

Creating Excel Charts that Tell a Story

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Effective charts tell the story that you want your audience to hear and remember. Badly designed charts, on the other hand, can confuse and in the worst cases, even mislead. In this session, you'll learn to create charts in Excel that tell the story you want to tell. You'll learn which type of chart to use to convey your message, how to use Excel's charting tools to create the right chart, and how to modify charts so they express your message precisely and accurately.

Creating a Chart

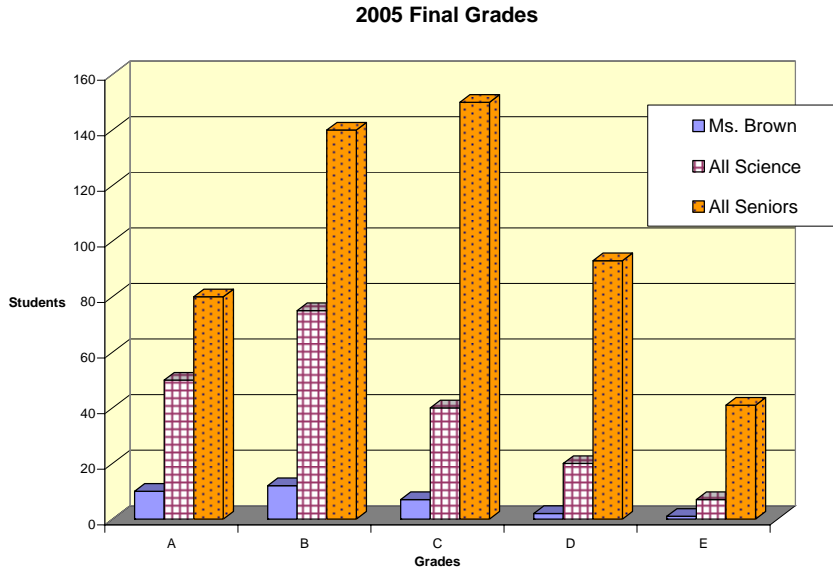
The easiest way to create a chart is by using the Chart Wizard. The wizard provides easy access to all the chart options you might need whether you are just starting out or an experienced pro. Here's an overview of the steps for creating an Excel chart with the Chart Wizard:

1. Select the ranges you want to include in the chart.
2. Click the Chart Wizard button on the Standard toolbar.
3. In the first wizard step, select a chart type and subtype (see table below), then click Next.
4. In the second step, verify that you have selected the correct range and choose to have the series represented by rows or by columns. Click Next.
5. In the third step, set options for the chart, including titles, data labels, and legend placement. Click Next.
6. In the fourth step, select a location for the chart: as a chart object on a worksheet, or in a separate sheet. Click Finish.

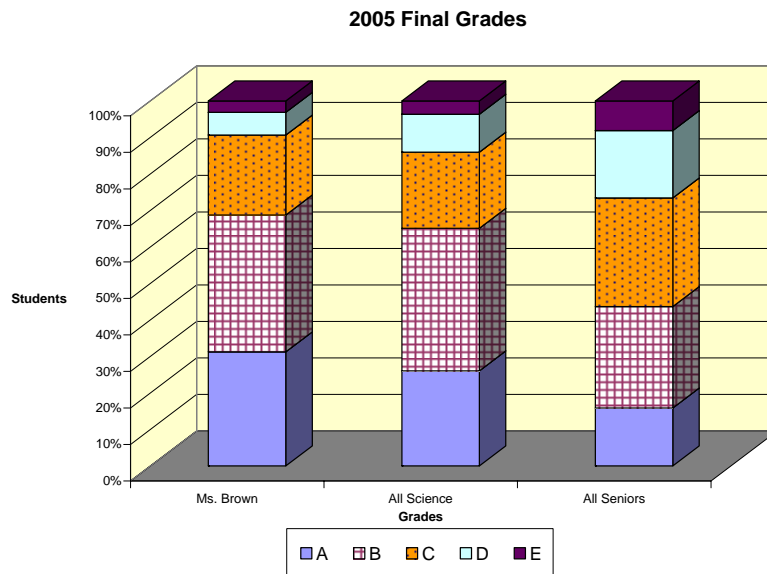
Chart Type	Uses
Area	Illustrates cumulative change over time for several related series; for example, population of the west coast states in 1960, 1970, 1980, 1990, and 2000.
Bar	Compares two or more data series with horizontal bars -- visually less "judgmental" than the same data in column charts.
Bubble	Compares series of three values at a fixed point in time, for example, sales, number of employees, and market share for companies in the same industry.
Column	Compares two or more data sets with vertical bars. Use 100% column chart to show proportions in two data sets that are numerically different.
Donut	Shows the relationship of data points to the data series for more than one series; for example, vehicle sales by the "Big Three" for 2002, 2003, and 2004. Donuts are designed to show multiple data series in relation to each other: a wrap-around version of a 100% stacked bar chart.
Line	Illustrates one or more sets of data points. Lines are drawn between the data points in a series. Often used for time-based data: for example, sales by quarter, population by year.
Pie	Shows the relationships between pieces of an entity: the pie includes <i>all</i> of something. The pie chart type isn't appropriate for illustrating <i>some</i> of anything, so if there's not an obvious "all" in the data you're charting, don't use a pie.
Radar (Spider)	Compares two or more series with multiple values at a fixed point in time: for example, actual performance against a set of standards.
Scatter	Plots two parallel data series as Cartesian coordinates (X,Y values), for example, the independent and dependent variables in an experiment. Used extensively in marketing as well as science.
Stock	Shows a periodic range of values and a "final" value (high-low-close), for example, the high, low, and closing price for a stock or the high, low, and current temperature.
Surface	Illustrates two different but related sets of data to find optimal solutions or other areas of intersection, for example, the size of the deer herd and number of deer-related vehicle accidents by state.

100% Column Charts (aka "Ratio Charts")

Use 100% column (or bar) charts to compare populations of different sizes. For example, this Column chart shows grades for three different sized groups:



If you want to discuss whether the science students (All Science) or Ms. Brown’s students earn better grades than seniors as a whole, this chart won’t help you -- the three groups are different sizes and it’s impossible to tell which group received more A’s and B’s. Here’s the same chart as a 100% Column chart:

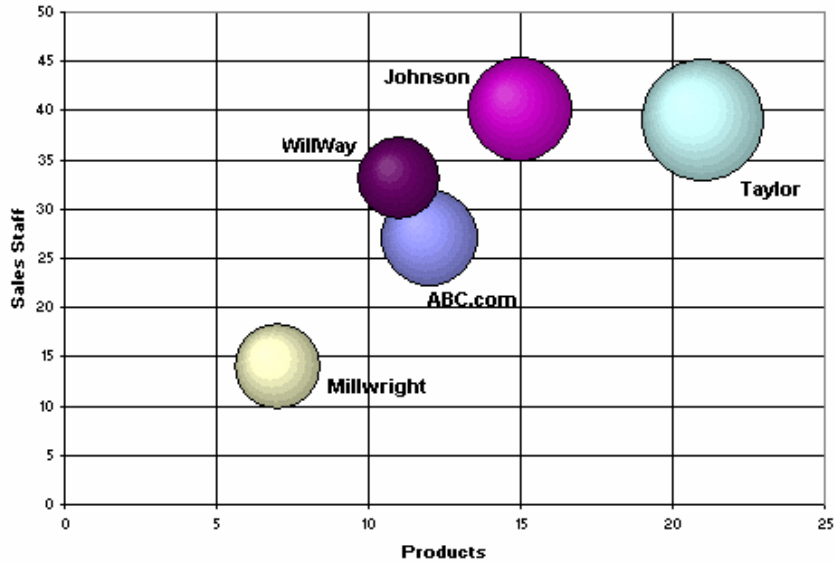


Because the 100% Column chart is based on percentages rather than actual numbers, this chart easily shows that Ms. Brown’s class had a higher percentage of students who made A’s and B’s than either of the other two groups.

Bubble Charts

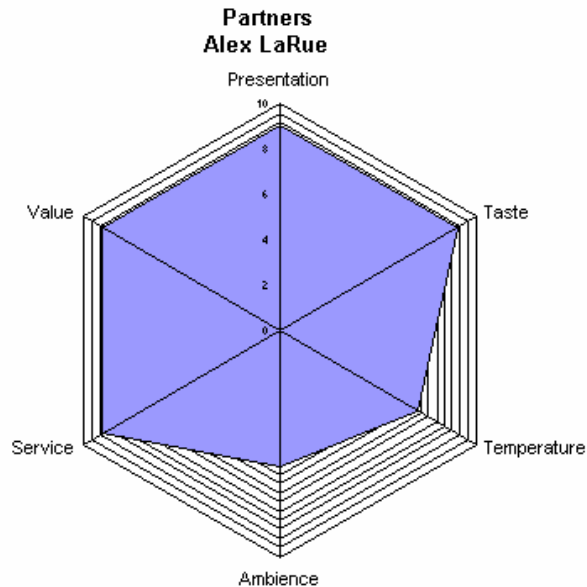
Use bubble charts when you have exactly three different data elements for each item. In this example, the size of each company's sales staff is on the Y axis, number of products on the X axis, and the company's market share is the size of the bubble.

Sales Staff Size, Products, and Market Share



Spider Charts

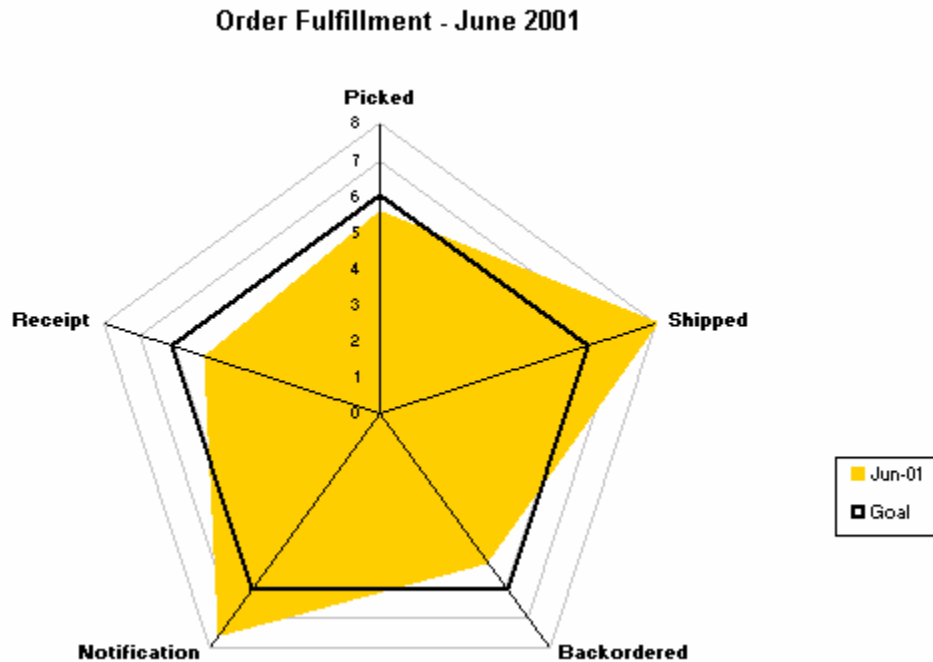
Radar charts are used for multivariate analysis: the analysis of several categories of information in a single chart. Here's a typical radar chart, which shows a food critic's rating of quality of a meal eaten at Partners, a restaurant near our office:



For a radar chart to be easily understood, each of the variables must be plotted using the same scale. In this chart, all five quality variables have been rated on a scale of 1 to 10.

What if your data sets don't use the same scale? For example, you need to plot four data sets; three of the four sets use the scale of 1 to 100, and the fourth uses 1 to 10. Always convert all the data sets to the least precise scale, for example, choose a scale to divide the first three sets by 10 rather than multiply the fourth set by 10.

Radar charts are often used in quality assurance. This chart illustrates performance on objective measurements in the Order Fulfillment Department. The dark outlined pentagon shows the quality goals plotted as a data series. The filled pentagon chart shows the time it took to perform each of the five measured functions; areas that lie outside the dark pentagon did not meet goal.



Whatever chart you choose to illustrate your data, you want to make sure that it tells a story. A great-looking chart that doesn't paint a picture or even worse, paints a distorted picture, can result in poor decisions. A basic rule of thumb with charts is if you don't understand what it is showing, don't use it. Chances are no one else will either.



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