California State University, Bakersfield Department of Chemistry

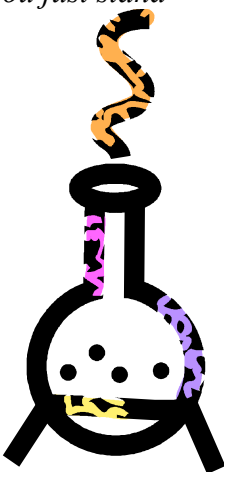
How to Blow Up a Balloon

Introduction:

Hey kids! Have you ever blown up a balloon without using your mouth? Well, we are going to show you how to perform this magic trick in your own home! Follow along so you can impress all of your friends.

This magical experiment involves the reaction of acetic acid and sodium bicarbonate to form a salt, water, and a gas called carbon dioxide. The gaseous carbon dioxide will be captured in a balloon. When the gases enters the balloon it will expand, while you just stand back and watch it happen! The reaction between sodium bicarbonate found in baking soda and acetic acid found in vinegar will release enough carbon dioxide to blow up a medium sized balloon.

Are you ready to use science in order to magically blow up a balloon without using your mouth!?



Materials:

- Arm and Hammer Baking soda
- Heinz Vinegar
- 2 Liter soda bottle
- Assorted Color Balloons

Safety:

- Always wear eye protection and gloves when doing chemistry experiments!
- This experiment generates toxic fumes. Be sure that it is performed in a well-ventilated area.

Procedure:

1. First, you want to get an empty 2 liter bottle and make sure it is clean.
2. Grab a couple of colorful balloons so that you can do this trick more than once!
3. Put about 255 mL (1 cup) of vinegar into your plastic bottle.
4. Get your balloon and carefully pour about 13.4 grams (1 tablespoon) of baking soda in to it; use a spoon to make it easier.

This material is based upon work supported by the Corporation for National and Community Service under Learn and Serve America Grant No. 10LHPCA001. Opinions or points of view expressed in this document are those of the authors and do not necessarily reflect the official position of the Corporation or the Learn and Serve America Program.

5. Carefully stretch the mouth of the balloon onto the mouth of the plastic bottle. *Do Not Spill Any Of The Baking Soda That You Put Into The Balloon!*
6. Now that you have the balloon attached to the soda bottle lift it up so that the baking soda falls into the bottle and mixes with the vinegar. Your balloon should start to inflate!
7. Repeat the experiment as many times as you want!

Data and Observations:

Record your Observations here:

Things that happened in the bottle after the baking soda was dropped in.	Time it took for the balloon to blow up

Questions:

What is found in vinegar that makes the reaction happen?

What does the reaction release into the balloon?

What is found in baking soda that makes the reaction happen?

References: Sciencekids.com. Smith, R. August 2007. 27 April 2012. http://www.sciencekids.co.nz/about.html

This material is based upon work supported by the Corporation for National and Community Service under Learn and Serve America Grant No. 10LHPCA001. Opinions or points of view expressed in this document are those of the authors and do not necessarily reflect the official position of the Corporation or the Learn and Serve America Program.