

HOW TO MAKE A GRAPH

1. TITLE

Think about what you are measuring and what information you are presenting—the whole idea of a graph is to make your data and results clear.

A long title is OK

Explain what you are measuring (dependent variable), what you or change (independent variable) and what you are comparing. (i.e. “Amount of Precipitation in Lompoc vs. Ventura Over a Nine Month Period in 2004”

2. FILL THE PAGE

You want the graph to fill the available space as much as possible while still keeping the divisions reasonable.

The bigger the graph area you use, the more accurate the graph will be.

You want each small square to be an easy number to use (i.e. 0.5, 1, 2, 2.5 not odd like 0.6, 0.33, 8, 13, etc.

Use a light pencil at first and try different ways to set up the graph so that it fills the space.

Try the paper turned portrait and/or landscape, try different divisions etc.

You may or may not need to put the bottom left corner of the graph at zero

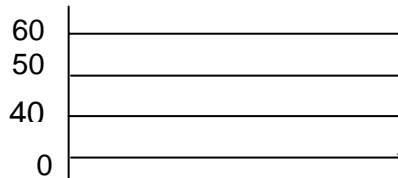
3. WHAT IS MEASURED AND UNITS

Always state what you are measuring and the units used on both the x and y axes. (i.e. “Precipitation (in cm)” on the Y axis and “Time (in months)” on the X axis)

4. USE EQUAL DIVISIONS IN GRAPH

If it is 5 small squares between 10 and 20, then it must be 5 small squares between 20 and 30, and every 10 units. You can use a different assignment for each graph or axes, but you must stick to it for all the divisions on that axis.

Exceptions: You may decide the graph does not have to start at zero, or you may put zero at the lower left corner, but then omit a chunk of numbers by putting 2 wiggly lines on the axis to denote that you have left some out. (i.e.



5. PROPER DATA POINTS

Graphs are meant to be accurate depictions of the data, so great care must be taken to place the data points in the exact proper place. This lets the information be accurate and the lines, or bars precise.

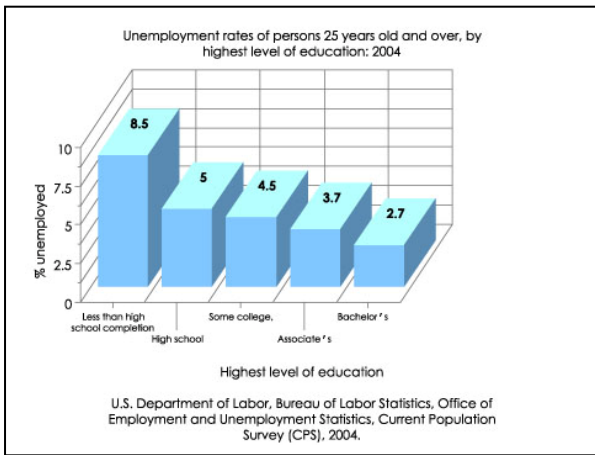
A table of the data points is a good idea in one corner of the graph, out of the way, or below the graph.

6. USE THE PROPER BARS, LINES ETC TO DISPLAY DATA

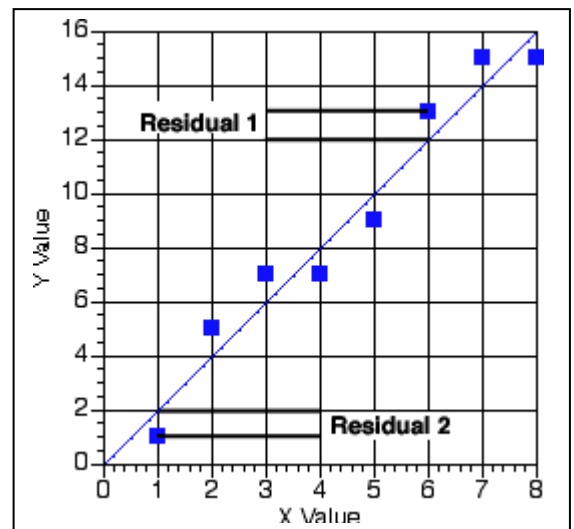
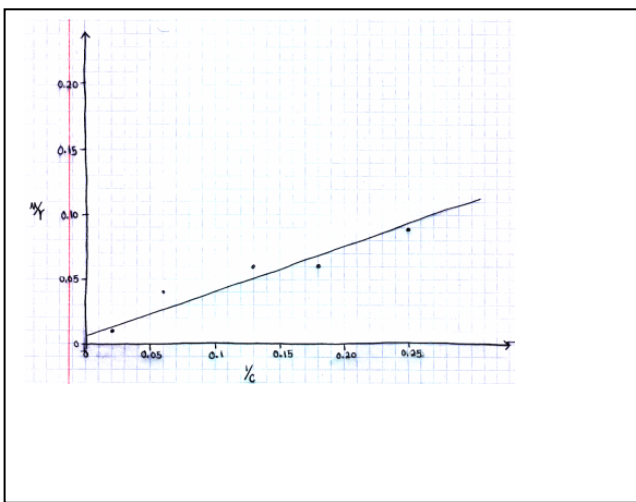
If you are measuring changes of discrete, different things, with the things being the independent variable (i.e. the amount of rain in Lompoc, Ventura, Catalina, and Malibu on December 29th 2006) you might want to make a bar graph.

If you are measuring continuous changes such as over time or changing the amount of the same thing, you probably want to use a line graph (i.e. the amount of rain in one or two places over a year).

see reverse for examples



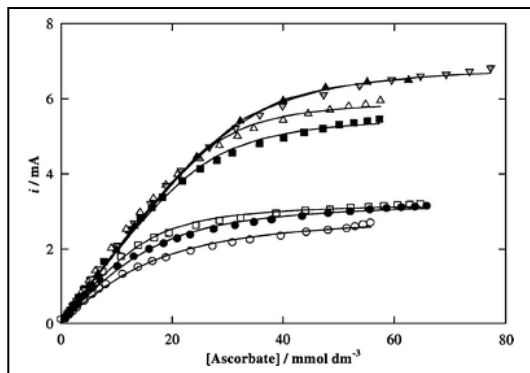
Bar graphs work well only when working with discrete groups



Best fit line Graphs – these let you find the most likely dependent quantities if you know the independent quantity.

Use these most of the time with linear data (data without exponents)

Occasionally you will make a best fit curved line—see below. You need this for complex equations.



A pretty good link for rules and info on better graphing:

<http://www.chem.uic.edu/marek/apintropage/graphingfolder/graph1ibm.htm>