Rules for Good Graphing

1) **Label each axis and indicate the units used.**
   Independent variables are labeled on the horizontal (x) axis.
   Variables that change because of changes in the independent variable are called dependent
       variables.
   Dependent variables are labeled on the vertical (y) axis.
   Every label MUST have a unit attached to it. The unit is usually **written in parentheses**
       next to the label. [e.g. Time (s), Length (mm), Weight (N), etc.]

2) **Choose an appropriate scale** that allows you to get all data on the graph.
   Check the largest and smallest values to determine the range for each axis.
   Begin the scale at zero.
   Do this calculation on scrap paper:
   (paper squares available) $\div$ (maximum value you need to graph) = minimum increment.
   Each line of graph will need to be BIGGER than this minimum increment
   To avoid wasting paper, choose a scale which will spread your data out over <u>MORE</u>
   <u>THAN half</u> of the paper. By doing this you magnify your data and make it easier to read.

3) **Choose a convenient scale.**
   A graph is easier to read (and plot) when each square represents a value of 1, 2, 5, or a
       multiple of ten times these numbers: 10, 20, 50, or 0.2, 0.5.
   <u>Maintain the same scale for the length of the graph.</u>

4) **Locate points with a dot with a small circle around it.**
   The small dot enables you to precisely place the point.
   The circle around the dot enables you to highlight the point so that it is not lost or mistaken
       for a stray mark.

5) **Draw a smooth curve or straight line to represent the general tendency of the
   data points.**
   Use a transparent straightedge.
   About half of the points should be above and half below the line you draw.
   Data points based on experimental measurements have uncertainty associated with them.
   The smooth line that you draw shows what the data would look like IF THERE WERE
   NO ERRORS IN YOUR MEASUREMENTS.