

Quick and Easy Volcano Experiments to Share with Your Kids

By Aurora Lipper, Supercharged Science

If you've ever wondered what makes the Earth burp and spit magma, you're in the right place. This article is for those who want to shake up volcanoes using chemical reactions and air pressure.

The first thing to do is to mix up your own volcano dough. You can choose from the following two mixtures. The Standard Volcano dough is akin to "play dough", and the Earthy Volcano dough looks more like the real thing. Either way, you'll need a few days on the shelf or a half hour in a low temperature oven to bake it dry. You can alternatively use a slab of clay if you have one large enough.

Standard Volcano dough Mix together 6 cups flour, 2 cups salt, $\frac{1}{2}$ cup vegetable oil, and 2 cups of warm water. The resulting mixture should be firm but smooth. Stand the water or soda bottle in the roasting pan and mold the dough around it into a volcano shape.

Earthy Volcano Dough Mix 2 $\frac{1}{2}$ cups flour, 2 $\frac{1}{2}$ dirt, 1 cup sand, 1 $\frac{1}{2}$ cups salt and water. You mix all the dry ingredients together and then add water by the cup until the mixture sticks together. Build the volcano around an empty water bottle on a disposable turkey-style roasting pan. It will dry in two days if you have the time, but why wait? You can erupt when wet if the mixture is stiff enough! (And if it's not, add more flour until it is.)



To make Soda Volcanoes, fill the bottle most of the way full with warm water and a bit of red food color. Add a splash of liquid soap and $\frac{1}{4}$ cup baking soda. Stir gently. When ready, add vinegar in a steady stream and watch that lava flow!

Building Air Pressure Sulfur Volcanoes takes a bit more work. Wrap the dough around the tubing into an ice-cream-cone-shape and slap the ice-cream-end down into your roasting pan tray. Push and pull the tube from the bottom until the other end of the tube is just below the volcano tip.

Using your fingers, shape the inside top of the volcano to resemble a small Dixie cup. Your solution needs a chamber to mix and grow in before overflowing down the mountain. The tube goes at the bottom of the clay-cup space. Be sure the volcano is SEALED to the cookie sheet at the bottom. You won't want the solution running out of the bottom of the volcano instead of popping up out the top!

Make your chemical reactants.

Solution 1: In one bucket, fill halfway with warm water and add one to two cups baking soda. Add one cup of liquid dish soap and stir very gently so you don't make too many bubbles.

Solution 2: In a different bucket, fill halfway with water and place one cup of aluminum sulfate (find this at the gardening section of the hardware store). Add red food coloring and stir.

Putting it all together: Practice your breathing: count ONE (and pour in Solution 1), TWO (inhale air only!), and THREE (pour in Solution 2 as you put your lips to the tube and puff as hard as you can!). Lava should not only flow but burp and spit all over the place!

Since 1996, Aurora Lipper has been helping families learn science. As a pilot, astronomer, mechanical engineer and university instructor, Aurora can transform toilet paper tubes into real working radios and make laser light shows from Tupperware.

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