



# STEAM Adventure Island

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# STEAM Adventure Island

## Chapter 2: The Volcano's Secret



### OBJECTIVE:

Understand the science behind volcanic eruptions and chemical reactions through a hands-on experiment.

### READ THE STORY:



[Click to read the story.](#)

### MATERIALS:

- Baking soda
- Vinegar
- Food coloring
- Mini plastic bottle
- Tray
- Modeling clay

## CHAPTER 2: THE VOLCANO'S SECRET

### The Adventure Continues

Mia, Liam, Sara, Zoe, and Jay still haven't found Liam's missing map. They decide to keep searching and explore a new area of the island called Whispering Volcano, hoping to find more clues about where the map could be.

### Journey to the Whispering Volcano

As the young explorers make their way to the Whispering Volcano, known for its soft steam clouds and green surroundings, they spot more fresh animal tracks leading toward the volcano. Eager to learn more, they follow the tracks, wondering what they might discover.





## CHAPTER 2: THE VOLCANO'S SECRET

### Discovering the Volcano's Secrets

As they get closer to the volcano, they feel the ground warm beneath their feet, and little puffs of steam escape from the ground here and there.

- Mia points to different rocks along the path. "These rocks came from inside the volcano," she explains, showing her friends how to tell them apart by their colors and roughness.
- Liam uses a simple thermometer to check how warm the ground near the steam vents is. He writes down the temperatures on his gadget, explaining, "The heat from inside the earth heats up this place!"
- Sara is amazed by how steep the volcano's side is. She shows her friends how to make a simple tool to measure the slope using a protractor and a piece of string.
- Zoe is inspired by the bright colors and misty air of the volcano, and she starts drawing the scenery with her colorful pastels, trying to capture the warm feelings of the place.
- Jay counts each steam vent they pass and turns it into a fun game. He uses simple math to guess how many vents might be around the whole volcano.

## CHAPTER 2: THE VOLCANO'S SECRET

### The Parrot's Surprise

While exploring, a bright flash of color catches their eye—a playful parrot flying overhead. The parrot swoops down and lands on a tree branch, squawking loudly. Intrigued by the bird, the friends approach the tree and notice something shiny in its nest. To their astonishment, it's Liam's map! The parrot had taken it to decorate its home.

### The Unexpected Discovery

The children carefully think of a kind way to get the map back without scaring the parrot or ruining its nest. Zoe, always prepared with her art supplies, pulls out a shiny silver foil and some colorful beads from her art kit. Speaking softly to the parrot, she offers the sparkling materials in exchange for the map. Fascinated by the new shiny objects, the parrot agrees and swoops down to take them, leaving the map behind.



## CHAPTER 2: THE VOLCANO'S SECRET

### Lessons Learned and a New Mystery

With the map safely back, the friends gathered to discuss their next steps. "It's important to remember that animals act by instinct and don't understand human things," Mia said thoughtfully. They all agreed on the importance of respecting nature and its creatures. Just as they were about to leave the clearing, Zoe noticed something strange nearby. "What's that?" she asked, pointing to a partially buried stone tablet near the base of the tree. The tablet had intricate carvings and strange symbols.

Liam examined the tablet closely. "This looks like it's part of a larger structure," he said. "And these symbols match some of the ones on our map near the area labeled the Floating Gardens."

"Maybe this tablet is a clue to something hidden in the Floating Gardens," Jay suggested, his eyes sparkling with curiosity.

"Let's take it with us and see if we can find more clues," Sara said, carefully lifting the tablet.

The friends, now even more excited, decided to head towards the Floating Gardens next, eager to uncover the mysteries the tablet might reveal about STEAM Island.



## Activity Guide: Baking Soda Volcano

### TEACHING STRATEGY:

1. Create a volcano shape around the plastic bottle using modeling clay.
2. Place the volcano on a tray to catch the overflow.
3. Add baking soda to the bottle.
4. Pour vinegar mixed with food coloring into the bottle and watch the volcano erupt.



## STEAM Extensions:

### SCIENCE

- **Experiment with Different Ingredients:** Try using different types of vinegar (white vinegar, apple cider vinegar) or adding dish soap to the vinegar mixture to see how it affects the eruption. Discuss the chemical reactions and why they cause the eruption.
- **Explore Real Volcanoes:** Research different types of volcanoes (shield, composite, cinder cone) and compare their eruptions to the baking soda volcano. Discuss the geological processes that lead to volcanic eruptions.

### TECH

- **Time-Lapse Recording:** Set up a time-lapse recording to capture the eruption process. Review the video together and discuss the observations. Use a tablet or smartphone for this activity.
- **Virtual Volcano Tour:** Use online resources to take a virtual tour of famous volcanoes around the world. Discuss the technology used to study and monitor real volcanoes.

### ENGINEER

- **Design Challenge:** Challenge children to design their own volcano models using different materials (e.g., papier-mâché, cardboard). Discuss how they can engineer their designs to make the eruptions more dramatic and stable.
- **Lava Flow Pathways:** Create pathways for the lava flow using additional modeling clay or other materials. Experiment with different designs to see which ones channel the "lava" most effectively without spilling over the tray.

### ART

- **Volcano Art:** Encourage children to draw or paint a picture of their volcano during the eruption. Use vibrant colors to represent the lava and ash clouds.
- **3D Volcano Model:** Create a 3D model of a volcano using recyclable materials. Decorate it with natural elements like rocks, sand, and twigs to make it look realistic.

### MATH

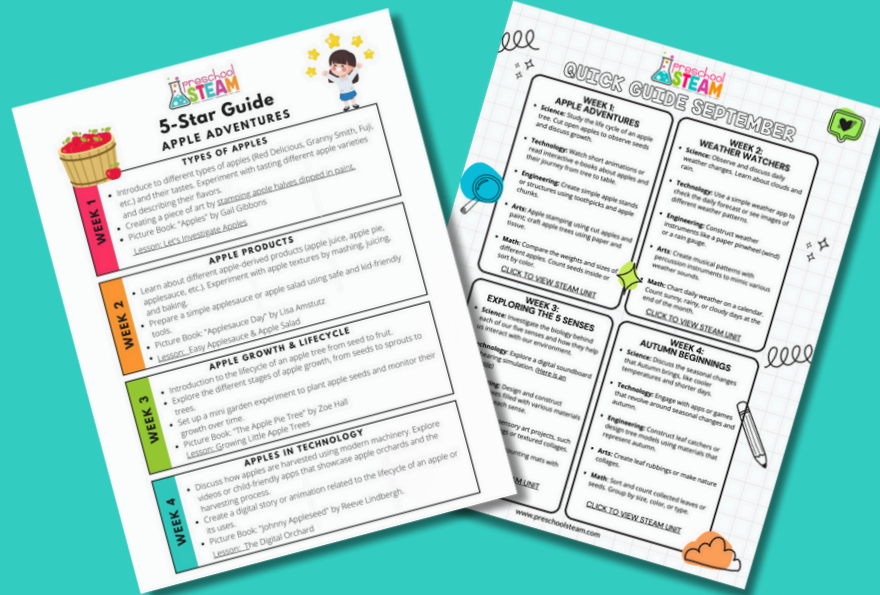
- **Measure and Compare Eruptions:** Measure the amount of baking soda and vinegar used in each eruption and compare the results. Discuss how changing the proportions affects the height and duration of the eruption.
- **Eruption Frequency Chart:** Create a chart to record the frequency and size of the eruptions. Use the data to practice counting, measuring, and comparing different eruption events.



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