

Watch a fungus fizz

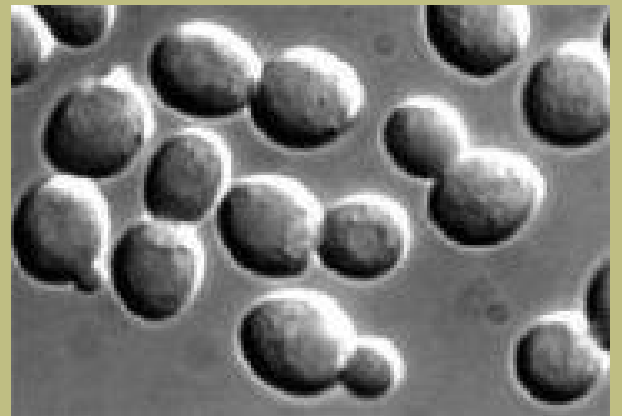
Introduction

This activity investigates the conditions a fungus needs to make energy for growth.

Yeast is a type of microscopic fungus. Yeasts are used to make bread and beer and help to put the fizz in champagne.

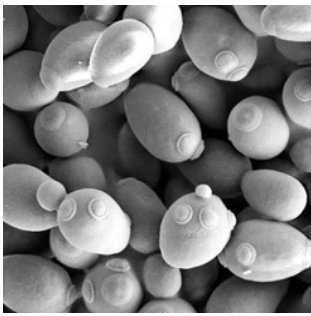
Yeasts, just like other fungi, can't make their own food so they have to be fed to enable them to make energy for growth. When yeast has the correct conditions to grow (warmth, sugar and water) it will feed on the sugar and produce carbon dioxide gas as a waste product. The gas builds up as the fungus feeds and cannot escape, so it begins to fill up the balloon.

Like us, fungi break down sugars using oxygen to make energy. The by-products are carbon dioxide and water. However, yeast has another trick up its sleeve. If there's a lot of sugar present (i.e. in golden syrup) but not enough oxygen, the yeast can make energy another way, by breaking down the sugar into alcohol and carbon dioxide. This is a great advantage to yeast and allows it to thrive in many environments - such as the bottle with golden syrup added!



This is the baker's yeast *Saccharomyces cerevisiae*. This fungus is a budding yeast used in bread making to help the bread to rise.

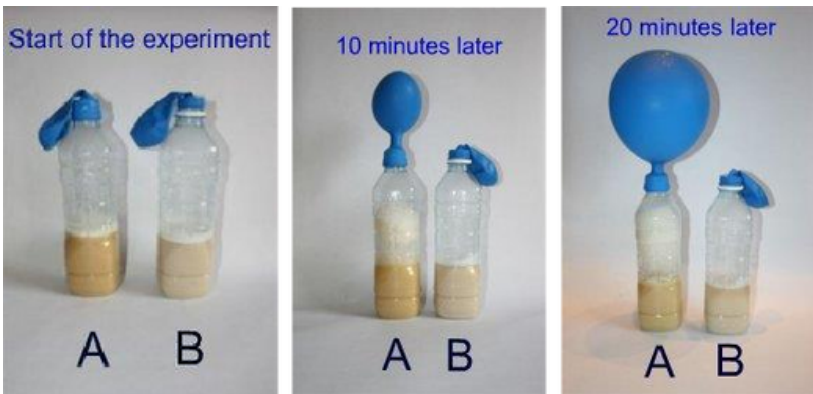




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Method

1. Add one yeast sachet to bottle A and one to bottle B.
2. Add 2 squirts of golden syrup to bottle A.
3. Add 400ml of warm water to each bottle.
4. Put the lids on the bottles and shake well.
5. Remove the lids and stretch a balloon over the openings.
6. Watch and wait!



Extension activity

For older children, you could extend the investigation to include: (1) yeast but no warmth - use cold water; (2) warmth, sugar, heat-inactivated yeast - use hot water or steam for 10 seconds to deactivate the yeast before adding it to the bottle.

You will need

- Two 500ml empty water bottles with lids, labelled A and B.
- Two balloons.
- Two sachets of dried active yeast.
- Golden syrup in a squeezezy bottle.
- Warm water.

Related resources

- A similar fungus fizz experiment from The Naked Scientists: www.thenakedscientists.com/get-naked/experiments/fizzy-yeast
- Yeast and the expansion of bread dough, a Practical Chemistry resource for ages 11-16 years: edu.rsc.org/experiments/yeast-and-the-expansion-of-bread-dough/1748.article