

The Great Toothpaste Experiment

Michael Stahl



Mrs. Thatcher had an announcement for her fourth grade class. The 30 boys and girls listened closely, a little worried about what she might say. Most of the times Mrs. Thatcher “had an announcement,” things did not turn out so well for the class. She announced tests, upcoming fire drills, homework that needed to be done over vacations, and other activities the students just simply did not enjoy taking part in, even though they all knew those things were just part of going to school.

Mrs. Thatcher, who looked like a gray-haired giant to the fourth graders, stood in front of the class silently in her large, heavy shoes. All of the students were waiting patiently for the announcement, but Mrs. Thatcher stayed silent a few moments longer. It was almost as though she knew the kids were expecting bad news, so she seemed to keep them waiting on purpose to worry them more.

“The science fair is coming up in two weeks,” she finally said, breaking the silence. A few kids in the class groaned, others quietly said, “Yesss!” in celebration. They had taken part in the science fair every year since kindergarten. Some of the students just wanted to get it over with, while others really enjoyed coming up with experiments and showing off what they had learned to a gymnasium full of people.

Samuel James liked the yearly science fair. Sherry Jane was not so enthusiastic.

“However,” continued Mrs. Thatcher once all the kids got their reactions out of the way. “This year will be a little bit different than years past.”

“Uh oh,” many of the kids thought to themselves.

“This year, you will be working with partners,” Mrs. Thatcher said.

The whole class let out a groan. This was most likely because the process would be new to them and added another challenge: learning to work with another person.

Fifteen kids wrote their names on a piece of paper and put it into Mrs. Thatcher’s wool hat. The other fifteen students went up to the front of the class, one-by-one, and picked out a name. The student’s name that was on that paper would be their partner. Samuel James picked out Sherry Jane’s name.

“So what kind of experiment do you want to do?” Samuel James asked Sherry Jane.

“Um. I don’t know,” Sherry Jane replied without any enthusiasm at all.

Samuel James was really excited about the science fair, though, and would not let Sherry Jane drag down his mood.

“Remember when the Home Economics teacher showed us how yeast made bread rise?” Samuel James asked.

“Uh huh,” said Sherry Jane, emotionless.

“I was thinking we could fool around with yeast and see what else can happen!”

“Sure. I’ll do whatever you want,” said Sherry Jane.

Samuel James invited Sherry Jane over to his house one day to work on the experiment. He had gathered together a whole bunch of household items, including yeast, and had them laid out on the kitchen table alongside a huge mixing bowl.

First, they mixed together yeast and water, but it just got clumpy. That was not interesting to anybody. Then, they tried adding dishwashing soap. Nothing.

“Nothing is working,” said Sherry Jane.

“Science is patience,” said Samuel James. “Anything that has ever been accomplished in science has happened because of patience and understanding that experiments need to be tried out many, many times before they work.”

After cleaning out the mixing bowl again, Samuel James grabbed the hydrogen peroxide and poured a little into a fresh batch of yeast and water. The contents of the bowl suddenly began to rise.

“Whoah!” said Sherry Jane in amazement. “That is really neat.”

“I told you we would figure something out!” said Samuel James.

“Yes, but we can’t just throw yeast and hydrogen peroxide in a bowl for the science fair. We need to do more to make it look cool, too,” said Sherry Jane, who was now beginning to show a lot of interest.

They thought about it for a bit after cleaning the bowl again and drying it off.

“How about we mix the soap we used with the peroxide, then put it in the yeast? I will bet you a candy bar it bubbles!” said Sherry Jane after looking around the table again.

Samuel James did as he was instructed and, sure enough, Sherry Jane was right. Bubbles started to overflow the bowl.

They took a break and opened up the bottle of soda from Samuel James’ refrigerator. There was just enough left for them to enjoy a cup of cola each.

“Well, looks like we are done here,” said Sherry Jane.

“No. We need to add something more to this,” Samuel James replied. “This is too simple, and basically all we did was make bubbles in a bowl without water. We need to really make peoples’ eyes pop.”

Like they had done before, they started looking around the kitchen. Sherry Jane saw the newly emptied soda bottle and an idea popped into her head.

“How about we make the bottle overflow instead of that bowl? That will look awesome!” Sherry Jane said.

“Let’s try it,” said Samuel John, who then, miraculously, also spotted the food coloring he had found in the cabinet and put on the table.

They carefully poured some peroxide into the bottle. In the bowl they mixed together a little bit of water, yeast, dish soap, and orange food coloring. They poured the contents of the bowl into the bottle and made quite a mess of the table! The orange bubbles spewed out of the bottle and went all over the place.

Samuel John’s mother was not happy about that and made them clean it up. Then she told them to put a pan underneath so the table did not get messy the next time.

The partners did so and loved how the mixture looked on the pan.

“It almost looks like a giant pan of toothpaste,” observed Sherry Jane.

“We’ll call it Elephant Toothpaste!” shouted Samuel James.

They both laughed and won the blue ribbon for first place in their class at the science fair the next week.

Name: _____ Date: _____

1. What did Mrs. Thatcher announce to her fourth grade class?

- A** She told them to prepare for a fire drill.
- B** She gave them homework for vacation.
- C** She told them the science fair was coming soon.
- D** She asked them to write book reports.

2. Which of the following shows the sequence of events described in the passage?

- A** Sherry Jane and Samuel James experimented with making bubbles using different substances; Mrs. Thatcher told the students they were be working in pairs for the science fair; the students groaned when they learned they would be working in pairs; Sherry and Samuel won first place.
- B** The students picked names from a hat to decide how they would be paired; Mrs. Thatcher told the students they would be working with partners for the science fair; Sherry Jane and Samuel James became partners; Sherry and Samuel experimented with soda and yeast.
- C** Sherry Jane and Samuel James became partners; Mrs. Thatcher told the students that there would soon be a science fair; Sherry Jane and Samuel James won a blue ribbon for first place; the students groaned.
- D** Mrs. Thatcher announced that there would be a science fair soon; Sherry Jane and Samuel James became partners; the partners experimented with different substances; the partners won the blue ribbon for first place.

3. Sherry Jane was not excited about the science fair. Which details from the text support this conclusion?

- A** When she spoke to Samuel James, Sherry Jane was unenthusiastic and emotionless.
- B** Samuel James was very excited about the science fair.
- C** Sherry Jane did not invite Samuel James to her house.
- D** Sherry Jane was amazed by the toothpaste experiment.

4. The students were worried about working with partners for the science fair. What evidence from the text supports this conclusion?

- A** Fifteen kids wrote their names on pieces of paper and put them into Mrs. Thatcher's hat.
- B** The students groaned when Mrs. Thatcher told them they would be working in pairs.
- C** Sherry Jane and Samuel James tried out different experiments.
- D** The students in the class listened closely to Mrs. Thatcher's announcement.

5. What is the story mainly about?

- A chemical reactions involving peroxide
- B science fairs
- C how two classmates work on their science experiment
- D a teacher's announcements

6. Read the following sentence: "In the bowl they mixed together a little bit of water, yeast, dish soap, and orange food coloring. They poured the contents of the bowl into the bottle and made quite a mess of the table! The orange bubbles **spewed** out of the bottle and went all over the place."

As used in the passage, what does the word "**spewed**" mean?

- A dripped slowly
- B pulled quickly
- C faded slowly
- D flowed quickly

7. Choose the answer that best completes the sentence below.

Sherry Jane and Samuel James were not satisfied with their experiment; _____, they kept looking for more things to add to the yeast and peroxide mix.

- A because
- B therefore
- C otherwise
- D however

8. What do Sherry Jane and Samuel James do when their first attempts at an experiment for the science fair end up being boring?

9. Describe Sherry Jane's and Samuel James's attitudes at the start of their project.

10. What did Sherry Jane and Samuel James most likely learn about working with a partner? Use evidence from the story to support your answer.

Teacher Guide & Answers

Passage Reading Level: Lexile 920

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8. What do Sherry Jane and Samuel James do when their first attempts at an experiment for the science fair end up being boring?

Suggested answer: When at first they find their experiments are producing dull results, Sherry Jane and Samuel James look around the kitchen for inspiration. They try to work with different ingredients, until finally they settle on products that make their experiment more fun and exciting.

9. Describe Sherry Jane's and Samuel James's attitudes at the start of their project.

Suggested answer: Sherry was very unenthusiastic, while Samuel was eager to get started on their project.

10. What did Sherry Jane and Samuel James most likely learn about working with a partner? Use evidence from the story to support your answer.

Suggested answer: Sherry Jane and Samuel James discover that working together on an experiment for the science fair was fun and successful despite Sherry's early lack of enthusiasm for the idea. Sherry and Samuel learn that if they bounce thoughts around they can come up with better ideas. This is demonstrated by the back and forth conversations the partners have as they plan the next steps in their experiment. We can see that they are having fun because they laugh when their experiment finally succeeds and they give the project a silly name, Elephant Toothpaste.