



## Balloons, Bottles and Bottom-Burps

Wind. We all have to get rid of it eventually.

But where does it come from?

Let's take a look... and make some bogus burps and artificial farts!

### You will need

- 2 small plastic bottles
- 2 balloons
- Vinegar
- Sodium bicarbonate
- Dried yeast
- Sugar
- A jug
- A bowl
- A teaspoon
- A paper funnel

### Steps

1. Put a 1 cm depth of water into one of the bottles, and then add about 2 cm of vinegar.
2. Use a paper funnel to put 2 teaspoons of sodium bicarbonate into one of the balloons.
3. Carefully place the end of this balloon over the mouth of the bottle, making sure

none of the powder falls into the bottle.

4. Lift the end of the balloon and pour all the bicarbonate powder into the bottle in one go. Shake it well and watch as the balloon inflates all by itself...

5. Release the air from the balloon, whilst squeezing the end... and hear a very rude raspberry noise!

### Follow-up

In the small intestine, acid from the stomach is neutralised by an alkaline juice secreted by the pancreas. This produces CO<sub>2</sub> – just like in the reaction shown here, which also involves an acid (vinegar) and an alkali (sodium bicarbonate).

In the large intestine, CO<sub>2</sub> is also produced by around 500 species

of bacteria (and some yeasts), which help to break down our food.

You can simulate this by mixing 2 teaspoons of yeast with 2 teaspoons of warm water in a jug. Then, stir in a teaspoon of sugar, and pour the mixture into the other bottle.

Stretch the balloon over the neck, stand this bottle in a bowl of warm water, and wait... the balloon should slowly inflate, filling with CO<sub>2</sub> released by the yeast as it feeds on the sugar.

In the body, the resulting cocktail of gas, combined with swallowed air, is then released under pressure through the mouth or the anus – just like when the air is released from the balloons.

These two processes are widely known, informally, as burping and farting.