

Chelsea Stein

2L Lesson Plan

Science

### Volcanoes Reading & Experiment

**Grade:** 1<sup>st</sup>

**TEKS:** 112.12.b.

**2A- Scientific investigation and Reasoning.** The student developed abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to ask questions about organisms, objects, and events observed in the natural world.

**5A- Matter and Energy.** The student knows that objects have properties and patterns. The student is expected to predict and identify changes in materials caused by heating and cooling such as ice melting, water freezing, and evaporating.

**6C- Force, Motion and Energy.** The student knows that force, motion, and energy are related and are a part of everyday life. The student is expected to describe the change in the location of an object such as closer to, nearer to, and farther from.

#### **CALPS Science Words:**

- Volcano
- Erupt
- Lava
- Magma
- Pressure
- Gas
- Vent
- Evacuate

#### **Glossary:**

- **Volcano-** An opening in Earth's surface. Melted rock, ash, and gases escape through it.
- **Erupt-** To become active, and send out melted rock and ash.
- **Gas-** a substance that will spread to fill any space.
- **Lava-** Hot melted rock that comes out of a volcano and reaches the Earth's surface.
- **Magma-** Melted rock below the surface of the Earth.
- **Pressure-** The force that is built up inside a volcano that makes it explode. **(Visual Aid- Have child blow up a balloon and squeeze the balloon to build up the pressure inside the balloon. Watch what happens- it explodes!)**
- **Vent-** The opening at the top of a volcano.
- **Evacuate-** To move away from a dangerous area.

**Book to Pre-teach:** Volcanoes, a Scholastic Reader.

**Book Summary:** *Volcanoes* is a Scholastic Non-fiction Reader that focuses on 20 CALPS science vocabulary words. The book explains what volcanoes are, types of volcanoes, how they are formed, where they are commonly found, and some famous eruptions.

- (Although this book is at a 3<sup>rd</sup> grade level, some modification can be done. I choose this book and science experiment for my CLD students because he has a real craving to develop his English Reading Skills. He read two stories to me really well in English and he was so proud of himself, I thought that he would be up for the challenge of higher CALPS competence. I noticed that this students English reading skills were greater than his oral proficiency, and wanted to challenge and motivate him to keep learning by doing a interesting science experiment).

**Visual Aids:**

- Glogster Poster created on volcanoes with CALPS vocabulary words.
- Online National Geographic Kids, video on volcanoes:  
<http://video.nationalgeographic.com/video/player/kids/forces-of-nature-kids/volcanoes-101-kids.html>
- Bring a piece of lava glass/rock to share with student, called Obsidian.

**Opening Questions: (Using a KWL Chart)**

- “Tell me what you think this book is about.” (Predicting)
- “Do you think this is a fiction or non-fiction book? Why?”
- “Can you think of any words we might use to talk about volcanoes?”
- “Can you tell me anything about volcanoes?” (Access prior knowledge)
- “Do you think volcanoes are hot or cold? Why?”
- “What questions do you have about volcanoes, what do you want to know? (W section of the KWL Chart)

**Closing Questions:**

- “Can you summarize what a volcano is?”
- “What is the difference between lava and magma?”
- “What should humans and animals do if they see a volcano erupt? Why?”
- “Can you illustrate a picture of a volcano and diagram where the words, erupt, vent, pressure, magma, and evacuate would go?”
- “Tell me something interesting you learned about volcanoes.”

---

**Experiment:** Volcanoes

**Experiment Description:** We are going to recreate what happens when a volcano erupts. We will first talk about the vocabulary words; erupt, vent, gas, pressure, lava, magma, temperature, and evacuate, and predict how we might see these examples in our experiment. We are going to mix Hydrogen Peroxide, soap, water, and food coloring, and then add yeast (the catalyst) to recreate our volcanic

eruption. After it explodes we will touch the bottle to see if there is any heat created by our volcano (our chemical reaction will produce heat).

### Opening Questions:

- “Look at all these materials and remember what our reading was about; what do you think we are going to do in this science experiment?”
- “Which material in our experiment will act as our volcano? Where is our volcano’s vent? Where would we see the magma and lava?”
- “What do you think will happen during our experiment?”
- “Do you think our experiment might be dangerous or scary? What should you do when your volcano erupts?”
- “We have different colors what color do you want use to create our ‘lava’?”

### Materials used:

- A 16oz. plastic soda bottle
- ½ cup of Hydrogen Peroxide liquid (you can get 6% solution at a beauty supply store)
- 1 Tbls. (one packet) of dry yeast
- 3 Tbls. of warm water
- 1 Tbls. Liquid dish washing soap
- Food coloring
- Funnel, ½ measuring cup, 1Tbls. measuring spoons, small cup and spoon to mix yeast mixture, newspaper to cover the table, safety goggles.

### Procedures:

1. Using a funnel, pour ½ cup of 6% hydrogen peroxide into the bottle (Hydrogen Peroxide can irritate skin and eyes, so put on your safety goggles, and ask an adult to pour the hydrogen peroxide into the bottle).
2. Add 8 drops of your favorite food coloring to the bottle.
3. Add 1 Tbls. of liquid dish soap into the bottle and swish the bottle around a little bit to mix.
4. In a separate cup, combine one packet of dry yeast with 3 Tbls. of warm water, and mix until yeast dissolves.
5. **Now the adventure starts!** Pour the yeast mixture into the bottle (may need the funnel again) and watch as your volcano erupts!!!

**Note:** The foam produced is just water, soap, and oxygen so you can clean it up with a sponge and pour any extra liquid left in the bottle down the drain. Review classroom safety procedures and proper clean up before beginning experiment.

**Reference:** Science Bob. [www.sciencebob.com/](http://www.sciencebob.com/)

### Closing Questions:

- “Summarize what happened in our experiment.”
- “What did the foam we created in our experiment represent? When was the foam magma and when was it lava?”
- “How do you think the pressure was created in this experiment?” (The yeast acted as a catalyst/helper to remove the oxygen (gas) from the Hydrogen Peroxide; in doing so it created lots of ‘lava’ soap bubbles).
- “What did we have to do when the volcano erupted? Why did we evacuate?”
- “The bottle symbolized our volcano, when you touched the bottle what did you feel? How do you think this might have happened?”
- “Do you have any questions about our experiment or volcanoes?”
- “Did you like this experiment? Why?”