

# Using Charts in a Presentation

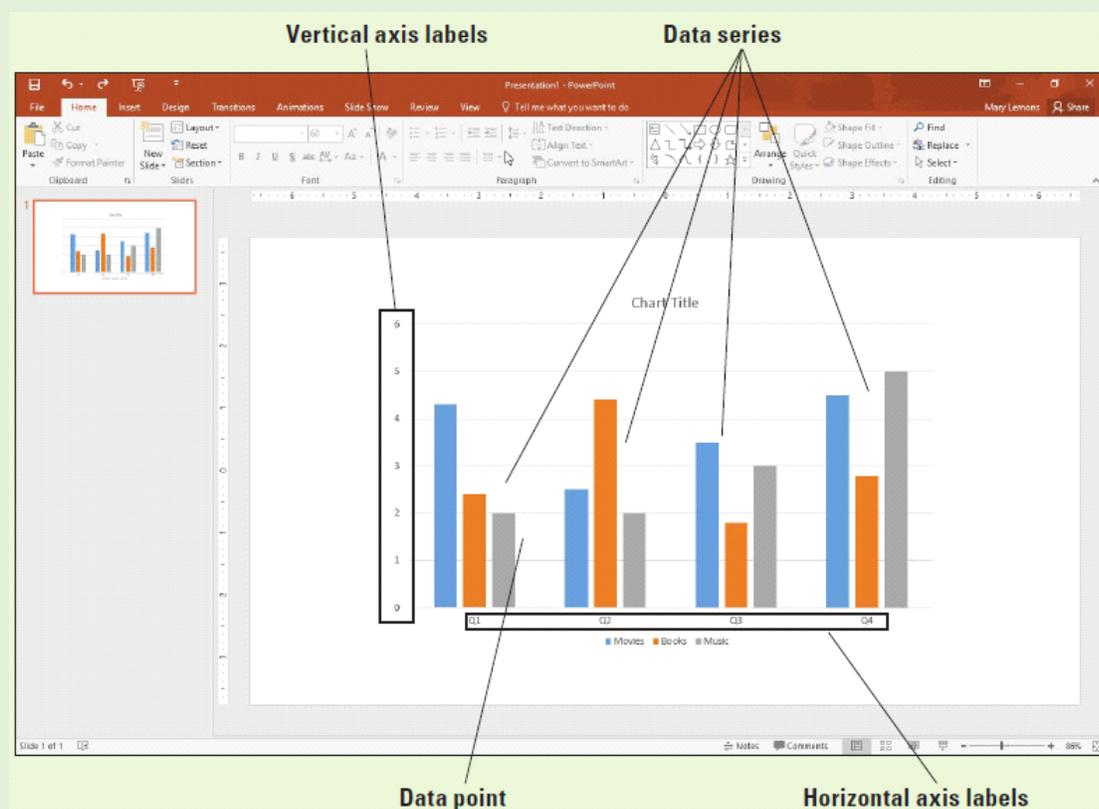
## Lesson Skill Matrix

Skill	Exam Objective	Objective Number
Building Charts	Create a chart.	3.2.1
	Import a chart.	3.2.2
Modifying the Chart Type and	Change the Chart Type.	3.2.3
Modifying Chart Elements	Add legends to charts.	3.2.4
Formatting a Chart	Create and modify chart	3.2.5

## Software Orientation

### A PowerPoint Chart

Charts can help your audience understand relationships among numerical values. Figure 6-1 shows a sample PowerPoint chart with some standard chart features labeled.



**Figure 6-1**  
**Components of a chart**

A chart can compare multiple data series (see Figure 6-1) with each series represented by a different color or pattern. A legend explains what each color represents. Category axis labels explain what the groupings of bars represent (on the horizontal axis) and vertical axis labels explain the meaning of the numeric values (on the vertical axis). Optional elements such as gridlines behind the chart help make the chart more readable.

# Building Charts

Charts are visual representations of numerical data. Chart features such as columns, bars, lines, or pie slices make it easy to understand trends or compare values. Once you have created a chart in PowerPoint, you can easily modify the data on which the chart is based, choose a different type of chart to display the data, change the layout of the chart, and modify its formats.

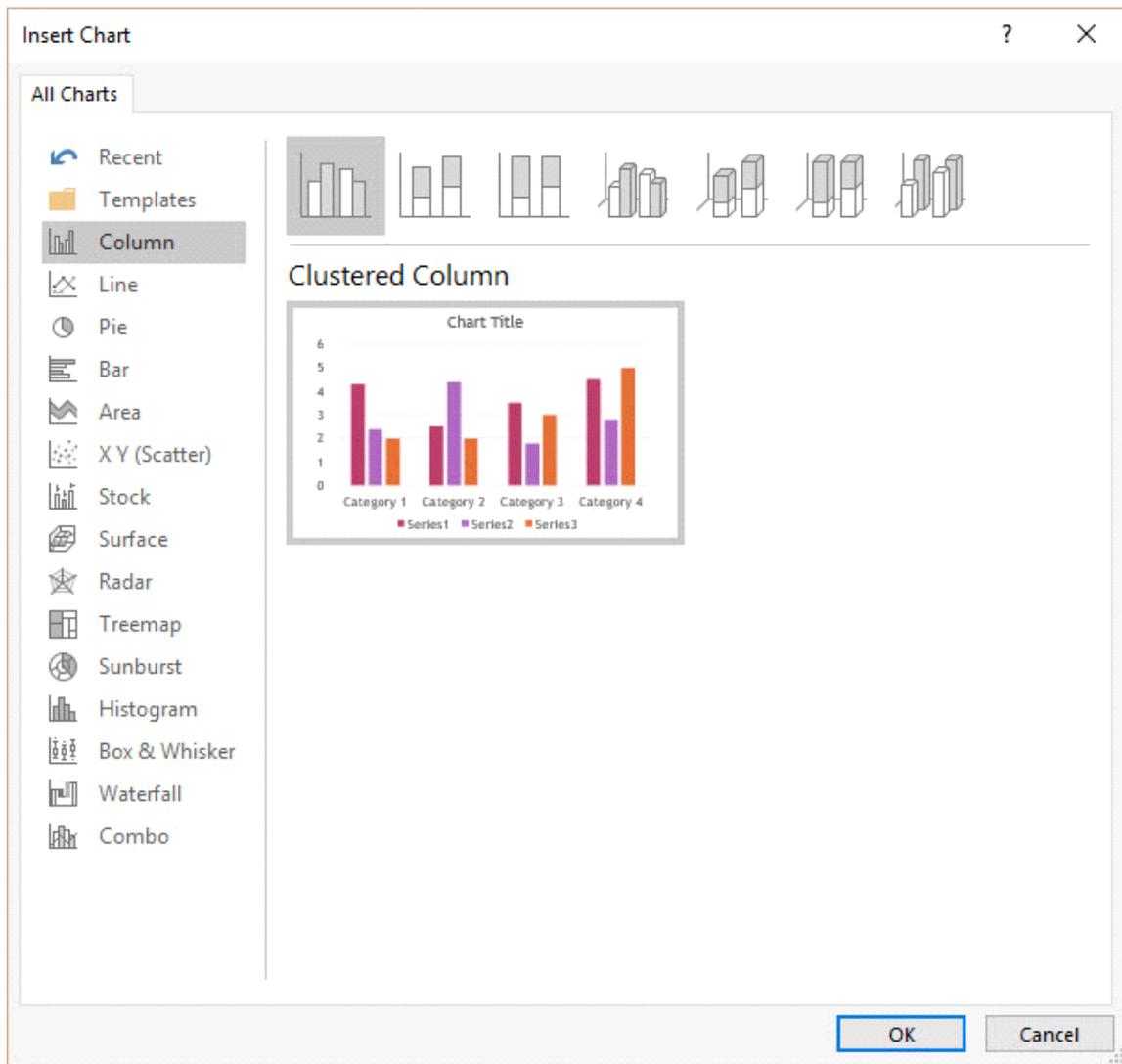
## Inserting a Chart from a Content Placeholder

Excel opens when you create a chart in PowerPoint and you enter the data in Excel that you want to plot on the chart. Then when you return to PowerPoint, the chart appears with the data presented. As with tables and other objects, such as diagrams and pictures, the easiest way to insert a chart is to click the Insert Chart icon in any content placeholder. PowerPoint guides you the rest of the way to complete the chart. In the following exercise, you will place a chart on a slide using a content placeholder.

### Step by step      Insert a Chart

**GET READY.** Before you begin these steps, make sure that your computer is on. Sign on, if necessary.

1. **START** PowerPoint, if the program is not already running.
2. **OPEN** the **Revenues** presentation from the data files for this lesson and then **SAVE** it as **Revenues Final**.
3. Go to **slide 3**. Click the **Insert Chart** icon in the center of the content placeholder. The *Insert Chart* dialog box opens (see Figure 6-2), showing chart types and subtypes.

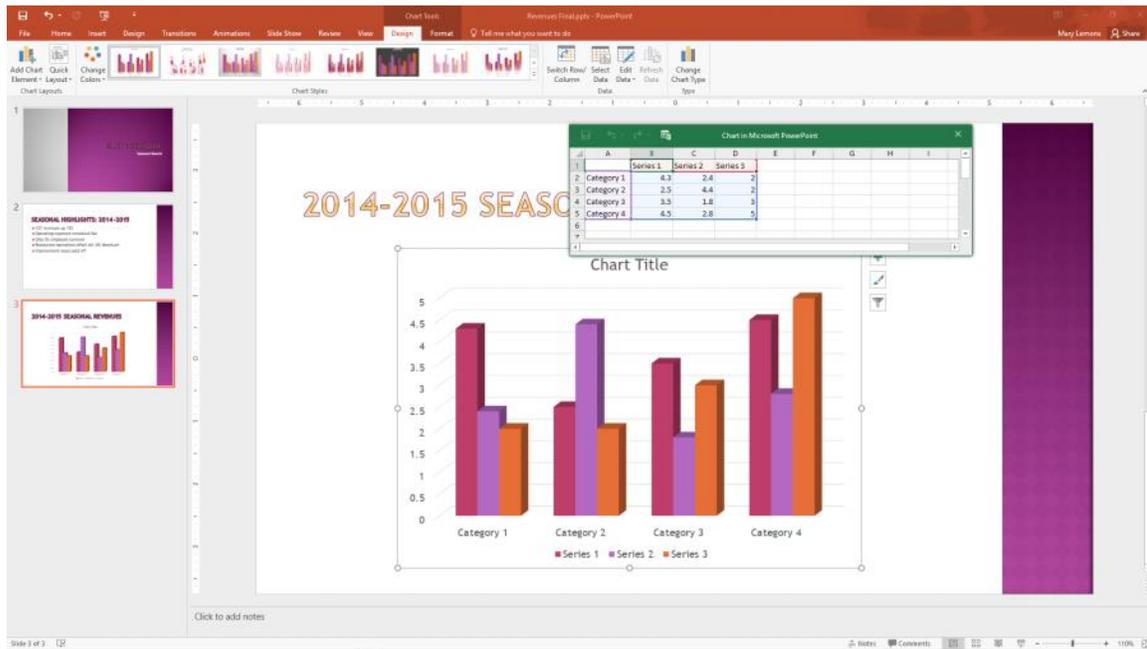


**Figure 6-2**  
**Select a chart type and subtype**

**Take Note**

PowerPoint 2016 offers six new chart types that you can use to help visualize data: Box & Whisker, Treemap, Sunburst, Histogram, in Histogram options, Pareto, and Waterfall.

4. Click the **3D Clustered Column** chart subtype (the fourth from the left in the row of icons across the top of the dialog box).
5. Click **OK**. A Chart in Microsoft PowerPoint window opens on top of the PowerPoint window containing the sample data on which the chart is based (see Figure 6-3). It is similar to an Excel worksheet. Notice the bright-blue border that surrounds the data range. This range border is used to indicate the data being charted.



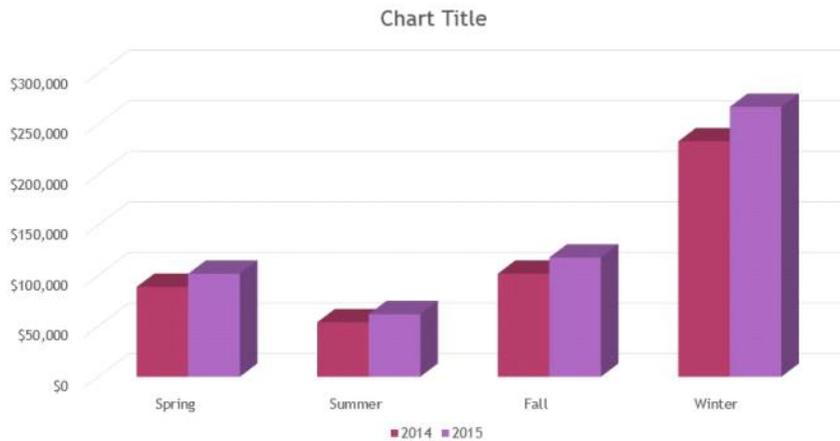
**Figure 6-3**

**A worksheet opens for entering the data for the chart**

6. Drag the marker in the bottom-right corner of the range border so that the range includes only cells **A1:C5**.
7. Select **Column D**, right click, and then select **Delete** to clear the selected cells. (If you just click Delete, it leaves a placeholder for the Column, which appears in your chart.)
8. Click cell **B1** and type **2014**, replacing the current entry. Then press **Tab** to move to cell **C1**. Type **2015** and press **Enter**.
9. Beginning in cell **A2**, type the following data in Excel to complete the chart:
 

Spring	\$89,000	\$102,000
Summer	\$54,000	\$62,000
Fall	\$102,000	\$118,000
Winter	\$233,000	\$267,000
10. Close the worksheet window. The chart appears with the data you entered (see Figure 6-4).

## 2014-2015 SEASONAL REVENUES



**Figure 6-4**  
**The completed chart**

**11.** **SAVE** the presentation.

**PAUSE. LEAVE** the presentation open to use in the next exercise.

As you saw in the previous exercise, a worksheet window opens to allow you to insert the data that creates the chart. You can edit the worksheet data any time you want by clicking the Edit Data button on PowerPoint's Chart Tools Design tab (which appears when a chart is selected). When you click Edit Data in the Data group, a menu appears offering for you to edit the data in PowerPoint (Edit Data) or in Excel (Edit Data in Excel 2016).

If you want to use data from an existing Excel workbook, open that workbook and Copy and Paste the data into the sheet created for the chart's data. Adjust the range border as needed.

### Importing a Chart from Excel

You can create the chart in Excel and then copy the completed chart to PowerPoint using the Clipboard. Excel's charting tools are virtually identical to those in PowerPoint, so there is little reason to create the chart in Excel first, but if the chart already exists in Excel, copying it to PowerPoint can save some time.

You can also paste charts from Microsoft Word. If you have a chart in Word that you want to use, just copy and paste the chart into PowerPoint. The data will transfer with the chart. In addition, you can Copy and Paste the data from the Word sheet into the sheet created for the chart's data.

## Step by step Import an Excel Chart

**GET READY. USE** the **Revenues Final** presentation that is still open from the previous exercise.

1. With slide 3 selected, click **New Slide** on the Home tab. A new slide appears at the end of the presentation.
2. Open Microsoft Excel and open the **Beverages** file from the data files for this lesson. Select the chart and then press **Ctrl+C** to copy it to the Clipboard.
3. Switch back to PowerPoint and select the outer frame of the content placeholder box. Click twice on it to make sure the placeholder box itself is selected.
4. Press **Ctrl+V** to paste the chart into the placeholder.
5. Click in the slide's title placeholder box and type **Beverage Sales**.
6. Click the text **Beverage Sales** in Chart so it has handles around it. Click **Delete**. The title over the chart Beverage Sales is deleted and the chart increases in size a little.
7. Switch back to Excel and exit Excel.
8. In PowerPoint, **SAVE** the presentation.

**PAUSE. LEAVE** the presentation open to use in the next exercise.

## Resizing and Moving a Chart

In addition to moving the individual elements within a chart, you can move and resize the chart itself. The dotted areas on the chart's border are sizing handles. You can resize any object by dragging a side or corner handle of its container. Note that if you drag a side handle, you may "stretch" the container, distorting its contents. Hold down Shift to maintain the height-width ratio (the aspect ratio). You can move any object, including a chart, by dragging it by its border. When you see the four-headed pointer, just click and drag. In this exercise, you will resize and move a chart.

## Step by step Resize and Move a Chart

**GET READY. USE** the **Revenues Final** presentation that is still open from the previous exercise.

1. Select the chart on slide 3.
2. Position the pointer on the lower-right corner of the chart's frame, so the mouse pointer becomes a double-headed arrow.
3. Drag inward to decrease the size of the chart by about 2" in width.

### Take Note

Optionally, you can hold down Shift while resizing to maintain the aspect ratio.

4. Position the pointer anywhere on the chart's frame except on one of the sizing handles. The mouse pointer becomes a four-headed arrow.
5. Drag to reposition the chart so that it is centered attractively on the slide. (Look for the red, dotted guideline.)
6. Click outside of the placeholder and then **SAVE** the presentation.

**PAUSE. LEAVE** the presentation open to use in the next exercise.

# Modifying the Chart Type and Data

It is not uncommon to have to modify a chart after you have created it. You can change the data on which the chart is based at any time or change the way the data is plotted. You can also add or remove chart elements as desired to customize your chart.

## Choosing a Different Chart Type

After creating a chart, you may choose to change its type and/or its layout. If you decide that the chart type you have chosen does not display the data the way you want, you can choose a different chart type or subtype.

Different chart types display the data series differently. A data series consists of all the data points for a particular category, such as all the points for each season's 2015 values. A data point, sometimes called a data marker, is one point in a series. The default chart type is a Column chart. In this exercise, you will change a chart's type.

### Step by step Choose a Different Chart Type

**GET READY. USE** the **Revenues Final** presentation that is still open from the previous exercise.

1. Select the chart on slide 3 and then click the **Change Chart Type** button on the Chart Tools Design tab. The *Change Chart Type* dialog box opens showing the same chart types that appeared when you first created the chart.
2. On the list of chart types at the left, click **Bar**.
3. Click the **3-D Clustered Bar** subtype and then click **OK**. The columns change to horizontal bars (see Figure 6-5).

## 2014-2015 SEASONAL REVENUES

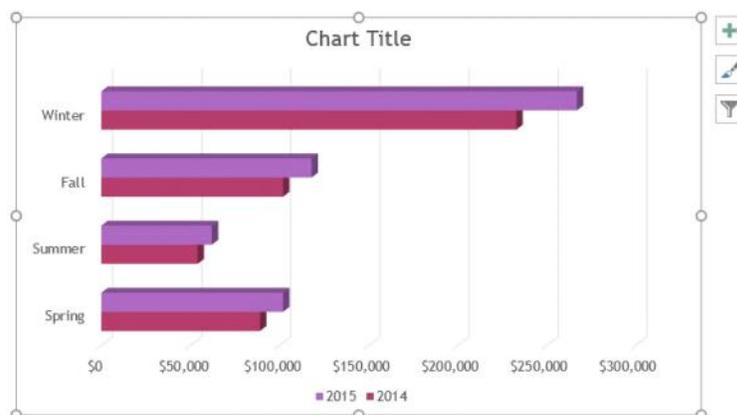


Figure 6-5

## A new chart type applied

4. **SAVE** the presentation and then **CLOSE** it.

**PAUSE. LEAVE PowerPoint open for the next exercise.**



### Troubleshooting

Changing from a 2-D chart type to a 3-D type can yield unexpected results. For some chart types, PowerPoint may display the new chart type in a rotated perspective view that you might not like. It is best to decide when you create the original chart whether you want it to use 2- or 3-D and then stick with those dimensions when making any change to the chart type.

### Editing a Chart's Data

Chart data remains “live” as long as the chart remains on the slide. You can reopen the chart worksheet at any time to adjust the data. Changes you make to the chart worksheet window are immediately reflected on the PowerPoint chart. Use the Edit Data button to reactivate the worksheet window in Excel and make your changes there. You can also use the Switch Row/Column button to plot the data on different axes.

Before you can edit chart data, you must select it. To select an individual cell in the data sheet, click that cell. To select ranges of cells, drag across them, or click a column or row header to select the entire row or column. In the following exercise, you will practice editing chart data, including selecting individual cells and entire columns.

### Step by step Edit a Chart's Data

**GET READY. OPEN** the **Pricing** presentation from the data files for this lesson.

1. **SAVE** the file as **Pricing Final**. Examine the information on the slides and notice that the dates on the title slide do not match the dates on the chart.
2. Go to slide 2 and click the chart to select it.
3. On the Chart Tools Design tab, click the **Edit Data** button in the Data group. The worksheet window opens.
4. Click cell **B1** and type **2013**, replacing the current entry there. Then press **Tab** to move to cell **C1** and type **2014**, replacing the current entry. Repeat the process for **D1 (2015)** and **E1 (2016)**.
5. Click column E's column header to select the entire column and then right-click the column and click **Delete**. The data in the worksheet should now resemble Figure 6-6.

**Edit Data in Microsoft Excel**

	A	B	C	D	E	F	G	H	I
1		2013	2014	2015					
2	Lift Pass	75	90	115					
3	Rental	245	300	335					
4									
5									
6									
7									

**Figure 6-6**

**The edited data for the chart**

6. Click the [Edit Data in Microsoft Excel](#) icon on the worksheet window's toolbar (see Figure 6-6). The data opens in Excel.
7. Click cell [A3](#) and type [Equipment Rental](#), replacing the current entry there.
8. Close the Excel window and return to PowerPoint. Select the chart again if it is not still selected.
9. If the Switch Row/Column button is available on the Chart Tools Design tab, click it to switch rows and columns. If it is not, do the following to switch rows and columns:
  10. Click [Select Data](#). The *Select Data Source* dialog box opens.
  11. Click [Switch Row/Column](#).
  12. Click [OK](#).
  13. Click the [Switch Row/Column](#) button on the Chart Tools Design tab to switch the rows and columns back to their original settings. (Even if the button was unavailable in step 9, it will be available now.)
14. Close the worksheet window if it is still open.
15. [SAVE](#) the presentation.

**PAUSE. LEAVE** the presentation open to use in the next exercise.

# Modifying Chart Elements

Chart elements are the optional parts of a chart, such as the legend, title, data labels, data table, axes, axis labels, and so on. You can apply Quick Layouts that apply preset combinations of these elements and you can turn each element type on or off individually and apply different options to it.

## Applying and Modifying a Quick Layout

PowerPoint supplies several preformatted chart layouts that you can apply quickly to modify the default layout. These layouts may adjust the position of features, such as the legend, or add chart components such as titles and data labels. In this exercise, you will choose a different chart layout.

PowerPoint charts can be customized in a variety of ways by adding and removing chart elements such as titles, labels, and gridlines. If you do not want to take the time to add elements, PowerPoint's quick layouts can provide you with some standard appearance options to choose from. You will learn how to add elements yourself later in this lesson.

### Step by step Apply and Modify a Quick Layout

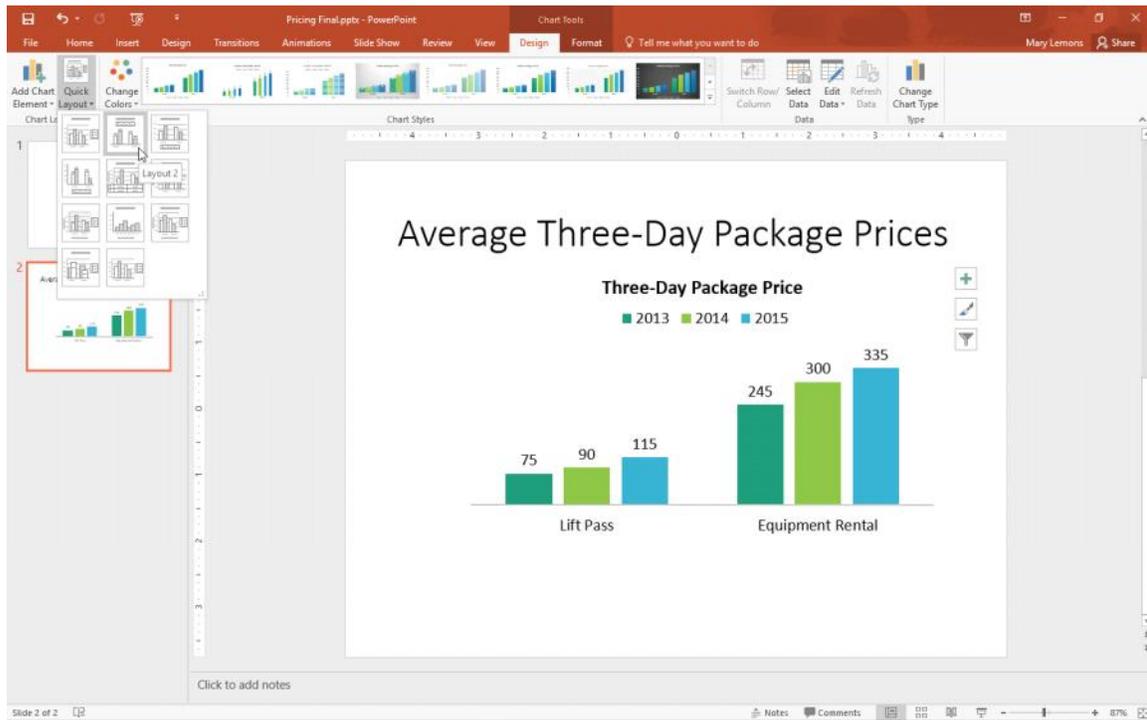
**GET READY. USE** the **Pricing Final** presentation that is still open from the previous exercise.

1. With the chart on slide 2 selected, click the **Quick Layout** button on the Chart Tools Design tab. The Chart Layout gallery displays.

#### Take Note

The thumbnails in the Chart Layout gallery show in miniature the new layout and elements of the chart.

2. Click **Layout 2** in the gallery. The layout is modified to place the legend above the chart and add data labels to each of the bars (see Figure 6-7).



**Figure 6-7**  
The chart with **Layout 2** applied to it

3. Click the **Add Chart Element** button to open a menu, point to **Chart Title**, and then click **None**. The chart title is removed. (It is not necessary because the slide itself provides a title.)
4. **SAVE** the presentation.

**PAUSE. LEAVE** the presentation open to use in the next exercise.

### Working with a Legend

A legend is a key that tells what each color or pattern in a chart represents. There are many options available for adding, positioning, and customizing legends.

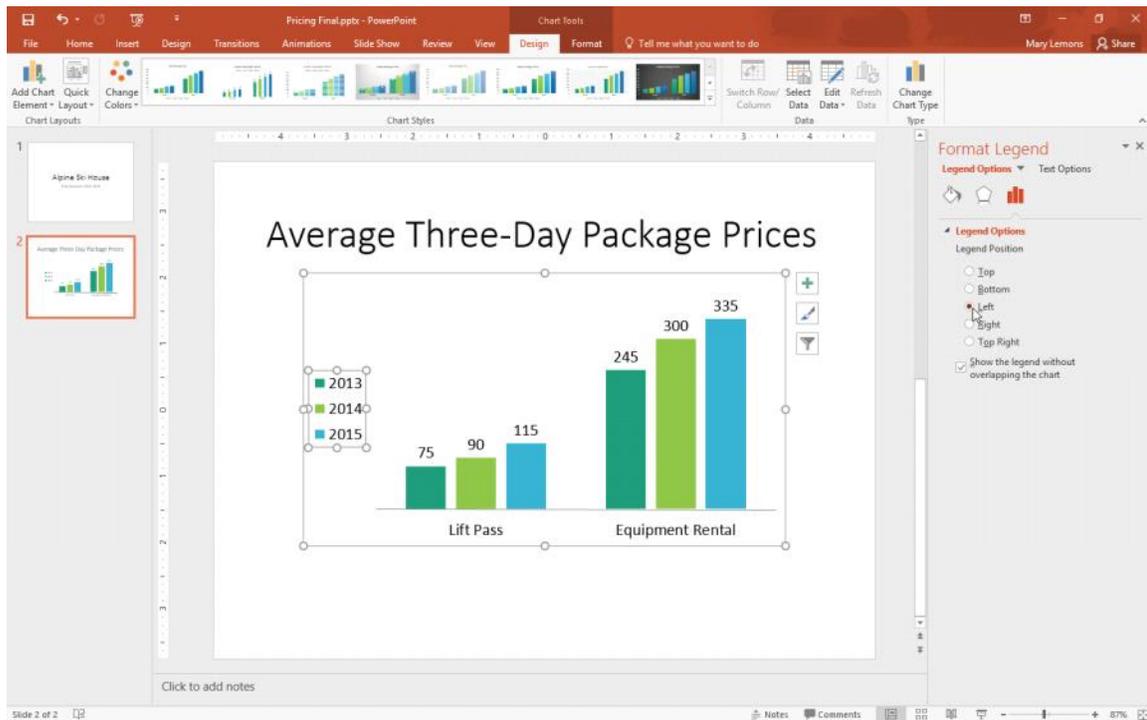
A *legend* is a very important chart element, because without it, the audience has no way of knowing what each colored bar, dot, line, or pie slice represents. In this exercise, you will practice adding, modifying, and moving a legend.

### Step by step Work with a Legend

**GET READY. USE** the **Pricing Final** presentation that is still open from the previous exercise.

1. With the chart on slide 2 selected, click the **Chart Elements** button (the plus sign) to the right of the chart. The Chart Elements list appears.
2. Click the **Legend** check box. The legend disappears.
3. Click the **Legend** check box again. The legend reappears to the right of the chart.
4. An arrow appears to its right. Then click the arrow to display a submenu.
5. Click **Bottom**. The legend moves below the chart.

6. Click the arrow next to Legend to redisplay the submenu and then click **More Options**. The Format Legend task pane opens.
7. Under Legend Position, click **Left**. The legend moves to the left of the chart area (see Figure 6-8).

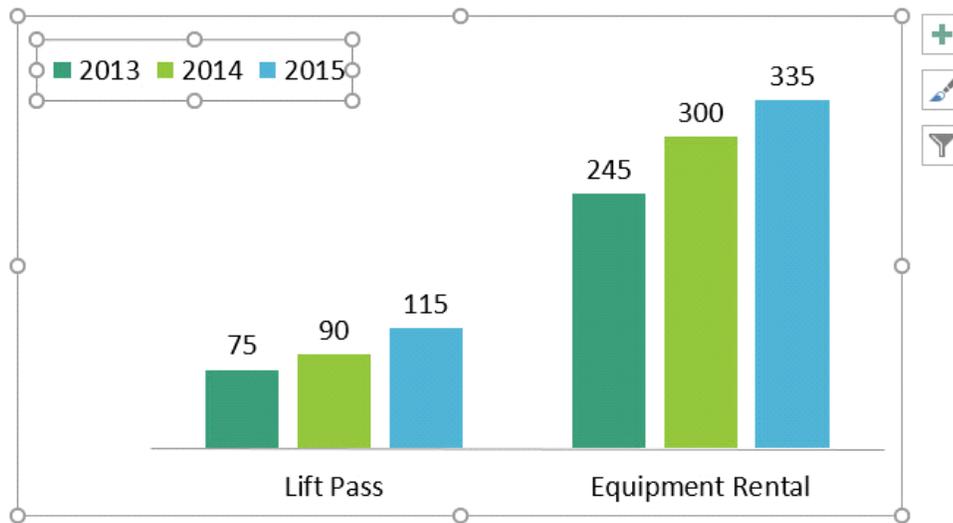


**Figure 6-8**

**Position the legend to the left using the Format Legend task pane**

8. **CLOSE** the task pane.
9. Position the mouse pointer over the border of the legend and drag it to place it in the empty space above the Lift Pass bars.
10. Drag the left side selection handle on the legend's frame to widen the legend so that all its content fits on a single line and drag the bottom selection handle to decrease the legend height (see Figure 6-9).

# Average Three-Day Package Prices



**Figure 6-9**

**Resize the legend frame so the legend appears horizontally**

11. On the Chart Tools Design tab, click **Add Chart Element**, point to **Legend**, and then click **Bottom** to move the legend below the chart.
12. **SAVE** the presentation.

**PAUSE. LEAVE** the presentation open to use in the next exercise.

## Adding and Deleting Other Chart Elements

Elements such as axis labels, a chart title, and data labels make your chart more informative. Use the tools on the Chart Tools Design tab to turn chart elements on or off or adjust settings for a particular element. The controls for these elements are very similar to the controls for the legend that you learned about in the preceding exercise.

As you saw in the preceding exercise, the Chart Tools Design tab has an Add Chart Element button that opens a menu system for controlling chart elements of many different types. Each type of that menu opens a submenu that includes several basic choices (including None) plus a More command that opens a task pane for controlling that element.

You can remove chart elements by choosing None from their submenu, or in some cases by simply clicking the item to select it and then pressing Delete.

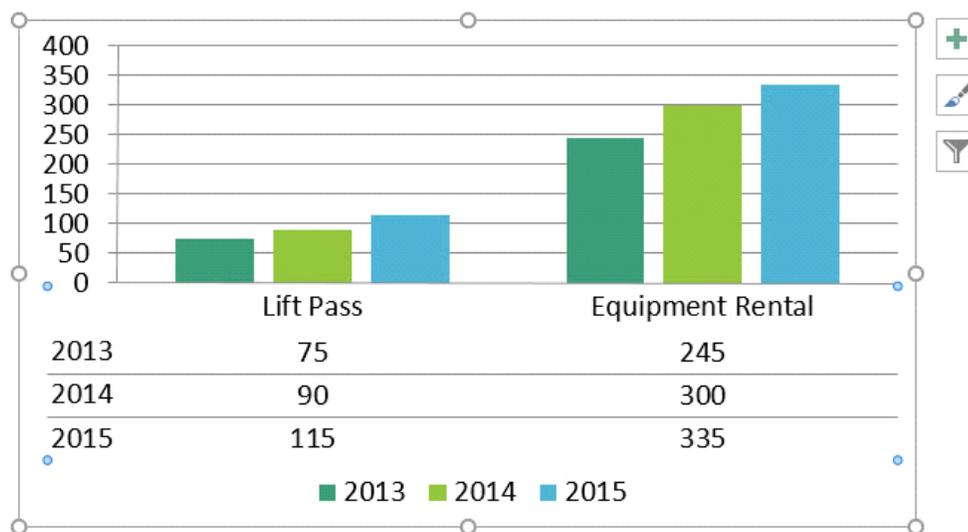
In this exercise, you will practice adding and deleting chart elements.

**Step by step**      **Add and Delete Chart Elements**

**GET READY. USE** the **Pricing Final** presentation that is still open from the previous exercise.

1. Click the chart on slide 2 to select it if it is not already selected and then click the **Chart Tools Design** tab.
2. Click the **Add Chart Element** button, point to **Gridlines**, and then click **Primary Major Horizontal**. Horizontal gridlines are added to the chart.
3. Click the **Add Chart Element** button, point to **Data Labels**, and then click **None**. The data labels disappear from the chart.
4. Click the chart's outer frame to re-select the entire chart if it is not already selected.
5. Click the **Add Chart Element** button, point to **Axes**, and then click **Primary Vertical**. Numbers appear along the vertical axis.
6. Click the **Add Chart Element** button, point to **Data Table**, and then click **More Data Table Options**. The Format Data Table task pane opens.
7. Clear the **Show legend keys** check box.
8. Clear the **Vertical** and **Outline** check boxes (see Figure 6-10).

## Average Three-Day Package Prices



**Figure 6-10**  
**Customize the data table options**

9. **CLOSE** the task pane.
10. Drag the bottom selection handle on the chart frame downward to increase the chart's height by approximately 1", so that it is less crowded-looking.
11. **SAVE** the presentation.

**PAUSE. LEAVE** the presentation open to use in the next exercise.

# Formatting a Chart

Once you have final data and have added the elements you want to include in the chart, you can make final adjustments to the size and position of the chart and its elements and apply final formatting. Use the tools on the Chart Tools Format tab to apply formats to any part of a chart, including the entire chart area, the data series markers, the legend, and the chart's labels and titles.

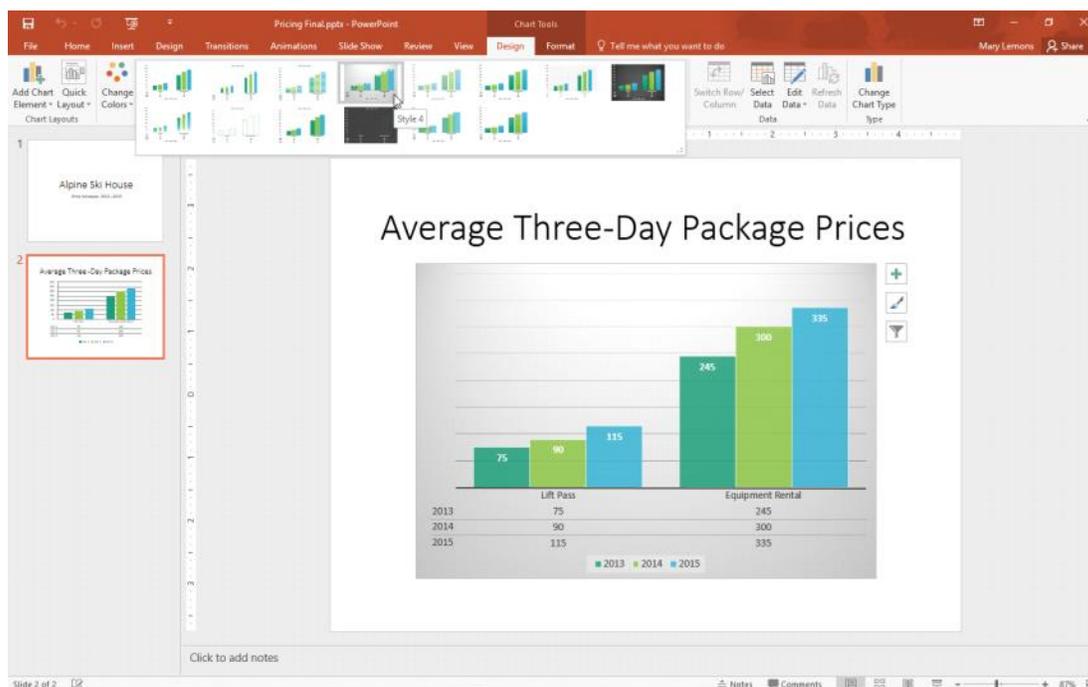
## Applying Chart Styles

Chart styles provide instant formatting to change the look of a chart. A style can change colors and borders of data markers, apply effects to the data markers, and apply color to the chart or plot area. You can use a style to format a chart if you do not have time to adjust formatting of chart elements such as data series or the individual data points in a series. In this exercise, you apply a style to a chart and then modify it.

### Step by step Apply and Modify a Chart Style

**GET READY. USE** the **Pricing Final** presentation that is still open from the previous exercise.

1. Go to slide 2 and click the chart to select it if it is not already selected.
2. On the Chart Tools Design tab, click the **More** button in the Chart Styles group. The Chart Styles gallery appears.
3. Click **Style 4**. This style applies a new theme color and a different chart background color (see Figure 6-11).



**Figure 6-11**

**The chart is more interesting with the new Chart Style applied**

**SAVE** the presentation and then **CLOSE** the file. **EXIT** PowerPoint.

# Knowledge Assessment

## Fill in the Blank

Fill in each blank with the term or phrase that best completes the statement.

1. On a bar chart, the bars that share a common color are a data \_\_\_\_\_.
2. If you want to change a column chart to a line chart, click the \_\_\_\_\_ button on the Chart Tools Design tab.
3. A(n) \_\_\_\_\_ is a visual depiction of numeric data.
4. A chart's \_\_\_\_\_ provides a key to the information plotted on the chart.
5. Hold the \_\_\_\_\_ key as you drag a chart's corner handle to resize it to maintain its aspect ratio.

## Multiple Choice

Circle the correct answer.

1. PowerPoint's charting feature includes a worksheet window that is similar to which other Office application?
  - a. Microsoft Word
  - b. Microsoft Excel
  - c. Microsoft Equation
  - d. Microsoft Chart
2. What is the default PowerPoint chart type?
  - a. column chart
  - b. bar chart
  - c. line chart
  - d. pie chart
3. How can you move a chart on a slide?
  - a. by dragging its border
  - b. by cutting from one location and pasting elsewhere on the slide
  - c. by dragging a sizing handle
  - d. by issuing the Move command
4. \_\_\_\_\_ enables you to quickly format a chart with different colors, effects, and background.
  - a. WordArt
  - b. A Chart Style
  - c. Master Themes
  - d. SmartArt
5. Text that identifies information about the values on an axis is called a(n) \_\_\_\_\_.
  - a. legend
  - b. chart title
  - c. plot title
  - d. axis label

# Projects

## Project 6-1: Creating a Line Chart

You are a member of the Center City Board of Elections. You have been asked to create a presentation to deliver to the Board showing how turnout has varied in the city over the past four presidential elections. In this project, you will create a line chart to display this data clearly.

**GET READY. LAUNCH** PowerPoint if it is not already running.

1. **OPEN** the **Turnout** presentation from the data files in this lesson and then **SAVE** it as **Turnout Final**.
2. Go to slide 2, click the **Insert Chart** icon in the content placeholder, and then click **Line**. Click **OK** to accept the default subtype.
3. Starting in cell A1, type the following data in the Excel worksheet:

Year	Turnout
2003	0.62
2007	0.74
2011	0.49
2015	0.40
4. Adjust the range border to include only the data you typed and then delete all extra data on the sheet.
5. Close the worksheet window.
6. Click **Layout 9** in the Quick Layout gallery.
7. Click **Style 9** in the Chart Styles gallery.
8. Click the legend to select it and then press **Delete**.
9. Click the **Add Chart Element** button, point to **Data Labels**, and then click **Above**.
10. Right-click one of the data labels and click **Format Data Labels**.
11. In the Format Data Labels pane, click the **Label Options** button.
12. Change the number category to **Percentage** with **0** decimal places.
13. **SAVE** the presentation and then **CLOSE** the file.

**EXIT** PowerPoint.