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# Creating a Simulation Volcano

**Purpose**

The purpose of this experiment is to build a real working volcano. After mixing just the right amount of ingredients together, adding the final item will make the volcano ‘blow its top’ spewing red lava down the sides. [[1]](#endnote-2)

**Procedure**

 **Materials**

Flour (6 cups) Red food coloring

Salt (2 cups) Liquid detergent (6 drops)

Cooking oil (4 tbs) Baking Soda (2 tbs)

Water (2 cups) Vinegar

Large bowl Measuring cup

Empty soda bottle Tablespoon

Baking pan or tray Safety goggles

**Sequence of Steps**

1. First we need to create the 'salt dough'. Mix 6 cups flour, 2 cups salt, 4 tablespoons cooking oil, and 2 cups of water in a large bowl. Work the ingredients with your hands until smooth and firm. Add more water to the mixture if needed.
2. Stand the soda bottle in the baking pan. Mold the salt dough around the bottle making sure you don't cover up the bottle mouth or drop any dough into the bottle. Take your time on this step and build your volcano with as much detail as you like.
3. Fill the bottle most of the way with warm water mixed with a little of the red food coloring.
4. Put 6 drops of the liquid detergent into the bottle.
5. Add 2 tablespoons of baking soda.
6. Stand back and slowly pour vinegar into the bottle.
7. Notice the red 'lava' that flows out of your volcano. This happens because of the baking soda and vinegar mixture. Mixing baking soda and vinegar produces a chemical reaction in which carbon dioxide gas is created - the same gas that bubbles in a real volcano. The gas bubbles build in the bottle, forcing the liquid 'lava' mixture of the bottle and down the sides of your volcano.

**![C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmf]() Observations**

1. In your own words, summarize the reaction you created inside the volcano. Compare what you did to the process that occurs in a real volcano.
2. Identify the main kinds of volcanoes. Compare and contrast their eruptions and the products of their eruptions.
3. Assume you are an agriculturist farming in an area that is frequently affected by volcanic ash. The United States Geological Survey has given you this information[[2]](#endnote-3):

Explosive eruptions that destroy vegetation and deposit volcanic rocks and ash over wide areas create conditions that (1) promote increased rates of surface runoff during rainstorms; (2) dramatically increase the availability of loose debris that can be eroded and transported into river valleys; and (3) typically result in persistent airborne "ashy" conditions due to wind and human activities. The destruction of vegetation combined with deposition of ash on hill slopes reduces the amount of water that normally soaks into the ground or is transpired by plants.

 What are three things you must consider if you are farming in this area?

1. Look out, she's gonna blow! Retrieved November 24, 2008, from Reeko's Mad Scientist Lab Web site: <http://www.reekoscience.com/Experiments/volcano.aspx> [↑](#endnote-ref-2)
2. Ash Properties & Dispersal by Wind. Retrieved November 24, 2008, from Volcanic Ash: Effects & Mitigation Strategies Web site: http://volcanoes.usgs.gov/ash/properties.html [↑](#endnote-ref-3)