



Data Analysis

STEM Sims

Lesson 1: Variables

One of the most common experiences students encounter in science laboratories is making inferences about experimental data. Very often, students have to decide whether some variable has an effect on a second variable. A good first step in any investigation is to identify the experimental variables of interest. Can you determine the variables in this investigation?

Doing the Science

1. Start the Data Analysis Simulation by clicking on the “Sim” tab.
2. Click on the “Counting” button.
3. Choose one of the factors (Fertilizer, Pesticide, Acid Rain, or Music) to study in this experiment by clicking on that particular button. Record this factor in Table 1.
4. Click the “Apply Treatment” button (you’ll do this three times overall). Describe in Table 1 what happens each time you clicked the “Apply Treatment” button.
5. Click the “Results” button. Then click on one of the Flats, A, B, C, or D.
6. Click on one of the plants in the flat you selected. Note and record in Table 1 what factor you are counting on the plant. This information is supplied on the right side of the screen where data is entered.

Table 1. Study Variables

What factor you tested:	
What you saw: Apply Treatment #1:	
What you saw: Apply Treatment #2:	
What you saw: Apply Treatment #3:	
What factor you counted:	

Do You Understand?

1. Identify the following for your specific experiment:
 - a. independent (manipulated) variable –
 - b. dependent (response) variable –
 - c. operational definition –
 - d. moderator (control) variable –
2. Write a possible hypothesis for your experiment.