Data Analysis Worksheet

Background: One of the most important steps that a scientist completes during an experiment is data processing and presentation. Data can be analyzed by the presentation of the data in table format (data table), or the processing of that data through graphical manipulation to visually discern the differences in the variables tested.   The purpose of this worksheet is to give you an opportunity to demonstrate your knowledge of these scientific skills.

Reading a data table: Examine the date found in Table 1 and answer questions #1-4.

Table 1: Growth of eight plants in a three week period

	Amount of Light per day	**Amount of Water per day**	**Height Week 1 in cm**	**Height Week 2 in cm**	**Height Week 3 in cm**
Plant 1	0 hours	¼ cup	0 cm	0 cm	0 cm
Plant 2	0 hours	1 cup	0 cm	0 cm	0 cm
Plant 3	4 hours	¼ cup	1 cm	3 cm	6 cm
Plant 4	4 hours	1 cup	0.5 cm	1 cm	1.5 cm
Plant 5	8 hours	¼ cup	1.5 cm	4 cm	8 cm
Plant 6	8 hours	1 cup	1 cm	3 cm	6 cm
Plant 7	16 hours	¼ cup	1 cm	2 cm	3 cm
Plant 8	16 hours	1 cup	1.5 cm	5 cm	10 cm

1. In this plant growth experiment, what were the two variables tested?

2. What conclusions can you draw in regards to the amount of light a plant was exposed to and how tall the plant grew?

3. What conclusions can you draw in regards to the amount of water given to a plant and how tall the plant grew?

4. Describe which plant or plants did he best and develop a hypothesis on plant growth based on the date you examined.

Graphing: When you are graphing data you must title the graph, label the axis; the dependent (y) variable goes on the vertical axis and the independent (x, most constant) variable goes on the horizontal axis. When determining the scale of your graph, make the scale as large as possible within the limits of the paper. A line graph is used when a relationship between two variables is being studied, and a bar graph is used to look at comparisons of data.

On Graph paper create a line graph of the data in Table 2.

Table 2:   Breathing rate of the freshwater Sunfish

Temperature (^oC)	Breathing Rate per minute
10	15
15	25
18	30
20	38
23	60
25	57
27	25

On Graph paper create a bar graph of the data in Table 3

Table 3: Average rainfall in Willamette Valley

Month	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Rainfall (ml)	15	21	28	24	16	8	2	1	2	3	5	10

Data Tables: Use the following information to create a data table, and then answer the five questions below.

On an expedition around the world, scientists collected the venom of ten snakes. The scientists determined the toxicity of the venom of each snake by looking at the mortality percent from the victims of the snake bites.

The snakes observed were the southern United States copperhead with a mortality percent of less than 1%, the western diamondback rattlesnake with 5-15% mortality, the eastern coral snake with 5-20% mortality, the king cobra with greater than 40% mortality, the Indian krait with 77% mortality, the European viper with 1-5% mortality, the bushmaster with usually 100% mortality, the fer-de-lance with 10-20% mortality, the black-necked cobra with 11-40% mortality, and the puff adder with 11-40% mortality.

1. Which snake venom has the highest mortality rate?

2. Which snake venom has the lowest mortality rate?

3. Which two snakes have the same mortality percentage?

4. How many snakes were observed?

5. From the information recorded can you determine the snake whose venom works the most rapidly? The least rapidly? Explain.