

How to Inflate a Balloon Using Baking Soda and Vinegar

Objective

What is the project about?

Students learn about gas and chemical reactions by discovering how to inflate a balloon using baking soda and vinegar.

What are the goals?

The goal of the project is to demonstrate the power of gas produced when baking soda and vinegar are mixed. The goal is for the balloon to be blown up by the gas created.

Materials and Equipment / Ingredients

What materials are required?

- Balloon (1 per student)
- Small bottle (cleaned glass beverage bottle will work well) (1 per student)
- Small funnel (1 per student)
- Baking soda (2 tablespoons per student)
- Vinegar (4 ounces per student)

Where can the materials be found?

Most materials can be found at an all-purpose store (such as CVS).

Introduction

Research Questions

- What do you think will happen when baking soda and vinegar come in contact (what will be produced)?
- What do you think will happen to the balloon attached?
- Why does the balloon stop blowing up (why does the reaction stop)?

Terms, Concepts and Questions to Start Background Research

For the parent/student, what terms and concepts are required to better understand the project?

The terms carbon dioxide, chemical reaction, reactants, and endothermic should be reviewed.

Experimental Procedure

1. Using the funnel, add the baking soda to each balloon (two people may be needed for this; one person to hold the balloon open and the other person to put the baking soda inside of the balloon).
2. Pour the vinegar into the bottle.
3. Carefully fit the balloon over the bottle opening (be careful not to drop the baking soda into the vinegar yet).
4. Once the balloon is fitted snugly on the nozzle, hold up the balloon and allow the baking soda to fall into the vinegar.
5. Observe the chemical reaction and effect on the balloon.
6. Record observations.

Bibliography / References to related books / Links to related sites on the web

- <http://library.thinkquest.org/3347/vinegar+bsoda.html>
http://www.exploratorium.edu/science_explorer/bubblebomb.html



Elephant Toothpaste

• [http://www.youtube.com/watch?v= DJ6PfcTiKM&feature=player_embedded](http://www.youtube.com/watch?v=DJ6PfcTiKM&feature=player_embedded) (cool link of a similar experiment)

Materials:

- 6% clairoxide (hydrogen peroxide)
 - available at Sally's
- Food coloring
- Water bottle
- Yeast
- Water
- Dish soap
- pan



Steps:

- Dissolve 1 tsp. yeast in 2 tbsp of warm water (in separate bowl)
- Put ½ cup of hydrogen peroxide, 4-5 drops food coloring and a squirt of dish soap in the water bottle
- Put yeast mixture into bottle and observe!
- The bottle gets warm because of a chemical reaction
 - Why do you think it might be called elephant toothpaste?



Lava Lamps

- Materials:

- Oil
- Water
- Baby food jar
- Food coloring
- Alka Seltzer Tablets



- Steps

- Fill botter $\frac{1}{2}$ way with oil and the other half with water
- Add food coloring
- Drop in Alkasetzer tablets and watch the bubbles

