Name _____ **KEY** _____ Date _____ Period _____

The Scientific Method with the Simpsons

1. 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:

a. Control Group
Group B

b. Independent Variable
Whether the group gets the special juice

c. Dependent Variable
How many stacks of paper are stapled

d. What should Smithers' conclusion be?
The juice does not increase productivity

e. How could this experiment be improved?

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2. 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 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.

a. What was the initial observation?
His shower was covered in slime

Identify the:

b. Control Group
The side of the shower sprayed with water

c. Independent Variable
The coconut juice

d. Dependent Variable
The appearance of the green slime

3. Bart believes that mice exposed to radiowaves will become extra strong. He decides to perform this experiment by placing 10 mice near a radio for 5 hours. 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 radiowaved mice and 7 out of 10 of the other mice were able to move the block.

Identify the:

a. Control Group
The 10 mice not exposed to the radio

b. Independent Variable
Radiowave exposure

c. Dependent Variable
Ability to move wood block (strength of the mice)

d. What should Bart's conclusion be?
Inconclusive or that radiowave exposure wouldn't work because one mouse difference is not enough to conclude that it works.

e. How could Bart's experiment be improved?
Longer exposure or to continue testing in the same manner

4. 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:

a. Control Group
Subject A

b. Independent Variable
Type of itching powder

c. Dependent Variable
How long the subject is itchy

d. Explain whether the data supports the advertisements claims about its product.
45 minutes is 50 % more that 30 minutes, so the claims seem to be true

5. 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.

a. Describe how Lisa would perform this experiment. Identify the control group, and the independent and dependent variables in your description.
Ex) Lisa would test two family members. One would grow their hair naturally (control group) and the other would use Rogooti (independent variable). She would measure the length of hair grown over time (dependent variable).