Graphing HW #1
Biology I

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Contents

1 Pre-Lab Discussion

1. Would a line graph or a bar graph be better for showing the number of birds of each color in a population?

   - A Bar Graph would be better, as the data is grouped data.

2. How could you plot more than one responding variable on a line graph?

   - You could plot two lines on one graph.

3. Where do you place the manipulated variable on a line graph?

   - The manipulated (independant) variable goes on the X-axis.

4. Which type of graph would you use to show comparisons? Explain the reason for your answer.

- I would use a Pie Chart, as its effective in showing parts of a whole. If you wan't a precise comparison (as opposed to a relative one), use a bar graph

5. Why is it important to have all parts of a graph clearly labeled and drawn?

- Graphs that are clearly labeled are much less likely to be misread or misinterpreted.

2 Procedure

2.1 Part A: Interpreting Graphs

1. No answer required

2. Use the line graph in Figure 2 to answer the following questions

   (a) Which plant grew the tallest

   - Plant 2

   (b) How many plants grew to be at least 6 cm tall?

   - All 3 plants grew to be atleast 6cm tall

   (c) Which plant grew the fastest in the first five days?

   - Plant 3 grew the fastest the first 5 days

   (d) Which line represents plant 2?

   - The dotted (—-) line represents plant 2

   (e) After 10 days, how much had plant 3 grown?

   - After 10 days plant 3 was 6cm tall

   (f) How long did it take for plant 1 to grow 6 cm?

   - It took 15 days for plant 1 to reach 6cm

3. No answer required

4. Use the bar graph to answer the following questions

   (a) At birth, what is the average number of red blood cells per mm of blood?

       • At birth, there are 5.7 million blood cells/mm^3 on average

   (b) What appears to happen to the number of red blood cells between birth and 2 months?

       • The number of red blood cells drastically decresaes between birth and 2 months

   (c) What happens to the number of red blood cells between the ages of 6 and 8 years?

       • From 6 to 8 years, the number of red blood cells stays the same

   (d) Between what ages is a human likely to have 4.6 million red blood cells?

       • Someone is likely to have 4.6 million red blood cells from 6-12 months of age

   (e) After 14 years of age, do males or females have a higher red blood cell count?

       • After 14 years of age, males have a higher blood cell count

2.2 Part B: Constructing Graphs

2.2.1 Data Table 1:

Use the information recorded in Data Table 1 to construct a line graph on the grid provided below. You should label each axis, mark an appropriate scale on each axis, plot the data, connect the points, and give your graph a title

Temperature(C)	Breathing Rate (Per Minute)
10	15
15	25
18	30
38	60
57	25

Effect of temperature on rate of breathing
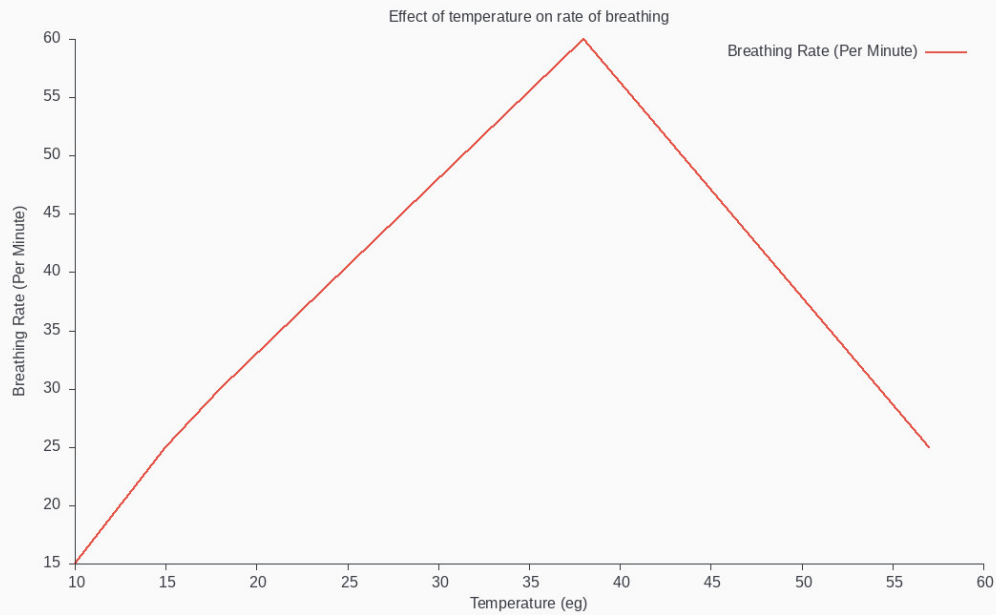
2.2.2 Data Table 2:

Use the information recorded in Data Table 2 to construct a bar graph on the grid provided below. You should label each axis, mark an appropriate scale on each axis, plot the data, darken the columns of the graph, and give your graph a title.

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

Average Rainfall in Willamette Valley
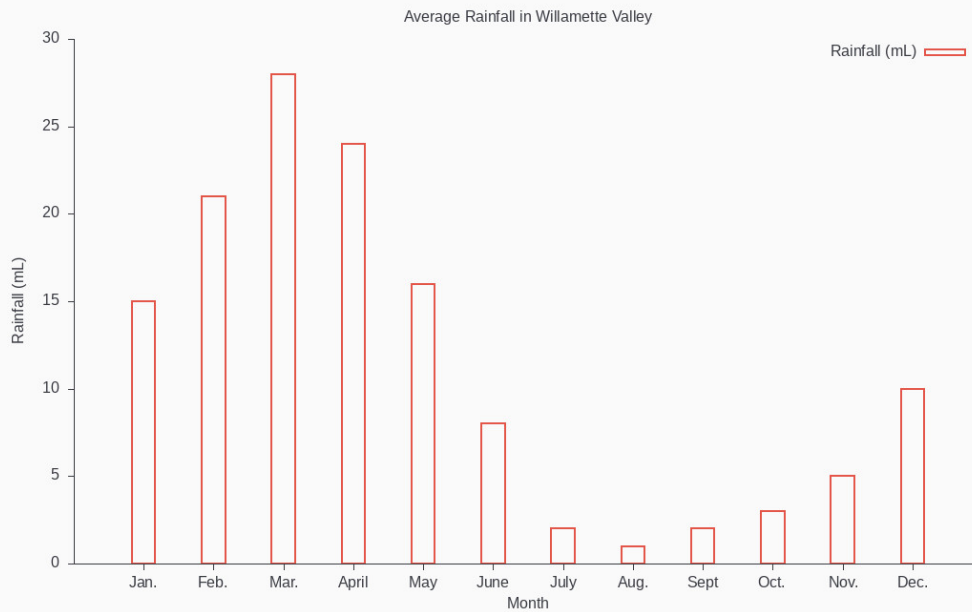
3 Analysis and Conclusions

1. **Comparing and Contrasting:** How is a graph similar to a data table?

   - Graphs and table are similar because they both present the evidential and statistic data given and yielded from a certain experiment or testing. They both have a role in classification, categorization, interpretation and organization of the data. A table presents the raw data, while a graph visualizes it

2. **Comparing and Contrasting:** How is a line graph different from a bar graph?

   - Bar graphs show data with blocks of different lengths, whereas line graphs show a series of points connected by straight lines. Bar graphs are more versatile while line graphs are better for showing trends over time or another measure with a logical progression of values. Bar graphs can also show frequency distributions much more effectively than line graphs.

3. **Using Graphs:** Does a steep curve on a line graph indicate a rapid or slow rate of change?

   - A steep curve on a line graph would indicate a rapid rate of change

4. **Using Graphs:** You are conducting an experiment to measure the gain in mass of a young mouse over a ten-week period. In constructing a graph to represent your data, which

variable should you place along the x-axis and which variable should you place along the y-axis? Explain your answer.

- On the x-axis you would put the independent/manipulated variable, which is the time. On the y-axis is the dependant variable, which is the gain in mass.

5. **Using Graphs:** What is an advantage of using multiple lines in a line graph? (See Figure 2.)

- With multiple lines, you can display multiple sets of data, allowing the reader to easily compare and contrast the datasets.