

Name _____

Practice with Variables and Observations

For each of the scenarios described below, identify the independent variable, *three* controlled variables, and the dependent variable.

1. Maria is conducting a science fair experiment about how certain stimuli affect mice. She plans to have a mouse run through a maze where a piece of food is waiting at the other end. Maria will use 5 different food samples. She will have the mouse run the maze 10 times for each of the food samples, and use a stopwatch to time how long it takes the mouse to reach the food each time. She will then average the times for each of the 5 food samples to determine which food the mouse was most attracted to. Her results showed that the mouse completed the maze the fastest with dry cat food. The average time for this was 67.4 seconds. The mouse completed the maze the slowest for peanut butter. The average time for this was 92.0 seconds.

Independent variable _____

Controlled variables _____

Dependent variable _____

2. Joe has set up a lab experiment where he will be testing if the slope of a ramp affects the speed of a toy car. Joe sets up a piece of wood as the ramp, which is elevated at one end by 6 books. He starts the car at the top of the ramp then uses a stopwatch to time how long it takes the car to reach a point one meter from the base of the ramp. Joe then repeats these steps, removing one book each time so that the slope of the ramp is decreased. The distance the car travels is the same for each test. Joe finds that for the greatest slope the car covered the distance in 1.2 seconds. For the lowest slope the car covered the distance in 2.2 seconds.

Independent variable _____

Controlled variables _____

Dependent variable _____

For each of the observations written below, write "Qualitative" or "Quantitative" next to it.

3. The color of the sky is blue. _____
4. My desk is 124 cm long. _____
5. The book weighs 4.2 pounds. _____
6. There are 12 brunettes in the class. _____
7. The material tastes salty. _____
8. Bubbles are forming in the bag. _____
9. The car's speed was 45 mph. _____
10. The liquid gave off a hissing sound. _____