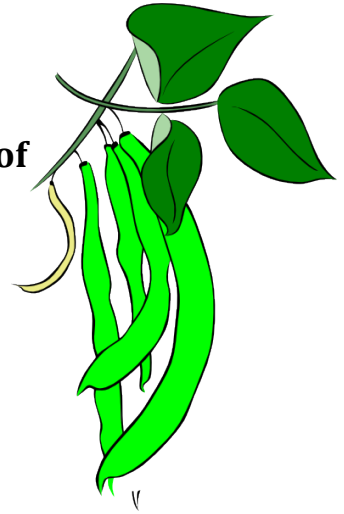


Plant Lab

Goal: Investigate how plants grow with different amounts of nutrients.



Controls:

1. You will have 4 different watering solutions:
 - a. Pure water (label as "0")
 - b. Half strength fertilizer (label as "1/2")
 - c. Regular strength (label as "1")
 - d. Double-strength fertilizer (label as "2")
2. Watering will be done on Monday's and Thursday's
3. Materials: Provided by the **TEACHER**
 - a. **One** of 4 types of plants: 1- Beans, 2- Peas, 3-Squash, 4-Sweet Potato
 - b. **Fertilizer** for watering
 - c. Pots and glass containers
4. Materials: Provided by the **STUDENT - if you want to keep your plants**
 - a. If you are growing Beans Peas, or Squash
 - i. Four pots, no bigger than 4" diameter
 - b. If you are growing Sweet Potato
 - i. Four glass jars
 - ii. Toothpicks
5. Measurements: each time you water
 - a. Notes about the appearance of each of the plants
 - b. When the seeds sprout
 - c. Shoot height
 - d. Number of leaves
 - e. Leaf color, size, etc....
 - f. Other?

Plant Lab

Administrative Information:

- Title: designates what the lab is about
- Heading: Name, Date Period

Part 1: Framing the Investigation

1. Problem: Describes the problem you are trying to solve in general terms
2. Background observations:
 - What do you know about plants?
 - How should it be planted? (Seed depth, spacing, soil temp., days to germination...)
 - What are the recommendations for "Culture" feeding and watering this plant?
3. Question; what do you want to test? Replace the words in the parenthesis: "How does (the independent variable) affect (the dependent variable)?"
4. Prediction: written in the following format: "I predict that (what will happen?) because ...
Note: this is like a hypothesis

Part 2: Designing the Investigation

5. Experiment: is to include the following
 - a. **Diagram** (sketch) of the experimental set up.
 - b. **Materials** that you will need. Written in a list format. – (a. b. c.)
 - c. **Procedures** written in a numbered list format. – (1. 2. 3.). Detailed enough so another person could repeat the experiment you conducted. **Includes:**
 - How often and how much to water?
 - How much soil?
 - How far apart should the seeds be planted and how deep?
 - How much light will they receive?
 - Manipulated and responding variables listed, constant variables listed.
 - How observations, both quantitative qualitative and quantitative will be taken. **All measurements will be done in metric.**

END OF GROUP WORK: ALL WORK BEYOND THIS POINT IS INDIVIDUALLY DONE!

Part 3: Collecting and Presenting Data

6. **Data table and calculations:**
 - a. Record all numerical data from your experiment in a table
 - b. Show any calculations that were done to complete the lab.
7. **Graph:** Make sure graph is complete with a title, heading, units, variables, and labeled axes.
Describe the trend of the graph.

Part 4: Analyzing and Interpreting Data

8. **The Conclusion**
 - a. Restate the overall purpose of the experiment, include the IV and DV
 - b. Summarize and explain the major findings.
 - c. State the hypothesis, and explain if it was supported by the data.
 - d. Identify the errors in the experiment and their impact. State how this experiment could be improved.
 - e. Give suggestions for future experiments on this same topic. What new experiments could continue study of this topic?