# Creating Charts in Excel 2007

Charts make data visual. With a chart you can transform spreadsheet data to show comparisons, patterns, and trends. The new charting capabilities in Excel 2007 make it much easier to turn data into meaningful information.

The following free, internet-based tutorial resources are available to you:

- Create Charts in Excel 2007
- (YouTube) http://www.youtube.com/watch?v=Iv5m00YS_4I&feature=fvwrel

## A simple Bar Chart without using Chart Tools
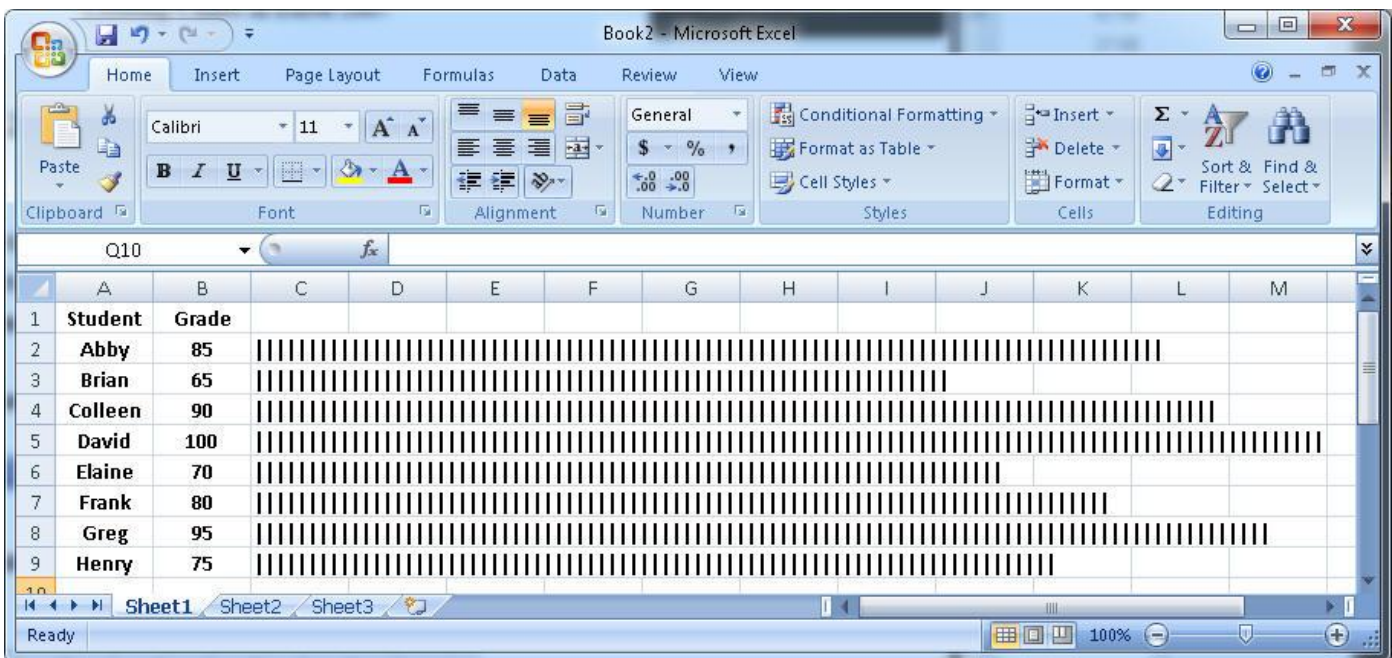
Often we are working with a large number of data and cannot easily make sense of it. Seeing it visually may help.

We can create charts from such data using the Chart Tools, of course. But it is sometimes good enough and more convenient to see a simple bar chart inside a spreadsheet. For example, I want to see the student grades "in-line" like in the picture above. I can simply using the **REPT** (REPEAT) function in Excel!

   =REPT(text_string, number_of_times)

repeats the given text string a given number of times. Use **REPT**() to fill a cell with a number of instances of a text sting.
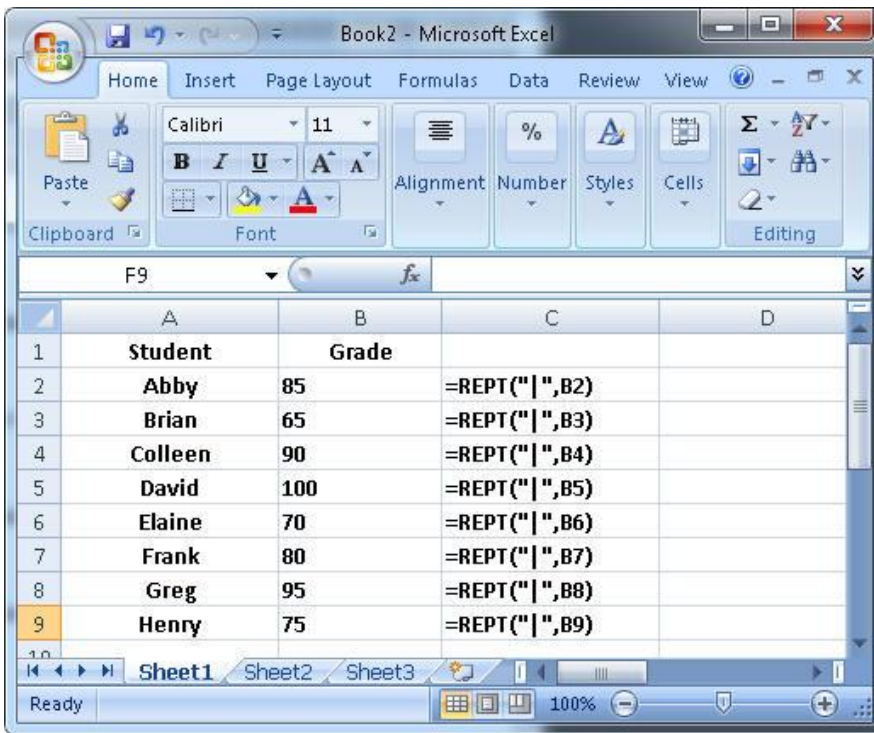
About Charting in Excel 2007

Charts start with data. In Excel 2007, you just select data in your worksheet, choose a chart type that best suits your purpose, and click. That's it!

You can also use the new Chart Tools to customize the design, layout, and formatting of your chart. Just like the preview capability you saw in Word 2007 and PowerPoint 2007, you can see how various options would look just by pointing at them in the dialog box, even before you make a choice.

4 Clicks to create a simple chart in Excel 2007

Can you believe you only need to do 4 clicks and you will get a simple chart?

Let's try this! Let's say we want to see graphically the sales of beverages in our café in the first 3 months of the year.

1. **Select the cells containing the sales data, including cells with text (e.g. column and row headings for the data.) In this example, the cells are A1:D4. (Yes; we also include the blank cell, A1.)**
2. **Select Insert tab.**
3. **Select Column icon from Charts group.**
4. **Select Clustered Column chart from 2-D Column type.**

Viola! You have your chart!

The above chart shows the sales of the 3 different beverages grouped together for each month.

What if we want to see what happened in the sales of each beverage month over month? That is very simple too! Select the chart, Chart Tools -> Design -> Data -> Switch Row/Column. There!
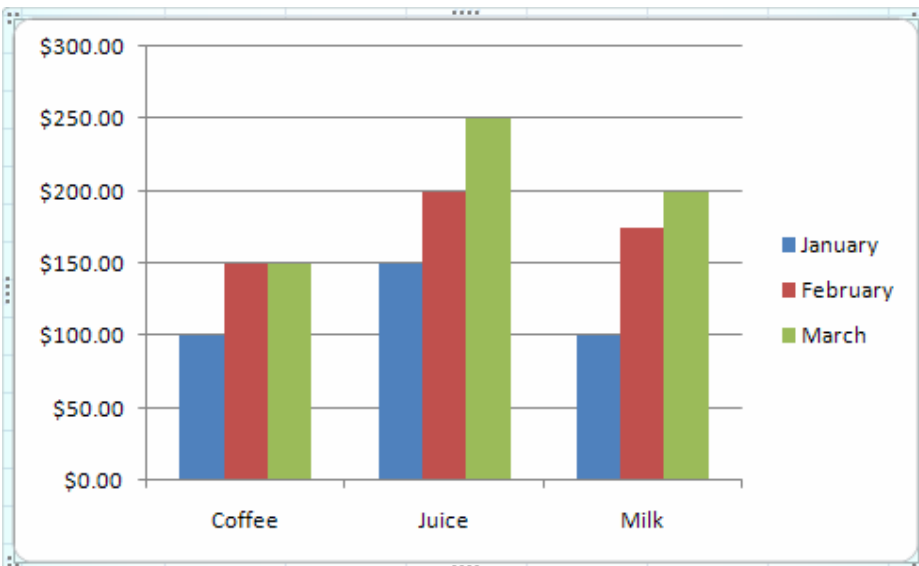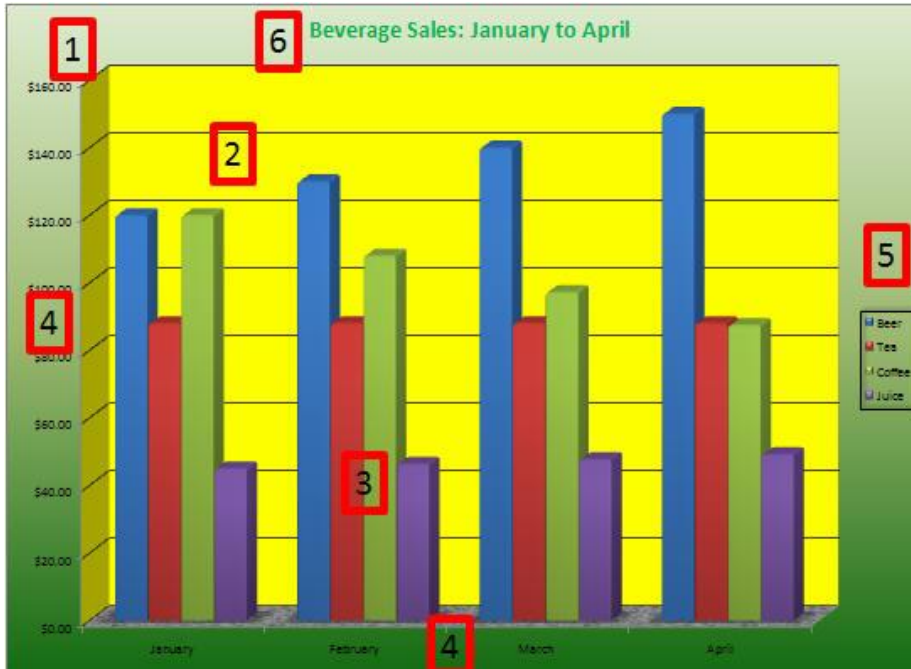
Chart Elements

A chart has many elements. Some of these elements are displayed by default, others can be added as needed. You can change the display of the chart elements by moving them to other locations in the chart, resizing them, or by changing the format. You can also remove chart elements that you do not want to display.

Here are some standard chart **elements**.

1. The **chart area** encompasses the entire chart and all its elements.
2. The **plot area** is that area bounded by the axes, including all data series, category names, axis titles, and all markers that represent data points.
3. The **data points** are the individual values plotted in a chart and represented by bars, columns, lines, pie or doughnut slices, dots, and various other shapes called **data markers**. Data markers of the same color constitute a **data series** (i.e. related data points. You can plot one or more data series in a chart, but **pie charts** have only one data series.
4. The **horizontal** (category) or **vertical** (value) **axis** is a line bordering the chart plot area used as a frame of reference for measurement. The y-axis is usually the vertical axis and contains data. The x-axis is usually the horizontal axis and contains categories.
5. A **legend** is a box that identifies the patterns or colors that are assigned to the data series or categories in a chart.
6. A **chart title** is the descriptive text for a chart. Note that horizontal and vertical axes usually have titles too.

Creating charts in Excel

To create a chart in Excel, you start by entering/selecting the data for the chart. The data can be arranged in rows or columns — Excel automatically determines the best way to plot the data in the chart. Some chart types (*e.g. pie charts) require a specific data arrangement as described in the following table.*

For this chart type	Arrange the data		
Column, bar, or	In rows or columns. For example:		
	Coffee	$100	$150
	Juice	$150	$200
	or		
	Coffee	Juice	
	$100	$150	
	$150	$200	
Pie Chart	For one data series, in one column/row of data and one		
	Coffee	$400	
	Juice	$600	
	Milk	$475	
	or		
	Coffee	Juice	Milk
	$400	$600	$475

Modifying charts

After you create a chart, you can modify it. For example, you may want to change the way that axes are displayed, add a chart title, move or hide the legend, or display additional chart elements.

To modify an element in the chart, you can right-click on it and choose the appropriate (format) option. Or, you can use the appropriate tabs, groups and options under Chart Tools.

Add titles to a chart: Chart Tools -> Layout -> Labels -> Chart Title

Add axis titles to a chart: Chart Tools -> Layout -> Labels -> Axis Title

Add legend to a chart: Chart Tools -> Layout -> Labels -> Legend

Add data labels to a chart: Chart Tools -> Layout -> Labels -> Data Labels

Add data table to a chart: Chart Tools -> Layout -> Labels -> Data Table

To change formatting and layout of each axes: Chart Tools -> Layout -> Axes ->Axes

To turn gridlines on or off: Chart Tools -> Layout -> Axes -> Gridlines

To format the plot area: Chart Tools -> Background -> Plot Area

To format the chart wall (for 3-D charts): Chart Tools -> Background -> Chart Wall

To format the chart floor (for 3-D charts): Chart Tools -> Background -> Chart Floor

To change 3D viewpoint of a chart: Chart Tools -> Background -> 3-D Rotation

To move chart to a different sheet: Chart Tools -> Design -> Location -> Move Chart

Adding eye-catching formatting to charts

In addition to applying a predefined chart style, and formatting to individual chart elements, you can apply specific shape styles and WordArt styles and format the shapes and text of chart elements manually. For example:

Fill chart elements Use colors, textures, pictures, and gradient fills to help draw attention to specific chart elements.

Change the outline of chart elements Use colors, line styles, and line weights to emphasize chart elements.

Add special effects to chart elements Apply special effects, such as shadow, reflection, glow, soft edges, bevel, and 3-D rotation to chart element shapes, which gives a chart a finished look.

Format text and numbers Format text and numbers in titles, labels, and text boxes on a chart as you would text and numbers on a worksheet. To make text and numbers stand out, you can also apply WordArt styles.

For more information about how to format chart elements, see Format chart elements.

One Chart with 2 Chart Types

Sometimes, it is more meaningful to show 2 types within the same chart.

Using the example below, you may want to show sales of each beverage item as a column chart in each month, but the average of all beverages in each month as a line.

Now let's use the same data of beverages sales in the first quarter, and create a chart like the following! (Hint: Change the Chart Type for "columns" representing "Avg" to Line Chart.)

1. **Select the cell range A1:D5. (Yes; we also include the blank cell, A1.)**
2. **Select Insert tab.**
3. **Select Column icon from Charts group.**
4. **Select Clustered Column chart from 2-D Column type.**
5. **Select Chart Tools -> Design -> Data -> Switch Row/Colum**
6. **Click the purple column (representing Avg values), right-click and select Change Series Chart Type… and then Line with Markers**
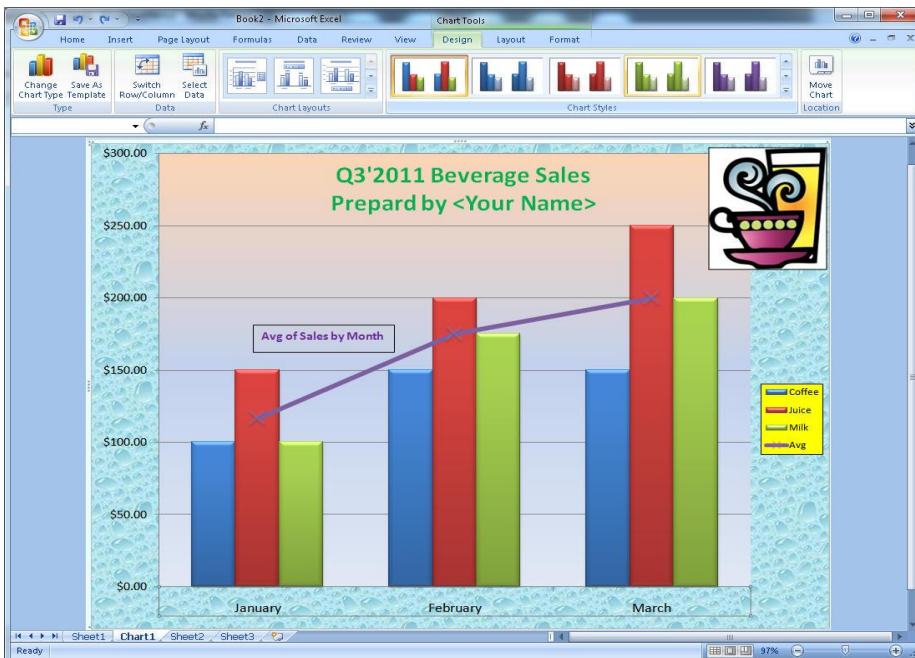
NOTE: some chart types are not compatible and cannot be used in the same chart. For example, you cannot use 3D column chart and line (2D) chart together.

How Charts change when data is changed

Charts are not necessarily static. A chart can change if the data used to draw it is changed.
Again using the above example, let's say you want to draw a pie chart to show the percentage of

coffee, juice and milk sales in any month. The chart looks different depending on which month it is.

Let's set up some formulas to get the data for the chart.

1. **In cell B9, use Data Validation to select either January, February, or March.**
   - **Data -> Data Tools -> Data Validation -> Allow: List; Source: January, February, March**
2. **In cell B10, B11, and B12, write the formulas as shown above.**

Now we can draw a 3D-Part chart:

1. **Select the cell range A9:B12.**
2. **Select Insert tab.**
3. **Select Pie icon from Charts group.**
4. **Select Pie in 3-D type.**
5. **Change the value in B9 by selecting January, then February, then March.**
   How is the pie chart changing?

We can also draw a Doughnut chart:

1. **Select the cell range A1:C4.**
2. **Select Insert tab.**
3. **Select Doughnut icon from Charts group.**
4. **Change any value in Cells B2:C4. *How is the Doughnut chart changing?***
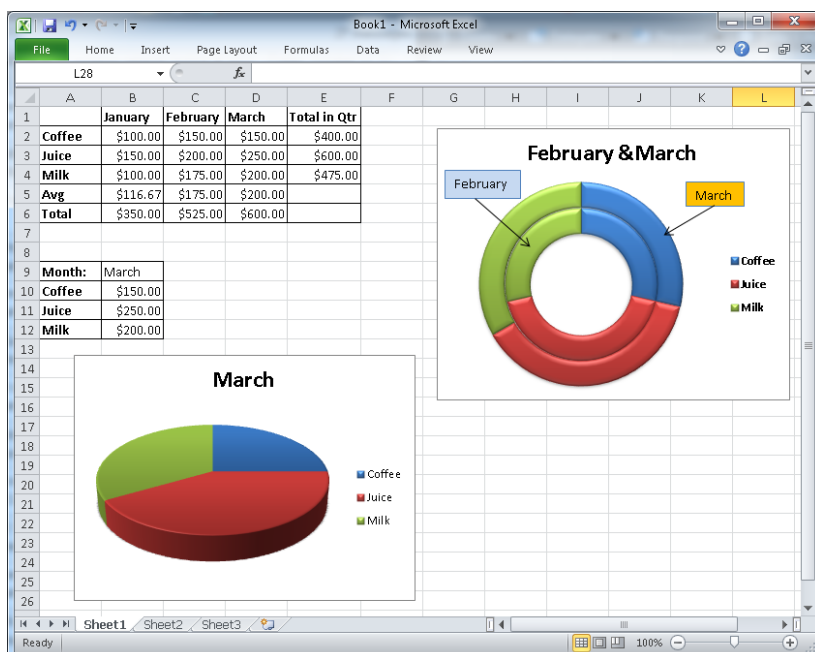
Reusing charts by creating chart templates

If you want to reuse a chart that you customized, you can save that chart as a chart template (*.crtx) in the chart templates folder as follows:

1. Click the chart that you want to save as a template.
2. **Design->Type ->Save As Template**

3. In the **Save** in box, make sure that the **Charts** folder is selected.
4. In the **File name** box, give a name for your chart template.

Now when you want to apply this chart template:

1. On a worksheet, select the data that you want to plot in the chart.
2. **Insert -> Charts**, click any chart type, and then click **All Chart Types**.
3. In the Insert **Chart** dialog box, click **Templates** in the first box, and then click the name of your desired template in the second box under **My Templates**.

See [Reuse a favorite chart by using a chart template](#) for more details.

Trouble-shooting Look-and-feel of a chart – Chart columns are very skinny!

This usually happens when the Horizontal, or X-axis contains dates, and the data are not for every day of the period plotted in the chart.

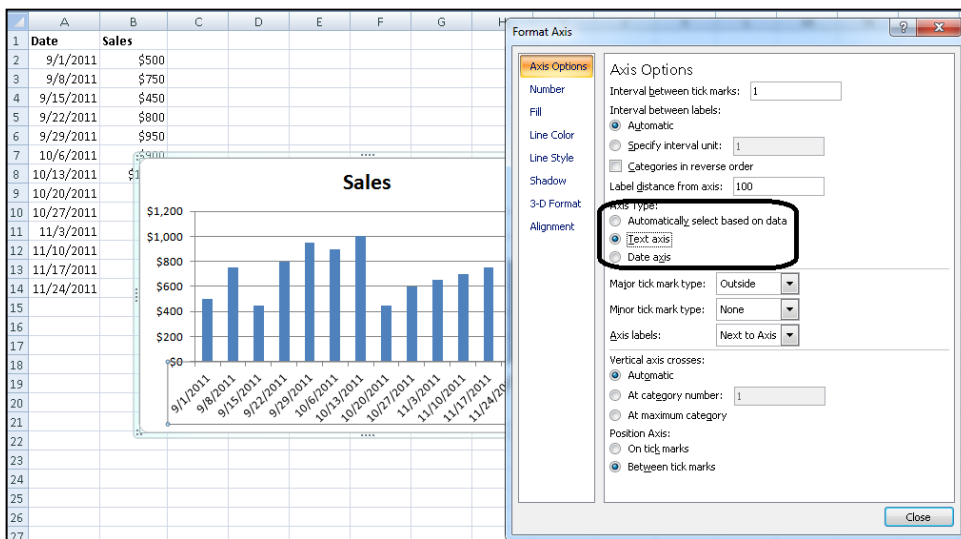|	A	B	C	D	E	F	G	H	I	J
1	Date	Sales								
2	9/1/2011	$500								
3	9/8/2011	$750								
4	9/15/2011	$450								
5	9/22/2011	$800								
6	9/29/2011	$950								
7	10/6/2011	$900								
8	10/13/2011	$1								
9	10/20/2011									
10	10/27/2011									
11	11/3/2011									
12	11/10/2011									
13	11/17/2011									
14	11/24/2011									
15										
16										
17										
18										
19										
20										
21										
22										

Sales

(Chart with X-axis labels: 9/1/2011, 10/1/2011, 11/1/2011; Y-axis: $0, $200, $400, $600, $800, $1,000, $1,200; legend: Sales)
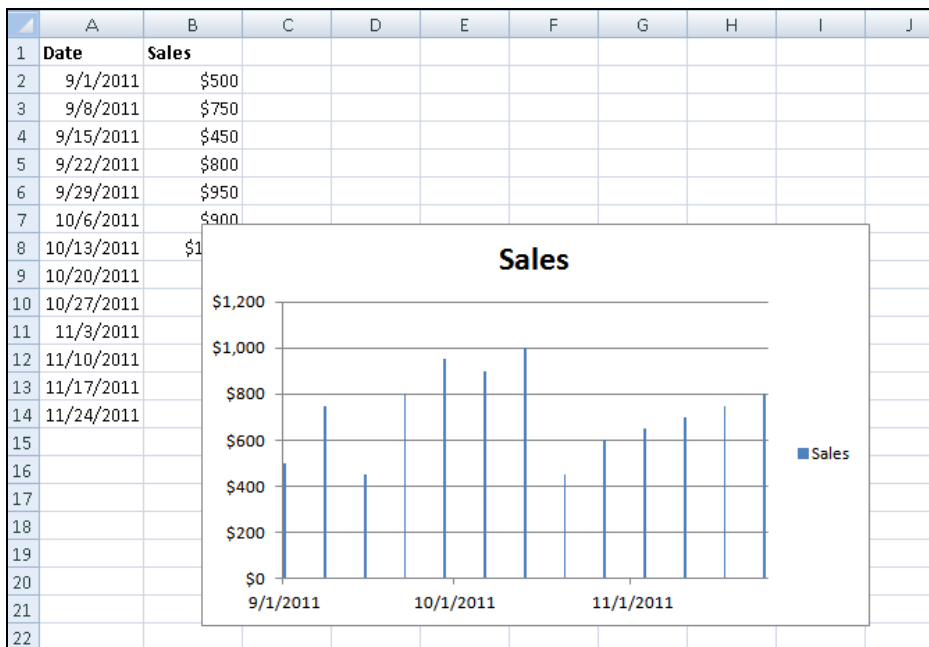
The **solution** is to click (to select) the X-axis, then right click and choose Format Axis. From the Axis Options panel, select Text Axis. This turns the skinny columns into thicker ones.

Format Axis

Axis Options

Axis Options
Interval between tick marks: 1
Interval between labels:
 ◉ Automatic
 ○ Specify interval unit: 1
 ☐ Categories in reverse order
Label distance from axis: 100
Axis Type:
 ○ Automatically select based on data
 ◉ Text axis
 ○ Date axis
Major tick mark type: Outside
Minor tick mark type: None
Axis labels: Next to Axis
Vertical axis crosses:
 ◉ Automatic
 ○ At category number: 1
 ○ At maximum category
Position Axis:
 ○ On tick marks
 ◉ Between tick marks

Number
Fill
Line Color
Line Style
Shadow
3-D Format
Alignment

Close

(Similar treatment can be applied to Bar Chart and its Vertical, or Y-axis.)