

Name:

THE GREAT FAKESPERIMENTS: A practice in variables

Read the following scientific investigations and identify the independent (manipulated or experimental) and dependent (responding) variables. Finally, state what question they are trying to answer.

1) Cars get better gas mileage when their tires are properly inflated. Sara wanted to test if this was true, so she filled the gasoline tank in her car, inflated the tires to the carmaker's suggested pressure, drove her car and then calculated the miles per gallon. The next time she filled the car's tank with gasoline, she reduced the pressure of air in her tires. Once again she drove the car over the same roads and calculated the miles per gallon. She tried the process again with tires that were inflated a little more than the suggested pressure.

Circle the independent variable. Underline the dependent variable.

- A) gas mileage
- B) tire inflation pressure
- C) type of gasoline used
- D) roads where the car was driven

Question Investigated:

2) Music may help people relax. Darius got two groups of people together. He took everybody's pulse and blood pressure. Then he allowed one group to listen to soothing music while the other group sat in silence. After the song was over, he measured everyone's pulse and blood pressure again.

Circle the independent variable. Underline the dependent variable.

- A) sitting in music or silence
- B) pulse and blood pressure
- C) type of music
- D) Darius

Question Investigated:

3) Malcolm had always heard that plants grow better if you talk to them. He purchased 10 of the same kind of plant, measured the height of each one, and made two groups of plants that he kept in similar conditions. He talked to one group for half an hour each day but did not talk to the other group. After three weeks, he measured and recorded the height of each plant again.

Circle the independent variable. Underline the dependent variable.

- A) talking or not talking to plants
- B) amount of plant growth
- C) number of plant groups
- D) kind of plants

Question Investigated:

4) Whether paint is oil-based or water-based could determine how long it takes to dry. Lillian found two pieces of the same kind of pine wood and painted one with oil-based blue paint and the other with water-based blue paint. Then she timed how long it took for each piece to dry.

Circle the independent variable. Underline the dependent variable.

- A) color of paint
- B) oil-based or water-based paint
- C) drying time
- D) kind of wood

Question Investigated:

5) Caffeine may make people more alert. Devin tested 100 people by using their scores in the same video game. Fifty of the people drank a can of regular Brand X caffeinated soda half an hour before they played the game. The other 50 drank a similar amount of Brand X caffeine-free soda before playing. He recorded each person's score on the game.

Circle the independent variable. Underline the dependent variable.

- A) amount of caffeine in the soda
- B) video game score
- C) amount of playing time
- D) number of people

Question Investigated:

6) Baking soda is an ingredient in chocolate chip cookies, but not much of it is used in the recipe compare to other ingredients such as flour. James did not think the small amount could be important to the taste of the cookies. He made four batches of cookies using the same recipe. One batch had no baking soda, one had half the amount called for in the recipe, one had the required amount, and one had double the amount called for. After making the cookies, he had 25 people do a taste test and rate the cookies from delicious to disgusting.

Circle the independent variable. Underline the dependent variable.

- A) amount of baking soda put into the cookies
- B) number of batches of cookies he baked
- C) cookie taste
- D) amount of flour used in the cookies

Question Investigated: