

Name: _____



You will need

- Empty soft drink bottle
- Vinegar
- Bicarbonate of soda
- Balloon
- Piece of string
- Ruler
- Funnel
- Safety glasses



WARNING: Safety first! Please wear safety glasses to prevent any vinegar or bicarb splashing into your eyes.



What to do

1. Pour vinegar into the soft drink bottle until it is about one third full.
2. Using the funnel, 2/3 fill the balloon with bicarbonate of soda (bicarb). Break up any lumps of bicarb first so they don't get stuck. Shake or flick the funnel to help the bicarb go through into the balloon.
3. Carefully stretch the balloon over the mouth of the bottle, being careful not to tear the balloon.
4. Hold the balloon upright and shake the bicarb into the bottle – the balloon should start blowing up quickly!
5. Liquid may bubble up into the balloon; if so hold it upright to drain into the bottle.
6. Observe what is happening in the bottle – the bubbles of gas filling the balloon are carbon dioxide (CO₂).
7. At the biggest part of the balloon, wrap the piece of string around the balloon. Then measure how long the piece of string is using the ruler.

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Questions

1. Draw the experiment set up. (What the experiment looks like when it is going)

2. Record the length of your string...
My string is _____ cm.



What's happening?

When vinegar and bicarb mix together, there is a fast chemical reaction. There are several products of the reaction, although it is the CO₂ gas that is captured in the balloon.

As more and more CO₂ is produced, the bits of CO₂ (called molecules) are squashed together and begin to push, or apply a force, on all the inside surfaces of the balloon. The balloon then expands.

As vinegar (dilute acetic acid) is a weak acid and bicarbonate soda (sodium bicarbonate) is a weak base, it is an example of an acid-base reaction. The equation is shown below:

