

- Graphing is an important procedure used by scientists to display the data that is collected during a controlled experiment
- Line graphs must be constructed correctly to accurately portray the data collected
- Many times the wrong construction of a graph detracts from the acceptance of an individual's hypothesis
- A graph contains five major parts:
  - a. Title
  - b. The independent variable
  - c. The dependent variable
  - d. The scales for each variable
  - e. A legend
- The title: depicts what the graph is about. By reading the title, the reader should get an idea about the graph. It should be a concise statement placed above the graph.
- The Independent Variable: is the variable that can be controlled by the experimenter. It usually includes time (dates, minutes, hours), depth (feet, meters), temperature (Celsius). This variable is placed on the X axis (horizontal axis).
- The Dependent Variable: is the variable that is directly affected by the independent variable. It is the result of what happens because of the independent variable. Example: How many oxygen bubbles are produced by a plant located five meters below the surface of the water? The oxygen bubbles are dependent on the depth of the water. This variable is placed on the Y-axis or vertical axis.
- The Scales for each Variable: In constructing a graph one needs to know where to plot the points representing the data. In order to do this a scale must be employed to include all the data points. This must also take up a conservative amount of space. It is not suggested to have a run on scale making the graph too hard to manage. The scales should start with 0 and climb based on intervals such as: multiples of 2, 5, 10, 20, 25, 50, or 100. The scale of numbers will be dictated by your data values.
- The Legend: is a short descriptive narrative concerning the graph's data. It should be short and concise and placed under the graph.
- The Mean for a group of variables: To determine the mean for a group of variables, divide the sum of the variables by the total number of variables to get an average.
- The median for a group of variables: To determine median or "middle" for an even number of values, put the values in ascending order and take the average of the two middle values. e.g. 2, 3, 4, 5, 9, 10 Add 4+5 (2 middle values) and divide by 2 to get 4.5
- The mode for a group of variables: The mode for a group of values is the number that occurs most frequently. e.g. 2, 5, 8, 2, 6, 11 The

Line Graph -

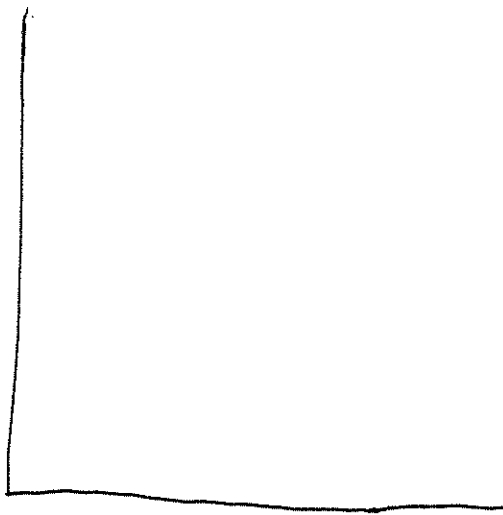
Compares number to numbers

Bar Graph -

Compares number to level

Title  
(How "x" effects "y")

Dependant  
(Responding)  
Variable



Independant  
(Manipulated)  
Variable

Notice: Legend