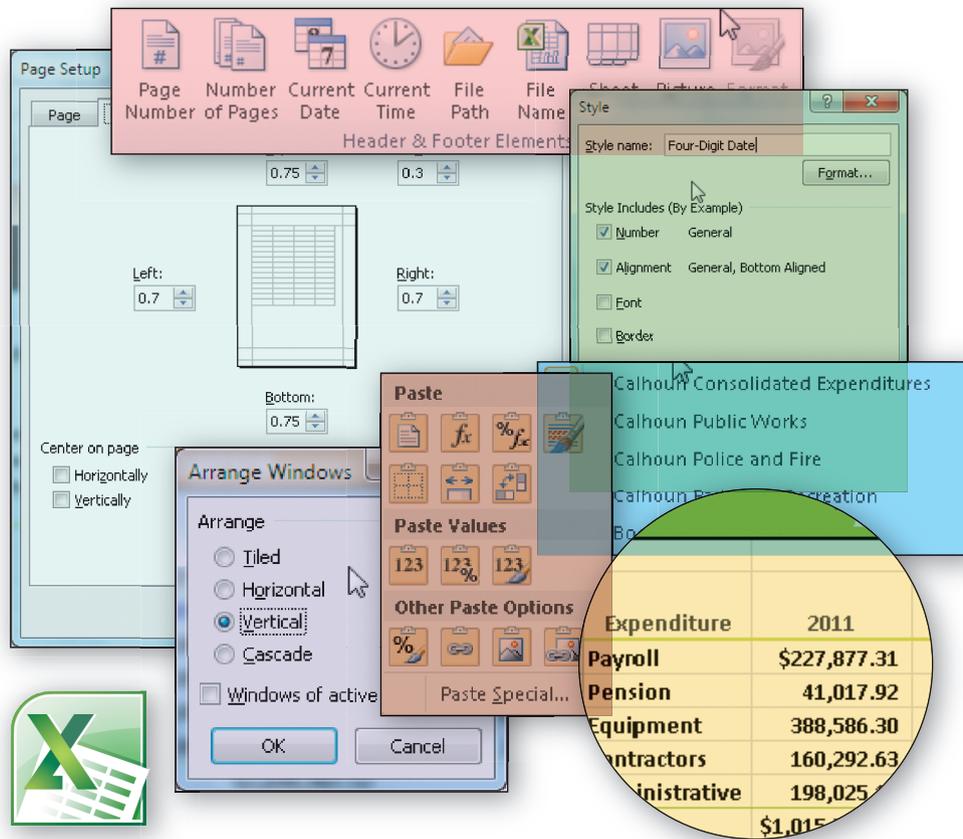


6 Working with Multiple Worksheets and Workbooks



Objectives

You will have mastered the material in this chapter when you can:

- Use the ROUND function
- Use custom format codes
- Define, apply, and remove a style
- Add a worksheet to a workbook
- Create formulas that use 3-D cell references
- Add data to multiple worksheets at the same time
- Add a header or footer and change margins
- Insert and move a page break
- Save a workbook as a PDF or XPS file
- Create a workspace file
- Consolidate data by linking workbooks

6 Working with Multiple Worksheets and Workbooks

Introduction

An organization may keep data from various departments or regions in different worksheets. If you enter each department's data on a worksheet in a workbook, you can click the sheet tabs at the bottom of the Excel window to move from worksheet to worksheet, or department to department. Note, however, that many business applications require data from several worksheets to be summarized on one worksheet. To facilitate this summarization, on a separate worksheet, you can enter formulas that reference cells on the other worksheets. This type of referencing allows you to summarize workbook data. The process of summarizing data included on multiple worksheets on one worksheet is called **consolidation**.

Another important concept presented in this chapter is the use of custom format codes. **Custom format codes** allow you to specify how a cell entry assigned a format will appear. You can customize a format code in a cell entry to specify how positive numbers, negative numbers, zeros, and text are displayed in a cell.

Project — Consolidated Expenditures Worksheet

The project in the chapter follows proper design guidelines and uses Excel to create the worksheets shown in Figure 6-1. The City of Calhoun's government organization includes three departments, Public Works, Police and Fire, and Parks and Recreation, as shown in Figure 6-1. Each department incurs five types of expenditures that are common to each department in a budget year, including payroll, pension, equipment, contractors, and administrative. The worksheet shown in Figure 6-1 shows the expenditures that were budgeted for the past budget year, 2011; those for the current budget year, 2012; and the proposed expenditures for the next budget year, 2013. The city manager would like to know the consolidated expenditures for the three departments. She also would like to see the individual department expenditures on separate worksheets. Additionally, she would like to see the consolidated and individual percent increases or decreases for each expenditure.

**City of Calhoun
Public Works**

Expenditures	2011	2012 % Change	2012	2013 % Change	2013	10-Jul-2012 Average
Payroll	\$299,643.50	(2.00%)	\$293,650.63	(2.00%)	\$287,777.62	
Pension	38,953.66	4.00%	40,511.81	3.00%	41,727.16	
Equipment	196,210.33	4.00%	204,058.74	1.00%	206,099.33	
Contractors	246,853.22	7.00%	264,132.95	5.00%	277,339.59	
Administrative	92,997.64	2.00%	94,857.59	3.00%	97,703.32	
	\$874,658.35		\$897,211.72		\$910,647.02	

Public Works department sheet tab

(a) Public Works Worksheet

**City of Calhoun
Police and Fire**

Expenditures	2011	2012 % Change	2012	2013 % Change	2013	10-Jul-2012 Average
Payroll	\$227,877.31	(2.00%)	\$223,319.76	(2.00%)	\$218,853.37	(2.00%)
Pension	41,017.92	4.00%	42,658.64	3.00%	43,938.40	3.50%
Equipment	388,586.30	4.00%	404,129.75	1.00%	408,171.05	2.50%
Contractors	160,292.63	7.00%	171,513.11	5.00%	180,088.77	6.00%
Administrative	198,025.14	2.00%	201,985.64	3.00%	208,045.21	2.50%
	\$1,015,799.30		\$1,043,606.91		\$1,059,096.80	

Police and Fire department sheet tab

(b) Police and Fire Worksheet

consolidate data on one worksheet

**City of Calhoun
Parks and Recreation**

Expenditures	2011	2012 % Change	2012	2013 % Change	2013	10-Jul-2012 Average
Payroll	\$178,415.32	(2.00%)	\$174,847.01	(2.00%)	\$171,350.07	
Pension	23,193.99	4.00%	24,121.75	3.00%	24,845.40	
Equipment	270,274.13	4.00%	281,085.10	1.00%	283,895.95	
Contractors	92,241.92	7.00%	98,698.85	5.00%	103,633.80	
Administrative	90,423.08	2.00%	92,231.54	3.00%	94,998.49	
	\$654,548.44		\$670,984.25		\$678,723.71	

Parks and Recreation department sheet tab

(c) Parks and Recreation Worksheet

**City of Calhoun
Consolidated**

data from Public Works, Police and Fire, and Parks and Recreation worksheets consolidated into Consolidated worksheet

Expenditures	2011	2012 % Change	2012	2013 % Change	2013	10-Jul-2012 Average
Payroll	\$705,936.13	(2.00%)	\$691,817.41	(2.00%)	\$677,981.06	(2.00%)
Pension	103,165.57	4.00%	107,292.19	3.00%	110,510.96	3.50%
Equipment	855,070.76	4.00%	889,273.59	1.00%	898,166.33	2.50%
Contractors	499,387.77	7.00%	534,344.91	5.00%	561,062.16	6.00%
Administrative	381,445.86	2.00%	389,074.78	3.00%	400,747.02	2.50%
	\$2,545,006.09		\$2,611,802.88		\$2,648,467.52	

Consolidated sheet tab

(d) Consolidated Worksheet

Figure 6-1

The requirements document for the City of Calhoun Consolidated Expenditures workbook is shown in Figure 6–2. It includes the needs, source of data, summary of calculations, special requirements, and other facts about its development.

BTW

BTWs

For a complete list of the BTWs found in the margins of this book, visit the Excel 2010 BTW Web page (scsite.com/ex2010/btw).

BTW

Workbook Survival

For workbooks to be successful and survive their expected life cycle in a business environment, they must be well documented and easy to understand. You document a workbook by adding comments to cells that contain complex formulas or to cells containing content that may not be understood easily. The documentation also should take into consideration those who will maintain the workbook after you leave. You create easy to understand workbooks by reviewing alternative designs prior to creating the workbook. The more time you spend documenting and designing a workbook, the easier it will be for users and spreadsheet maintenance specialists to understand.

REQUEST FOR NEW WORKBOOK	
Date Submitted:	July 3, 2012
Submitted By:	Dana Gatz
Worksheet Title:	City of Calhoun Consolidated Expenditures
Needs:	The needs are as follows: 1. A workbook containing three worksheets for the three major city departments and one worksheet to consolidate the city expenditure data. 2. Each worksheet should be identical in structure and allow for display of the previous, current, and next year's expenditures. 3. The worksheets should print with a common header and footer and meet the city's standards for worksheet printouts.
Source of Data:	The data will be collected and organized by the city manager, Dana Gatz.
Calculations:	Include the following formulas in each worksheet: 1. 2012 Expenditure = 2011 Expenditure + 2011 Expenditure × 2012 % Change in Expenditure 2. 2013 Expenditure = 2012 Expenditure + 2012 Expenditure × 2013 % Change in Expenditure 3. Average % Change in Expenditure = (2012 % Change in Expenditure + Expected 2013 % Change in Expenditure) / 2 4. Use the SUM function to determine totals. Note: Use dummy data in the consolidated worksheet to verify the formulas. Round the Average % Change to the nearest one-tenth of a percent.
Special Requirements:	Investigate a way the city can consolidate data from multiple workbooks into another workbook.
Approvals	
Approval Status:	X Approved
	Rejected
Approved By:	Brandon Stevens
Date:	July 10, 2012
Assigned To:	J. Quasney, Spreadsheet Specialist

Figure 6–2

Overview

As you read this chapter, you will learn how to create the worksheets shown in Figure 6–1 by performing these general tasks:

- Add a worksheet to the workbook.
- Create and apply a custom format.
- Reference data on other worksheets.
- Add data to multiple worksheets at the same time.
- Print the worksheets with proper headers, footers, margins, and page breaks.
- Create a workspace and consolidate data by linking workbooks.

General Project Decisions

While creating an Excel worksheet, you need to make several decisions that will determine the appearance and characteristics of the finished worksheet. As you create the worksheets to meet the requirements shown in Figure 6–2, you should follow these general guidelines:

1. **Design the consolidated worksheet and plan the formatting.** When a workbook contains multiple worksheets with the same layout, spreadsheet specialists often create **sample data**—that is, sample data used in place of actual data to verify the formulas in the worksheet—and formatting on one worksheet and then copy that worksheet to additional worksheets. This practice avoids the need to format multiple worksheets separately.
2. **Identify additional worksheets needed in the workbook.** After the initial worksheet is created using sample data and the required formulas and then saved, it should be copied to the other worksheets. Actual data for the three other worksheets will replace the copied sample data. The data from the additional worksheets then can be consolidated onto the initial worksheet.
3. **Plan the layout and location of the required custom format codes.** Some organizations require that certain types of data be formatted in a specific manner. If the specific type of format is not included in Excel’s list of formats, such as Currency or Accounting, then you must create a custom format code that meets the requirement and then apply the custom format code to the necessary cells.
4. **Examine the options, including headers, margins, and page breaks, that you have for printing worksheets.** When working with multiple worksheets, using properly formatted page headers and footers is important. Excel allows you to print page numbers and the sheet name of each sheet. In addition, margins and page breaks also can be adjusted to provide professional-looking printed worksheets.
5. **Identify workbooks to be consolidated into a workspace and then linked to create a consolidated workbook of the initial workbooks.** The special requirement for the project listed in the requirements document asks that methods to combine workbooks be investigated (Figure 6–2). Excel allows you to work with separate workbooks in a workspace and then link the workbooks to provide a consolidated view of the data in the workbooks.

When necessary, more specific details concerning the above guidelines are presented at appropriate points in the chapter. The chapter also will identify the actions you perform and decisions made regarding these guidelines during the creation of the worksheets shown in Figure 6–1 on page EX 363.

Plan Ahead

In addition, using a sketch of the worksheet can help you visualize its design. The sketch of the consolidated worksheet consists of titles, column and row headings, the location of data values, and a general idea of the desired formatting (Figure 6–3 on the following page).

Plan Ahead

(continued)

- **Use sample data to verify formulas.** When an initial consolidated worksheet is created, sample data should be used in place of actual data to verify the formulas in the worksheet. Selecting simple numbers such as 1, 2, and 3 allows you to check quickly to see if the formulas are generating the proper results. In consolidated worksheets with more complex formulas, you may want to use numbers that test the extreme boundaries of valid data.
- **Format cells in the worksheet.** Formatting that can be modified for each worksheet should be applied to titles and subtitles to provide cues to users of the worksheets. For example, by using a fill color for the title and subtitle, the fill color for additional worksheets can be changed after the consolidated worksheet is copied to subsequent worksheets. All numeric cell entry placeholders—sample data—should be formatted properly for unit numbers and currency amounts.

The first step in creating the workbook is to create the consolidated expenditures worksheet, shown in Figure 6–4. The consolidated worksheet then will be copied to three other worksheets. Each worksheet will contain expenditures for one of three departments.

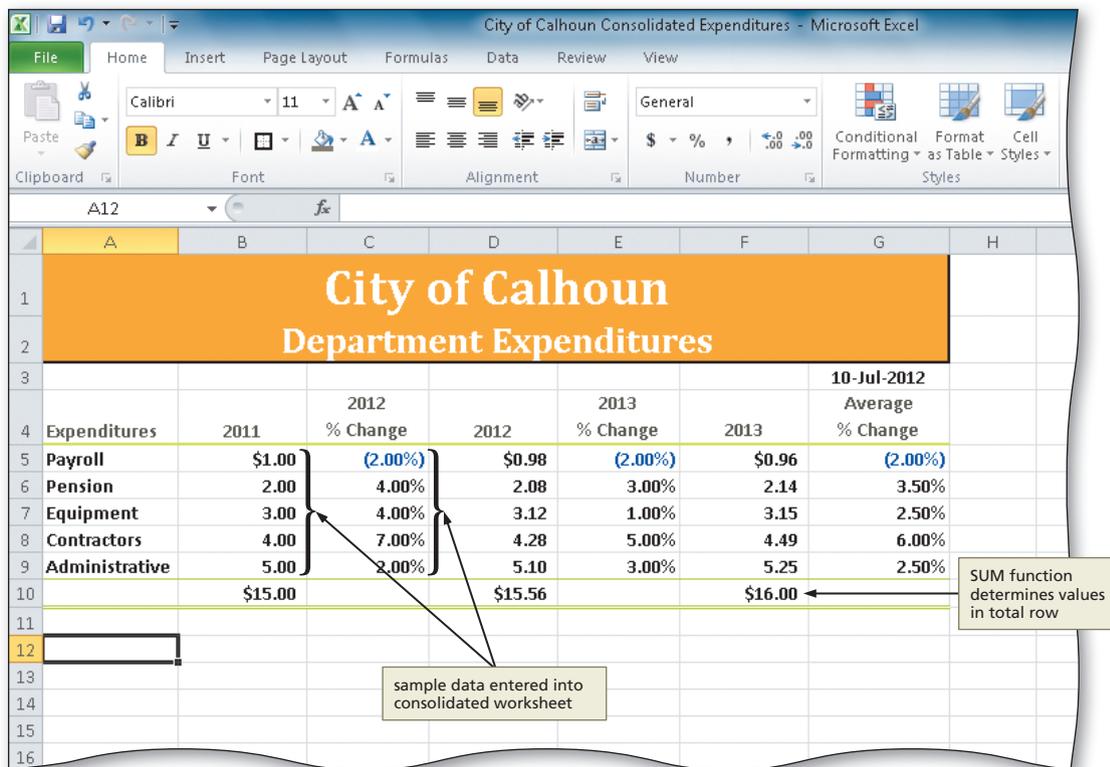


Figure 6–4

To Change the Font Style to Bold and Adjust the Row Heights and Column Widths of the Consolidated Worksheet

The first step in creating the consolidated worksheet with sample data is to change the font style to bold and adjust the height of row 4 to 30.75 points and column widths of column A to 13.57 characters; B, D, and F to 12.86 characters; C and E to 12.14 characters; and G to 14.14 characters. The row heights and column widths need to be changed to accommodate the data in the worksheet. The following steps change the font style to bold and adjust the row heights and column widths of the consolidated worksheet.

BTW

Selecting a Range of Cells

You can select any range of cells with entries surrounded by blank cells by clicking a cell in the range and pressing CTRL+SHIFT+ASTERISK (*).

BTW

Q&As

For a complete list of the Q&As found in many of the step-by-step sequences in this book, visit the Excel 2010 Q&A Web page (scsite.com/ex2010/qa).

- 1 Click the Select All button immediately above row heading 1 and to the left of column heading A and then click the Bold button (Home tab | Font group) to bold the entire worksheet. Select cell A1 to deselect the worksheet.
- 2 Drag the bottom boundary of row heading 4 down until the row height is 30.75 (41 pixels) to change the row height.
- 3 Drag the right boundary of column heading A to the right until the column width is 13.57 (100 pixels) to change the column width.
- 4 Select columns B, D, and F, and then drag the right boundary of column heading F right until the column width is 12.86 (95 pixels) to change several column widths at the same time.
- 5 Select columns C and E, and then drag the right boundary of column heading E right until the column width is 12.14 (90 pixels) to change several column widths at the same time.
- 6 Select column G, and then drag the right boundary of the column heading right until the column width is 14.14 (104 pixels) to change the column width. Select cell A1 to deselect column G.

BTW

Displaying Future Dates

You can display a future date, such as tomorrow's date, in a cell by adding a number to the NOW or TODAY function. For example, =NOW()+1 displays tomorrow's date in a cell and =NOW()+14 displays a date two weeks in the future. The function =NOW()-1 displays yesterday's date.

To Enter the Title, Subtitle, and Row Titles in the Consolidated Worksheet

The following steps enter the titles in cells A1 and A2 and the row titles in column A.

- 1 Type **City of Calhoun** in cell A1 and then press the DOWN ARROW key to enter a worksheet title.
- 2 Type **Department Expenditures** in cell A2 and then press the DOWN ARROW key twice to make cell A4 active and to enter a worksheet subtitle.
- 3 Type **Expenditures** and then press the DOWN ARROW key to enter a column heading.
- 4 With cell A5 active, enter the remaining row titles in column A, as shown in Figure 6-5.

To Enter Column Titles and the System Date in the Consolidated Worksheet

The next step is to enter the column titles in row 4 and the system date in cell G3. The following steps enter column titles and the system date in the consolidated worksheet.

- 1 Select cell B4. Type **2011** and then press the RIGHT ARROW key to enter a column heading.
- 2 Type **2012** and then press ALT+ENTER to begin a new line of text in the selected cell. Type **% Change** and then press the RIGHT ARROW key to enter a column heading.
- 3 With cell D4 active, enter the remaining column titles in row 4 as shown in Figure 6-5.
- 4 Select cell G3. Type **=now()** and then press the ENTER key to enter the system date.
- 5 Right-click cell G3 to display a shortcut menu and then click Format Cells on the shortcut menu.
- 6 When Excel displays the Format Cells dialog box, click Date in the Category list and then click 3/14/01 13:30 in the Type list to format a date with a 2-digit year and a time.
- 7 Click the OK button (Format Cells dialog box) to close the dialog box.
- 8 Select cell A12 to deselect cell G3.

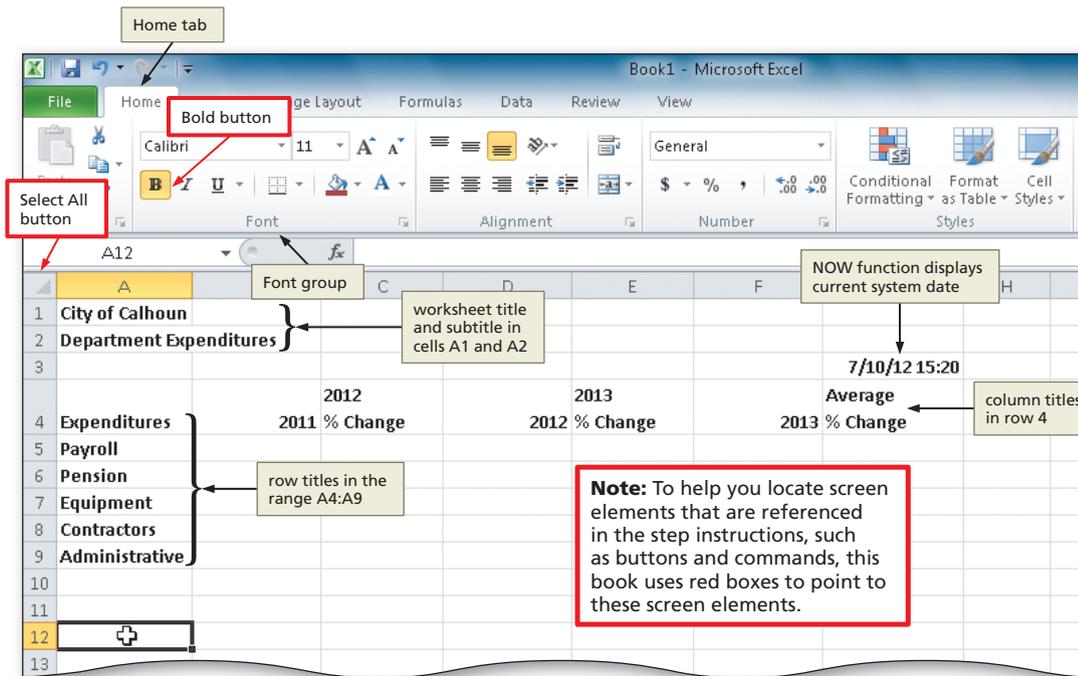
BTW

Manipulating Dates

You can use the DATE function to change a year, month, and day to a serial number that automatically is formatted to mm/dd/yyyy. For example, if cell A1 equals the year 2012, cell A2 equals the month 2, cell A3 equals day 10, and cell A4 is assigned the function =DATE(A1, A2, A3), then 2/10/2012 appears in cell A4. The DATE function is most useful in formulas where year, month, and day are formulas, not constants.

Q&A Why was the date not formatted as it appears in Figure 6–4?

The format assigned to the system date in cell G3 is temporary. For now, it ensures that the system date will appear properly, rather than as a series of number signs (#). The system date will be assigned a permanent format later in this chapter. The date might be displayed as a series of number signs if the date, as initially formatted by Excel, does not fit in the width of the cell.



BTW **Sample Data**
As you develop more sophisticated workbooks, it will become increasingly important that you create good test data to ensure your workbooks are free of errors. The more you test a workbook, the more confident you will be in the results generated. Always take the time to select test data that tests the limits of the formulas.

Figure 6–5

To Enter Sample Data in the Consolidated Worksheet Using the Fill Handle

While creating the consolidated worksheet in this chapter, sample data is used for the 2011 expenditure values in the range B5:B9 and the 2012 % Change values in the range C5:C9. The sample data is entered by using the fill handle to create a series of numbers in columns B and C. The series in column B begins with 1 and increments by 1; the series in column C begins with 2 and increments by 2. Recall that you must enter the first two numbers in a series so that Excel can determine the increment amount. If the cell to the right of the start value is empty and you want to increment by 1, however, you can create a series by entering only one number. The following steps enter sample data in the consolidated worksheet using the fill handle.

- 1**

 - Select cell B5.
 - Type **1** and then press the ENTER key to enter the first value in the series.
 - Select the range B5:C5.
 - Drag the fill handle through cells B9 and C9 to begin a fill series operation. Do not release the mouse button (Figure 6–6).

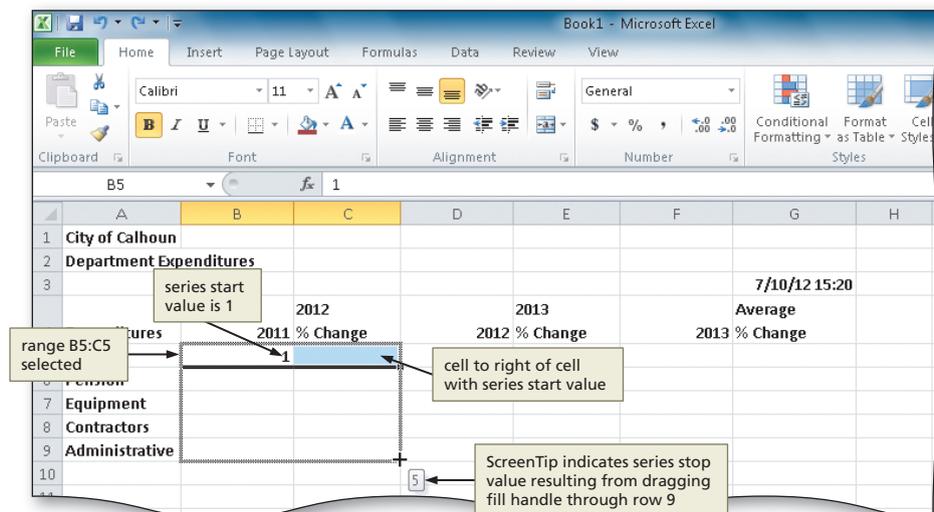


Figure 6–6

- 2 Release the mouse button to create the series, 1 through 5 in this case, in increments of 1 in the first column of the selected range (Figure 6–7).

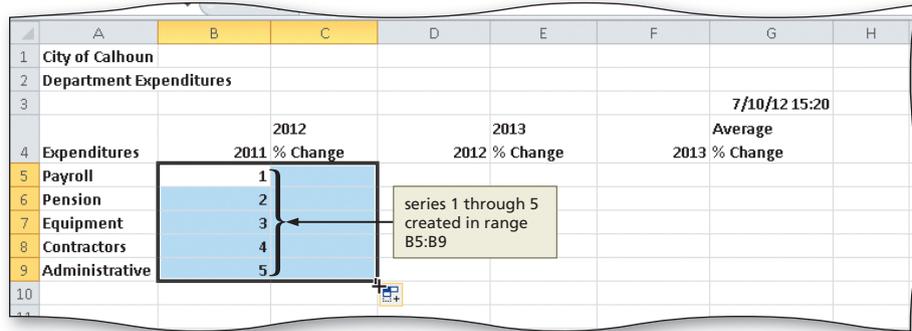


Figure 6–7

- 3 Enter 2 in cell C5.
- Enter 4 in cell C6.
- Select the range C5:C6. Drag the fill handle through cell C9 to create a series in increments of 2 in the selected range, C5:C9 in this case (Figure 6–8).

Q&A

What other types of series can I create?

Excel allows you to create many types of series, including a **date series** (Jan, Feb, Mar, etc.), an **auto fill series** (1, 1, 1, etc.), and a **linear series** (1, 2, 3, etc. or 2, 4, 6, etc.), which was created in the previous steps. A fourth type of series is a **growth series**. A **growth series** multiplies values by a constant factor. You can create a growth series by entering an initial value in the first cell, selecting the range to fill, clicking the Fill button (Home tab | Editing group), clicking Series, clicking Growth in the type area, and then entering a constant factor in the Step value box.

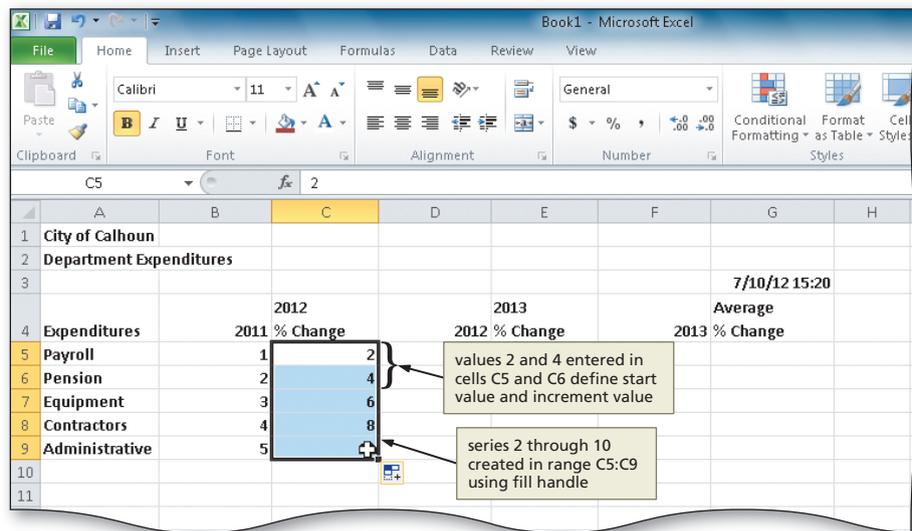


Figure 6–8

- 4 Repeat Step 3 to create a series in increments of 2 starting at 2 in the range E5:E9.

Other Ways		
1. Enter first number; click fill handle; while holding down CTRL key, drag through range	2. Enter start value, select range, click Fill button (Home tab Editing group), click Series, enter	parameters (Series dialog box), click OK button

The ROUND Function and Entering Formulas in the Template

The next step is to enter the three formulas for the first expenditure, Payroll, in cells D5, F5, and G5. When you multiply or divide decimal numbers that result in an answer with more decimal places than the format allows, you run the risk of the column totals being off by a penny or so because, for example, resulting values of calculations could include fractions of a penny beyond the two decimal places that currency formats usually display. For example, as shown in the worksheet sketch in Figure 6–3 on page EX 366, columns B and D use the Currency and Comma style formats with two decimal

BTW

Accuracy

The result of an arithmetic operation, such as multiplication or division, is accurate to the factor with the least number of decimal places.

places. And yet, the formulas used to calculate values for these columns result in several additional decimal places that Excel maintains for computation purposes. For this reason, it is recommended that you use the **ROUND function** on formulas that potentially can result in more decimal places than the applied format displays in a given cell. The general form of the ROUND function is

`=ROUND (number, number of digits)`

where the number argument can be a number, a cell reference that contains a number, or a formula that results in a number; and the number of digits argument can be any positive or negative number used to determine the number of places to which the number will be rounded.

The following is true about the ROUND function:

1. If the number of digits argument is greater than 0 (zero), then the number is rounded to the specified number of digits to the right of the decimal point.
2. If the number of digits argument is equal to 0 (zero), then the number is rounded to the nearest integer.
3. If the number of digits argument is less than 0 (zero), then the number is rounded to the specified number of digits to the left of the decimal point.

BTW Fractions

The forward slash (/) has multiple uses. For example, dates often are entered using the slash. In formulas, the slash represents division. What about fractions? To enter a fraction, such as $\frac{1}{2}$, type .5 or 0 1/2 (i.e., type zero, followed by a space, followed by the number 1, followed by a slash, followed by the number 2). If you type 1/2 without the preceding zero, Excel will store the value in the cell as the date January 2.

To Enter Formulas and Determine Totals in the Consolidated Worksheet

Table 6–1 shows the three formulas to enter in the consolidated worksheet in cells D5, F5, and G5. The ROUND function is used to round the values resulting from the formulas assigned to the cells to two decimal places.

Table 6–1 Formulas Used to Determine Expenditures and an Average

Cell	Description	Formula	Entry
D5	2012	<code>ROUND(2011 Expenditure + 2011 Expenditure × 2012 % Change, 4)</code>	<code>= ROUND(B5 + B5 * C5, 4)</code>
F5	2013	<code>ROUND(2012 Expenditure + 2012 Expenditure × 2013 % Change, 4)</code>	<code>= ROUND(D5 + D5 * E5, 4)</code>
G5	Average % Change	<code>ROUND((2012 % Change + 2013 % Change) / 2, 4)</code>	<code>= ROUND((C5 + E5) / 2, 4)</code>

The following steps enter the three formulas in Table 6–1 in cells D5, F5, and G5. After the formulas are entered for Payroll in row 5, the formulas will be copied for the remaining four expenditures. The Sum button then is used to determine the totals in row 10. The following steps enter formulas and determine totals in the consolidated worksheet.

1

- Select cell D5. Type `=round(b5+b5*c5,4)` and then click the Enter box in the formula bar to display the formula in the formula bar and the resulting value in the select cell, in this case 3 in cell D5 (Figure 6–9).

Q&A

Why does the formula result in a value of 3 rather than a percent change from cell A5?

Because the values in column C have not been entered or formatted as percentages, the values are treated as whole numbers in the calculation. Once the values in column C are entered and formatted as percentages, the resulting values in column D will display as expected, which is a percent change from column A.

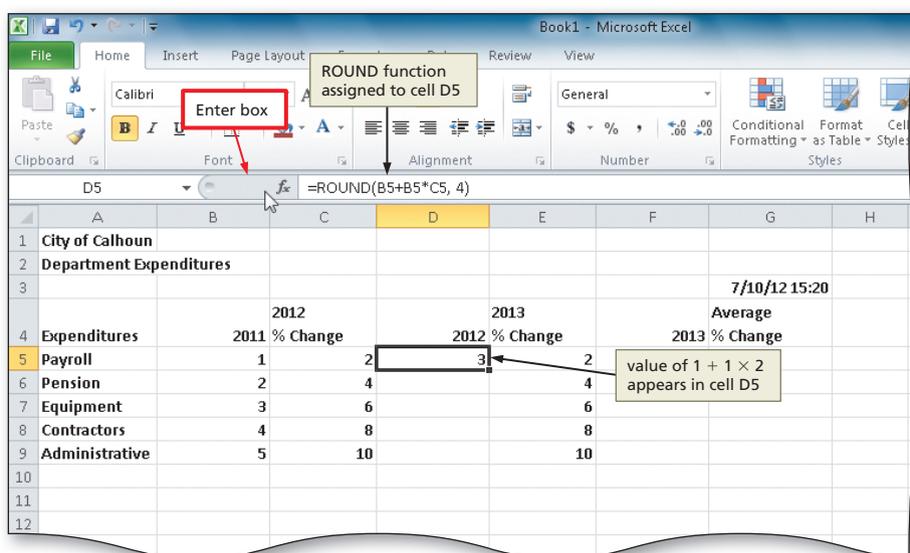


Figure 6–9

2

- Select cell F5. Type $=\text{round}(d5+d5*e5,4)$ and then click the Enter box in the formula bar to display the formula in the formula bar and the resulting value in the select cell, in this case 9 in cell F5 (Figure 6–10).

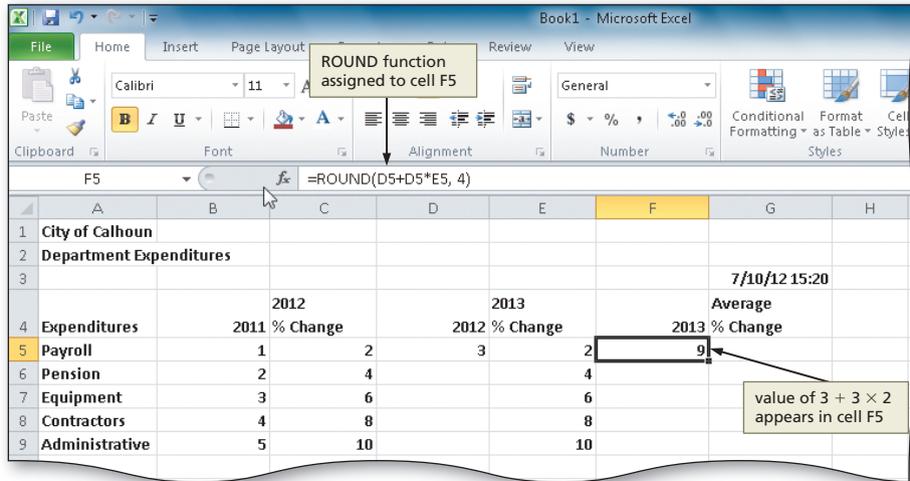


Figure 6–10

3

- Select cell G5. Type $=\text{round}((c5+e5)/2,4)$ and then click the Enter box in the formula bar to display the formula in the formula bar and the resulting value in the select cell, in this case 2 in cell G5 (Figure 6–11).

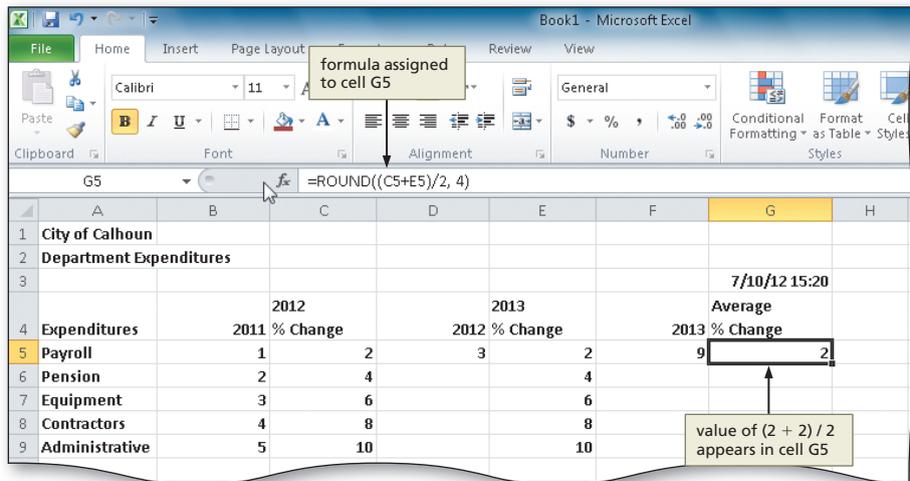


Figure 6–11

4

- Select cell D5, point to the fill handle, and then drag down through cell D9 to copy the formula in the selected cell through the selected range, D6:D9 in this case.
- Select the range F5:G5 and then point to the fill handle to begin a fill operation (Figure 6–12).

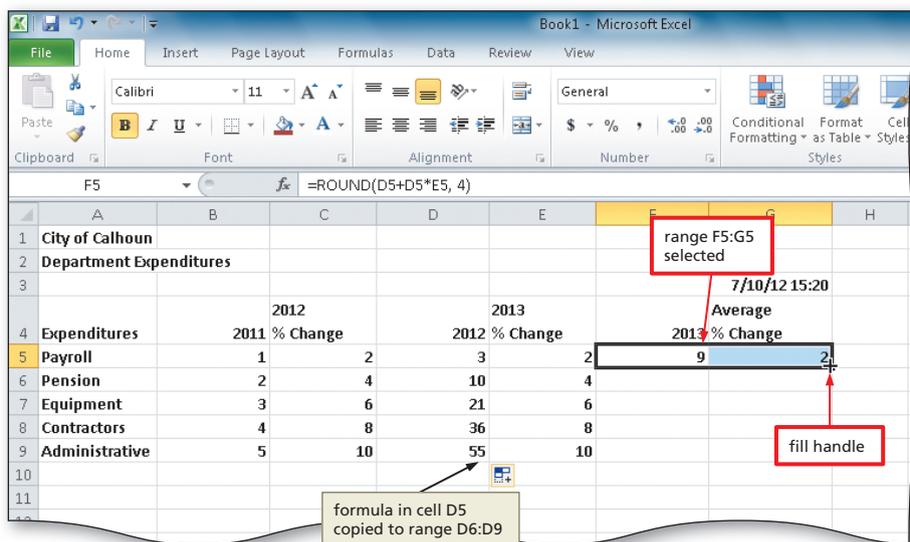


Figure 6–12

Note: If you wish to take a break, this is a good place to do so. You can quit Excel now. To resume at a later time, start Excel, open the file called City of Calhoun Consolidated Expenditures, and continue following the steps from this location forward.

BTW

Changing Modes

You change from Enter mode or Edit mode to Point mode by typing the EQUAL SIGN (=) followed by clicking a cell or clicking the Insert Function box on the formula bar, selecting a function, and then clicking a cell. You know you are in Point mode when the word Point appears on the left side of the status bar at the bottom of the Excel window.

Formatting the Consolidated Worksheet

The next step is to format the consolidated worksheet so that it appears as shown in Figure 6–15. The following list summarizes the steps required to format the consolidated worksheet.

1. Format the titles in cells A1 and A2.
2. Format the column titles and total rows.
3. Assign the Currency style format with a floating dollar sign to cells B5, D5, F5, B10, D10, and F10.
4. Assign a Custom style format to the ranges C5:C9, E5:E9, and G5:G9.
5. Assign a Comma style format to the range B6:B9, D6:D9, and F6:F9.
6. Create a format style and assign it to the date in cell G3.

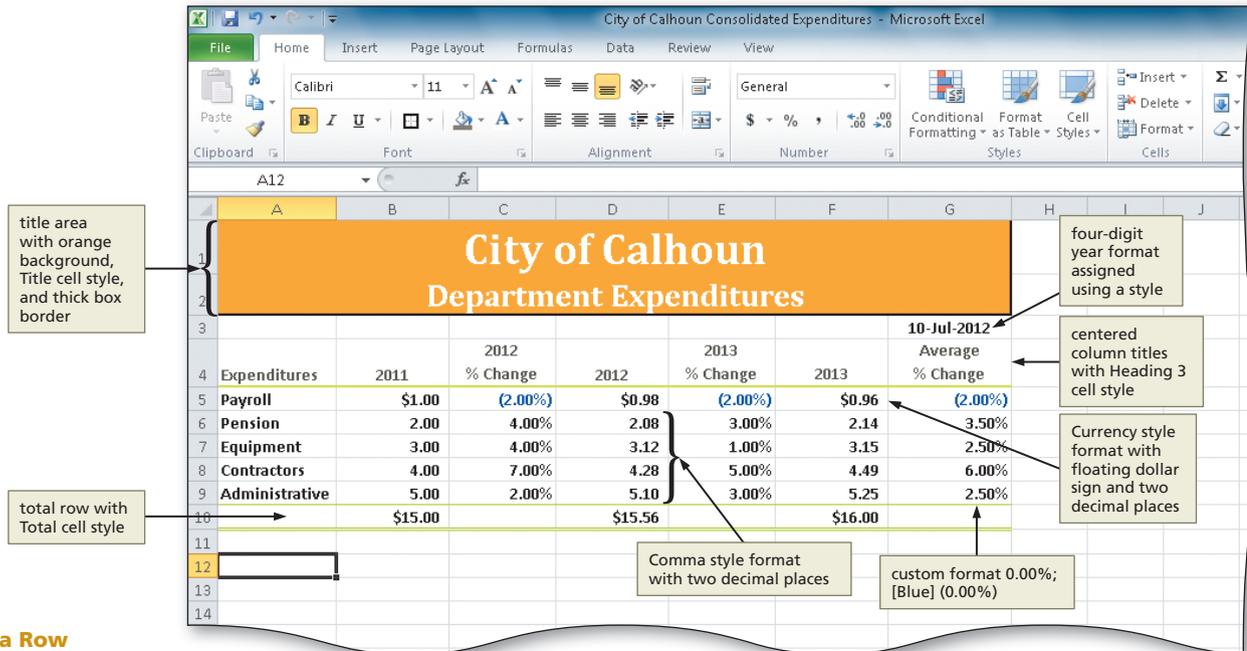


Figure 6–15

BTW

Summing a Row or Column

You can reference an entire column or an entire row in a function argument by listing only the column or only the row. For example, =sum(a:a) sums all the values in all the cells in column A, and =sum(1:1) sums all the values in all the cells in row 1. You can verify this by entering =sum(a:a) in cell C1 and then begin entering numbers in a few of the cells in column A. Excel will respond by showing the sum of the numbers in cell C1.

To Format the Consolidated Worksheet’s Title and Subtitle

The steps used to format the consolidated worksheet’s title and subtitle include changing cell A1 to 28-point with the Title cell style, changing cell A2 to 20-point with the Title cell style, centering both titles across columns A through G, changing the title background color to orange and the title font to white, and drawing a thick box border around the title area. The color scheme associated with the default Office template also will be changed to a new color scheme. One reason to change the color scheme is to add variety to the look of the worksheet that you create. The following steps format the title and subtitle.

- 1 Display the Page Layout tab. Click the Colors button (Page Layout tab | Themes group) to display the Colors gallery and then click Austin in the Colors gallery to apply a new color scheme to the workbook.

- 2 Select the range A1:A2. Display the Home tab and apply the Title cell style to the range. Change the font size of cell A1 to 28.
- 3 Select the range A1:G1. Click the Merge & Center button (Home tab | Alignment group) to merge and center the text in the selected range.
- 4 Change the font size of cell A2 to 20. Select the range A2:G2.
- 5 Click the Merge & Center button (Home tab | Alignment group) to merge and center the text in the selected range.
- 6 Select the range A1:A2, click the Fill Color button arrow (Home tab | Font group) to display the Fill Color gallery, and then click Orange, Accent 6 (column 10, row 1) on the Fill Color gallery to change the fill color of the cells in the selected range.
- 7 Click the Font Color button arrow (Home tab | Font group) to display the Font Color gallery and then click White, Background 1 (column 1, row 1) on the Font Color gallery to change the font color of the cells in the selected range.
- 8 Click the Borders button arrow (Home tab | Font group) to display the Borders menu and then click Thick Box Border in the Borders list to apply a border to the selected range.
- 9 Select cell A12 to deselect the range A1:A2.

BTW

Copying

To copy the contents of a cell to the cell directly below it, click in the target cell and press CTRL+D.

To Format the Column Titles and Total Row

The following steps center and underline the column titles and draw a top and double bottom border on the total row in row 10.

- 1 Select the range B4:G4 and then click the Center button (Home tab | Alignment group) to center the text in the cells of the selected range.
- 2 Hold down the CTRL key, click cell A4 to add it to the selection, and then apply the Heading 3 cell style to the range.
- 3 Select the range A10:G10, assign the Total cell style to the range, and then select cell A12 (Figure 6–16).

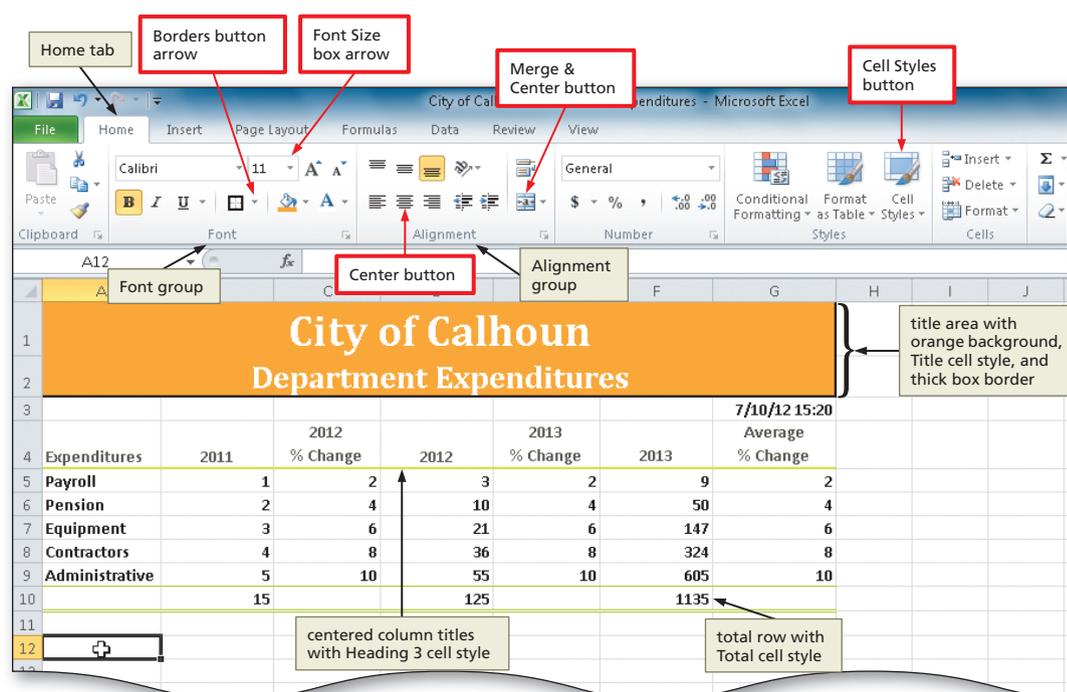


Figure 6–16

To Assign a Currency Style Using the Format Cells Dialog Box

As shown in Figure 6–15 on page EX 374, the consolidated worksheet for this chapter follows the **standard accounting format** for a table of numbers; that is, it contains floating dollar signs in the first row of numbers (row 5) and the totals row (row 10). Recall that while a fixed dollar sign always appears in the same position in a cell (regardless of the number of significant digits), a floating dollar sign always appears immediately to the left of the first significant digit in the cell. To assign a fixed dollar sign to rows 5 and 10, select the range and then click the Accounting Number Format button (Home tab | Number group). Assigning a floating dollar sign, by contrast, requires you to select the desired format in the Format Cells dialog box.

The following steps use the Format Cells dialog box to assign a Currency style with a floating dollar sign and two decimal places to cells B5, D5, F5, B10, D10, and F10.

1

- Select cell B5.
- While holding down the CTRL key, select the nonadjacent cells D5, F5, B10, D10, and F10 and then right-click any selected cell to highlight the nonadjacent ranges and display a shortcut menu and a Mini toolbar (Figure 6–17).

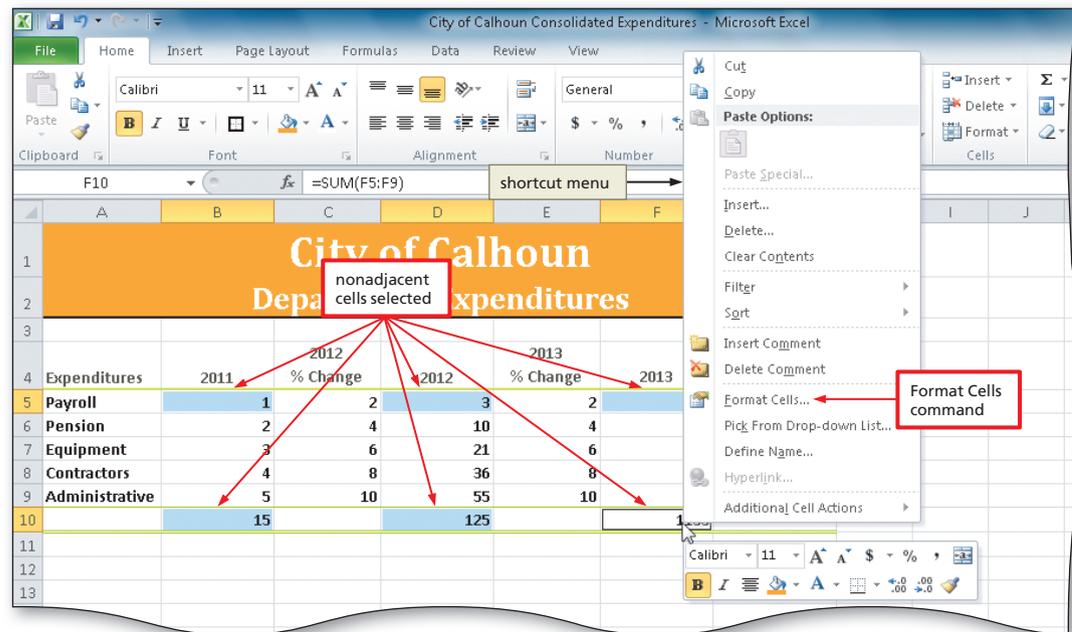


Figure 6–17

2

- Click Format Cells on the shortcut menu to display the Format Cells dialog box.
- If necessary, click the Number tab (Format Cells dialog box) to display the Number tab, click Currency in the Category list to select the type of format to apply, and then click the red (\$1,234.10) in the Negative numbers list to select a currency format that displays negative numbers in red with parentheses (Figure 6–18).

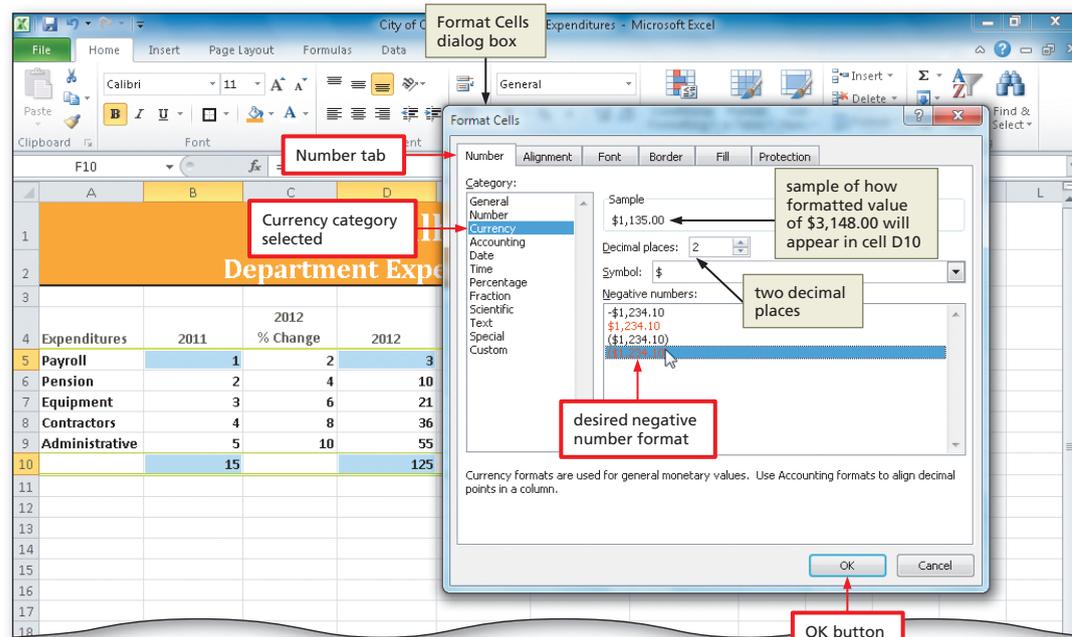


Figure 6–18

- 3 Click the OK button (Format Cells dialog box) to assign the Currency style with a floating dollar sign and two decimal places to the selected cells. Select cell A12 to deselect the nonadjacent cells (Figure 6–19).

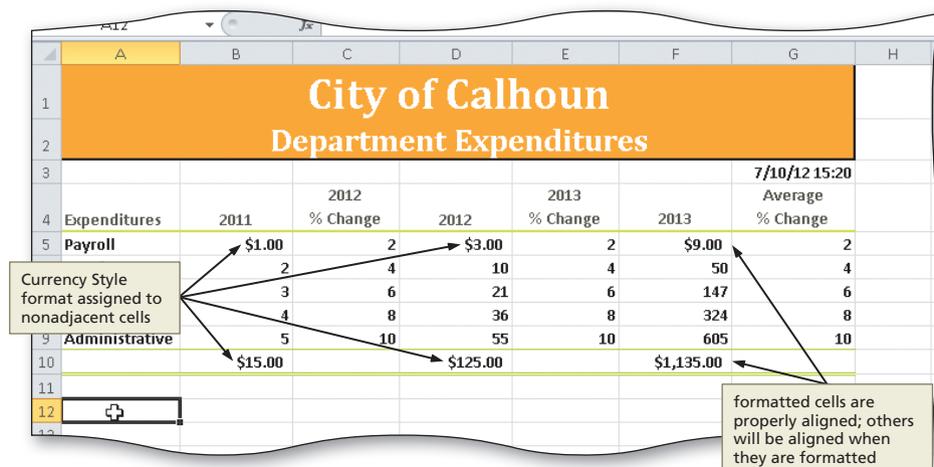


Figure 6–19

Format Codes

Excel assigns a format code to every format style listed in the Category list in the Number sheet in the Format Cells dialog box. As shown in Table 6–2, a **format code** is a series of format symbols that defines how a cell entry assigned a format will appear. To view the entire list of format codes that come with Excel, select Custom in the Category list (Figure 6–18).

Other Ways

1. Press CTRL+1, click Number tab (Format Cells dialog box), select format, click OK button

BTW

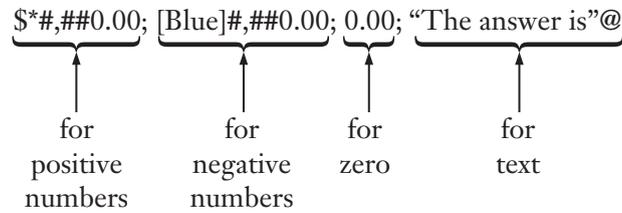
Creating Customized Formats

Each format symbol within the format code has special meaning. Table 6–2 summarizes the more frequently used format symbols and their meanings.

Table 6–2 Format Symbols in Format Codes

Format Symbol	Example of Symbol in Code	Description
# (number sign)	###.##	Serves as a digit placeholder. If the value in a cell has more digits to the right of the decimal point than number signs in the format, Excel rounds the number. Extra digits to the left of the decimal point are displayed.
0 (zero)	0.00	Works like a number sign (#), except that if the number is less than 1, Excel displays a 0 in the one's place.
. (period)	#0.00	Ensures Excel will display a decimal point in the number. The placement of period symbols determines how many digits appear to the left and right of the decimal point.
% (percent)	0.00%	Displays numbers as percentages of 100. Excel multiplies the value of the cell by 100 and displays a percent sign after the number.
, (comma)	#,##0.00	Displays a comma as a thousand's separator.
()	#0.00;(##0.00)	Displays parentheses around negative numbers.
\$ or + or –	\$\$,##0.00; (\$#,##0.00)	Displays a floating sign (\$, +, or –).
* (asterisk)	*###0.00	Displays a fixed sign (\$, +, or –) to the left, followed by spaces until the first significant digit.
[color]	###;[Red]###	Displays the characters in the cell in the designated color. In the example, positive numbers appear in the default color, and negative numbers appear in red.
" " (quotation marks)	\$0.00 "Surplus"; \$-0.00 "Shortage"	Displays text along with numbers entered in a cell.
_ (underscore)	(#,##0.00_)	Skips the width of the character that follows the underscore.

Before creating custom format codes or modifying an existing custom format code, you should understand their makeup. As shown below, a format code can have up to four sections: positive numbers, negative numbers, zeros, and text. Each section is divided by a semicolon.



A format code need not have all four sections. For most applications, a format code will have only a positive section and possibly a negative section.

To Create and Assign a Custom Format Code and a Comma Style Format

The next step is to create and assign a custom format code to the ranges that contain percentages: C5:C9, E5:E9, and G5:G9. The format code will display percentages with two decimal places to the right of the decimal point and also display negative percent values in blue with parentheses. The following steps create and assign a custom format code to percent values and then apply a comma style format to unformatted currency values.

- 1
 - Select the ranges C5:C9, E5:E9, and G5:G9, right-click any of the selected ranges to display a shortcut menu, and then click Format Cells on the shortcut menu to display the Format Cells dialog box.
 - If necessary, click the Number tab (Format Cells dialog box) to display the Number tab and then click Custom in the Category list to begin creating a custom format code.
 - Delete the word General in the Type box (Format Cells dialog box) and then type 0.00%; [Blue] (0.00%) to enter a custom format code (Figure 6–20).

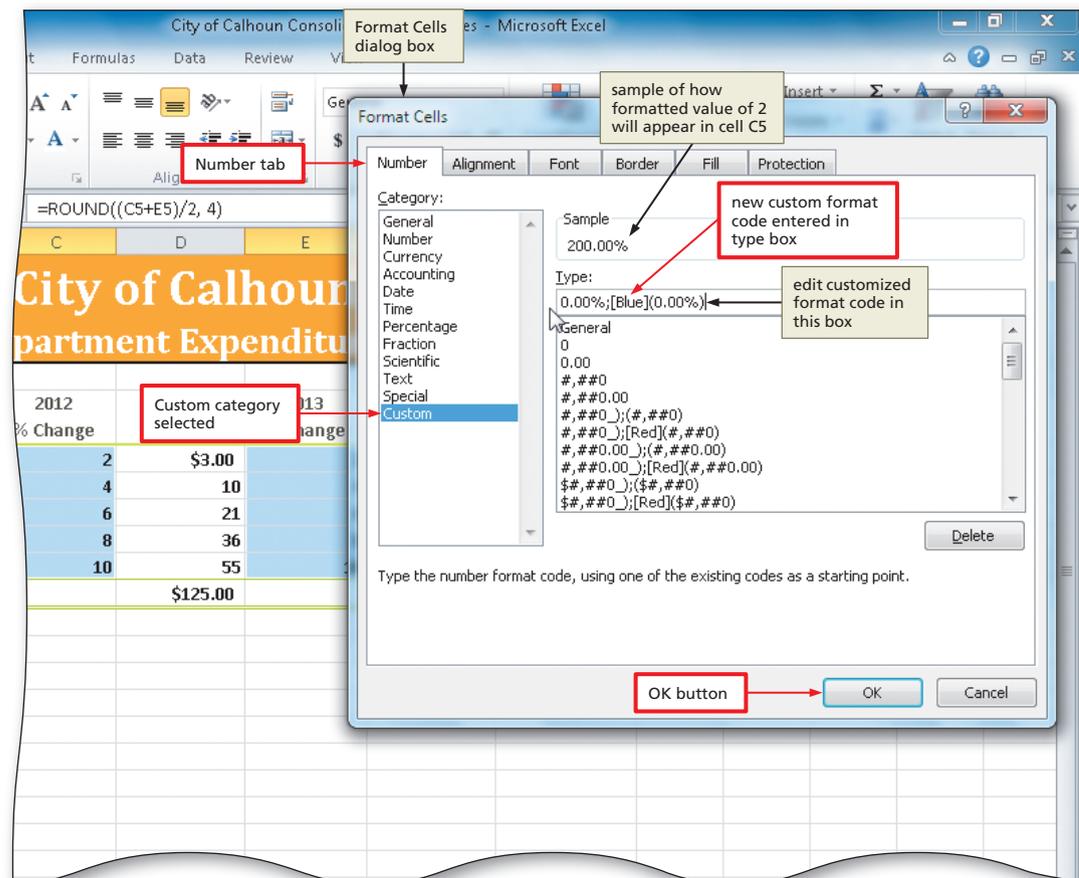


Figure 6–20

Q&A What does the custom format mean?
 The custom format has been modified to show percent values with two decimal places and to show negative percent values in blue with parentheses. In the Sample area, Excel displays a sample of the custom format assigned to the first number in the selected ranges.

- 2**
 - Click the OK button (Format Cells dialog box) to display the numbers in the ranges C5:C9, E5:E9, and G5:G9 using the custom format code created in Step 1.
 - Select the ranges B6:B9, D6:D9, and F6:F9.
 - Click the Comma Style button (Home tab | Number group) to display the numbers in the selected ranges using the Comma style format (Figure 6–21).
 - Select cell A12.

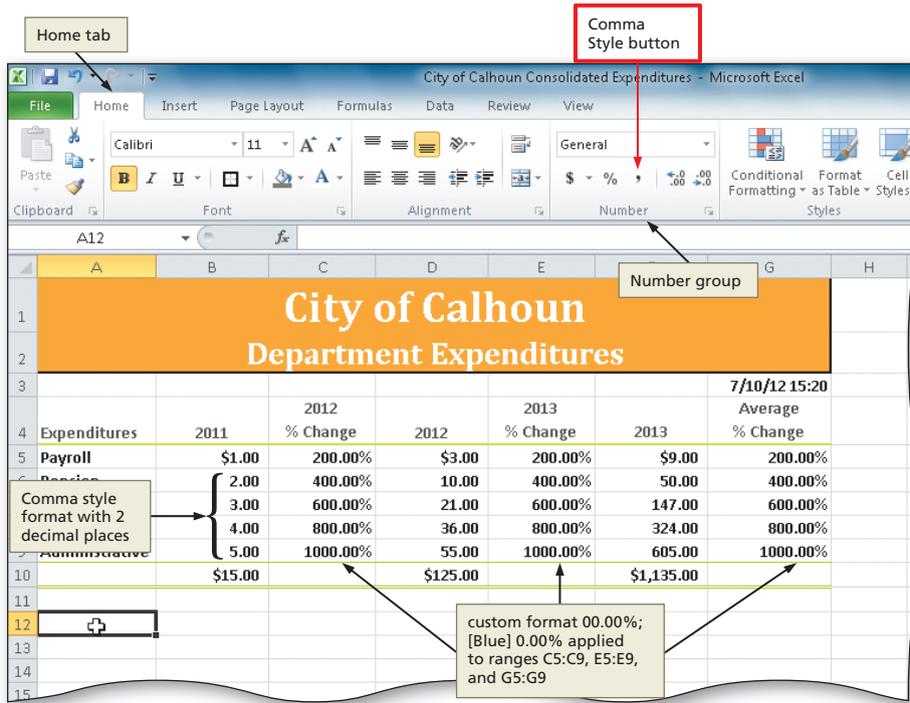


Figure 6–21

Q&A Can I reuse the custom format code?
 Yes. When you create a new custom format code, Excel adds it to the bottom of the Type list in the Number sheet in the Format Cells dialog box to make it available for future use.

Q&A Why is the Comma style format used for numbers that are not large enough to display commas?
 The Comma style allows the values in the cells to align properly with the values in rows 5 and 10, which are formatted with the Currency style with floating dollar signs and parentheses for negative numbers.

Cell Styles

A **style** is a group of format specifications that are assigned to a style name. Most of the cell styles in the Cell Styles gallery that are displayed when you click the Cell Styles button (Home tab | Styles group) include formatting only of visual characteristics, such as font name, font size, font color, and fill color. A cell style, however, also can contain information regarding nonvisual characteristics, such as cell protection.

Excel makes several general styles available with all workbooks and themes, as described in Table 6–3. You can apply these existing styles to a cell or cells in a worksheet, modify an existing style, or create an entirely new style.

BTW **Normal Style**
 The Normal style is the format style that Excel initially assigns to all cells in a workbook. If you change the Normal style, Excel applies the new format specifications to all cells that are not assigned another style.

Table 6–3 Styles Available with All Workbooks via the Cell Styles Button on the Home Tab

Style Name	Description
Normal	Number = General; Alignment = General, Bottom Aligned; Font = Arial 10; Border = No Borders; Patterns = No Shading; Protection = Locked
Comma	Number = (*#,##0.00);_(*#,##0.00);_(*"-")_);_(@_)
Comma(0)	Number = (*#,##0_);_(*#,##0);_(*"-")_);_(@_)
Currency	Number = (\$#,##0.00_);_(\$*#,##0.00);_(\$*"-")_);_(@_)
Currency(0)	Number = (\$#,##0_);_(\$*#,##0);_(\$*"-")_);_(@_)
Percent	Number = 0%

You can create and then assign a style to a cell, a range of cells, a worksheet, or a workbook in the same way you assign a format using the buttons on the Home tab on the Ribbon. In fact, the Comma Style button, Currency Style button, and Percent Style button assign the Comma, Currency, and Percent styles in Table 6–3, respectively. Excel automatically assigns the Normal style in Table 6–3 to all cells when you open a new workbook.

By right-clicking styles in the Cell Styles gallery, you also can delete, modify, and duplicate styles. The Merge Styles button in the Cell Styles gallery allows you to merge styles from other workbooks. You add a new style to a workbook or merge styles when you plan to use a group of format specifications over and over.

To Create a New Style

The following steps create a new style called Four-Digit Year by modifying the existing Normal style and assigning the style to cell G3, which contains the system date. The new style will include the following formats: Number = 14-Mar-2001 and Alignment = Horizontal Center and Bottom Aligned.

- 1 Click the Cell Styles button (Home tab | Styles group) to display the Cell Styles gallery (Figure 6–22).

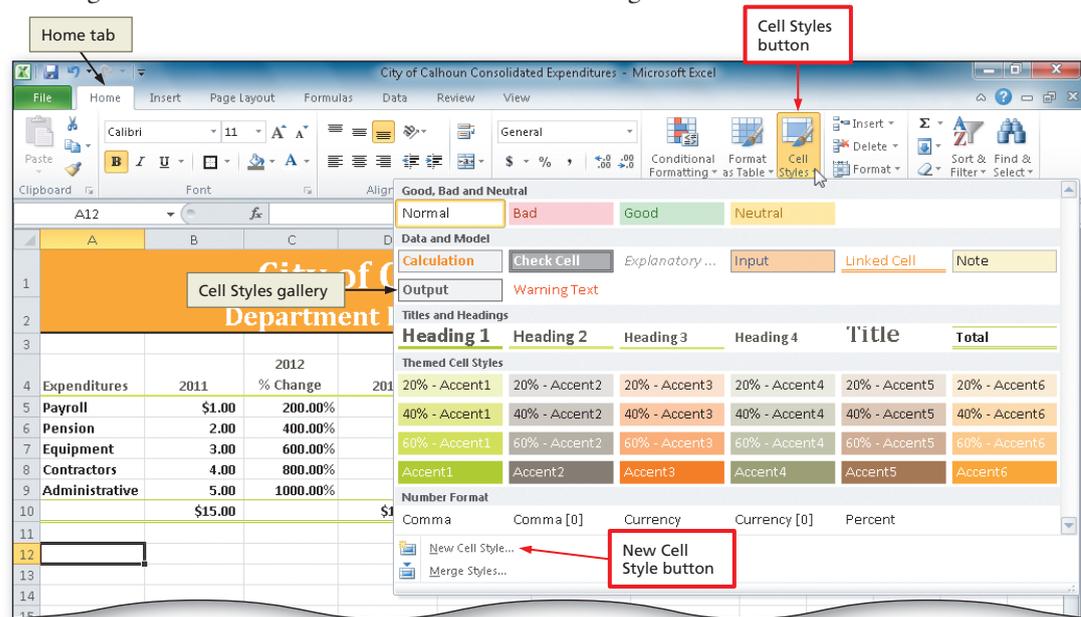


Figure 6–22

- 2 Click the New Cell Style button in the Cell Styles gallery to display the Style dialog box.
 - Type **Four-Digit Year** to name a new style (Figure 6–23).

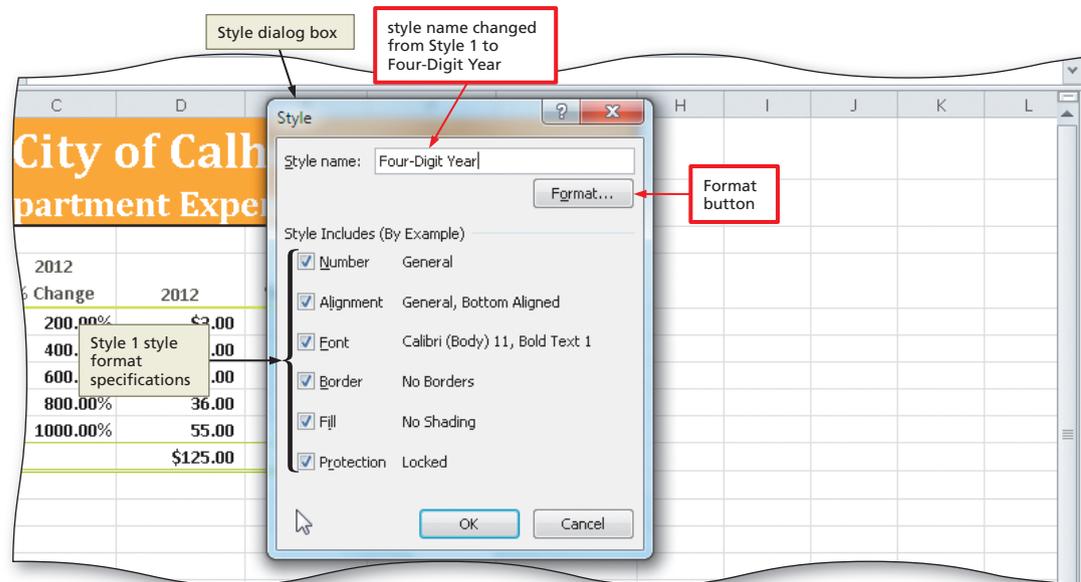


Figure 6–23

- 3**
- Click the Format button (Style dialog box) to display the Format Cells dialog box.
 - If necessary, click the Number tab (Format Cells dialog box) to display the Number tab, click Date in the Category list to display the list of date formats, and then click 14-Mar-2001 in the Type list to define the new style as a date style (Figure 6–24).

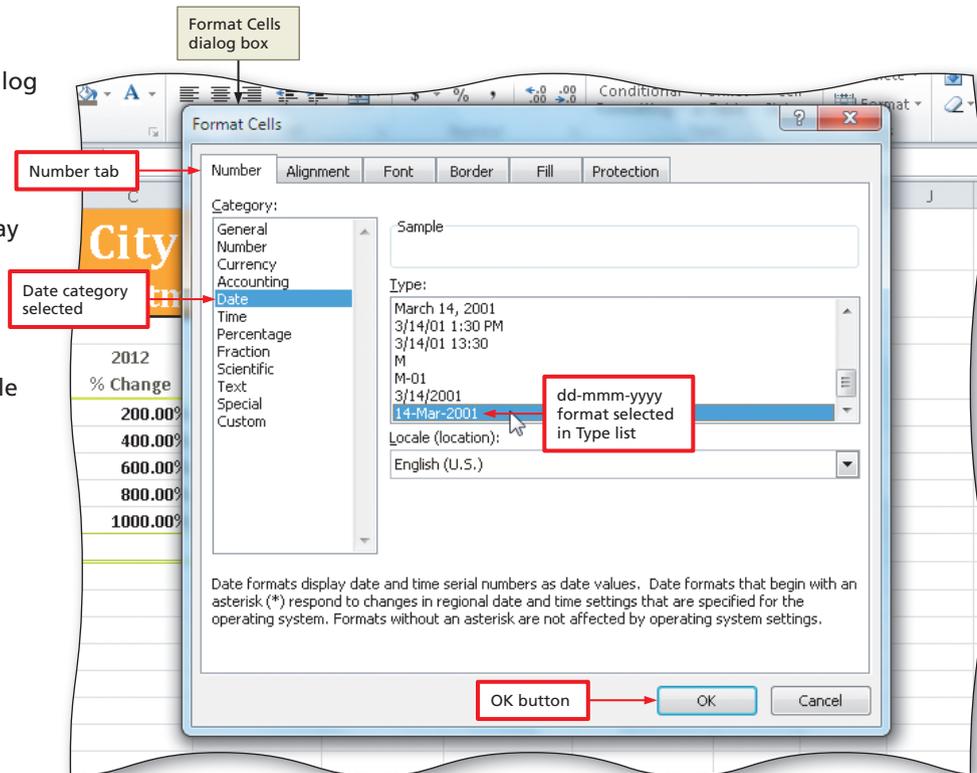


Figure 6–24

- 4**
- Click the Alignment tab (Format Cells dialog box) to display the Alignment tab, click the Horizontal box arrow to display the Horizontal list, and then click Center in the Horizontal list to define the alignment of a new style.
 - Click the OK button (Format Cells dialog box) to close the Format Cells dialog box.
 - When the Style dialog box becomes active, click Font, Border, Fill, and Protection to clear the check boxes, indicating that the new style does not use these characteristics (Figure 6–25).

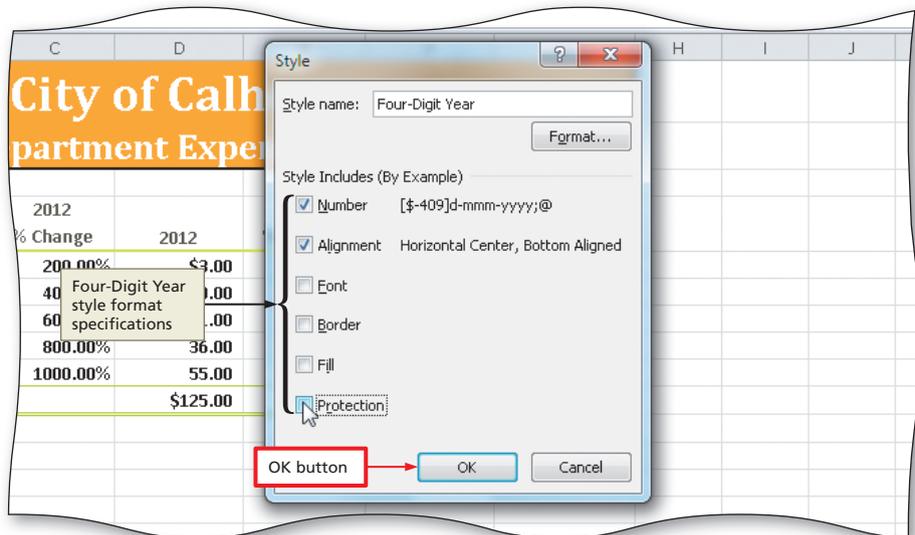


Figure 6–25

Q&A What is the purpose of the Font, Border, Fill, and Protection settings?

When one of these settings is selected, the cell style will include that setting's formatting attributes. When not selected, as with the cell style created in this set of steps, the cell style does not include any information about these formatting attributes. When the cell style is applied, therefore, no information about the font, borders, fill color, or protection is applied to the cell or range.

- 5**
- Click the OK button (Style dialog box) to add the new style, Four-Digit Year style in this case, to the list of styles available with the current workbook in the Cell Styles gallery.

To Apply a New Style

In earlier steps, cell G3 was assigned the system date using the NOW() function. The following steps assign cell G3 the Four-Digit Year style, which centers the content of the cell and assigns it the date format dd-mmm-yyyy.

- Select cell G3 and then click the Cell Styles button (Home tab | Styles group) to display the Cell Styles gallery (Figure 6–26).

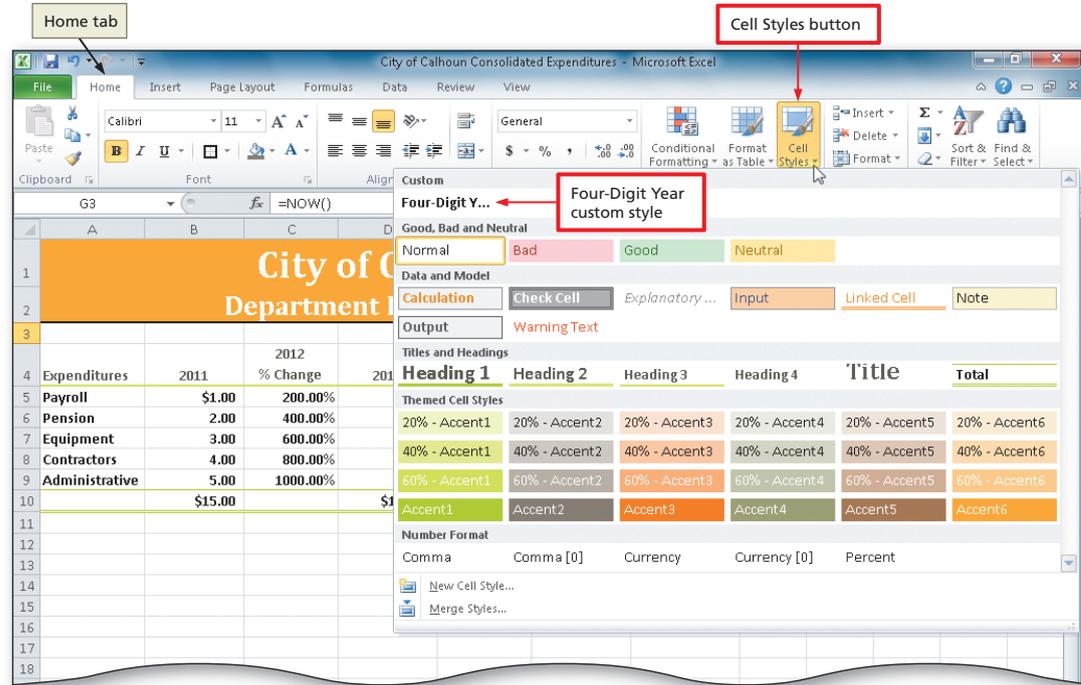


Figure 6–26

- Click the Four-Digit Year style to assign the style to the selected cell, cell G3 in this case (Figure 6–27).

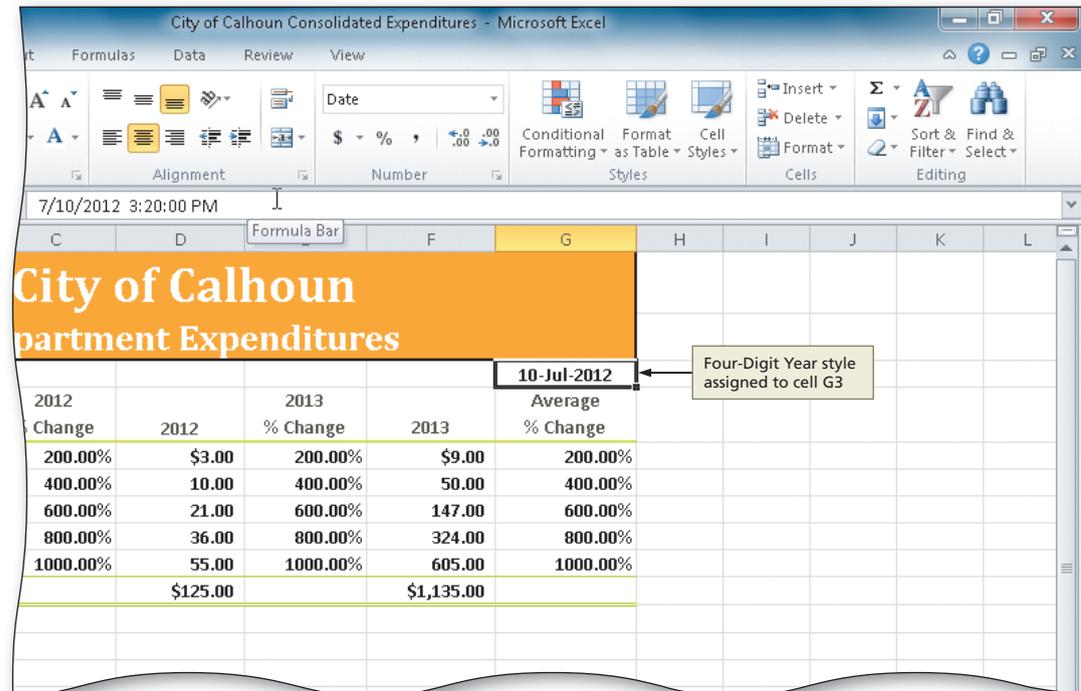


Figure 6–27

More About Using Styles

Keep in mind the following additional points concerning styles:

1. A style affects the format of a cell or range of cells only if the corresponding check box is selected in the Style Includes area in the Style dialog box (Figure 6–25 on page EX 381). For example, if the Font check box is not selected in the Style dialog box, then the cell assigned the style maintains the font format it had before the style was assigned.
2. If you assign two different styles to a range of cells, Excel adds the second style to the first, rather than replacing it. If the two cell styles include different settings for an attribute, such as fill color, then Excel applies the setting for the second style.
3. You can merge styles from another workbook into the active workbook by using the Merge Styles button in the Cell Styles gallery. You must, however, open the workbook that contains the desired styles before you use the Merge Styles button.
4. The six check boxes in the Style dialog box are identical to the six tabs in the Format Cells dialog box (Figure 6–24 on page EX 381).

BTW Opening a Workbook at Startup

You can instruct Windows to open a workbook (or template) automatically when you turn on your computer by adding the workbook (or template) to the Startup folder. Use Windows Explorer to copy the file to the Startup folder. The Startup folder is in the All Programs list.

To Spell Check, Save, and Print the Consolidated Worksheet

With the formatting complete, the next step is to spell check the worksheet, save it, and then print it.

- 1 Select cell A1. Click the Review tab, and then click the Spelling button (Review tab | Proofing group) to spell check the workbook. Correct any misspelled words.
- 2 Click the Save button on the Quick Access Toolbar to save the workbook.
- 3 Print the workbook.

Note: If you wish to take a break, this is a good place to do so. You can quit Excel now. To resume at a later time, start Excel, open the file called City of Calhoun Consolidated Expenditures, and continue following the steps from this location forward.

Working with Multiple Worksheets

A workbook contains three worksheets by default. Excel limits the number of worksheets you can have in a workbook based upon the amount of memory in your computer. When working with multiple worksheets, you should name and color the sheet tabs so that you easily can identify them. With the consolidated worksheet complete, the next steps in completing the project are to add a worksheet to the workbook, copy the data in the consolidated worksheet to the department worksheets, and adjust the formatting and values in the department worksheets.

Identify additional worksheets needed in the workbook.

Excel provides three basic choices when you consider how to use Excel to organize data. Use a single worksheet when the data is tightly related. In this case you may want to analyze the data in a table and use a column, such as Department, Region, or Quarter, to identify groups of data. Use multiple worksheets when data is related but can stand alone on its own. For example, each region, department, or quarter may contain enough detailed information that you may want to analyze the data in separate worksheets. Use multiple workbooks when data is loosely coupled, or when workbooks come from multiple sources or must be gathered from multiple sources.

Plan Ahead

To Add a Worksheet to a Workbook

The City of Calhoun Consolidated Expenditures workbook requires four worksheets—one for each of the three departments and one for the consolidated totals. Thus, a worksheet must be added to the workbook. When you add a worksheet, Excel places the new sheet tab to the left of the active tab. To keep the worksheet with the sample data shown in Figure 6–27 on page EX 382 on top—that is, to keep its tab (Sheet1) to the far left—spreadsheet specialists often add a new worksheet between Sheet1 and Sheet2, rather than to the left of Sheet1. The following steps select Sheet2 before adding a worksheet to the workbook.

- 1
 - Click the Sheet2 tab at the bottom of the window and then click the Insert Cells button arrow (Home tab | Cells group) to display the Insert Cells menu (Figure 6–28).

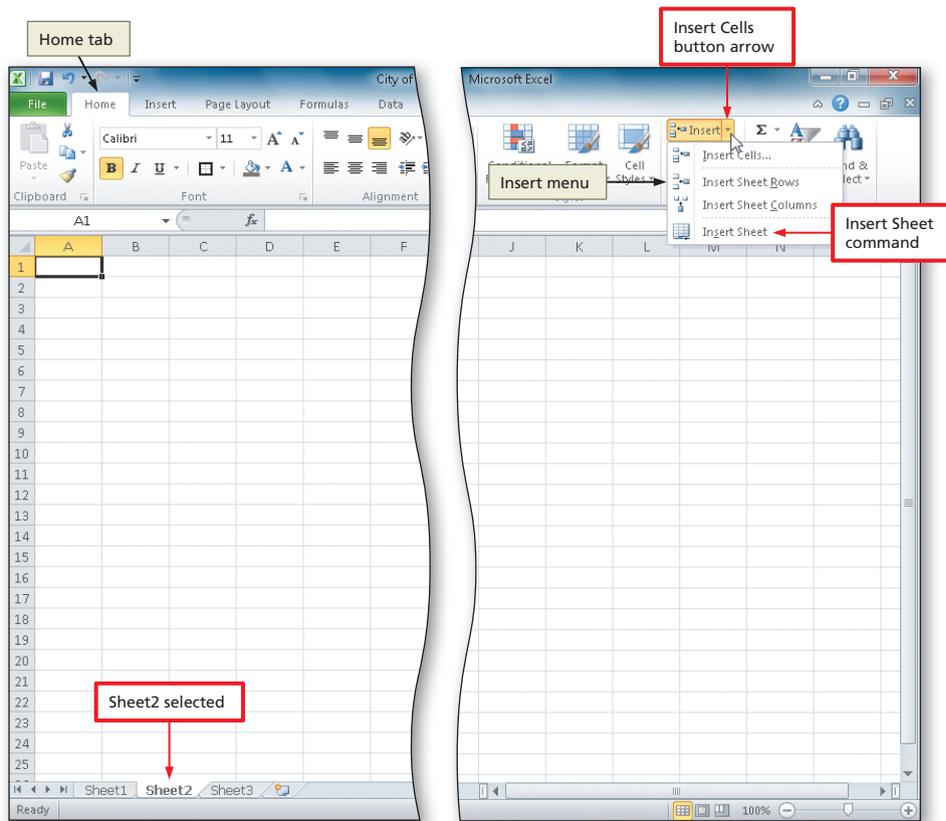


Figure 6–28

- 2
 - Click Insert Sheet on the Insert Cells menu to add a new worksheet to a workbook, in this case a sheet named Sheet 4 between Sheet 1 and Sheet 2 (Figure 6–29).

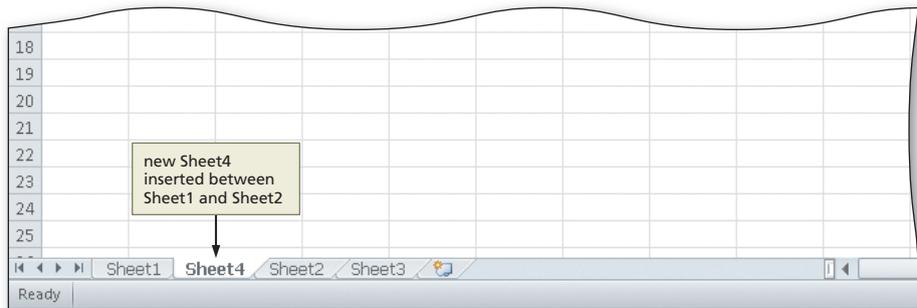


Figure 6–29

Q&A

Can I start a new workbook with more sheets?

Yes. An alternative to adding worksheets is to change the default number of worksheets before you open a new workbook. To change the default number of worksheets in a blank workbook, click the Excel Options button in the Backstage view, and then change the number in the 'Include this many sheets' box in the 'When creating new workbooks' area of the Excel Options dialog box. Recall from Chapter 4 that you can delete a worksheet by right-clicking the sheet tab of the worksheet you want to delete and then clicking Delete on the shortcut menu.

Other Ways

1. Right-click tab, click Insert on shortcut menu

To Copy the Contents of a Worksheet to Other Worksheets in a Workbook

With four worksheets in the workbook, the next step is to copy the contents of Sheet1 to Sheet4, Sheet2, and Sheet3. Sheet1 eventually will be used as the Consolidated worksheet with the consolidated data. Sheet4, Sheet2, and Sheet3 will be used for the three department worksheets.

1

- Click the Sheet1 tab to display the worksheet on the sheet tab.
- Click the Select All button to select the entire worksheet and then click the Copy button (Home tab | Clipboard group) to copy the contents of the worksheet (Figure 6–30).

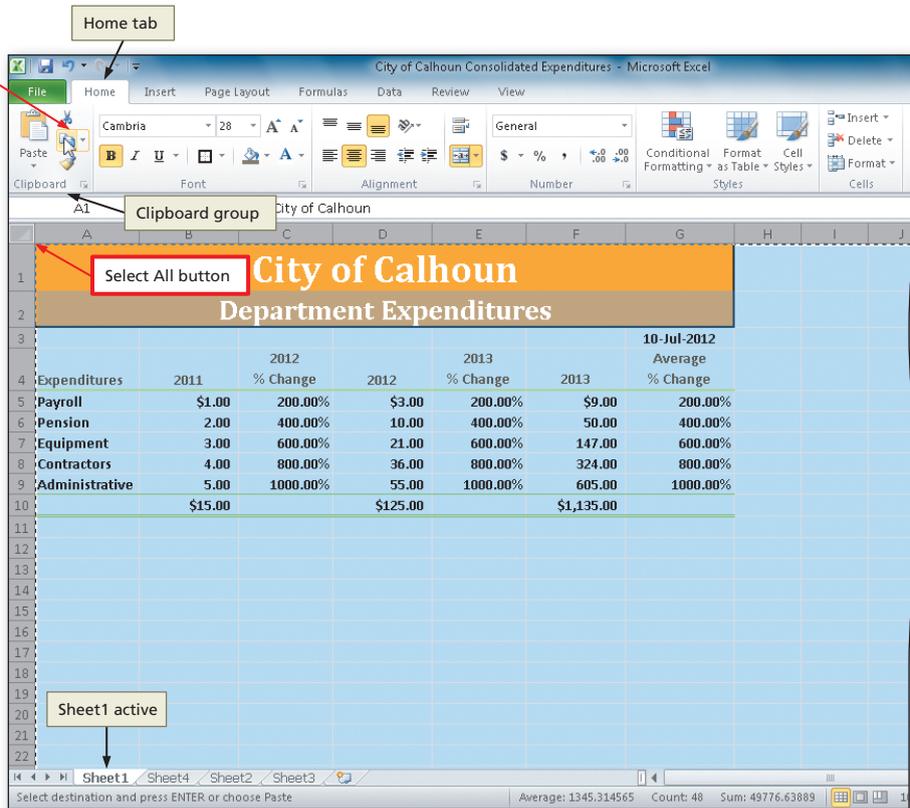


Figure 6–30

2

- Click the Sheet4 tab to display the worksheet on the sheet tab.
- While holding down the SHIFT key, click the Sheet3 tab to select all three blank worksheets in the workbook.
- Click the Paste button (Home tab | Clipboard group) to copy the data on the Office Clipboard to all of the selected sheets (Figure 6–31).

Q&A

Why does the word Group appear on the title bar?

The term [Group] following the workbook name on the title bar indicates that multiple worksheets are selected.

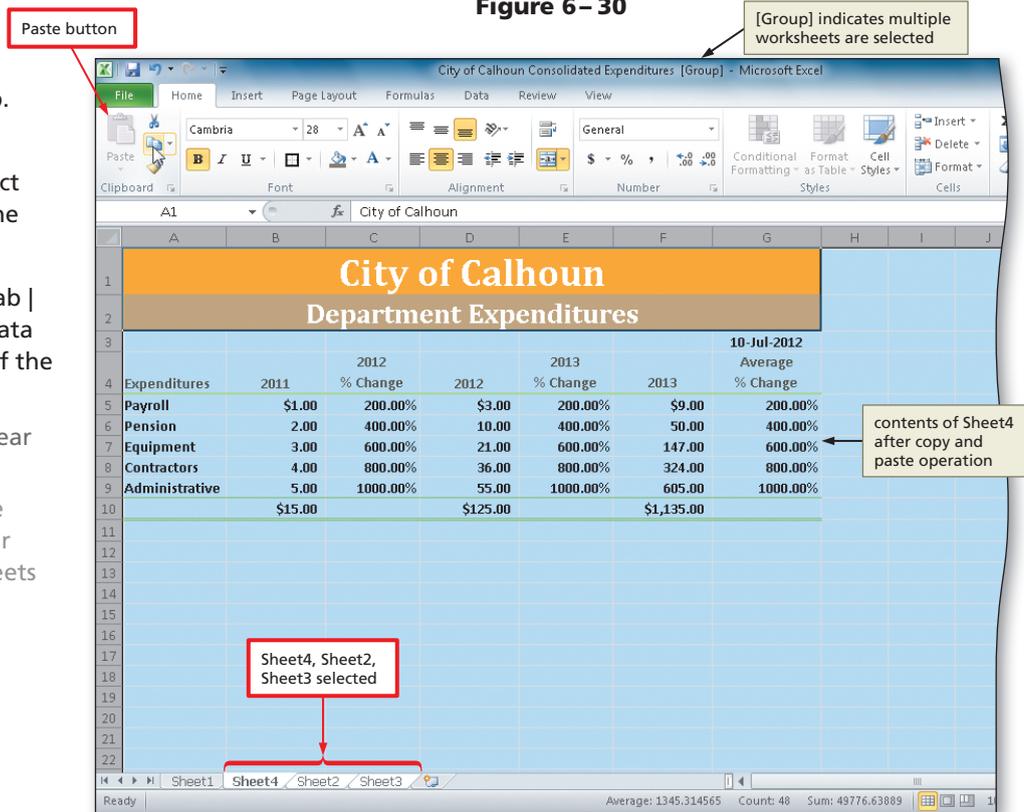


Figure 6–31

- 3
 - Click the Sheet1 tab to display the worksheet on the sheet tab and then press the ESC key to remove the marquee surrounding the selection.
 - Hold down the SHIFT key, click the Sheet3 tab to display the worksheet on the sheet tab, and then select cell A12 to select the same cell in multiple sheets.
 - Hold down the SHIFT key and then click the Sheet1 tab to deselect Sheet4, Sheet2, and Sheet3 (Figure 6–32).
 - Click the Save button on the Quick Access Toolbar to save the workbook.

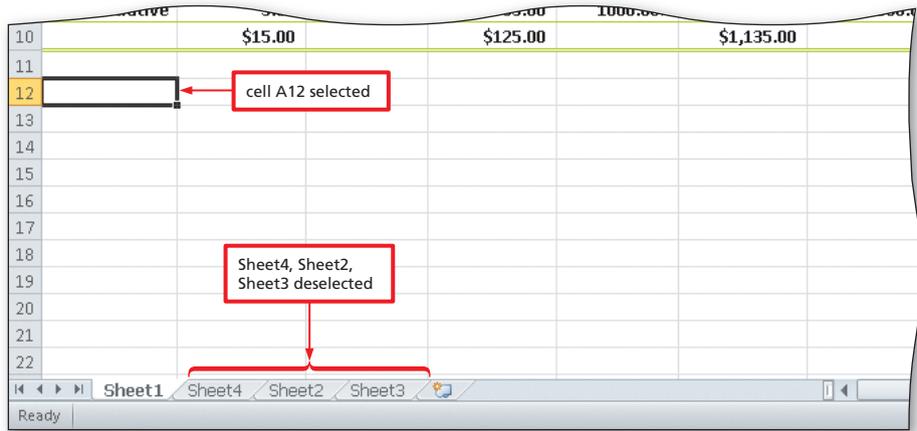


Figure 6–32

Q&A Can I use the ENTER key to paste the data?
 Yes. The ENTER key could have been used rather than the Paste button (Home tab | Clipboard group) to complete the paste operation in Step 2. Recall that if you complete a paste operation using the ENTER key, then the marquee disappears and the Office Clipboard no longer contains the copied data following the action. Because the Paste button was used, the ESC key was used in Step 3 to clear the marquee and Office Clipboard of the copied data.

Other Ways

1. Select source area, click Copy button (Home tab | Editing group), select worksheets, click Paste button (Home tab | Editing group)
2. Right-click source area, click Copy on shortcut menu, select worksheets, click Paste on shortcut menu
3. Select source area, press CTRL+C, select worksheets, press CTRL+V

To Drill an Entry through Worksheets

The next step is to replace the sample numbers in the ranges C5:C9 and E5:E9 with the 2012 % Change and 2013 % Change for each expenditure type (Table 6–4). The 2012 % Change and 2013 % Change for expenditures are identical on all four sheets. For example, the 2012 % Change for Payroll in cell C5 is -2.00% on all four sheets. To speed data entry, Excel allows you to enter a number once and copy it through worksheets so that it is entered in the same cell on all the selected worksheets. This technique is referred to as **drilling an entry**. The following steps drill the five 2012 % Change and five 2013 % Change entries in Table 6–4 through all four worksheets in the range C5:C11.

Table 6–4 2012 % Change and 2013 % Change Values			
Cell	2012 % Change	Cell	2013 % Change
C5	-2.00	E5	-2.00
C6	4.00	E6	3.00
C7	4.00	E7	1.00
C8	7.00	E8	5.00
C9	2.00	E9	3.00

1

- With Sheet1 active, hold down the SHIFT key and then click the Sheet3 tab to select all four tabs at the bottom of the window.
- Select cell C5. Type `-2.00` and then press the DOWN ARROW key to change sample data in the selected cell to a proper value.
- Enter the nine remaining 2012 % Change and 2013 % Change values in Table 6-4 in the ranges C6:C9 and E5:E9 to display the proper values.
- Select cell A12 to select the same cell in all of the selected worksheets (Figure 6-33).

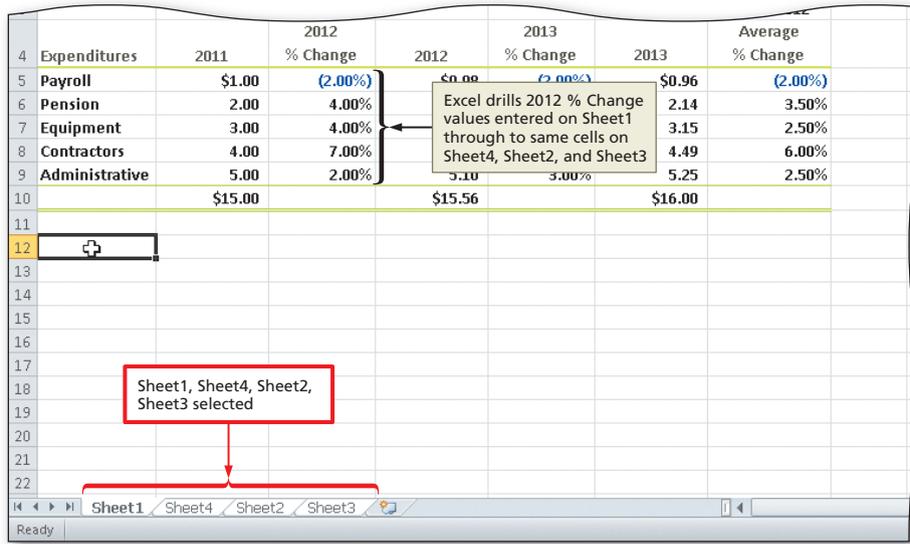


Figure 6-33

2

- Hold down the SHIFT key and then click the Sheet1 tab to deselect multiple sheets.
- One at a time, click the Sheet4 tab, the Sheet2 tab, and the Sheet3 tab to verify that all four sheets are identical (Figure 6-34).

Q&A

What is the benefit of drilling data through worksheets?

In the previous set of steps, seven new numbers were entered on one worksheet. As shown in Figure 6-34, by drilling the entries through the four other worksheets, 28 new numbers now appear, seven on each of the four worksheets. Excel's capability of drilling data through worksheets is an efficient way to enter data that is common among worksheets.

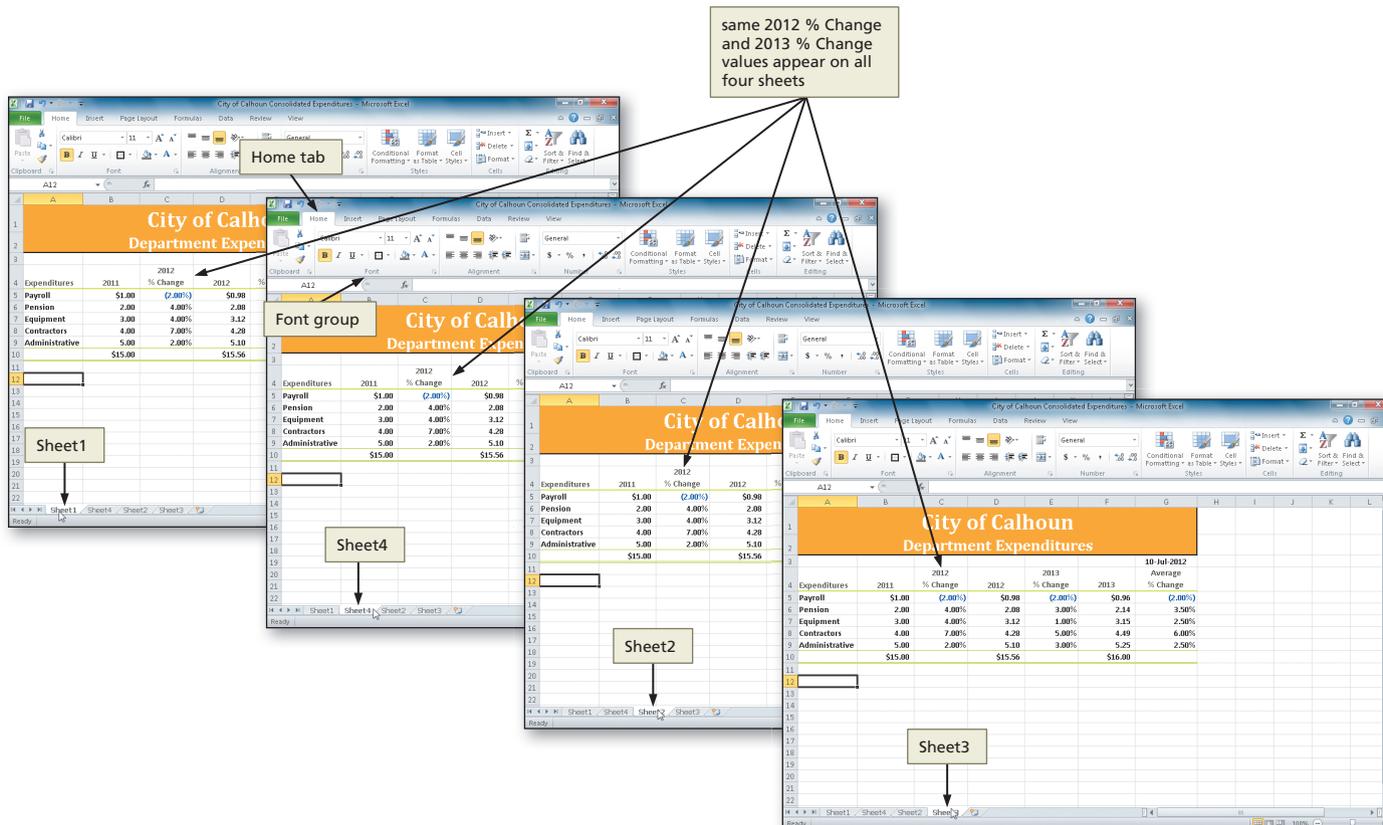


Figure 6-34

BTW **Drilling an Entry**
 Besides drilling a number down through a workbook, you can drill a format, a function, or a formula down through a workbook.

To Modify the Public Works Sheet

With the outline of the City of Calhoun Consolidated Expenditures workbook created, the next step is to modify the individual sheets. The following steps modify the Public Works sheet (Sheet 4) by changing the sheet name, tab color, and worksheet subtitle; changing the color of the title area; and entering the 2011 expenditures in column B.

- 1 Double-click the Sheet4 tab to begin editing the sheet name. Type **Public Works** and then press the ENTER key to change the sheet name.
- 2 Right-click the Public Works tab to display a shortcut menu, point to Tab Color on the shortcut menu, and then click Brown, Accent 2 (column 6, row 1 in the Theme Colors area) on the Color palette to change the tab color.
- 3 Double-click cell A2 to begin editing text in a cell, drag through the words Department Expenditures to select the text, and then type **Public Works** to change the worksheet subtitle.
- 4 Select the range A1:A2, click the Fill Color button arrow (Home tab | Font group) to display the Fill Color gallery, and then click Brown, Accent 2 (column 6, row 1 in the Standard Colors area) on the Fill Color gallery to change the fill color of the selected range.
- 5 Enter the data listed in Table 6–5 in the range B5:B9 (Figure 6–35).
- 6 Select cell A12 and then click the Save button on the Quick Access Toolbar to save the workbook.

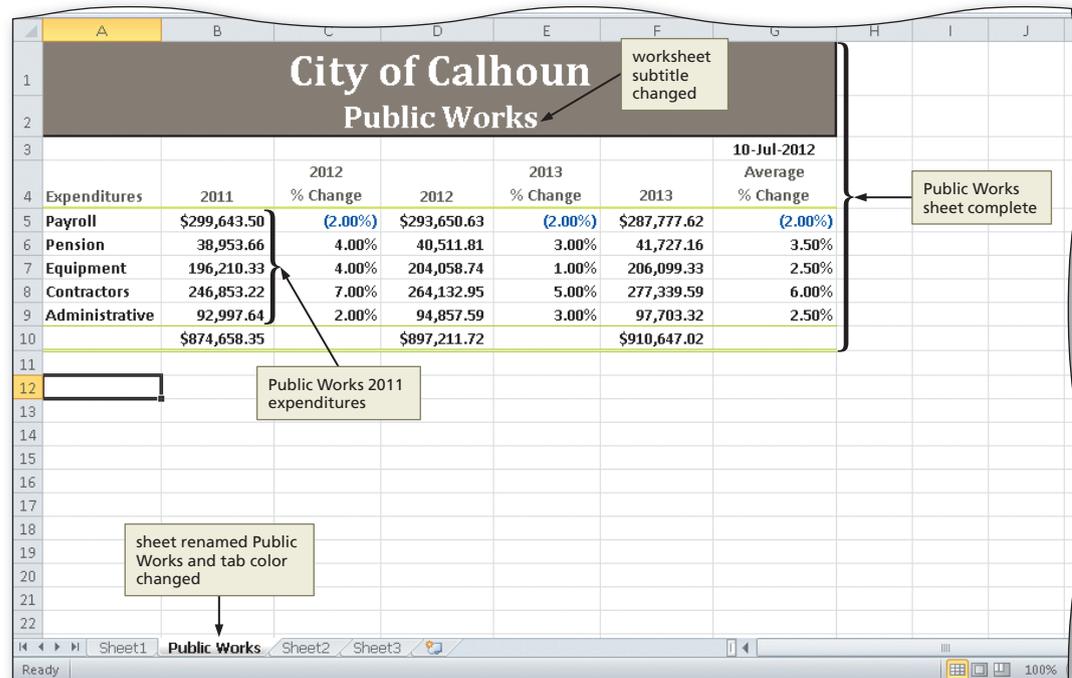


Figure 6–35

Table 6–5 Public Works 2011 Expenditures	
Cell	2011 Expenditures
B5	299643.50
B6	38953.66
B7	196210.33
B8	246853.22
B9	92997.64

To Modify the Police and Fire Sheet

The following steps modify the Police and Fire sheet (Sheet2).

- 1 Double-click the Sheet2 tab. Type **Police and Fire** and then press the ENTER key to change the sheet name.
- 2 Right-click the Police and Fire tab, point to Tab Color on the shortcut menu, and then click Green, Accent 1 (column 5, row 1 in the Theme Colors area) on the Color palette to change the tab color.
- 3 Double-click cell A2, drag through the word, Department Expenditures, and then type **Police and Fire** to change the worksheet subtitle.
- 4 Select the range A1:A2, click the Fill Color button arrow on the Ribbon, and then click Green, Accent 1 (column 5, row 1 in the Theme Colors area) in the Fill Color gallery.
- 5 Enter the data listed in Table 6–6 in the range B5:B9 (Figure 6–36).
- 6 Select cell A12 and then click the Save button on the Quick Access Toolbar.

Expenditures	2011	2012 % Change	2012	2013 % Change	2013	10-Jul-2012 Average % Change
Payroll	\$227,877.31	(2.00%)	\$223,319.76	(2.00%)	\$218,853.37	(2.00%)
Pension	41,017.92	4.00%	42,658.64	3.00%	43,938.40	3.50%
Equipment	388,586.30	4.00%	404,129.75	1.00%	408,171.05	2.50%
Contractors	160,292.63	7.00%	171,513.11	5.00%	180,088.77	6.00%
Administrative	198,025.14	2.00%	201,985.64	3.00%	208,045.21	2.50%
	\$1,015,799.30		\$1,043,606.91		\$1,059,096.80	

Figure 6–36

Table 6–6 Police and Fire 2011 Expenditures	
Cell	2011 Expenditures
B5	227877.31
B6	41017.92
B7	388586.30
B8	160292.63
B9	198025.14

To Modify the Parks and Recreation Sheet

As with the Public Works and Police and Fire sheets, the sheet name, tab color, worksheet subtitle, data, and background colors must be changed on the Parks and Recreation sheet. The following steps modify the Parks and Recreation sheet.

BTW

Importing Data

Expenditures, such as those entered into the range B5:B9, often are maintained in another workbook, a file, or a database. If the expenditures are maintained elsewhere, ways exist to link to a workbook or import data from a file or database into a workbook. Linking to a workbook is discussed later in this chapter. For information on importing data, see the From Other Sources button (Data tab | Get External Data group).

- 1 Double-click the Sheet3 tab. Type **Parks and Recreation** and then press the ENTER key to change the sheet name.
- 2 Right-click the Parks and Recreation tab, point to Tab Color on the shortcut menu, and then click Orange, Accent 3 (column 7, row 1 in the Standard Colors area) on the Color palette to change the tab color.
- 3 Double-click cell A2, drag through the word, Department, and then type **Parks and Recreation** to change the worksheet subtitle.
- 4 Select the range A1:A2, click the Fill Color button arrow on the Ribbon, and then click Orange, Accent 3 (column 7, row 1 in the Standard Colors area) on the Fill Color gallery to change the fill color of the selected cell.
- 5 Enter the data listed in Table 6–7 in the range B5:B9 (Figure 6–37).
- 6 Select cell A12 and then click the Save button on the Quick Access Toolbar.

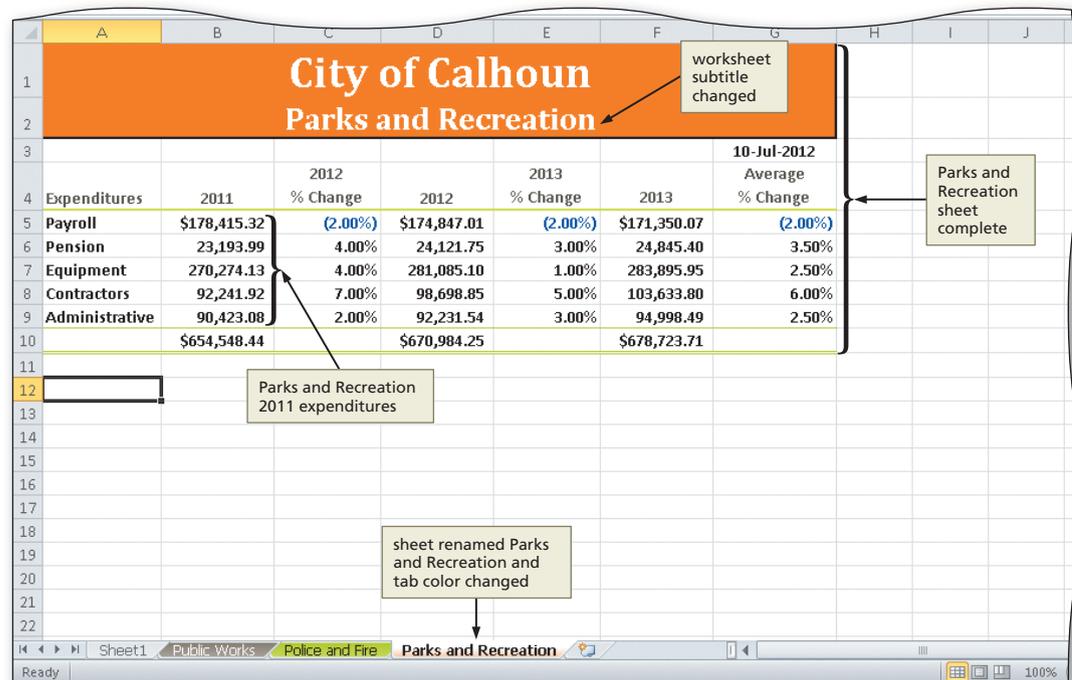


Figure 6–37

Table 6–7 Parks and Recreation 2011 Expenditures	
Cell	2011 Expenditures
B5	178415.32
B6	23193.99
B7	270274.13
B8	92241.92
B9	90423.08

Referencing Cells in Other Sheets in a Workbook

With the three region sheets complete, the next step is to modify Sheet1, which will serve as the consolidation worksheet containing totals of the data on the Public Works, Police and Fire, and Parks and Recreation sheets. Because this sheet contains totals of the data, you need to understand how to reference cells in other sheets in a workbook before modifying Sheet1.

To reference cells in other sheets in a workbook, you use the sheet name, which serves as the **sheet reference**, and the cell reference. For example, you refer to cell B5 on the Public Works sheet as shown below. The sheet name must be included in single quotation marks when the sheet name contains a space character.

=‘Public Work’s!B5’

Using this method, you can sum cell B5 from each of the three department sheets by selecting cell B5 on the Sheet1 sheet and then entering:

=‘Public Works’!B5 + ‘Police and Fire’!B5 + ‘Parks and Recreation’!B5

A much quicker way to total the three cells is to use the SUM function as follows:

=SUM(‘Public Works’:‘Parks and Recreation’!B5)

The SUM argument (‘Public Works’:‘Parks and Recreation’!B5) instructs Excel to sum cell B5 on each of the three sheets (Public Works, Police and Fire, and Parks and Recreation). The colon (:) between the first sheet name and the last sheet name instructs Excel to include these sheets and all sheets in between, just as it does with a range of cells on a sheet. A range that spans two or more sheets in a workbook, such as ‘Public Works’:‘Parks and Recreation’!B5, is called a **3-D range**. The reference to this range is a **3-D reference**.

A sheet reference such as ‘Public Works!’ always is absolute. Thus, the sheet reference remains constant when you copy formulas.

BTW **Circular References**
A circular reference is a formula that depends on its own value. The most common type is a formula that contains a reference to the same cell in which the formula resides.

To Modify the Consolidated Sheet

This section modifies the Consolidated sheet by changing the sheet name, tab color, and subtitle and then entering the SUM function in cells B5, D5, and F5. The SUM functions will determine the total expenditures for each year, by expenditure type. Cell B5 on the Consolidated sheet, for instance, will contain the sum of the Payroll expenditures, which are located in Public Works!B5, Police and Fire!B5, and Parks and Recreation!B5. Before determining the totals, the following steps change the sheet name from Sheet1 to Consolidated, color the tab, and change the subtitle to Consolidated Expenditures.

- 1** Double-click the Sheet1 sheet tab to display the worksheet. Type **Consolidated** and then press the ENTER key to rename the sheet.
- 2** Right-click the Consolidated tab to display the worksheet, point to Tab Color on the shortcut menu, and then click Orange, Accent 6 (column 10, row 1 in the Standard Colors area) on the Color palette to change the tab color.
- 3** Double-click cell A2 to begin editing a cell, drag through the words Department Expenditures to select the words in the cell, and then type **Consolidated** as the worksheet subtitle. Press the ENTER key to complete the change of the subtitle.

BTW **3-D References**
If you are summing numbers on noncontiguous sheets, hold down the CTRL key rather than the SHIFT key when selecting the sheets.

To Enter and Copy 3-D References Using the Paste Gallery

You can enter a sheet reference in a cell by typing the sheet reference or by clicking the appropriate sheet tab while in Point mode. When you click the sheet tab, Excel activates the sheet and automatically adds the sheet name and an exclamation point after the insertion point in the formula bar. Next, select or drag through the cells you want to reference on the sheet.

If the range of cells to be referenced is located on several worksheets (as when selecting a 3-D range), click the first sheet tab and then select the cell or drag through the range of cells. Next, while holding down the SHIFT key, click the sheet tab of the last sheet you want to reference. Excel will include the cell(s) on the first sheet, the last sheet, and any sheets in between.

The following steps enter the 3-D references used to determine the total 2011 expenditures for each of the five types of expenditures. In these steps, the Formulas button on the Paste gallery is used to complete the paste operation. When the Formulas button is used, the paste operation pastes only the formulas, leaving the formats of the destination area unchanged.

- 1 Select cell B5 and then click the Sum button (Home tab | Editing group) to display the SUM function and ScreenTip (Figure 6–38).

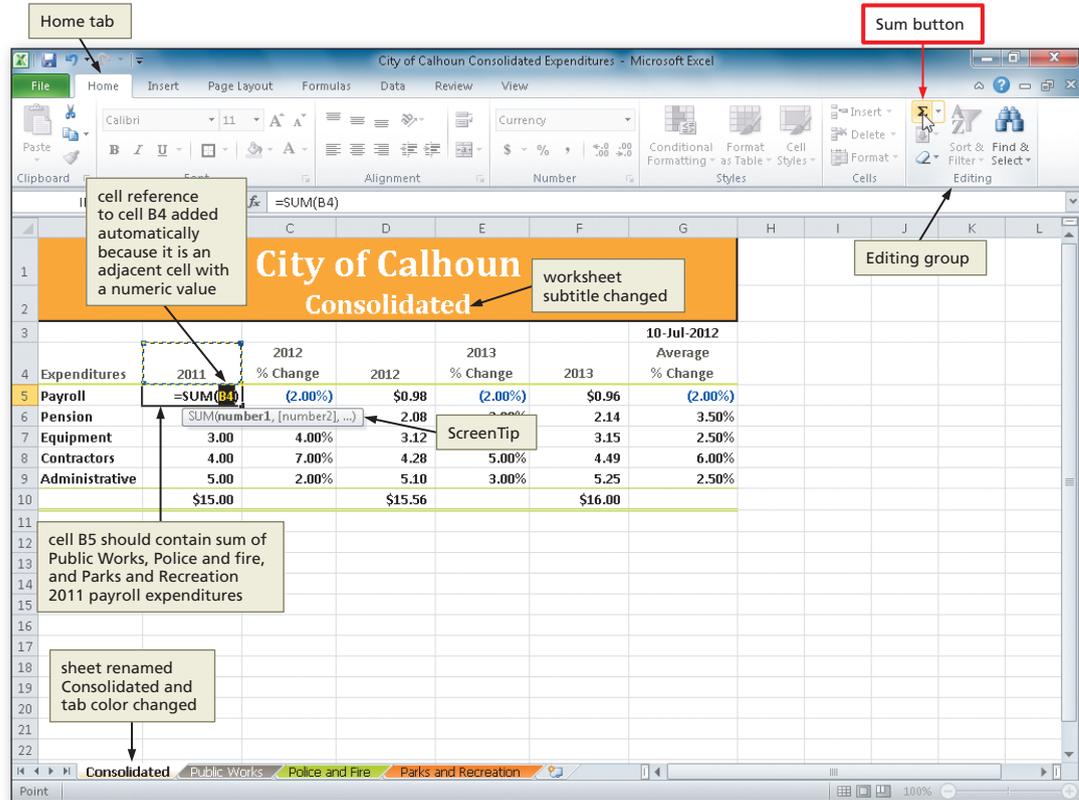


Figure 6–38

- 2 Click the Public Works tab to display the worksheet and then click cell B5 to select the first portion of the argument for the SUM function.
- While holding down the SHIFT key, click the Parks and Recreations tab to select the ending range of the argument for the SUM function (Figure 6–39).

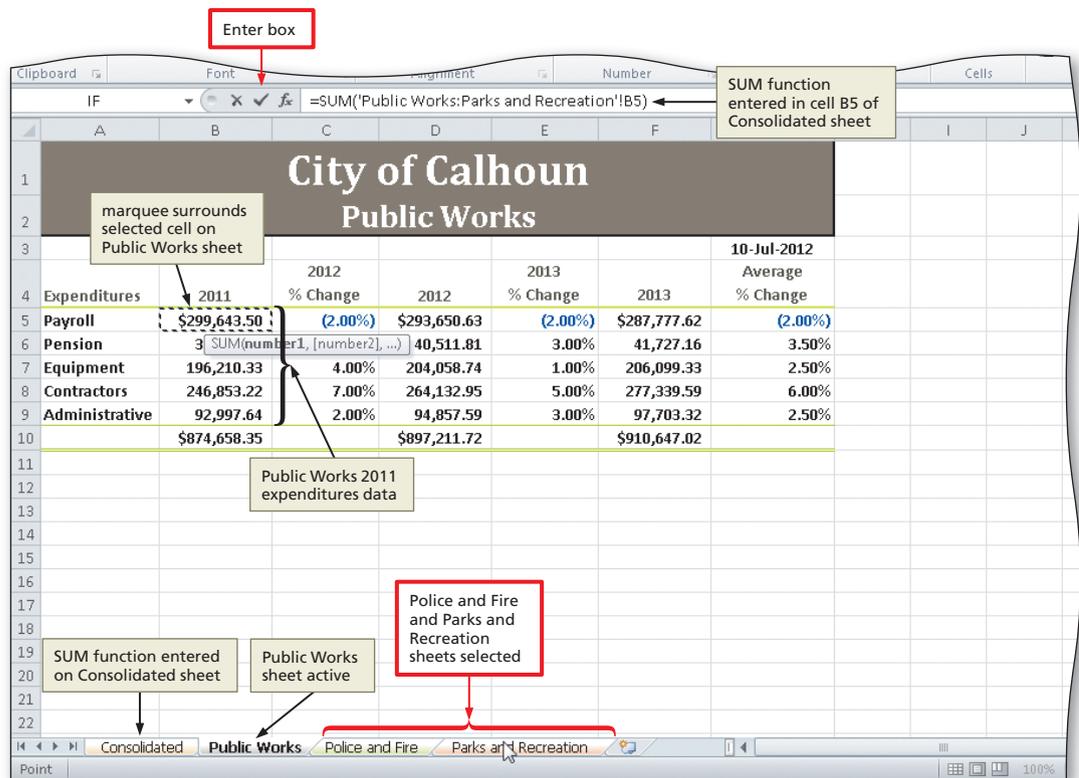


Figure 6–39

- 3
 - Click the Enter box in the formula bar to enter the SUM function with the 3-D references in the selected cell, in this case Consolidated!B5 (Figure 6–40).

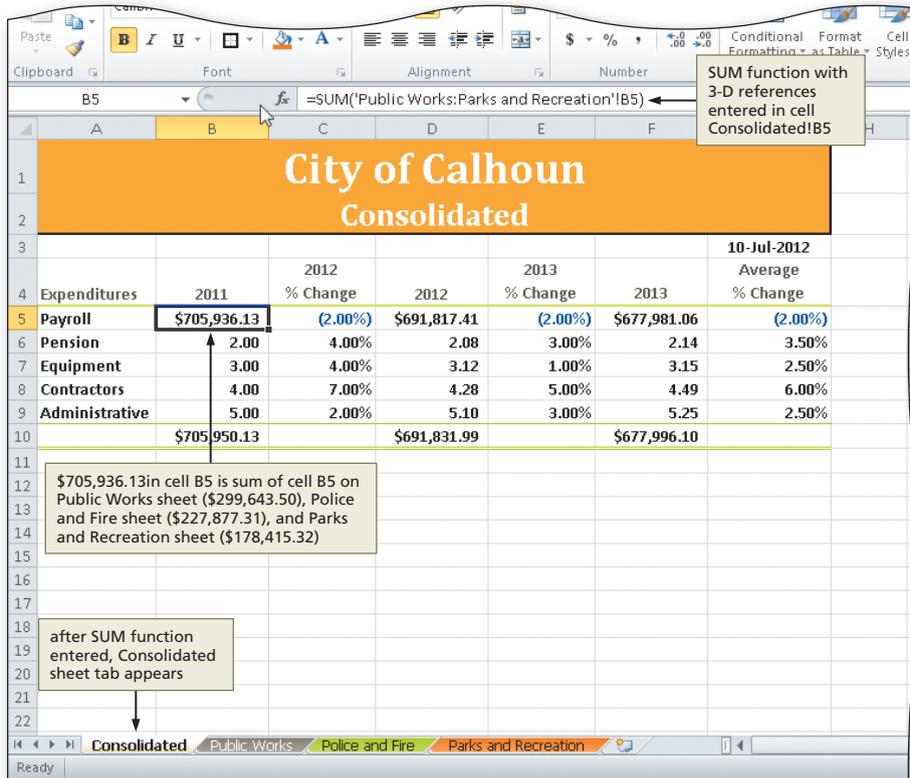


Figure 6–40

- 4
 - With cell B5 active, click the Copy button (Home tab | Clipboard group) to copy the SUM function and the formats assigned to the selected cell to the Office Clipboard (Figure 6–41).

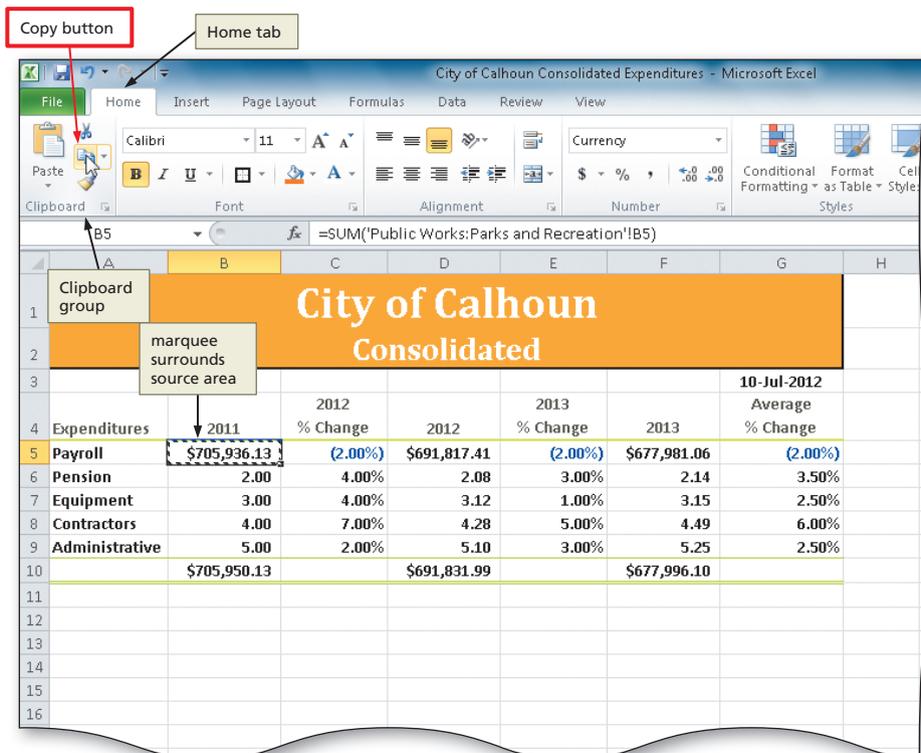


Figure 6–41

- 5**
- Select the range B6:B9 and then click the Paste button arrow (Home tab | Clipboard group) to display the Paste gallery (Figure 6–42).

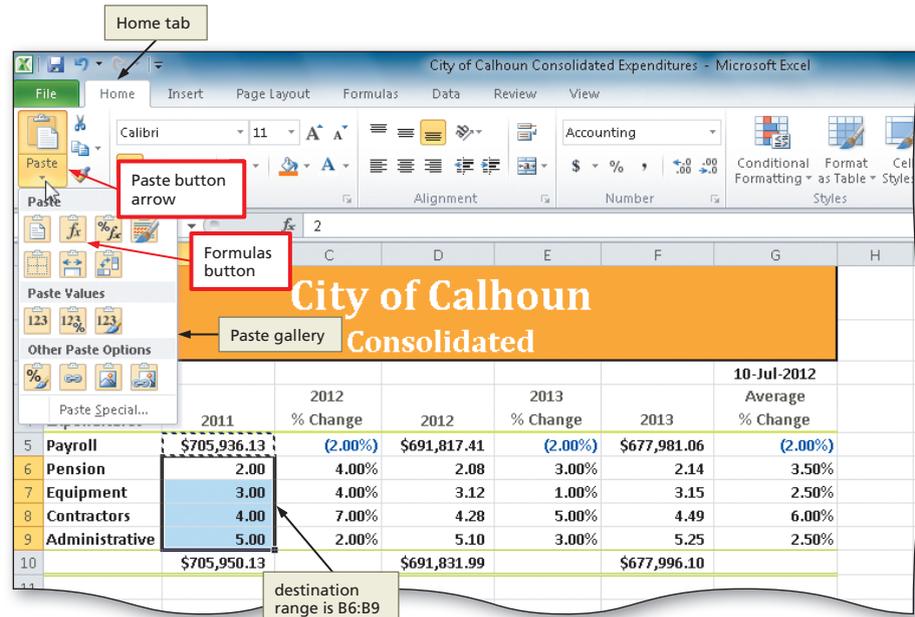


Figure 6–42

- 6**
- Click the Formulas button on the Paste gallery to copy the SUM function in cell B5 to the range B6:B9 and automatically adjust the cell references in the SUM function to reference the corresponding cells on the three sheets in the workbook.
 - Press the ESC key to clear the marquee surrounding the source cell, B5 in this case, and then select cell A12 to deselect the destination range, B6:B9 in this case.
 - Click the Save button on the Quick Access Toolbar to save the workbook (Figure 6–43).

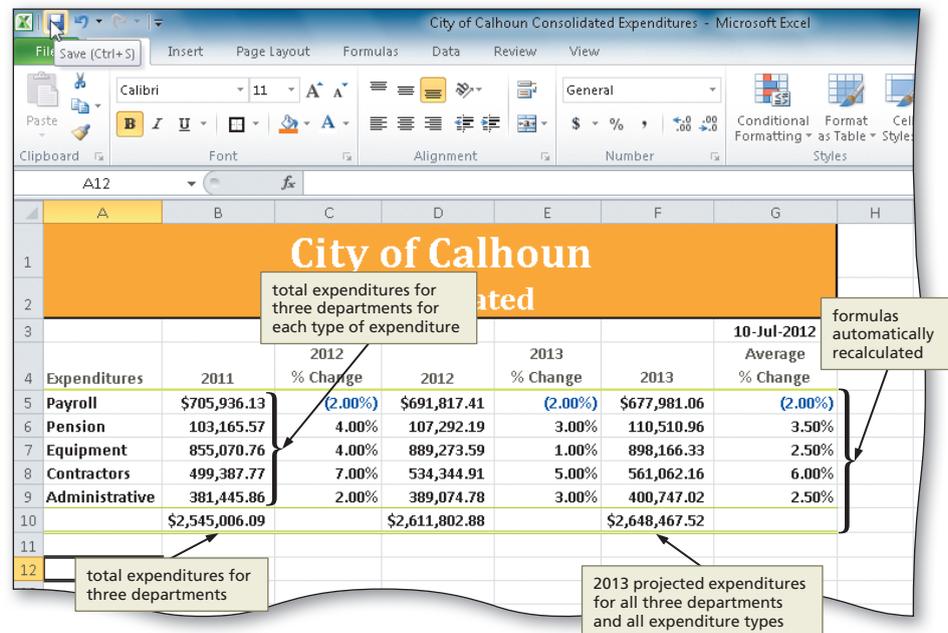


Figure 6–43

More About Pasting

If you click the Paste button (Home tab | Clipboard group) to complete the paste operation, rather than using the Formulas button as shown in Figure 6–42, any formats assigned to cell B5 also will be copied to the range B6:B9. Completing the paste operation by using the fill handle or by pressing the ENTER key also will copy any formats from the source area to the destination area. Oftentimes, as in the steps shown above, the formats of the source area and destination area differ; when you use the Formulas button on the Paste gallery, Excel copies the SUM function, but not the format, assigned to the source area. The Paste gallery, thus, is a useful option to complete the copy and paste operation without copying the formatting of the source area. Table 6–8 summarizes the commands available on the Paste gallery, as shown in Figure 6–42 on the next page.

Table 6–8 Paste Gallery Commands

Paste Option Icon	Paste Option	Shortcut Key	Description
	Paste	CTRL+P	Copy contents and format of source area. This option is the default.
	Formulas	CTRL+F	Copy formulas from the source area, but not the contents and format.
	Formulas & Number Formatting	CTRL+O	Copy formulas and format for numbers and formulas of source area, but not the contents.
	Keep Source Formatting	CTRL+K	Copy contents, format, and styles of source area.
	No Borders	CTRL+B	Copy contents and format of source area, but not any borders.
	Keep Source Column Widths	CTRL+W	Copy contents and format of source area. Change destination column widths to source column widths.
	Transpose	CTRL+T	Copy the contents and format of the source area, but transpose, or swap, the rows and columns.
	Values	CTRL+V	Copy contents of source area but not the formatting for formulas.
	Values & Number Formatting	CTRL+A	Copy contents and format of source area for numbers or formulas, but use format of destination area for text.
	Values & Source Formatting	CTRL+E	Copy contents and formatting of source area but not the formula.
	Formatting	CTRL+R	Copy format of source area but not the contents.
	Paste Link	CTRL+N	Copy contents and format and link cells so that a change to the cells in source area updates the corresponding cells in destination area.
	Picture	CTRL+U	Copy an image of the source area as a picture.
	Linked Picture	CTRL+I	Copy an image of the source area as a picture so that a change to the cells in source area updates the picture in destination area.

Note: If you wish to take a break, this is a good place to do so. You can quit Excel now. To resume at a later time, start Excel, open the file called City of Calhoun Consolidated Expenditures, and continue following the steps from this location forward.

Adding a Header and Footer, Changing the Margins, and Printing the Workbook

Before printing a workbook, consider the **page setup**, which defines the appearance and format of a printed worksheet. You can add a **header**, which appears at the top of every printed page, and a **footer**, which appears at the bottom of every printed page. You also can change the **margins** to increase or decrease the white space surrounding the printed worksheet or chart.

Plan Ahead

Examine the options, including headers, margins, and page breaks, that you have for printing worksheets.

If you plan to distribute printed copies of worksheets, decide whether to select page setup options before printing.

- **Add headers and footers.** By default, both the header and footer are blank. You can change either so that information, such as the workbook author, date, page number, or tab name, prints at the top or bottom of each page. The headers and footers for chart sheets must be assigned separately.
- **Change the margins.** The default margins in Excel for both portrait and landscape orientation are set to the following: Top = .75 inch; Bottom = .75 inch; Left = .7 inch; Right = .7 inch. The header and footer are set at .3 inches from the top and bottom, respectively. Change these settings to provide more or less white space on the printed page.
- **Apply other page setup options.** Display the Page Layout tab to specify page setup options, such as setting the location of page breaks or centering a printout horizontally and vertically. Be sure to select all the sheets you want to modify before you change page setup options.

To Change Margins and Center the Printout Horizontally

As you modify the page setup, remember that Excel does not copy page setup characteristics when one sheet is copied to another. Thus, even if you assigned page setup characteristics to the consolidated worksheet before copying it to each department's worksheet, the page setup characteristics would not be copied to the new sheet. The following steps use the Page Setup dialog box to change the margins and center the printout of each department's worksheet horizontally.

- 1 With the Consolidated sheet active, if necessary, scroll to the top of the worksheet.
- While holding down the SHIFT key, click the Parks and Recreation sheet tab to select the four worksheet tabs.
- Display the Page Layout tab (Figure 6–44).

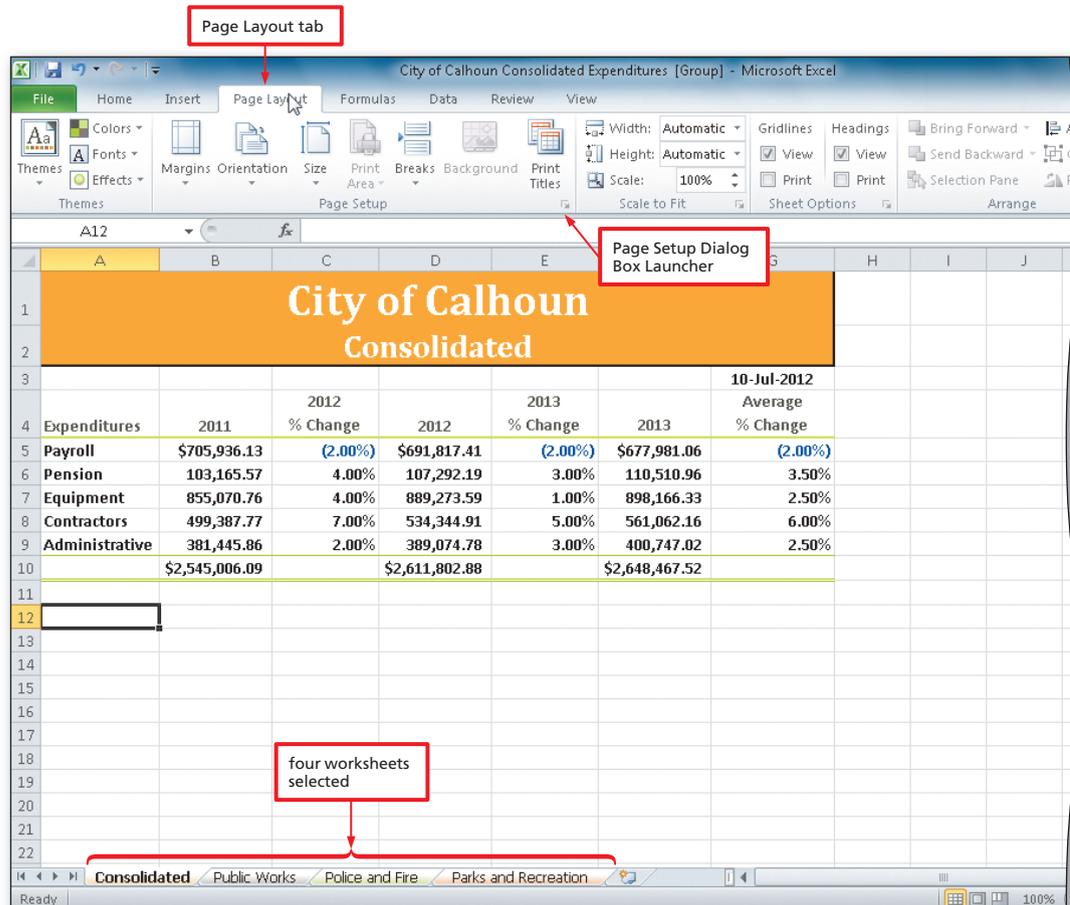


Figure 6–44

2

- Click the Page Setup Dialog Box Launcher (Page Layout tab | Page Setup group) to display the Page Setup dialog box.
- When Excel displays the Page Setup dialog box, if necessary, click the Margins tab.
- Double-click the Top box and then type 1.5 to change the top margin.
- Enter .5 in both the Left box and Right box to change the left and right margins.
- Click the Horizontally check box in the 'Center on page' area to center the worksheet on the printed page horizontally (Figure 6–45).

3

- Click the OK button (Page Setup dialog box) to close the Page Setup dialog box.

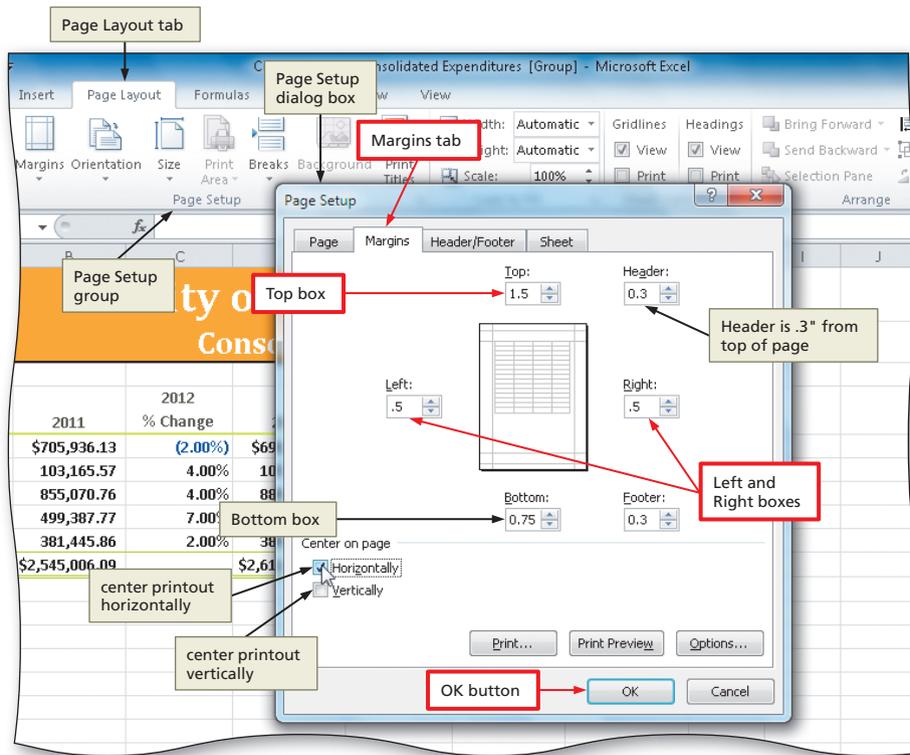


Figure 6–45

Other Ways

1. In Backstage view, click Normal Margins button (Print tab | Settings area), click Custom Margins

To Add a Header and Footer

The following steps use Page Layout view to change the headers and footers of the worksheets.

1

- Click the Page Layout button on the status bar to display the worksheet in Page Layout view (Figure 6–46).

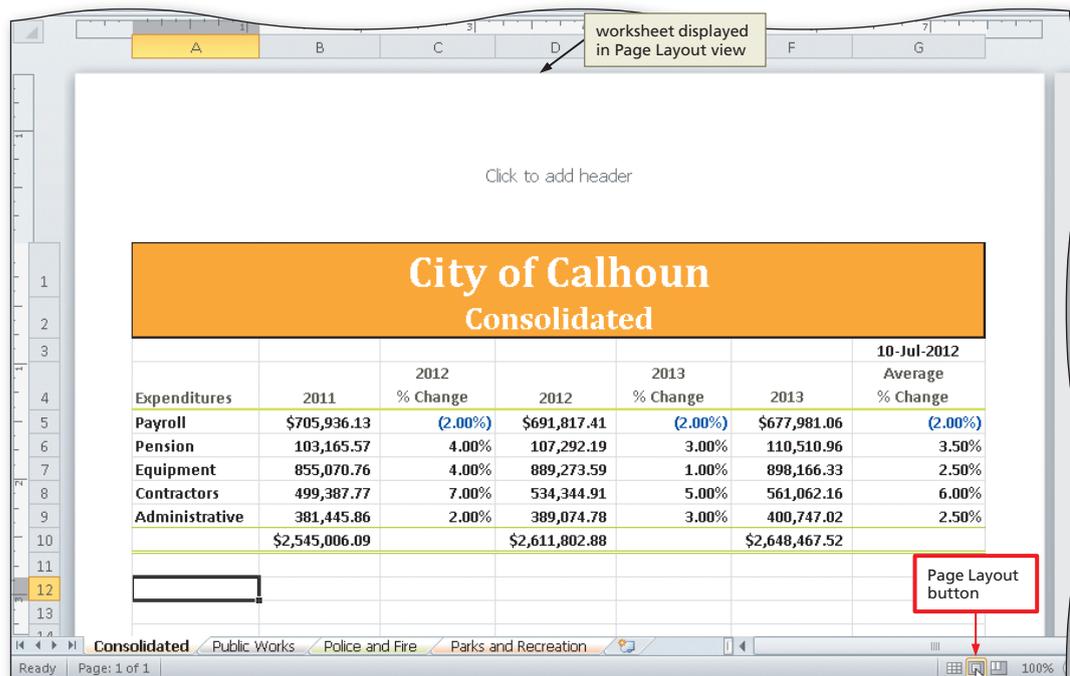


Figure 6–46

2

- If necessary, scroll the worksheet up until the Header area is displayed. Click the left Header box to select the left Header box as the area for a header and type **Shelly Cashman** (or your name) to enter a page header in the left Header box.
- Click the center Header box to select the center Header box as the area for a header and then type **City of Calhoun**. Press the ENTER key to begin a new line.
- Click the Sheet Name button (Header & Footer Tools Design tab | Header & Footer Elements group) to instruct Excel to insert the sheet name that appears on the sheet tab as part of the header.

- Click the right Header box to select the right Header box as the area for a header, click the Current Date button (Header & Footer Tools Design tab | Header & Footer Elements group) to insert the current date.

- Press the COMMA key and, then click the Current Time button (Header & Footer Tools Design tab | Header & Footer Elements group) to insert the date and time in the Header (Figure 6–47).

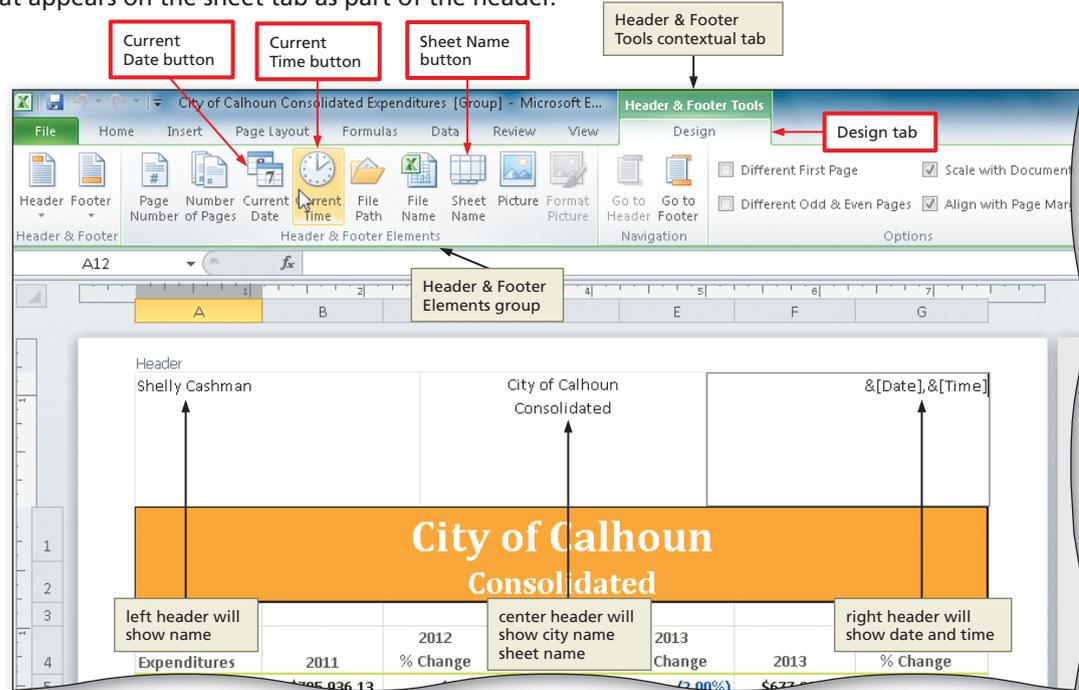


Figure 6–47

3

- Scroll the workbook down to view the Footer area.

- Click the middle Footer box to select the middle section box as the area for a footer and then type **Page**. Press the SPACEBAR, click the Page Number button (Header & Footer Tools Design tab | Header & Footer Elements group) to insert the page number, press the SPACEBAR, and then type **of** followed by the SPACEBAR.

- Click the Number of Pages button (Header & Footer Tools Design tab | Header & Footer Elements group) to add the number of pages to the footer (Figure 6–48).

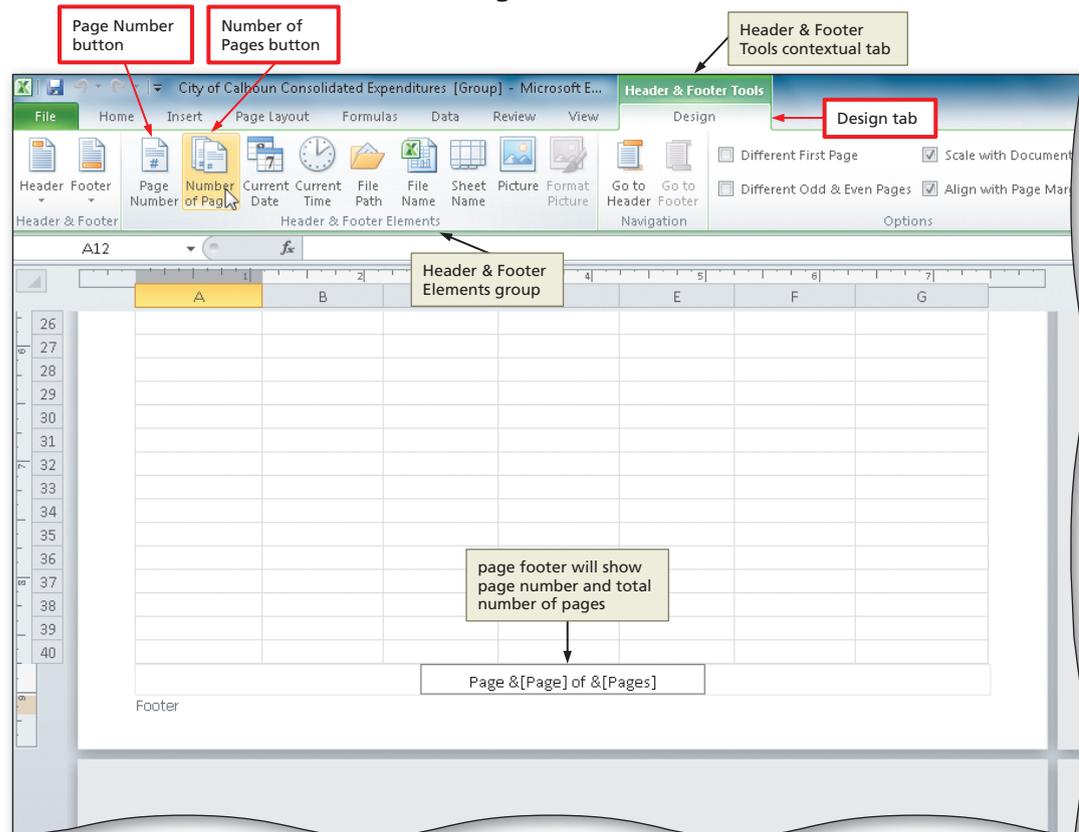


Figure 6–48

Experiment

- Click the left Footer box, and then click other buttons in the Header & Footer Elements group on the Header & Footer Tools Design tab.
- Click the right Footer box to display the results, and then delete the contents of the left Footer box.

Q&A What does Excel insert when I click a button in the Header & Footer Tools group on the Ribbon?

Excel enters a code (similar to a format code) into the active header or footer section.

A code such as &[Page] instructs Excel to insert the page number.

4

- Click anywhere on the worksheet to deselect the page footer.
- Click the Normal view button on the status bar to return to Normal view and then select cell A12.
- Display the Page Layout tab and then click the Page Setup Dialog Box Launcher (Page Layout tab | Page Setup group) to display the Page Setup dialog box.
- Click the Print Preview button (Page Setup dialog box) to preview the current sheet in the Backstage view (Figure 6–49).

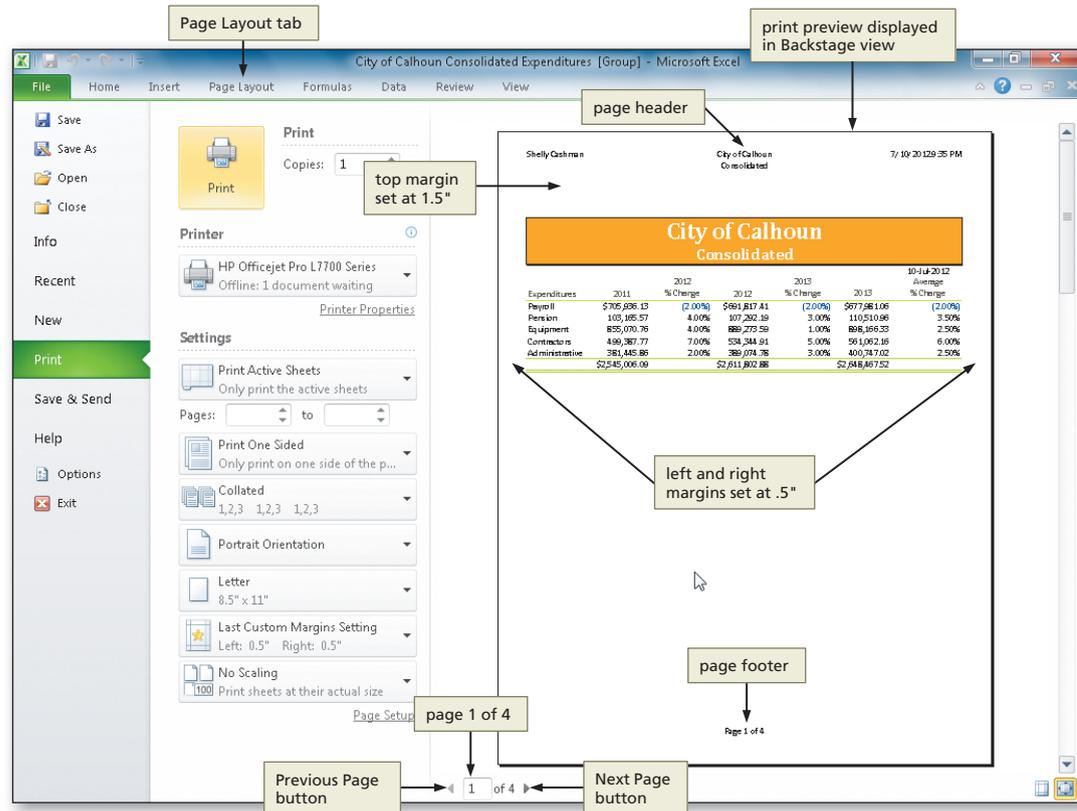


Figure 6–49

5

- Click the Next Page button and Previous Page buttons below the preview to preview the other pages.
- After previewing the printout, display the Home tab.

To Print All Worksheets in a Workbook

The following steps print all four sheets in the workbook.

- 1 Ready the printer.
- 2 Open the Backstage view, click the Print tab in the Backstage view to display the Print gallery, and then click the Print button to print the workbook as shown in Figure 6–50.
- 3 Hold down the SHIFT key and then click the Consolidated sheet tab to deselect all sheets but the Consolidated sheet.

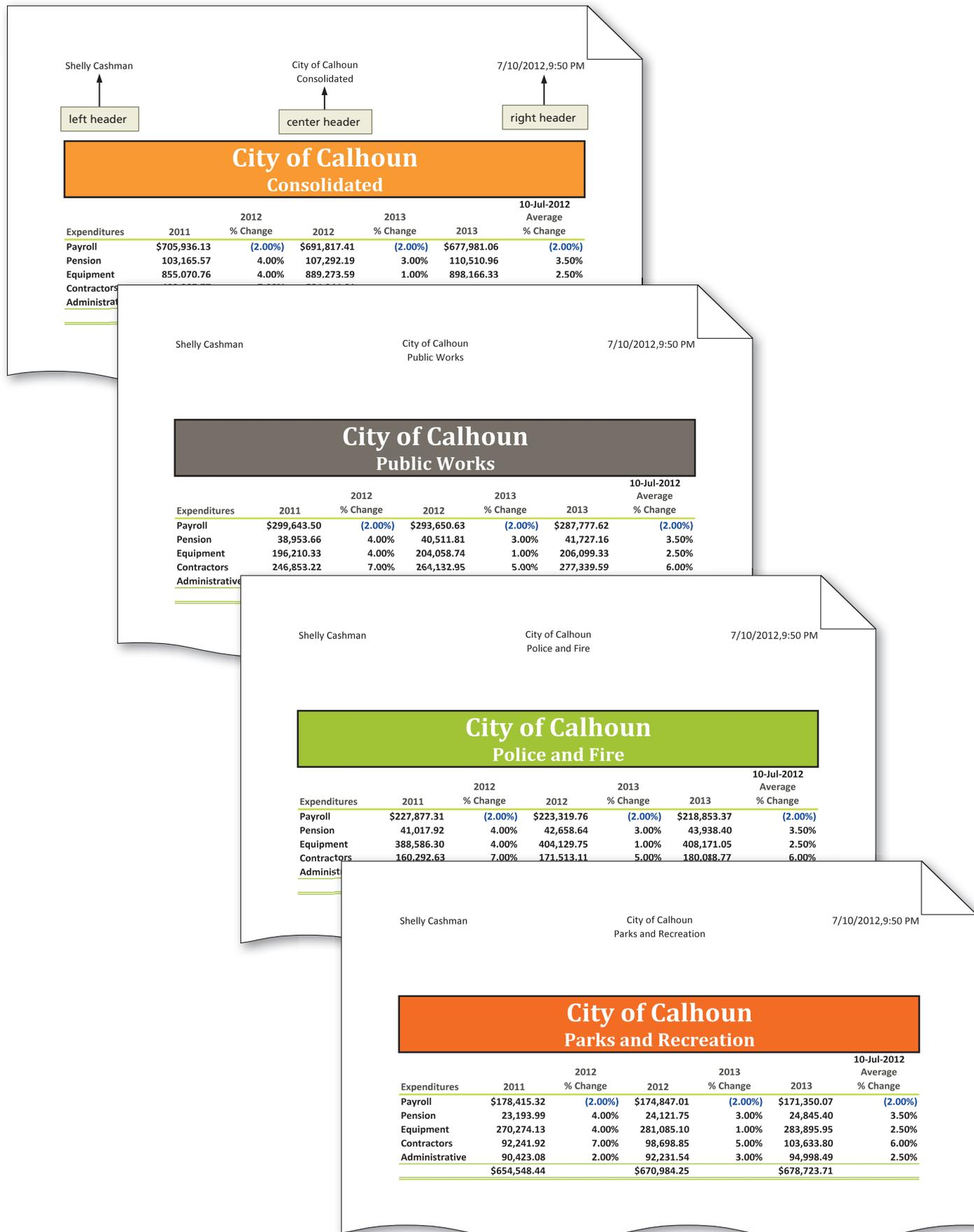


Figure 6-50

To Print Nonadjacent Sheets in a Workbook

In some situations, nonadjacent sheets in a workbook may need to be printed. To select nonadjacent sheets, select the first sheet and then hold down the CTRL key and click the nonadjacent sheets. The following steps print the nonadjacent Consolidated and Parks and Recreation sheets.

- 1 With the Consolidated sheet active, hold down the CTRL key, and then click the Parks and Recreation sheet tab.
- 2 Open the Backstage view, click the Print tab in the Backstage view to display the Print gallery, and then click the Print button to print the nonadjacent worksheets.
- 3 Hold down the SHIFT key and click the Consolidated sheet tab to deselect the Parks and Recreation sheet.

Selecting and Deselecting Sheets

Beginning Excel users sometimes have difficulty trying to select and deselect sheets. Table 6–9 summarizes how to select and deselect sheets.

Table 6–9 Summary of How to Select and Deselect Sheets

Task	How to Carry Out the Task
Select adjacent sheets	Select the first sheet by clicking its tab and then hold down the SHIFT key and click the sheet tab at the other end of the list of adjacent sheet tabs.
Select nonadjacent sheets	Select the first sheet by clicking its tab and then hold down the CTRL key and click the sheet tabs of the remaining sheets you want to select.
Multiple sheets are selected and you want to select a sheet that is selected, but not active (sheet tab name not in bold)	Click the sheet tab you want to select.
Multiple sheets are selected and you want to select the active sheet (sheet tab name in bold)	Hold down the SHIFT key and then click the sheet tab of the active sheet.

To Insert and Remove a Page Break

When you print a worksheet or use the Page Setup dialog box, Excel inserts **page breaks** that show the boundaries of what will print on each page. These page breaks are based upon the margins selected in the Margins sheet in the Page Setup dialog box and the type of printer you are using. If the Page breaks option is selected, Excel displays dotted lines on the worksheet to show the boundaries of each page. For example, the dotted line in Figure 6–52 shows the right boundary of the first page. If the dotted line does not show on your screen, then click the Options button in the Backstage view. When Excel displays the Excel Options dialog box, click the Advanced command to display Advanced Excel options. Scroll the window until the ‘Display options for this worksheet’ area appears. Click the Show page breaks check box (Figure 6–53 on page EX 403).

You can insert both horizontal and vertical page breaks in a worksheet. Manual page breaks are useful if you have a worksheet that is several pages long and you want certain parts of the worksheet to print on separate pages. For example, say you had a worksheet that comprised ten departments in sequence and each department had many rows of information. If you wanted each department to begin on a new page, then inserting page breaks would satisfy the requirement.

The following steps insert both a horizontal and vertical page break.

- 1
 - With the Consolidated sheet active, select cell B10 and then display the Page Layout tab.
 - Click the Breaks button (Page Layout tab | Page Setup group) to display the Breaks menu and then click Insert Page Break on the Breaks menu to insert a page break (Figure 6–51).

Q&A What appears on the worksheet?
 Excel inserts a dotted line above row 10 indicating a horizontal page break and inserts a dotted line to the left of column B indicating a vertical page break (Figure 6–51).
 Excel displays a dotted line between pages.

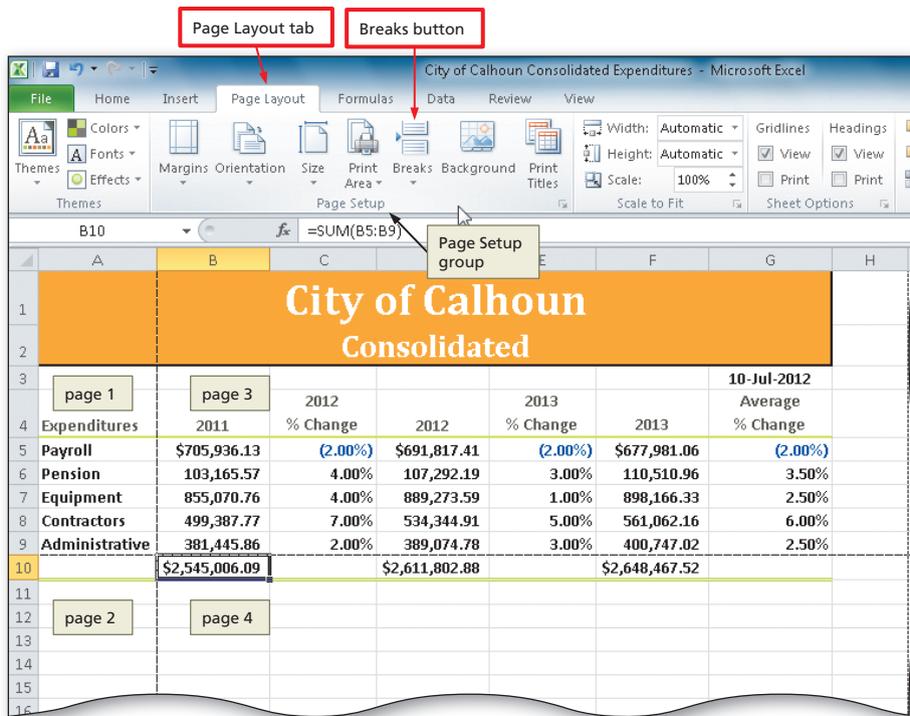


Figure 6–51

- 2
 - With cell B10 active, click the Breaks button (Page Layout tab | Page Setup group) to display the Breaks menu (Figure 6–52).
- 3
 - Click Remove Page Break on the Breaks menu to remove the page breaks.

Q&A Is there a way to move page breaks?
 Yes. An alternative to using the Breaks button on the Page Layout tab to insert page breaks is to click the Page Break Preview button on the status bar. When the Page Break preview appears, you can drag the blue boundaries, which represent page breaks, to new locations.

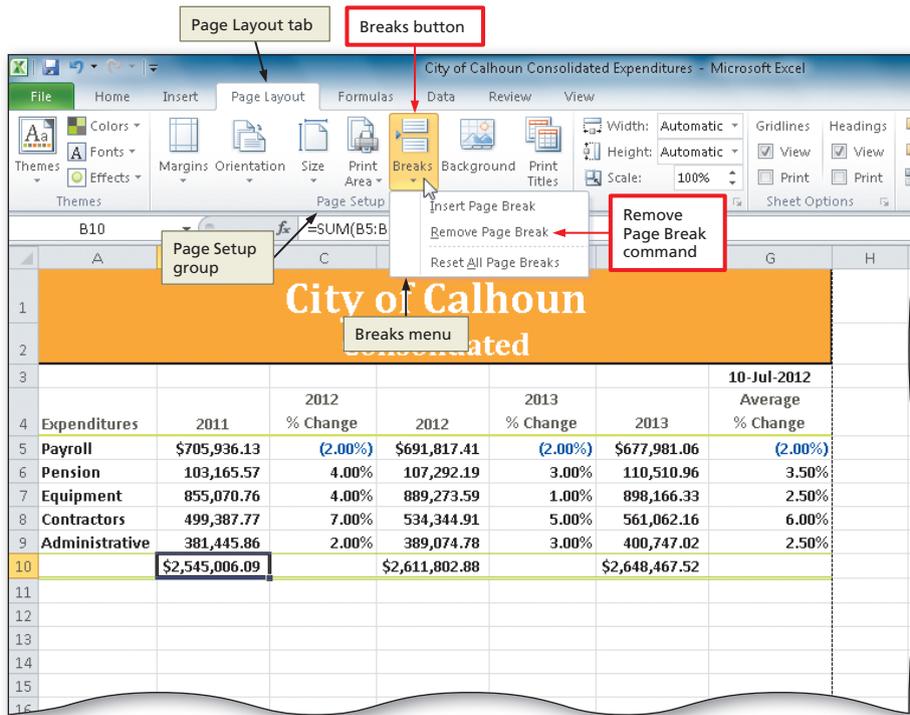


Figure 6–52

Other Ways

1. Click Page Break Preview button on status bar, click OK button (Welcome to Page Break Preview dialog box), drag page breaks

To Hide Page Breaks

When working with a workbook, page breaks can be an unnecessary distraction, especially to users who have no interest in where pages break. The following steps hide the dotted lines that represent page breaks.

- 1**
 - Open the Backstage view.
 - Click the Options button in the Backstage view to display the Excel Options dialog box.
 - Click the Advanced button (Excel Options dialog box) to display Advanced Excel options.
 - Scroll the window until the 'Display options for this worksheet' area appears.
 - Click the 'Show page breaks' check box to clear the check box (Figure 6-53).

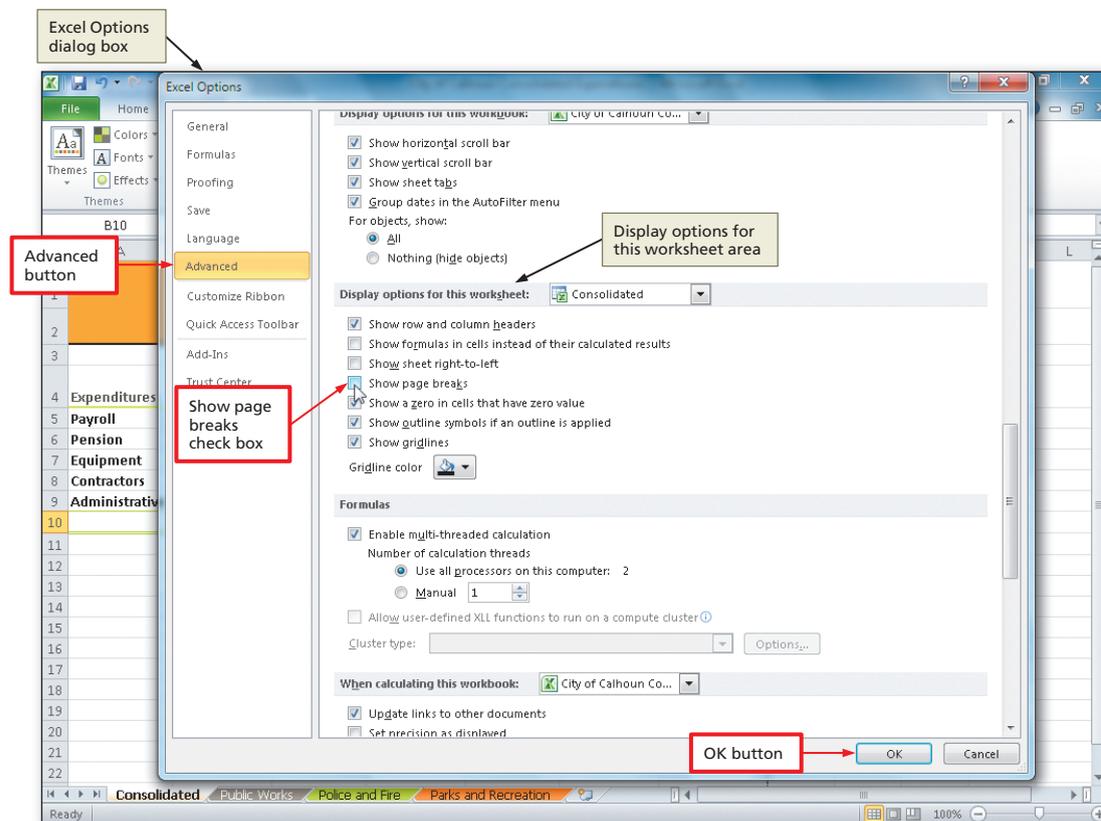


Figure 6-53

- 2**
 - Click the OK button to close the Excel Options dialog box and hide the page breaks (Figure 6-54).

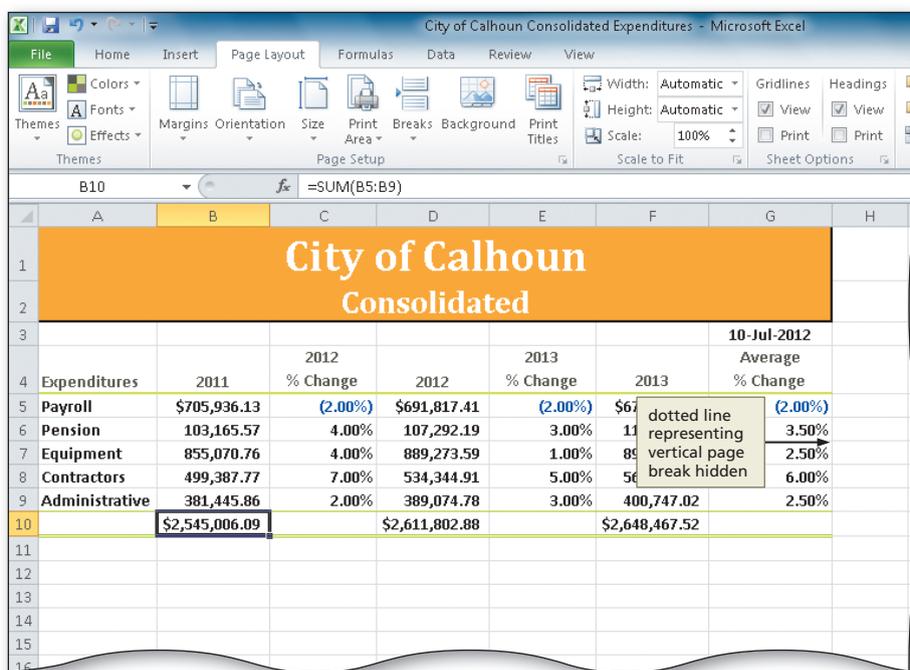


Figure 6-54

To Quit Excel

With the workbook complete, the following steps quit Excel.

- 1 Click the Close button on the upper-right corner of the title bar.
- 2 If the Microsoft Excel dialog box is displayed, click the Don't Save button so that any changes made to the workbook are not saved (Microsoft Excel dialog box).

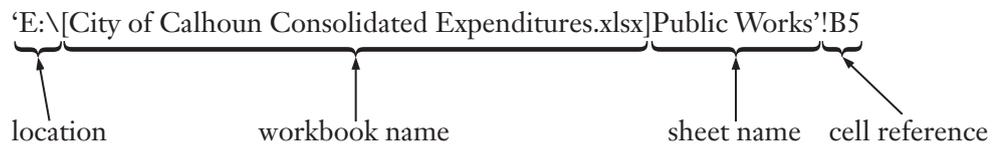
BTW

Consolidation

You also can consolidate data across different workbooks using the Consolidate button (Data tab | Data Tools group), rather than by entering formulas. For more information on the Consolidate button, type consolidate in the Search box in the Excel Help dialog box, and then click the 'Consolidate data in multiple worksheets' link in the Results list.

Consolidating Data by Linking Workbooks

Earlier in this chapter, the data from three worksheets was consolidated into a fourth worksheet in the same workbook using 3-D references. An alternative to this method is to consolidate data from worksheets that are in other workbooks. Consolidating data from other workbooks also is referred to as linking. A **link** is a reference to a cell or range of cells in another workbook. In the case below, the 3-D reference also includes a workbook name. For example, the following 3-D reference pertains to cell B5 on the Public Works sheet in the workbook City of Calhoun Consolidated Expenditures located on drive E.



The single quotation marks surrounding the location, workbook name, and sheet name are required if any of the three names contain spaces. If the workbook to which you are referring is in the same folder as the active workbook, the location (in this case, E:\) is not necessary. The brackets surrounding the workbook name are required.

To illustrate linking cells between workbooks, the Consolidated, Public Works, Police and Fire, and Parks and Recreation worksheets from the workbook created earlier in this chapter are on the Data Files for Students in separate workbooks as described in Table 6–10. The department workbooks contain the department data, but the Calhoun Consolidated Expenditures workbook does not include any consolidated data. The consolidation of data from the three department workbooks into the Calhoun Consolidated Expenditures workbook will be completed later in this section.

Table 6–10 Workbook Names

Worksheet in Calhoun Consolidated Expenditures Workbook Using the Workbook Name	Saved on the Data Files for Students As
Consolidated	Calhoun Consolidated Expenditures
Public Works	Calhoun Public Works Expenditures
Police and Fire	Calhoun Police and Fire Expenditures
Parks and Recreation	Calhoun Parks and Recreation Expenditures

BTW

Quick Reference

For a table that lists how to complete the tasks covered in this book using the mouse, Ribbon, shortcut menu, and keyboard, see the Quick Reference Summary at the back of this book, or visit the Excel 2010 Quick Reference Web page (sccsite.com/ex2010/qr).

The remaining sections of this chapter demonstrate how to search for the four workbooks in Table 6–10 on a USB flash drive, how to create a workspace from the four workbooks, and finally how to link the three department workbooks to consolidate the data into the Calhoun Consolidated Expenditures workbook.

To Search for and Open Workbooks

Excel has a powerful search tool that you can use to locate workbooks (or any file) stored on disk. You search for files using the Search text box in the Open dialog box. If you view files on the Data Files for Students, then you will see the four workbooks listed in the right column of Table 6–10. The following steps, however, search for workbooks and often are used when you cannot remember exactly the name of the file or its location. In this example, the search text Calhoun will be used to locate the workbooks. The located workbooks then are opened and **arranged** so that each one appears in its own window.

1

- Start Excel.
- Open the Backstage view.
- Click the Open button to display the Open dialog box and then select the drive for your USB port, Removable (E:) in this case, in the Address bar to select a drive to search.
- Type **Calhoun** in the Search box as the search text (Figure 6–55).

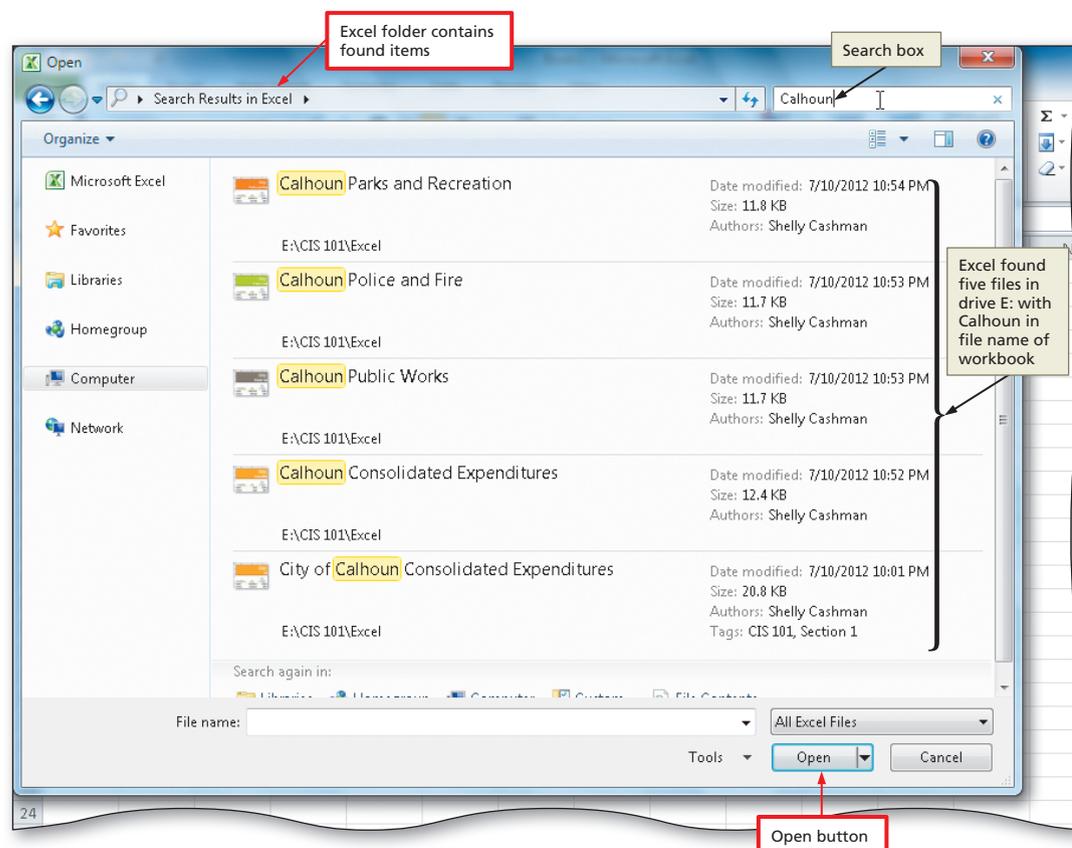


Figure 6–55

2

- In the File list, while holding down the CTRL key, click each of the three department workbook names one at a time and then click the Calhoun Consolidated Expenditures workbook name to select several workbooks to open.
- Click the Open button (Open dialog box) to open the selected workbooks.
- Display the View tab and then click the Switch Windows button (View tab | Window group) to display the names of the workbooks with a check mark to the left of the active workbook (Figure 6–56).

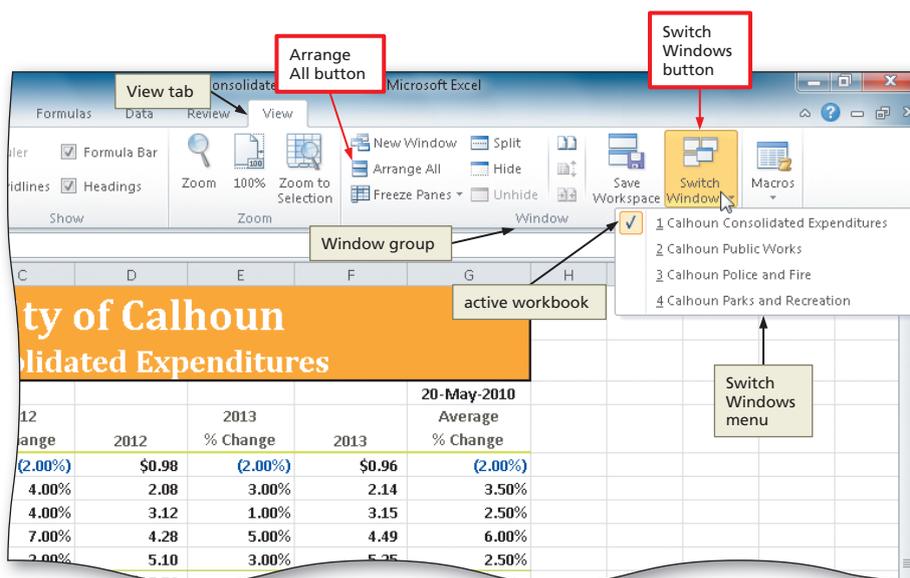


Figure 6–56

- 3
 - Click the Arrange All button (View tab | Window group) to display the Arrange Windows dialog box.
 - Click Vertical (Arrange Windows dialog box) to arrange the windows vertically, and then, if necessary, click the 'Windows of active workbook' check box to clear it (Figure 6–57).

Q&A How can I arrange workbooks in the Excel window?

As shown in Figure 6–57, multiple opened workbooks can be arranged in four ways. The option name in the Arrange Windows dialog box identifies the resulting window's configuration. You can modify any of the arranged workbooks by clicking within its window to activate it. To return to showing one workbook, double-click its title bar as described in Step 5.

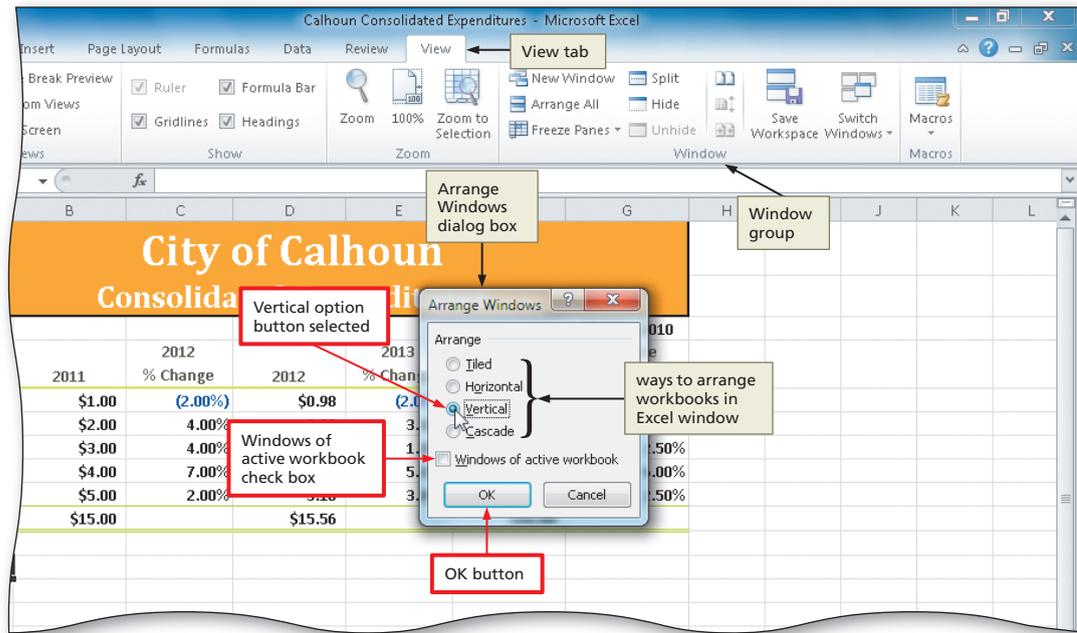


Figure 6–57

- 4
 - Click the OK button (Arrange Windows dialog box) to display the opened workbooks arranged vertically (Figure 6–58).

Q&A Why do the windows display horizontally across the screen, yet the screens were tiled vertically?

The tiling effect determines the change on an individual window, not the group of windows. When tiling windows vertically, therefore, each individual window appears vertically as tall as possible. When tiling windows horizontally, the windows appear as wide as possible.

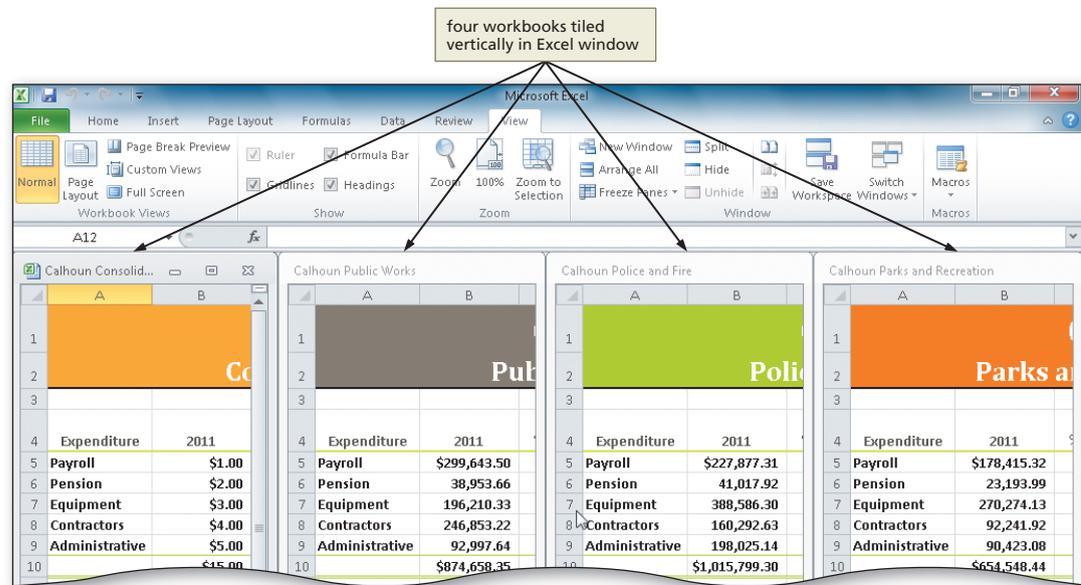


Figure 6–58

- 5
 - Double-click the Calhoun Consolidated Expenditures title bar to maximize the window and hide the other opened workbooks.

To Create a Workspace File

If you plan to consolidate data from other workbooks, it is recommended that you first bind the workbooks together using a workspace file. A **workspace file** saves information about all the workbooks that are open. The workspace file does not contain the actual workbooks; rather, it stores information required to open the files associated with the workspace file, including file names, which file was active at the time of the save, and other display settings. After you create and save a workspace file, you can open all of the associated files by opening the workspace. The following steps create a workspace file from the files opened in the previous set of steps.

1

- With the four workbooks opened and the Calhoun Consolidated Expenditures workbook active, if necessary, display the View tab (Figure 6–59).

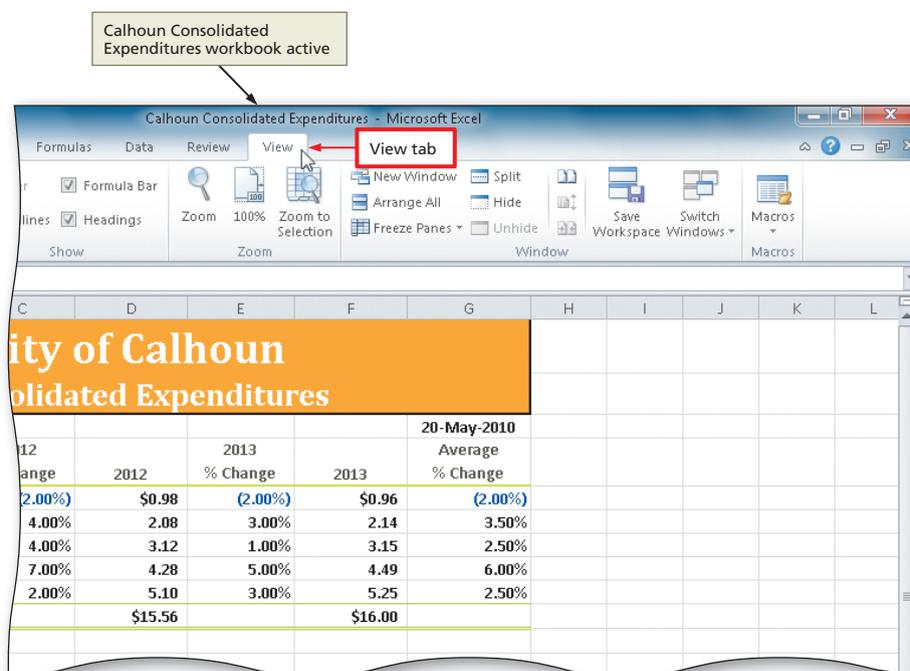


Figure 6–59

2

- Click the Save Workspace button (View tab | Window group) to display the Save Workspace dialog box.
- Select the drive for your USB port, Removable (E:) in this case, in the Address bar (Save Workspace dialog box).
- Navigate to the desired save location (in this case, the Excel folder in the CIS 101 folder [or your class folder] on the USB flash drive).
- Type **Calhoun Workspace** in the File name box to enter a name of a workspace to save (Figure 6–60).

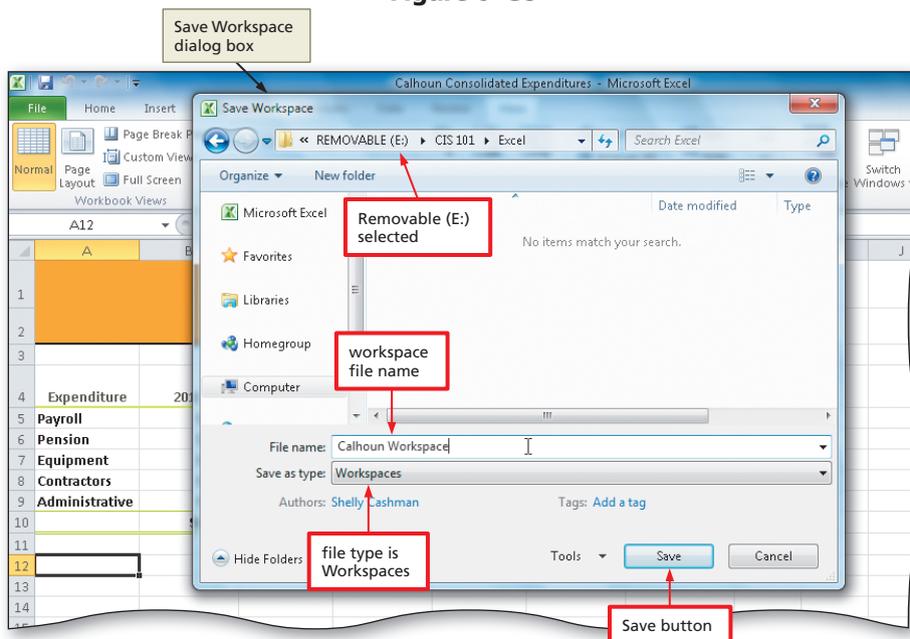


Figure 6–60

Q&A

Can I still open the workbooks separately or must I always open the workspace?

After the workspace is saved to disk, you can open the workbooks one at a time as you did in the past, or you can open all of the associated workbooks by opening the workspace. When you invoke the Open command, workspace file names appear in the Open dialog box, the same as any workbook file name.

3

- Click the Save button (Save Workspace dialog box) to save the file names of the workbooks open, of the workbooks displaying, and other display settings.
- If the Microsoft Excel dialog box is displayed for any of the workbooks, click the Don't Save button to ensure that any changes inadvertently made to the workbooks do not get saved.
- Open the Backstage view and then click the Exit button to quit Excel.
- If the Microsoft Excel dialog box is displayed for any workbooks that remain open, click the Don't Save button to ensure that any changes inadvertently made to the workbooks are not saved.

To Consolidate Data by Linking Workbooks

The following steps open the workspace file Calhoun Workspace and consolidate the data from the three department workbooks into the Calhoun Consolidated Expenditures workbook.

1

- Start Excel. Open the Backstage view and then click the Open button to display the Open dialog box.
- Navigate to the desired open location (in this case, the Excel folder in the CIS 101 folder [or your class folder] on the USB flash drive).
- Double-click Calhoun Workspace to open the four workbooks saved in the workspace.
- Make Calhoun Consolidated Expenditures the active worksheet. If necessary, double-click the Calhoun Consolidated Expenditures window title bar to maximize it.

2

- Select cell B5 and then click the Sum button (Home tab | Editing group) to begin a SUM function entry.
- Display the View tab and then click the Switch Windows button (View tab | Window group) to display the Switch Windows menu.
- Click Calhoun Public Works on the Switch Windows menu to select a worksheet to reference. Click cell B5 and then delete the dollar signs (\$) in the reference to cell B5 in the formula bar so that the reference is not absolute. Click immediately after B5 in the formula bar and then press the COMMA key.

3

- Click the Switch Windows button (View tab | Window group) to display the Switch Windows menu and then click Calhoun Police and Fire workbook name to display the workbook.
- Select cell B5 as the next argument in the SUM function.

4

- Delete the dollar signs (\$) in the reference to cell B5 in the formula bar so that the reference is not absolute. Click immediately after B5 in the formula bar and then press the COMMA key.

5

- Click the Switch Windows button (View tab | Window group) to display the Switch Windows menu and then click Calhoun Parks and Recreation to select the final workbook to reference in the SUM function.
- Select cell B5. Delete the dollar signs (\$) in the reference to cell B5 in the formula bar so that the reference is not absolute.
- Click the Enter box to complete the SUM function.

Q&A Why did the formulas need to be edited for each workbook?

As you link workbooks, remember that the cell reference inserted by Excel each time you click a cell in a workbook is an absolute cell reference (\$B\$5). You must edit the formula and change these to relative cell references because the SUM function later is copied to the range B6:B9. If the cell references are left as absolute, then the copied function always would refer to cell B5 in the three workbooks no matter where you copy the SUM function.

6

- With cell B5 active in the Calhoun Consolidated Expenditures workbook, drag the cell's fill handle through cell B9, and then select cell B5 (Figure 6–61).

7

- Click the Save button on the Quick Access Toolbar to save the workbook. If Excel displays a dialog box, select Overwrite changes.

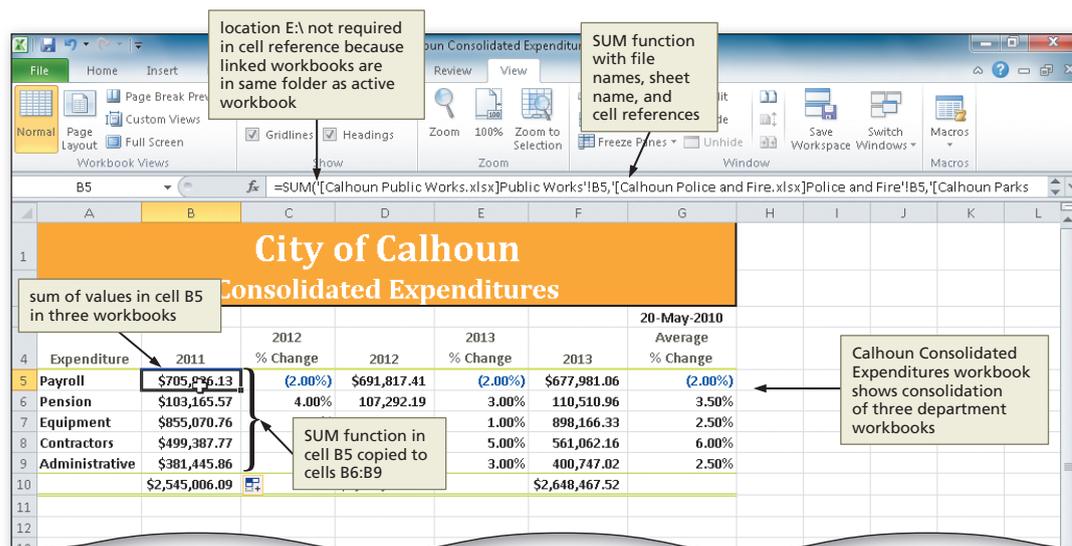


Figure 6–61

- If necessary, click the OK button (Microsoft Excel dialog box) to save the workbook.
- Print the worksheet.

Updating Links

Later, if you open the Calhoun Consolidated Expenditures workbook by itself, also called the **dependent workbook**, and if the linked workbooks are open, Excel automatically reads the data in the linked workbooks and recalculates formulas in the dependent workbook. The linked workbooks are called the **source workbooks**.

If the linked workbooks are not open, then Excel displays a security warning in a pane below the Ribbon. If you click the Enable Content button in the warning pane, Excel reads the data in the source workbooks and recalculates the formulas in the dependent workbook, but it does not open the source workbooks. If the three source workbooks are open along with the dependent workbook, as in the previous set of steps, Excel automatically updates the links (recalculates) in the Calhoun Consolidated Expenditures workbook when a value changes in any one of the source workbooks.

To Close All Workbooks at One Time and Quit Excel

To close all four workbooks at one time and quit Excel, complete the following steps.

- 1** Open the Backstage view and then click the Exit button to quit Excel.
- 2** If Excel displays the Microsoft Excel dialog box, click the Don't Save button.

BTW **Workspace Files**
A workspace file saves display information about open workbooks, such as window sizes, print areas, screen magnification, and display settings. Workspace files do not contain the workbooks themselves.

BTW **Certification**
The Microsoft Office Specialist (MOS) program provides an opportunity for you to obtain a valuable industry credential — proof that you have the Excel 2010 skills required by employers. For more information, visit the Excel 2010 Certification Web page (scsite.com/ex2010/cert).

Chapter Summary

In this chapter, you learned how to create and use a consolidated worksheet, customize formats, create styles, use 3-D reference to reference cells in other sheets and workbooks, add, remove, and change pages breaks, and create a workspace file. The items listed below include all the new Excel skills you have learned in this chapter.

1. Enter Sample Data in the Consolidated Worksheet Using the Fill Handle (EX 369)
2. Enter Formulas and Determine Totals in the Consolidated Worksheet (EX 371)
3. Assign a Currency Style Using the Format Cells Dialog Box (EX 376)
4. Create and Assign a Custom Format Code and a Comma Style Format (EX 378)
5. Create a New Style (EX 380)
6. Apply a New Style (EX 382)
7. Add a Worksheet to a Workbook (EX 384)
8. Copy the Contents of a Worksheet to Other Worksheets in a Workbook (EX 385)
9. Drill an Entry through Worksheets (EX 386)
10. Enter and Copy 3-D References Using the Paste Button Gallery (EX 391)
11. Change Margins and Center the Printout Horizontally (EX 396)
12. Add a Header and Footer (EX 397)
13. Print All Worksheets in a Workbook (EX 399)
14. Print Nonadjacent Sheets in a Workbook (EX 401)
15. Insert and Remove a Page Break (EX 401)
16. Hide Page Breaks (EX 403)
17. Search for and Open Workbooks (EX 405)
18. Create a Workspace File (EX 407)
19. Consolidate Data by Linking Workbooks (EX 408)



If you have a SAM 2010 user profile, your instructor may have assigned an autogradable version of this assignment. If so, log into the SAM 2010 Web site at www.cengage.com/sam2010 to download the instruction and start files.

Learn It Online

Test your knowledge of chapter content and key terms.

Instructions: To complete the Learn It Online exercises, start your browser, click the Address bar, and then enter the Web address scsite.com/ex2010/learn. When the Excel 2010 Learn It Online page is displayed, click the link for the exercise you want to complete and then read the instructions.

Chapter Reinforcement TF, MC, and SA

A series of true/false, multiple choice, and short answer questions that test your knowledge of the chapter content.

Flash Cards

An interactive learning environment where you identify chapter key terms associated with displayed definitions.

Practice Test

A series of multiple choice questions that test your knowledge of chapter content and key terms.

Who Wants To Be a Computer Genius?

An interactive game that challenges your knowledge of chapter content in the style of a television quiz show.

Wheel of Terms

An interactive game that challenges your knowledge of chapter key terms in the style of the television show *Wheel of Fortune*.

Crossword Puzzle Challenge

A crossword puzzle that challenges your knowledge of key terms presented in the chapter.

Apply Your Knowledge

Reinforce the skills and apply the concepts you learned in this chapter.

Consolidating Data in a Workbook

Note: To complete this assignment, you will be required to use the Data Files for Students. See the inside back cover of this book for instructions on downloading the Data Files for Students, or contact your instructor for information about accessing the required files.

Instructions: Follow the steps below to consolidate the four quarterly mileage cost sheets on the Yearly Costs sheet in the workbook Apply 6-1 Yearly Mileage Costs (Figure 6–62). At the conclusion of the instructions, the Yearly Mileage Costs sheet should be displayed as shown in the lower screen in Figure 6–62.

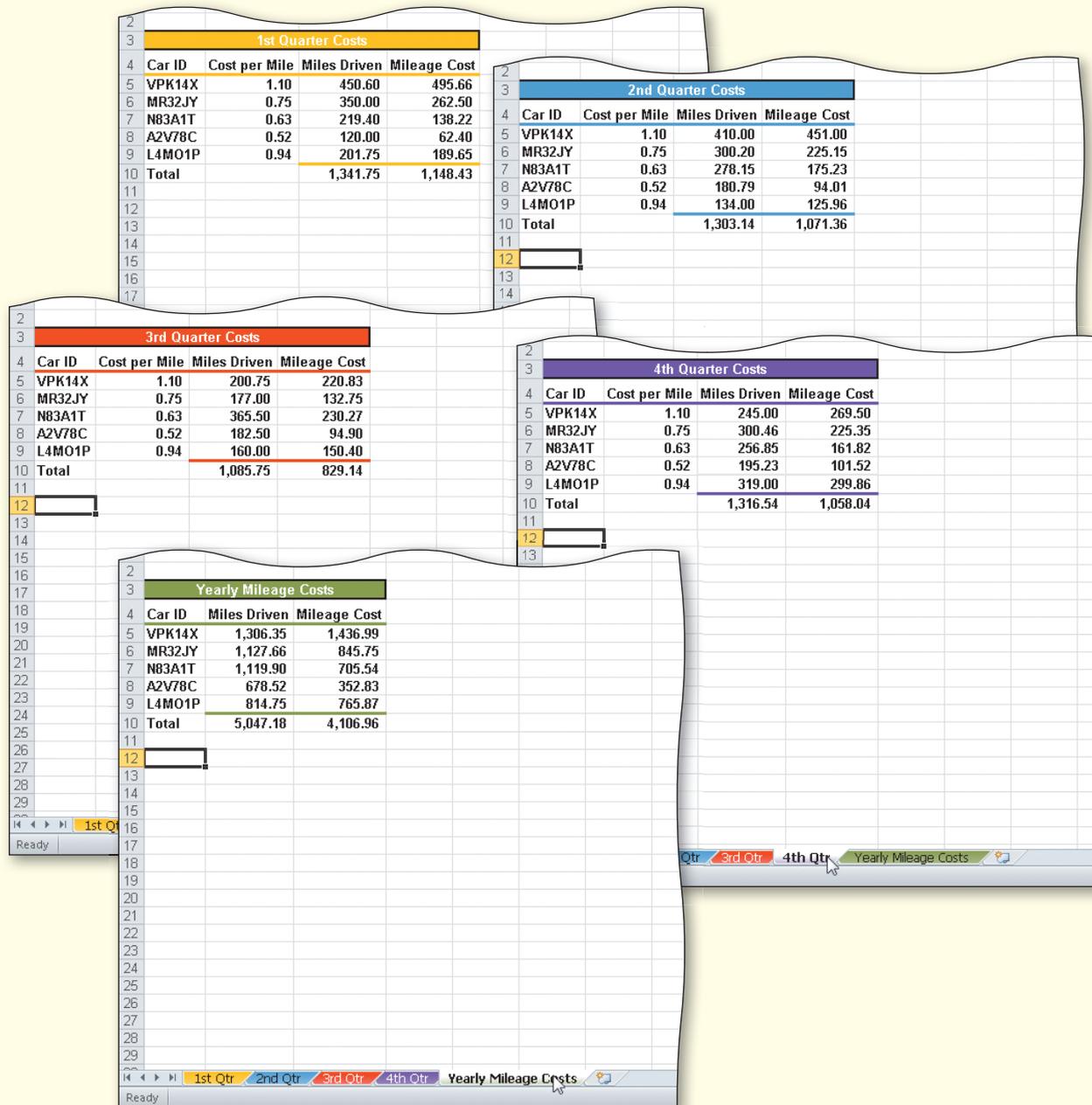


Figure 6–62

Continued >

Apply Your Knowledge *continued**Perform the following tasks:*

1. Start Excel. Open the workbook Apply 6-1 Yearly Mileage Costs from the Data Files for Students and then save the workbook as Apply 6-1 Yearly Mileage Costs Complete. One by one, click the first four tabs and review the quarterly payroll totals. Click the Yearly Mileage Costs sheet tab.
2. Determine the miles driven totals on the Yearly Mileage Costs sheet by using the SUM function and 3-D references to sum the hours worked on the four quarterly sheets in cell B5. Do the same to determine the yearly mileage cost in cell C5. Copy the range B5:C5 to the range B6:C9 by using the Copy button (Home tab | Clipboard group) and the Formulas command on the Paste gallery (Home tab | Clipboard group).
3. Change the document properties as specified by your instructor. Select all five worksheets. Add a worksheet header with your name, course number, and other information as specified by your instructor. Add the page number and total number of pages to the footer. Center all worksheets horizontally on the page and print without gridlines. Preview and print the five worksheets. Click the Yearly Mileage Costs sheet tab to select the sheet.
4. Save the workbook with the new page setup. Close the workbook.
5. Submit the assignment as requested by your instructor.

Extend Your Knowledge

Extend the skills you learned in this chapter and experiment with new skills. You may need to use Help to complete the assignment.

Creating Custom Format Codes

Note: To complete this assignment, you will be required to use the Data Files for Students. See the inside back cover of this book for instructions on downloading the Data Files for Students, or contact your instructor for information about accessing the required files.

Instructions: Complete the following tasks.

1. Start Excel. Open the workbook Extend 6-1 Custom Format Codes from the Data Files for Students and then save the workbook as Extend 6-1 Custom Format Codes Complete. When completed, the Custom Formats sheet should appear as shown in Figure 6–63.

	A	B	C	D	E	F
1	Custom Format Codes					
2						
3						
4	10-digit phone number	(321) 787-4955				
5	6-digit number with text	PID 025831				
6	dollars and cents	110 dollars and .95 cents				
7	negative number with text	150.00 loss				
8	4-digit year with text	The year is 2012				
9	day followed by date	Thursday - 8/9/2012				
10	day and month with text	Day 4 of June				
11	negative % with parenthesis	(-80%)				
12	% and text	75% of work completed				
13	hours and minutes	11 hours and 30 minutes				
14	military time with text	1700 hours				
15						
16						

Figure 6–63

2. Select cell B4. Right-click the selected cell and click Format Cells on the shortcut menu to display the Format Cells dialog box. Click Custom in the Category list. Enter the format code for cell B4 as shown in Table 6–11.

Cell	Format Code
B4	(000) 000-0000
B5	"PID" 000000
B6	0 "dollars and" .00 "cents"
B7	#,##0.00; #,##0.00 "loss"
B8	"The year is " yyyy
B9	dddd "-" m/d/yyyy
B10	"Day " d "of" mmmm
B11	0%;(-0%)
B12	0% " of work completed"
B13	h "hours and " mm "minutes"
B14	hhmm "hours"

3. Using Table 6–11, select each cell in range B5:B14 and create the corresponding custom format code for each cell using the Format Cells dialog box.
4. Change the document properties as specified by your instructor. Change the worksheet header with your name, course number, and other information as specified by your instructor. Print the worksheet. Save the workbook.
5. Submit the assignment as requested by your instructor.

Make It Right

Analyze a workbook and correct all errors and/or improve the design.

Using Custom Formats, Rounding Totals, and Correcting 3-D Cell References

Note: To complete this assignment, you will be required to use the Data Files for Students. See the inside back cover of this book for instructions on downloading the Data Files for Students, or contact your instructor for information about accessing the required files.

Instructions: Start Excel. Open the workbook Make It Right 6-1 Maxwell Books and then save the workbook as Make It Right 6-1 Maxwell Books Complete. Correct the following design and formula problems so that the Sales Totals sheet appears as shown in Figure 6–64 on the following page.

Continued >

Make It Right *continued*

	1 Qtr	2 Qtr	3 Qtr	4 Qtr	Total
Hardback	\$867,916.00	\$1,016,015.00	\$1,050,613.00	\$1,265,413.00	\$4,199,957.00
Paperback	\$1,225,140.00	\$1,079,959.00	\$1,358,483.00	\$940,870.00	\$4,604,452.00
Magazine	\$449,617.00	\$544,096.00	\$552,999.00	\$478,330.00	\$2,025,042.00
Newspaper	\$354,458.00	\$351,835.00	\$400,267.00	\$340,982.00	\$1,447,542.00
Novelty	346,037.00	434,203.00	467,364.00	572,006.00	1,819,610.00
Total	\$3,243,168.00	\$3,426,108.00	\$3,829,726.00	\$3,597,601.00	\$14,096,603.00
Rounded Total	\$3,200,000.00	\$3,400,000.00	\$3,800,000.00	\$3,600,000.00	\$14,000,000.00
Online	954,127	902,930	1,010,870	1,322,171	4,190,098
Annual Growth =====>	45% increase				

Figure 6-64

Perform the following tasks:

1. Edit the header for the worksheet and change the fixed date to the current date using the Current Date header element.
2. Select the cell range B3:E3. Change the custom format code by using the Format Cells Dialog box to change the format to show a number followed by the text “Qtr”.
3. Select cell B4, the supposed sum of cell B4 on the 2011 and 2012 sheets. Note that the SUM function is not referencing cell B4 on the 2011 sheet. Reenter the SUM function and select the appropriate range to sum. Do the same for cells B5, B6, B7, and B8. Copy the range B4:B8 to the range C4:E8.
4. Select cell B11, the supposed sum of cell B10 on the 2011 and 2012 sheets. Note that the SUM function is not referencing cell B10 on the 2011 and 2012 sheet. Reenter the SUM function and select the appropriate range to sum. Copy the cell B11 to the range C11:E11.
5. Select Cell B10, the supposed rounded value of B9 to the nearest 100,000 value. Note that the value is rounding to the nearest 100 value. Reenter the ROUND function to round to the nearest 100,000 value. Copy the cell B10 to the range C10:E10.
6. Select cell B13. Change the custom format code by using the Format Cells Dialog box to change the format to show the percent followed by the text “increase”.
7. Change the document properties as specified by your instructor. Change the three worksheet headers to include your name, course number, and other information as specified by your instructor.
8. Save the workbook, and submit the revised workbook as requested by your instructor.

In the Lab



Create a workbook using the guidelines, concepts, and skills presented in this chapter. Labs are listed in order of increasing difficulty.

Lab 1: Using a Master Sheet to Create a Multiple-Sheet Workbook

Note: To complete this assignment, you will be required to use the Data Files for Students. See the inside back cover of this book for instructions on downloading the Data Files for Students, or contact your instructor for information about accessing the required files.

Problem: AtHome Blu-Ray is a company that specializes in home Blu-Ray players. The company has three stores in Chicago, New York, and Seattle. Their corporate office is in Los Angeles. The corporate officers in Los Angeles use a master sheet to create a profit potential analysis workbook. The workbook contains four sheets, one for each of the three stores and one sheet to consolidate data and determine the company totals. The Consolidated sheet appears as shown in Figure 6–65.

	A	B	C	D	E	F	G	H	I
1	AtHome Blu-Ray								
2	Company Profit Potential								
3									May 20
4	Company	Units On Hand	Store Discount	Average Cost	Total Cost	Average Unit Price	Total Value		Profit Potential
5	Memorex	371	\$40.00	\$98.75	\$36,636.25	\$105.22	\$39,036.62		\$2,400.37
6	Phillips	355	10.00	127.45	45,244.75	177.43	62,987.65		17,742.90
7	Pioneer	633	26.67	118.75	75,168.75	147.96	93,660.79		18,492.04
8	Samsung	485	15.00	101.48	49,217.80	134.24	65,106.40		15,888.60
9	Sony	555	28.33	135.27	75,074.85	170.60	94,681.15		19,606.30
10	Sylvania	679	30.00	165.80	112,578.20	213.82	145,183.78		32,605.58
11	Vizio	685	55.00	110.25	75,521.25	107.13	73,384.05		(2,137.20)
12		3,763 Units			\$469,441.85		\$574,040.44		\$104,598.59
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									

Figure 6–65

The master sheet used to create the profit potential analysis workbook is part of the Data Files for Students. Alice Stewart, the company's accountant, has asked you to use the master sheet to create the profit potential analysis workbook.

Instructions Part 1: Perform the following tasks.

1. Open the workbook Lab 6-1 AtHome Blu-Ray Master from the Data Files for Students. Save the workbook as a workbook using the file name, Lab 6-1 AtHome Blu-Ray Profit Potential Analysis.
2. Add a worksheet to the workbook between Sheet1 and Sheet2 and then paste the contents of Sheet1 to the three empty sheets.

Continued >

In the Lab *continued*

- From left to right, rename the sheet tabs Consolidated, Chicago, New York, and Seattle. Color the tabs as shown in Figure 6–65. (The Consolidated tab uses the Tan, Accent 1 color.) On each of the three store sheets, change the subtitle in cell A2 to match the sheet tab name. Change the title style for each title area in the range A1:F1 to match the sheet tab color. Enter the data in Table 6–12 into the three store sheets.

Table 6–12 AtHome Blu-Ray Units on Hand and Store Discounts			
		Units on Hand	Store Discounts
Chicago	Memorex	100	\$35.00
	Phillips	119	0.00
	Pioneer	135	15.00
	Samsung	180	35.00
	Sony	255	60.00
	Sylvania	179	10.00
	Vizio	201	50.00
New York	Memorex	75	\$35.00
	Phillips	135	15.00
	Pioneer	200	30.00
	Samsung	146	10.00
	Sony	90	0.00
	Sylvania	175	25.00
	Vizio	225	60.00
Seattle	Memorex	196	\$50.00
	Phillips	101	15.00
	Pioneer	298	35.00
	Samsung	159	0.00
	Sony	210	25.00
	Sylvania	325	55.00
	Vizio	259	55.00

- On the Consolidated worksheet, use the SUM and AVERAGE functions, 3-D references, and copy and paste capabilities of Excel to total the corresponding cells on the three store sheets. First, compute the sum in cell B4 and then compute the average in cell C5. Copy the range B4:C5 to the range B5:C11. The Consolidated sheet should resemble Figure 6–65.
- Change the document properties as specified by your instructor. Select all four sheets. Add a worksheet header with your name, course number, and other information as specified by your instructor. Add the page number and total number of pages to the footer. Change the left and right margins to .5.
- With the four sheets selected, preview and then print the workbook in landscape orientation and use the Black and white option.
- Save the workbook with the new page setup characteristics. Close the workbook.
- Submit the assignment as requested by your instructor.

Instructions Part 2: Complete the following tasks.

1. Start Excel. Open the workbook Lab 6-1 AtHome Blu-Ray Profit Potential Analysis.
2. Select the range D6:H11 on the Consolidated worksheet. Select all the worksheets.
3. Use the Format Cells dialog box to apply a custom format of #,##0.00; [Green](#,##0.00).
4. Select the cell B12 on the Consolidated worksheet. Select all the worksheets.
5. Use the Format Cells dialog box to apply a custom format of #,##0 “Units”. Widen Column B so that contents of cell B12 are visible.
6. Save the workbook and then close the workbook.
7. Submit the assignment as requested by your instructor.

Instructions Part 3: Complete the following tasks.

1. Start Excel. Open the workbook Lab 6-1 AtHome Blu-Ray Profit Potential Analysis.
2. Use the Cell Styles button (Home tab | Styles group) to create the following new cell styles:
 - a. Name this style Month and Day. Use the Format button in the Cell Styles gallery to create a format using the Format Cells dialog box. Use the Number tab (Format Cells dialog box) to create a custom format using the format code mmmm d. Check only the Number and Alignment check boxes in the Style dialog box.
 - b. Name this style My Title. Use the Format button to create a format using the Format Cells dialog box. Use the Font tab (Format Cells dialog box) to select the Broadway font. Check only the Alignment and Font check boxes in the Style dialog box.
 - c. Name this style Grand Totals. Use the Format button in the Cell Styles gallery to create a format using the Format Cells dialog box. Use the Number tab (Format Cells dialog box) to create a custom currency style that colors negative numbers blue. Check only the Number and Alignment check boxes in the Style dialog box.
3. Select the cell H3 on the Consolidated worksheet. Select all the worksheets. Apply the Month and Day style to the cell.
4. Select the cell A1 on the Consolidated worksheet. Select all the worksheets. Apply the My Title style to the cell.
5. Select the cells E12, G12, and H12 on the Consolidated worksheet. Select all the worksheets. Apply the Grand Totals style to the cells.
6. Save the workbook and then close the workbook.
7. Submit the assignment as requested by your instructor.

In the Lab

Lab 2: Consolidating Data and Linking to a Workbook

Note: To complete this assignment, you will be required to use the Data Files for Students. See the inside back cover of this book for instructions on downloading the Data Files for Students, or contact your instructor for information about accessing the required files.

Problem: SciMat Containment is a company that manages three radioactive isotope containment facilities in the Western, Central, and Southern regions. Some agency watchdogs are concerned about containment costs while the material still is radioactive. The agency director has asked your group to prepare a workbook showing the amount of radioactive material remaining, containment costs, estimated agency appropriations, and the percentage of appropriations that will be spent on

Continued >

In the Lab *continued*

containment every year for the next decade. You have been given a master sheet to use to create your workbook as well as a workbook with the containment assumptions. The workbook you create will contain four sheets, one for each of the three regions and one sheet to consolidate data and determine the agency totals. The consolidated sheet, named Overall Costs, appears as shown in Figure 6–66.

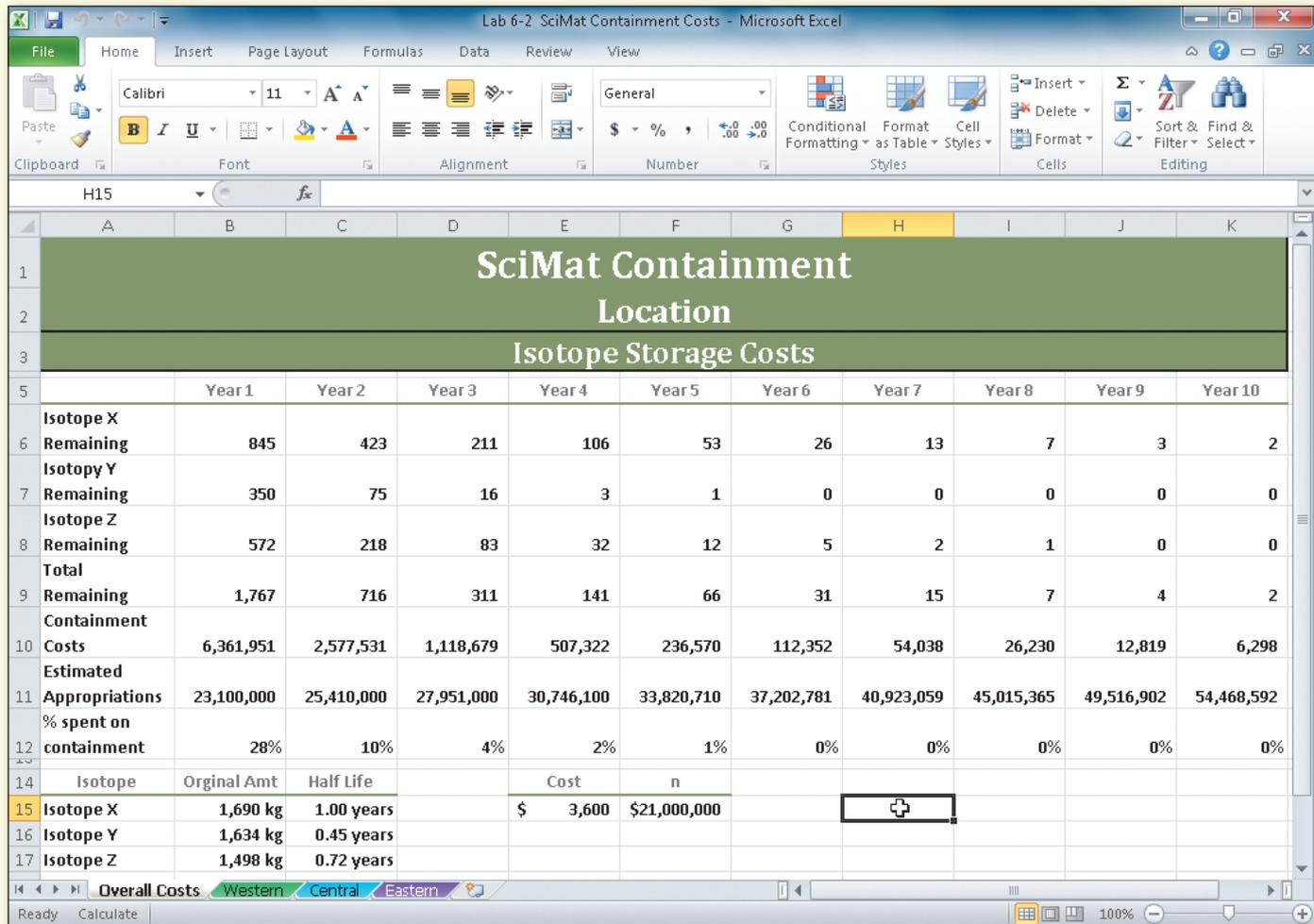


Figure 6–66

The master sheet and containment assumptions used to create the containment analysis workbook are part of the Data Files for Students.

Instructions Part 1: Perform the following tasks.

1. Open the workbook Lab 6-2 Containment Assumptions from the Data Files for Students.
2. Open the workbook Lab 6-2 SciMat Containment Master from the Data Files for Students. Save the workbook as a workbook using the file name, Lab 6-2 SciMat Containment Costs.
3. Add a worksheet to the workbook between Sheet1 and Sheet2 and then paste the contents of Sheet1 to the three empty sheets.
4. From left to right, rename the sheet tabs Overall Costs, Western, Central, and Eastern. Color the tabs as shown in Figure 6–66. (The Overall Costs tab uses the Tan, Accent 1, Darker 50% color.) On each of the three region sheets, change the subtitle in cell A2 to match the tab name.

Change the title style for each title area in the range A1:F1 to match the tab color. Enter the data in Table 6–13 into the three region sheets.

		Original AMT
Western	Isotope X	300
	Isotope Y	750
	Isotope Z	500
Central	Isotope X	580
	Isotope Y	425
	Isotope Z	600
Eastern	Isotope X	810
	Isotope Y	459
	Isotope Z	398

- On the Western worksheet, select cell E15 and select all worksheets except the Overall Costs sheet. Type '='. Click the Switch Windows button (View tab | Window group), and then click Lab 6-2 Containment Assumptions and then select cell B7 and press ENTER.
- On the Western worksheet, select cell F15, select all worksheets except the Overall Costs sheet. Type '='. Click the Switch Windows button (View tab | Window group), and then click Lab 6-2 Containment Assumptions and then select cell B8 and press ENTER.
- On the Overall Costs worksheet, select cell C15 and select all worksheets. Type '='. Click the Switch Windows button (View tab | Window group), and then click Lab 6-2 Containment Assumptions and then select cell B4 and press ENTER.
- On the Overall Costs worksheet, select cell C16 and select all worksheets. Type '='. Click the Switch Windows button (View tab | Window group), and then click Lab 6-2 Containment Assumptions and then select cell B5 and press ENTER.
- On the Overall Costs worksheet, select cell C17, select all worksheets. Type '='. Click the Switch Windows button (View tab | Window group), and then click Lab 6-2 Containment Assumptions and then select cell B6 and press ENTER.
- On the Overall Costs worksheet, use the SUM function, 3-D references, and copy and paste capabilities of Excel to total the corresponding cells on the three region sheets. First, compute the sum in cell B15. Copy the cell B15 to the range B16:B17. Next, compute the sum in cell E15, and finally, compute the sum in cell F15. The Overall Costs sheet should resemble the one shown in Figure 6–66.
- Change the document properties as specified by your instructor. Select all four sheets. Add a worksheet header with your name, course number, and other information as specified by your instructor. Add the page number and total number of pages to the footer. Change the left and right margins to .5.
- With the four sheets selected, preview and then print the workbook in landscape orientation and use the Black and white option.
- Save the workbook with the new page setup characteristics. Close the open workbooks.
- Submit the assignment as requested by your instructor.

Continued >

In the Lab *continued*

Instructions Part 2: Complete the following tasks.

1. Start Excel. Open the workbook Lab 6-2 SciMat Containment Costs.
2. Select the range B5:K5 on the Overall Costs worksheet. Select all the worksheets.
3. Use the Format Cells dialog box to apply a custom format of “Year” 0.
4. Select the range B15:B17 on the Overall Costs worksheet. Select all the worksheets.
5. Use the Format Cells dialog box to apply a custom format of #,##0 “kg”.
6. Select the range C15:C17 on the Overall Costs worksheet. Select all the worksheets.
7. Use the Format Cells dialog box to apply a custom format of 0.00 “years”.
8. Save the workbook and then close the workbook.
9. Submit the assignment as requested by your instructor.

In the Lab

Lab 3: Consolidating Data by Linking Workbooks

Note: To complete this assignment, you will be required to use the Data Files for Students. See the inside back cover of this book for instructions on downloading the Data Files for Students, or contact your instructor for information about accessing the required files.

Problem: The Apply Your Knowledge exercise in this chapter calls for consolidating the Miles Driven and Mileage Cost from four worksheets on a fifth worksheet in the same workbook (see Figure 6–62 on page EX 411). This exercise takes the same data stored in four separate workbooks and consolidates the Qty on Hand and Total Value by linking to a fifth workbook.

Instructions Part 1: Perform the following tasks.

1. Start Excel. Open the following five files from the Data Files for Students. You can open them one at a time or you can open them all at one time by selecting the five files and then clicking the Open button.
 - Lab 6-3 Audio Ace Annual Inventory Totals
 - Lab 6-3 Audio Ace Quarter 1 Inventory Totals
 - Lab 6-3 Audio Ace Quarter 2 Inventory Totals
 - Lab 6-3 Audio Ace Quarter 3 Inventory Totals
 - Lab 6-3 Audio Ace Quarter 4 Inventory Totals
2. Click the Switch Windows button (View tab | Window group) and then click Lab 6-3 Audio Ace Annual Inventory Totals.
3. Click the Save Workspace button (View tab | Window group). When the Save Workspace dialog box is displayed, save the workspace using the file name, Lab 6-3 Audio Ace Inventory Workspace.
4. Close all the open workbooks. Open the workspace Lab 6-3 Audio Ace Inventory Workspace. When the Lab 6-3 Audio Ace Annual Inventory Totals window is displayed, click the Maximize button in the upper-right corner to maximize the window. Save the workbook using the file name, Lab 6-3 Part 1 Audio Ace Annual Inventory Totals.
5. Consolidate the data in the four quarterly inventory workbooks into the range B11:C14 in the workbook Lab 6-3 Part 1 Audio Ace Annual Inventory Totals by doing the following:
 - a. Click cell B11. Display the Home tab and then click Sum button (Home tab | Editing group).
 - b. Click the Switch Windows button (View tab | Window group) and then click Lab 6-3 Audio Ace Quarter 1 Inventory Totals. When the workbook is displayed, click cell C11, click the Switch Windows button (View tab | Window group), and then click Lab 6-3 Part 1 Audio Ace Annual Inventory Totals. Change the absolute cell reference \$C\$11 in the formula bar to the relative cell reference C11 by deleting the dollar signs. Click immediately after C11 in the formula bar and then press the COMMA key.

- c. Click the Switch Windows button (View tab | Window group) and then click Lab 6-3 Audio Ace Quarter 2 Inventory Totals. When the workbook is displayed, click cell C11, click the Switch Windows button (View tab | Window group), and then click Lab 6-3 Part 1 Audio Ace Annual Inventory Totals. Change the absolute cell reference \$C\$11 in the formula bar to the relative cell reference C11 by deleting the dollar signs. Click immediately after C11 in the formula bar and then press the COMMA key.
 - d. Click the Switch Windows button (View tab | Window group) and then click Lab 6-3 Audio Ace Quarter 3 Inventory Totals. When the workbook is displayed, click cell C11, click the Switch Windows button (View tab | Window group), and then click Lab 6-3 Part 1 Audio Ace Annual Inventory Totals. Change the absolute cell reference \$C\$11 in the formula bar to the relative cell reference C11 by deleting the dollar signs. Click immediately after C11 in the formula bar and then press the COMMA key.
 - e. Click the Switch Windows button (View tab | Window group) and then click Lab 6-3 Audio Ace Quarter 4 Inventory Totals. When the workbook is displayed, click cell C11, click the Switch Windows button (View tab | Window group), and then click Lab 6-3 Part 1 Audio Ace Annual Inventory Totals. Change the absolute cell reference \$C\$11 in the formula bar to the relative cell reference C11 by deleting the dollar signs. Press the ENTER key to sum the four quarter hours worked. You should end up with an annual total of 777 quantity on hand in cell B11.
 - f. With the workbook Lab 6-3 Part 1 Audio Ace Annual Inventory Totals window active, select cell B11. Drag the fill handle through cell C11 to display the annual total value in cell C11. Select the range B11:C11. Drag the fill handle down to cell C14. When the Auto Fill Options button is displayed next to cell C14, click the Auto Fill Options button and then click the Fill Without Formatting option.
6. Change the document properties as specified by your instructor. Change the worksheet header with your name, course number, and other information as specified by your instructor. Preview and print the annual inventory totals. Save the workbook using the file name, Lab 6-3 Part 1 Audio Ace Annual Inventory Totals. Close all workbooks. Submit the assignment as requested by your instructor.

Instructions Part 2: Perform the following tasks to update the hours worked for Quarter 2 and Quarter 4.

1. Start Excel. Open Lab 6-3 Audio Ace Quarter 1 Inventory Totals from the Data Files for Students. Change the quantity on hand for item no. TZ3919 in row 12 from 145 to 219. Save the workbook using the file name, Lab 6-3 Audio Ace Quarter 1 Inventory Totals. Close the workbook.
2. Open Lab 6-3 Audio Ace Quarter 3 Inventory Totals. Change the quantity on hand for item no. LG6527 in row 14 from 160 to 145. Save the workbook using the file name, Lab 6-3 Audio Ace Quarter 3 Inventory Totals. Close the workbook.
3. Open Lab 6-3 Part 1 Audio Ace Annual Inventory Totals workbook saved earlier in Part 1 of this exercise. Save the workbook using the file name, Lab 6-3 Part 2 Audio Ace Annual Inventory Totals. Display the Data tab. Click the Edit Links button (Data tab | Connections group). Select each file in the Edit Links dialog box and then click the Update Values button to instruct Excel to apply the current values in the four source workbooks to the consolidated workbook (Figure 6-67).
4. Insert a page break on Row 8. Preview and print the consolidated workbook. Remove the page break. Save the workbook. Submit the assignment as requested by your instructor.

Annual Inventory Totals		
Item No.	Qty on Hand	Total Value
VR3590	777	23,302
TZ3919	638	7,305.10
PK7845	736	13,947.20
LG6527	670	33,332.50
Total	2,821	77,887.03

Figure 6-67

Cases and Places

Apply your creative thinking and problem solving skills to design and implement a solution.

1: Analyzing Annual College Expenses and Resources

Academic

College expenses are skyrocketing and your resources are limited. To plan for the upcoming year, you have decided to organize your anticipated expenses and resources in a workbook. The data required to prepare the workbook is shown in Table 6–14.

Create a workbook and add a worksheet for the consolidated data called Academic Year with the data for the first semester in Table 6–14 in mind. Sum both the expenses and resources for the semester. Copy the worksheet to create three more worksheets for each of the three semesters. Enter the data from Table 6–14 in each of the semester worksheets. Use 3-D cell references to consolidate the data on the Academic Year worksheet in the workbook. Use the concepts and techniques described in this chapter to format the workbook.

Table 6–14 Next Year's Anticipated College Expenses and Resources

Expenses	1st Semester	2nd Semester	Summer
Rent	6,350.00	5,750.00	2,612.00
Car	1,500.00	1,500.00	900.00
Tuition	11,420.00	11,420.00	3,806.00
Books	1,350.00	1,450.00	230.00
Clothing	475.00	350.00	150.00
Personal Expenses	600.00	500.00	200.00
Miscellaneous	359.00	350.00	175.00
Resources	1st Semester	2nd Semester	Summer
Savings	3,500.00	3,500.00	600.00
Parents	5,300.00	8,200.00	2,120.00
Part-time job	1,540.00	1,295.00	785.00
Student Loan	8,000.00	8,000.00	4,205.00
Scholarship	2,500.00	2,500.00	500.00

2: Consolidating a Yearly Personal Budget

Personal

You want to create a workbook to help you analyze your personal budget. You have budgeted amounts and calculations of what you actually will pay for each month. You will include these in columns as well as a column to calculate the difference between the budgeted amounts and what you actually paid each month. Table 6–15 shows the data for the first four months.

**Table 6–15 First 4 Months of Yearly Personal Expenses**

		Budgeted Amount	Actual Amount
Jan	Rent	680.00	680.00
	Food	450.00	450.00
	Utilities	225.00	225.00
	Cell Phone	75.00	90.00
	Car Payments	275.41	275.41
	Insurance	149.50	149.50
	Clothing	250.00	100.00
	Internet	69.99	69.90
	Travel	110.00	250.00
	Feb	Rent	680.00
Food		450.00	450.00
Utilities		225.00	225.00
Cell Phone		75.00	90.00
Car Payments		275.41	275.41
Insurance		149.50	149.50
Clothing		250.00	100.00
Internet		69.99	69.90
Travel		110.00	250.00
Mar		Rent	680.00
	Food	450.00	500.00
	Utilities	225.00	215.00
	Cell Phone	75.00	75.00
	Car Payments	275.41	275.41
	Insurance	149.50	149.50
	Clothing	250.00	230.00
	Internet	69.99	75.00
	Travel	110.00	100.00
	Apr	Rent	680.00
Food		450.00	450.00
Utilities		225.00	225.00
Cell Phone		75.00	90.00
Car Payments		275.41	275.41
Insurance		149.50	149.50
Clothing		250.00	100.00
Internet		69.99	69.90
Travel		110.00	250.00

Continued >

Cases and Places *continued*

Create an annual worksheet based on the first month's personal expenses. Be sure to include a difference column that calculates the difference between the budgeted and actual amounts. Also include a total for the difference column. Using the annual worksheet, create worksheets for the 12 months. Enter the data for the first four months from Table 6–15. The rest of the 12 months follow the same pattern so you can use the data in Table 6–15 to fill in the remaining months.

Consolidate the budgeted and actual amounts on the annual worksheet using 3-D references. Using the techniques from the book, format the worksheet and add a custom format to the difference column so that it shows negative numbers as blue.

3: Analyzing Company Profits by Category**Professional**

Starling Electronics sells various electronic devices and support materials ranging from HD TVs to wall mounts for the TVs. Merchandise is divided into six categories based on profit margin: TV & video (25%), cameras & camcorders (15%), audio (11%), game systems (20%), gadgets (9%), and support hardware (20%). Last year's sales data has been collected for the Philadelphia and Cincinnati Stores as shown in Table 6–16.

Develop a worksheet that can be used to determine marketing strategies for next year. Include sales, profit margins, profits (sales \times profit margin), total sales, total profits, and functions to determine the most and least sales, profit margins, and profits. Create a custom style for the title of your worksheet.

Use the worksheet to create a workbook for each store and a consolidated workbook. Consolidate the data from the two stores into the consolidated workbook by applying techniques from the chapter regarding linking workbooks.

Table 6–16 Last Year's Sales for Philadelphia and Cincinnati Stores

	Philadelphia	Cincinnati
TV & Video	345,215.00	822,156.00
Cameras & Camcorders	140,135.00	255,812.00
Audio	75,912.00	72,345.00
Game Systems	46,125.00	58,012.00
Gadgets	8,532.00	12,589.00
Support Hardware	15,235.00	34,921.00