

Name: _____

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: _____

Name: _____

Date: _____ Period: _____

For each experiment below, specify the independent variable, dependent variable, control group and any constants.

1. A student wanted to test how the mass of a paper airplane affected the distance it would fly. Paper clips were added before each test flight. As each paper clip was added, the plane was tested to determine how far it would fly.

Independent variable _____

Dependent variable _____

Control _____

Constant _____

2. Two groups of students were tested to compare their speed working math problems. Each group was given the same problems. One group used calculators and the other group computed without calculators.

Independent variable _____

Dependent variable _____

Control _____

Constant _____

3. Students of different ages were given the same puzzle to assemble. The puzzle assembly time was measured.

Independent variable _____

Dependent variable _____

Constant _____

There can be several controlled variables. If an experiment is to be useful, only one variable at a time can be manipulated intentionally. All other variables must be controlled throughout all parts of the experiment. If more than one variable is altered (changed), the results of an experiment cannot be interpreted with any validity.

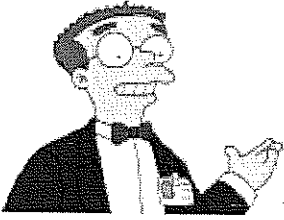
4. An experiment was performed to determine how the amount of coffee grounds could affect the taste of coffee. The same kind of coffee, the same percolator, the same amount and type of water, the same perking time, and the same electrical sources were used.

Independent variable _____

Dependent variable _____

Constants (3) _____

Identify the Controls and Variables

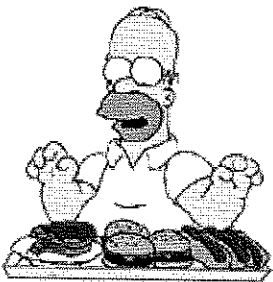


Smithers thinks that a special juice will increase the productivity of workers. He creates two groups of 50 workers each and assigns each group the same task (in this case, they're supposed to staple a set of papers). Group A is given the special juice to drink while they work. Group B is not given the special juice. After an hour, Smithers counts how many stacks of papers each group has made. Group A made 1,587 stacks, Group B made 2,113 stacks.

Identify the:

1. Control Group
2. Independent Variable
3. Dependent Variable
4. What should Smithers' conclusion be?

5. How could this experiment be improved?



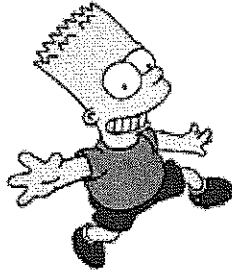
Homer notices that his shower is covered in a strange green slime. His friend Barney tells him that coconut juice will get rid of the green slime. Homer decides to check this out by spraying half of the shower with coconut juice. He sprays the other half of the shower with water. After 3 days of "treatment" there is no change in the appearance of the green slime on either side of the shower.

6. What was the initial observation?

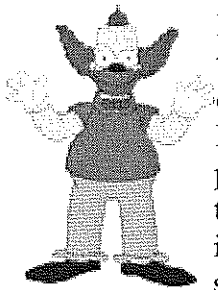
Identify the-

7. Control Group
8. Independent Variable
9. Dependent Variable
10. What should Homer's conclusion be?

Bart believes that mice exposed to microwaves will become extra strong (maybe he's been reading too much Radioactive Man). He decides to perform this experiment by placing 10 mice in a microwave for 10 seconds. He compared these 10 mice to another 10 mice that had not been exposed. His test consisted of a heavy block of wood that blocked the mouse food. He found that 8 out of 10 of the microwaved mice were able to push the block away. 7 out of 10 of the non-microwaved mice were able to do the same.



- Identify the-
11. Control Group
 12. Independent Variable
 13. Dependent Variable
 14. What should Bart's conclusion be?
 15. How could Bart's experiment be improved?



Krusty was told that a certain itching powder was the newest best thing on the market; it even claims to cause 50% longer lasting itches. Interested in this product, he buys the itching powder and compares it to his usual product. One test subject (A) is sprinkled with the original itching powder, and another test subject (B) was sprinkled with the Experimental itching powder. Subject A reported having itches for 30 minutes. Subject B reported to have itches for 45 minutes.

- Identify the-
16. Control Group
 17. Independent Variable
 18. Dependent Variable
 19. Explain whether the data supports the advertisements claims about its product.

Lisa is working on a science project. Her task is to answer the question: "Does Rogooti (which is a commercial hair product) affect the speed of hair growth". Her family is willing to volunteer for the experiment.



20. Describe how Lisa would perform this experiment. Identify the control group, and the independent and dependent variables in your description.