

## How to Make a Good Graph

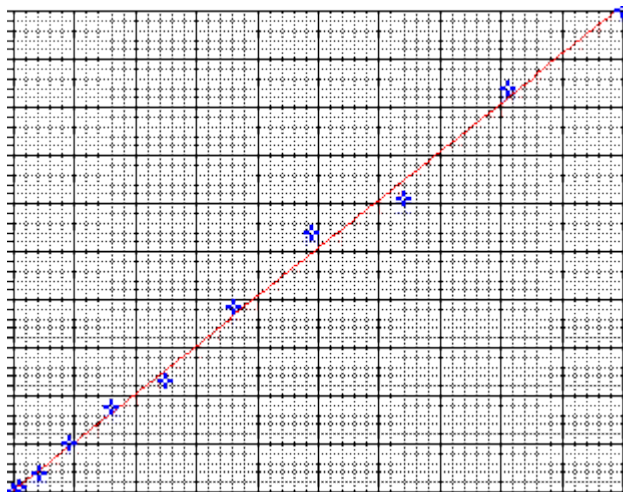
1. Every graph should have a title ("Mass and Age of Pennies").
2. Some graphs may need a key (to explain colors or symbols).
3. The graph should fill the available space. If you make a graph with a computer, you can copy & paste it into your final report, and size it to fit your layout.
4. If you make a graph by hand it should always be on graph paper.
5. The axes should each be titled AND labeled to match the data table ("mass of pennies, grams").
6. The range of each axis *may* be different. They should each be large enough to cover the needed range without lots of extra space. They do not need to start at zero.
7. The scale of each axis *may* be different, but each one must be consistent. If one box represents one year at the beginning of the graph, one box *always* represents one year.
8. The axes should be numbered to the same number of decimal places as the data was recorded. You don't need to number every box - usually every five or ten boxes will be adequate.
9. The independent variable always goes on the x-axis. If time is one of the measurements being graphed, it always goes on the x-axis.
10. The less ink you use, the easier it is to read. Try it!

### For computer-generated graphs, you may use:

Create a Graph: <http://nces.ed.gov/nceskids/createagraph/>, or using Microsoft Excel ([http://spreadsheets.about.com/od/excelcharts/ss/line\\_graph.htm](http://spreadsheets.about.com/od/excelcharts/ss/line_graph.htm)), or another program.

Tutorial: <http://staff.tuhsd.k12.az.us/gfoster/standard/bgraph.htm>

(This tells you how to make a paper graph and a line graph using Excel)



*Note: This graph is only showing you data points plotted and a line of best fit. It doesn't show what is being measured.*

### Scientific Graphs:

Most scientific graphs are made as **line** graphs. There may be times when other types would be appropriate, but they are rare.

The lines on scientific graphs are usually drawn either **straight** or **curved**. These "smoothed" lines do not have to touch all the data points, but they should at least get close to most of them. They are called **best-fit lines**.

In general, scientific graphs are not drawn in connect-the-dot fashion.