

Scientific Method
Bikini Bottom Experiments

Name _____

The Bikini Bottom gang loves science class and wanted to do a little research. Read the description for each experiment and use your knowledge of the scientific method to answer the questions.

(1) Flower Power

SpongeBob loves to garden and wants to grow lots of pink flowers for his pal Sandy. He bought a special Flower Power fertilizer to see if will help plants produce more flowers. He plants two plants of the same size in separate containers with the same amount of potting soil. He places one plant in a sunny window and waters it every day with fertilized water. He places the other plant on a shelf in a closet and waters it with plain water every other day.

What did SpongeBob do wrong in this experiment? Explain.

What should SpongeBob do to test the effectiveness of Flower Power fertilizer? Write an experiment.

(2) Super Snails

Gary is not the smartest snail in Bikini Bottom and believes he can improve his brain power by eating Super Snail Snacks. In order to test this hypothesis, he recruits SpongeBob and several snail friends to help him with the experiment. The snails ate one snack with each meal every day for three weeks. SpongeBob created a test and gave it to the snails before they started eating the snacks as well as after three weeks.

Based on the data provided, do the Super Snail Snacks work? Explain your answer.

Test Results		
Snail	Before	After
Gary	64%	80%
Larry	78%	78%
Barry	82%	84%
Terry	72%	70%

(3) Bubble Time

Patrick loves bubble gum and would like to be able to blow bigger bubbles than anyone else in Bikini Bottom. To prepare for the Bikini Bottom Big Bubble Contest, he bought five different brands of bubble gum and needs your help to find the brand that creates the biggest bubbles. Write an experiment to test the bubble power of the bubble gum brands and help Patrick win the contest.

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Answer Key

(1) Flower Power

SpongeBob loves to garden and wants to grow lots of pink flowers for his pal Sandy. He bought a special Flower Power fertilizer to see if will help plants produce more flowers. He plants two plants of the same size in separate containers with the same amount of potting soil. He places one plant in a sunny window and waters it every day with fertilized water. He places the other plant on a shelf in a closet and waters it with plain water every other day.

What did SpongeBob do wrong in this experiment? Explain.

SpongeBob did not provide both plants with the same amount of water and sunshine. In order to test the fertilizer correctly, both plants should have been placed in the sunny window and watered every day with the same amount of water. The only difference between the two plants should have been the fertilizer - one plant would be watered with the water with fertilizer and the other would be watered with plain water.

(What should SpongeBob do to test the effectiveness of Flower Power fertilizer? Write an experiment.

Answers will vary. Experiments should address the problems in SpongeBob's experiment.

(2) Super Snails

Gary is not the smartest snail in Bikini Bottom and believes he can improve his brain power by eating Super Snail Snacks. In order to test his hypothesis, he recruits SpongeBob and several snail friends to help him with the experiment. The snails ate one snack with each meal every day for three weeks. SpongeBob created a test and gave it to the snails before they started eating the snacks as well as after three weeks. Analyze the data in the chart and determine whether or not the Super Snail Snacks created smarter snails!

Based on the data provided, do the Super Snail Snacks work? Explain your answer.

The Super Snail Snacks appear to have worked for Gary and Barry. Both of them increased their test results after eating the snacks for three weeks. Larry did not show any improvement and Terry scored lower on his second test. However, it is difficult to determine if the Super Snail Snacks are an effective way to increase a snail's brain power based on this experiment alone as all the snails ate the snacks (no control group). The gains shown by Gary and Barry may have been due to the Super Snail Snacks, but further testing would be needed to make sure the results were not due to other factors.

(3) Bubble Time

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Answers will vary. Students should make sure to perform the same test with each brand in order to obtain reliable results. Repeated trials would generate more data to analyze and help Patrick pick the best bubble gum brand for the bubble blowing contest.

Extension Idea: Provide an opportunity for the students to try their bubble gum tests!