

BEAN GERMINATION EXPERIMENT

INTRODUCTION

This experiment on bean germination is offered as a model experiment in which we will analyze not only the results from the experiment, but also the structure of the experiment itself.

An experiment attempts to test the truth of a hypothesis. A scientific hypothesis is basically an "educated guess" that attempts to explain a particular observed phenomenon. Scientific hypotheses are usually a comparison between objects or pairs of objects. Therefore, most experiments require at least two setups. These are alike in all respects except one. The condition in which the setup differs is called the variable. A setup in which the condition is not varied, or varied the least, is the control setup. All other setups are the experimental.

If you have done any gardening, you may have wondered why some seed packets suggest soaking the seeds before planting. We might guess that moisture applied to seeds before planting influences their germination. We then have a purpose for our experiment- to test our guess or hypothesis.

HYPOTHESIS-

MATERIALS

1. Kidney bean seeds (10 from each soaking period)
2. 4 Petri dishes
3. wax pencils
4. Paper toweling cut to fit the petri dishes

PROCEDURE

1. Obtain **FOUR** petri dishes
2. Label the **BOTTOM** of dishes as follows:
Dish #1- 0 hr Dish #2- 4 hr Dish #3- 12 hr Dish#4- 24 hr
3. Also label each petri dish with the initials of your group members
4. Place two circular pieces of paper towel (cut to fit) in the bottom of each dish
5. Add enough water to each dish to thoroughly wet the paper
****DRAIN OFF THE EXCESS WATER****
6. On the side counter you will find seeds that have been soaked for varying amounts of time
7. "Place" **TEN** seeds from each soaking time in the appropriate dish:

DISH 1- 0 hours	DISH 3- 12 hours
DISH 2- 4 hours	DISH 4- 24 hours
8. Choose beans that are whole, not split
9. Place the dishes in a tray marked for your period. The tray will be placed in the environmental chamber where the light and temperature will vary little
10. Observe the seeds each day for the next **THREE DAYS** and record the number of seedlings that have broken through the seed coats in each container. Record your results in a table.

DATA: Make a data table that compares the time of soaking to the days of incubation. then graph your results on a bar graph.

Results:

Conclusion:

1. Was your Hypothesis correct?
2. Which time period showed the greatest amount of growth?
3. Did anything interfere with your experiment? (ie. mold, bacteria, etc.)
4. How would change this experiment in order to make your results more reliable or to make the experiment better?

PEER EVALUATION

(USE +, -, OR INC.)

YOU

PEER

TEACHER

	YOU	PEER	TEACHER
Neatness			
Title			
Introduction			
Materials			
Proceedure			
Data table			
Graph			
Results			
Conculsion			
Complete			