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 _____

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 _____

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) _____

Scientific Method Name _____
Controls and Variables – Part 1

SpongeBob and his Bikini Bottom pals have been busy doing a little research. Read the description for each experiment and answer the questions.

1 - Patty Power

Mr. Krabbs wants to make Bikini Bottoms a nicer place to live. He has created a new sauce that he thinks will reduce the production of body gas associated with eating crabby patties from the Krusty Krab. He recruits 100 customers with a history of gas problems. He has 50 of them (Group A) eat crabby patties with the new sauce. The other 50 (Group B) eat crabby patties with sauce that looks just like new sauce but is really just mixture of mayonnaise and food coloring. Both groups were told that they were getting the sauce that would reduce gas production. Two hours after eating the crabby patties, 30 customers in group A reported having fewer gas problems and 8 customers in group B reported having fewer gas problems.

Which people are in the control group?

What is the independent variable?

What is the dependent variable?

What should Mr. Krabs' conclusion be?

Why do you think 8 people in group B reported feeling better?

2 – Slimotosis

Sponge Bob notices that his pal Gary is suffering from slimotosis, which occurs when the shell develops a nasty slime and gives off a horrible odor. His friend Patrick tells him that rubbing seaweed on the shell is the perfect cure, while Sandy says that drinking Dr. Kelp will be a better cure. Sponge Bob decides to test this cure by rubbing Gary with seaweed for 1 week and having him drink Dr. Kelp. After a week of treatment, the slime is gone and Gary's shell smells better.

What was the initial observation?

What is the independent variable?

What is the dependent variable?

What should Sponge Bob's conclusion be?