Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Variation in a Population of a single Species

Define Variation –

Choose a human trait and list the variations possible in that trait –

**Procedure:**

1. Measure the length of a 100 beans. Record the data in terms of how many beans of each length are present.

2. Graph your data using a line graph.

A. The independent variable is on the \_\_\_\_\_\_\_\_ and is the length.

B. The dependent variable is on the \_\_\_\_\_\_\_\_\_ and is the number of beans in a group (size groups to be determined by you).

Discussion Questions:

1. An untrained observer might say “beans are beans…they all look the same”. A well trained Biology student such as you knows that life (and that last genetics test) is not so simple. Was there a variation within your bean population? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

a. Describe any variation in the size of the beans that you noticed. This can be the variation you measured or other differences you noticed or infer.

2. Does your graph look just like the graph from other groups? \_\_\_\_\_\_\_\_\_\_ Why or why not?

a. What might account for the difference in your population of beans compared to another group’s population?

3. What was the difference in length between the longest and shortest bean? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. Given the overall size of beans, do you think the difference between the longest and shortest bean is important? \_\_\_\_\_\_\_ Why or why not?

5. Sometimes the smallest member of a population has an advantage over the taller ones. Given the fact that most of the time we think bigger is better, can you think of advantages to being smaller than the average bean?

6. Do you think you would have ever noticed the difference in the length of bean if your Biology teacher hadn’t made you measure so many? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. You only had to measure a small sample (yes 100 is very small) of a much larger population. Do you think that using a small sample is a good way to predict the characteristic of a large population? \_\_\_\_\_\_\_ Why or why not?

8. Do you think there might be any size difference if the beans were from different ages or from different plants? \_\_\_\_\_\_\_\_\_\_ Explain your answer.

9. The average human female is about 50 cm at birth. At the end of 3 years, the average girl is about 100 cm tall. She doubled her height in only 3 years. Following this trend of height doubling every 3 years, about how tall should the average girl be at 15 years. (100 cm = just over 3 feet)

10. Why can’t you judge the age of an adult human simply by measuring their height?