Graphing and Analyzing Scientific Data Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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



**Pie/circle graphs:** Used to show \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a whole.

**Bar graphs:** Used to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ amounts.

\* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of number data

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

\* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of number data

**Parts of a Graph**:

**Title:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ information being represented in ANY graph.

**Independent Variable:** The variable that is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 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 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_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. This must also take up a conservative amount of space (\_\_\_\_\_\_\_\_\_\_\_\_).The scales should start with \_\_\_\_\_\_\_and climb in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ intervals such as, multiples of 2, 5, 10, 20, 25, etc…the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_of numbers will be determined by your data values.

*Graph the following information in an appropriate graph. Label and number the x and y-axis appropriately.*

Title:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| **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 the average number of deer per month?

Title:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| **# of Days** | **# of Bacteria** |
| 1 | 4 |
| 2 | 16 |
| 3 | 40 |
| 5 | 80 |
| 6 | 100 |
| 7 | 200 |

1. What is the independent variable?

2. What is the dependent variable?

How many bacteria on day 4? \_\_\_\_\_\_\_\_\_\_\_\_\_

Title:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| **Heat sources** | **# of homes**  **(million)** |
| coal | 100 |
| solar | 1.4 |
| hydroelectric | 23 |
| wind | 2.3 |
| nuclear | 6.7 |
| geothermal | 0.5 |

1. What is the independent variable?

2. What is the dependent variable?

Title:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| **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?

What temperature is best for enzyme activity?

\_\_\_\_\_\_\_