

Some guidelines for graphing

- Decide on the kind of graph most appropriate to the question under investigation and the data obtained.
- The independent variable is plotted along the horizontal (or X-axis). (When time is a variable, it is almost always plotted along the horizontal axis.)
- The dependent variable is plotted along the vertical (or Y-axis). (In a graph displaying how far something travels in a certain amount of time, distance or displacement from the start is plotted on the vertical axis and time on the horizontal.)
- The scale factor is the value one division of the graph paper represents in terms of how the variable is measured or counted. (The two variables plotted DO NOT require the same factor in the sense that one division must equal one unit of the measure for each variable.)
- Scales must be consistent. That means that every division along an axis is equal to the same measure or quantity of the variable.
- Scales should be convenient. (Some factors are more convenient to use than others. Generally letting one division = 1, 2, or 5 units of measure with an appropriate magnitude of 10—0.1, 0.2, 0.5 or 10, 20, 50, and so on—produces a convenient scale. If one must perform arithmetic in reading a graph or interpolating or extrapolating, the scale is not the most convenient.)
- All of the data should be accommodated on the graph paper. (Leaving out data points that seem extreme must be considered carefully. Breaking the scale should never be done within a set of data. At times it is possible to shift the scale from zero so that data fit.)
- The graphs should be as large as possible while following the guidelines above.
- Many computer generated graphing programs do not allow (easy) choices for scaling and sizing.
- Work out hand drawn graphs first in pencil until they are proofed and double checked.
- Consider what type of graph is called for with particular questions and sets of data.
- Consider what difficulties you might have with constructing and interpreting graphs. What is the nature of your errors, questions, confusion?

- Some beginning students confuse or blend plotting data with making a scale. The actual values of the data do not have to be written down on the scale as part of the labeling. The scale is like a ruler.