

Microbe Investigation

Teacher Info Sheet

Curriculum Links: Living things and their habitats, Working Scientifically

- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
- Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.

Part one:

Introducing yeast! The worksheet includes pictures of different types of yeast. You might like to start the day having some dried yeast (unlabelled) in a bowl for children to see and touch and ask them if they think it's alive. This challenges them to think about how we determine if something is living. Collect their ideas and note them down to revisit later.

Part two:

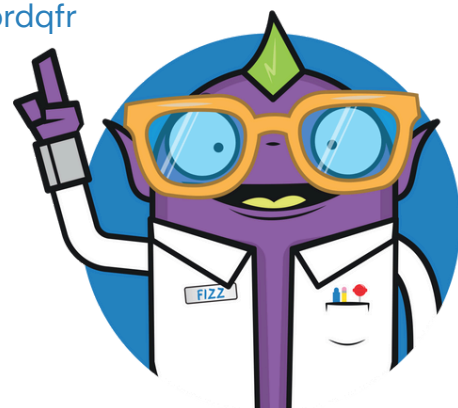
The yeast balloon activity proves to the children that yeast is a living thing. The yeast uses the sugar as a food source and creates carbon dioxide gas as a by-product (Respiration). This shows that yeast can be a useful organism, for example when it is used to ferment waste products like wheat straw, where the ethanol and carbon dioxide produced are used as biofuels for cars.

If the experiment is set up using the following instructions then the balloon should inflate. However, there is an opportunity to use the scientific method! You could encourage students to set up one bottle as described, one with cold water and one with no sugar. Get them to label the bottles and record the results. There are many more variables that could be introduced to enable the children to use the scientific method. *You could line up the bottles on a sunny windowsill and have a balloon race to see which balloon fills the fastest!*

Further Information

What is a microorganism: <https://www.bbc.co.uk/bitesize/articles/zsgtrwx>

Yeast: <https://www.bbc.co.uk/teach/class-clips-video/articles/zprdqfr>



Microbe Investigation

Step 1:

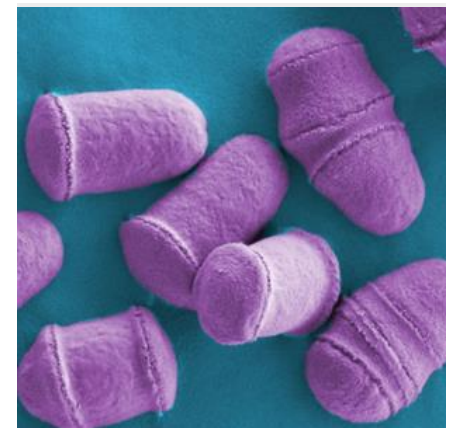
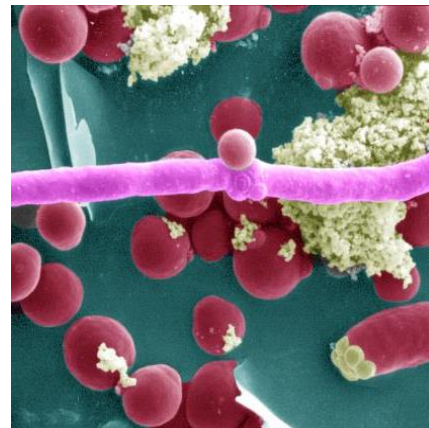
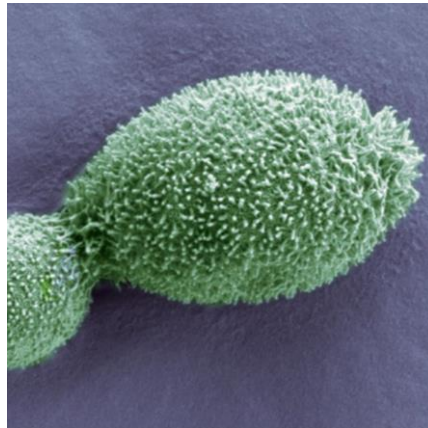
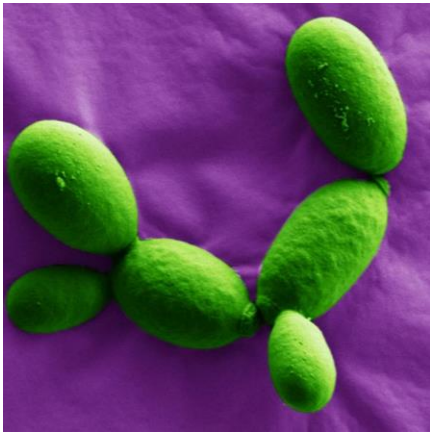
What is yeast?

There are approximately 37.2 trillion different cells in a human body!

Yeast is made of just one cell. It is a single celled organism.



There are lots of different types of yeasts that live in lots of different environments. What words would you use to describe the yeast below?



Yeast converts (ferments) sugar into ethanol (a type of alcohol) and a gas called carbon dioxide. We use it to make food and drink like bread, crumpets and even marmite!

Step 2:

Yeast Balloons!

Yeast is a beneficial single-celled micro-organism that is used to make bread. Humans have been using yeast for over 10,000 years.



1. Pour warm water into the plastic bottle or flask so that it measures ~ 4 – 5 cm up the side.



2. Add the yeast to the water.



4. Remove the bottle top and attach a balloon to the top of the bottle.



5. Place the bottle in a warm spot and observe.



You will need:

- 1 empty plastic bottle (500 ml)
- 7 g sachet of instant yeast
- 2 teaspoons sugar
- Warm water
- 1 balloon

3. Add the sugar to the water and yeast mixture. Put the bottle top on and give the bottle a gentle shake.



Questions...

What is happening to the balloon?
Why do you think it is happening?