Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Period \_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**Scientific Method-Controls & Variables**

***SpongeBob and his Bikini Bottom pals have been busy doing a little research. Read the***

***description for each experiment and answer the questions.***

**Patty Power**

Mr. Krabbs wants to make Bikini Bottoms a nicer place to live. He has created a new sauce that he

thinks will reduce the production of body gas associated with eating Krabby patties from the Krusty

Krab. He recruits 100 customers with a history of gas problems. He has 50 of them (Group A) eat

Krabby patties with the new sauce. The other 50 (Group B) eat Krabby patties with sauce that looks just like new sauce but is really just mixture of mayonnaise and food coloring. Both groups were told that they were getting the sauce that would reduce gas production. Two hours after eating the Krabby

patties, 30 customers in group A reported having fewer gas problems and 8 customers in group B

reported having fewer gas problems.

Check each box that applies to this experiment. Controlled experiment?

Control Group

Test only 1 thing at a time

Large sample size



1. Which people are in the control group?

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. What is the independent variable (what are you testing? . . .changing?)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. What is the dependent variable (what is observed)?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. What should Mr. Krabs’ conclusion be?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. Why do you think 8 people in group B reported feeling better? Because of the placebo effect.

**Slimotosis**

Sponge Bob notices that his pal Gary is suffering from slimotosis, which occurs when the shell

develops a nasty slime and gives off a horrible odor. His friend Patrick tells him that rubbing seaweed

on the shell is the perfect cure, while Sandy says that drinking Dr. Kelp will be a better cure. Sponge

Bob decides to test this cure by rubbing Gary with seaweed for 1 week and having him drink Dr. Kelp.

After a week of treatment, the slime is gone and Gary’s shell smells better.



Check each box that applies to this experiment. Controlled experiment?

Control Group

Test only 1 thing at a time

Large sample size

1. Is this a good controlled experiment?

 Why or why not?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. What is the independent variable(s)?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. What is the dependent variable (what is observed)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. What should Sponge Bob’s conclusion be?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Marshmallow Muscles**

Larry was told that a certain muscle cream was the newest best thing on the market and claims to

double a person’s muscle power when used as part of a muscle-building workout. Interested in this

product, he buys the special muscle cream and recruits Patrick, 30 starfish friends, SpongeBob, and 30 SpongeBob friends to help him with an experiment. Larry develops a special marshmallow weight-lifting program for Patrick, SpongeBob and their friends.

He meets with them once every day for a period of 2 weeks and keeps track of their results. Before

each session Patrick and his friends’ arms and back are lathered in the muscle cream, while Sponge Bob and his friends’ arms and back are lathered with the regular lotion. At the end of the 2 weeks. Patrick, SpongeBob and their friends doubled their strength.

Check each box that applies to this experiment. Controlled experiment?

Control Group

Test only 1 thing at a time

Large sample size

1. What is in the control group?

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



2. What is the independent variable?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. What is the dependent variable?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



4. What should Larry’s conclusion be?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Microwave Miracle**

Patrick believes that fish that eat food exposed to microwaves will become smarter and would be

able to swim through a maze faster. He decides to perform an experiment by placing fish food in

a microwave for 20 seconds. He has the 50 fish swim through a maze and records the time it

takes for each one to make it to the end. He feeds the special food to 25 fish and gives regular food

to 25 others. After 1 week, the fish swim through the maze again and he records the times for each.

Check each box that applies to this experiment. Controlled experiment?

Control Group

Test only 1 thing at a time

Large sample size

 1. 1. What was Patrick’s hypothesis? If fish eat food exposed to

 microwaves, then the fish will \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

2. Name the control group.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. What is the independent variable?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. What is the dependent variable?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



5. Look at the results in the charts. What should Patrick’s conclusion be?\_\_\_\_\_\_\_\_\_\_\_\_

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**Time differences added up for each fish for a total of:**

Special Food = 67 seconds faster

Regular Food = 33 seconds faster

