

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

GROUP B

2. Independent Variable

SPECIAL JUICE

3. Dependent Variable

THE AMOUNT OF STAPLED PAPERS

4. What should Smithers' conclusion be? **The special juice will not make workers more productive**

5. How could this experiment be improved? **More time for stapling, more juice given to workers,**



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?

Green slime on his shower

Identify the:

7. Control Group

The half of shower sprayed with water

8. Independent Variable

Coconut Juice

9. Dependent Variable

The amount of green slime

10. What should Homer's conclusion be? **Coconut juice did not work**

Bart believes that mice exposed to radio waves will become extra strong (maybe he's been reading too much

Radioactive Man). 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 radio waved mice were able to push the block away.

7 out of 10 of the other mice were able to do the same.



Identify the:

11. Control Group **10 mice not exposed to radio waves**

12. Independent Variable **exposure to radio waves for 5 hours**

13. Dependent Variable **Ability to push the heavy block of wood away**

14. What should Bart's conclusion be? **Radio waves will not help mice become stronger**

15. How could Bart's experiment be improved? **Exposure for longer time, bigger sample size, better source or radio waves**



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 **Subject A**

17. Independent Variable **Type of Itching powder**

18. Dependent Variable **Time of itching**

19. Explain whether the data supports the advertisements claims about its product. **Yes, the group B itched for 50% longer (as advertised)**

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.

She would use Bart and Homer as their test subjects. They would cut their hair to 1 cm long. Then they would use Rogooti for 2 months. After 2 months, she would measure the length of their hair. After that, they would, again, cut their hair to 1 cm long, but would not use Rogooti at all. After 2 months, Lisa would measure their hair and compare the length with the original measurement.



20. Describe how Lisa would perform this experiment? Identify the Control group, independent, and dependent variable in your description.

21. Control Group **Bart, Homer**

22. Independent Variable **The use of Rogooti**

23. Dependent Variable **The length of hair**