

## Scientific Method Science Safety Rules

Name \_\_\_\_\_

**The Bikini Bottom gang has been learning safety rules during science class. Read the paragraphs below to find the broken safety rules and underline each one. How many can you find?**

SpongeBob, Patrick, and Gary were thrilled when Mr. Krabbs gave their teacher a chemistry set! Mr. Krabbs warned them to be careful and reminded them to follow the safety rules they had learned in science class. The teacher passed out the materials and provided each person with an experiment book.

SpongeBob and Gary flipped through the book and decided to test the properties of a mystery substance. Since the teacher did not tell them to wear the safety goggles, they left them on the table. SpongeBob lit the Bunsen burner and then reached across the flame to get a test tube from Gary. In the process, he knocked over a bottle of the mystery substance and a little bit splashed on Gary. SpongeBob poured some of the substance into a test tube and began to heat it. When it started to bubble he looked into the test tube to see what was happening and pointed it towards Gary so he could see. Gary thought it smelled weird so he took a deep whiff of it. He didn't think it smelled poisonous and tasted a little bit of the substance. They were worried about running out of time, so they left the test tube and materials on the table and moved to a different station to try another experiment.

Patrick didn't want to waste any time reading the directions, so he put on some safety goggles and picked a couple different substances. He tested them with vinegar (a weak acid) to see what would happen even though he didn't have permission to experiment on his own. He noticed that one of the substances did not do anything, but the other one fizzed. He also mixed two substances together to see what would happen, but didn't notice anything. He saw SpongeBob and Gary heating something in a test tube and decided to do that test. He ran over to that station and knocked over a couple bottles that SpongeBob had left open. After cleaning up the spills, he read the directions and found the materials he needed. The only test tube he could find had a small crack in it, but he decided to use it anyway. He lit the Bunsen burner and used tongs to hold the test tube over the flame. He forgot to move his notebook away from the flame and almost caught it on fire.

Before they could do another experiment, the bell rang and they rushed to put everything away. Since they didn't have much time, Patrick didn't clean out his test tube before putting it in the cabinet. SpongeBob noticed that he had a small cut on his finger, but decided he didn't have time to tell the teacher about it. Since they were late, they skipped washing their hands and hurried to the next class.

## Teacher Notes:

After discussing safety rules with my students, I allow time for them to read the paragraphs and identify the broken safety rules by underlining each one. When finished, we discuss each example and make a list of the correct safety rules as a class on the blackboard. After this lesson, students create their own experiments as part of our scientific method unit and are required to list safety rules that apply. They have many opportunities to review the lab safety rules throughout the school year as we do experiments in class or develop their own experiments. You might consider allowing the students to create their own “bad science” cartoons, bumper stickers, or posters to illustrate the safety rules.

## Answer Key:

SpongeBob, Patrick, and Gary were thrilled when Mr. Krabbs gave their teacher a chemistry set! Mr. Krabbs warned them to be careful and reminded them to follow the safety rules they had learned in science class. The teacher passed out the materials and provided each person with an experiment book.

SpongeBob and Gary flipped through the book and decided to test the properties of a mystery substance. Since the teacher did not tell them to wear the safety goggles, they left them on the table<sup>1</sup>. SpongeBob lit the Bunsen burner and then reached across the flame<sup>2</sup> to get a test tube from Gary. In the process, he knocked over a bottle of the mystery substance and a little bit splashed on Gary<sup>3</sup>. SpongeBob poured some of the substance into a test tube and began to heat it. When it started to bubble he looked into the test tube<sup>4</sup> to see what was happening and pointed it towards Gary<sup>5</sup> so he could see. Gary thought it smelled weird so he took a deep whiff of it<sup>6</sup>. He didn't think it smelled poisonous and tasted a little bit of the substance<sup>7</sup>. They were worried about running out of time, so they left the test tube and materials on the table<sup>8</sup> and moved to a different station to try another experiment.

Patrick didn't want to waste any time reading the directions<sup>9</sup>, so he put on some safety goggles and picked a couple different substances. He tested them with vinegar (a weak acid) to see what would happen even though he didn't have permission to experiment on his own<sup>10</sup>. He noticed that one of the substances did not do anything, but the other one fizzed. He also mixed two substances together to see what would happen<sup>11</sup>, but didn't notice anything. He saw SpongeBob and Gary heating something in a test tube and decided to do that test. He ran over to that station<sup>12</sup> and knocked over a couple bottles that SpongeBob had left open<sup>13</sup>. After cleaning up the spills, he read the directions and found the materials he needed. The only test tube he could find had a small crack in it, but he decided to use it anyway<sup>14</sup>. He lit the Bunsen burner and used tongs to hold the test tube over the flame. He forgot to move his notebook away from the flame<sup>15</sup> and almost caught it on fire.

Before they could do another experiment, the bell rang and they rushed to put everything away. Since they didn't have much time, Patrick didn't clean out his test tube before putting it in the cabinet<sup>16</sup>. SpongeBob noticed that he had a small cut on his finger, but decided he didn't have time to tell the teacher about it<sup>17</sup>. Since they were late, they skipped washing their hands<sup>18</sup> and hurried to the next class.

## Safety Rules:

- 1 - Always wear safety goggles whenever you are working with chemicals or other substances that might get into your eyes.
- 2 - Never reach across a flame.
- 3 - Immediately notify your teacher if any chemical gets on your skin or clothing to find out what to do to clean it off.
- 4 - Never look directly into a test tube when mixing or heating chemicals.
- 5 - Always point a test tube away from you and others when heating it over a flame or other heat source.
- 6 - Never smell a chemical directly from the container. Wave your hand over the opening of the container and “waft” the fumes towards your nose.
- 7 - Never taste a chemical unless you are instructed by your teacher to do so.
- 8 - Always clean up your work area and equipment after an experiment is completed. Equipment must be returned to its proper place.
- 9 - Read and follow all directions exactly as they are written. If in doubt, ask your teacher for help!
- 10 - Never mix chemicals (or perform tests) without your teacher's permission.
- 11 - Never mix chemicals without your teacher's permission.
- 12 - Never run (or push someone else) in the lab. (I let the kids know this rule applies at all times!)
- 13 - Keep lids on bottles and containers when not in use.
- 14 - Never use broken or chipped glassware.
- 15 - Keep your work area clean and keep all materials (clothing, hair, papers, etc.) away from a flame or heat source.
- 16 - Always clean up your work area and equipment after an experiment is completed. Equipment must be returned to its proper place.
- 17 - Immediately notify your teacher if you get cut or have another injury when performing an experiment.
- 18 - Wash your hands before and after each experiment.