and darker areas of a graphic is called _____. (p. 174)
5. To turn a graphic clockwise, _____ it. (p. 177)

Vocabulary Activity

6. Use the skills that you learned in this lesson to help you remember the vocabulary. Write the following terms on small pieces of paper: *brightness*, *contrast*, *sizing handle*, and *scale*. Then:
   A. In a new workbook, take and insert a screenshot.
   B. Look at the pieces of paper one at a time. Modify the screenshot graphic related to the term. If you do not remember what the term means, refer to the definitions in this lesson. Then, make the change to the screenshot.

Review Key Concepts

Answer the following questions on a separate piece of paper.

7. Which custom format would display a value of 7987 as 7,987? (p. 169)
   A. 0,000
   B. *,***
   C. #,###
   D. @,@@@

8. The Corrections button is found in which Picture Tools group? (p. 174)
   A. Arrange
   B. Picture Styles
   C. Adjust
   D. Styles

9. What part of a chart gives information about what the different colors and patterns represent? (p. 178)
   A. brightness
   B. legend
   C. contrast
   D. color scale

10. How can you format most parts of a chart? (p. 178)
    A. Choose **Chart Tools>Layout**.
    B. Choose **Format>Chart**.
    C. Click the part of the chart that you want to change.
    D. Double-click the part of the chart that you want to change.

LESSON 3 Practice It Activities

Step-By-Step

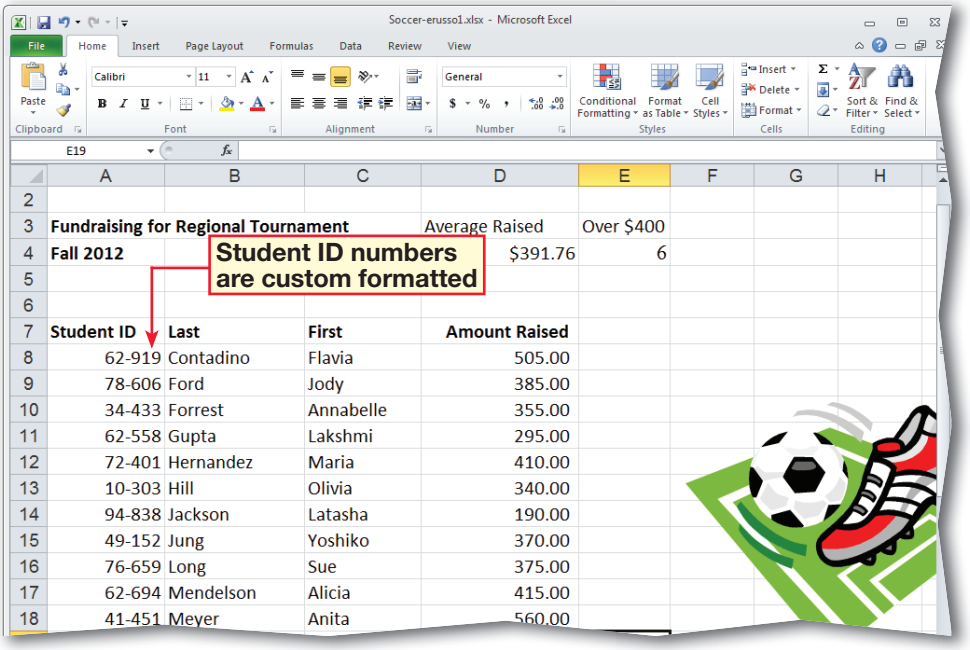
1. Open the **Soccer.xlsx** data file. Save as: Soccer-[your first initial and last name]1.
2. Select **A8:A27**.
3. On the **Home** tab, click the dialog box launcher for the **Number** group. The **Format Cells** dialog box opens.
4. In the **Category** list, choose **Custom**. Double-click in the **Type** box. Key: ##-###.
5. Click **OK**. Deselect the range.
6. CHECK Your screen should look like Figure 3.32.
7. Click cell **A27**. Press DELETE. Key: 68142. Press ENTER.
8. CHECK Your screen should look like Figure 3.33.
9. Save and close your file.

1. Create a Custom Number Format

DATA FILE

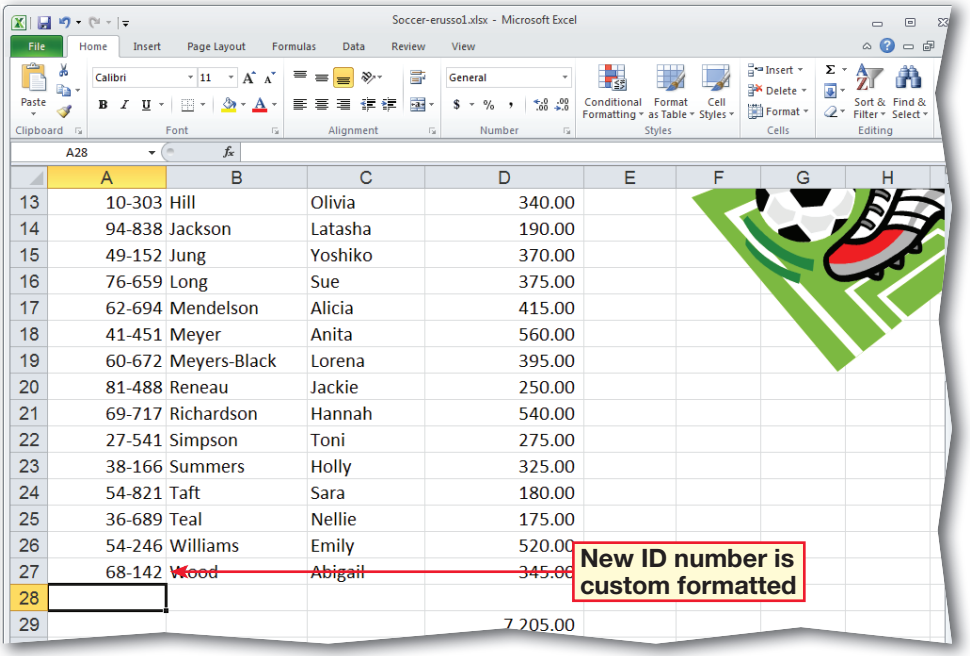
Follow the steps to complete the activity.

FIGURE 3.32 Numbers formatted using custom format



	A	B	C	D	E
3	Fundraising for Regional Tournament			Average Raised	Over $400
4	Fall 2012			$391.76	6
7	Student ID	Last	First	Amount Raised	
8	62-919	Contadino	Flavia	505.00	
9	78-606	Ford	Jody	385.00	
10	34-433	Forrest	Annabelle	355.00	
11	62-558	Gupta	Lakshmi	295.00	
12	72-401	Hernandez	Maria	410.00	
13	10-303	Hill	Olivia	340.00	
14	94-838	Jackson	Latasha	190.00	
15	49-152	Jung	Yoshiko	370.00	
16	76-659	Long	Sue	375.00	
17	62-694	Mendelson	Alicia	415.00	
18	41-451	Meyer	Anita	560.00	

FIGURE 3.33 New number formatted using custom format



	A	B	C	D
13	10-303	Hill	Olivia	340.00
14	94-838	Jackson	Latasha	190.00
15	49-152	Jung	Yoshiko	370.00
16	76-659	Long	Sue	375.00
17	62-694	Mendelson	Alicia	415.00
18	41-451	Meyer	Anita	560.00
19	60-672	Meyers-Black	Lorena	395.00
20	81-488	Reneau	Jackie	250.00
21	69-717	Richardson	Hannah	540.00
22	27-541	Simpson	Toni	275.00
23	38-166	Summers	Holly	325.00
24	54-821	Taft	Sara	180.00
25	36-689	Teal	Nellie	175.00
26	54-246	Williams	Emily	520.00
27	68-142	Wood	Abigail	345.00
28				
29				7,205.00

LESSON 3 Practice It Activities

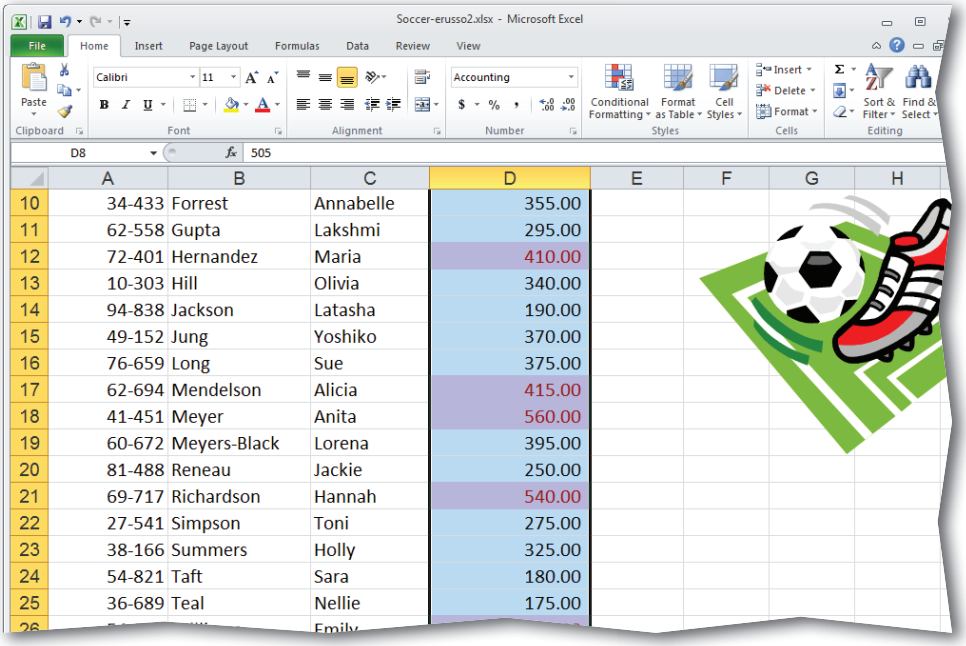
2. Use Conditional Formatting

Follow the steps to complete the activity. You must complete Practice It Activity 1 before doing this activity.

Step-By-Step

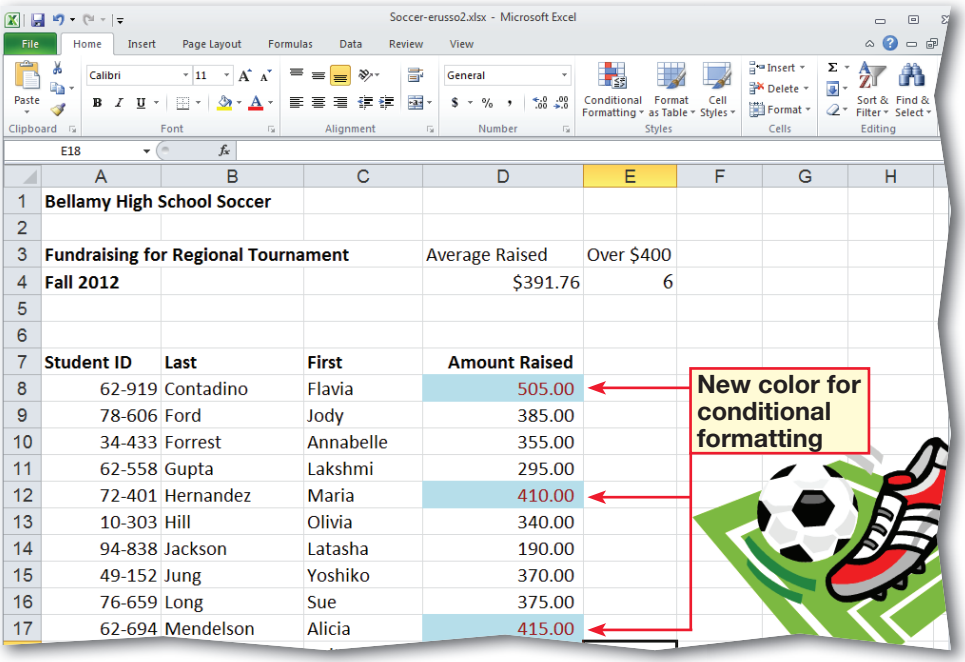
1. Open your **Soccer-1** file. Save as: Soccer-[your first initial and last name]2.
2. Select **D8:D27**. Choose **Home>Styles> Conditional Formatting**. Select **Highlight Cells Rules** and click **Greater Than**.
3. In the **Format cells that are GREATER THAN** box, key: 400. Click **OK**.
4. CHECK Your screen should look like Figure 3.34.
5. Press ALT + O / D to open the **Conditional Formatting Rules Manager**.
6. Click **Edit Rule**, and then click **Format**. Click the **Fill** tab and select a light blue color. Click **OK** twice.
7. Click **Apply**. Close the **Conditional Formatting Rules Manager**. Deselect the range.
8. CHECK Your screen should look like Figure 3.35.
9. Save and close your file.

FIGURE 3.34 Conditional formatting



	A	B	C	D
10	34-433	Forrest	Annabelle	355.00
11	62-558	Gupta	Lakshmi	295.00
12	72-401	Hernandez	Maria	410.00
13	10-303	Hill	Olivia	340.00
14	94-838	Jackson	Latasha	190.00
15	49-152	Jung	Yoshiko	370.00
16	76-659	Long	Sue	375.00
17	62-694	Mendelson	Alicia	415.00
18	41-451	Meyer	Anita	560.00
19	60-672	Meyers-Black	Lorena	395.00
20	81-488	Reneau	Jackie	250.00
21	69-717	Richardson	Hannah	540.00
22	27-541	Simpson	Toni	275.00
23	38-166	Summers	Holly	325.00
24	54-821	Taft	Sara	180.00
25	36-689	Teal	Nellie	175.00

FIGURE 3.35 Edited rule for conditional formatting



	A	B	C	D	E
1	Bellamy High School Soccer				
2					
3	Fundraising for Regional Tournament			Average Raised	Over $400
4	Fall 2012			$391.76	6
5					
6					
7	Student ID	Last	First	Amount Raised	
8	62-919	Contadino	Flavia	505.00	
9	78-606	Ford	Jody	385.00	
10	34-433	Forrest	Annabelle	355.00	
11	62-558	Gupta	Lakshmi	295.00	
12	72-401	Hernandez	Maria	410.00	
13	10-303	Hill	Olivia	340.00	
14	94-838	Jackson	Latasha	190.00	
15	49-152	Jung	Yoshiko	370.00	
16	76-659	Long	Sue	375.00	
17	62-694	Mendelson	Alicia	415.00	

LESSON 3 Practice It Activities

3. Resize and Scale Graphics

Follow the steps to complete the activity. You must complete Practice It Activity 2 before doing this activity.

Step-By-Step

1. Open your **Soccer-2** file. Save as: Soccer-[your first initial and last name]3.
2. Scroll to the right and double-click the graphic. Click the dialog box launcher for the **Size** group. The **Format Picture** dialog box opens. With **Size** selected, under **Scale**, double-click the number in the **Height** box. Key 25. Press TAB.
3. CHECK Your dialog box should look like Figure 3.36. Click **Close**.
4. Click the graphic, point to the lower-right corner sizing handle. Drag the handle to approximately the middle of cell **G14**. Release the mouse button.
5. Drag the graphic to cells **B4:B6**. Use the sizing handles to resize the graphic so it fits within **B4:B6**. Deselect the graphic.
6. CHECK Your screen should look like Figure 3.37.
7. Save and close your file.

FIGURE 3.36 Format Picture dialog box

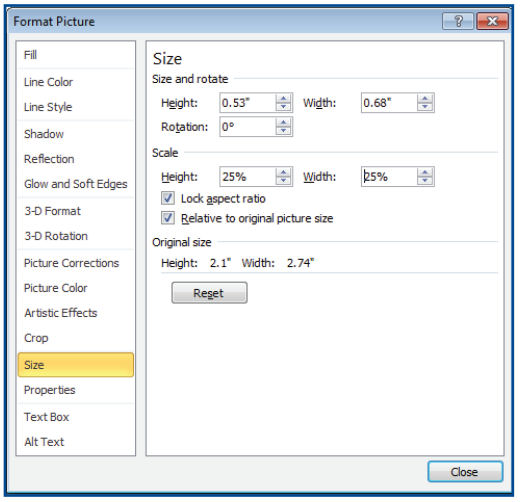
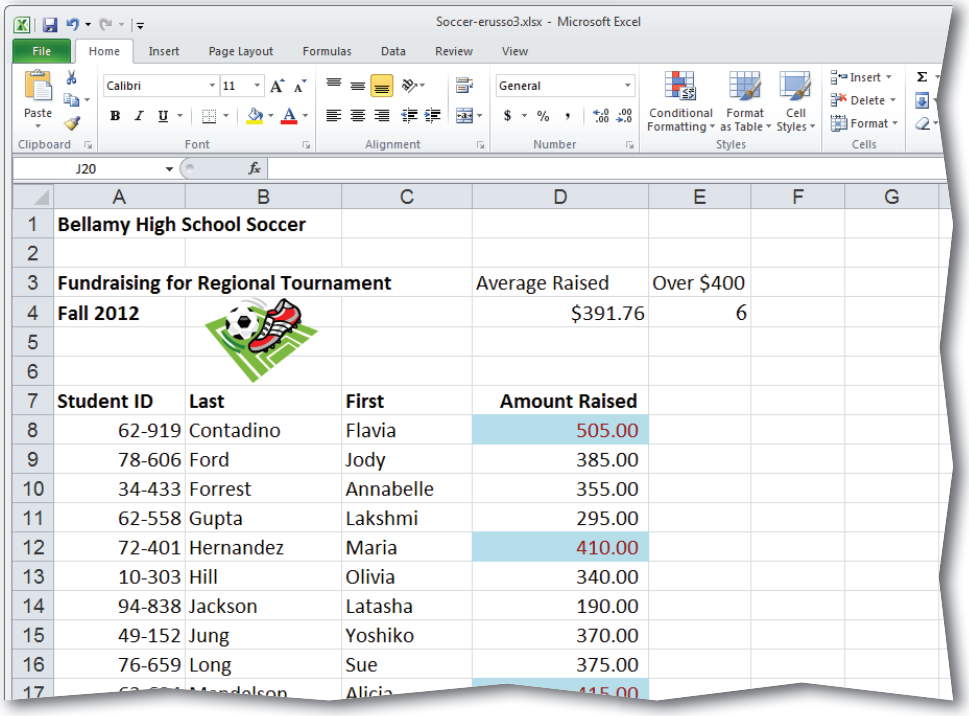


FIGURE 3.37 Resized graphic



LESSON 3 You Try It Activities

Step-By-Step

1. Open the data file **Party.xlsx**. Save as: Party-[your first initial and last name]4.
2. Select **A6:B18**. Choose **Insert>Charts> Column** .
3. Under **3-D Column**, select **3-D Clustered Column**.
4. CHECK Your screen should look like Figure 3.38.
5. Format the numbers on the *y* axis to include dollar signs and zero decimal places.
6. Include **Cross** minor tick marks on the *x* axis.
7. Change the text alignment on the *x* axis to a **-60°** custom angle.
8. Delete the legend on the right side of the graphic. Add a gradient fill to the chart wall.
9. CHECK Your screen should look like Figure 3.39.
10. Save and close the file.

4. Format a Chart

DATA FILE

Over the last year, your soccer team has raised money for an end-of-the-year team party. You charted the amount of money raised over the year. Now you want to format the chart to make it easier to read.

FIGURE 3.38 Unformatted chart

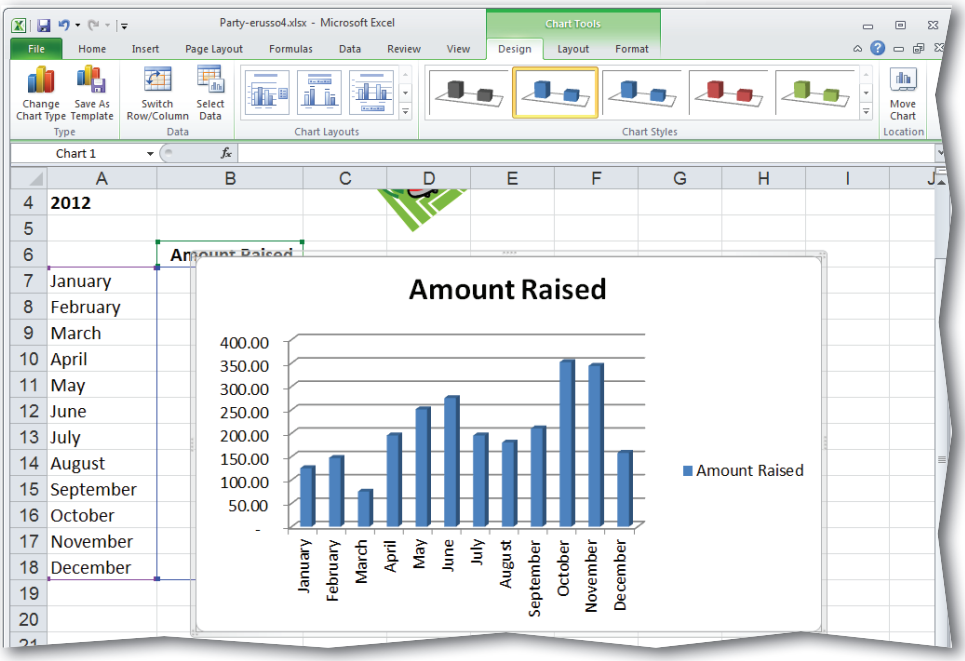
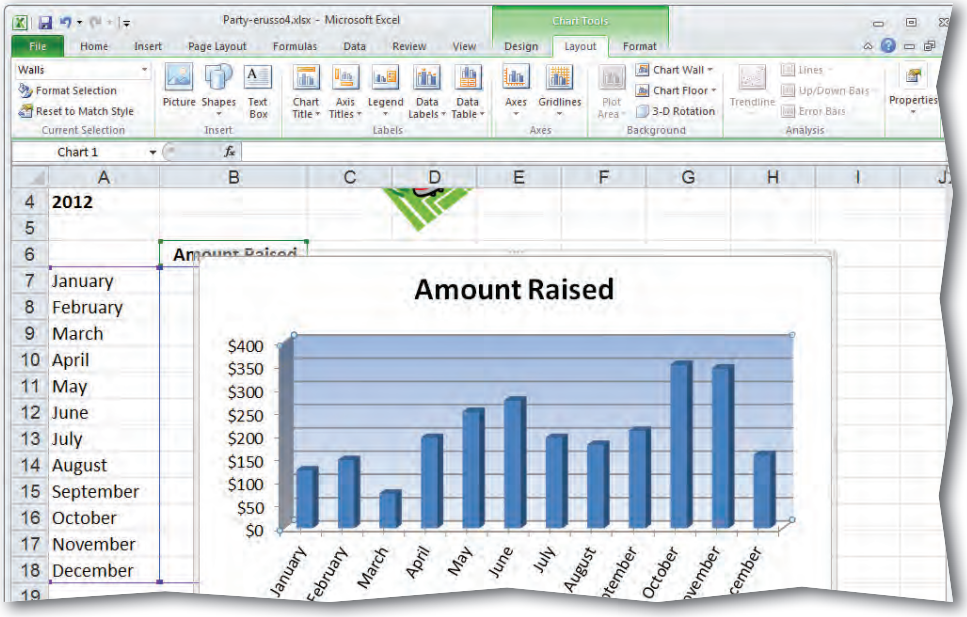


FIGURE 3.39 Formatted chart



LESSON 3 You Try It Activities

Step-By-Step

1. Open the data file **Drama.xlsx**. Save as: Drama-[your first initial and last name]5.
2. Increase the contrast of the graphic.
3. Decrease the brightness of the graphic.
4. Scale the graphic to **50%** of its original size.
5. CHECK Your screen should look like Figure 3.40. Deselect the graphic.
6. Move the graphic to the upper-left corner of the worksheet.
7. Rotate the graphic so that it is flipped horizontally. Deselect the graphic.
8. CHECK Your screen should look like Figure 3.41.
9. Save and close your file.

5. Customize a Graphic

DATA FILE

The drama club at your school is preparing for the upcoming school play. You have volunteered to create a spreadsheet for the play's budget. First, you will modify the club's old graphic so that it will be ready to use.

FIGURE 3.40 Graphic resized to 50 percent of its original size

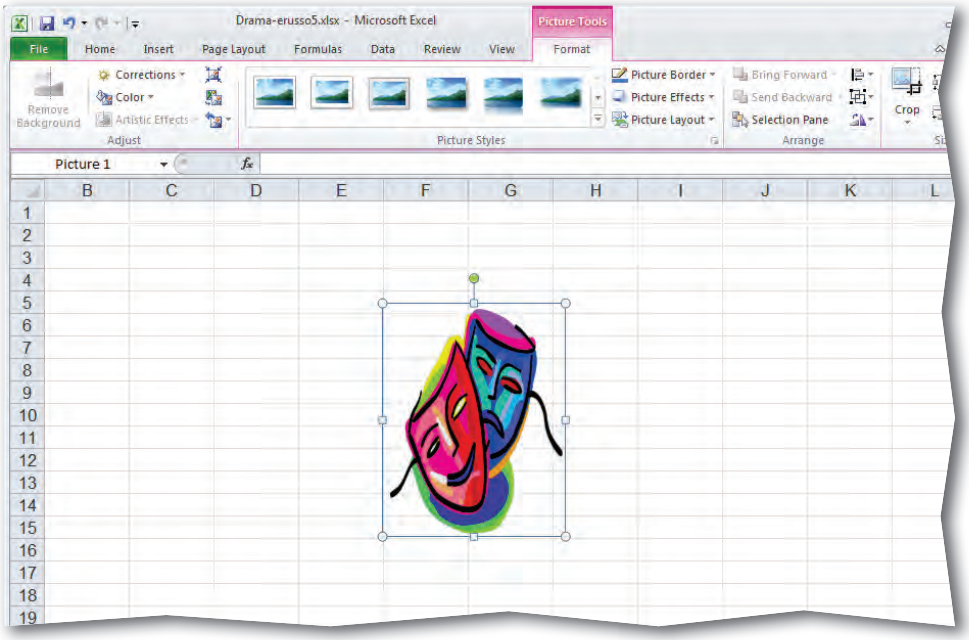
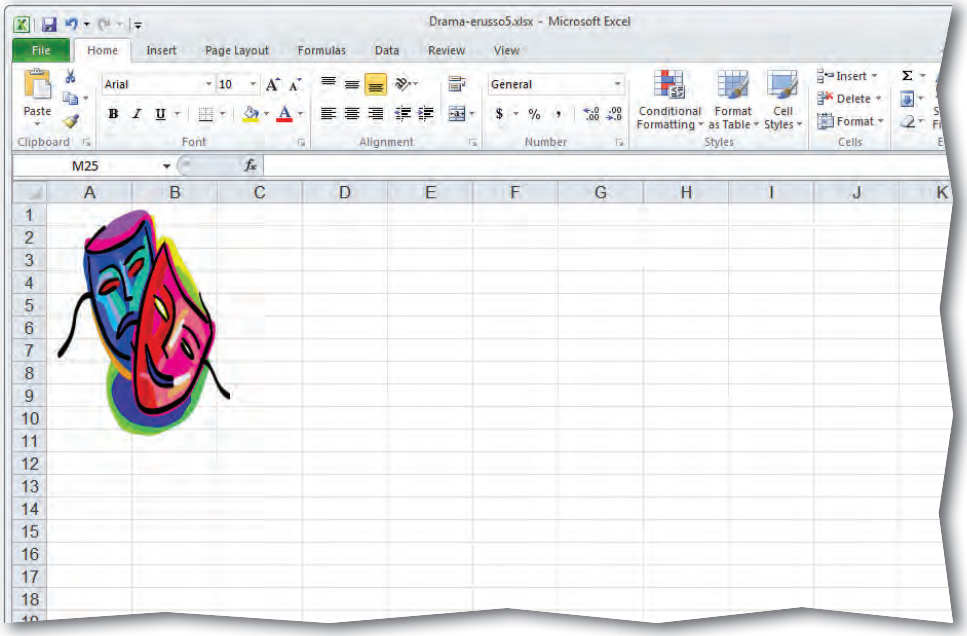


FIGURE 3.41 Rotated graphic



LESSON 3 Critical Thinking Activities

6. Beyond the Classroom Activity

Language Arts: Use Conditional Formatting You work at a video store. You use Excel to keep track of different kinds of information such as video and DVD rentals, new releases, customer information, and so on.

In a Word document, key a paragraph describing three ways that you could use conditional formatting in your workbooks. For example, you could highlight the most recent new releases or track trends in DVD rentals.

Save your document as: adv-e2rev-[your first initial and last name]6.docx.

7. Standards at Work Activity

Microsoft Office Specialist Correlation

Excel 3.1 *Apply and modify cell contents.*

Create a Custom Format You keep important contact information for your business in an Excel sheet. You need to create a custom format so you can display the telephone numbers correctly.

- Open the data file **Contacts.xlsx**.
- Create a custom format for the telephone numbers column. Use the format ###-###-#### (no parentheses).
- Modify the format to add a **1-** before each phone number.

In the **Contacts.xlsx** file, add five new phone numbers. Check to see that the **1-** appears before each number. If it does not, make changes to the custom format and use the Format Painter to apply the new format.

Save your file as: Contacts-[your first initial and last name]7.xlsx.

8. 21st Century Skills Activity

Choose the Right Tool It is important to understand how Excel tools work so that you can choose the right one when you have a job to do. For example, there is more than one way that you can demonstrate progress in a particular area. You could choose to format the data or you could use a chart or sparkline to show the details. Open the data file **Quizzes.xlsx**.

- Use **conditional formatting** to identify each grade that is below 80.
- Use **Blue Data Bars** to represent the value in each cell.
- Add and format a **chart** or **sparkline** that best reflects your progress.

Add five new quiz results to the workbook. Be sure that at least two of them are below 80. Include them in your chart. Then, configure the column titles to print only on odd pages. Save your file as: Quizzes-[your first initial and last name]8.xlsx.

LESSON 3 Challenge Yourself Projects

Before You Begin

Customize Formatting
You can use formatting to make it is easier to complete tasks and evaluate data. These projects teach you how to format data so that you can identify and prioritize tasks that are essential to running a business.

Reflect Once you complete the projects, open a Word document and answer the following questions:

1. How can conditional formatting help you determine what tasks need to be performed?
2. How can a chart help you prioritize tasks?

9. Identify Accounts

Math: Apply Conditional Formatting You work for a wholesale party supply store. Open the data file **Due.xlsx**. This workbook lists the names of customers, how much they have paid, and how much they still owe. You need to identify which accounts are past due. You also need to highlight accounts that owe more than $500.

- Use conditional formatting to format past-due amounts.
- Apply light red fill with dark red text to accounts that owe more than $500.
- Apply yellow fill with dark yellow text to the past due amounts that are between $250 and $499.

Save your workbook as: Due-[your first initial and last name]9.

10. Format Customer Numbers

Modify Customer Account Numbers Each customer of the wholesale party supply store has a customer number that begins with *C* (for example, C78162). You need to create a custom format to add *C* to the beginning of each customer number.

- Open your **Due-9** workbook.
- Create a custom format that adds the letter *C* to the beginning of each customer number.

Your boss asks you to add five new customers to the worksheet. Add five new customers and assign them new customer numbers.

Save your file as: Due-[your first initial and last name]10.xlsx.

11. Customize a Column Chart

Math: Format Parts of a Chart Your Due workbook contains a chart showing accounts that are past due. You need to finish formatting this chart. Your boss wants you to make changes to the *y* axis and reformat the chart's legend. Open your **Due-10** workbook. Click the **Chart** tab.

- Format the *y* axis as currency and add cross minor tick marks.
- Add a border and shadow effect to the legend.
- Label each axis and resize and scale the chart, as necessary.

Open a Word document and key a paragraph that describes how you could create sparklines to show data trends in this workbook.

Save your file as: Due-[your first initial and last name]11.xlsx.

image100/Age Fotostock

LESSON 4 Advanced Collaboration

In this lesson, you will learn skills to help you work collaboratively with Excel. You will discover how to protect cells and set passwords. You can also insert comments and track changes that have been made to a workbook. Excel offers helpful tools that allow you to share and combine versions of workbooks.

Key Concepts

- Add protection to cells and workbooks
- Set passwords
- Share workbooks
- Track, accept, and reject changes
- Merge workbook versions
- Use digital signatures

Standards

The following standards are covered in this lesson. Refer to pages xxiv and 715 for a description of the standards listed here.

ISTE Standards Correlation

NETS•S

1c, 2a, 2b, 2c, 6a, 6b

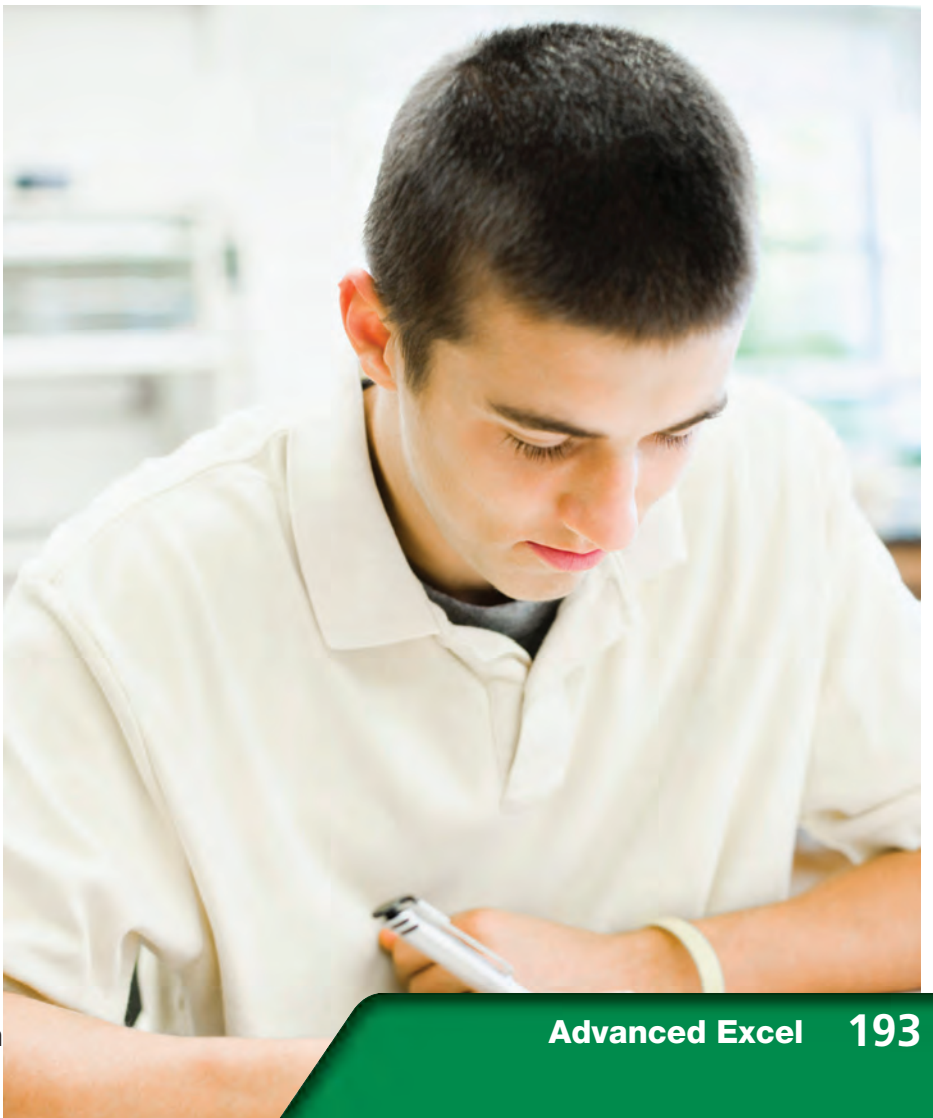
Microsoft Office Specialist

Excel

1.1, 1.2, 1.3, 4,1, 4.3, 7.1, 7.2

21st CENTURY SKILLS

Evaluate Your Progress Drivers look at road signs to measure their progress toward a destination. Your teachers measure your progress in part by keeping track of your grades. Think of a goal that you have. You might want to learn another language. You could evaluate your progress by writing in a notebook once a week. You might write a paragraph explaining what you learned that week, or list ten new words you learned. Evaluating your progress motivates you because it shows you how far you have come. *What is something you do that helps you keep track of your progress?*



Purestock/Getty Images

LESSON 4 Reading Guide

Before You Read

Practice on Your Own Stepping through exercises in a textbook is only the first step in learning a skill. After you have completed an exercise, note the key points you need to remember. Then, close the book and see if you can perform the steps again.

Read To Learn

- Discover the importance of protecting sensitive material in workbooks.
- Consider how to share a workbook so multiple users have access from their own computers.
- Explore how tracking changes in a worksheet improves workflow.
- Understand how to consolidate changes from various reviewers.

Main Idea

Excel has many features that allow you to collaborate with others while ensuring the safety of your data.

Vocabulary

Key Terms

case sensitive
comment
digital signature
lock
Mark as Final
merge
password
protect
share
Track Changes

Academic Vocabulary

These words appear in your reading and on your tests. Make sure you know their meanings.

alteration
distribute
reject
source

Quick Write Activity

Describe On a separate sheet of paper, describe why using Excel's features can help you keep your files protected and secure when collaborating with others on worksheets. Explain how you think Excel might have helped you manage the collaborative project.

Study Skills

Double-Check Your Work Review papers you prepare for school or work to ensure that all questions are answered and relevant. Double-checking your work is a big step toward improving your grades.

Academic Standards

Language Arts

NCTE 3 Apply strategies to interpret texts.

NCTE 5 Use different writing process elements to communicate effectively.

Math

NCTM (Number and Operations) Compute fluently and make reasonable estimates.

Step-By-Step

1. Start **Excel**.
2. Open the data file **Museum.xlsx**. Save as: Museum-[your first initial and last name]. (For example, *Museum-erusso*.)
3. Select **D5:F24**. Choose **Home>Cells>Format**. Under **Protection**, click **Format Cells**.
4. Click the **Protection** tab. Uncheck the **Locked** box.
5. CHECK Your dialog box should look like Figure 4.1.
6. Click **OK**. Cells **D5:F24** are now unlocked.
7. Deselect the range.
8. Click **Format**. Under **Protection**, click **Protect Sheet**.
9. CHECK Your dialog box should look like Figure 4.2.
10. In the **Protect Sheet** dialog box, click **OK**. The sheet is now protected.

Continued on the next page.

Microsoft Office 2010

To protect a workbook using **Backstage** view, choose **File>Info> Protect Workbook**.

EXERCISE 4-1
Add Protection to Cells, Worksheets, and Workbooks

To prevent users from inserting, deleting, and renaming worksheets, **protect** the workbook. When you protect a workbook or worksheets, you prevent others from making changes to it. Adding protection to a worksheet will **lock** all cells by default. A locked cell cannot be edited or deleted. You may also want to protect cells containing formulas so users do not inadvertently key values in those cells. To allow changes to some cells and not others, unlock the cells that can be changed. In Microsoft Excel 2010, you can protect workbooks using the ribbon or the Backstage view.

FIGURE 4.1 Format cells dialog box

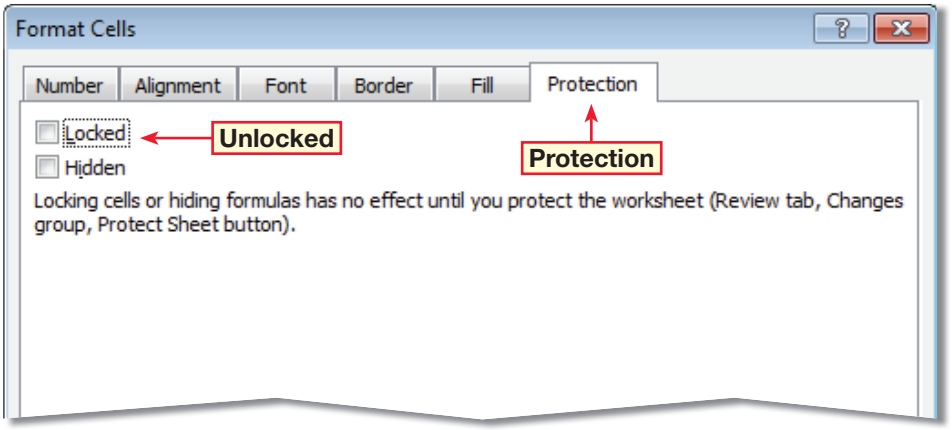
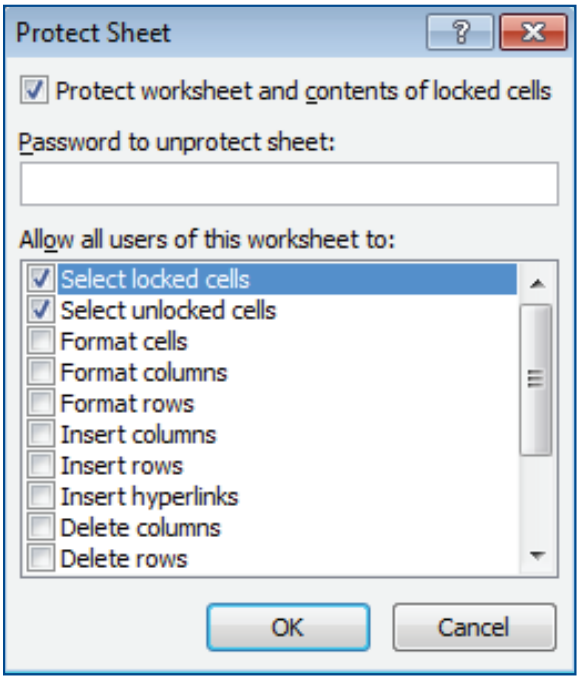


FIGURE 4.2 Protect Sheet dialog box



Step-By-Step

EXERCISE 4-1 (Continued)

Add Protection to Cells, Worksheets, and Workbooks

11 Click cell **A13**. Key: 3. An alert message opens indicating that this cell cannot be modified (see Figure 4.3). Click **OK**.

12 Click cell **F11**. Key: 7.6. Press ENTER. You can modify F11.

13 Choose **Review>Changes>Protect Workbook**. Check the **Structure** checkbox, if it is not already checked. In the dialog box, click **OK**. The workbook is now protected.

14 Click the **Sheet2** tab.

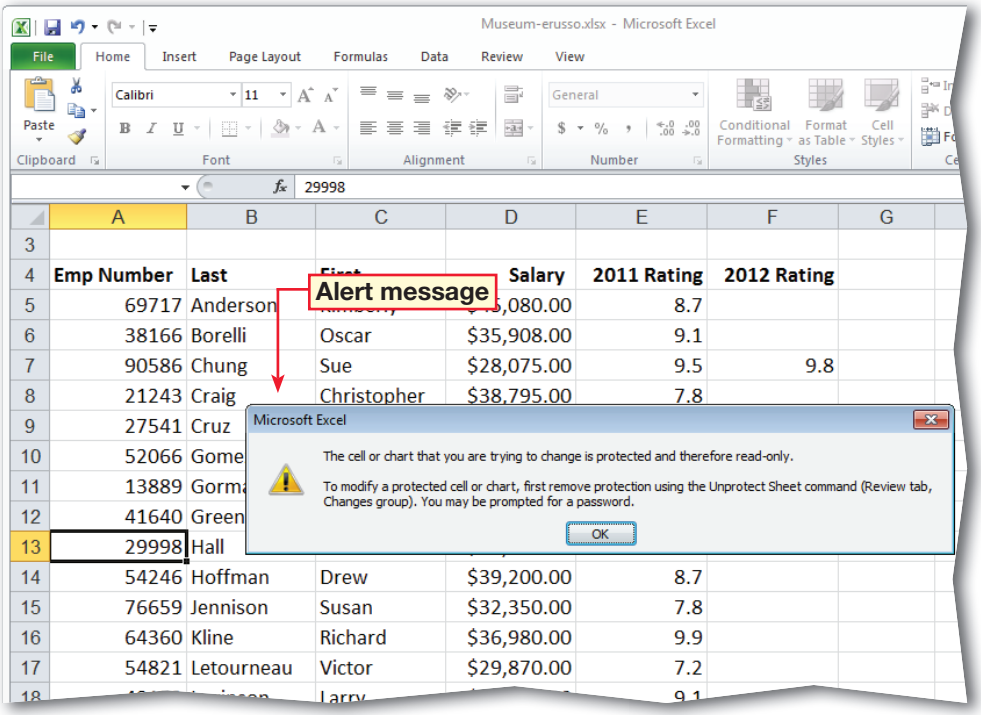
15 Right-click on the **Sheet2** tab. Notice that **Delete** is dimmed. It is not available because the workbook is protected.

16 Click the **Sheet1** tab.

17 CHECK Your screen should look like Figure 4.4. Save your file.

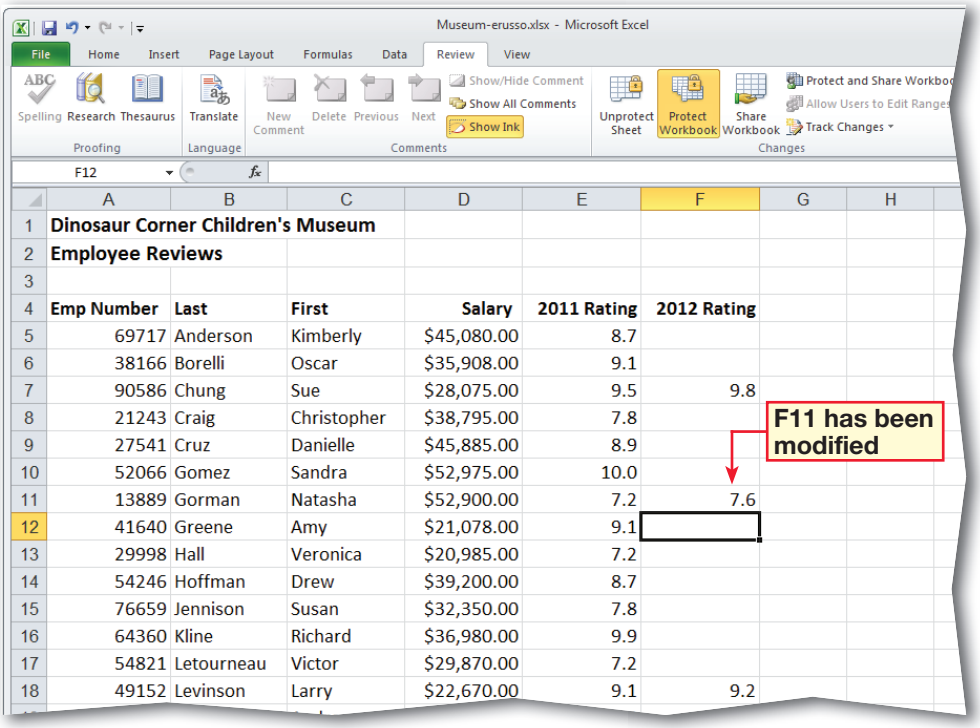
Continue to the next exercise.

FIGURE 4.3 Alert message



	A	B	C	D	E	F	G
3							
4	Emp Number	Last	First	Salary	2011 Rating	2012 Rating	
5	69717	Anderson		$45,080.00	8.7		
6	38166	Borelli	Oscar	$35,908.00	9.1		
7	90586	Chung	Sue	$28,075.00	9.5	9.8	
8	21243	Craig	Christopher	$38,795.00	7.8		
9	27541	Cruz					
10	52066	Gome					
11	13889	Gorma					
12	41640	Green					
13	29998	Hall					
14	54246	Hoffman	Drew	$39,200.00	8.7		
15	76659	Jennison	Susan	$32,350.00	7.8		
16	64360	Kline	Richard	$36,980.00	9.9		
17	54821	Letourneau	Victor	$29,870.00	7.2		

FIGURE 4.4 Protected worksheet



	A	B	C	D	E	F	G	H
1	Dinosaur Corner Children's Museum							
2	Employee Reviews							
3								
4	Emp Number	Last	First	Salary	2011 Rating	2012 Rating		
5	69717	Anderson	Kimberly	$45,080.00	8.7			
6	38166	Borelli	Oscar	$35,908.00	9.1			
7	90586	Chung	Sue	$28,075.00	9.5	9.8		
8	21243	Craig	Christopher	$38,795.00	7.8			
9	27541	Cruz	Danielle	$45,885.00	8.9			
10	52066	Gomez	Sandra	$52,975.00	10.0			
11	13889	Gorman	Natasha	$52,900.00	7.2	7.6		
12	41640	Greene	Amy	$21,078.00	9.1			
13	29998	Hall	Veronica	$20,985.00	7.2			
14	54246	Hoffman	Drew	$39,200.00	8.7			
15	76659	Jennison	Susan	$32,350.00	7.8			
16	64360	Kline	Richard	$36,980.00	9.9			
17	54821	Letourneau	Victor	$29,870.00	7.2			
18	49152	Levinson	Larry	$22,670.00	9.1	9.2		

Troubleshooter

You can also save workbooks as PDF or XPS files before sharing them with other users so that they cannot be modified.

Step-By-Step

1. In your **Museum** file, choose **File>Save As**. In the **Save As** dialog box, click the **Tools** drop-down arrow. Click **General Options**.
2. In the **Password to open** box, key: Magic3.
3. CHECK Your dialog box should look like Figure 4.5.
4. Click **OK**. The **Confirm Password** dialog box opens. Key: Magic3. Click **OK**. Click **Save**, and then click **Yes**.
5. Save and close the file. Reopen your **Museum** file. The **Password** dialog box opens.
6. Key: Magic3. Click **OK**. The file opens.
7. CHECK Your screen should look like Figure 4.6. Save your file.

Continue to the next exercise.

Academic Skills

It can be determined mathematically how long it takes to crack various passwords. A password that uses a random set of characters is more difficult to decipher than one that is not random.

EXERCISE 4-2
Set a Password to Open a Workbook

Some files are confidential. For example, only the accounting and human resources departments are allowed to see employee salaries in a company. If a workbook contains sensitive material such as salaries or bank statements, you can set a **password** so no user can open the file without the password. Passwords are **case sensitive**, which means that if your password has uppercase, lowercase, or a combination of uppercase and lowercase letters, you must key it the same way every time. Remember, if you forget the password, you will be locked out, too. Record passwords in a secure location.

FIGURE 4.5 General Options dialog box

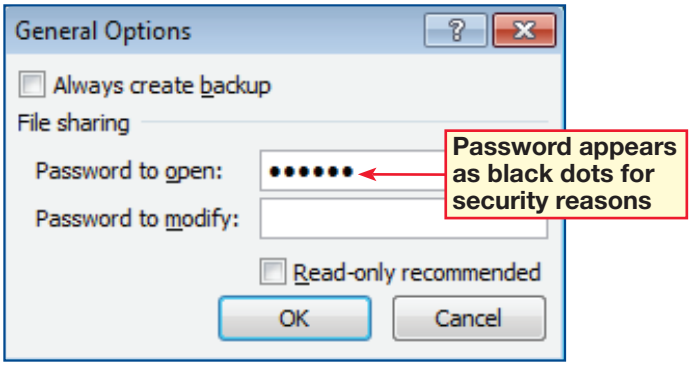
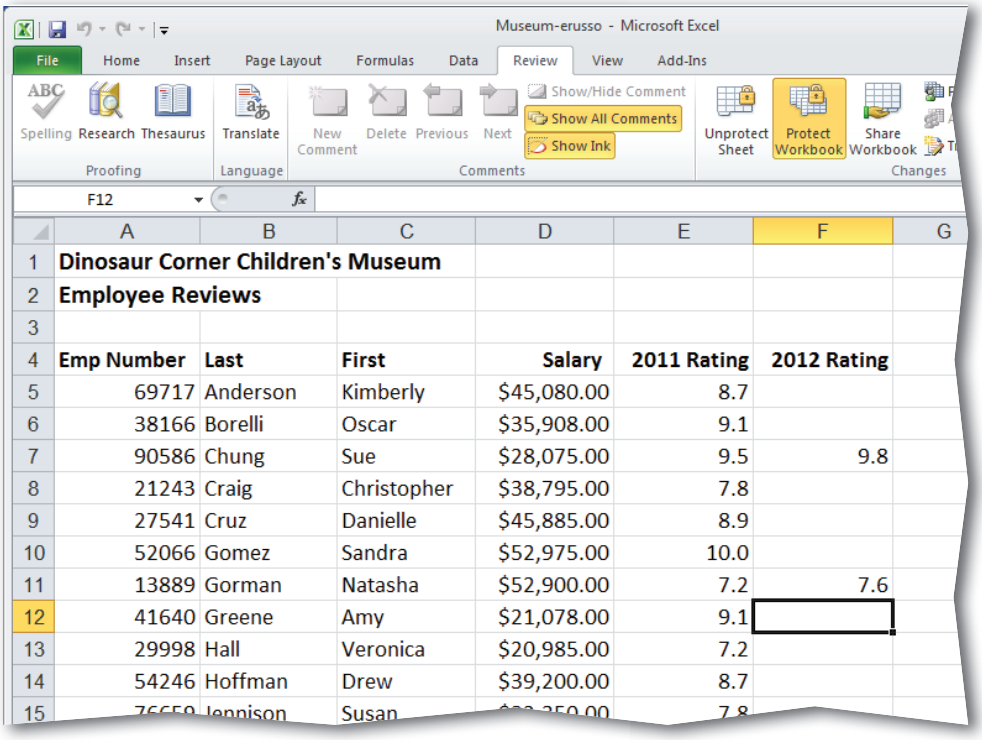


FIGURE 4.6 Reopened document



	A	B	C	D	E	F	G
1	Dinosaur Corner Children's Museum						
2	Employee Reviews						
3							
4	Emp Number	Last	First	Salary	2011 Rating	2012 Rating	
5	69717	Anderson	Kimberly	$45,080.00	8.7		
6	38166	Borelli	Oscar	$35,908.00	9.1		
7	90586	Chung	Sue	$28,075.00	9.5	9.8	
8	21243	Craig	Christopher	$38,795.00	7.8		
9	27541	Cruz	Danielle	$45,885.00	8.9		
10	52066	Gomez	Sandra	$52,975.00	10.0		
11	13889	Gorman	Natasha	$52,900.00	7.2	7.6	
12	41640	Greene	Amy	$21,078.00	9.1		
13	29998	Hall	Veronica	$20,985.00	7.2		
14	54246	Hoffman	Drew	$39,200.00	8.7		
15	76659	Jennison	Susan	$33,250.00	7.8		

Step-By-Step

1. In your **Museum** file, choose **File>Save As**.
2. In the **Save As** dialog box, click **Tools**. Click **General Options** (see Figure 4.7).
3. Double-click in the **Password to open** box. Select the dots and press DELETE.
4. In the **Password to modify** box, key: mystery7.
5. Click **OK**. In the **Confirm Password** dialog box, key: mystery7. Click **OK**.
6. Click **Save**, and then click **Yes**. Close the file.
7. Reopen your **Museum** file. The **Password** dialog box opens. Key: mystery7 in the **Password** dialog box. Click **OK**.
8. Click cell **F8**. Key: 8.5. Press ENTER. You are able to modify the file.
9. CHECK Your screen should look like Figure 4.8. Choose **Review> Changes>Unprotected Sheet**. Save your file.

Continue to the next exercise.

EXERCISE 4-3
Set a Password to Modify a Workbook

When sending spreadsheets via e-mail or the Windows Live SkyDrive, you might want to allow people to view some workbooks without being able to modify them. For example, you might want all employees to be able to open a workbook containing a list of holidays. However, you might not want employees to make an alteration, or change, to the list. You can set a password that allows only those who know the password to modify a workbook.

FIGURE 4.7 General Options dialog box

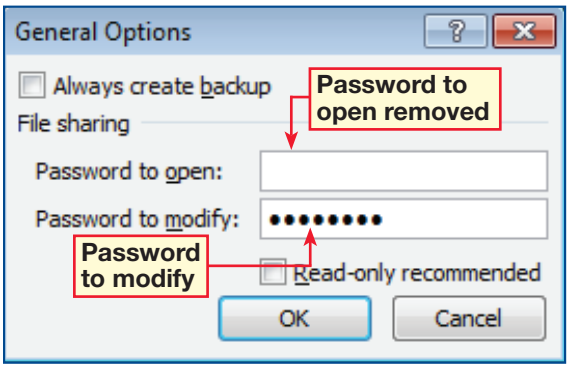
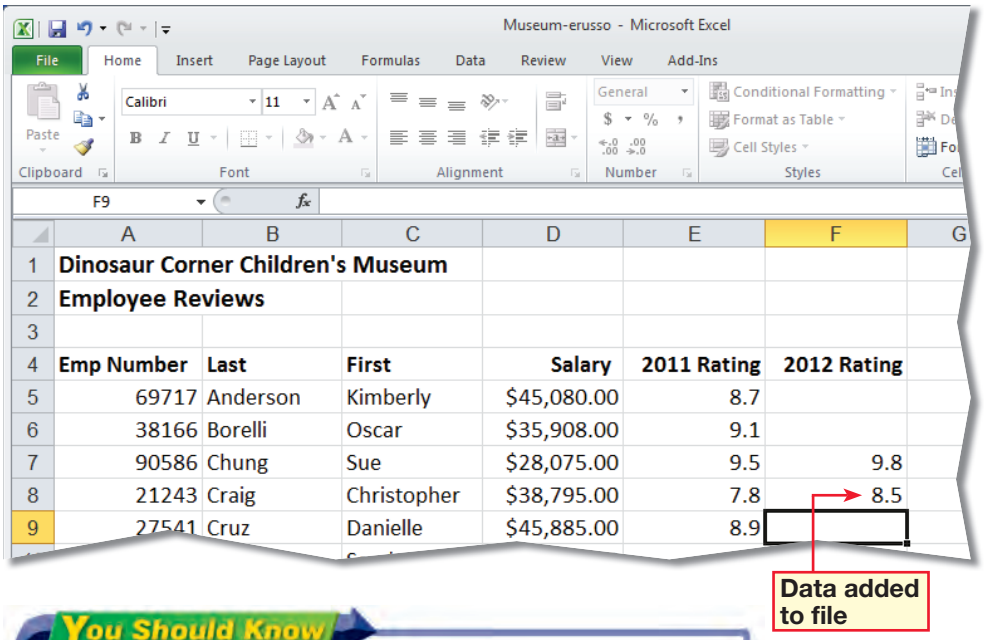


FIGURE 4.8 Modified worksheet



You Should Know

If you want to share a workbook with people who are using a different version of **Excel**, you can change the file type to a different version, or check the workbook for compatibility with earlier versions.

Step-By-Step

1. In your **Museum** file, choose **Review> Changes>Share Workbook**. The **Share Workbook** dialog box opens.
2. Check the **Allow changes by more than one user at the same time** box (see Figure 4.9). Click **OK**.
3. In the message that opens, click **OK**.
4. Start **Excel** again. Two copies of **Excel** are now running.
5. Open your **Museum** file in the second copy of **Excel**.
6. In the **Password** dialog box, key: mystery7. Click **OK**.
7. Save your **Museum** file as: Museum-copy-[your first initial and last name].
8. CHECK Your screen should look like Figure 4.10. Notice that two **Museum** files are now open (the original and the copy) and marked as **Shared**.
9. Save your files.

Continue to the next exercise.

EXERCISE 4-4
Create a Shared Workbook

In an office setting, many users may need to access and edit the same Excel workbook. For instance, a sales team may need to input and update their current sales in a master document. You can share the workbook so multiple users can have access to this file at the same time. Each person can add, edit, or delete information in the shared workbook from their own computer.

FIGURE 4.9 Share Workbook dialog box

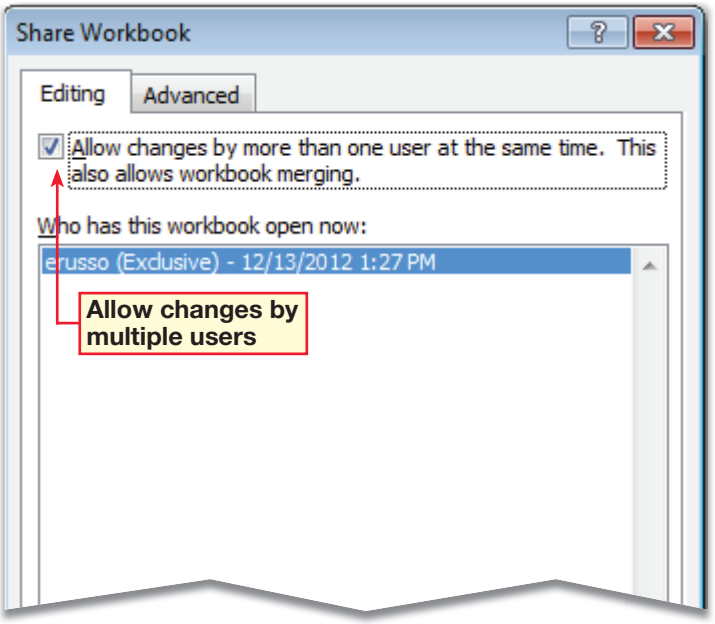
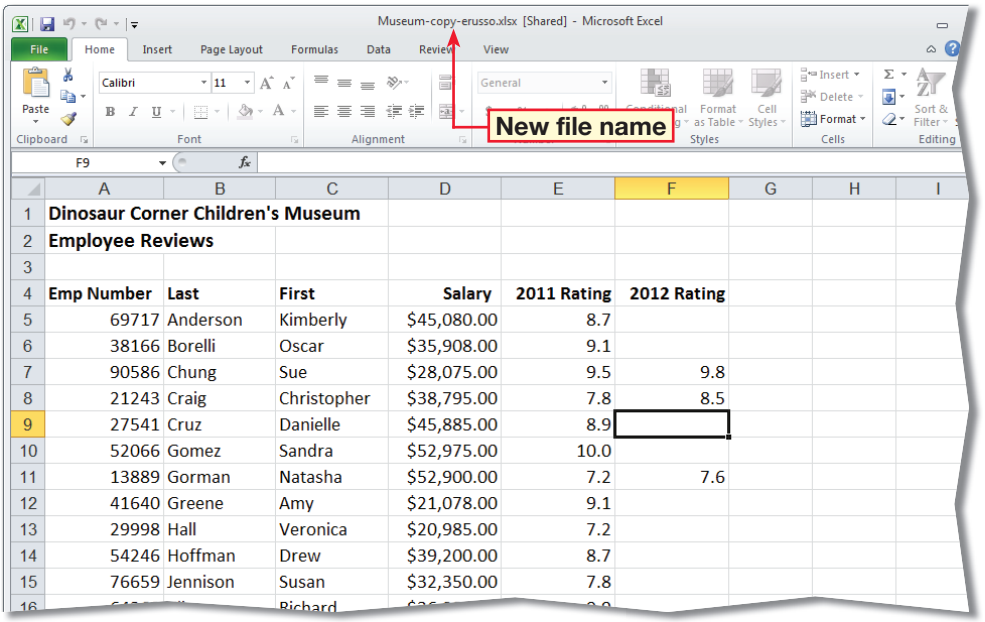


FIGURE 4.10 Shared workbook



	A	B	C	D	E	F	G	H	I
1	Dinosaur Corner Children's Museum								
2	Employee Reviews								
3									
4	Emp Number	Last	First	Salary	2011 Rating	2012 Rating			
5	69717	Anderson	Kimberly	$45,080.00	8.7				
6	38166	Borelli	Oscar	$35,908.00	9.1				
7	90586	Chung	Sue	$28,075.00	9.5	9.8			
8	21243	Craig	Christopher	$38,795.00	7.8	8.5			
9	27541	Cruz	Danielle	$45,885.00	8.9				
10	52066	Gomez	Sandra	$52,975.00	10.0				
11	13889	Gorman	Natasha	$52,900.00	7.2	7.6			
12	41640	Greene	Amy	$21,078.00	9.1				
13	29998	Hall	Veronica	$20,985.00	7.2				
14	54246	Hoffman	Drew	$39,200.00	8.7				
15	76659	Jennison	Susan	$32,350.00	7.8				
16			Richard						

Step-By-Step

EXERCISE 4-5
Use Track Changes

Use **Track Changes** to mark edits as you make them. Tracking changes allows other people to review the changes and comments that you have made. Tracking changes in Excel allows you to see the modifications that have been made to a worksheet, including formatting changes and inserted or deleted text, numbers, rows, and columns. Highlighted changes on-screen will exhibit a colored cell border with a small triangle inside the upper-left corner. When the pointer is positioned over a changed cell, a window appears containing the reviewer's name, date, and the cell modification.

1. In your **Museum-copy** file, choose **Review> Changes>Track Changes**. Click **Highlight Changes**.
2. In the **Highlight Changes** dialog box, make sure that the **Track changes while editing** box is checked. Uncheck **When**.
3. CHECK Your dialog box should look like Figure 4.11. Click **OK**.
4. A confirmation box opens. Click **OK**.
5. Click cell **D13**. Key: 22550. Press ENTER. Click cell **D17**. Key: 32600. Press ENTER. Click cell **F18**. Key: 9.5. Press ENTER.
6. CHECK Your screen should look like Figure 4.12.
7. Save your file

Continue to the next exercise.

FIGURE 4.11 Highlight Changes dialog box

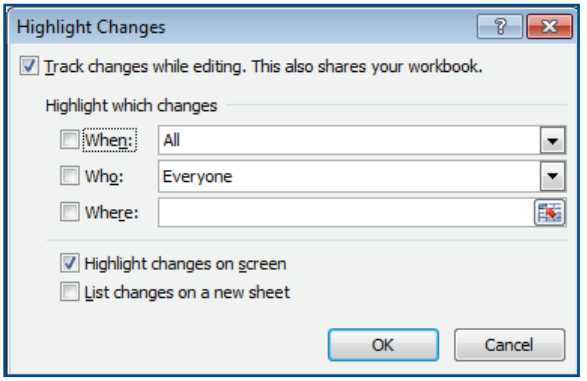
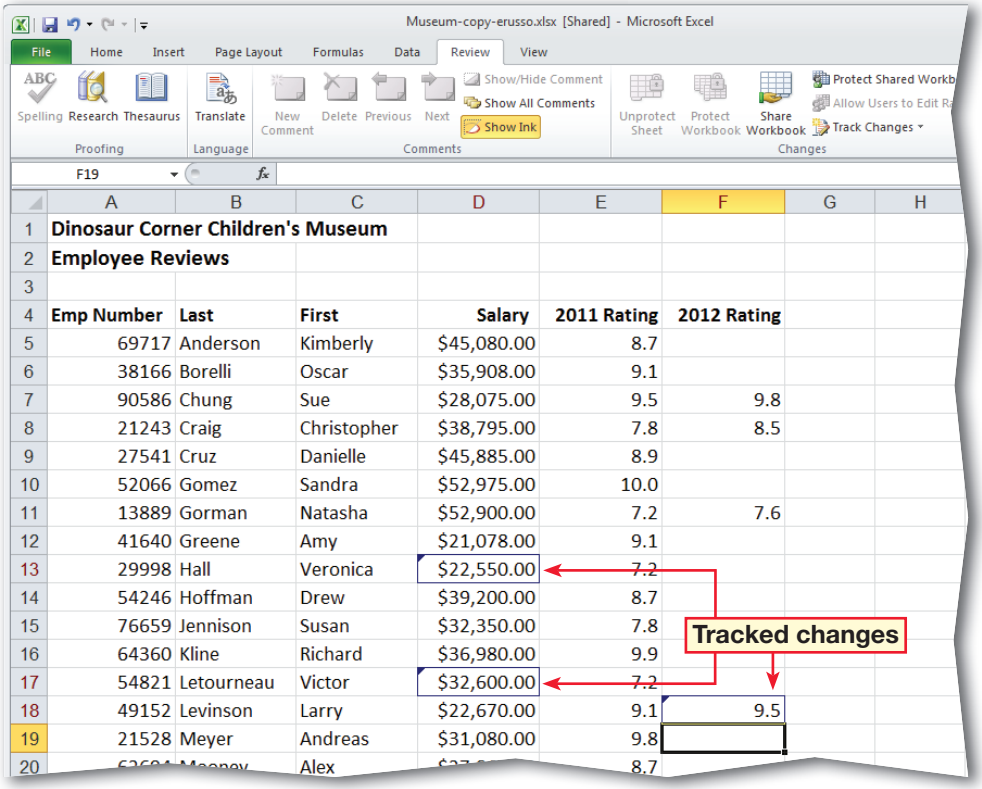


FIGURE 4.12 Tracked changes



	A	B	C	D	E	F	G	H
1	Dinosaur Corner Children's Museum							
2	Employee Reviews							
3								
4	Emp Number	Last	First	Salary	2011 Rating	2012 Rating		
5	69717	Anderson	Kimberly	$45,080.00	8.7			
6	38166	Borelli	Oscar	$35,908.00	9.1			
7	90586	Chung	Sue	$28,075.00	9.5	9.8		
8	21243	Craig	Christopher	$38,795.00	7.8	8.5		
9	27541	Cruz	Danielle	$45,885.00	8.9			
10	52066	Gomez	Sandra	$52,975.00	10.0			
11	13889	Gorman	Natasha	$52,900.00	7.2	7.6		
12	41640	Greene	Amy	$21,078.00	9.1			
13	29998	Hall	Veronica	$22,550.00	7.2			
14	54246	Hoffman	Drew	$39,200.00	8.7			
15	76659	Jennison	Susan	$32,350.00	7.8			
16	64360	Kline	Richard	$36,980.00	9.9			
17	54821	Letourneau	Victor	$32,600.00	7.2			
18	49152	Levinson	Larry	$22,670.00	9.1	9.5		
19	21528	Meyer	Andreas	$31,080.00	9.8			
20			Alex		8.7			

Tech Tip

When using **Track Changes**, you can specify whether or not balloons are shown that contain deletions and comments by choosing **Review> Comments>Show All Comments**.

Step-By-Step

EXERCISE 4-6
Accept and Reject Changes

After the changes are made in a document, you can choose to accept or reject each tracked change. If you accept a change, the cell's content will reflect the update. If you reject, or refuse to accept, a change, the cell's original value will be restored. You can also insert a comment to make a suggestion or ask questions about the data. Comments will exhibit a red triangle in the upper right-hand corner of a cell or range of cells. When the pointer is positioned over a changed cell, a window appears containing the reviewer's name, date, and the cell modification or comment.

1. In your **Museum-copy** file on the **Review** tab, click **Track Changes**. Click **Accept/Reject Changes**. The **Select Changes to Accept or Reject** dialog box opens.
2. Click **OK**. The **Accept or Reject Changes** dialog box opens. The description of **Change 1 of 3** appears.
3. CHECK Your dialog box should look like Figure 4.13.
4. Click **Accept**. The description of **Change 2 of 3** appears.
5. Click **Accept**. The description of **Change 3 of 3** appears.
6. Click **Reject**. The original value in cell **F18** is restored.
7. CHECK Your screen should look like Figure 4.14.

Continued on the next page.

FIGURE 4.13 Accept or Reject Changes dialog box

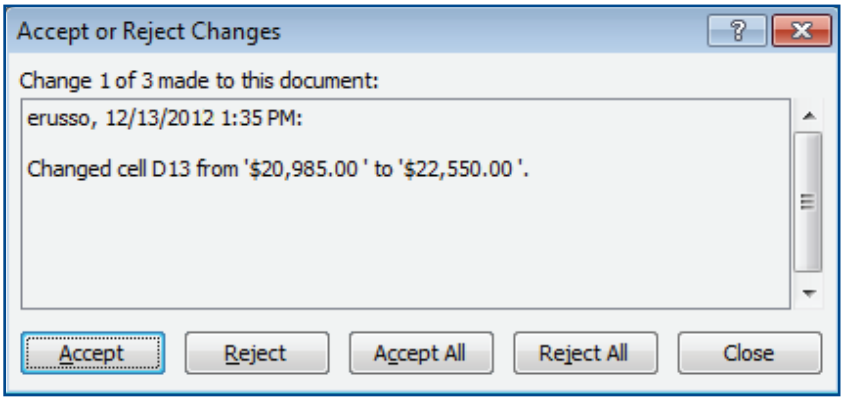
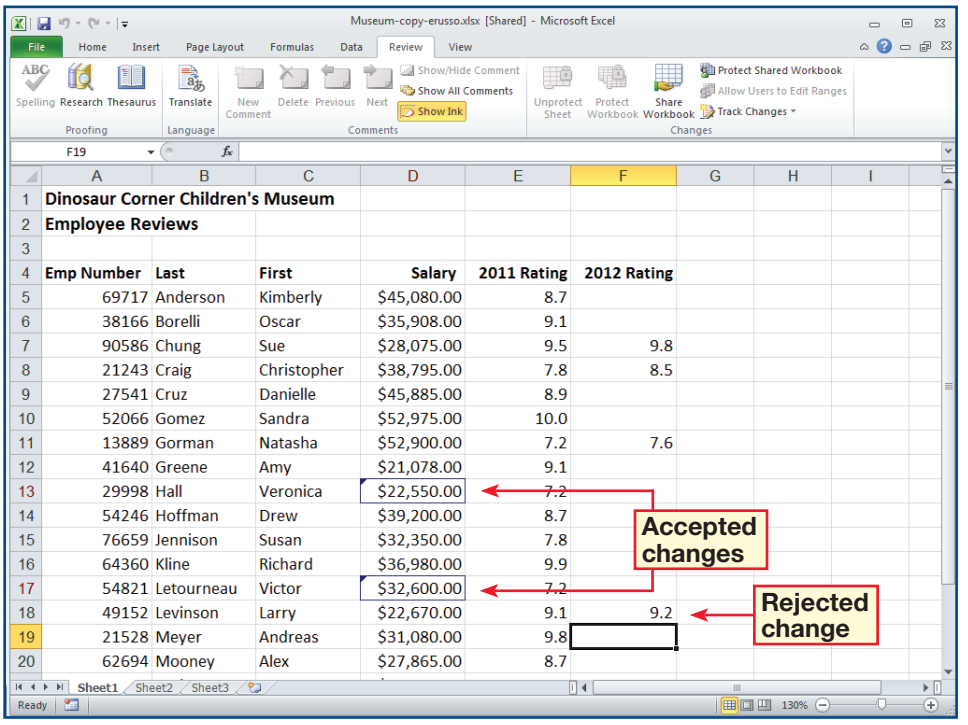


FIGURE 4.14 Accepted and rejected changes



Emp Number	Last	First	Salary	2011 Rating	2012 Rating
69717	Anderson	Kimberly	$45,080.00	8.7	
38166	Borelli	Oscar	$35,908.00	9.1	
90586	Chung	Sue	$28,075.00	9.5	9.8
21243	Craig	Christopher	$38,795.00	7.8	8.5
27541	Cruz	Danielle	$45,885.00	8.9	
52066	Gomez	Sandra	$52,975.00	10.0	
13889	Gorman	Natasha	$52,900.00	7.2	7.6
41640	Greene	Amy	$21,078.00	9.1	
29998	Hall	Veronica	$22,550.00	7.2	
54246	Hoffman	Drew	$39,200.00	8.7	
76659	Jennison	Susan	$32,350.00	7.8	
64360	Kline	Richard	$36,980.00	9.9	
54821	Letourneau	Victor	$32,600.00	7.2	
49152	Levinson	Larry	$22,670.00	9.1	9.2
21528	Meyer	Andreas	$31,080.00	9.8	
62694	Mooney	Alex	$27,865.00	8.7	

Step-By-Step

EXERCISE 4-6 (Continued)
Accept and Reject Changes

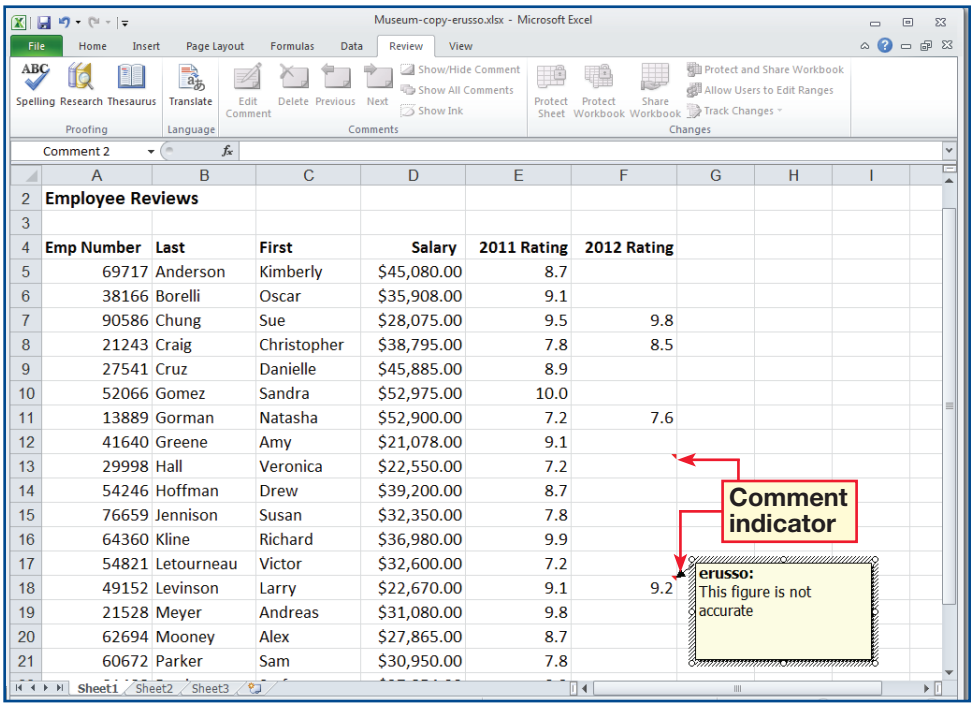
8. On the **Review** tab, in the **Comments** group, deselect **Show All Comments**, if it is selected. Click **F13**. Choose **Review>Comments> New Comment**.
9. In the comment box, key: Confirm figure.
10. Click **F18**. Choose **Review>Comments> New Comment**.
11. In the comment box, key: This figure is not accurate.
12. CHECK Your screen should look like Figure 4.15.
13. Click **F13**. Choose **Review>Comments> Delete Comment**.
14. Click **F18**. Choose **Review>Comments> Edit Comment**.
15. Change your comment to: Reject change.
16. CHECK Your screen should look like Figure 4.16. Save your file.

Continue to the next exercise.

You Should Know

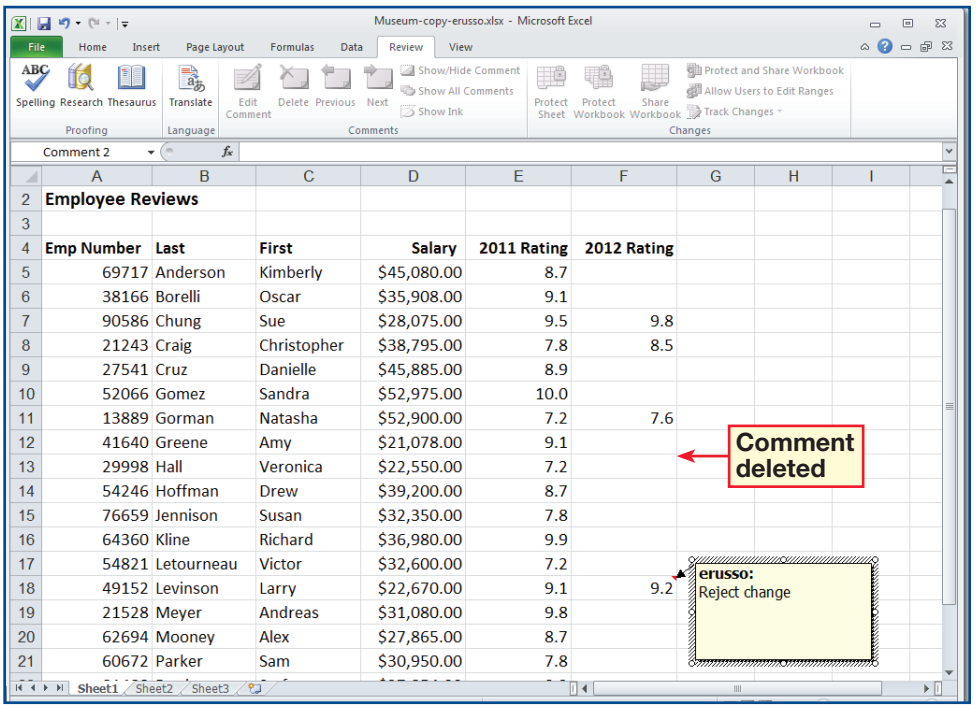
You can also allow specific users to edit cell ranges in a protected worksheet or workbook by choosing **Review>Changes>Allow Users to Edit Ranges**.

FIGURE 4.15 Comments added to worksheet



	A	B	C	D	E	F
2	Employee Reviews					
3						
4	Emp Number	Last	First	Salary	2011 Rating	2012 Rating
5	69717	Anderson	Kimberly	$45,080.00	8.7	
6	38166	Borelli	Oscar	$35,908.00	9.1	
7	90586	Chung	Sue	$28,075.00	9.5	9.8
8	21243	Craig	Christopher	$38,795.00	7.8	8.5
9	27541	Cruz	Danielle	$45,885.00	8.9	
10	52066	Gomez	Sandra	$52,975.00	10.0	
11	13889	Gorman	Natasha	$52,900.00	7.2	7.6
12	41640	Greene	Amy	$21,078.00	9.1	
13	29998	Hall	Veronica	$22,550.00	7.2	
14	54246	Hoffman	Drew	$39,200.00	8.7	
15	76659	Jennison	Susan	$32,350.00	7.8	
16	64360	Kline	Richard	$36,980.00	9.9	
17	54821	Letourneau	Victor	$32,600.00	7.2	
18	49152	Levinson	Larry	$22,670.00	9.1	9.2
19	21528	Meyer	Andreas	$31,080.00	9.8	
20	62694	Mooney	Alex	$27,865.00	8.7	
21	60672	Parker	Sam	$30,950.00	7.8	

FIGURE 4.16 Deleted and edited comments



	A	B	C	D	E	F
2	Employee Reviews					
3						
4	Emp Number	Last	First	Salary	2011 Rating	2012 Rating
5	69717	Anderson	Kimberly	$45,080.00	8.7	
6	38166	Borelli	Oscar	$35,908.00	9.1	
7	90586	Chung	Sue	$28,075.00	9.5	9.8
8	21243	Craig	Christopher	$38,795.00	7.8	8.5
9	27541	Cruz	Danielle	$45,885.00	8.9	
10	52066	Gomez	Sandra	$52,975.00	10.0	
11	13889	Gorman	Natasha	$52,900.00	7.2	7.6
12	41640	Greene	Amy	$21,078.00	9.1	
13	29998	Hall	Veronica	$22,550.00	7.2	
14	54246	Hoffman	Drew	$39,200.00	8.7	
15	76659	Jennison	Susan	$32,350.00	7.8	
16	64360	Kline	Richard	$36,980.00	9.9	
17	54821	Letourneau	Victor	$32,600.00	7.2	
18	49152	Levinson	Larry	$22,670.00	9.1	9.2
19	21528	Meyer	Andreas	$31,080.00	9.8	
20	62694	Mooney	Alex	$27,865.00	8.7	
21	60672	Parker	Sam	$30,950.00	7.8	

Step-By-Step

EXERCISE 4-7
Copy a Worksheet

When sharing workbooks or data with others, you may want to move or copy a worksheet to another workbook so that you can retain the original worksheet data. For example, the accounting department wants to **distribute**, or give out, a new worksheet that explains how to use a new timesheet software application to all employees in a company. You want to copy and move the worksheet containing the old timesheet instructions and policy to another workbook in case you need to reference it at a later date.

1. In your **Museum** file, choose **File>Save As**. In the **File name** box, key: Museum-original-[your first initial and last name]. Click **Save**.
2. Choose **Review> Changes>Share Workbook**.
3. Uncheck the **Allow changes...** box. Click **OK**. Click **Yes**.
4. Click **Protect Workbook**. Uncheck the **Protect Structure and Windows** option.
5. Choose **Home>Cells> Format**. Under **Organize Sheets**, rename **Sheet1** to **Original data**.
6. Click **Format**. Under **Organize Sheets**, select **Move or Copy Sheet**.
7. In the **Move or Copy** dialog box, click the **Create a copy** check box. Click the **To book** drop-down arrow and select **(new book)** (see Figure 4.17). Click **OK**.
8. CHECK Your screen should look like Figure 4.18. Close the workbook. Do not save your changes.

Continued on the next page.

FIGURE 4.17 Move or Copy dialog box

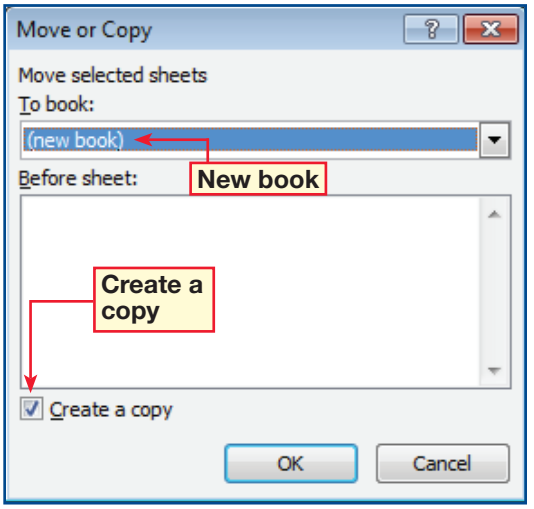
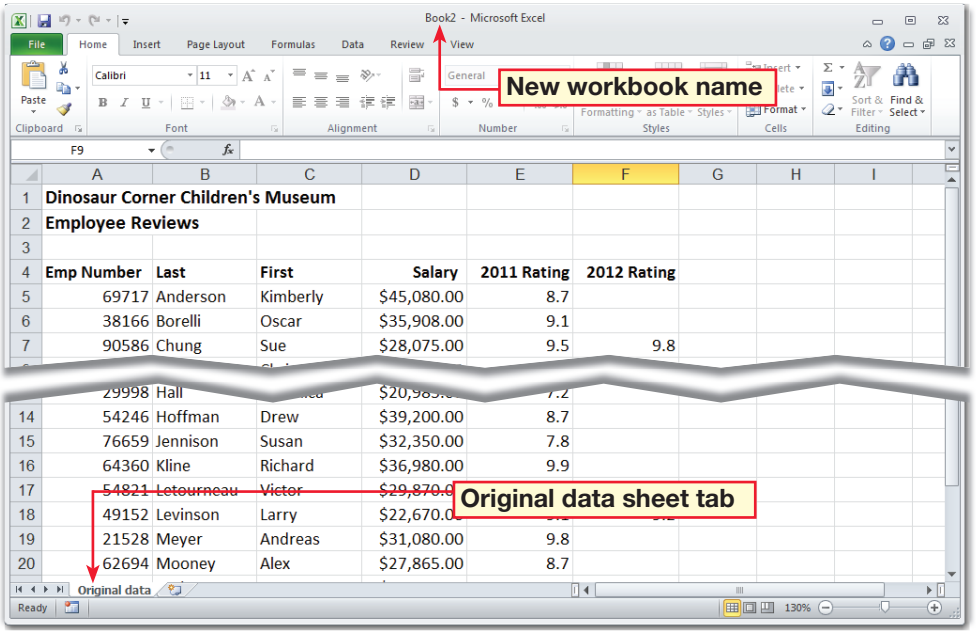


FIGURE 4.18 Copy of worksheet



Emp Number	Last	First	Salary	2011 Rating	2012 Rating
69717	Anderson	Kimberly	$45,080.00	8.7	
38166	Borelli	Oscar	$35,908.00	9.1	
90586	Chung	Sue	$28,075.00	9.5	9.8
54246	Hoffman	Drew	$39,200.00	8.7	
76659	Jennison	Susan	$32,350.00	7.8	
64360	Kline	Richard	$36,980.00	9.9	
49152	Levinson	Larry	$22,670.00		
21528	Meyer	Andreas	$31,080.00	9.8	
62694	Mooney	Alex	$27,865.00	8.7	

EXERCISE 4-7 (Continued)
Copy a Worksheet

Step-By-Step

9. Reopen your **Museum** file. In your **Museum-original** file, choose **Home>Cells> Format**. Select **Move or Copy Sheet**.

10. In the **Move or Copy** dialog box, click the **To book** drop-down arrow and select **Museum-[your first initial and last name].xlsx** (see Figure 4.19).

11. Under **Before sheet**, make sure **Sheet1** is selected. Click **OK**. In the warning box that appears, click **OK**.

12. Choose **Home>Cells> Format**. Select **Move or Copy Sheet**.

13. In the **Move or Copy** dialog box, click the **To book** drop-down arrow and select **(new book)**. Do not click **Create a copy**. Click **OK**.

14. Choose **File>Save As**. Save your file as: Original-data-[your first initial and last name]. Close the file.

15. CHECK Your screen should look like Figure 4.20. Save and close the file.

Continue to the next exercise.

FIGURE 4.19 Move or Copy dialog box

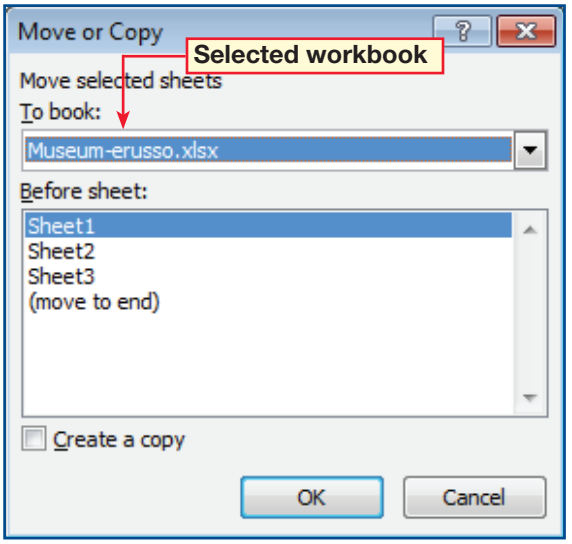
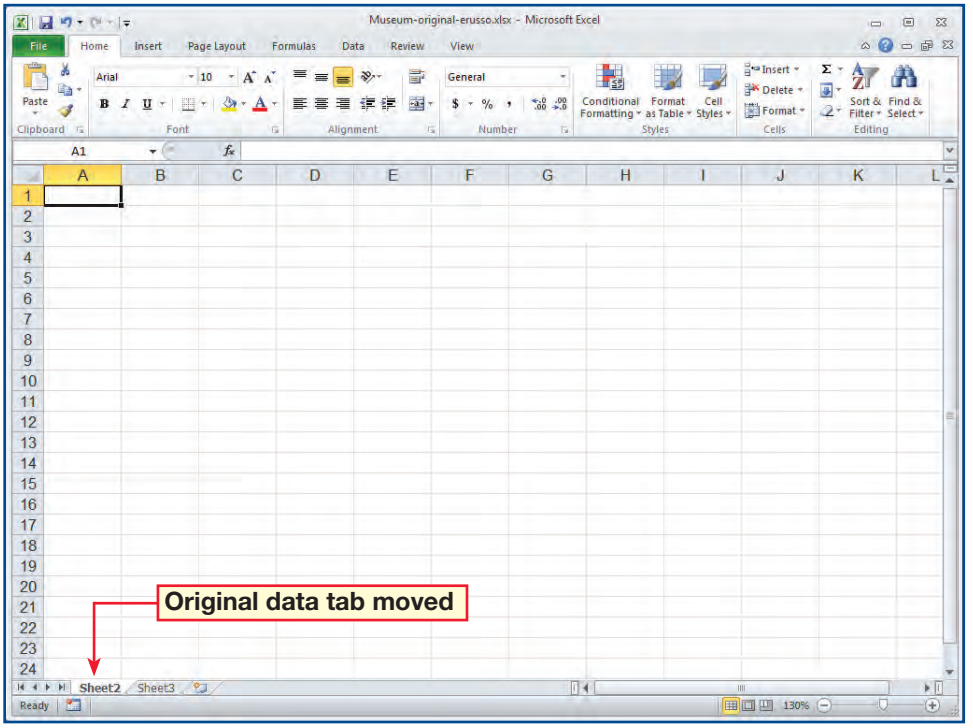


FIGURE 4.20 Original data tab moved from this workbook to new workbook



Shortcuts

Press CTRL + PAGE UP to move to the previous worksheet.

Step-By-Step

EXERCISE 4-8
Add and Modify Headers and Footers

You can use Excel's header and footer options to quickly provide useful information in your worksheets when you are printing a worksheet or workbook, or sharing data with others. For example, you can add predefined header and footer information, such as the date and time, or the name of the last person that accessed or edited the file. You can also insert elements such as page numbers and the file name.

1. In your **Museum-copy** file, choose **Insert>Text> Header & Footer**.
2. CHECK Your screen should look like Figure 4.21.
3. Click the header text box at the top of the page. Select **Header & Footer Tools>Design>Header & Footer Elements> Current Date**.
4. Click in the main body of the spreadsheet. Choose **Insert>Text>Header & Footer**.
5. Choose **Design>Header & Footer>Footer**. In the drop-down list, select **Page 1, Sheet1**.
6. Click the text **Page 1** in the footer. Place the cursor after **Page &[Page]**. Press the **spacebar**. Key: of. Press the **spacebar**. Select **Header & Footer Elements>Number of Pages**. Deselect the footer.
7. CHECK Your screen should look like Figure 4.22.
8. Choose **View>Workbook Views>Normal**. With your teacher's permission, print the file. Save and close your file.

Continue to the next exercise.

FIGURE 4.21 Page Layout view

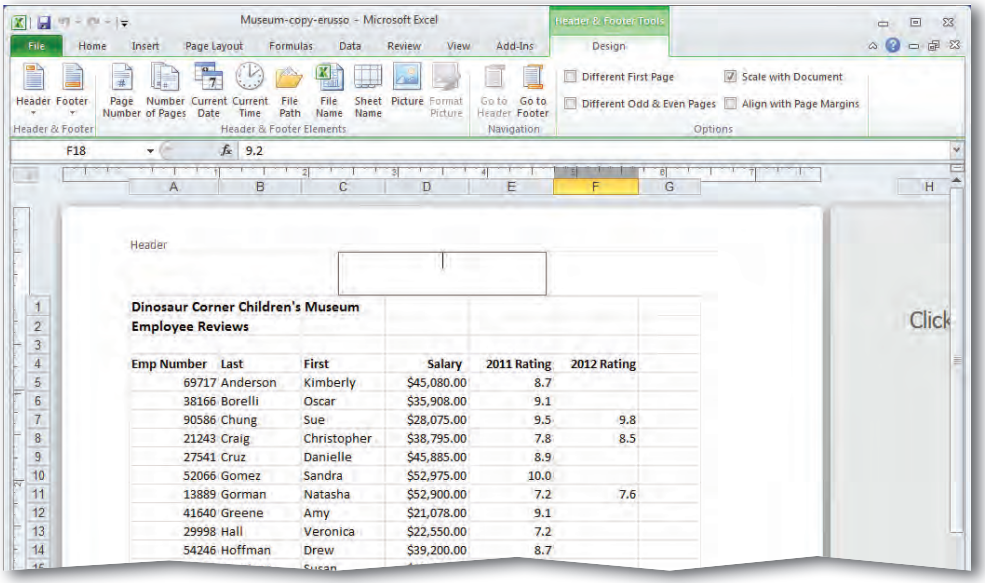
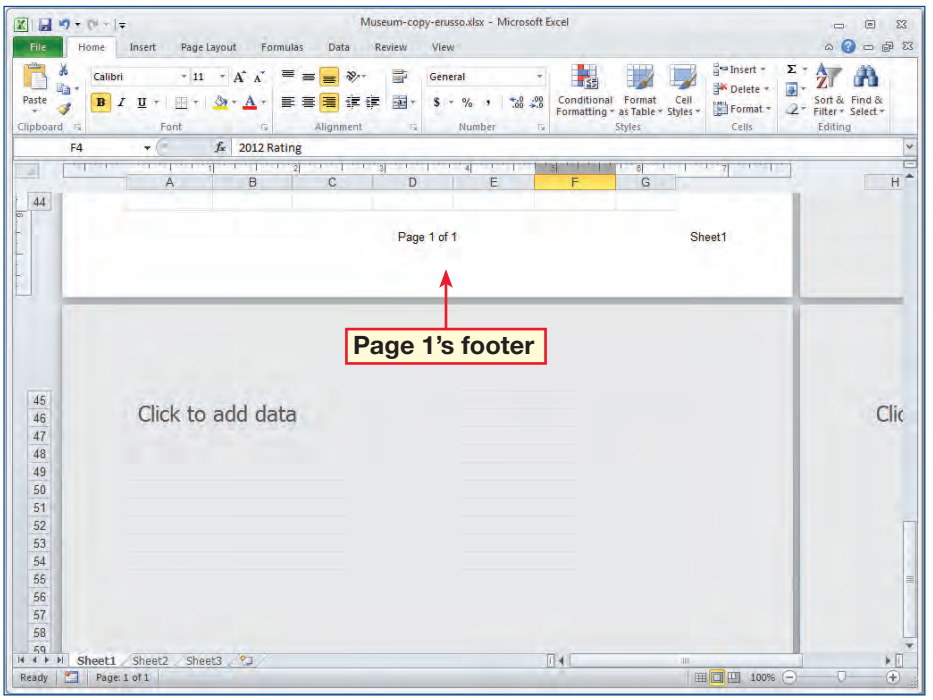


FIGURE 4.22 Modified footer in Page Layout view



Step-By-Step

EXERCISE 4-9
Merge Workbooks

Documents are often distributed to coworkers for comment and revision. After sharing a workbook with others, there will be more than one version of the workbook. Merge, or combine, the workbook versions to create the final workbook. The workbooks that you combine must have been created from the same shared workbook.

1. Close the second copy of **Excel** running in the current window.
2. In your **Museum** file, click **File>Options**.
3. Click **Quick Access Toolbar**. Click the **Choose commands from** drop-down arrow, and select **All Commands**.
4. Scroll down and select **Compare and Merge Workbooks**. Click **Add**.
5. CHECK Your dialog box should look similar to Figure 4.23. Click **OK**.
6. On the **QAT**, click **Compare and Merge Workbooks**.
7. In the **Select Files to Merge Into Current Workbook** dialog box, select your **Museum-copy** file. Click **OK**.
8. CHECK Your screen should look like Figure 4.24. Save your file.

Continue to the next exercise.

Troubleshooter

When workbooks with tracked changes are merged, all affected cells will be marked. Review your changes carefully.

FIGURE 4.23 Excel Options

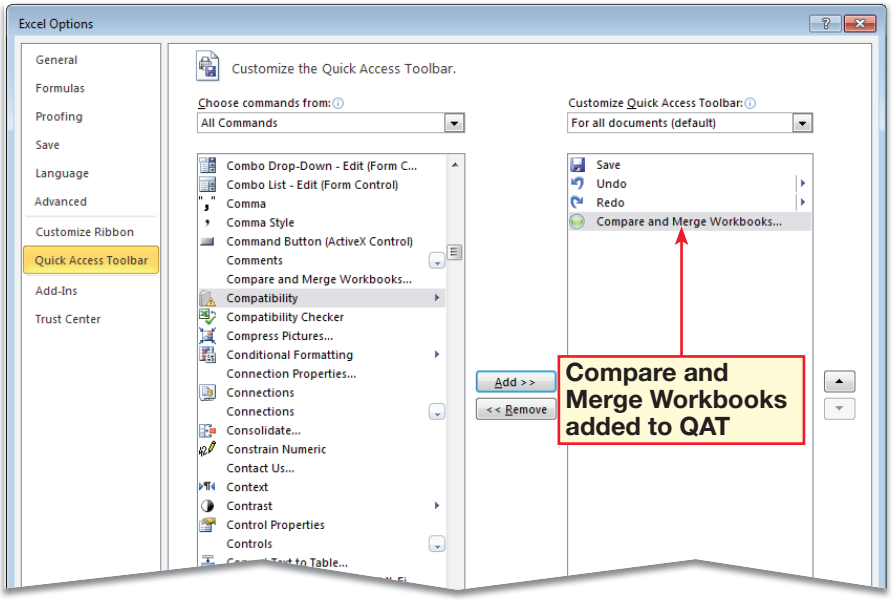
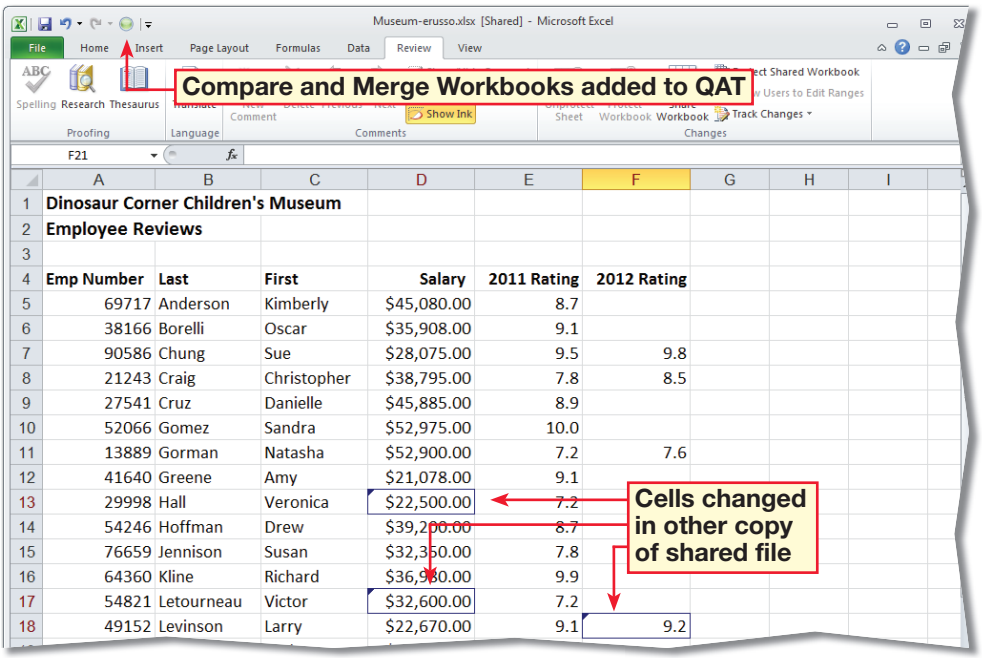


FIGURE 4.24 Merged workbook



Step-By-Step

EXERCISE 4-10
Mark a Document As Final

Before you share a workbook with others, you can use the **Mark as Final** command to make the workbook read-only and prevent any further changes. When the document is marked as final, keying, editing commands, and proofing marks are disabled. This signals that you are sharing a completed version of a document and prevents others from making changes to the document.

1. In your **Museum** file, choose **Review>Changes> Share Workbook**. Deselect the **Allow changes**… check box. Click **OK**. Click **Yes**.
2. Choose **File>Info> Protect Workbook**. Click **Mark as Final**. Click **OK**.
3. CHECK Your dialog box should look like Figure 4.25.
4. Read the dialog box. Click **OK**. Click the **Home** tab.
5. CHECK Your screen should look like Figure 4.26. Note the **Marked as Final** icon in the status bar.
6. Select **A4**. Press DELETE. You are unable to delete the heading.
7. Click after the heading **Employee Reviews**. Key text after the heading. You are unable to key text. Close your file.

Continue to the next exercise.

FIGURE 4.25 Marking a document as final

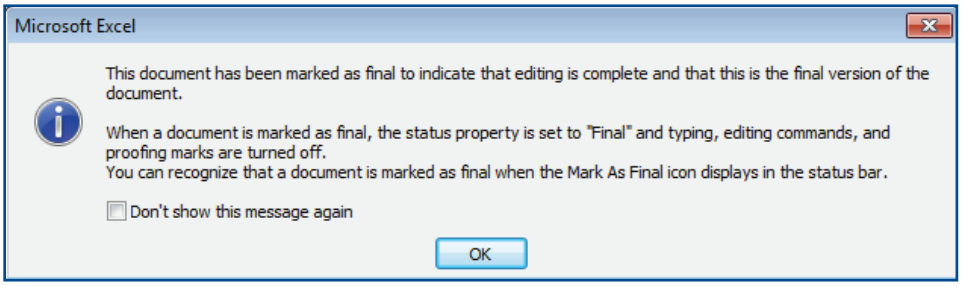
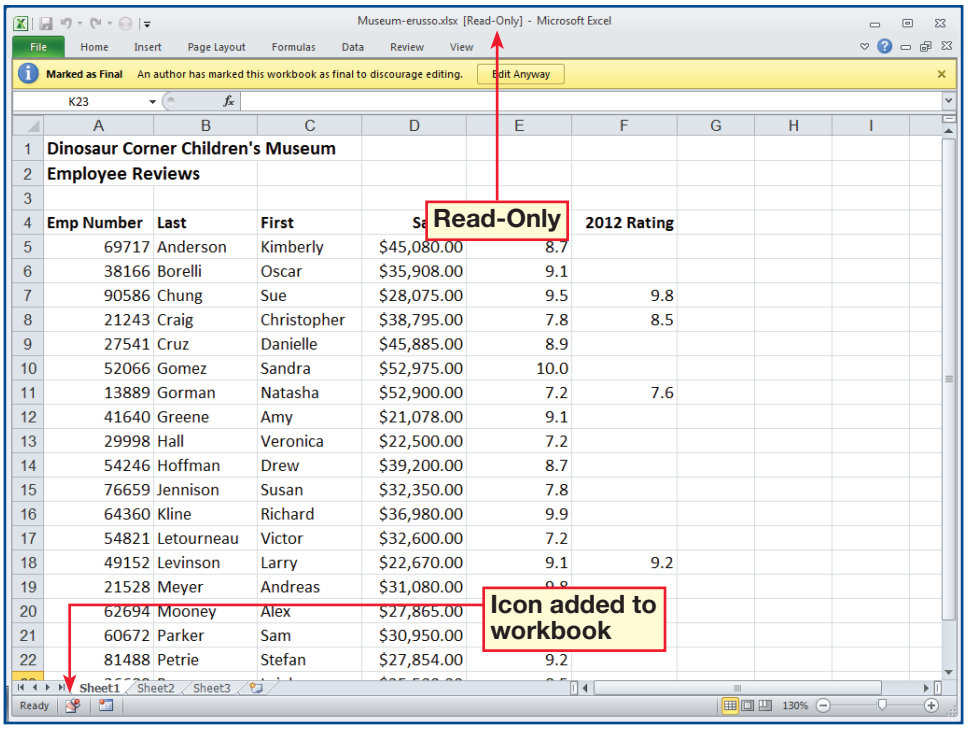


FIGURE 4.26 Document marked as final



Tech Tip

To help protect your data, enable **AutoRecover** by choosing **File>Options> Save** and specifying how often you want **Excel** to save your data.

Microsoft Office 2010

Documents marked as final in Office 2007 and 2010 will not be read-only if they are opened in an earlier version of Office.

Step-By-Step

EXERCISE 4-11
Use Digital Signatures to Authenticate Workbooks

Harmful viruses can be unleashed on your computer just by opening a suspicious file. To help avoid a computer virus, make sure that files you receive via e-mail and over the Internet are from a trusted source. You can attach a **digital signature** to a workbook to identify yourself as the **source**, or origin, of the workbook. The recipient will know it is from you and that the file has not been tampered with. Think of it as a fingerprint on a document that can be traced back to a specific computer on a particular date with an exact time.

1. Click **Start**. Choose **All Programs>Microsoft Office>Microsoft Office 2010 Tools>Digital Certificate for VBA Projects**.
2. In the **Create Digital Certificate** dialog box, in the **Your certificate's name** box, key: [your first name] [your last name].
3. CHECK Your dialog box should look like Figure 4.27. Click **OK**.
4. In the **SelfCert Success** dialog box, click **OK**.
5. In your **Museum** file, choose **File>Info>Protect Workbook>Add a Digital Signature**. Click **OK**. In the **Sign** dialog box, in the **Purpose for signing this document box**, key: Approval. Click the **Change** button. In the **Windows Security** dialog box, select your name. Click **OK**. Click **Yes**. Click **Sign**. Click **OK**.
6. Click the Home tab. Click **Digital Signature** (see Figure 4.28).
7. CHECK Your screen should look like Figure 4.28. Close your file. Exit **Excel**.

FIGURE 4.27 Create Digital Certificate dialog box

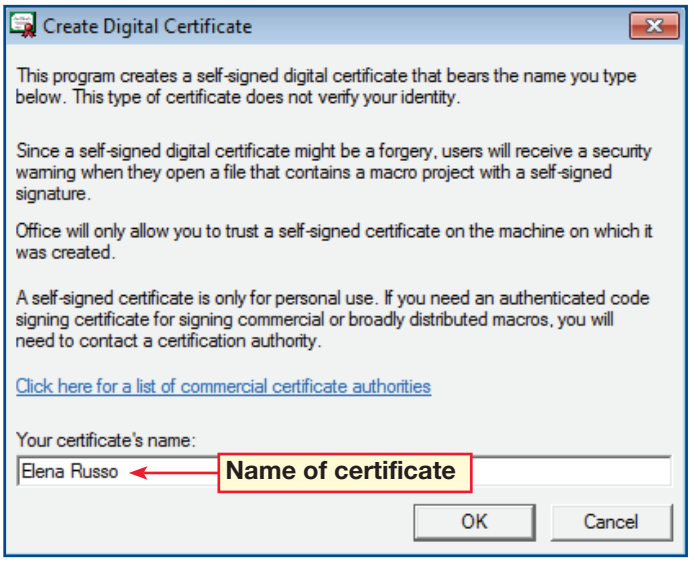
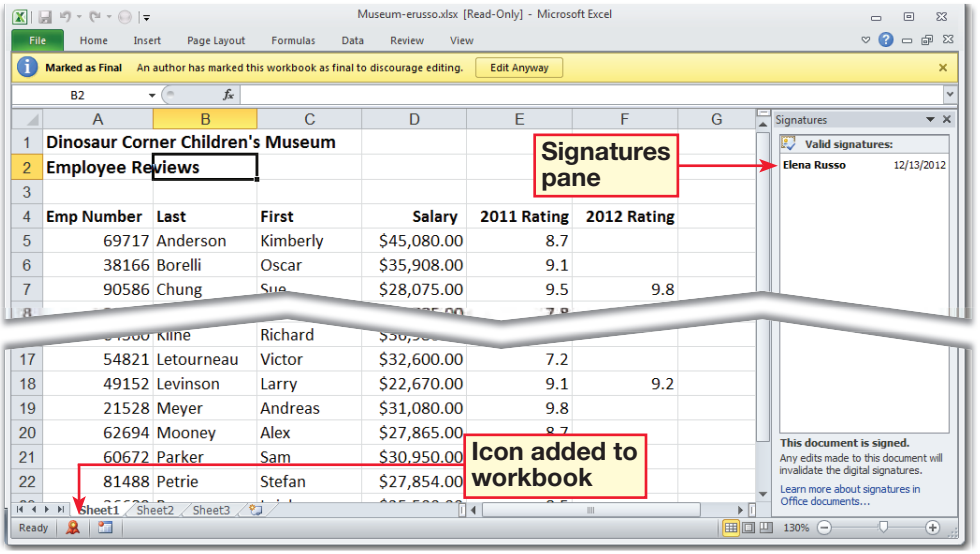


FIGURE 4.28 Worksheet after adding digital signature



MATH MATTERS

Applying for a Business Loan

Allen has always dreamed of owning a chocolate shop. He has prepared a business plan, which lays out the expenses of the business as well as potential profits. What he does not have, however, are the thousands of dollars needed to set up his shop.

Lending a Hand

This is where a bank or another lending institution comes into the picture. In order to borrow money, Allen must show that his business will be profitable so that he will be able to repay the loan.

Of course, a loan is not free money. Banks charge interest, or a percentage of the total amount of the loan, and add it to the original amount (principal) borrowed. Allen is applying for a $50,000 loan with an interest rate of 8 percent. Although there are several factors to consider in calculating how much interest Allen will pay, the basic formula to determine total interest is as follows:

Amount of loan ($50,000) × Interest rate (0.08) = Total interest ($4,000).

(Interest rates can significantly affect the amount of the loan.)

It is important to calculate the interest of a loan to determine the loan's total cost.

The Bank Loan Application

Banks require a borrower to fill out forms and supply documents such as income tax returns. Banks want information about:

- The credit history of the borrower and the borrower's earnings.
- The business plan.
- The collateral the borrower can use to repay the loan if necessary.

SKILLBUILDER

1. **Define** What is a business loan?
2. **Infer** Why do you think banks want to know the credit history of potential borrowers?
3. **Calculate** If Allen takes a business loan of $75,000 at an 8 percent interest rate, how much interest will he owe?

Brand X/JupiterImages/Getty Images

LESSON 4 After You Read

Vocabulary

Key Terms

case sensitive
comment
digital signature
lock
Mark as Final
merge
password
protect
share
Track Changes

Academic Vocabulary

alteration
distribute
reject
source

Review Vocabulary

Complete the following statements on a separate piece of paper. Choose from the Vocabulary list on the left to complete the statements.

1. _____ a worksheet if you do not want people to be able to change it. (p. 195)
2. To show that a workbook comes from a trusted source, you can attach a(n) _____. (p. 208)
3. To allow several people to open and edit a workbook at the same time, _____ the workbook. (p. 199)
4. If a file should only be opened by certain users, create a(n) _____. (p. 197)
5. When you use Track Changes, you can accept or _____ changes and comments made by other users in a shared workbook. (p. 201)

Vocabulary Activity

6. Key a brief report about sharing worksheet data with others, protecting worksheets and workbooks, setting passwords, and adding a digital signature. For each feature, answer the following questions:
   A. How does this feature help you?
   B. How does this feature protect your worksheet?
   C. In your report, make sure you use and define the vocabulary words *digital signature*, *password*, *source*, and *protect*.

Review Key Facts

Answer the following questions on a separate piece of paper.

7. Which elements can you protect? (pp. 195-196)
   A. A range of cells
   B. A worksheet
   C. A workbook
   D. All of the above

8. How could you prevent certain users from opening a confidential workbook? (p. 197)
   A. Add a digital signature.
   B. Protect the worksheet.
   C. Set a password to open.
   D. Enable Track Changes.

9. What would you do to certify yourself as the sender of a file? (p. 208)
   A. Add a digital signature.
   B. Protect the worksheet.
   C. Set a password to open.
   D. Enable Track Changes.

10. How can you prevent certain users from modifying a file? (p. 198)
    A. Create a digital signature.
    B. Set a password to modify.
    C. Enable worksheet protection.
    D. Enable workbook protection.

LESSON 4 Practice It Activities

1. Share a Workbook and Track Changes

DATA FILE

Follow the steps to complete the activity.

Step-By-Step

1. Open the data file **Clubs.xlsx**. Save as: Clubs-[your first initial and last name]1.
2. Choose **Review> Changes>Track Changes**. Click **Highlight Changes**.
3. Click the **Track changes while editing** check box.
4. CHECK Your dialog box should look like Figure 4.29. Click **OK**.
5. A confirmation box opens. Click **OK**. **Track Changes** is now on.
6. Click cell **A7**. Key: Technology club. Press ENTER.
7. Click cell **A17**. Key: Community service. Press ENTER.
8. Click cell **B20**. Key: 9-12. Press ENTER.
9. CHECK Your screen should look like Figure 4.30.
10. Save and close your file.

FIGURE 4.29 Highlight Changes dialog box

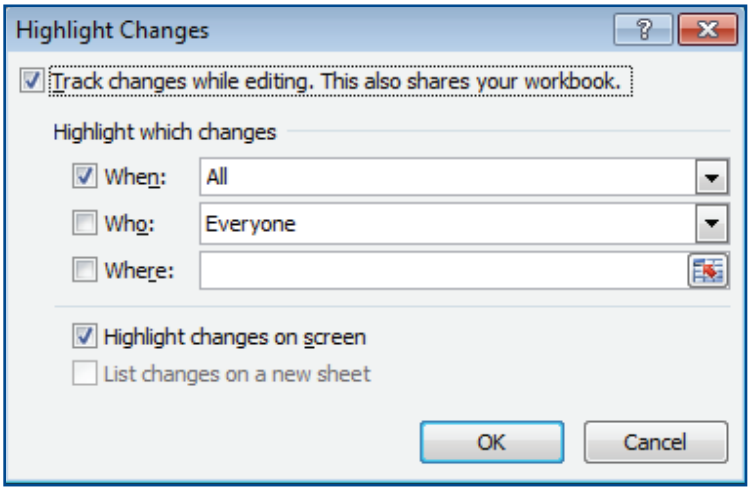
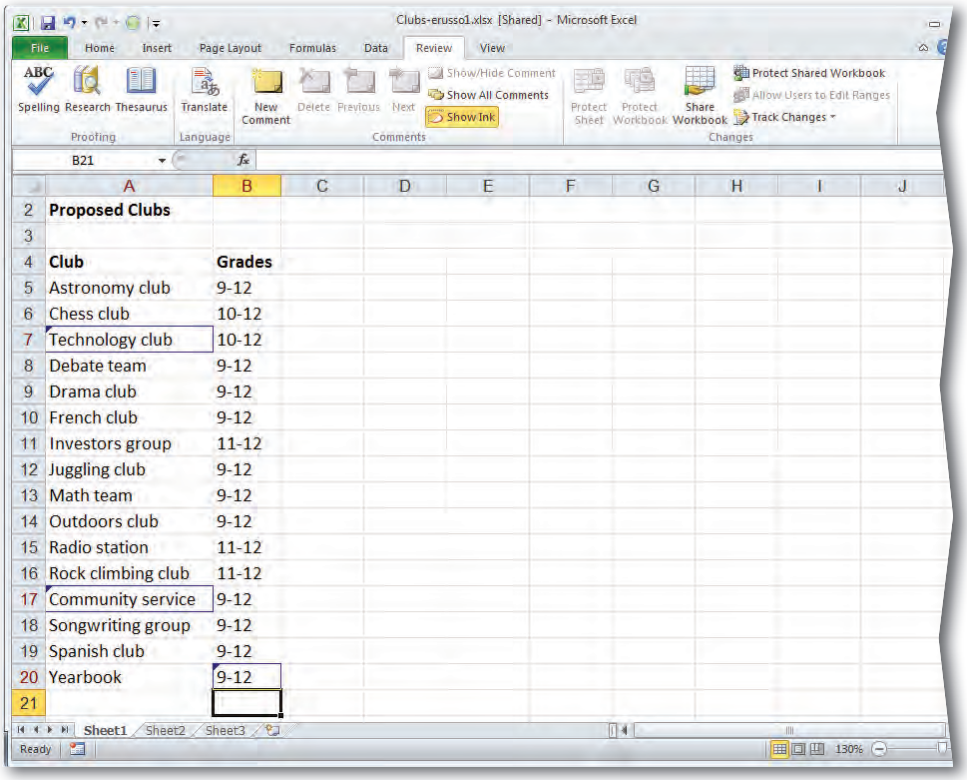


FIGURE 4.30 Tracked changes



LESSON 4 Practice It Activities

2. Accept and Reject Changes

Follow the steps to complete the activity. You must complete Practice It Activity 1 before doing this activity.

Step-By-Step

1. Open your **Clubs-1** file. Save as: Clubs-[your first initial and last name]2.
2. Choose **Review> Changes>Track Changes**. Click **Highlight Changes**. In the **When** drop-down menu, select **All**. Click **OK**. Choose **Review> Changes>Track Changes**. Click **Accept/ Reject Changes**.
3. In the **Select Changes to Accept or Reject** dialog box, click **OK**.
4. In the **Accept or Reject Changes** dialog box, click **Accept** (see Figure 4.31). The first change is accepted. The description of **Change 2 of 3** appears.
5. Click **Accept**. The description of **Change 3 of 3** appears.
6. Click **Reject**. The third change is rejected. The original value in cell **B20** is restored.
7. CHECK Your screen should look like Figure 4.32.
8. Save and close your file.

FIGURE 4.31 Accept or Reject Changes dialog box

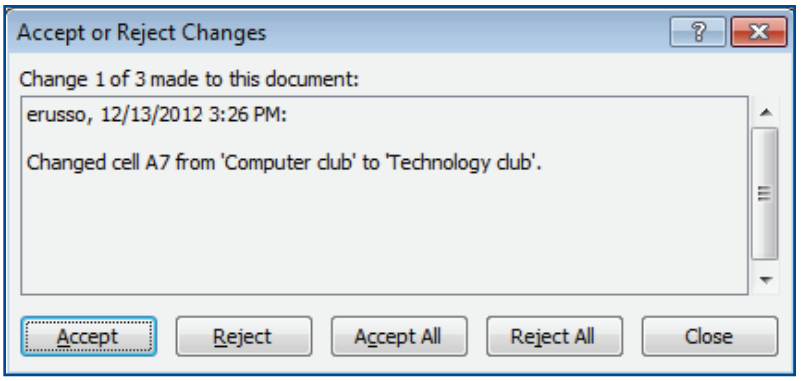
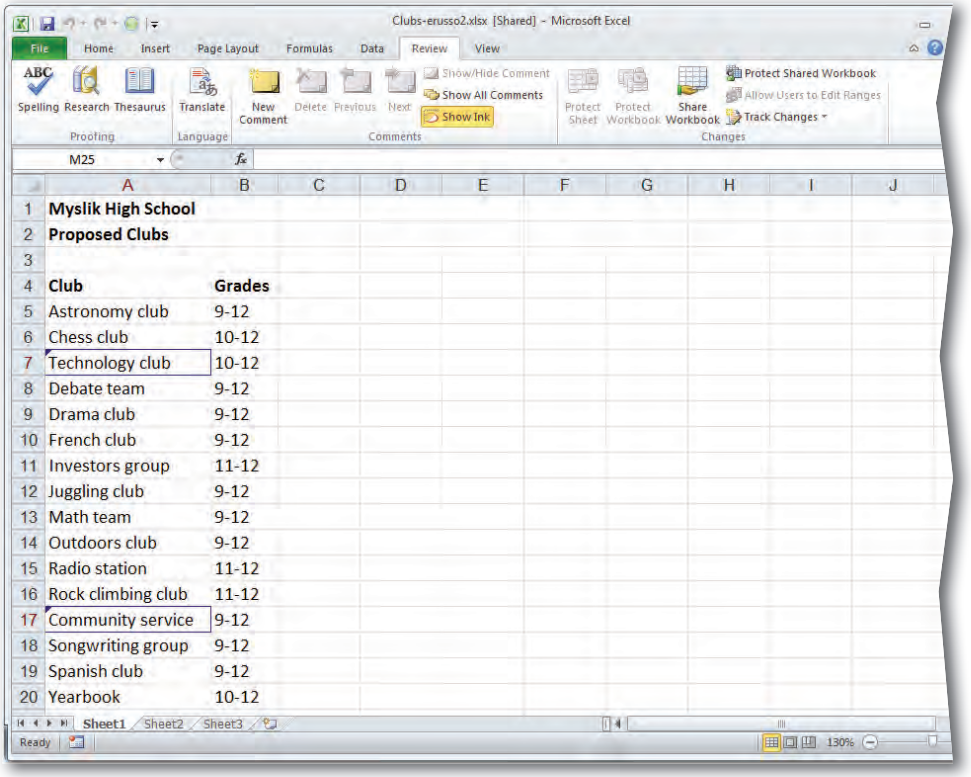


FIGURE 4.32 Worksheet after accepting and rejecting changes



LESSON 4 Practice It Activities

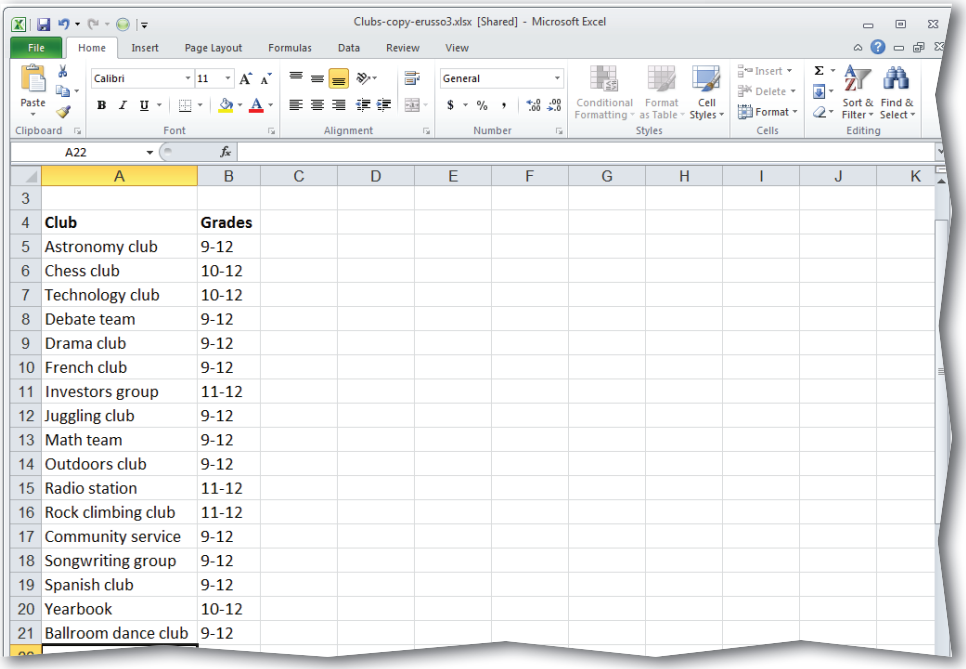
Step-By-Step

1. Open your **Clubs-2** file. Save as: Clubs-[your first initial and last name]3.
2. Choose **Review> Changes>Share Workbook**. Verify that the **Allow changes by more than one user** box is checked. Click **OK**.
3. Start **Excel** again. Open your **Clubs-3** file in the second copy of **Excel**. Save your **Clubs-3** file as: Clubs-copy-[your first initial and last name]3.
4. In cell **A21**, key: Ballroom dance club. Press TAB. Key: 9-12. Press ENTER.
5. CHECK Your screen should look like Figure 4.33. Save and close the file.
6. In your **Clubs-3** file, click **Compare and Merge Workbooks**.
7. Select your **Clubs-copy-3** file. Click **OK**.
8. CHECK Your screen should look like Figure 4.34. Save and close your file.

3. Merge Workbooks

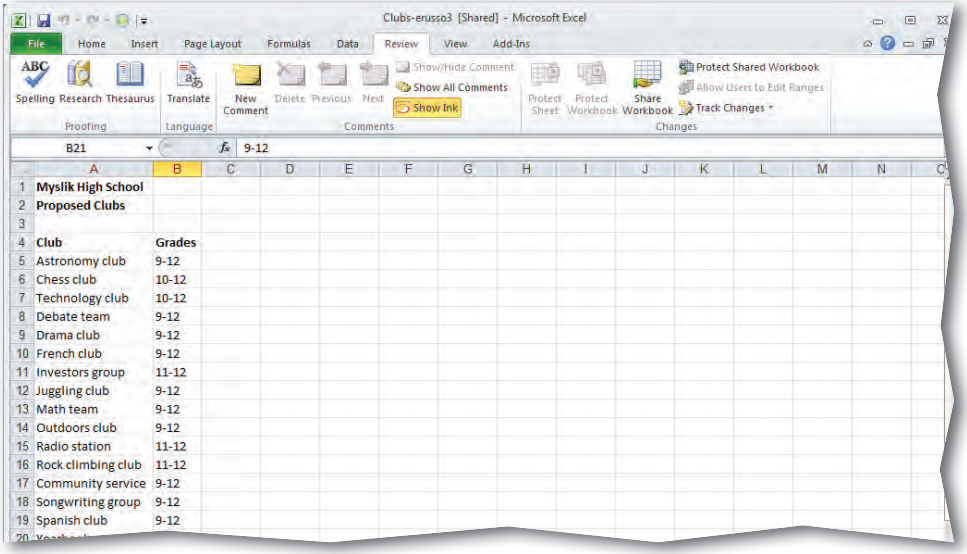
Follow the steps to complete the activity. You must complete Practice It Activity 2 before doing this activity.

FIGURE 4.33 Copy of shared workbook



	A	B
4	**Club**	**Grades**
5	Astronomy club	9-12
6	Chess club	10-12
7	Technology club	10-12
8	Debate team	9-12
9	Drama club	9-12
10	French club	9-12
11	Investors group	11-12
12	Juggling club	9-12
13	Math team	9-12
14	Outdoors club	9-12
15	Radio station	11-12
16	Rock climbing club	11-12
17	Community service	9-12
18	Songwriting group	9-12
19	Spanish club	9-12
20	Yearbook	10-12
21	Ballroom dance club	9-12

FIGURE 4.34 Merged workbook



	A	B
1	**Myslik High School**	
2	**Proposed Clubs**	
3		
4	**Club**	**Grades**
5	Astronomy club	9-12
6	Chess club	10-12
7	Technology club	10-12
8	Debate team	9-12
9	Drama club	9-12
10	French club	9-12
11	Investors group	11-12
12	Juggling club	9-12
13	Math team	9-12
14	Outdoors club	9-12
15	Radio station	11-12
16	Rock climbing club	11-12
17	Community service	9-12
18	Songwriting group	9-12
19	Spanish club	9-12

LESSON 4 You Try It Activities

Step-By-Step

1. Open the data file **May.xlsx**. Save as: May-[your first initial and last name]4.
2. Select cells **B5:B10**.
3. Choose **Home>Cells> Format**. Under **Protection**, click **Lock Cell** to unlock those cells (see Figure 4.35).
4. Protect the worksheet.
5. Try to change the description of one of the categories. You are not able to because that cell is locked.
6. Try to key a number in cell **B16**. You are not able to because that cell is locked.
7. Change the amount for postage to **20**.
8. CHECK Your screen should look like Figure 4.36.
9. Save and close your file.

4. Protect Formulas

DATA FILE

You have created a worksheet of monthly expenses for your youth group. Members of the group will be updating the amounts, so you decide to protect certain cells to prevent unintentional changes.

FIGURE 4.35 Format drop-down menu

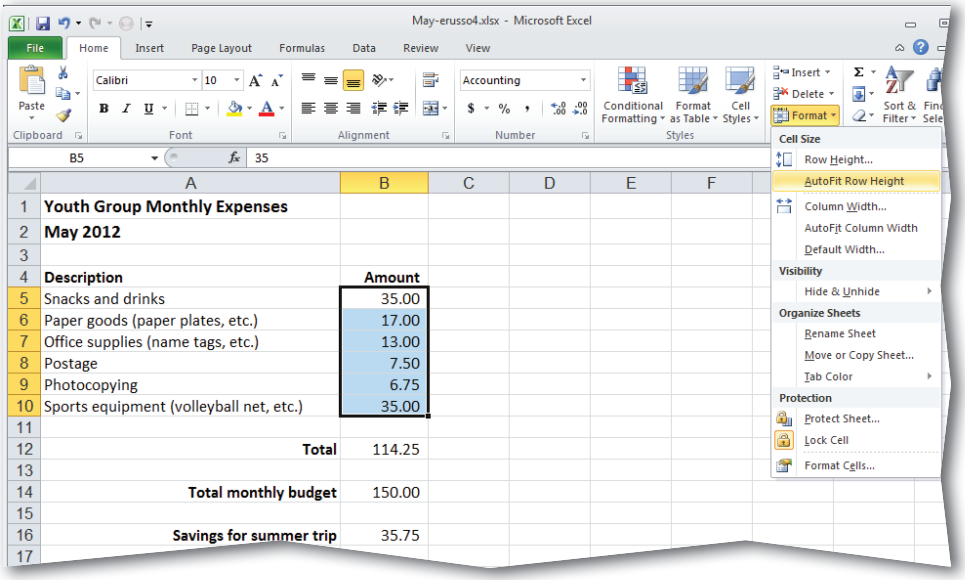
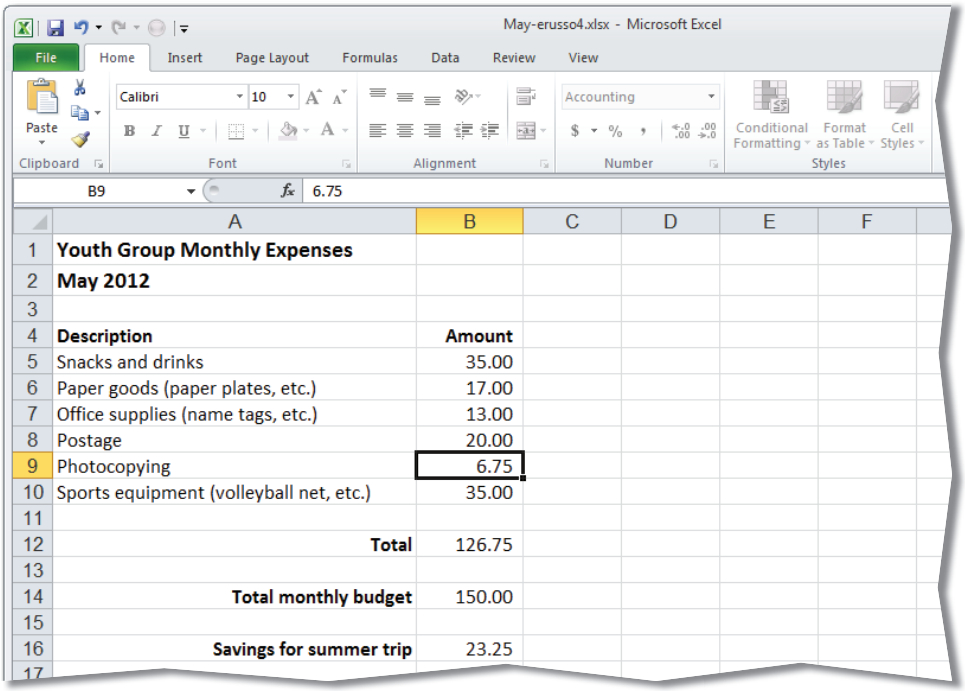


FIGURE 4.36 Change made to protected sheet



LESSON 4 You Try It Activities

Step-By-Step

1. Open your **May-4** file. Save as: May-[your first initial and last name]5.
2. Set a password to open the file. Key: youth12 as the password.
3. Confirm the password.
4. Save and close your file.
5. Reopen your **May-5** file. The **Password** dialog box opens (see Figure 4.37).
6. Key: youth12. Click **OK**.
7. Add a digital signature to the file. Click the **Home** tab. Click the digital signature icon on the bottom left of the screen.
8. CHECK Your screen should look like Figure 4.38.
9. Close your file.

5. Add a Digital Signature and Set a Password to Open a Workbook

Now that the members of the group have updated their monthly expenses, you decide to create a password to modify the document to prevent further changes. You also attach a digital signature to authenticate the information before forwarding it on to the youth group leader.

FIGURE 4.37 Password dialog box

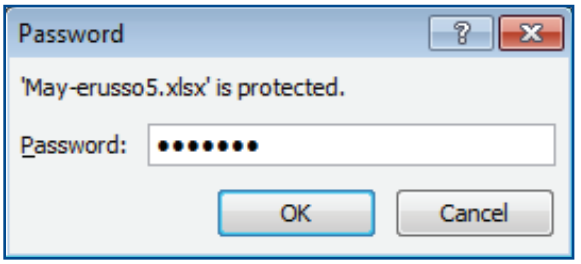
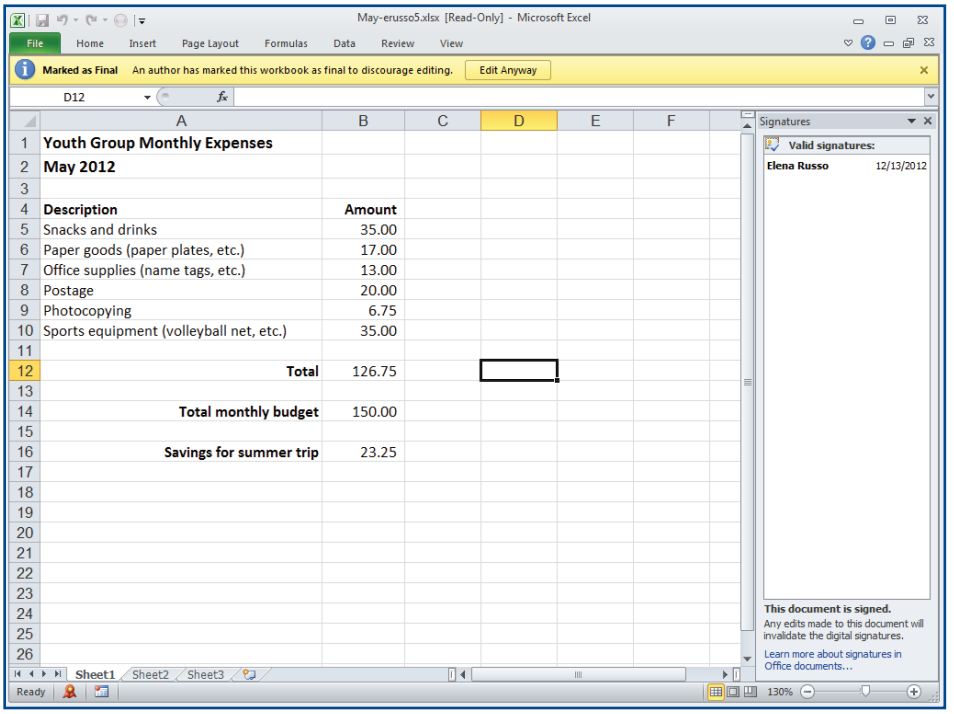


FIGURE 4.38 Digital signature added to file



LESSON 4 Critical Thinking Activities

6. Beyond the Classroom Activity

DATA FILE

Language Arts: Track Your Changes You work as the receptionist at a veterinarian's office. When a pet arrives in the office, you key some basic information into a worksheet. Because it is your first week on the job, your boss wants you to use **Track Changes** so he can double-check your work.

- Open the data file **Appointments.xlsx**. Turn on **Track Changes**.
- Key new information about two pets that arrived in the office today.

Open a Word document and key one or two paragraphs describing how **Track Changes** and **comments** can be used to protect the integrity and formatting of your documents when sharing data with others. Save your file as: Appointments-[your first initial and last name]6.

7. Standards at Work Activity

Microsoft Office Specialist

Excel 7.1 *Share spreadsheets by using Backstage.*

Protect Worksheets Protecting a workbook or a worksheet guards against different kinds of changes. Open your **Appointments-6** file from the previous activity.

- Unlock the cells that contain the times for each appointment.
- Change the first appointment to **8:20**.
- Protect the worksheet. Try to make a change to one of the pet's names.

Open a Word document and key a paragraph that explains why a business might want to protect cells containing formulas, change the file type to a different version of Excel, or save the file in a PDF or XPS format. Save the file as: Appointments-[your first initial and last name]7.

8. 21st Century Skills Activity

DATA FILE

Evaluate Your Progress When you see that you have made progress, you are driven to do more. Test your progress in learning one of the skills in this lesson. For example, to check your understanding of how to set a password to make a document secure, do the following:

- Open the data file **Services.xlsx**. Set a password.
- Close and reopen the workbook. Key an **incorrect** password.
- Open a Word document and key a paragraph that explains what it means when a password is **case sensitive**. Include examples. Then, key a paragraph that explains what AutoSave is and how to enable it.

Save your file as: Services-[your first initial and last name]8.

LESSON 4 Challenge Yourself Projects

Before You Begin

Collaborate Sharing information, setting passwords, and tracking changes and comments are important aspects of working collaboratively. These projects teach you how to use Excel's tools to merge workbooks, accept and reject changes, and secure your files.

Reflect Once you complete the projects, open a Word document and answer the following questions:

1. In what ways can you control other people's access to a workbook that you have created?
2. How can you use Track Changes in your day-to-day activities?
3. How can merging workbooks help you manage your time better?

9. Protect an Expenses Worksheet

DATA FILE

Language Arts: Set a Password You are in charge of keeping track of the supplies and other expenses for your baseball team. You need to protect your expenses workbook. You need to use a password to protect your file.

- Open the data file **Baseball.xlsx**.
- Set a password to modify the current password: *supplies1*. Use the password *123supplies* to replace the current password.

Save your file as: Baseball-[your first initial and last name]9.

Open a Word document and key a paragraph describing the differences between setting a password to open a file and setting a password to modify a file. Give examples of when it might be best to use each. Describe three rules you should follow when selecting a password.

10. Work Collaboratively

Language Arts: Merge Workbooks One of your teammates has been helping to track purchases made by the baseball team. You sent him a copy of your workbook. Now you need to merge the two workbooks.

- Open your **Baseball-9** workbook.
- Use **Compare and Merge Workbooks** to merge your **Baseball-9** workbook with the data file **Baseball-9-copy**.

Save your merged file as: Baseball-[your first initial and last name]10.

Your teammate wants to learn how to manage and merge workbook versions. Open a Word document and list the steps necessary to manage and compare and merge workbook versions.

11. Choose Which Changes to Keep

Language Arts: Accept and Reject Changes Now that you have merged the two workbooks, you need to review your teammate's notes.

- Open your **Baseball-10** workbook.
- Turn on **Track Changes**.
- Accept the first three changes that your teammate made.
- Reject the final change and insert a comment about the change.

Open a Word document and key a paragraph that explains what happens when the pointer is rested over a changed cell when **Track Changes** has been applied to a file. What happens when a change is rejected? Save your file as: Baseball-[your first initial and last name]11.

Comstock/Getty Images

LESSON 5 Advanced Data Management

Key Concepts

- Import and export data
- Publish data as a Web page
- Create a template for repeated use
- Consolidate data
- Modify workbook properties
- Save workbooks in a macro-enabled format
- Create and run a macro

Standards

The following standards are covered in this lesson. Refer to pages xxiv and 715 in the Student Edition for a description of the standards listed here.

ISTE Standards Correlation

NETS•S

1c, 1d, 2a, 2d, 3b, 3c, 4c, 6c

Microsoft Office Specialist

Excel

1.1, 1.2, 1.3, 4.1, 7.1

In this lesson, you will learn skills for managing workbooks. For example, you will import data from files and from Web pages. You will create a template for types of workbooks that you create often, consolidate data by creating formulas across multiple worksheets, and save your workbooks as a PDF. You will also save a workbook in a macro-compatible format and create and run a macro.

Digital Vision/Getty Images

21st CENTURY SKILLS

Learn to Adapt Computers have become essential business tools because they enable people to easily change or adapt information from one form to another. Users can also adapt software to fit new challenges and situations that occur at school, at work, or at home. For example, in this lesson, you will learn how to tailor Excel to meet your needs so you can work efficiently. Employers value employees who can adapt to new situations and challenges. They also like workers who can respond successfully to unexpected situations. *Do you believe you adapt well to new situations?*

LESSON 5 Reading Guide

Before You Read

Check for Understanding It is normal to have questions when you read. Having questions means that you are checking your understanding of the material. Good readers realize that a difficult word or concept can make understanding information challenging. When you are involved in the material you are reading, you can fill in the missing knowledge as a way of getting the most out of the text.

Read To Learn

- Incorporate and modify imported data in Excel.
- Combine data from multiple sheets into a summary so that information is easier to access.
- Explore how using Document Properties makes files easy to identify and track.
- Understand how using macros can save time.

Main Idea

Excel offers many advanced tools and features to help you manage, consolidate, and present data.

Vocabulary

Key Terms

Compatibility Checker
delimited
Document Information Panel
Document Inspector
import
keyboard shortcut
macro
property
summary worksheet
template
user-defined template
Web query

Academic Vocabulary

These words appear in your reading and on your tests. Make sure you know their meanings.

author
consolidate
perform
reveal

Quick Write Activity

Describe On a separate sheet of paper, describe why a business might benefit from being able to consolidate data stored on different worksheets into one summary sheet. Explain how you think Excel might be useful if a clothing chain needs to track its sales figures for three different regions.

Study Skill

Teach Someone Else Ask a friend or relative what he or she would like to learn about Excel. Then, write down some notes about the topic and give this person a demonstration. Once you can teach Excel to someone else, you will know that you have really mastered it yourself.

Academic Standards

Language Arts

NCTE 5 Use different writing process elements to communicate effectively.

NCTE 7 Conduct research and gather, evaluate, and synthesize data to communicate discoveries.

Math

NCTM (Number and Operations) Understand numbers, ways of representing numbers, relationships among numbers, and number systems.

EXERCISE 5-1
Import Data into Excel

Step-By-Step

1. Launch **Excel**.
2. Open the data file **Deals.xlsx**. Save as: Deals-[your first initial and last name]. (For example, *Deals-erusso*.)
3. Click cell **A11**. Choose **Data>Get External Data>From Text**.
4. With your teacher's permission, locate and select the data file **Specials.txt**. Click **Import**.
5. In the **Text Import Wizard** dialog box, notice that **Delimited** is selected. Click **Next**.
6. Deselect **Tab**. Select **Comma** (see Figure 5.1).
7. Click **Next**. Click **Finish**. Click **OK**.
8. Click the **Select All** button. Choose **Home>Cells> Format** and select **AutoFit Column Width**. Deselect the data.
9. CHECK Your screen should look like Figure 5.2.
10. Save your file.

Continue to the next exercise.

Excel can **import** data, or bring it in from other sources and file formats. Importing data is useful because it saves you from having to rekey it. In this exercise, you will import a text file containing data that is **delimited**, or separated by a comma or other character. Excel uses that character to divide the text into columns.

FIGURE 5.1 Text Import Wizard

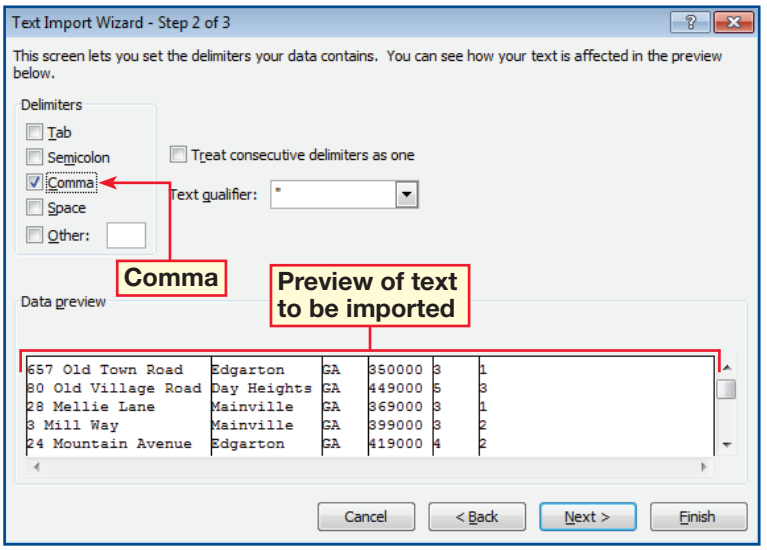
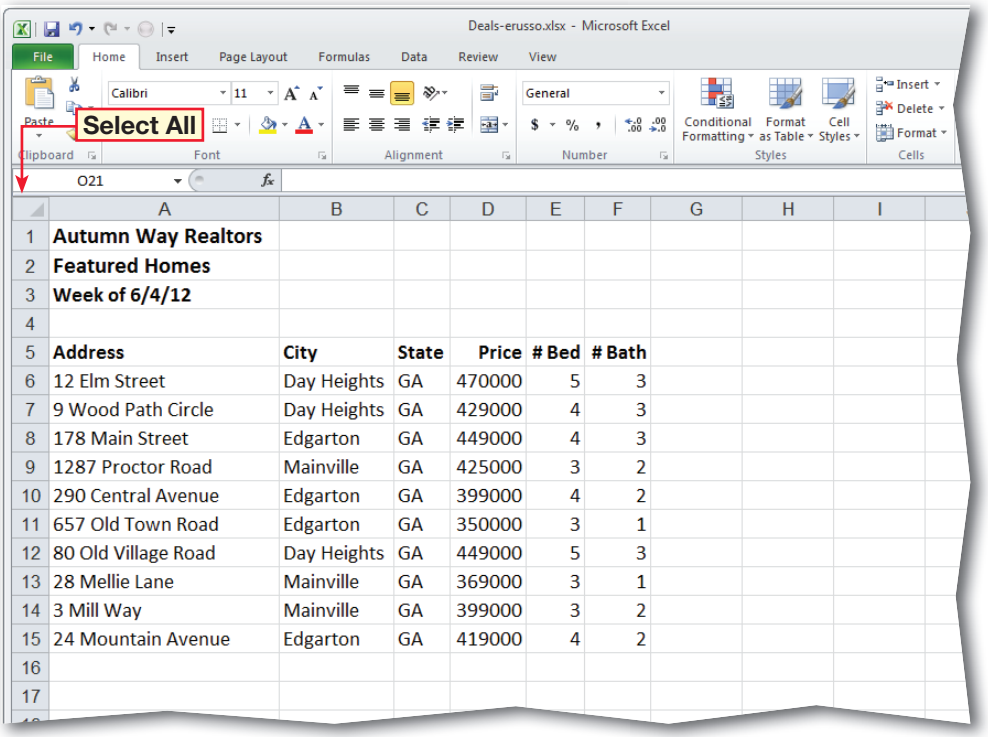


FIGURE 5.2 Worksheet with imported data



	A	B	C	D	E	F
1	**Autumn Way Realtors**					
2	**Featured Homes**					
3	**Week of 6/4/12**					
4						
5	**Address**	**City**	**State**	**Price**	**# Bed**	**# Bath**
6	12 Elm Street	Day Heights	GA	470000	5	3
7	9 Wood Path Circle	Day Heights	GA	429000	4	3
8	178 Main Street	Edgarton	GA	449000	4	3
9	1287 Proctor Road	Mainville	GA	425000	3	2
10	290 Central Avenue	Edgarton	GA	399000	4	2
11	657 Old Town Road	Edgarton	GA	350000	3	1
12	80 Old Village Road	Day Heights	GA	449000	5	3
13	28 Mellie Lane	Mainville	GA	369000	3	1
14	3 Mill Way	Mainville	GA	399000	3	2
15	24 Mountain Avenue	Edgarton	GA	419000	4	2
16						
17						

Step-By-Step

EXERCISE 5-2
Link to Web Page Data

In addition to importing data from text files, you can also import data from a Web page. To do so, you must create a **Web query**. A Web query opens a Web page and then imports one or more tables of data from the Web page into your workbook. When you use a Web query, you can specify which parts of the Web page you want to import, as well as how much formatting you want to keep. A Web query creates a link to the Web page. This allows you to keep the information as current as possible.

1. In your **Deals** file, click the **Sheet2** tab.
2. Choose **Data>Get External Data>Existing Connections**.
3. In the **Existing Connections** dialog box, double-click **MSN MoneyCentral Investor Currency Rates** (see Figure 5.3).
4. In the **Import Data** dialog box, make sure **Existing worksheet** is selected.
5. Click **OK**.
6. CHECK Your screen should look like Figure 5.4.
7. Save your file.

Continue to the next exercise.

FIGURE 5.3 Existing Connections dialog box

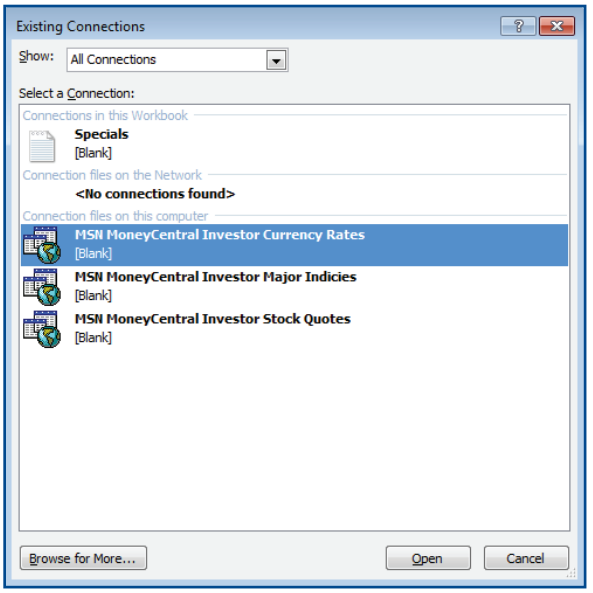
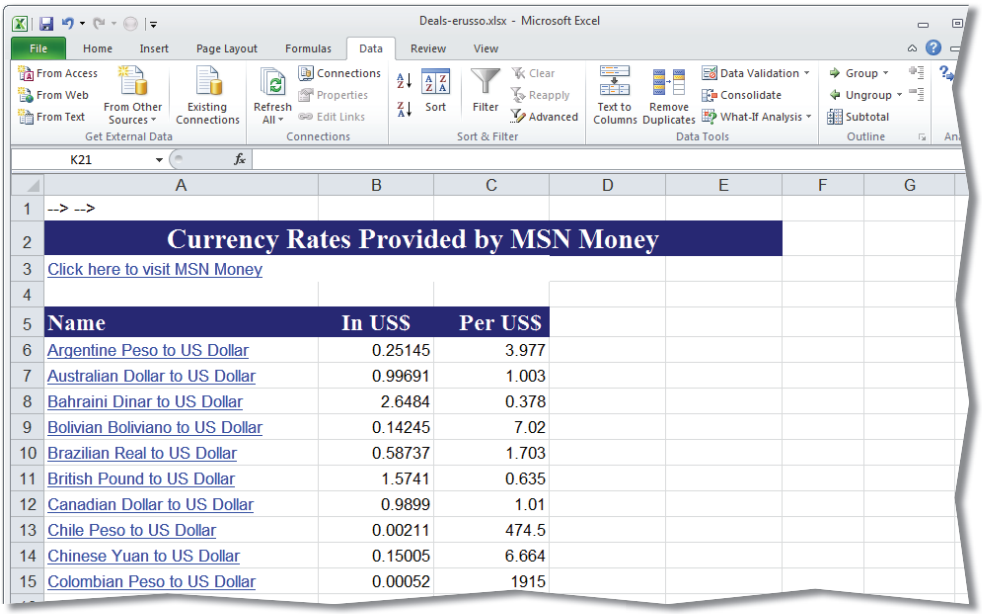


FIGURE 5.4 Data imported from Web page



Tech Tip

To import data directly from a Web page, choose **Data>Get External Data> From Web**. In the **New Web Query** dialog box, key the Internet address for the Web page, select the data or tables you want to import, and click **Import**.

Step-By-Step

1. In your **Deals** file, click the **Sheet1** tab. Choose **File>Save As**.
2. In the **File name** box, key: Deals-copy-[your first initial and last name]. Click **Save**.
3. In your **Deals-copy** file, scroll to the right and hide the three columns of home data (in columns D, E, and F). (Select the columns, right-click, and selected **Hide**.) Choose **File>Info**. Under **Prepare for Sharing**, click **Check for Issues** and select **Inspect Document**. Click **Yes**.
4. CHECK Your dialog box should look like Figure 5.5.
5. Make sure all boxes in the **Document Inspector** dialog box are checked. Click **Inspect**.
6. CHECK Your screen should look like Figure 5.6.
7. Review the inspection results. Click both **Remove All** buttons.
8. Click **Reinspect**. Click **Inspect**. Note that all the hidden data and text have been removed.
9. Click **Close**. Save and close your **Deals-copy** file.

Continue to the next exercise.

EXERCISE 5-3
Use the Document Inspector

When a document is worked on by many people, it may reveal, or expose, details about your organization or about the workbook that should not be shared publicly. It might also contain comments, revisions, and tracked changes. Before you export, send, or share data with others, you can use the Document Inspector to remove hidden data from a worksheet. The Document Inspector reviews documents for hidden data or personal information that is stored in the document or document properties.

FIGURE 5.5 Document Inspector dialog box

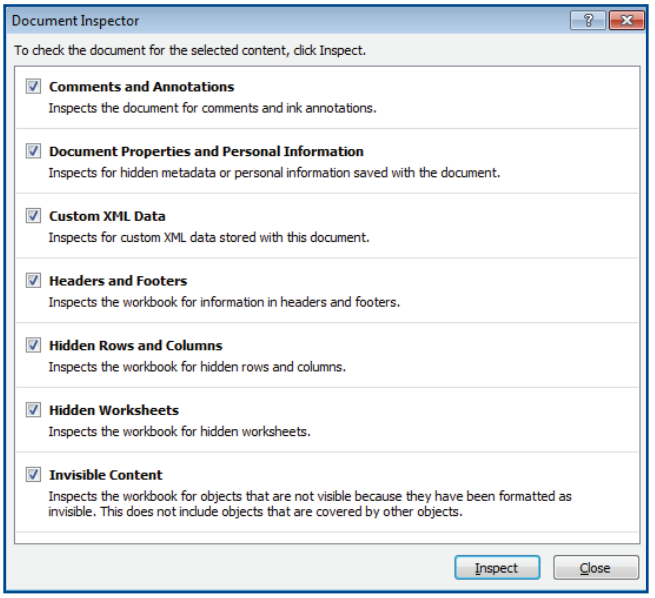
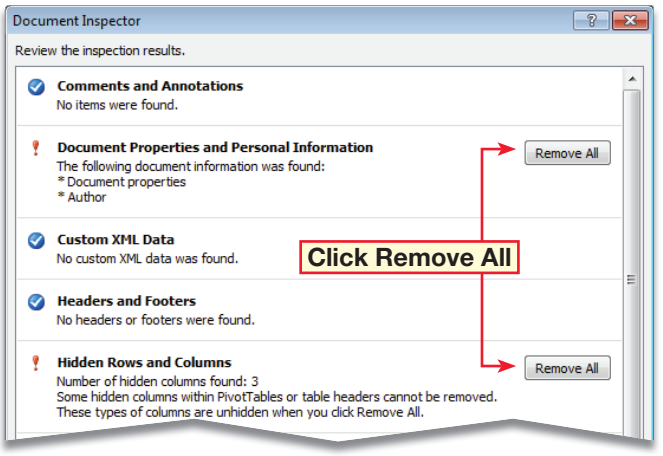


FIGURE 5.6 Document Inspector dialog box with inspection results



You Should Know

You can use the **Document Inspector** to search for hidden rows, columns, and worksheets in **Excel**.

Step-By-Step

EXERCISE 5-4
Add Information to Workbook Properties

You can save useful information as part of a workbook, such as the name of the author, or source, comments about the workbook, worksheets included in the workbook, and the last date the workbook was modified. Each piece of information is called a property. You can use the Document Information Panel to view, add, and edit the document properties easily while you work on the document. This can help you to identify the file inside the Open dialog box and make it easier to find when performing a search.

1. Open your **Deals** file, and choose **File>Info**. Click the **Properties** drop-down arrow on the right side of your screen. Select **Show Document Panel**.
2. The **Document Information Panel** opens.
3. CHECK Your screen should look like Figure 5.7.
4. In the **Document Information Panel**, click the drop-down arrow next to **Document Properties**. Select **Advanced Properties**.
5. Click the **Contents** tab. Click the **General**, **Statistics**, and **Custom** tabs.
6. Click the **Summary** tab. Triple-click the text in the **Author** box and key your name.
7. In the **Subject** box, key: Featured Homes. In the **Keywords** box, key: 6/04/12 (see Figure 5.8). Click **OK**.
8. Close the **Document Information Panel**. Choose **File>Info** and click **Show All Properties**. Note the changes. Save and close your file.

Continue to the next exercise.

FIGURE 5.7 Document Information Panel

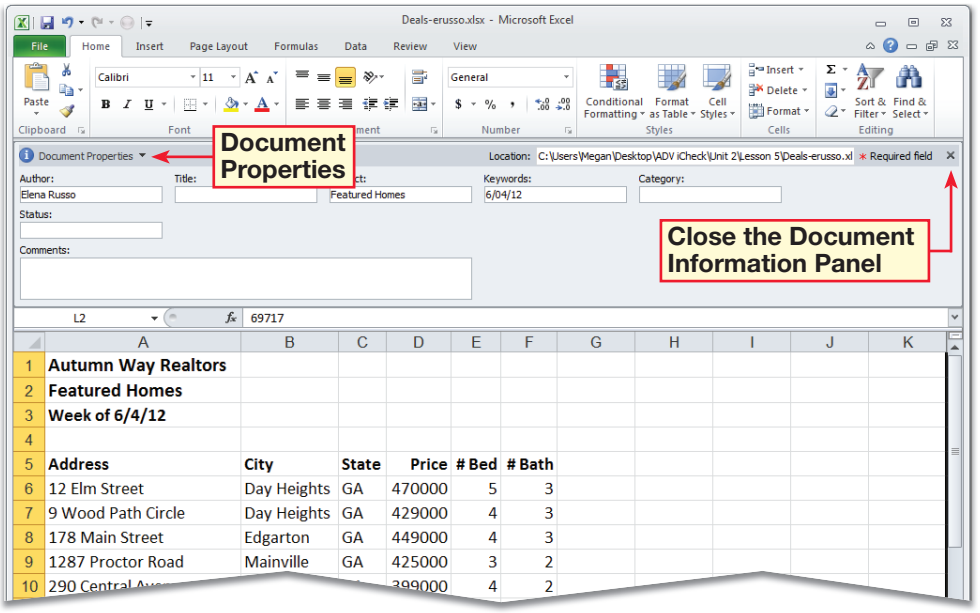
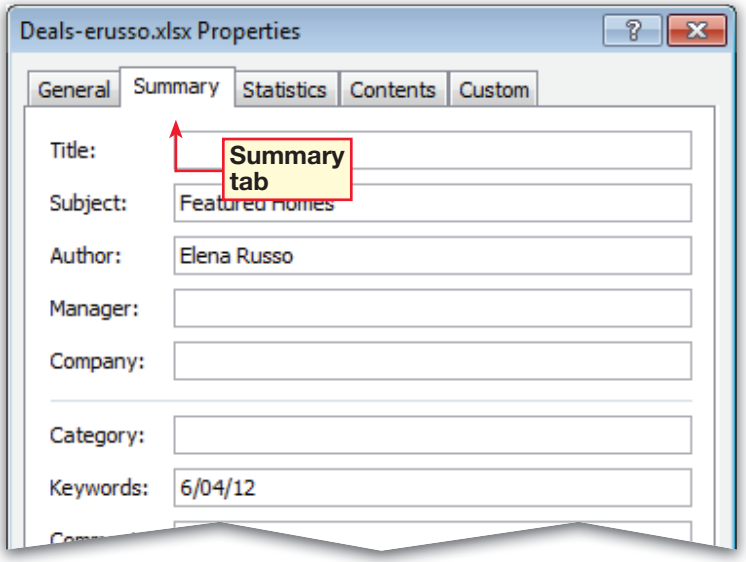


FIGURE 5.8 Properties dialog box



Step-By-Step

1. Open the data file **Homes.xlsx**.
2. Choose **File>Save As**. In the **Save As** dialog box, in the **File name** box, key: Homes-[your first initial and last name].
3. In the **Save as type** box, select **Excel Template**.
4. CHECK Your screen should look like Figure 5.9.
5. Click **Save**. The template is saved automatically in the **Templates** folder.
6. Click cell **B18**. Choose **Home>Editing**, and then click **Sum** Σ twice.
7. CHECK Your screen should look like Figure 5.10.
8. Select **A4:B4**. Click **Bold**. Deselect the range. Click cell **A1**. Save and close your template.

Continued on the next page.

EXERCISE 5-5
Create and Edit a Workbook Template

DATA FILE

If you create many workbooks that are similar to each other, using a template will save time. A **template** is a workbook that is used as the basis for new workbooks. You can use built-in templates, or create your own **user-defined template**. When you create a workbook based on a template, Excel opens a copy of the template, and you fill in the details.

FIGURE 5.9 Save As dialog box

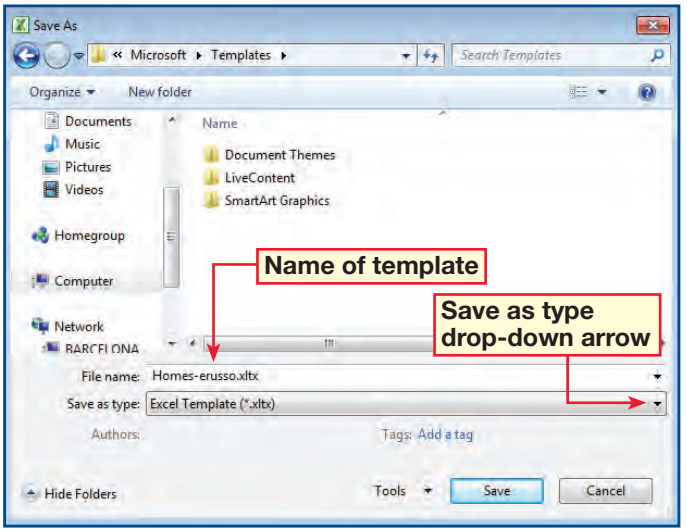
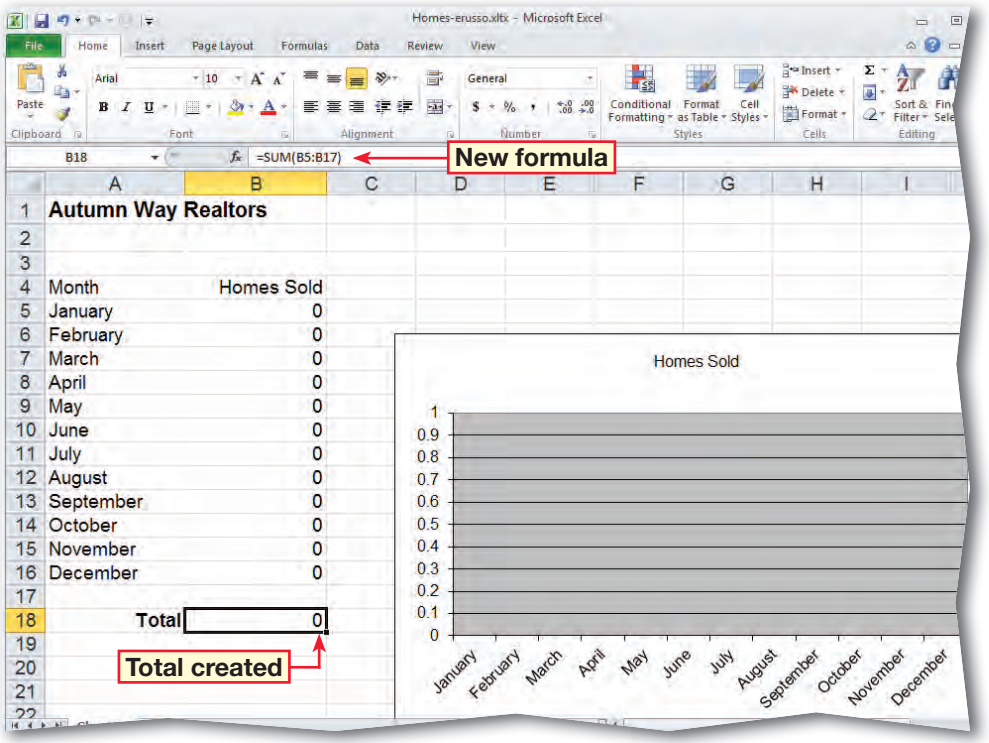


FIGURE 5.10 Formula added



You Should Know

Excel comes with common templates such as an expense report and a billing statement.

EXERCISE 5-5 (Continued)
Create and Edit a Workbook Template

Step-By-Step

9. Choose **File>New**.
10. Under **Available Templates**, click **My templates**.
11. In the **New** dialog box, select the **Homes** template you just created (see Figure 5.11). Click **OK**. A new workbook is created based on the template.
12. Ask your teacher where to save your file. Save as: Bluehills-[your first initial and last name].
13. Click cell **A2**. Key: Blue Hills Office. Press ENTER.
14. Click cell **B5**. Key: 23. Press ENTER. Key: 17. Press ENTER.
15. CHECK Your screen should look like Figure 5.12.
16. Save and close your file.

Continue to the next exercise.

Tech Tip

Make each template as complete as possible. Include everything that you think you will need each time you use the template, including formulas, formatting, headers, and so on.

FIGURE 5.11 New dialog box

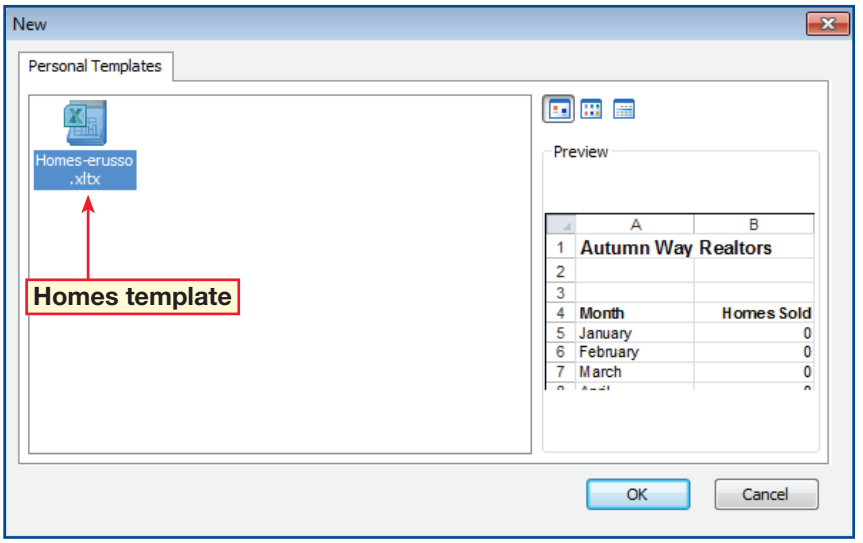
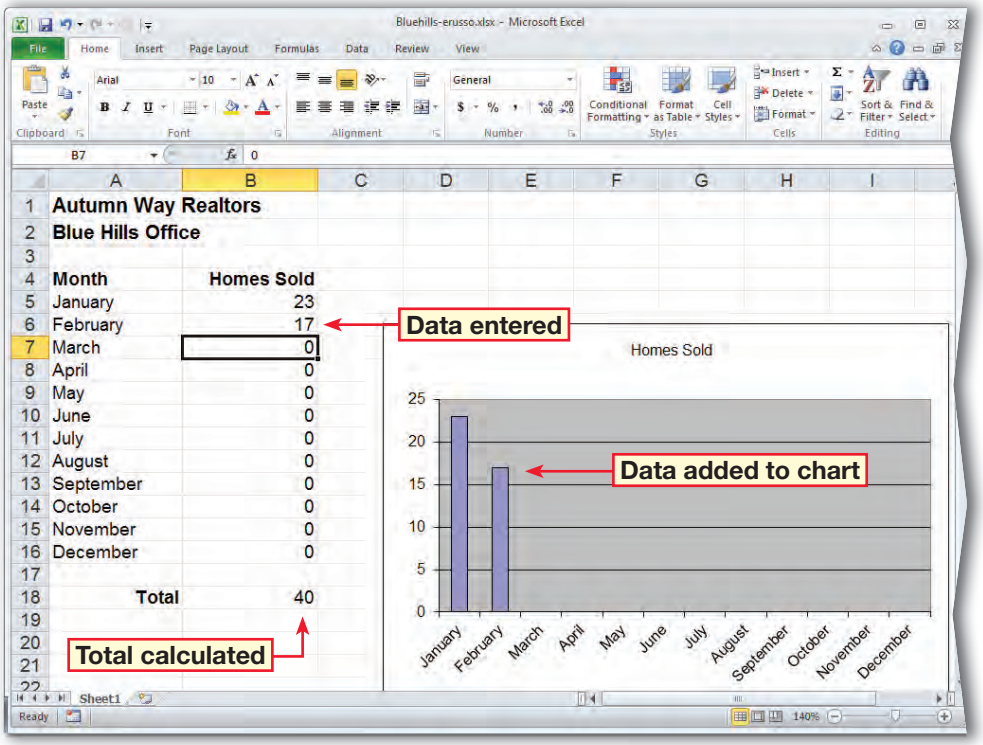


FIGURE 5.12 New workbook based on template



Step-By-Step

EXERCISE 5-6
Save Workbooks As Previous Versions

Office Excel 2010 works with previous versions of Excel. However, you cannot use all of the new and enhanced features and functionality without some conversion. If you decide to convert a workbook to or from an earlier version of an Excel workbook (with the document extension .xls), you can use a tool called the **Compatibility Checker**. The Compatibility Checker ensures that a workbook is compatible with earlier versions of Excel so that you can avoid the loss of data.

1. In your **Bluehills** file, choose **File>Save & Send**.
2. Under **File Types**, click **Change File Type**. Select the **Excel 97-2003 Workbook** option on the right side of the screen. Click **Save As**.
3. In the **Save As** dialog box, navigate to the folder with the **Bluehills** workbook file and click **Save**.
4. CHECK Your screen should look like Figure 5.13.
5. Close your **Bluehills** file. Navigate to and open the data file **Downtown.xlsx**.
6. Choose **File>Info**. Under **Prepare for Sharing**, click **Check for Issues**. Select **Check Compatibility**.
7. CHECK Your screen should look like Figure 5.14. Click **OK**.
8. Choose **File>Save As>Excel 97-2003 Workbook**. In the **File name** box, key: Downtown-[your first initial and last name]. Click **Save**. Click **Continue**.
9. Close and reopen the file. Note the **.xls** file extension and the **Compatibility Mode** indicator in the title bar. Close your file.

Continue to the next exercise.

FIGURE 5.13 Excel 97-2003 file format

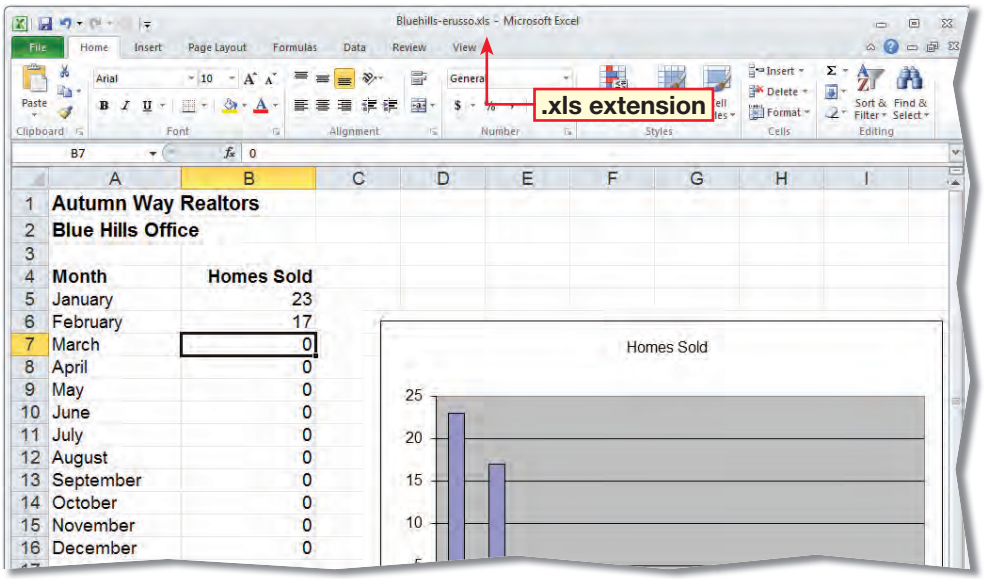
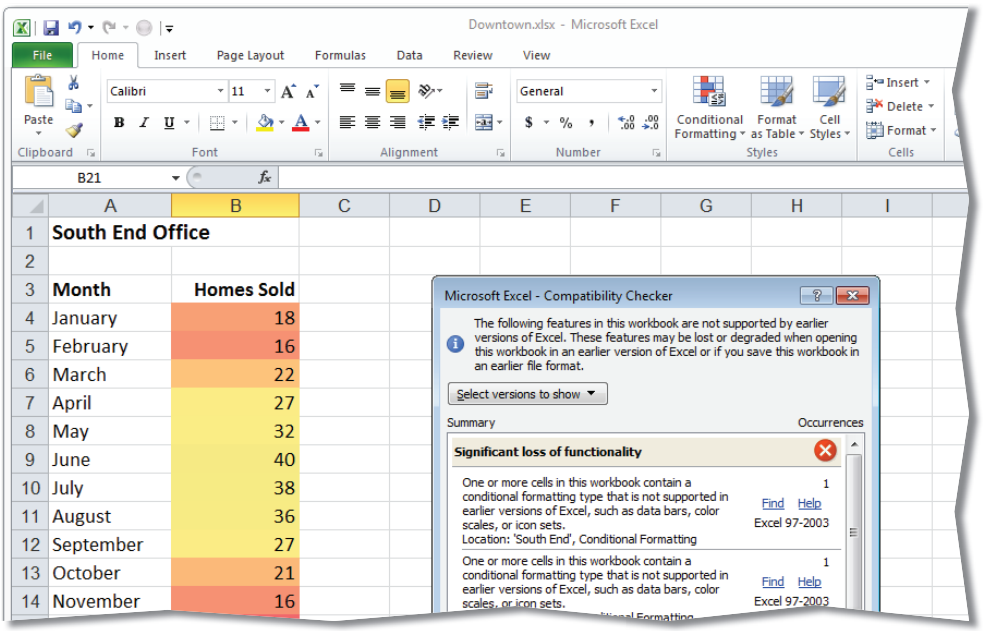


FIGURE 5.14 Compatibility Checker



Step-By-Step

EXERCISE 5-7
Save a Workbook As a PDF or XPS

You can create a fixed-layout format of your file that is easy to share and print, but which cannot be modified. In order to do this, you can save the file as a PDF (Portable Document Format) or XPS (XML Paper Specification) format using Backstage view. This will preserve document formatting so that the file will look the same when the file is viewed online or printed.

1. Open the data file **Downtown.xlsx**.
2. Choose **File>Save & Send**. Under **File Types**, click **Create PDF/XPS Document**. Click **Create PDF/XPS**.
3. In the dialog box, navigate to the folder holding the **Downtown** workbook file. In the **File name** box, key: Downtown-[your first initial and last name].
4. In the **Save as type** box, select **PDF**. Make sure the **Open file after publishing** box is checked.
5. CHECK Your dialog box should look like Figure 5.15. Click **Publish**.
6. CHECK Your screen should look similar to Figure 5.16.
7. Exit **Adobe Acrobat**. Close the **Downtown** data file.

Continue to the next exercise.

FIGURE 5.15 Publish as PDF or XPS dialog box

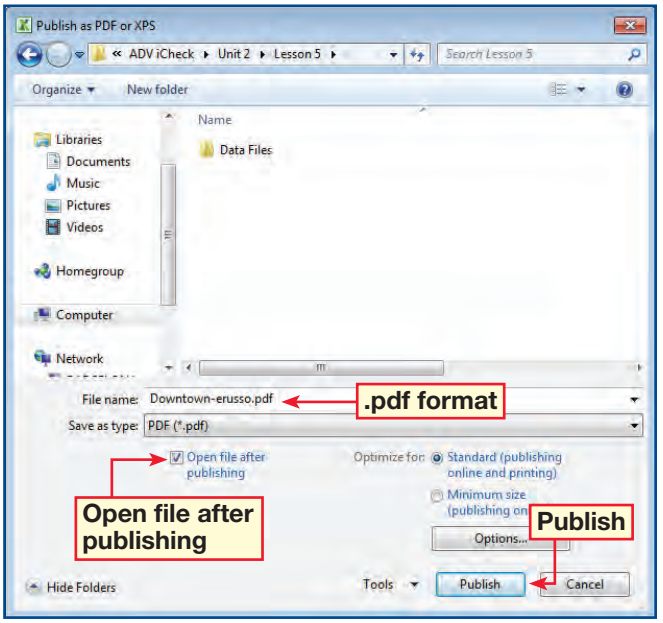
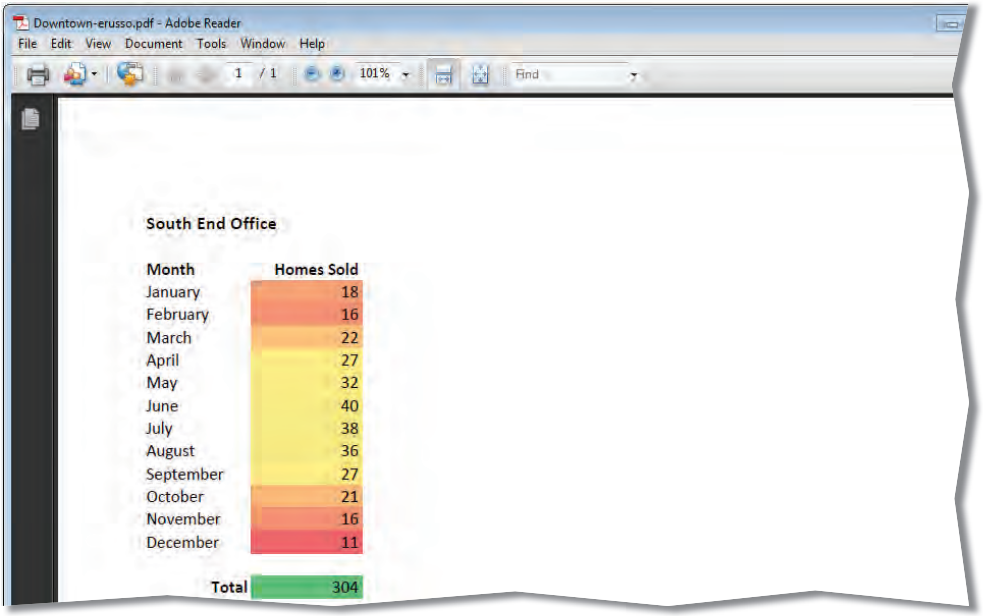


FIGURE 5.16 PDF file in Adobe Reader



Academic Skills

One way PDFs can be useful is in the classroom. For example, your chemistry teacher may provide a PDF version of the periodic table.

EXERCISE 5-8
Save a Workbook As Macro-Enabled

A **macro** is a sequence of actions that you record and then play back with a single command. Macros improve efficiency because they allow you to perform, or carry out, several commands in one step, such as maximizing the window and opening a specific worksheet when a workbook is opened. You can save a version of your workbook in the XML-based and macro-enabled file format. If you decide that you want to use macros in your documents, or to allow others to do so, you must save your workbook in a macro-enabled format first.

Step-By-Step

1. In your **Downtown** file, choose **Save As>Excel Macro-Enabled Workbook**.
2. iCHECK Your dialog box should look like Figure 5.17.
3. In the **Save As** dialog box, navigate to the folder holding the **Downtown** workbook file and click **Save**.
4. iCHECK Your screen should look like Figure 5.18.
5. Save your file.

Continue to the next exercise.

FIGURE 5.17 Save As dialog box

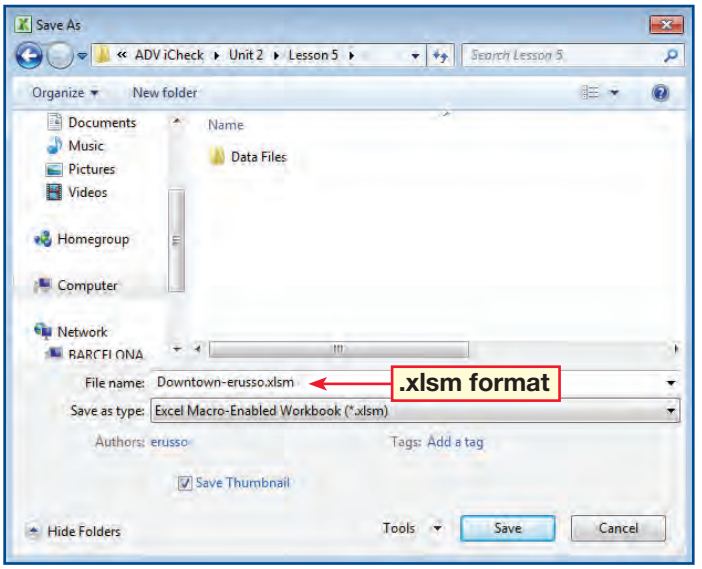
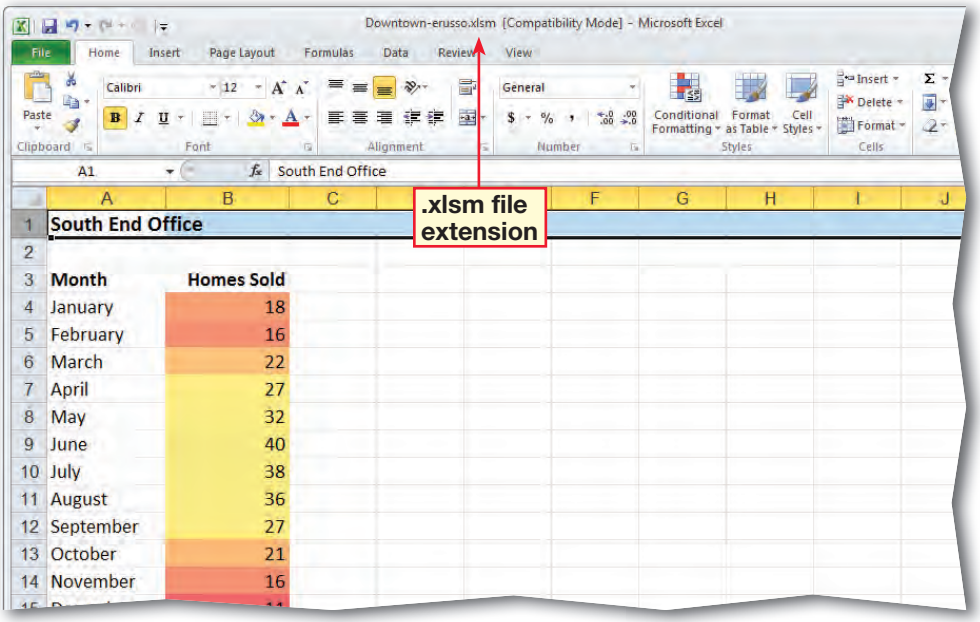


FIGURE 5.18 Macro-enabled file



You Should Know

When you create a macro, your actions are recorded in the programming language **Visual Basic**.

Tech Tip

XML (eXtensible Markup Language) is a markup language, similar to HTML, that allows you to share data across various applications. One of the advantages of XML is that the same information can be used by multiple applications without having to be re-saved in another format.

Step-By-Step

EXERCISE 5-9
Create a Macro

If you find that you regularly perform the same series of actions, you can create a macro to speed up your work. You must first save the workbook in a macro-enabled format. When you record a sequence of actions to be played back with a single click of a button or a shortcut command, the macro you create is actually a very simple and small application for use within Excel. Macros improve efficiency because they allow you to perform several commands in one step. In Microsoft Excel 2010, you can also create a custom group on the ribbon and then assign a macro to a button in that group.

1. In your **Downtown.xlsm** file, choose **File>Info> Options**. Under **Customize the Ribbon** on the right, check the box in front of **Developer** to add the tab to the ribbon. Click **OK**.
2. Choose **Developer> Code>Record Macro**.
3. In the **Macro name** box, key: New_row (see Figure 5.19). Press TAB.
4. In the **Shortcut key** box, key: N. The keyboard shortcut will be CTRL + SHIFT + N.
5. CHECK Your dialog box should look like Figure 5.19. Click **OK**.
6. Click the row selector to the left of row **1** to select the entire row (see Figure 5.20).

Continued on the next page.

FIGURE 5.19 Record Macro dialog box

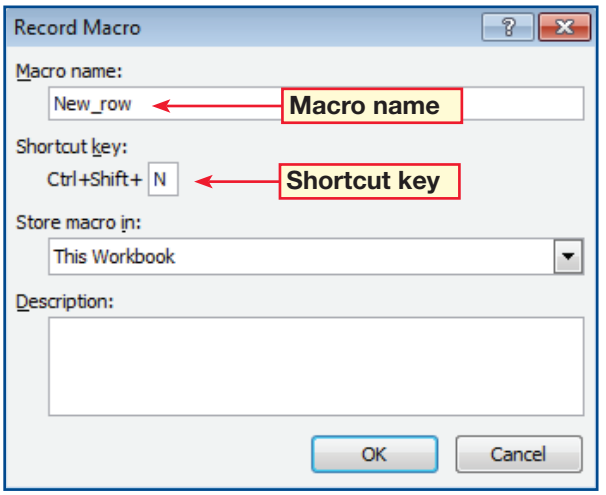
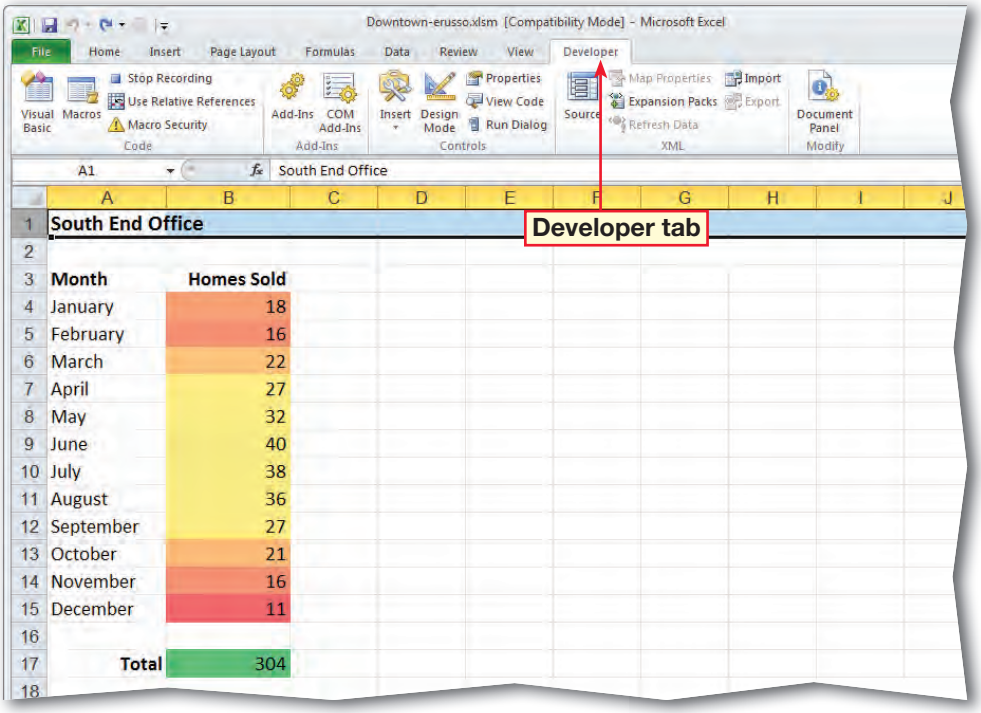


FIGURE 5.20 Recording a macro



Academic Skills

The term *macro* can also be used to describe something large. A computer macro is a single keystroke or set of keystrokes that substitutes for a larger group of commands. The antonym, or opposite, of macro is *micro*.

EXERCISE 5-9 (Continued)
Create a Macro

Step-By-Step

7. Choose **Home>Cells> Insert** to insert a new row. Click **Bold**.
8. Click the **Font Size** drop-down arrow. Choose **16**. Click **A1** to deselect the row.
9. Choose **Developer>Code> Stop Recording**.
10. CHECK Your screen should look like Figure 5.21.
11. In cell **A1**, key: Autumn Way Realtors. Press ENTER.
12. CHECK Your screen should look like Figure 5.22. Save your file.

Continue to the next exercise.

FIGURE 5.21 New row added to worksheet

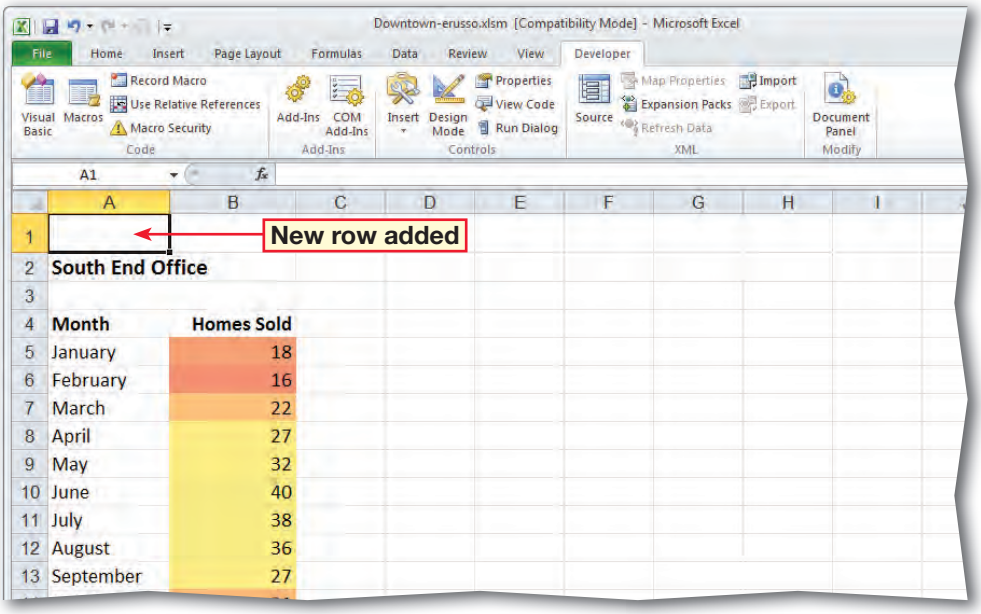
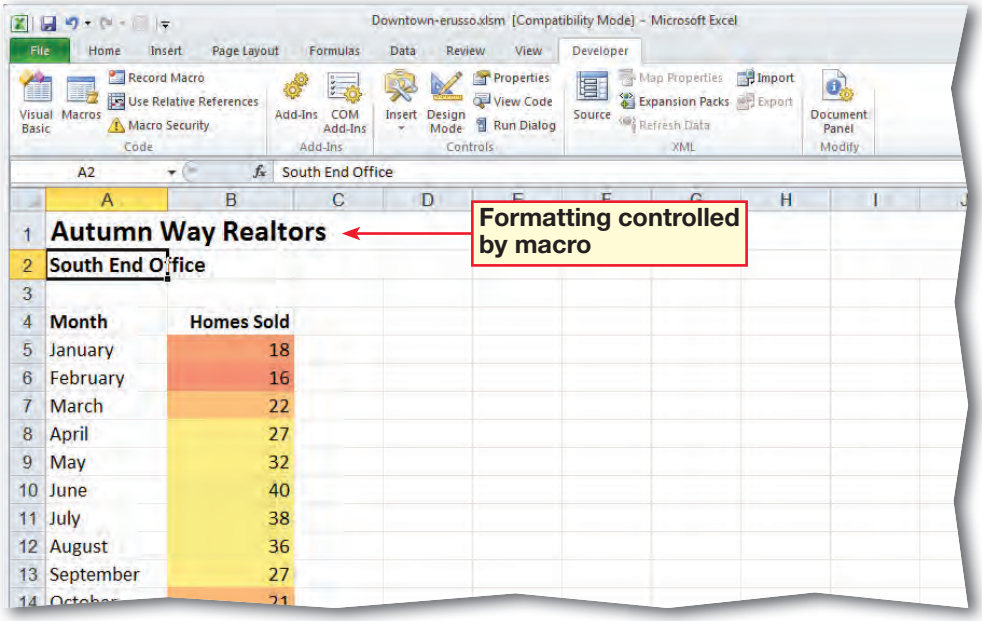


FIGURE 5.22 Macro-controlled formatting



Troubleshooter

If you make a mistake while recording a macro, you can modify the macro or delete the macro and start over. To delete the macro, choose **Developer>Code> Macros**. Click the name of the macro, and then click **Delete**. Click the name of the macro and click **Edit** to change the macro's shortcut or modify its code in **Visual Basic**.

You Should Know

To run a macro when a workbook opens, record the macro and save it with the name **Auto_Open**.

Step-By-Step

EXERCISE 5-10
Run a Macro

When you run a macro, you play back all of the actions that you recorded in one step. You can run a macro from the Macro dialog box, but it is faster to use the keyboard shortcut, or set of hot keys, that you specified when you created the macro. You can also configure the Quick Access Toolbar to run a macro by choosing File>Options>Quick Access Toolbar. In the Choose Commands from list, select Macros. In the list, click the macro that you created, click Add and then click OK.

1. In your **Downtown.xlsm** file, select the **West End** sheet tab. Choose **Developer>Code> Macros**.
2. In the **Macro** dialog box, in the **Macro name** list, click **New_row**. Click **Run**.
3. CHECK Your screen should look like Figure 5.23. Note that when new text is added, the macro will format it automatically.
4. In cell **A1**, key: Autumn Way Realtors. Press ENTER.
5. Select the **Downtown Total** sheet tab. Press CTRL + SHIFT + N. Another formatted row is added to the worksheet.
6. In the new cell **A1**, key: Autumn Way Realtors. Press ENTER.
7. CHECK Your screen should look like Figure 5.24. Save your file.

Continued to the next page.

FIGURE 5.23 New row inserted in worksheet

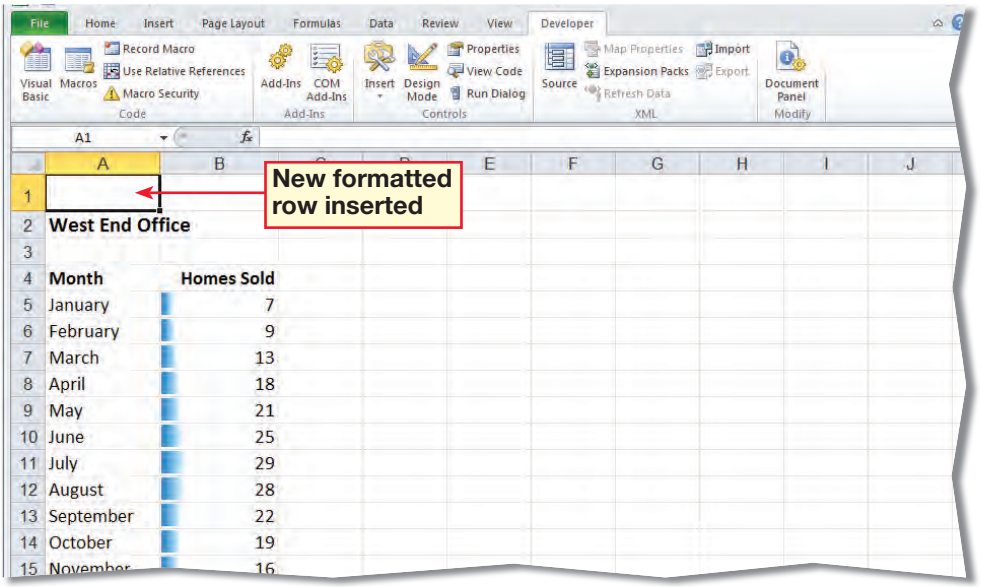
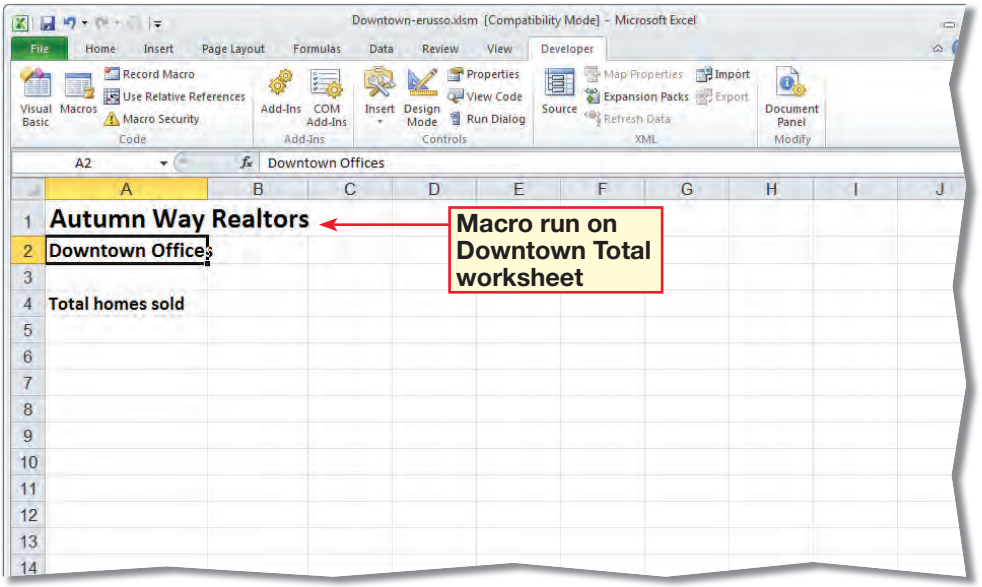


FIGURE 5.24 Macro run



You Should Know

The shortcut for a macro will override any default **Excel** shortcuts while the workbook that contains the macro is open.

Step-By-Step

EXERCISE 5-10 (Continued)
Run a Macro

8. Choose **File>Options>Customize Ribbon**. In the **Customize the Ribbon** drop-down list, make sure **Main Tabs** is selected and select **Developer**. Click **New Group**.

9. Click the **Choose commands from** the drop-down arrow and select **Macros**. Select the **New_row** macro. In the **Customize the Ribbon** list, make sure the new group is selected. Click **Add**. Click **OK**.

10. CHECK Your screen should look like Figure 5.25.

11. Choose **Developer>New Group>New_row** and test the macro button.

12. Choose **Developer>Code>Macros.** In the **Macro** dialog box, click **Edit**. In the **Visual Basic** editor, change the shortcut code to: Ctrl+Shift+R.

13. CHECK Your screen should look like Figure 5.26.

14. Close the **Visual Basic** editor. Save and close your file.

Continue to the next exercise.

FIGURE 5.25 New_row macro assigned to command button on Developer tab

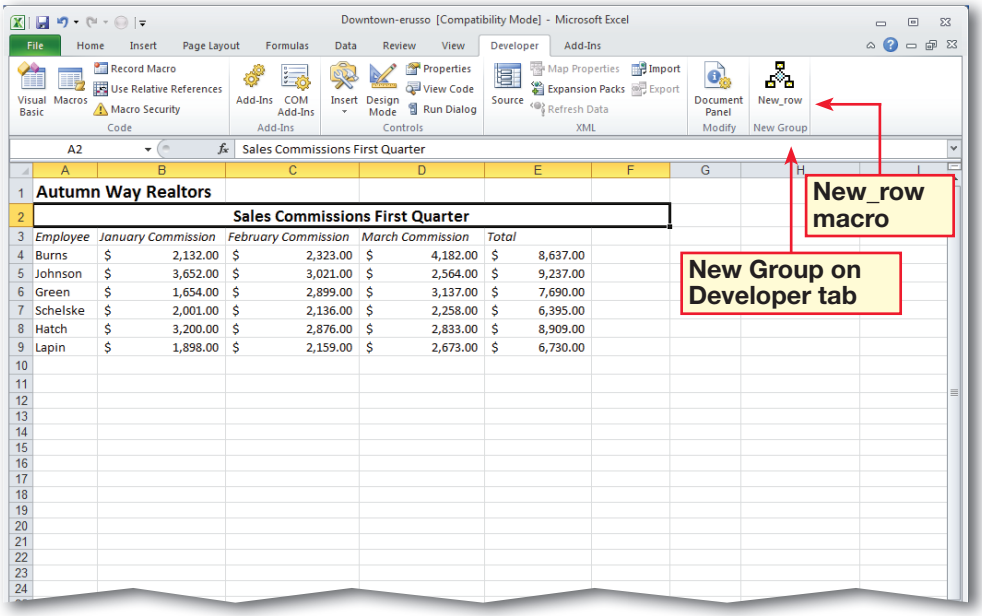
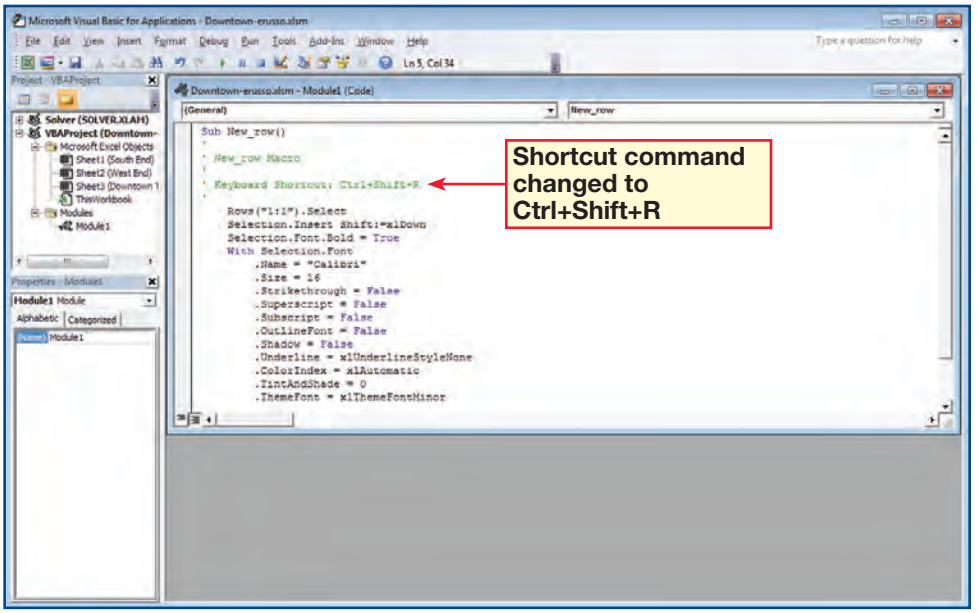


FIGURE 5.26 Macro shortcut key modified in Visual Basic editor



Step-By-Step

EXERCISE 5-11
Consolidate Data from Two or More Worksheets

DATA FILE

You can create a **summary worksheet** to **consolidate**, or combine, data from multiple worksheets. Summary worksheets contain formulas that include references to cells on multiple sheets. They are useful because they contain all the essential data you need in a single location, each with its fully functioning formulas.

1. Open the data file **Paper.xlsx**. Save as: Paper-[your first initial and last name].
2. In cell **B9** on the **1stQuarter**, **2ndQuarter**, **3rdQuarter**, and **4thQuarter** sheets, use **AutoSum** to calculate a total for the three months.
3. In the **Summary** sheet, click cell **B3**. Key: =SUM((See Figure 5.27). Click the **1stQuarter** sheet tab. Click cell **B9**. Press ENTER.
4. In the **Summary** sheet, click cell **B4**. Key: =SUM(. Click the **2ndQuarter** sheet tab. Click cell **B9**. Press ENTER.
5. Repeat Steps 3 and 4 to enter the total sales for **3rd Quarter** and **4th Quarter** in the **Summary** sheet.
6. In the **Summary** sheet, click cell **B8**. Key: =SUM(. Click the **1stQuarter** sheet tab. Click cell **B9**.
7. Press and hold SHIFT. Click the **4thQuarter** sheet tab. Press ENTER Click cell **B8**.
8. CHECK Your screen should look similar to Figure 5.28.
9. Save and close your file.

FIGURE 5.27 Creating a formula across multiple worksheets

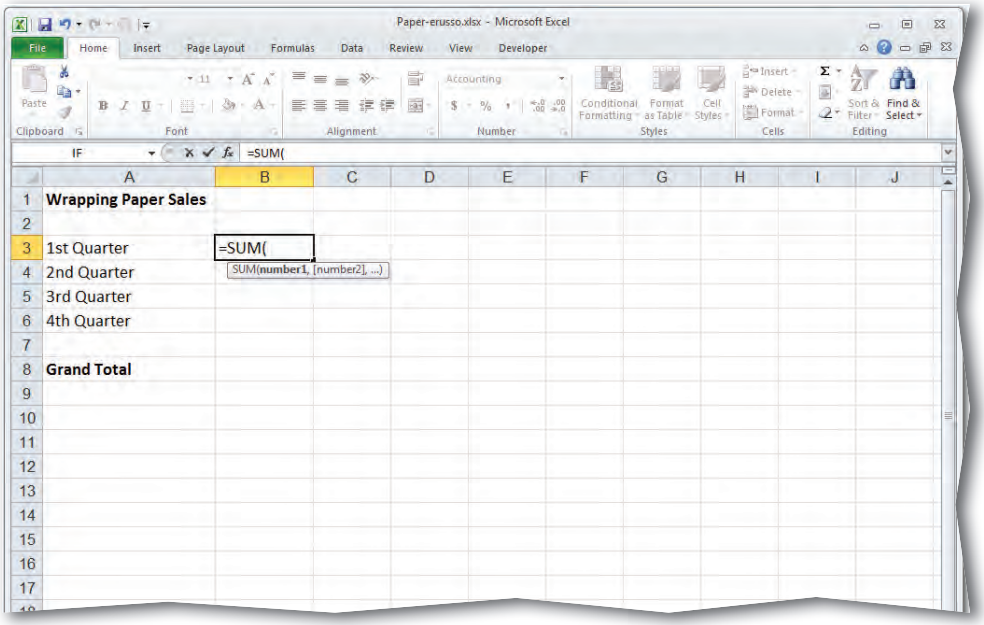
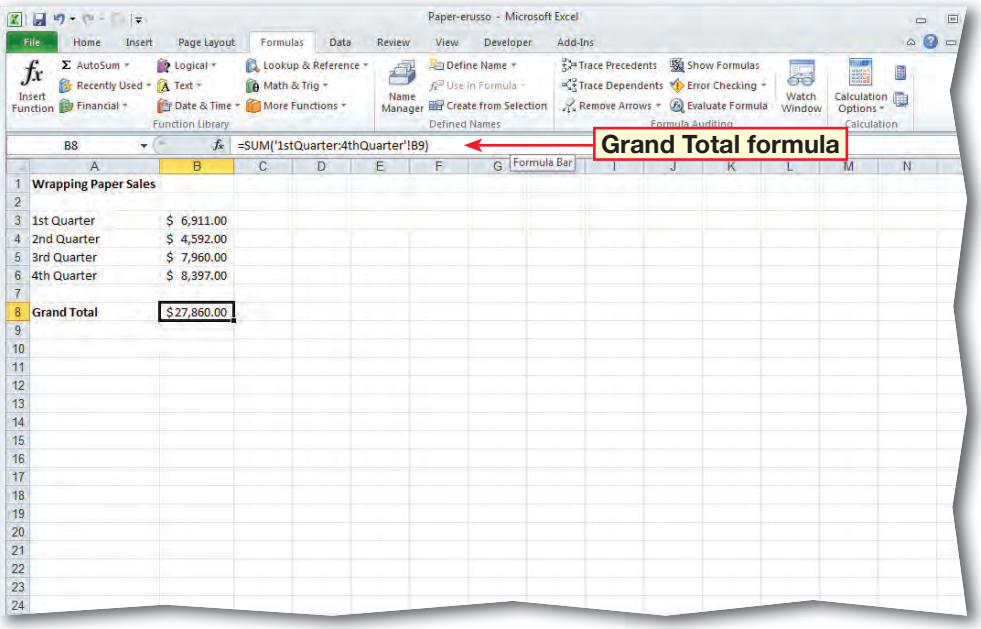


FIGURE 5.28 Summary worksheet



MATH MATTERS

Payroll Sheet

Congratulations! You just finished your first week at your first job. Because it is an entry-level position, you are working 35 hours a week, earning $7.50 an hour. On your first paycheck, you earned a total (gross pay) of $262.50. Deductions came to a total of $65.04, leaving you with a net pay of $197.46. What does all of this mean?

Federal Taxes, State Taxes, and Security

All workers need to pay taxes to the federal and state governments for many programs, including building roads and schools. The federal government also collects payments for Social Security, which provides income for retired and disabled persons.

Gross pay is the total amount that you earned before taxes are subtracted. Deductions are the amount of money that is subtracted from your earnings. Net pay, also called "take-home pay," is the amount after deductions are subtracted. Net pay is calculated as follows: Gross pay − Deductions = Net pay.

Employee	Gross Pay	Deductions			Net Pay
		Federal Taxes	*State Taxes*	*Social Security*	
Adams, J.	297.50	26.78	14.88	18.45	237.39
Bart, L.	315.00	28.35	15.75	19.53	251.37
Moor, T.	314.50	28.31	15.73	19.50	250.96
Fisher, J.	400.00	36.00	20.00	24.80	319.20
Harris, B.	336.00	30.24	16.80	20.83	268.13

Payroll sheets show what employees have earned.

Payroll Records

Small to medium size employers may use Microsoft Excel to keep payroll records. The figure on the right shows a sample payroll record. Notice it contains each employee's gross pay, deductions, and net pay. Sometimes payroll sheets show other deductions, such as health insurance premiums or retirement payments. While larger employers often outsource payroll functions, Excel has the ability to calculate payroll checks.

SKILLBUILDER

1. **Define** What is the net pay of a paycheck?
2. **Explain** Why is it important for businesses to keep payroll records?
3. **Calculate** Sandy works 17 hours a week at $9.50 an hour. Each pay period she has $29.13 in deductions. What is Sandy's net pay?

LESSON 5 After You Read

Vocabulary

Key Terms

Compatibility Checker
delimited
Document Information Panel
Document Inspector
import
keyboard shortcut
macro
property
summary worksheet
template
user-defined template
Web query

Academic Vocabulary

author
consolidate
perform
reveal

Review Vocabulary

Complete the following statements on a separate piece of paper. Choose from the Vocabulary list on the left to complete the statements.

1. The Document Inspector can help you remove sensitive information about a document that you would not want to _____, or show to a reader. (p. 222)
2. To transfer data from Excel to another application, _____ the data. (p. 220)
3. A model worksheet ready to be filled in with new data is called a(n) _____. (p. 224)
4. The author is one example of a workbook _____. (p. 223)
5. _____ data are separated by a character such as a tab or comma. (p. 220)

Vocabulary Activity

6. Create a worksheet listing five of the vocabulary words that you learned in this lesson. Save the file as a PDF and print it out. Have a classmate fill in the definitions.
   A. Create a vocabulary list. Make sure there is a column for the definitions.
   B. Save the worksheet as a PDF in a location specified by your teacher.
   C. Have a classmate define the vocabulary words in your PDF file. Check his or her work.

Review Key Facts

Answer the following questions on a separate piece of paper.

7. How do you record the title, author, and subject of a workbook? (p. 223)
   A. Save the file as a template.
   B. Add workbook properties.
   C. Import the data.
   D. Save the file as a Web page.

8. How do you import data to Excel from a Web page? (p. 221)
   A. Save the file as a Web page.
   B. Consolidate the data.
   C. Create a Web query.
   D. Edit the template.

9. What do you create when you consolidate, or combine, data from multiple worksheets? (p. 233)
   A. Keyboard shortcut
   B. Summary Worksheet
   C. User-defined template
   D. Web query

10. What feature allows you to record a series of commands that can be played back using a single command using shortcut or hot keys? (p. 229)
    A. Web query
    B. Compatibility Checker
    C. template
    D. macro

LESSON 5 Practice It Activities

1. Import Data into Excel

DATA FILE

Follow the steps to complete the activity.

Step-By-Step

1. Open the data file **Trip.xlsx**. Save as: Trip-[your first initial and last name]1.
2. Click cell **A7**. Choose **Data>Get External Data>From Text**.
3. Locate and select the text data file **Band.txt**. Click **Import**. The **Text Import Wizard** opens.
4. Click **Next**. In the **Delimiters** box, make sure **Tab** is selected (see Figure 5.29).
5. Click **Next**. Click **Finish**. In the **Import Data** dialog box, click **OK**.
6. Click the **Select All** button.
7. Choose **Home>Cells> Format**. Click **AutoFit Column Width**. Deselect the range.
8. CHECK Your screen should look like Figure 5.30.
9. Save and close your file.

FIGURE 5.29 Text Import Wizard

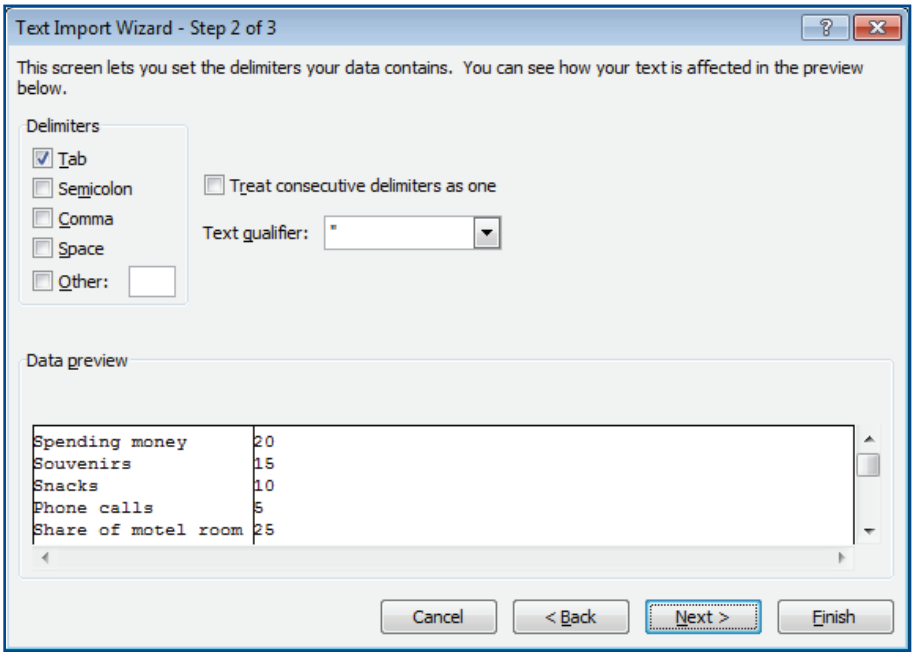
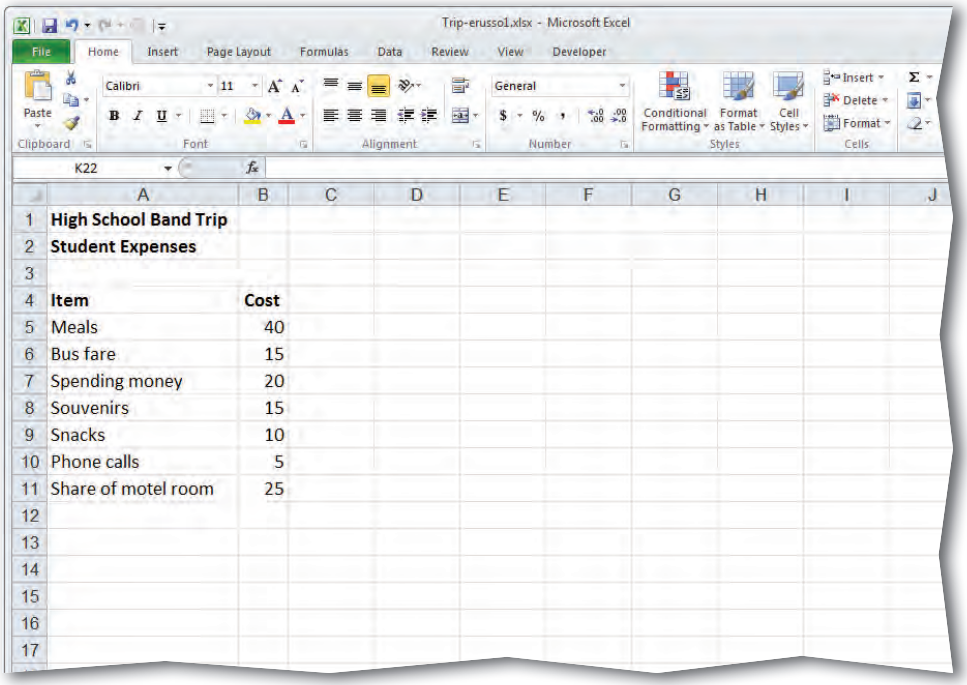


FIGURE 5.30 Worksheet with imported data



LESSON 5 Practice It Activities

Step-By-Step

1. Open your **Trip-1** file. Save as: Trip-[your first initial and last name]2. Choose **File>Info**. Click the **Properties** drop-down arrow and select **Show Document Panel**.
2. CHECK Your screen should look like Figure 5.31.
3. In the **Document Information Panel**, click **Document Properties**. Click **Advanced Properties**. The **Properties** dialog box opens.
4. Click the **Summary** tab. In the **Subject** box, key: Student expenses for spring school band trip. Key your name as the author, if necessary.
5. CHECK Your screen should look like Figure 5.32.
6. Click **OK**. Save your file. Close the **Document Information Panel**.
7. Choose **File>Save As**. Click the **Save as type** drop-down arrow and select **Excel 97-2003 Workbook (*.xls)**. Click **Save**.
8. Close your file.

2. Modify Workbook Properties and Save as a Previous Version

Follow the steps to complete the activity. You must complete Practice It Activity 1 before doing this activity.

FIGURE 5.31 Document Information Panel

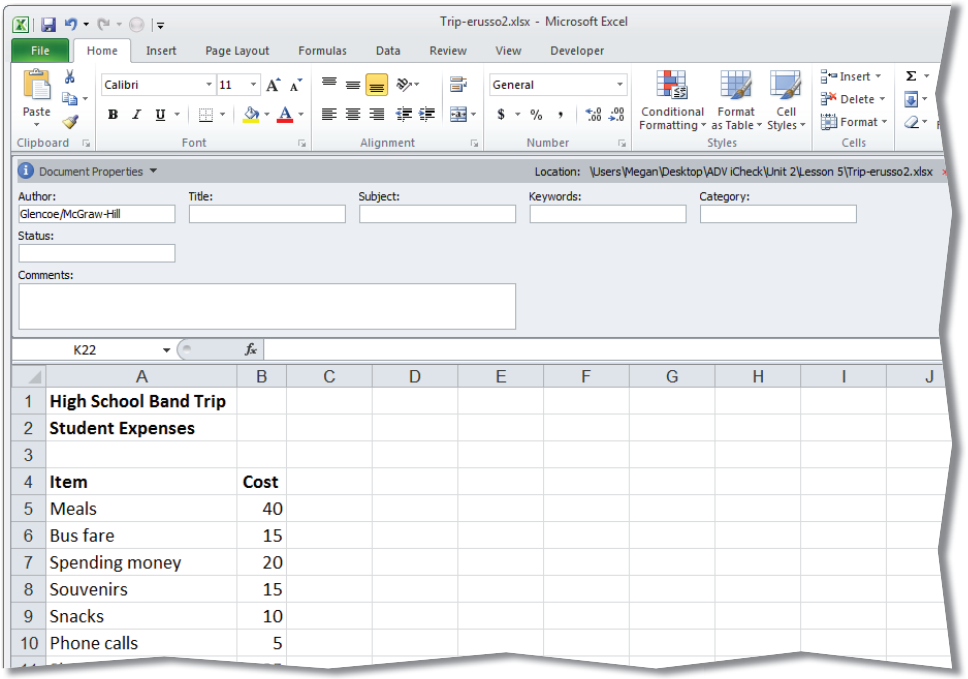
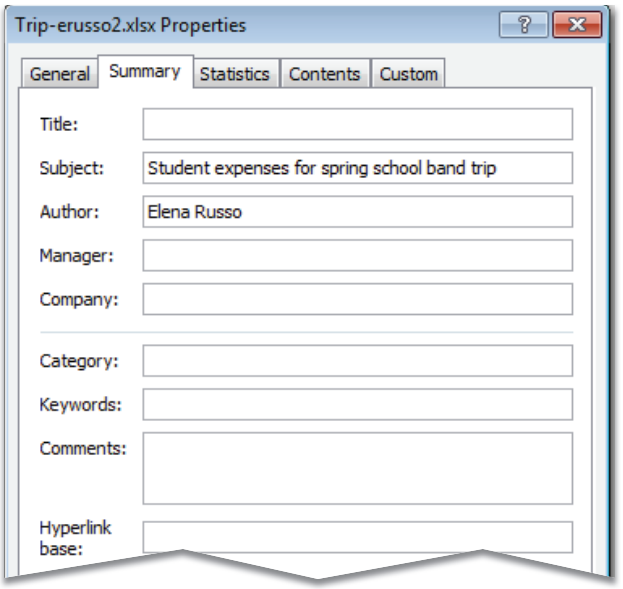


FIGURE 5.32 Subject added to Properties dialog box



LESSON 5 Practice It Activities

3. Create and Modify a Template

DATA FILE

One of your friends created a monthly budget worksheet for herself. She offers to let you use it so that you can create a template for your own budget.

Step-By-Step

1. Open the data file: **Month.xlsx**. Save as: Month-[your first initial and last name]3.
2. Save your file as an **Excel Template (*.xltx)**.
3. Close your template.
4. Choose **File>New**.
5. Click **My templates** to open the templates on your computer. Locate your **Month** template (see Figure 5.33). Click **OK**.
6. Save as: April-[your first initial and last name]3.
7. Fill in the amounts for your April budget, according to Figure 5.34.
8. Select **A1:B1**. Change the **Font Size** to **14**. Click **A9**. Change the **Font Size** to **14**.
9. CHECK Your screen should look like Figure 5.34.
10. Save and close your file.

FIGURE 5.33 Month template

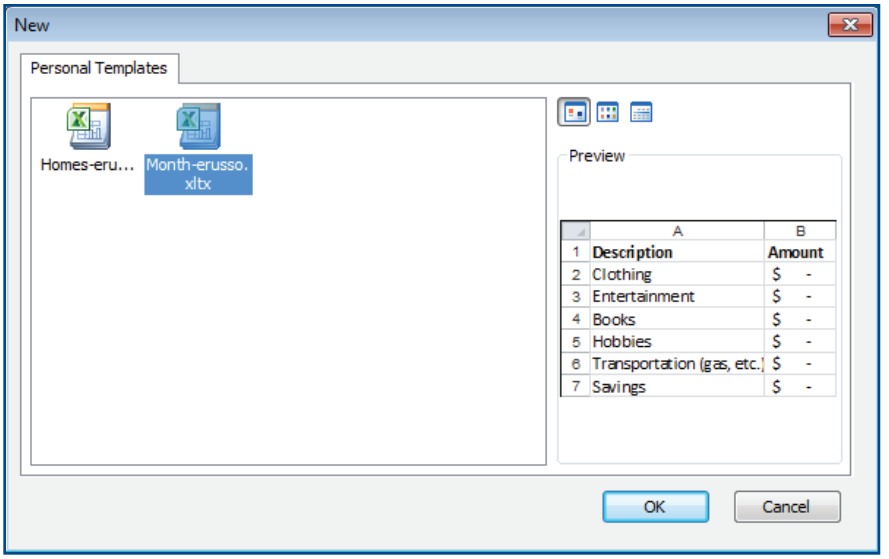
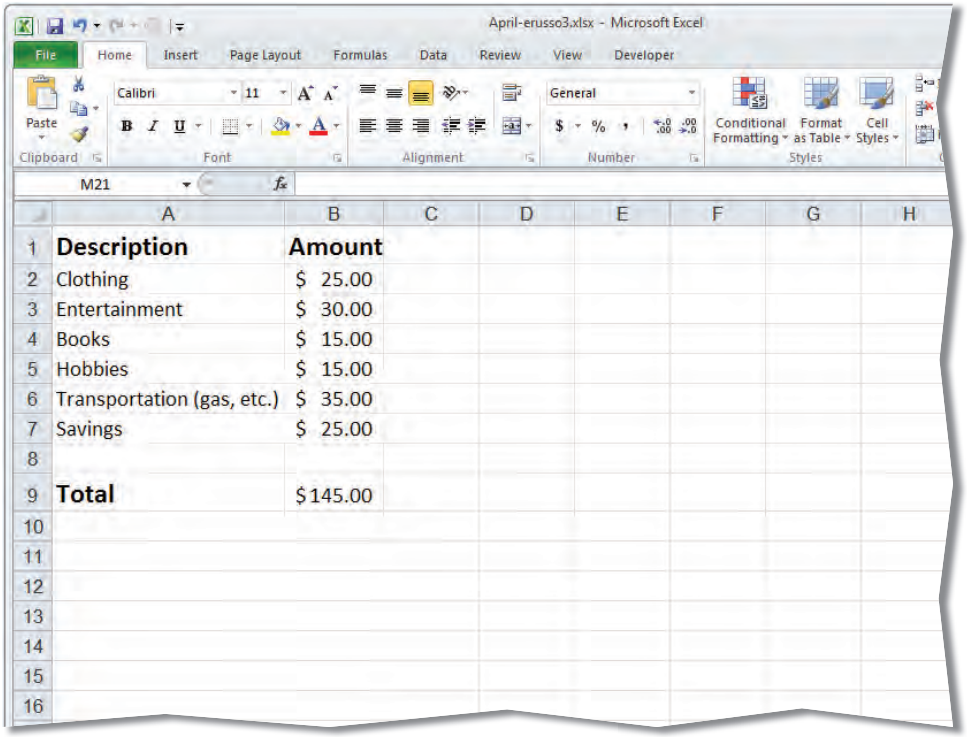


FIGURE 5.34 April budget



LESSON 5 You Try It Activities

Step-By-Step

1. Open your **Downtown2.xlsm** workbook file. Save as: Downtown2-[your first initial and last name]4. Click **Enable Content**.
2. Click the **Downtown Total** sheet tab.
3. CHECK Your screen should look like Figure 5.35.
4. Click cell **B4**. Key: =SUM.
5. Create a formula that finds the total number of homes sold by the **South End** office and the **West End** office.
6. Press ENTER. Click cell **B4**.
7. CHECK Your screen should look like Figure 5.36.
8. Save and close your file.

4. Consolidate Data

Over the past year, Autumn Way Realtors has been tracking the number of homes sold per month at its two downtown offices. You have volunteered to consolidate the data for the two offices and announce the grand total to the team.

FIGURE 5.35 Downtown Total sheet

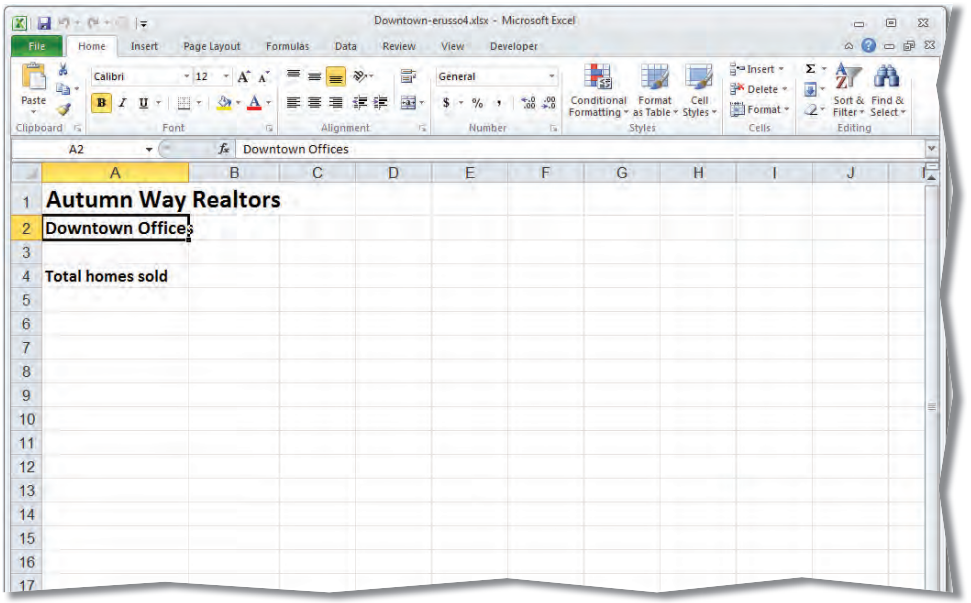
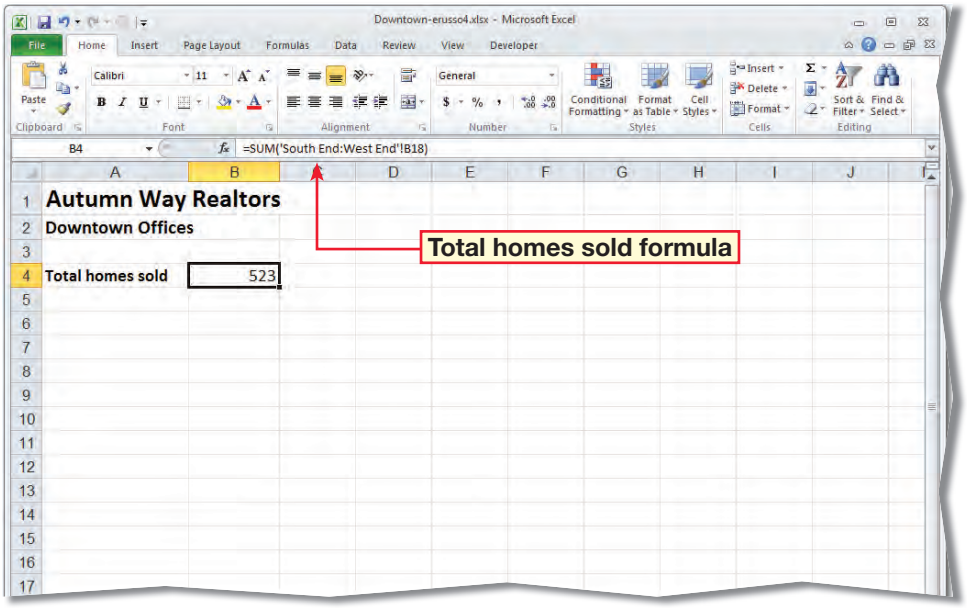


FIGURE 5.36 Creating a formula across multiple worksheets



LESSON 5 You Try It Activities

Step-By-Step

1. Open your **Downtown2-4** file. Save as: Downtown2-[your first initial and last name]5. Click **Enable Content**.
2. Select all three sheet tabs and choose **File>Save & Send>Create PDF/XPS Document/Create PDF/XPS**.
3. Navigate to the folder holding the **Downtown2** workbook file. In the **File name** box, key: Downtown2-[your first initial and last name]5.
4. In the **Save as type** box, select **PDF**. Make sure the **Open file after publishing** box is checked.
5. CHECK Your dialog box should look like Figure 5.37. Click **Publish**.
6. CHECK Your screen should look like Figure 5.38.
7. Exit **Adobe Reader**.
8. Save and close your file. Exit **Excel**.

5. Save a Workbook as a PDF

Now that the data in your workbook has been consolidated into a summary sheet, your supervisor wants to e-mail the workbook containing the total number of homes sold to the team before the next meeting. She has asked you to create a PDF of the workbook. You must complete You Try It Activity 4 before doing this activity.

FIGURE 5.37 Publish as PDF or XPS dialog box

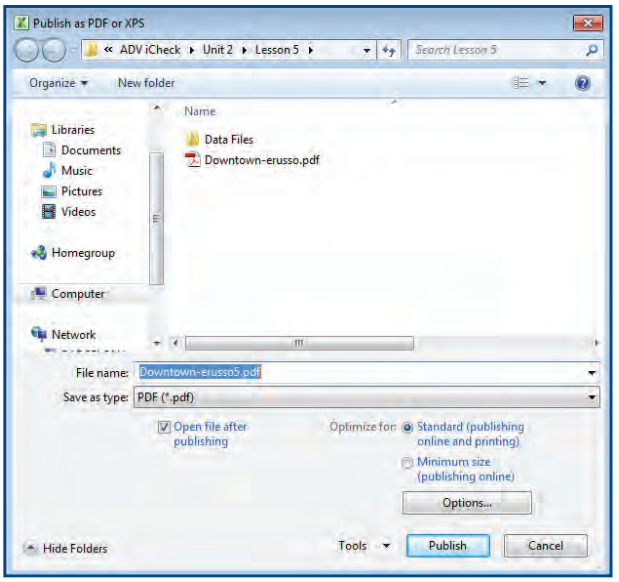
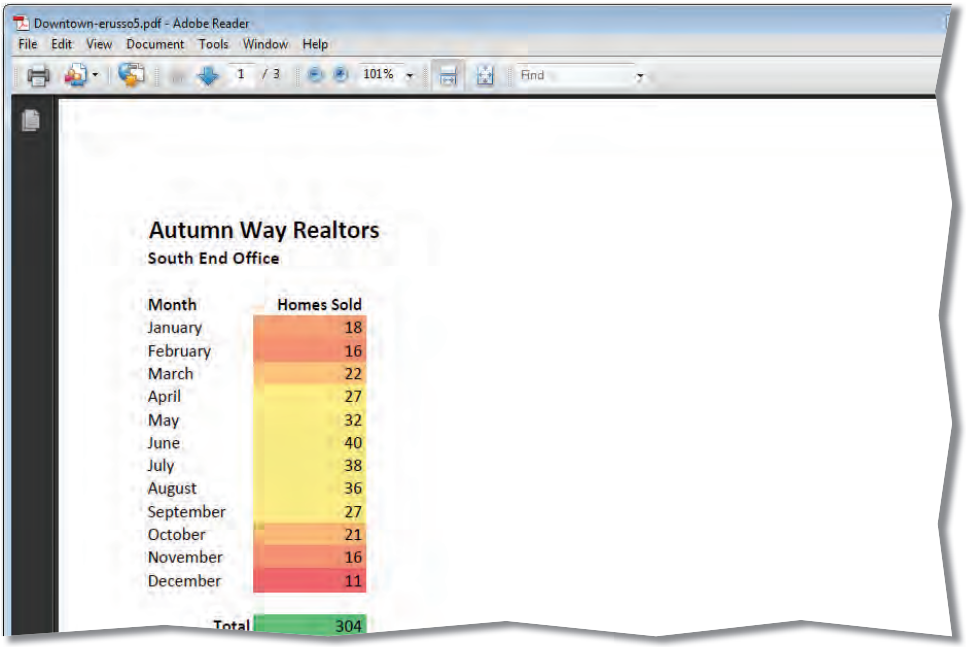


FIGURE 5.38 PDF file in Adobe Reader



LESSON 5 Critical Thinking Activities

6. Beyond the Classroom Activity

Language Arts: Link to a Web Page Your supervisor wants you to create a document that shows the current price of various stocks. You decide that the best option is a link to a regularly updated Web page.

- Open a new Excel workbook.
- Import data from the MSN MoneyCentral Investor Stock Quotes into your new workbook.

Think about other data available online. With your teacher's permission, use the Internet or your school library to gather information for at least one other Web page that offers up-to-date data. Add a hyperlink for the Web page to your workbook.

Save your file as: adv-e5rev-[your first initial and last name]6.

7. Standards at Work Activity

Microsoft Office Specialist Correlation

Excel 5.3 *Personalize the environment by using Backstage.*

Add Workbook Properties Your supervisor has asked employees to add file properties to all of their files so that everyone can see a short summary of each file before opening it.

- Open your **Deals** workbook that you used in Exercises 5-1 through 5-4.
- Fill in the subject and author properties.
- Include a comment stating that the file includes a link to a Web page.
- Include key words to help you identify the file.

Save the workbook as: adv-e5rev-[your first initial and last name]7.

8. 21st Century Skills Activity

DATA FILE

Learn to Adapt One of your classmates created a tool for tracking quiz grades. You would like to extend the tracking for ten weeks. Adapt your classmate's quiz tracker and save it as a template.

- Open the data file **Quiz.xlsx**.
- In cell A5, key: Microsoft Office.
- Add new columns for the next six weeks.
- Save the worksheet as a template.
- Create a worksheet based on the template. Fill in quiz grades. Notice that the average is automatically calculated for you.

Save your worksheet as: Quiz-[your first initial and last name]8.

LESSON 5 Challenge Yourself Projects

Before You Begin

Manage Data People often have to manage a lot of information. Data is hard to manage without special tools. These projects teach you how to use Excel's advanced tools to create a template, create a macro, and consolidate data from several worksheets.

Reflect Once you complete the projects, open a Word document and answer the following questions:

1. In what ways can you use Document Properties to control data that you have created?
2. Notice the actions you do repeatedly. How can you use a template or a macro in your day-to-day activities?

Anton Vengo/SuperStock

9. Set Up Your Supplies

DATA FILE

Math: Create a Template You and your friends have decided to start a small car-washing business for the summer. You decide to use Excel to keep track of the supplies you need each month.

- Open the data file **Carwash.xlsx**. Column A contains a list of supplies, such as soap and buckets.
- Fill in column B with zeros.
- Create a total for the month.
- Save the workbook as a template.
- Create a workbook based on the template and complete it for the first month.

Save your new template as: adv-e5rev-[your first initial and last name]9.

Save your original workbook as: Carwash-[your first initial and last name]9.

10. Create Shortcuts

Language Arts: Create a Macro Your supervisor is very impressed with your expertise in Excel. He asks you if you have any additional suggestions to help his employees work more efficiently. You decide to create some macros for employees to use. In a new worksheet, create a macro that will complete each of the following commands.

- Add a blank row or column.
- Change the Font Size to 12.
- Insert a worksheet when a workbook is opened.

Create a keyboard shortcut for each command and name the macro.

In a separate Word document, key a paragraph and reflect on how macros make it easier to complete tasks. Describe how to create a custom macro on the QAT. Then, key the steps necessary to assign a macro to a command button and explain how a macro button can help to improve efficiency.

Save your file as: adv-e5rev-[your first initial and last name]10.

11. Find Total Sales

DATA FILE

Math: Consolidate Data Summer is over. Now, you want to find out how much money your car-washing business made during the summer.

- Open the data file **Summer.xlsx**.
- On the first three sheets, find the total sales for each month.
- On the fourth sheet, create a formula that finds the total sales for the summer. Use the **Currency** format for all the sales numbers.

Save your file as: Summer-[your first initial and last name]11.

UNIT 2 Academic Connections

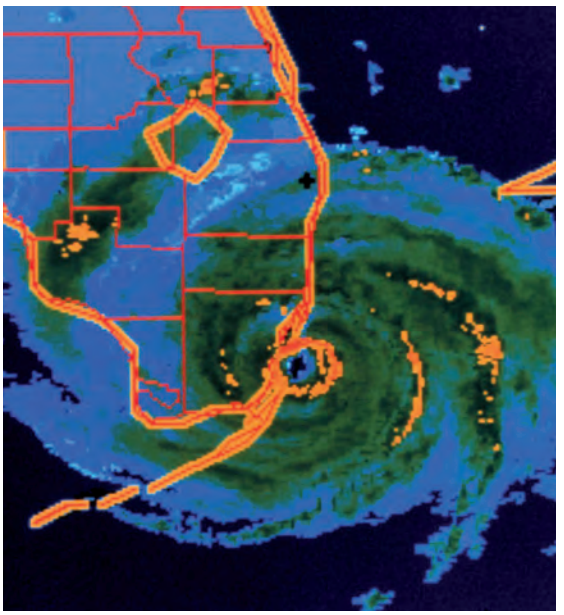
MATH | SCIENCE | LANGUAGE ARTS | SOCIAL STUDIES

In this activity, you will use your math skills to analyze weather data.

Create a Chart to Summarize Data

You may have noticed that weather reports on television often use charts and graphs to display information. The weather forecaster presents many kinds of statistics. In this activity, you will create a chart to display a week's worth of high and low temperatures. You will also find the average high and low temperatures for the week.

1. Obtain a week's worth of high and low temperatures for your city or region. You can get the information from the Internet, television, radio, or newspapers.
2. Create an Excel worksheet with the following column heads: **Day, Low, High**. Make the heads bold. (p. 113
3. In the **Day** column, key the days of the week. (p. 113)
4. Enter the low and high temperatures you have collected in the **Low** and **High** columns for the corresponding days. Enter numbers only. (p. 168)
5. Select all of the cells containing text and numbers. Create a **PivotTable** and generate a **PivotChart** for your data. The chart's title should be **High and Low Temperatures for the Week of ...** The vertical axis should be labeled **Degrees Fahrenheit**. Make any other changes to the chart that you think will improve the readability and add interest (change style and formatting, add slicers or sparklines, etc.). (p. 141)
6. In the **Day** column, under the last row, add a row for the average low and high temperatures value. In the **Low** column, enter a formula to compute the average low temperature for the week, using a name in the formula. Do the same for the high temperature. (p. 152)
7. Check and save your work.



NOAA/Department of Commerce

You can use Excel to create charts that track information such as weather statistics.

UNIT 2

Ethics in Action

Honesty in the Workplace

There are many kinds of honesty. The most basic involves respecting the property of others. On a personal level, some people may hold back their real feelings about how a coworker or manager treats them. They may be afraid to speak the truth because they might hurt someone and are afraid of what might happen to them. Fearful of being blamed, people may fail to be honest about mistakes they may have made.

If people are not honest, difficult issues cannot be openly discussed. Many problems, bad feelings, mistakes, and failures may never be faced or resolved. An important issue for managers today is to understand how they can encourage people to become more honest in the workplace.

Is It Honest?

How do you know when something you say or do is not honest? Ask yourself these questions:

- Am I hiding something?
- Do I have the right to keep it hidden?
- What would happen if it were discovered?

Finally, you should act in ways that encourage honesty in others. Be accepting when you receive advice or criticism that is honestly and fairly given.

If you say what you mean, you never have to worry whether your words will be passed on. If you act honestly, you never have to worry whether your actions will be discovered.

CASE STUDY

You see your coworker, Fred, slipping a new notebook into his backpack. When you ask about it, Fred laughs and says, "I never go to the stationery store anymore. Everything is here in the supply cabinet. They have notebooks, boxes of pens, scissors, markers, rulers, you name it! I think of it as just a little bonus of the job. No one has noticed, so the company obviously does not care." Although you do not agree with Fred's actions, you do not want him angry with you, so you remain silent.

YOU DECIDE

1. **Restate in Your Own Words** Why does Fred think his conduct is acceptable?
2. **Explain** You have decided to talk with Fred. How will you answer the following arguments if he makes them?
   - **a.** "I am entitled to these things as a little bonus."
   - **b.** "The company will never miss it."
   - **c.** "This is none of your business."
   - **d.** "Do not say anything and no one will notice."

APPLICATION ACTIVITY

3. **Estimate** Create an Excel worksheet. In each row, list one of the items that Fred mentions. In the column to the right of each item, key a realistic price for that item. (Use the Internet, a newspaper, or other sources to research the cost of office supplies.) Use the Sum function to find the total. Multiply the total by 12 to see what Fred's stealing might cost his company if he continued taking supplies at that same rate for a year.

UNIT 2 Portfolio Project

Stock Market Expert

The business you work for advises clients on what stocks to buy. Your employer wants to put out a weekly newsletter. The newsletter will profile three stocks and how they performed during the week. You are asked to set up an Excel worksheet that can be used to display and summarize the information for each week.

Digital Vison/Getty Images

Part 1: Create a Template

Goal You need to create a template that will be reused every week. It should do as much as possible to make each week's task simpler. It should also look attractive and professional so it can be presented to customers.

Create Use Excel to create a template.

- Place your company's name, address, telephone number, and Internet address at the top of the template.
- Use Clip Art or another suitable graphic for the template's heading.
- Create a table of stock values. The table should have three rows to hold the names of stocks and five columns to hold the daily stock quotations. The column headers will be the dates of the five business days of the week in question. Format the stock quotations as a number with two decimal places.
- Format the column headers as dates. Boldface the column headers or use a larger type size to help them stand out.

Self Assess Use the Have You ...? checklist to review your template. Make sure your template contains all the necessary items and formatting. Follow your teacher's instructions for saving the template.

When finished, proceed to Part 2.

	Have You...?
☑	Formatted the company name and address attractively in larger type
☑	Rotated, cropped, and resized the graphic to fit the heading
☑	Created a table with three rows and five columns
☑	Formatted the stock quotations as a number with two decimal places
☑	Formatted the column headers as dates
☑	Formatted the column headers in boldface or a larger size

UNIT 2 Portfolio Project

Part 2: Make Your First Report

Goal Now it is time to produce the first of your weekly reports. If all goes well, you only need to add in the data file containing the names of the stocks of the week and their stock prices.

Create Create a new Excel workbook based on your template.

- In your stock table, click the first cell in the row containing the dates for the week.
- Choose **Data>Get External Data>From Text** and import the data from the data file **Quotes.txt** into your table.
- Review your table to make sure all of the data was imported correctly.
- Make any necessary text or formatting changes to your table.
- Make sure the chart based on the table contains correct information.

Self Assess Use the Have You ...? checklist to review your report. Make sure your report fills all of the requirements in the checklist.

Follow your teacher's instructions for naming the workbook and saving it to your Portfolio Folder.

When finished, proceed to Part 3.

	Have You...?
☑	Imported the data from the data file **Quotes.txt** in the right place
☑	Made sure the five business days are formatted as dates
☑	Made sure the stock quotations are formatted as numbers with two decimal places
☑	Made sure the company names have the format you wanted
☑	Made sure the chart reflects the worksheet data

Jose L. Pelaez/CORBIS

UNIT 2 Portfolio Project

Part 3: Create a Chart

Lars A. Niki

Goal Your employer is satisfied with your report so far. Now he wants you to add a chart that will summarize the table of stock quotations.

Create Open the Excel template you created in Part 1. In your template:

- Select the table of stock quotations. Use the **Chart Tools** to create and format a line chart for the three stocks.
- Place the chart on the same worksheet as the data.
- Move and resize the chart as needed so that it is clearly displayed on the page.
- Title the chart **Stock Summaries**.
- Make any changes that will make the chart easier to read or more attractive. For example, add data labels to the chart, or format different data in different fonts or colors to help users identify information quickly and easily.
- Set minimum and maximum values for the value axis.
- Set major and minor divisions for the value axis.

Self Assess Use the Have You ...? checklist to review your chart. Make sure you have done everything in the checklist.

Follow your teacher's instructions for saving the template. When finished, proceed to Part 4.

	Have You...?
☑	Used the Chart Tools to create a line chart from the stock quotation table
☑	Placed the chart and sized it so that it can be seen clearly
☑	Added a title to the chart
☑	Changed the colors for the legend
☑	Chosen a color for the plot area
☑	Set the minimum and maximum values for the value axis
☑	Set the major and minor divisions for the value axis

UNIT 2 Portfolio Project

Part 4: Protect the Work

Goal The weekly report looks good. Your employer wants many people to see it. Unauthorized persons should not change the report by accident, however. In addition, your employer wants the report to be viewed only by clients to whom a password has been given.

Create Open the workbook you created in Part 3. Protect the workbook against unauthorized viewing or modification.

- Enable worksheet protection in your workbook.
- Set a password to open the workbook. Be sure to record your password so you do not forget what it is.
- Set a password to modify the workbook. Again, record your password so you do not forget it.
- Check to make sure both your passwords are active.
- With your teacher's permission, print your worksheet. Write both of your passwords on your printed worksheet.

Self Assess Use the Have You ...? checklist to review your report. Make sure your report matches the safety assessments on the checklist.

Follow your teacher's instructions for saving the workbook to your Portfolio Folder.

	Have You...?
☑	Checked to make sure that data in the worksheet cannot be modified
☑	Checked that a password is required to open it
☑	Checked that a password is required to modify it
☑	Stored the passwords in a safe place
☑	Saved your work with the right name and in the right folder
☑	Printed out the worksheet if directed by your teacher
☑	Written your passwords on your printed worksheet

Go Online

BEYOND THE BOOK

glencoe.com

Go to the Online Learning Center to learn additional skills and review what you have already learned.

Microsoft OneNote
Store and share information in a single, easy-to-access location. Take notes while working in any Microsoft application.

Microsoft Outlook
Learn all about Outlook and how to use e-mail communication and scheduling?

Technology Handbook
Check your knowledge of important computer concepts.

Math Handbook
Find solutions to your math problems.

Additional Projects

Complete additional projects in the following areas:

- **Real-World Connection Projects** reinforce Microsoft Word by focusing on real-world business applications.
- **Present and Publish Projects** Use your Word skills to create exciting PowerPoint presentations and desktop publishing activities.
- **Academic Projects** Integrate academic skills while enriching your understanding of Microsoft Word.

More Online Resources
Access additional Web sites and online information relating to key topics covered in Glencoe's *iCheck Series*. Select **Additional Resources>Links**.