Volcano

This is one of the true classic "school" science projects. There is a "safe" method, appropriate for younger children, and the "classic" (and consequently more dangerous) method, which will smoke and sputter and shoot flames like a volcano should.

Volcano: Safe method

The volcano shape itself is free formed on a sturdy sheet of plywood. Many methods can be used, including built up plaster, wallpaper paste, play dough (salt dough) and papier-mache. It is built around an empty, open bottle, which will form the opening at the top from where the lava emerges. Work with it until you get a shape you like. It is good to leave some cracks and furrows for your lava to flow through. Decorate as you see fit. Once everything is dry and firmly set, it is a good idea to spray it with a clear finishing spray to seal it.

Put a tablespoon (15 ml) of baking soda, a tablespoon (15 ml) of liquid dish soap, and some red (and possibly some yellow) food coloring in the jar. Add 1/4 cup (60ml) or so of vinegar. It will make a mess, so do it where this doesn't matter so much (outdoors). If the "lava" seems a little thick, next time try adding some water to the mix before adding the vinegar.

One of our visitors, Tracy Hooper, adds:

"Here is a variation on the kid's safe vinegar volcano:

Use kid's oil-based modeling clay (plasticine) to make the volcano. No plastic bottle is needed; just form a well in the middle of the clay cone. It will be impervious to the wet vinegar solution and can be used over and over."

Thanks, Tracy!

Volcano: Classic (and quite dangerous) method

WARNING! Do not be tempted to do this one! It is very dangerous and you are likely to severely harm yourself or burn down a large structure. It is here for historical reasons only!

This involves burning chemicals, and is therefore dangerous. Take all necessary precautions. Also, the chemical used, ammonium dichromate, is quite toxic, so keep it away from the kiddies! It is also a possible cancer-causing agent (like most things on our planet seem to be), so the project should not be done often. The fumes should not be breathed. Do this outside!

Form the volcano in pretty much the same way as above with the following exceptions: the volcano must be fireproof (no papier-mache) and the bottle must be substituted with a shallow can (small cat food or tuna cans work well). Once everything is dry and ready to go, place 10-15 wooden match heads in the can. Fill the can with ammonium dichromate. Drop a lit match inside. Keep your hands away, as it will flare up, spark, sputter, and send a green lava flow spilling over the sides. This thing will get hot as heck, as will the lava, so be very careful not to get burned.

Volcano: Quite dangerous method, v. 2

WARNING! Do not do this one either! See above warning...

"Mix equal parts (up to 70% sugar and 30% saltpeter ratio will work) of table sugar and nitrate of potash (saltpeter)."
"To ignite the volcano a match must be in the flare up stage and dropped or inserted into the mixture. It will not explode but will make a LOT of smoke and brimstone and the most realistic volcano simulation you will see. The only (only? -ed.) drawback is that it is EXTREMELY hot."

-Anonymous submission

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