GRADE 5 READING - SCIENCE FICTION

The Exploding Volcano

Mr. Thomas stood at the front of the classroom, a wide grin on his face. He was about to teach his fifth-grade science class an exciting experiment—how to create a volcanic reaction! The students, eager and curious, sat in their seats, ready to learn.

"Good morning, class!" Mr. Thomas greeted enthusiastically. "Today, we are going to explore the fascinating world of volcanoes and create our very own volcanic eruption."

The classroom buzzed with excitement as Mr. Thomas displayed a diagram of a volcano on the board. He explained, "A volcano is a mountain that erupts with molten rock, ash, and gasses. The reaction we'll be creating is a simulated version of this natural phenomenon."

Thomas, Justine, Marcus, and Lily exchanged excited glances. They couldn't wait to get started.

"Now," Mr. Thomas continued, "to create our volcanic reaction, we'll need a few ingredients. Who can tell me what they are?"

Thomas raised his hand eagerly. "Water, vinegar, dish soap, and baking soda!" he exclaimed.

"Exactly!" Mr. Thomas nodded. "Water will act as the liquid inside the volcano, vinegar will provide the acid, dish soap will create foam, and baking soda will be our base. When we combine the vinegar and baking soda, a chemical reaction occurs, resulting in a volcanic eruption."

Justine had a question. "Mr. Thomas, how does the reaction create an eruption?"

"Great question, Justine!" Mr. Thomas praised. "The reaction between the vinegar (acetic acid) and baking soda (sodium bicarbonate) produces carbon dioxide gas. As the gas forms and builds pressure, it causes the liquid mixture to erupt, just like a volcano!"

Marcus raised his hand next. "Can we add food coloring to make it look more like real lava?"

Mr. Thomas smiled. "Absolutely, Marcus! Food coloring will enhance the visual effect and make our volcanic reaction even more exciting to observe."

With a collective cheer, the class gathered their materials and began the experiment. They carefully poured the water, vinegar, and dish soap into the volcano model they had constructed using clay. Finally, they added the baking soda, and the reaction started to bubble and fizz.

Lily watched in amazement as the simulated lava overflowed from the volcano, cascading down the sides. "It's erupting!" she exclaimed.

The class erupted in excitement, observing the eruption and noting down their observations. They measured the height and duration of the eruption, making detailed records.

Once the eruption subsided, Mr. Thomas instructed the class to analyze their data and draw conclusions. They discussed how the amount of baking soda and vinegar affected the height and duration of the eruption. They also considered how the addition of dish soap affected the foaming and visual effect of the reaction.

1. What does Mr. Thomas teach the class in science today?
    A) How to create a baking soda volcano
    B) How to make real lava from scratch
    C) How to build a clay volcano model
    D) How to measure the acidity of vinegar

2. What does the word "fizz" mean in the passage?
    A) To explode with a loud noise
    B) To bubble and make a hissing sound
    C) To rapidly spin around
    D) To create a bright flash of light

3. How would increasing the amount of baking soda affect the volcanic eruption?
    A) It would cause a higher and longer eruption.
    B) It would have no effect on the eruption.
    C) It would cause a shorter but more intense eruption.
    D) It would stop the eruption from happening.

4. What role does dish soap play in the volcanic reaction?
    A) It creates foam and enhances the visual effect.
    B) It controls the height and duration of the eruption.
    C) It provides the acidity needed for the reaction.
    D) It acts as a base and neutralizes the acid.

5. What does the word "subside" mean in the passage?
    A) To increase rapidly in intensity
    B) To disappear completely
    C) To gradually decrease or become less intense
    D) To solidify into a hard substance

6. What would happen if vinegar was replaced with water in the volcanic reaction?
    A) There would be no eruption.
    B) The eruption would be more explosive.
    C) The eruption would be the same.
    D) The eruption would last longer.

7. How might adding more dish soap affect the volcanic eruption?
    A) It would make the eruption more colorful.
    B) It would make the eruption quieter.
    C) It would cause the eruption to happen faster.
    D) It would make the eruption less foamy.

8. Why did the author write this passage?
    A) To explain the process of creating a volcanic reaction
    B) To describe the history of volcanoes
    C) To provide a recipe for baking soda and vinegar volcano
    D) To discuss the dangers of volcanic eruptions

Answers:

1. A) How to create a baking soda volcano
2. B) To bubble and make a hissing sound
3. A) It would cause a higher and longer eruption.
4. A) It creates foam and enhances the visual effect.
5. C) To gradually decrease or become less intense
6. A) There would be no eruption.
7. A) It would make the eruption more colorful.
8. A) To explain the process of creating a volcanic reaction

Explanations:

1. Mr. Thomas teaches the class how to create a volcanic reaction using baking soda, vinegar, and other ingredients, resulting in a simulated eruption.
2. In the passage, "fizz" is used to describe the bubbling and hissing sound produced by the chemical reaction between the vinegar and baking soda.
3. Increasing the amount of baking soda would result in a larger amount of carbon dioxide gas being produced during the reaction. This would generate more pressure, leading to a higher and longer eruption as the gas pushes the liquid mixture out of the volcano model.
4. Dish soap in the volcanic reaction creates foam, adding to the visual effect and mimicking the appearance of volcanic activity.
5. In the passage, "subside" is used to describe the gradual decrease and calming of the volcanic reaction after the eruption.
6. Vinegar, as an acid, reacts with baking soda, a base, to produce carbon dioxide gas. If vinegar was replaced with water, there would be no acid-base reaction, and therefore no carbon dioxide gas would be produced. Without the gas buildup, there would be no eruption.
7. Dish soap creates foam in the volcanic reaction, contributing to the visual effect of the eruption. By adding more dish soap, the foam produced would be increased, making the eruption appear more vibrant and colorful.
8. The purpose of this passage is to explain and guide readers through the process of creating a volcanic reaction using baking soda and vinegar, showcasing a fun and educational science experiment.