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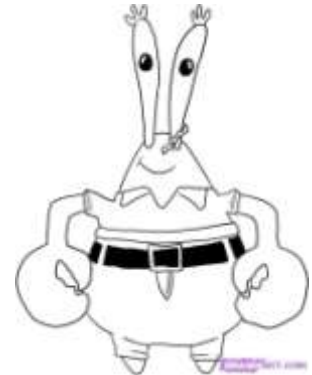
Experimental Design Practice

SpongeBob and his Bikini Bottom pals have been busy doing a little research. Read the description for each experiment and answer the questions.

Krusty Krab Breath Mints

Mr. Krabs created a secret ingredient for a breath mint that he thinks will “cure” the bad breath people get from eating crabby patties at the Krusty Krab. He asked 100 customers with a history of bad breath to try his new breath mint. He had 50 customers (group A) eat a breath mint with the secret ingredient after they finished the sandwich. The other 50 customers (group B) were also given a breath mint after eating the sandwich, however, it did not have the secret ingredient in it. Both groups believed they were getting the special breath mint. Two hours after eating the patties and taking the mint, 45 customers in group A were reported as having better breath.

1. Identify a possible hypothesis for Mr. Krab’s experiment.
2. Which group is the control group? Why?
3. Which group is the experimental group? Why?
4. What is the independent variable?
5. What is the dependent variable?
6. Identify one condition that was constant between both groups?
7. What should Mr. Krab’s conclusion be?
8. Identify one way the validity of this experiment could be improved?

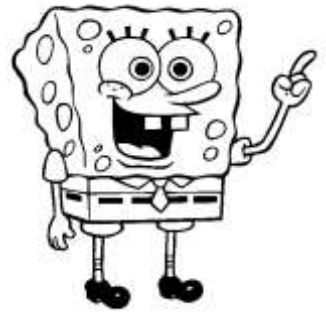


SpongeBob Clean Pants

SpongeBob noticed that his favorite pants were not as clean as they used to be. His friend Sandy told him that he should try using Clean-O Detergent, a new laundry soap she found at Sail Mart. SpongeBob made sure to wash one pair of pants in plain water and another pair in water with Clean-O Detergent. Both pairs of pants were the same color and brand. After washing both pairs of pants a total of three times, the pants washed in the Clean-O Detergent did not appear to be any cleaner than the pants washed in plain water.

9. Identify a possible hypothesis for SpongeBob’s experiment.





10. Which pair of pants was the control? Why?
11. Which pair of pants was the experimental pair? Why?
12. What is the independent variable?
13. What is the dependent variable?
14. Identify one condition that was constant between both groups?
15. What should SpongeBob's conclusion be?

16. Identify one way the validity of this experiment could be improved

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

Trial	No Music	Clarinet	Flute	Guitar
1	5	25	5	2
2	3	28	6	5
3	2	29	7	5

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.



1. Identify a possible hypothesis for Squidward's experiment.
2. Explain the purpose of counting the number of jellyfish with no music?
3. What is the independent variable?
4. What is the dependent variable?
5. What should Squidward's conclusion be?
6. Identify one way the validity of this experiment could be improved?