Name _____   Date _____

Effects of Light on Plant Growth

All plants require water and sunlight in order to grow. It is fairly common knowledge that plants will die if not provided enough water to meet their needs. But what happens to plants that don't get enough sunlight? Do they die, as well? Do they still grow, but maybe just not as much as one growing in full sunlight?

The purpose of this experiment is to see what effect light has on plant growth?

Hypothesis/Prediction
While we have defined a hypothesis as a statement that can be tested, it is also a prediction. Often predictions follow the format of "if" and "then".

Write a hypothesis for our exploration, using the "if" and "then" format:

If _____
_____
_____
then _____
_____
_____

Experimentation
Now that you have written a hypothesis, we are going to perform an experiment to test the hypothesis. In order to keep things simple, I have provided you with a list of materials and the procedure we will follow.

Materials
- Green Bean Seeds
- Water
- Plastic Cups
- Styrofoam Cups
- Large metal container
- Measuring Cups
- Soil
- Metric Ruler
- Wooden skewers

Procedure
1. Working with a partner, obtain one Styrofoam cup, each.
2. Use a sharpie to write your names on the outside of each cup.
3. Use a wooden skewer to poke several holes in the bottom of each cup.
4. Use a measuring cup to place 2 cups of soil into each cup.
5. Use your finger to create a hole, 2 inches deep in each cup.
6. Place 2 bean seeds into each hole and cover with soil.
7. Use a plastic cup to gently water the soil. Use your finger to feel the soil. You want it damp, but not saturated.
8. Place one plant in the metal container that is designated for sunlight and the other plant in the metal container that is designated for darkness.
9. Wash your hands, when you are finished.
10. Monitor your plant each, writing down your observations and recording the height of the plant in centimeters.

Data Table

Date	Height of Plant in Sunlight (cm)	Height of Plant in Darkness (cm)	Observations

Graphing Data

You actually collected both quantitative data and qualitative data.

Which set of data was quantitative? _____
Which set of data was qualitative? _____

Generally, only quantitative data is graphed, while qualitative data is just summarized.

In order to graph the quantitative data, you will first need to determine that the independent and dependent variables are for this experiment.

Independent variable: _____
Dependent variable: _____

Next, you will need to decide which type of graph will best illustrate the data. To help decide, answer the following questions:

Line graph – Was the data collected over a repeated length of time? _____
Bar graph – Does the data represent a one-time measured quantity? _____
Circle graph – Does the data represent percentages? _____

Place the collected data on the graph paper. **<u>Remember to give your graph a tile and to title each axis, as well.</u>**

 Summerize your observations: _____
_____
_____

Analyze the Data

To analyze the data, we look for trends or a relationship between the independent and dependent variables.

Which plant grew taller? _____
Which plant

Is there a relationship between sunlight and plant growth? If yes, explain what that relationship is. If no, explain why not.

Draw a Conclusion

When you analyzed your data, you probably already drew a conclusion that was based on evidence from your experiment. Now, we just want to relate our evidence to our hypothesis. To do this, you just form a sentence combining your hypothesis with your analysis.

Form your own conclusion based on your own hypothesis and data: