

Name _____

Scientific Method Unit

Step 5: Variables

Variables are conditions that could affect the outcome of an experiment. For instance, think about all of the different things that might affect how well a student does on a test. Their amount of sleep, how long they studied, how well they paid attention in class, if they're feeling well, the behavior of the students around them, if they're having trouble at home or they don't like the teacher...all of these things, and more, could affect how well that student performs.

Develop at least 3 variables for each of the following situations.

- A) What variables can affect the number of fish in a lake?

- B) What variables can affect the speed of a runner in a 100-yd dash?

- C) What variables can affect attendance at a baseball game?

- D) What variables can affect the taste of soda?

- E) What variables can affect the amount of fruit an apple tree produces?

- F) What variables can affect student performance on a social studies quiz?

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For each item below, specify the independent and dependent variables, as well as constants.

1. A study was done to find if different tire treads affect the braking distance of a car.

I: _____ D: _____ C: _____

2. The time it takes to run a mile depends on the person's running speed.

I: _____ D: _____ C: _____

3. The height of bean plants depends on the amount of water they receive.

I: _____ D: _____ C: _____

4. The higher the temperature of the air in the oven, the faster a cake will bake.

I: _____ D: _____ C: _____

5. Lemon trees receiving the most water produced the most lemons.

I: _____ D: _____ C: _____

6. An investigation found that more bushels of potatoes were produced when the soil was fertilized more.

I: _____ D: _____ C: _____

7. Students measured the temperature of the water at different depths in Lake Skywalker and found that the temperature varied.

I: _____ D: _____ C: _____

8. The amount of pollution produced by cars was measured for cars using gasoline containing different amounts of lead.

I: _____ D: _____ C: _____

9. Four groups of rats are first massed and then fed identical diets except for the amount of vitamin A they receive. Each group gets a different amount. After 3 weeks on the diet, the rats' masses are measured again to see if there has been a decrease.

I: _____ D: _____ C: _____

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Scientific Method Unit
Hypothesis Writing Practice

For each of the following questions, write a reasonable hypothesis using the correct format.

1. How will batting practice affect a player's batting average?

HYPOTHESIS:

2. How does the depth of the Lake of the Ozark affect its temperature?

HYPOTHESIS:

3. How does advertising for can collection week affect the number of cans collected?

HYPOTHESIS:

4. How does the size of a paper towel affect the amount of water it can hold?

HYPOTHESIS:

5. Does fertilizer affect the growth of a plant?

HYPOTHESIS:

6. Does the volume of a container affect how quickly water will evaporate from it?

HYPOTHESIS: