

Research Plan

Your Name

Items highlighted and in italics are examples. Delete these items and replace them with your content!

A. The Problem (written in question form)

The question guiding this science fair experiment is: *What brand of fertilizer will make plants grow the tallest?*

B. The Hypothesis (written in If...then form and do not use pronouns)

The hypothesis is: *If Miracle Grow, Target and Frank's fertilizers are used, then Miracle Grow will make the plants grow the tallest.*

C. Why is this research important?

One example of why this research is important is so farmers can maximize their harvest output, and thus profit, by using fertilizers that will have the most positive growth effect on their crops.

D. The Procedure

The variables for this experiment are:

Independent: *the brand of fertilizer*

Dependent: *the height of the plants*

Controls: (Should include at least 5 controls) *the amount of fertilizer use, where the plants are stored, the amount of water and the type of plant.*

List the materials that will be used and include specific amounts when appropriate:

- *3 brands of fertilizer*
- *40 ferns*
- *Heat lamps*
- *Soil*
- *Watering can/water*
- *Eyedropper*

Sample Size and Experiment Set-Up:

40 total plants will be tested. These plants will be divided into 4 groups, a Miracle Grow Group, a Target Fertilizer Group and a Franks Fertilizer Group. Fertilizer will be added every 2 days and growth recorded every two days, as explained in the procedure below:

Step 1: Plant the 40 ferns in the containers. Divide the plants into 4 groups, a Miracle Grow Group, a Target Fertilizer Group and a Franks Fertilizer Group. Give each group 20 mL of water and 5 mL of the right type of fertilizer.

Step 2: After 2 days of growth, record the height in centimeters.

Step 3: After 2 more days, add 5 more mL of fertilizer.

Step 4: After 2 more days of growth, record the height in centimeters.

Step 5: Repeat.

E. What are the expected results of your experiment and how will you show those results?

I expect the results of my experiment to show that the group of plants that were fertilized with Miracle Grow grew taller than any of the groups that were not fertilized with Miracle Grow. I plan to show this by comparing the heights of the different groups of plants.

F. Resources: (YOU NEED A TOTAL OF 5! You can list interesting books/websites)

*3 of the sources can be internet websites, 2 of the sources must be another type of resource ex. Book, encyclopedia, science journal, magazine, etc.

1.) www.sciencebuddies.com

2.) The Fertilizer Handbook

Note: You must have this research plan approved before you start your experiment. Please have your teacher sign below.

I approve this research plan.

Teacher Name: _____

Teacher signature: _____

NEXT STEP: Attach your completed research plan to Form 1A