

Activity 4: Evaluating Experiment Designs

Name _____

Date _____

Class _____

Key Question

Explore Your Ideas

Experiment 1: If different Earth's materials are heated by sunlight, is the final temperature the same or different for each?

Analyze the Experiment

1. The experiment question is:

2. The *manipulated variable* (the variable that was deliberately changed) is

The *responding variable* (the variable that you measured) is

3. In this experiment, how many different types of Earth's materials are being used?

What are the values of the manipulated variable?

4. The responding variable is measured by

5. The variables or conditions that are kept the same in this experiment are

6. Is there any other variable (besides the manipulated and responding variables) that *changes* in the experiment? Yes No

If yes, what other variable or variables were changed?

7. This experiment _____ (*is, is not*) a fair test, because _____

Experiment 2: If you start with two different temperatures of water (one hot and one cold), how does the time it takes for the water to freeze change?

Analyze the Experiment

1. The experiment question is:

2. The *manipulated variable* (the variable that was deliberately changed) is

The *responding variable* (the variable that you measured) is

3. In this experiment, how many different temperatures of water are being used?

What are the values of the manipulated variable?

4. The responding variable is measured by _____

5. The variables or conditions that are kept the same in this experiment are

6. Is there any other variable (besides the manipulated and responding variables) that *changes* in the experiment? Yes No
If yes, what other variable or variables were changed?

7. This experiment _____ (*is, is not*) a fair test, because _____

Experiment 3: If the type of corn seed is changed, then what happens to its health and growth rate in crowded conditions?

Analyze the Experiment

1. The experiment question is:

2. The *manipulated variable* (the variable that was deliberately changed) is

The *responding variable* (the variable that you measured) is

3. In this experiment, how many different types of corn are being used?

What are the values of the manipulated variable?

4. The responding variable is measured by _____

5. The variables or conditions that are kept the same in this experiment are

6. Is there any other variable (besides the manipulated and responding variables) that *changes* in the experiment? Yes No

If yes, what other variable or variables were changed?

7. This experiment _____ (*is, is not*) a fair test, because _____

My Ideas

The key question for this activity is:



What are the criteria for evaluating an experiment design for a fair test?

Based on what you learned in this activity, write your answer to the key question.
