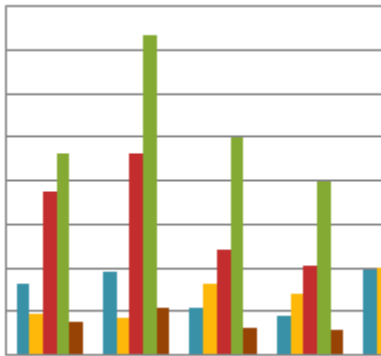## Lesson15-Charts
Introduction

A **chart** is a tool you can use in Excel to **communicate your data graphically**. Charts allow your audience to see the meaning **behind the numbers**, and they make showing **comparisons** and **trends** a lot easier. In this lesson, you will learn how to **insert** charts and **modify** them so that they communicate information effectively.

Excel workbooks can contain **a lot of data**, and that data can often be difficult to interpret. For example, where are the highest and lowest values? Are the numbers increasing or decreasing?

The answers to questions like these can become much clearer when the data is represented as a **chart**. Excel has many different types of charts, so you can choose one that most effectively represents the data.

Types of Charts
The chart or graph type will depend on the data for which you are going to plot the chart. The most commonly used types include Column Chart, Line Graphs, Pie Chart, Bar Graph, Area Chart, Scatter Graphs, Stock Chart, and Surface Chart, among many others. Lets discuss these chart types, and the situations in which a specific chart type is used.
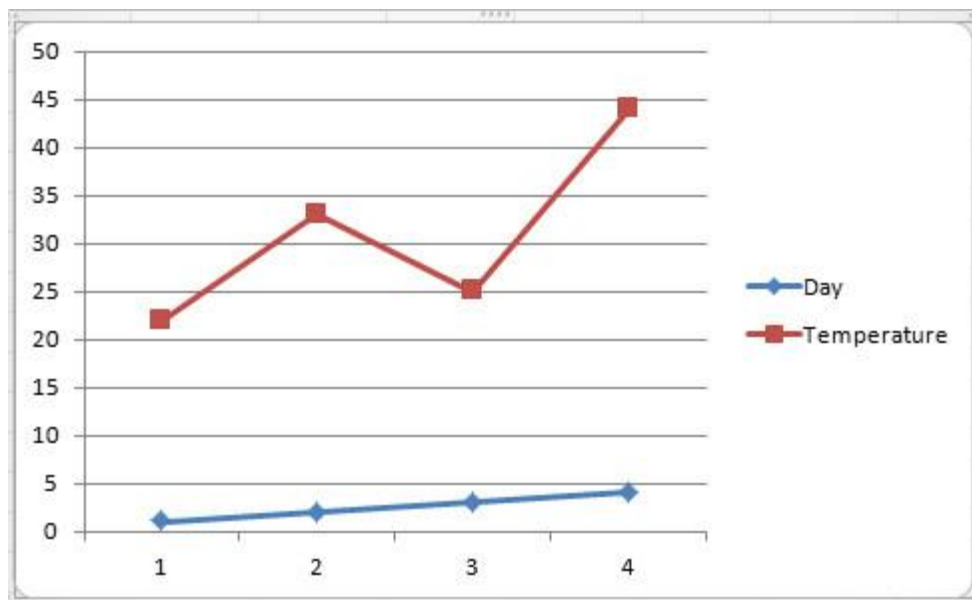
Column Chart

The Column chart is one of the most commonly used chart type and is used to show the changes in data over a period of time or illustrate comparisons among items.
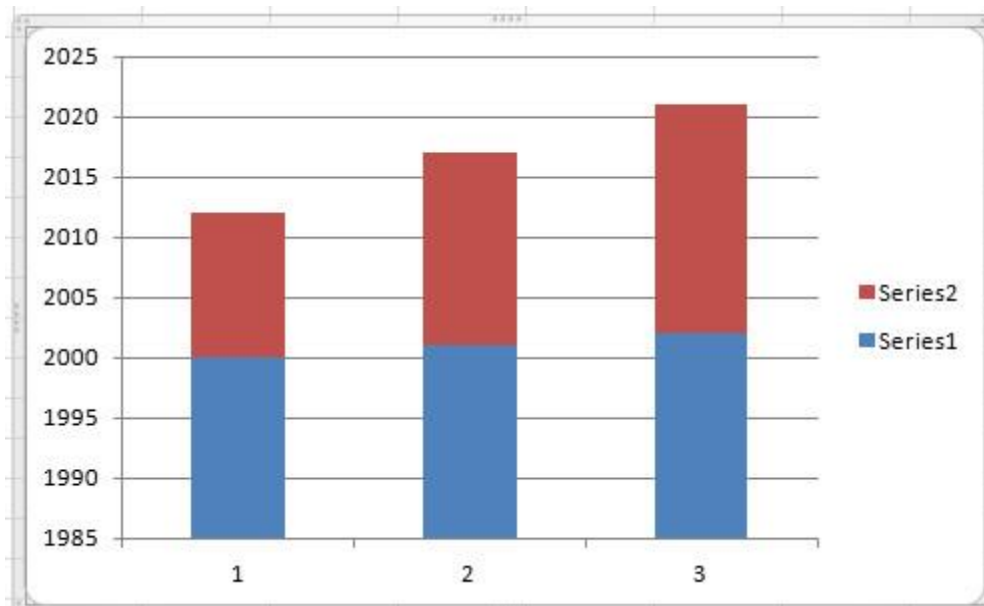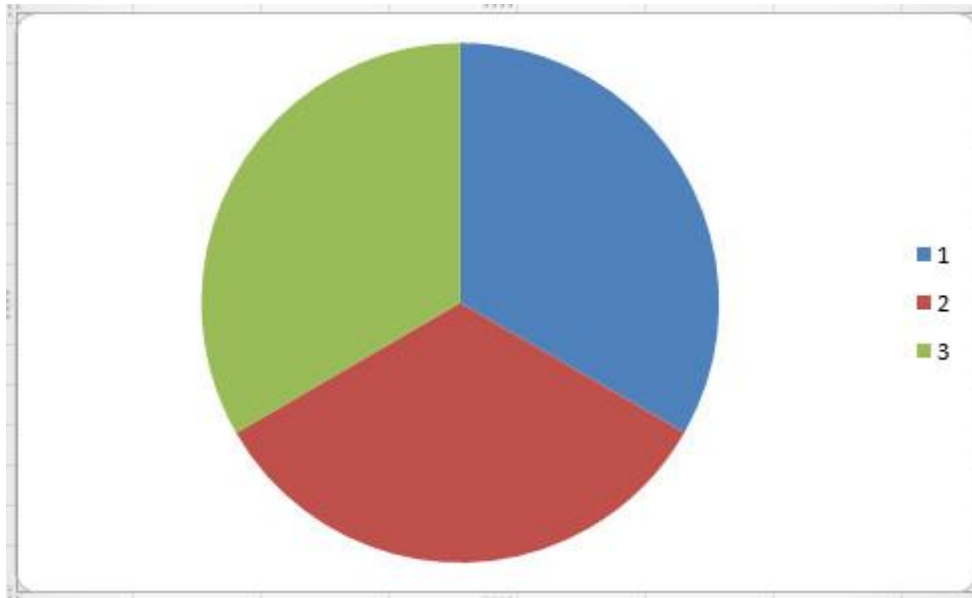

Line Graphs

Line Graphs are mainly used to plot changes in data over time. The best example of this chart type can be the weekly change in temperature.
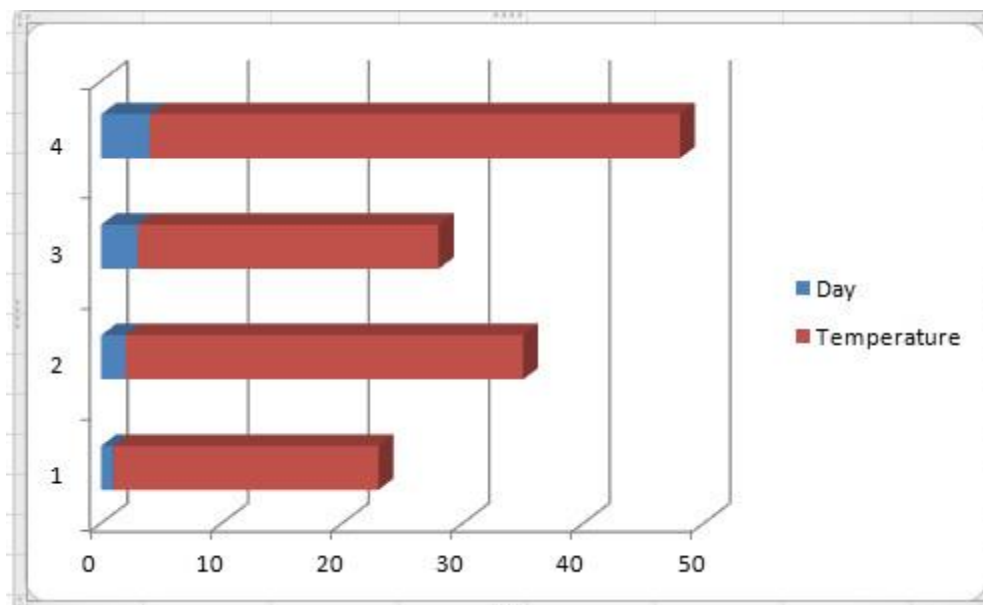
Pie Chart

The Pie Chart is very useful when you wish to emphasize on a significant element in the data. It represents data in the form of a pie.
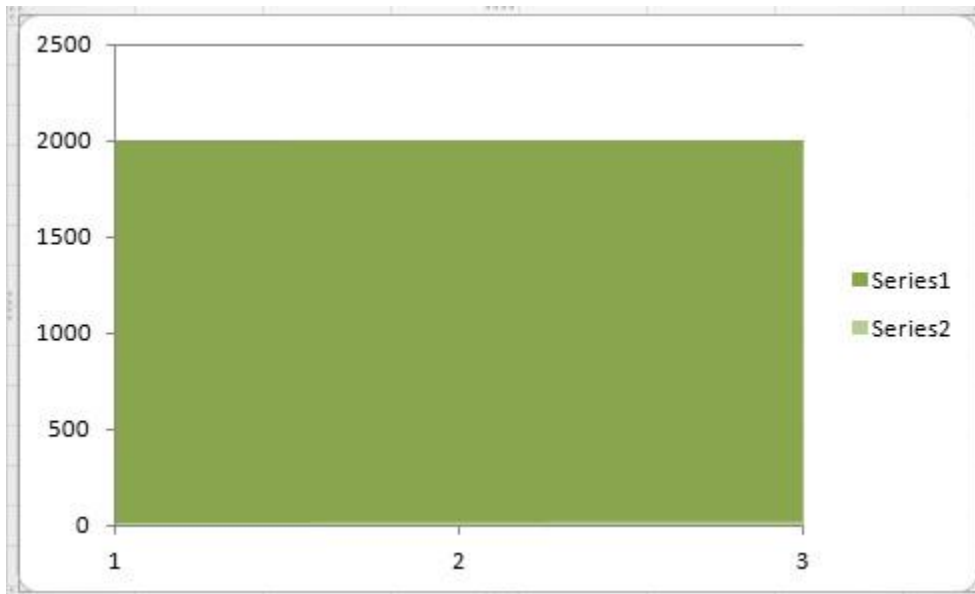

Bar Graph

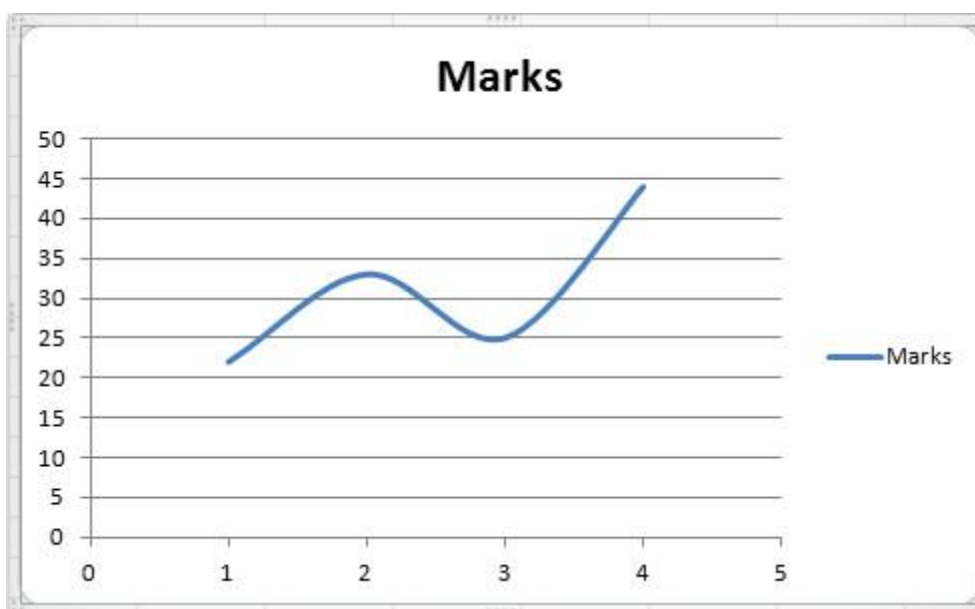A bar graph illustrates comparisons among individual items.

Area Chart

An area chart displays the magnitude of change over time.
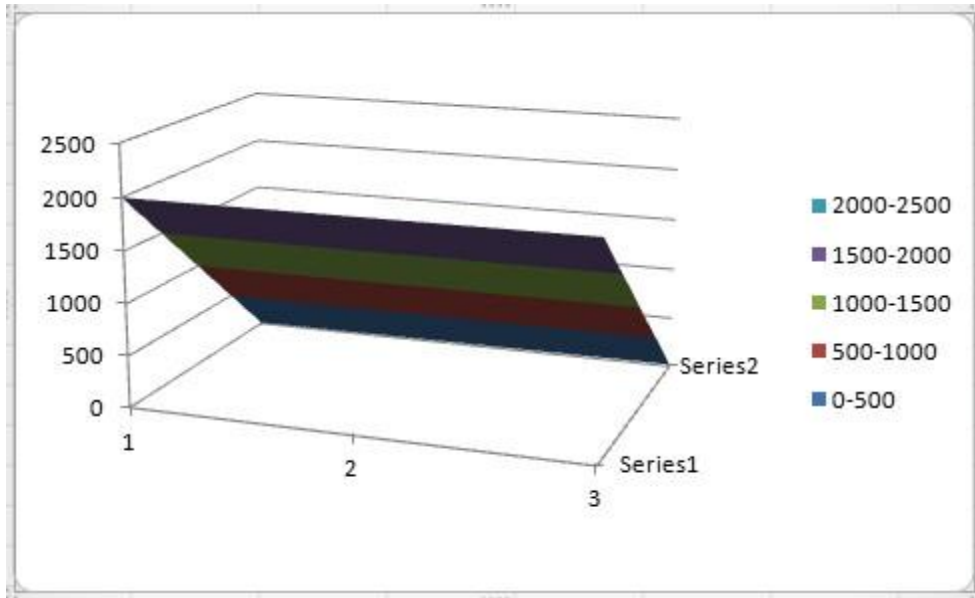

Scatter Graphs

The Scatter Graph and Line chart are almost similar, but the scatter graph is displayed with a scribble line whereas the line graph uses connected lines to display data.

Surface Charts

A surface chart comes in handy if you are to determine the optimum combination between two sets of data.
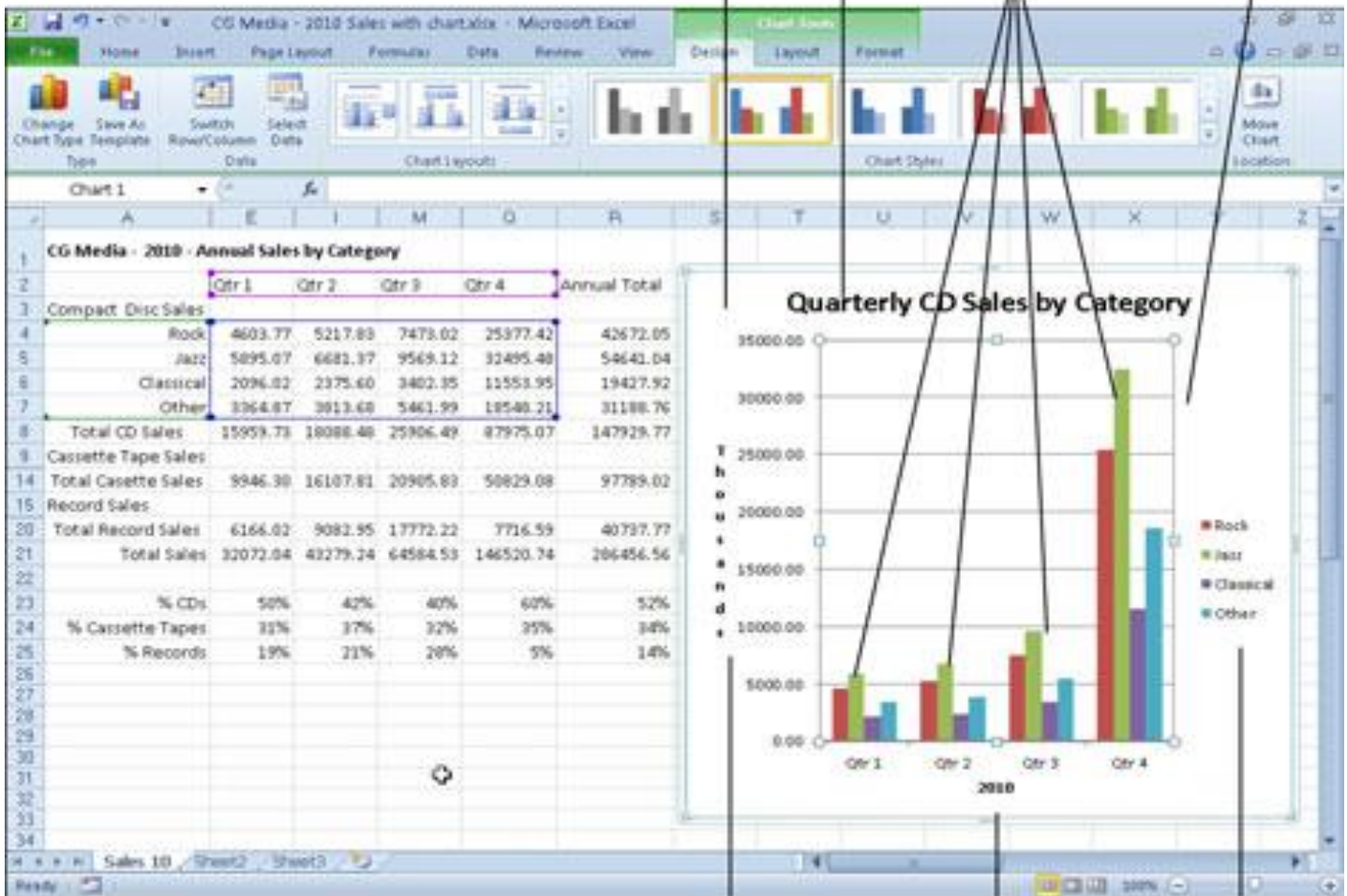

Parts of Charts

The typical chart (or graph) in Excel 2010 comprises several distinct parts, including the chart area, data series, axes, legend, plot area, gridlines, data markers, and more. The following list summarizes the parts of a typical Excel chart, some of which appear in the illustration.

A typical column chart containing a variety of standard chart elements.

Chart area: Everything inside the chart window, including all parts of the chart (labels, axes, data markers, tick marks, and other elements listed here).

Data marker: A symbol on the chart that represents a single value in the worksheet. A data marker (or data point) may be a bar in a bar chart, a pie in a pie chart, or a line on a line chart. Data markers with the same shape or pattern represent a single data series in the chart.

Data series: A group of related values, such as all the values in a single row in the chart. A chart can have just one data series (shown in a single bar or line), but it usually has several.

Axis: A line that serves as a major reference for plotting data in a chart. In two-dimensional charts there are two axes — the x-axis (horizontal/category) and the y-axis (vertical/value). In most two-dimensional charts (except bar charts), Excel plots categories (labels) along the x-axis and values (numbers) along the y-axis. Bar charts reverse the scheme, plotting values along the x-axis. Pie charts have no axes. Three-dimensional charts have an x-axis, a y-axis, and a z-axis. The x- and y-axes delineate the horizontal surface of the chart. The z-axis is the vertical axis, showing the depth of the third dimension in the chart.

Tick mark: A small line intersecting an axis. A tick mark indicates a category, scale, or chart data series. A tick mark can have a label attached.

Plot area: The area where Excel plots your data, including the axes and all markers that represent data points.

Gridlines: Optional lines extending from the tick marks across the plot area, thus making it easier to view the data values represented by the tick marks.

Chart text: A label or title that you add to the chart. Attached text is a title or label linked to an axis such as the Chart Title, Vertical Axis Title, and Horizontal Axis Title that you can't move independently of the chart. Unattached text is text that you add with the Text Box command button on the Insert tab of the Ribbon.

Legend: A key that identifies patterns, colors, or symbols associated with the markers of a chart data series. The legend shows the data series name corresponding to each data marker (such as the name of the blue columns in a column chart).

To Create a Chart:

1. Select the **cells** that you want to chart, including the **column titles** and the **row labels**. These cells will be the**source data** for the chart.

	A	B	C	D	E	F
1	Genre ▼	2006 ▼	2007 ▼	2008 ▼	2009 ▼	2010 ▼
2	Young Adult	$35,358.00	$42,685.00	$20,893.00	$16,065.00	$21,388.00
3	Classics	$18,580.00	$49,225.00	$16,326.00	$10,017.00	$26,134.00
4	Mystery	$78,970.00	$82,262.00	$48,640.00	$49,985.00	$73,428.00
5	Romance	$94,236.00	$131,390.00	$79,022.00	$71,009.00	$81,474.00
6	Sci-Fi & Fantasy	$16,730.00	$19,730.00	$12,109.00	$11,355.00	$17,686.00
7						

Selecting cells

2. Click the **Insert** tab.
3. In the **Charts** group, select the desired **chart category** (Column, for example).

Insert	Page Layout	Formulas	Data	Review	View	Design

Picture Clip Art Shapes ▾ SmartArt Screenshot ▾

Illustrations

Column Line Pie Bar Area Scatter Other Charts ▾

Charts

fx Genre

	B	C				G

Column

Insert a column chart.

Column charts are used to compare values across categories.
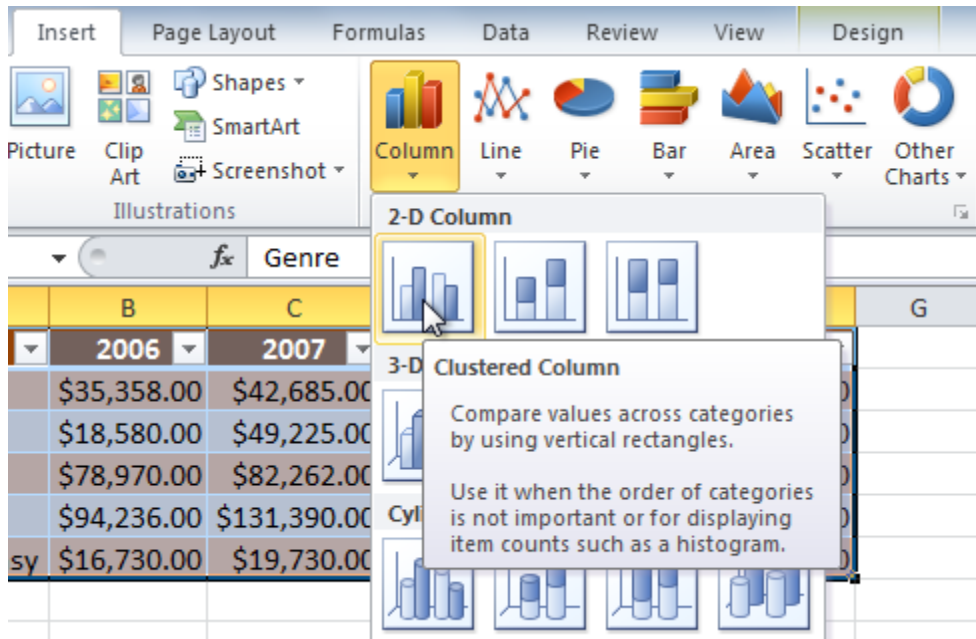
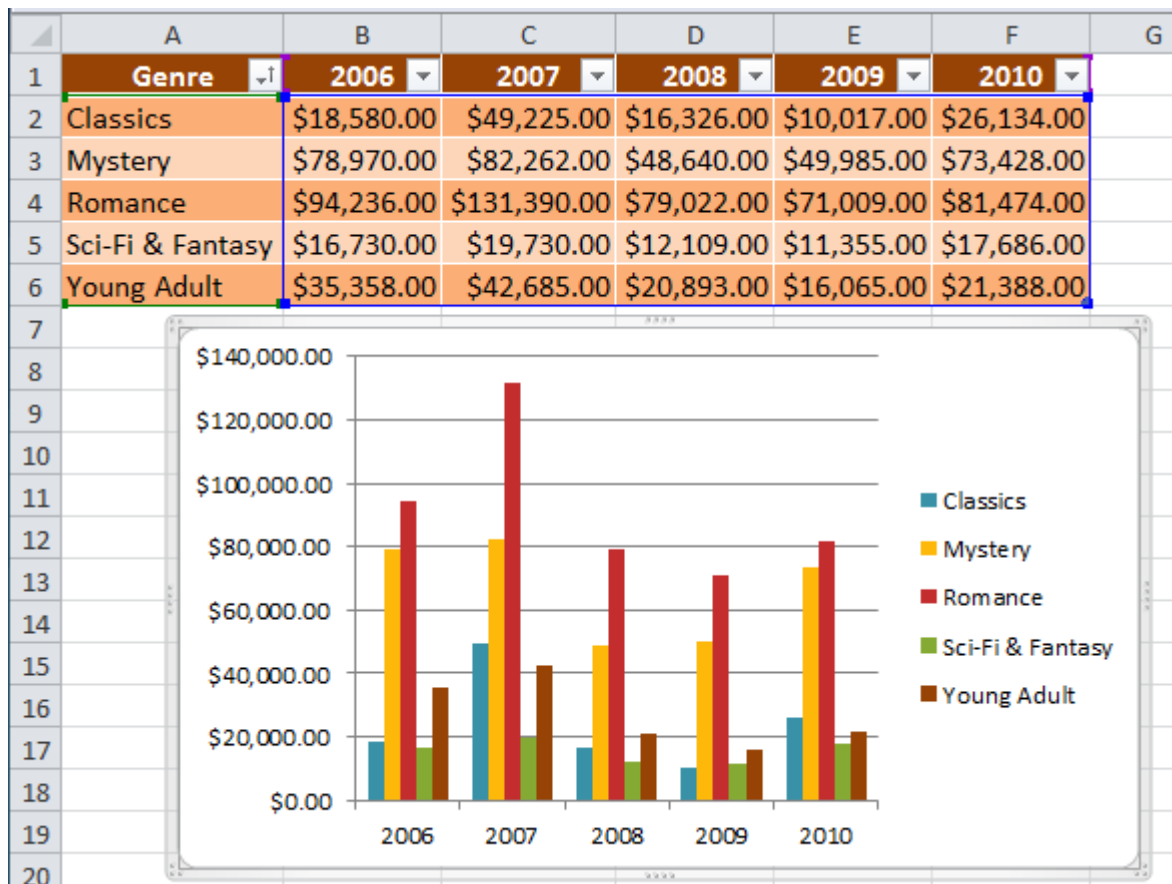| | 2006 ▼ | 2007 ▼ | | 0 ▼ | | |
| | $35,358.00 | $42,685.00 | | 8.00 | | |

Selecting the Column category

4. Select the desired **chart type** from the drop-down menu (Clustered Column, for example).

Selecting a chart type

## 5. The chart will appear in the worksheet.

The new chart

Chart Tools

Once you insert a chart, a set of **Chart Tools**, arranged into three tabs, will appear on the Ribbon. These are only visible when the chart is selected. You can use these three tabs to **modify** your chart.
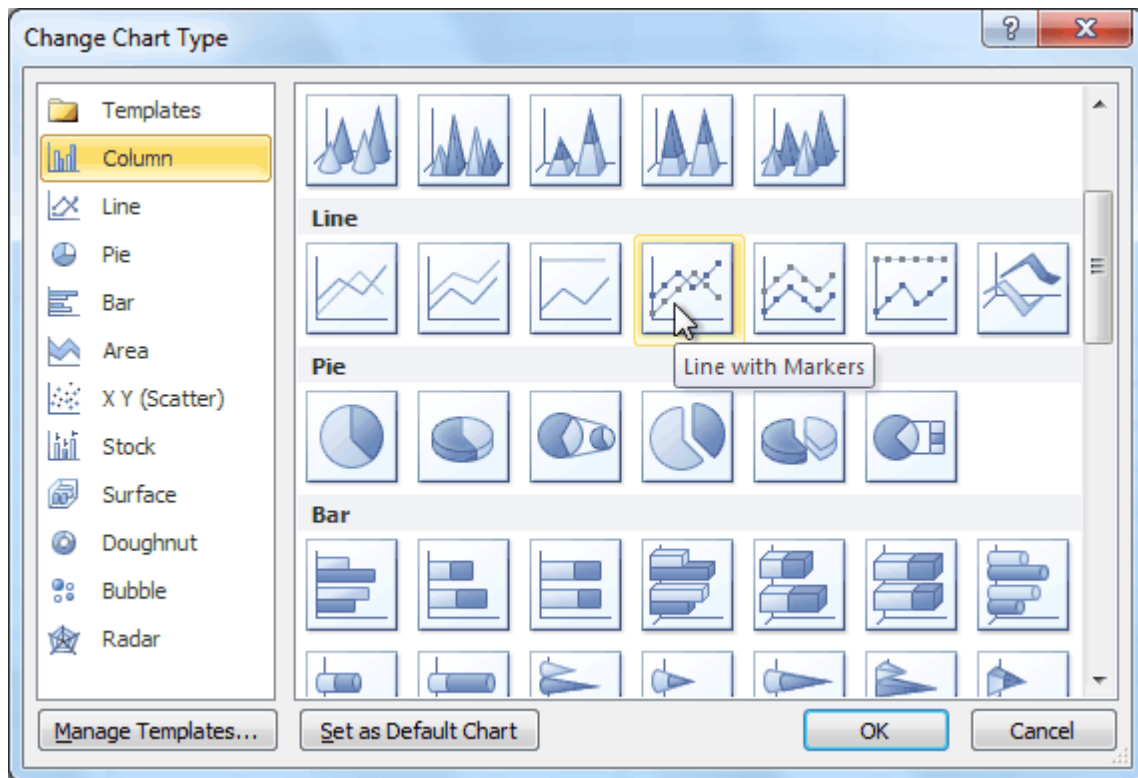
 The Design, Layout and Format tabs

To Change the Chart Type:

1. From the **Design** tab, click the **Change Chart Type** command. A dialog box appears.
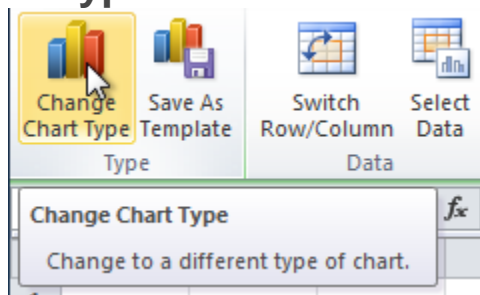
 The Change Chart Type command

2. Select the desired **chart type** and click **OK**.

Selecting a chart type

To Switch Row and Column Data:

Sometimes when you create a chart, the data may not be grouped the way you want it to be. In the **clustered column chart** below, the Book Sales statistics are grouped **by Fiction/Non-**Fiction, with a column for each year. However, you can also **switch the row and column data** so that the chart will group the statistics **by year**, with columns for Fiction and Non-Fiction. In both cases, the chart contains the **same data**; it's just organized differently.

Book Sales, grouped by Fiction/Non-Fiction
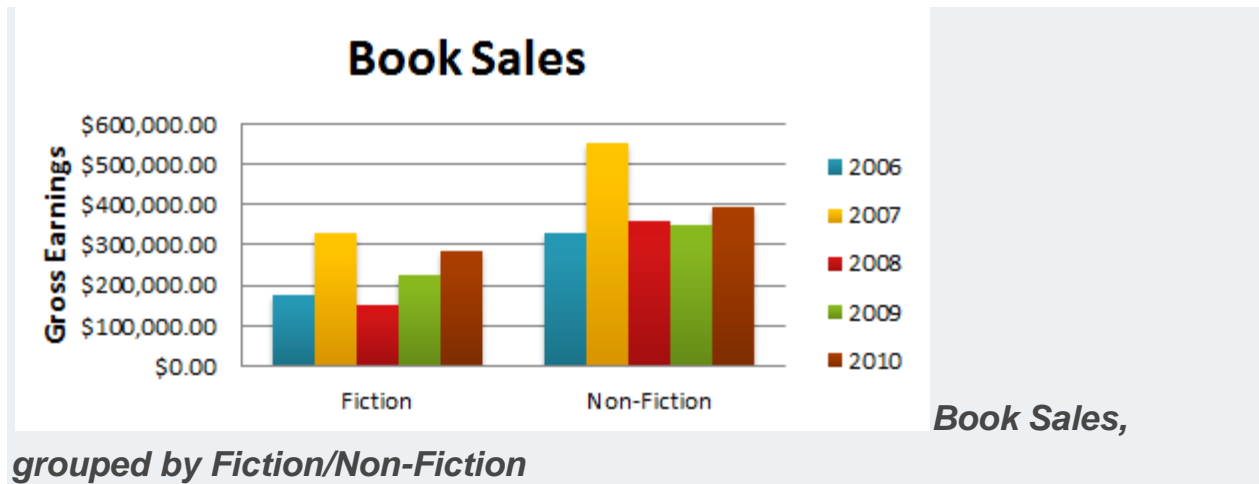
1. Select the **chart**.
2. From the **Design** tab, select the **Switch Row/Column** command.
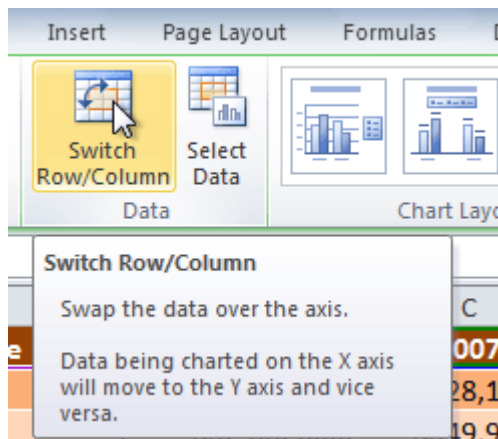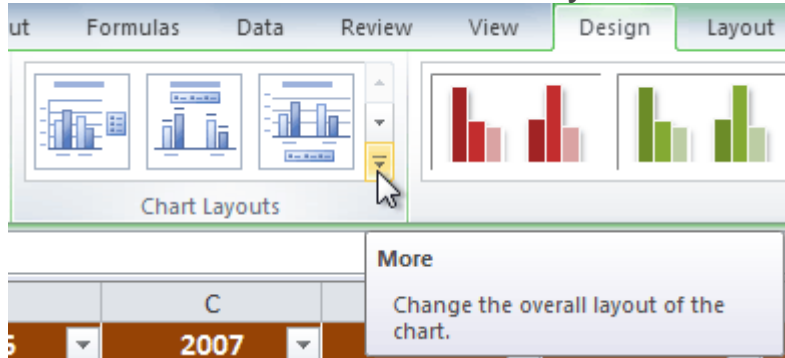

The Switch Row/Column command

3. The chart will then readjust.

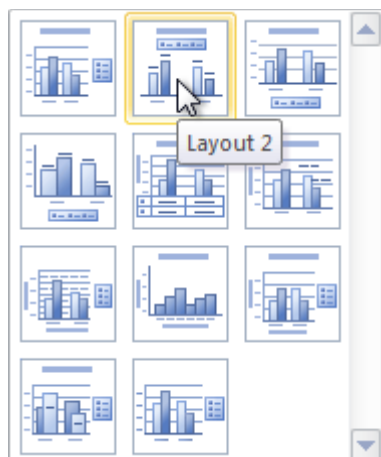

Book sales, grouped by year
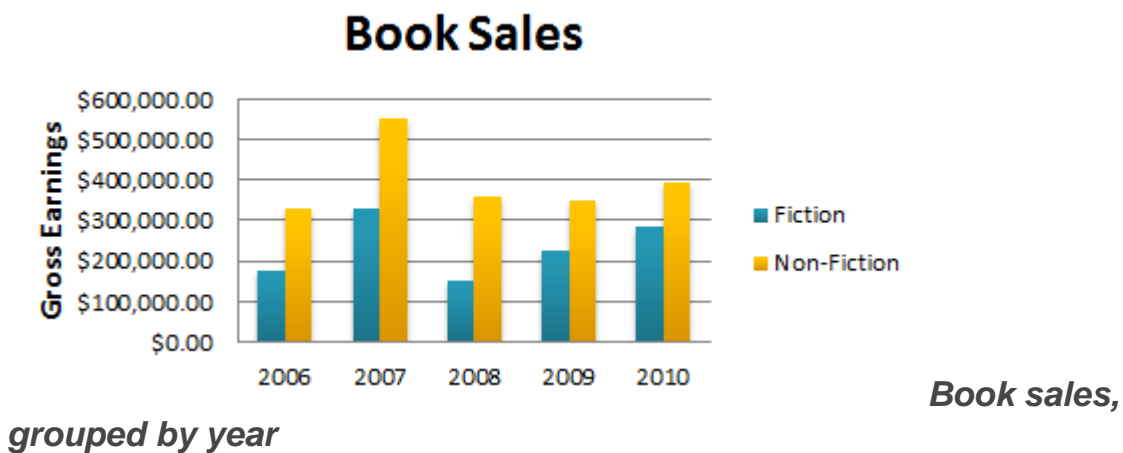
To Change the Chart Layout:

1. Select the **Design** tab.
2. Click the **More** drop-down arrow in the **Chart Layouts** group to see all of the available layouts.
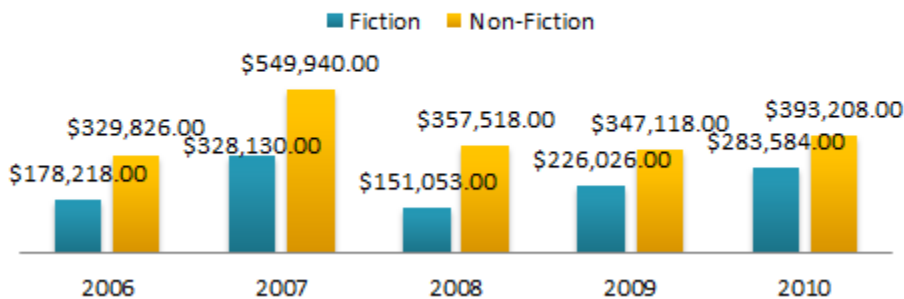
 Viewing all of the chart layouts

3. Select the desired layout.

 Selecting a chart layout

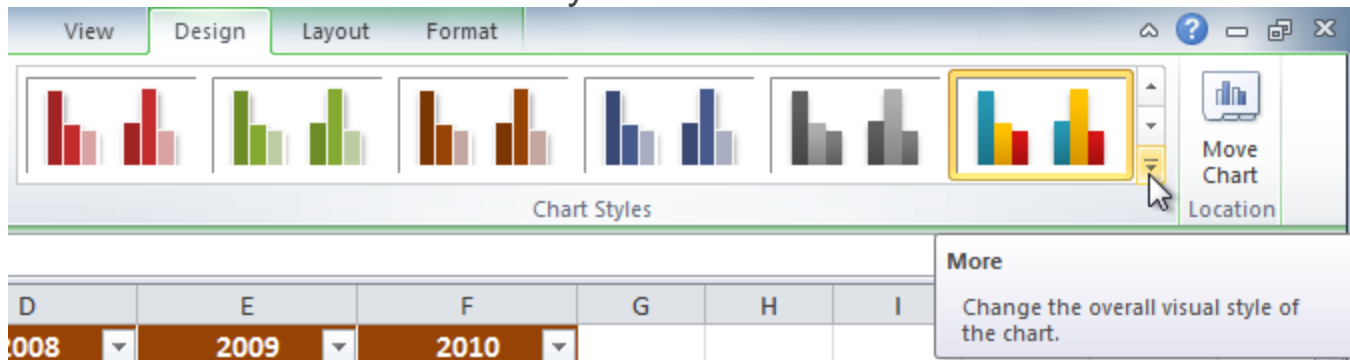4. The chart will update to reflect the new layout.

The updated layout

Some layouts include **chart titles**, **axes**, or **legend labels**. To change them, just place the **insertion point** in the text and begin typing.
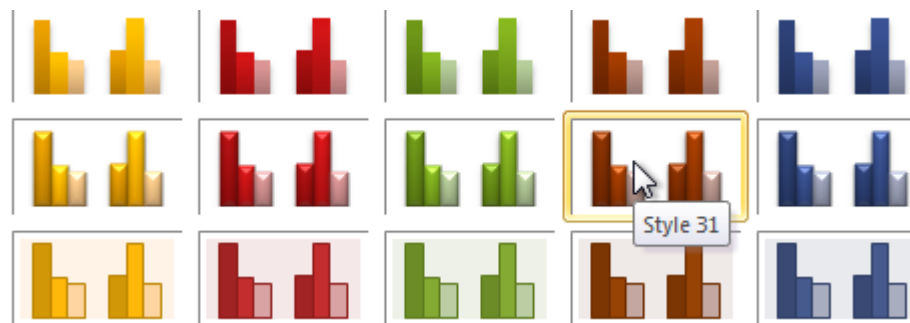
To Change the Chart Style:

1. Select the **Design** tab.
2. Click the **More** drop-down arrow in the **Chart Styles** group to see all of the available styles.

Viewing all of the Chart Styles
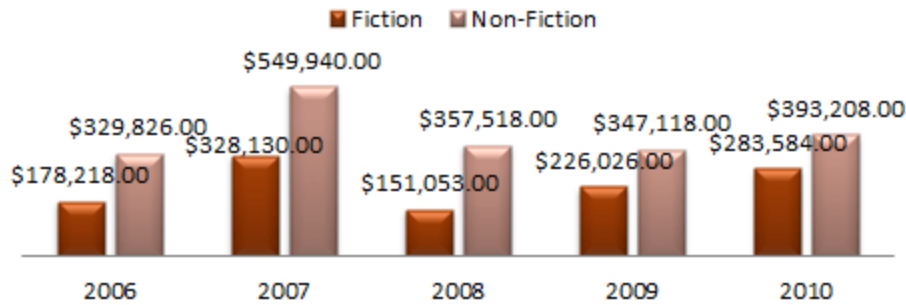
3. Select the desired style.

Selecting a chart style

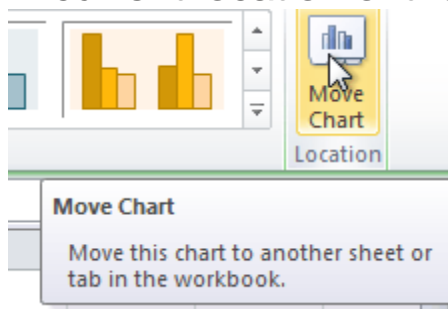4. The chart will update to reflect the new style.
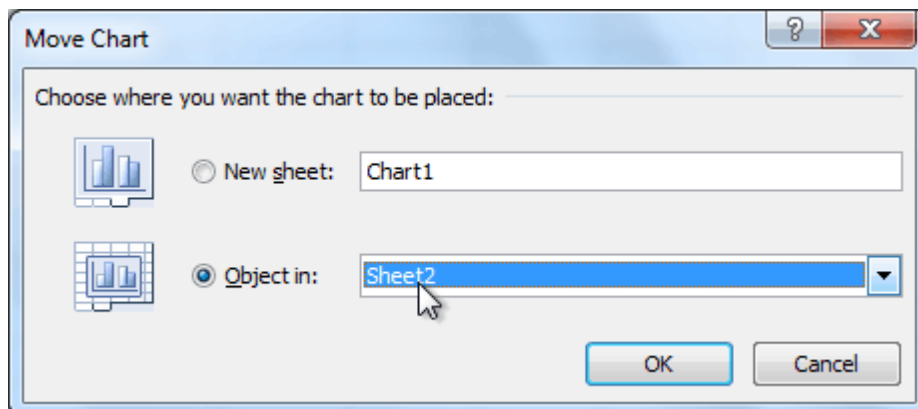
The updated chart

To Move the Chart to a Different Worksheet:

1. Select the **Design** tab.
2. Click the **Move Chart** command. A dialog box appears. The current location of the chart is selected.

The Move Chart command

3. Select the desired location for the chart (i.e., choose an existing worksheet, or select New Sheet and name it).

Selecting a different worksheet for the chart

4. Click **OK**. The chart will appear in the new location.

Challenge!

1. Open an **existing Excel workbook**. If you want, you can use this lesson15 file.
2. Use worksheet data to create a **chart**.
3. Change the **chart layout**.
4. Apply a **chart style**.
5. Move the chart to a **different worksheet**.