

Fizz Inflator

As the poor gingerbread man discovered, everybody loves eating yummy baked things! But have you ever made a cake and wondered how it rises in the oven? In this experiment we're going to have a look at the reaction that allows this to happen!

Materials

- 1 x empty plastic water bottle
- 125 mL vinegar
- 1 x Small balloon
- Bicarbonate of soda
- Funnel or a piece of paper rolled in to a funnel shape

Top Tips

This experiment **cannot** be eaten at the end.

Instructions

1. Carefully pour the vinegar into the empty bottle
2. Loosen up the balloon by stretching it a few times and then use the funnel to fill it about half full with baking soda. (If you don't have a funnel you can make one using a piece of paper and some tape).
3. Carefully put the neck of the balloon all the way over the neck of the bottle without letting any baking soda into the bottle.
4. Lift the balloon up so that the baking soda falls from the balloon into the bottle and mixes with the vinegar- what happens?

What's just happened?

You've just created a chemical reaction! This is an example of an acid-base reaction where the vinegar and the bicarbonate of soda react together to form a gas called carbon dioxide. Gases are different to solids and liquids, they need lots of room to spread out. As the carbon dioxide starts to form, it fills up the bottle first and then moves into the balloon to inflate it.

A similar reaction is responsible for causing cakes to rise when baking! If you want to investigate further, you could have a look at the following questions:

- Does the temperature of the vinegar affect how quickly the balloon fills up?
- What happens if you change the size of the water bottle?
- Can you make the balloon fill up different amounts by changing the amount of vinegar or bicarbonate of soda you add?

You can also use this reaction to create a pretend volcano eruption! Add some red food colouring to the vinegar to make it look like lava and decorate your plastic bottle to look like a volcano. We recommend this as an outside activity as it gets messy!