

Name _____
Date _____

Class _____
Scientific Method HW

A professor wanted to find out whether teaching for a short time worked better than teaching for longer periods of time. She cut all of her classes from 90 minutes to 45 minutes. Most of her students passed at the end of the term, so she decided that shorter classes were better.

1. What's wrong with the teacher's experiment? Please list at least 2 reasons in full sentences.

- a). _____
- b). _____

A farmer wanted to know if ABC fertilizer would be good for his sugar beets. He fertilized all his beets with ABC, but did not put any fertilizer on his green bean plants. His beets didn't do well at all, but he got a great crop of green beans. He concluded that ABC fertilizer was a waste of money.

2. What's wrong with the farmer's experiment? Please list at least 2 reasons in full sentences.

- a). _____
- b). _____

Mr. Spence was rather distraught about a Bounty commercial he had seen on the television. Was he wasting his hard earned money buying Brawny at \$1.49 when he could be purchasing Bounty at 20 cents cheaper? He decided to create a lab that would test how fast both paper towels were at absorbing water. Using water, a timer, rulers, plastic containers and colored dye (etc.) he ran several trials and concluded that Bounty was the better deal.

3. State a possible hypothesis for Mr. Spence's experiment:

4. What was the independent variable in Mr. Spence's experiment? _____

5. What was the dependent variable in Mr. Spence's experiment? _____

6. What was the control group in Mr. Spence's experiment? _____

7. Circle the correct choice that best answers the question: Which of the steps listed below would be first in a scientific investigation?

- (a) Perform the experiment
- (b) Analyze the experimental data
- (c) Formulate a hypothesis
- (d) Define the problem to be investigated



Squidward's Symphony

Squidward loves playing his clarinet and believes it attracts more jellyfish than any other instrument he has played. In order to test his hypothesis, Squidward played a song on his clarinet for a total of 5 minutes and counted the number of jellyfish he saw in his front yard. He played the song a total of 3 times on his clarinet and repeated the experiment using a flute and a guitar. He also recorded the number of jellyfish he observed when he was not playing an instrument. The results are shown in the chart.

10. What is the independent variable?
11. What is the dependent variable?
12. What should Squidward's conclusion be?
13. Are the results reliable? Why or why not?

Number of Jellyfish/Instrument

Trial	No Music	Clarinet	Flute	Guitar
1	5	15	5	12
2	3	10	8	18
3	2	12	9	7

Super Bubbles

Patrick and SpongeBob love to blow bubbles! Patrick found some Super Bubble Soap at Sail-Mart. The ads claim that Super Bubble Soap will produce bubbles that are twice as big as bubbles made with regular bubble soap. Patrick and SpongeBob made up two samples of bubble solution. One sample was made with 5 oz. of Super Bubble Soap and 5 oz. of water, while the other was made with the same amount of water and 5 oz. of regular bubble soap. Patrick and SpongeBob used their favorite bubble wands to blow 10 different bubbles and did their best to measure the diameter of each one. The results are shown in the chart



Bubbles

(Diameter in centimeters)

Bubble	Super Bubble	Regular Soap
1	15	10
2	10	5
3	12	16
4	18	14
5	22	11
6	13	12
7	16	11
8	18	15
9	15	15
10	12	6

14. What did the Super Bubble ads claim?
15. What is the independent variable?
16. What is the dependent variable?
17. Look at the results in the chart.
 - a. Calculate the average diameter for each bubble solution.
 Super Bubble = _____ cm Regular Soap = _____ cm
 - b. What should their conclusion be?
18. Are the results reliable? Why or why not?