

HOW TO PREPARE A GRAPH

1. Obtain graph paper; 5 or 10 squares to the inch, or 10mm to the cm.
2. Sharpen pencil. Do *not* use a pen. Prepare each graph on a separate sheet of paper.
3. Choose a scale for your variables that utilizes **most** of the paper in both dimensions. The scale should correspond to the main divisions of the graph paper
4. Draw the vertical and horizontal axes.
5. Indicate the scale divisions to the left of, or below each axis.
6. Label each axis with the name of the variable and its units. Do not abbreviate the name of the variable. Be explicit in use of units.
7. Draw your data points by marking the position with a sharp point, surrounded by a small circle. The size of the circle should in some way reflect the confidence in your data. Small circles indicate that these data values are very accurate.
8. Draw a smooth curve that fits through your data points without necessarily passing through each data point. Some points will lie above the curve, some below. If the data indicate a straight line, use a ruler. Do not force the line through the origin even if you think it should logically go through the origin. This process of obtaining the best fit line to your data should not be done by a program of any sort.
9. If your graph shows a straight line, choose two well-defined points on the line for the slope calculation. **Do not use any of your actual data points** since they may not reside on your line. The two points on your line that you use to calculate the slope should be as far apart as possible. Indicate the choice of slope points by marking them with the symbol Δ .
10. Write a title for the graph which describes the plot and its source; “Position as a function of time for a glider on an air-track...”, followed by your name and the date of the experiment.

A properly prepared graph will be a very useful tool, while one that is hastily or sloppily prepared will be of very little use. Small, illegible, improperly labeled or otherwise deficient graphs will hinder your ability to properly interpret the data, so prepare accordingly.