

## Praxis “Making Science Fun”

### Baking Soda and Vinegar Volcano



You likely have seen pictures of Volcanoes on television or in movies. In some areas of Medicine Hat the white clay that you may find on the side of a cliff or a deep hole may have come from a large volcano almost due South of us in the United States. Today its location is known as Yellowstone Park; a few of you may have visited there. The water and mud forming the hot springs and the geysers are what is left of this large volcano. As recently as 1980 St. Helen's Volcano on the West coast of Washington state erupted and the ash was carried by the winds across the mountains and could be seen in Medicine Hat. But one of the largest volcanoes in recorded history blew up on this date, August 27, 1883. When the island volcano Krakatoa blew it created one of the world's largest tsunami (tidal waves) in Indonesia's Sunda Strait that unfortunately killed many people on the islands of Java and Sumatra. Volcanoes blow because of pressure built up inside. Today's experiment will be our own little volcano but the pressure will be caused by a chemical reaction, not heat like in a real volcano.

We'll use baking soda and vinegar to create an awesome chemical reaction! Watch as it rapidly fizzes over the container but make sure you've got some towels ready to clean up. And as always, please try this at home BUT “be sure to have your parent's permission” and they have the time to watch and help as you do your experiment.

#### What you'll need:

- Baking Soda (make sure it's not baking powder)
- Vinegar
- A container like an old margarine or yogurt container to hold everything and avoid a big mess!
- Paper towels or a cloth (just in case)
- Measuring spoons and a measuring cup

#### Procedure (In Science these are the instructions):

1. Place a little (about 5 ml) of baking soda into your container.
2. Pour in some of the vinegar
3. Watch as the reaction takes place!

#### What's happening?

Although baking soda and vinegar can be found in the kitchen, both are chemicals that react with each other. The baking soda (sodium bicarbonate) is a base while the vinegar (acetic acid) is an acid. When they react together they form carbonic acid which is very unstable. It instantly breaks apart into water and carbon dioxide, which creates all the fizzing as it escapes into the air.

### **The Experiment:**

Try changing the amount of Baking Soda (5 then 10 then 15 ml and so on) but keep the amount of vinegar the same to see if you can get better results. Changing only one thing in an experiment is a very important scientific process. Keep track of your results by writing down each time what you see happening so if you decide to make another one to show off to other people you will know which amount works best.

### **Project Extension:**

For extra effect you can make a realistic looking volcano. Use some Plasticine or modelling clay to create a volcano. It's more work but it will make your vinegar and baking soda eruptions look even more impressive! Use the amount of Baking Soda and Vinegar that you found out in the previous experiment that worked best.

You could put food colouring in the vinegar to change the colour of the "lava" (the reacting chemicals) but it usually would make an awful mess so if your parents agree do this one outside, wear old clothes and have the hose nearby to wash everything down when you are done.

Just a quick note to the parents, teachers and the significant other adults in a child's life to introduce ourselves; I am Lorne Cooper, former principal, and working with me is Linda Davidchuk, former vice-principal. Both of us spent our teaching and administrative career at Alexandra Middle School. We are now working for Praxis and our job is to promote Science education with young people. As we say at Praxis, "Making Science Fun". In addition to Operation Minerva (grade 9 girls), Operation Toth (grade 9 boys), Family Science Olympics, a display booth of activities at many special events like Spectrum and of course Science Fair to name a few of our activities (with the help of the Kiwanis and MHC among others), we also have resource kits for grades 1 to 9. These kits are loaned out for FREE to help teachers explore Science in interesting ways. We also arrange (at no cost) for scientists, engineers and other experts in all areas of science to be guest lecturers in the classroom. Please give us a call or check out our website, follow us on Twitter, or friend us on Facebook for more information. These are all under development so check back often to see what changes have been made to these internet sites.

Lorne Cooper, Regional Executive Director

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