

## Blowing Up Balloons with CO<sub>2</sub>!

Believe it or not, you can create carbon dioxide (CO<sub>2</sub>) using items from around the house - it's just a mixture of vinegar and baking soda!

### What you'll need for this activity:

- 1 x empty bottle
- 1 x tea-spoon baking soda
- 1.5 cups of vinegar
- 1 x balloon

(Suggested newspaper to lay on the table to protect surface)



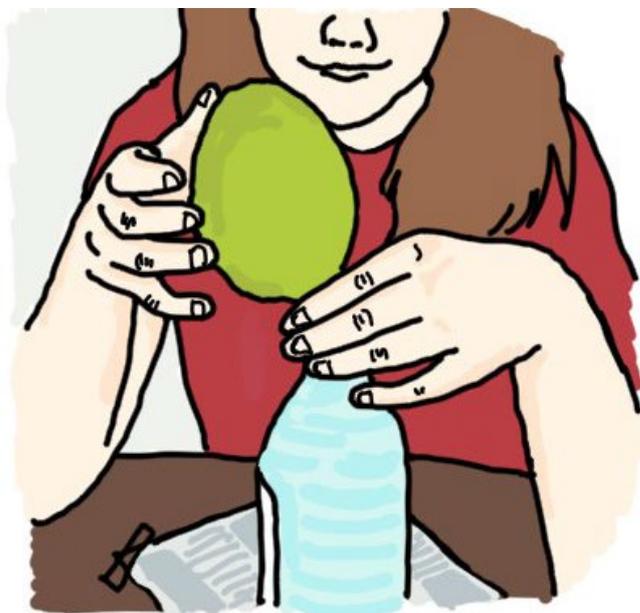
**Step 1:** Pour the vinegar into a bottle with a small neck.

**Step 2:** Measure out 1 x teaspoon of baking soda and drop it into a balloon.

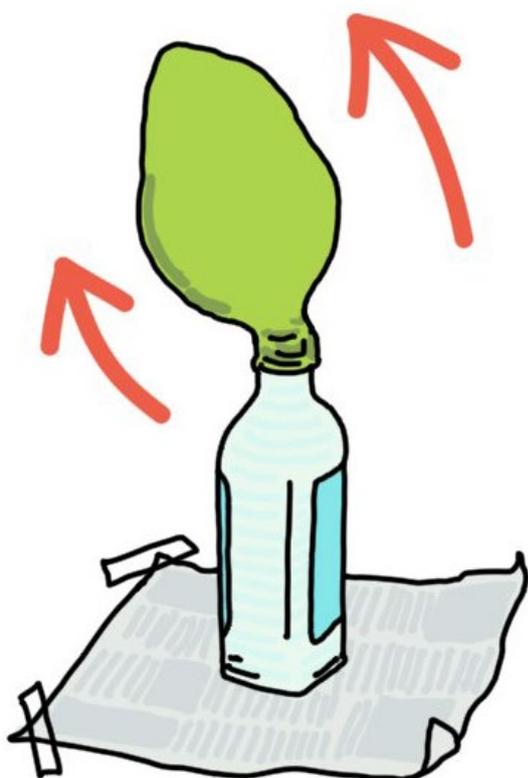
Be sure that the baking soda drops into the large area of the balloon as much as possible.



**Step 3:** Stretch the balloon around the neck of the bottle (already filled with vinegar) *But be sure* to hold the top of the balloon over the side of the bottle, so the baking soda remains in the balloon.



**Step 4:** Stand the balloon upright being sure to hold it around the neck of the bottom and allow the baking soda to drop into the bottle -- the reaction will take place quickly and the balloon will begin to inflate.



***Why does this happen?***

You can see the mixture will bubble as it creates the gas. The balloon will inflate and then as the gas subsides, it will get smaller.

Reacting vinegar and bicarbonate soda together produces carbon dioxide and water.

The reaction is as follows:



The carbonic acid is unstable though, so it breaks down into liquid water and carbon dioxide as a gas, causing the massive 'build-up' of pressure you saw in the experiment.

The water is left in the vinegar solution whilst the carbon dioxide rises and fills the balloon on the bottle.