

# DIY Breathless balloons



## What Do I Need?

- A balloon
- A plastic bottle
- Vinegar
- Bicarbonate of soda
- Funnel

## Skill Level:

Low

## Time:

10 minutes

## How Do I Do It?

1. Measure out 100ml of vinegar.
2. Pour the vinegar into the bottle.
3. Using the funnel, place 2 teaspoons of bicarbonate of soda into the balloon. Shake the balloon so that all of the powder falls inside, away from the neck of the balloon.
4. Carefully put the balloon over the top of the bottle. Take care not to knock the bottle over - it can be useful to have someone else hold the bottle whilst you attach the balloon.
5. Lift the balloon to tip the bicarbonate of soda into the bottle.
6. Watch the balloon inflate!

**Continued overleaf**

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## Safety Advice:

IMPORTANT GENERAL SAFETY NOTE FOR SUPERVISING ADULTS: This Terrific Scientific investigation has been devised so that with adult supervision, reasonable care and by following the instructions provided, no special safety equipment or knowledge is required to enjoy the experience safely. These safety reminders are designed to assist the supervising adult when planning and carrying out the investigation. Please read the instructions fully before starting.

- Wash hands thoroughly after handling the vinegar.
- Replace the vinegar bottle top as soon as you've taken the vinegar you need.
- As the inflated balloon is removed from the bottle some vinegar may spray out. If any goes onto clothes wash off immediately with water.

## What's Happening? The Sciency Bit:

When the balloon is tipped up, the bicarbonate of soda falls into the vinegar, creating a chemical reaction. Vinegar is acetic acid dissolved in water. Bicarbonate of soda is a base called sodium bicarbonate. Initially the reaction makes carbonic acid but this quickly breaks down into carbon dioxide (a gas) and water. As the balloon has created a seal on top of the bottle, the gas cannot escape and so inflates the balloon, as the pressure of the gas increases.

## My balloon is not inflating... What Can I Do?

- The balloon was not a tight fit, this allowed the gas to escape so there was no pressure build up. Try using an elastic band to seal the balloon to the bottle
- Your vinegar is old and is no longer acidic. Try fresh vinegar.