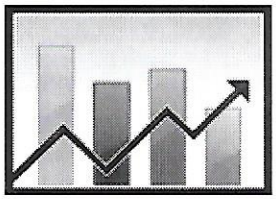
Graphing and Analyzing Scientific Data

Graphing is an important procedure used by scientist to display the data that is collected during a controlled experiment. There are three main types of graphs:



Pie/circle graphs: Used to show parts of a whole.

Bar graphs: Used to compare amounts.

Line graphs: Use to show the change of one piece of information as it relates to another change.

Both bar and line graphs have an "X" axis (horizontal) and a "Y" axis (vertical).

Parts of a Graph:

Title: Summarizes information being represented in ANY graph.

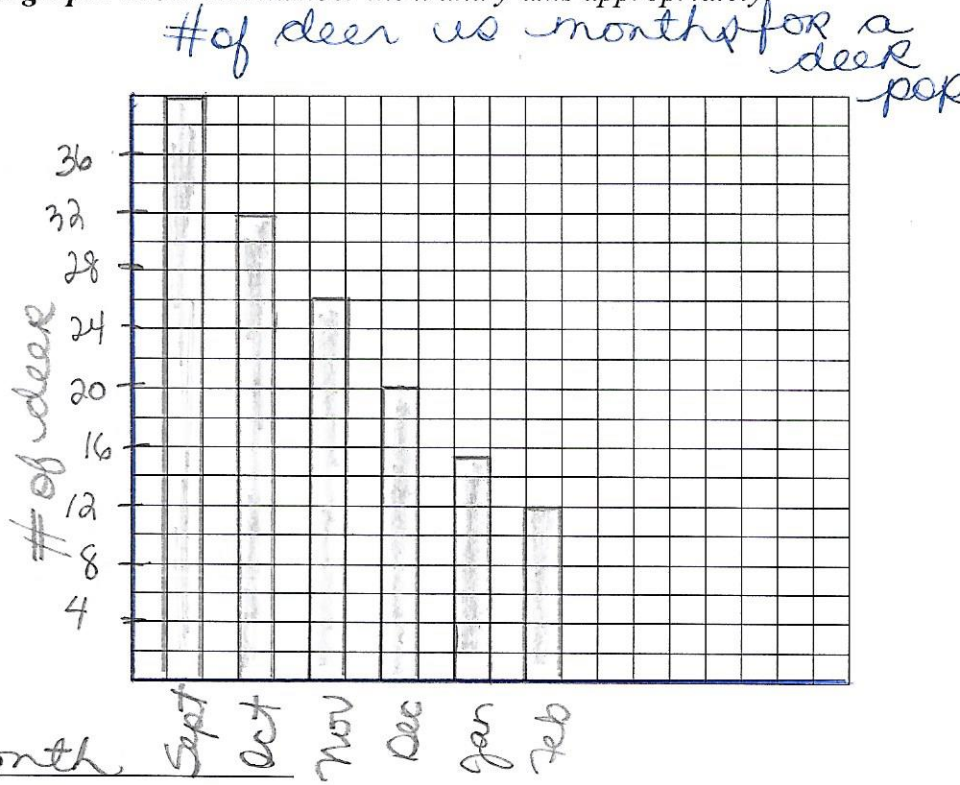
Independent Variable: The variable that is controlled by the experimenter, such as, time, dates, depth, and temperature. This is placed on the X axis.

Dependent Variable: The variable that is directly affected by the I.V. It is the result of what happens as time, dates, depth and temperature are changed. This is placed on the Y axis.

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.

*A. Graph the following information in a **BAR graph**. Label and number the x and y-axis appropriately.*

Month	# of deer
Sept	38
Oct	32
Nov	26
Dec	20
Jan	15
Feb	12



1. What is the independent variable? month
2. What is the dependent variable? # of deer
3. What is an appropriate title? see above

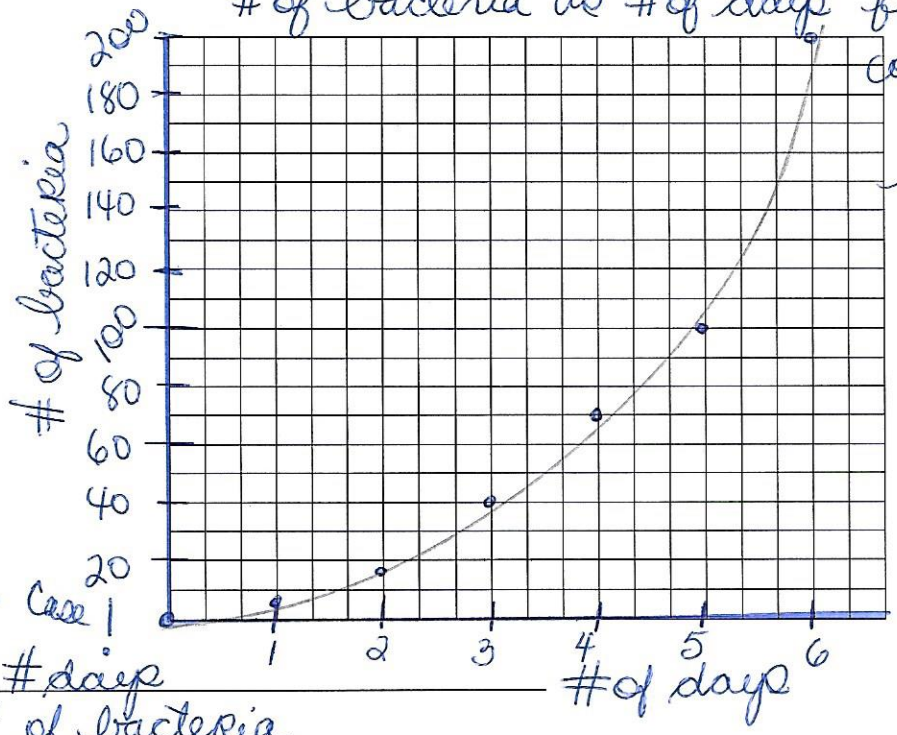
*B. Graph the following information in a **LINE graph**. Label and number the x and y-axis appropriately.*

# of Days	# of Bacteria
1	4
2	16
3	40
4	80
5	100
6	200

# of bacteria vs # of days for colonies of bac.

did you forget (0 days, 0 bacteria) ?

(0,0) is a data pt in this case!

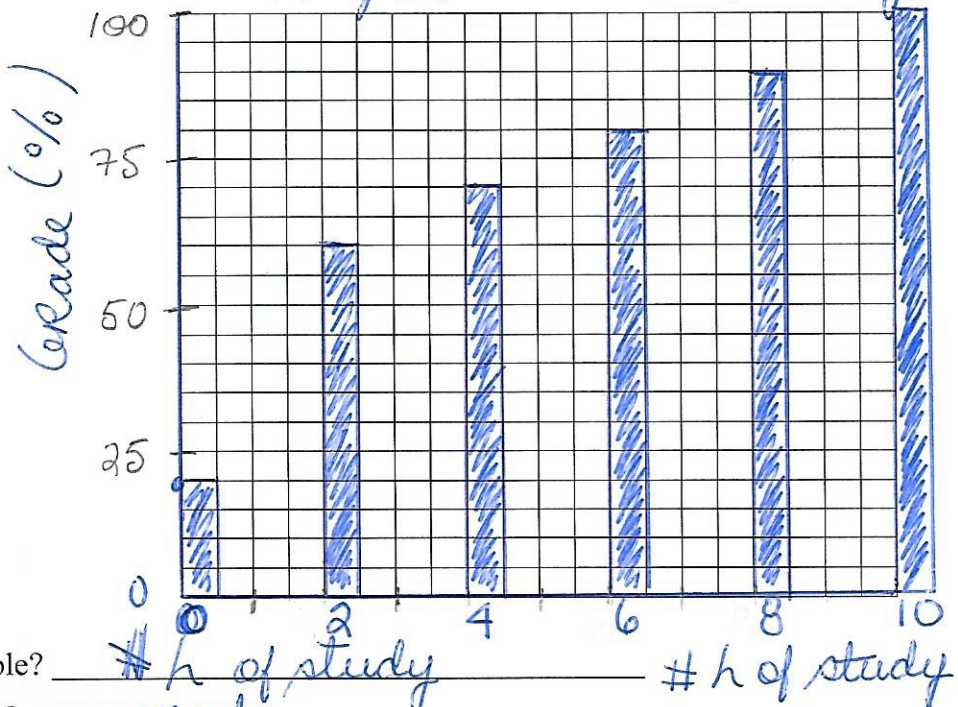


1. What is the independent variable? # days
2. What is the dependent variable? # of bacteria
3. What is an appropriate title? see above.

*C. Graph the following information in a **BAR graph**. Label and number the x and y-axis appropriately.*

# of Hours of Study	Grade
0	20
2	60
4	70
6	80
8	90
10	100

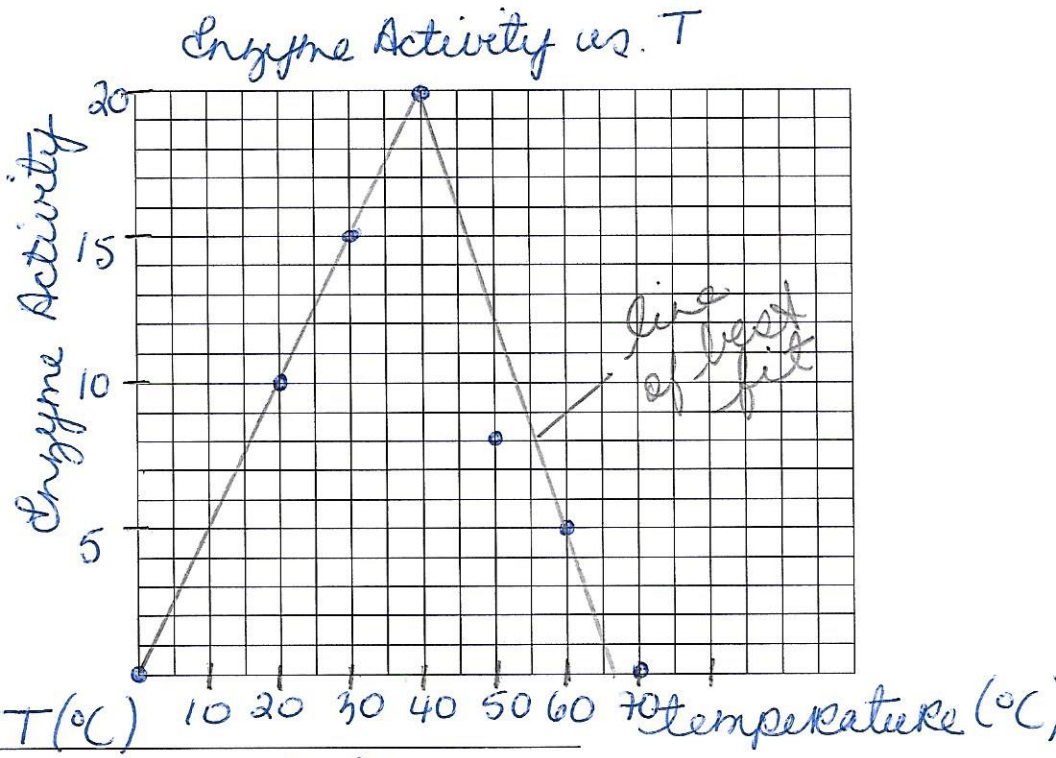
% grade vs # h of study



1. What is the independent variable? # h of study
2. What is the dependent variable? grade
3. What is an appropriate title? see above

*D. Graph the following information in a **LINE graph**. Label and number the x and y-axis appropriately.*

Temperature (°C)	Enzyme Activity
0	0
20	10
30	15
40	20
50	8
60	5
70	0



1. What is the independent variable? T(°C)
2. What is the dependent variable? enzyme activity
3. What is an appropriate title? see above