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? _____

2. What is the dependent variable? _____

3. What is an appropriate title? _____

*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

1. What is the independent variable? _____

2. What is the dependent variable? _____

3. What is an appropriate title? _____

*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

1. What is the independent variable? _____
2. What is the dependent variable? _____
3. What is an appropriate title? _____

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

Temperature	**Enzyme Activity**
0	0
20	10
30	15
40	20
50	8
60	5
70	0

1. What is the independent variable? _____
2. What is the dependent variable? _____
3. What is an appropriate title? _____