

Graphing Skill #1: What Type of Graph is it?

There are different types of graphs that scientists often use to display data. They include:

Bar Graphs	Line Graphs
<ul style="list-style-type: none"> • Compare and Contrast Data • There is no order to the categories on the X-axis (ex. color of candy) • Bars typically don't touch • Y-axis is usually a frequency (count) 	<ul style="list-style-type: none"> • Continuous • Each piece of data is related by distance, time, temperature • Data points are connected by a line

Practice Problems

Based on these definitions, and the descriptions of the experiments below, please put an “X” in the box for the type of graph that would be *most* appropriate.

#	Description	Bar	Line
Ex	A graph showing the number of 5 th graders who prefer Coke or Pepsi	X	
1	A graph showing how a newborn baby's weight changes over time		
3	A graph showing the distribution of trees of different size groups (e.g. 0-10cm, 10-20cm, etc...) in a forest		
4	A graph showing the relationship between height and arm length		
6	A graph showing the amount of rainfall, by month over a 12 month period		
7	A graph showing the number of ice cream cones purchased as a function of the day's temperature		
8	A graph showing the number of pushups done each day during a 2-week training program		

Graphing Skill #2: Labeling Axes

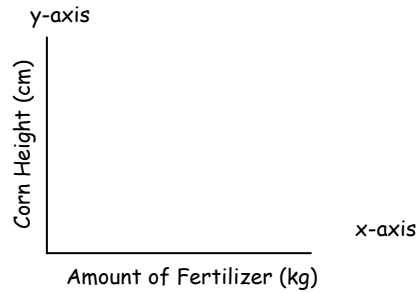
When labeling your axes, keep 3 things in mind:

- What the scientist is trying to change is labeled along the X axis (IF/independent variable).
- What the scientist is trying to figure out is labeled along the Y axis (THEN/dependent variable).
- Units should be included in parentheses (cm, kg etc.) following the axis label

Practice Problems

For each experiment described below, label the X and Y axes.

Example: A farmer wants to know if there is a relationship between the amounts of fertilizer (in kilograms) she uses and how tall her corn grows (in centimeters).



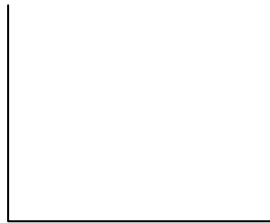
Graph 1: A ball is dropped from several distances above the floor (in meters) and the height it bounces is then measured (in centimeters).



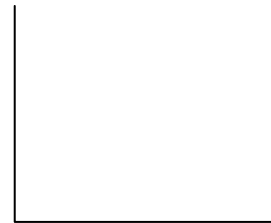
Graph 2: A candle was burned under glass jars of different volumes (in mL) to see if the volume of the jar affects the length of time (in seconds) the candle burns.



Graph 3: A fisherman used fishing lines of several different gauges (test pounds) and recorded the number of fish caught on each gauge.



Graph 4: Geologists wanted to know if there was a relationship between the density (in g/cm^3) of a rock and how many meters down it was collected from.



Graph 5: Is there a relationship between the numbers of hours a student studies and the score s/he gets on the weekly quiz?



Graph 6: A scientist studied the relationship between amount of rain (in cm) and the numbers of zebra babies born each spring.

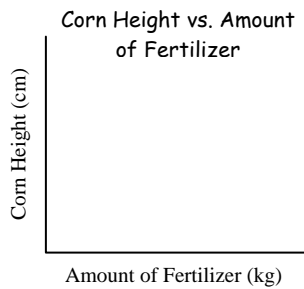


Graphing Skill #3: Creating Titles

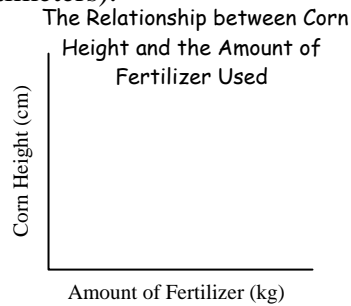
When writing a title for your graph, please remember:

- ❑ Some graphs need more explanation than others. Make sure your reader would be able to understand what your data represent without having to read your lab.
- ❑ Can be presented in the form “Y versus X” (MOST OF THE TIME)

SAMPLE: A farmer wants to know if there is a relationship between the amount of fertilizer (in kilograms) she uses and how tall her corn grows (in centimeters).



OR



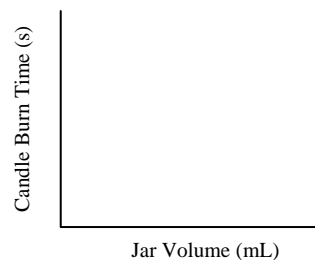
Practice Problems

For each experiment described below, write a title for each graph

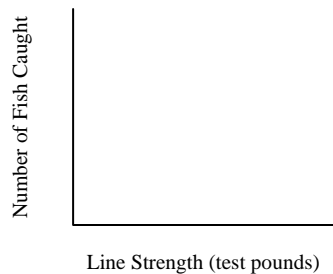
Graph 1: A ball is dropped from several distances above the floor (in meters) and the height it bounces is then measured (in centimeters).



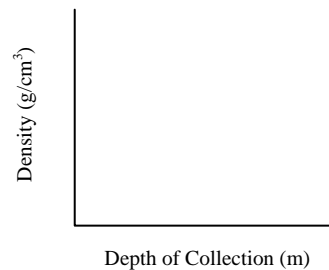
Graph 2: A candle was burned under glass jars of different volumes (in ml) to see if the volume of the jar affects the length of time (in seconds) the candle burns.



Graph 3: A fisherman used fishing lines of several different gauges (test pounds) and recorded the number of fish caught on each gauge.



Graph 4: Geologists wanted to know if there was a relationship between the density of a rock and how many meters down it was collected from.



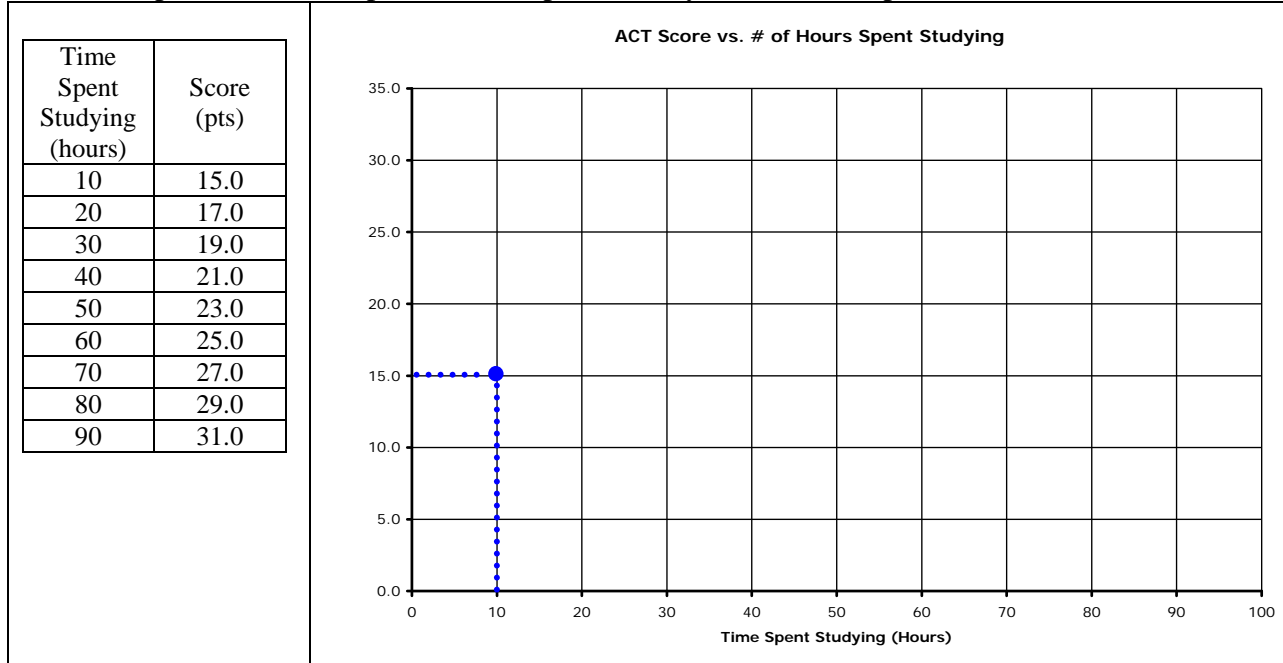
Graphing Skill #4: Plotting Points

Plotting points can be easy if you follow these simple steps...

- STEP 1: Select the first pair of values from the data table (X and Y).
- STEP 2: Draw a light dashed line up from the number on the X axis and over from the number on Y axis.
 - Once you get good at plotting points, you won't need to draw these lines anymore
- STEP 3: Where these dotted lines cross, put a dark point. Repeat for the next pair of points (coordinates)

Practice Problems

Plot these points. The first pair has been plotted for you as an example.



Graph 2

