

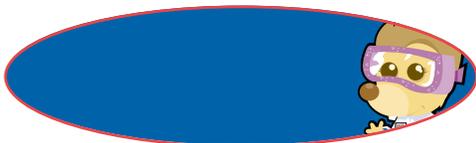


Volcanoes are openings in the surface of the earth through which molten rock (called magma), dust, and gas can escape. Volcanoes played an important role in the formation of the Earth, and they continue to erupt on land and beneath the sea. In this activity, you will make a pretend volcano and watch what happens when it “erupts”.

Materials

Empty 35-mm film canister
Large plastic plate or container
Clay or sculpture dough
(approximately ½ lb.)
Measuring spoons
Small disposable plastic cup (3 oz)
Vinegar
Liquid dish detergent
Few drops of red food coloring (optional)
Baking soda

NOTE: This activity is quite messy. It is important that it be conducted near a sink or with a bucket and water close by. Consider doing the activity on a tray to catch the lava overflow.



SAFETY: Be sure to follow Milli's Safety Tips and do this

activity only with adult supervision! Do not drink any of the liquid samples in this activity. Eye protection must be worn by everyone doing this activity.



Procedure

1. Place the film canister in the center of the plastic plate.
2. Shape the clay or dough around the canister to form a mountain. Do not cover the opening of the film canister or get dough inside it.
3. Place 1 tablespoon vinegar in the small plastic cup. Add ½ teaspoon liquid dish detergent and food coloring if desired. Swirl gently to mix.
4. Measure ½ teaspoon baking soda into the film canister.
5. Carefully pour the vinegar solution into the film canister, and watch what happens.
6. Draw a picture of your volcano in the “What Did You Observe?” section.
7. Thoroughly clean the work area and wash your hands. Pour liquids down the drain. Rinse and throw away any other trash. If you wish to keep your “volcano”, you may rinse it off with water and let it air dry.

Where's the Chemistry?

The combination of the baking soda (sodium bicarbonate) and the vinegar (acetic acid) reacts to produce carbon dioxide gas. As the reaction occurs, the carbon dioxide gas bubbles up through the mixture and helps to create the foam that goes out and down the sides of your volcano. Carbon dioxide is just one of the gases that volcanoes release into the atmosphere. Water vapor and sulfur dioxide are among the other gases they release. The gases from volcanoes hundreds of millions of years ago helped make the Earth's atmosphere, and today's volcanoes continue to contribute gases. The eruption of Mount St. Helens in 1980 was the last major eruption in the lower 48 United States, but Kilauea in Hawaii has erupted continuously since January 3, 1983. Several active volcanoes are in the Aleutian Island chain in Alaska.





What Did You Observe?

Draw a picture of your volcano as it was erupting.

A large, empty rectangular box with a black border, intended for drawing a volcano erupting. The box is centered on the page and occupies most of the middle section.