Volcano Craft

Make a mock volcano that erupts when you mix baking soda and vinegar.

In a real volcano, molten rock from deep within the Earth erupts through a volcano. (The molten rock is called magma when it is within the Earth and is called lava when it comes out of a volcano). In this project, a mock volcano will erupt with a bubbly, fizzy liquid that is created by a simple chemical reaction.

This project shows what happens when an **acid** (vinegar) and a **base** (baking soda) interact. Chemically, the acid and base neutralize each other, producing carbon dioxide gas as a byproduct. The exact reaction is:

\[
\text{HC}_2\text{H}_3\text{O}_2 + \text{NaHCO}_3 \rightarrow \text{CO}_2 + \text{NaC}_2\text{H}_5\text{O}_2 + \text{H}_2\text{O}
\]

(vinegar: acetic acid) + (baking soda: sodium bicarbonate)
\[\rightarrow \text{carbon dioxide} + \text{sodium acetate} + \text{water}\]

(Sodium acetate is a white or colorless crystalline compound)

Supplies

- Old aluminum pie tin (or baking pan or paper plate)
- Lots of old newspaper
- Baking soda (3-4 tablespoons)
- Vinegar (about \( \frac{1}{2} \) cup)
- A few drops of dishwashing detergent
- Small plastic bottle
- Modeling clay
- Funnel
- Measuring spoon and cup
- Red food coloring (optional)

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Instructions

Put the clean, empty bottle on the aluminum pie plate (or baking pan or paper plate).

Using the modeling clay, make a volcano around the bottle. Leave the area around the top of the bottle open and don't get any clay inside the bottle.

Using the funnel (make sure it's dry), put 3 to 4 tablespoons of baking soda into the bottle. Add a few drops of liquid dishwashing detergent and about a half cup of warm water.

Optional: put a few drops of red food coloring into the ½ cup of vinegar.

The Eruption: Using the funnel, pour the vinegar into the bottle (then quickly remove the funnel).

Your volcano will erupt immediately! When the vinegar reacts with the baking soda, carbon dioxide gas is formed and the bubbles push the “lava” out of the “volcano.”

Be prepared for a mess!