

LO: To explore what micro-organisms are and how they can be grouped.

# What could the other three be?

Kingdoms are the broadest groups in the classification system. We have already looked at the 'animal' and 'plant' kingdoms.





### Protists

Protists are micro-organisms that are usually made up of just one cell. Protists usually live in water and stay in one place. They can include algae and amoeba.

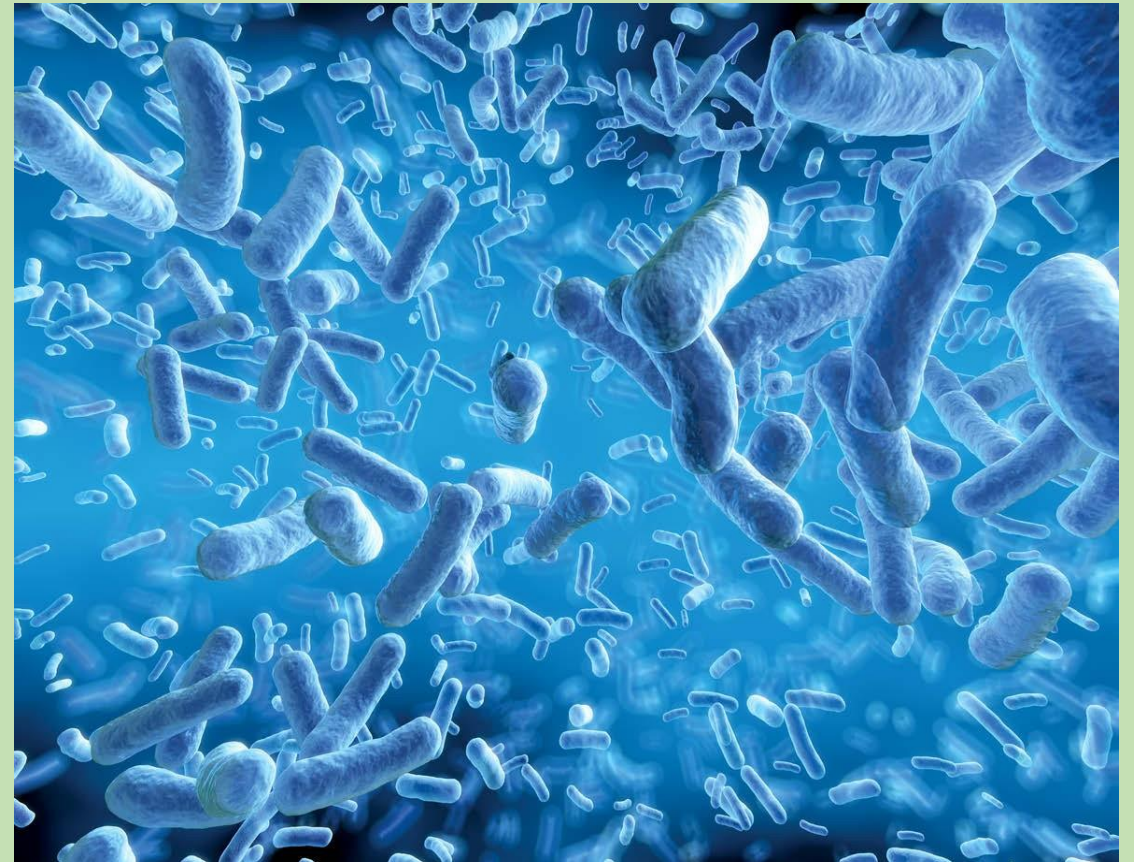
### Fungi

Fungi need to absorb nutrients from their surroundings to survive. Examples of fungi includes mushrooms, mould and yeast.

### Bacteria

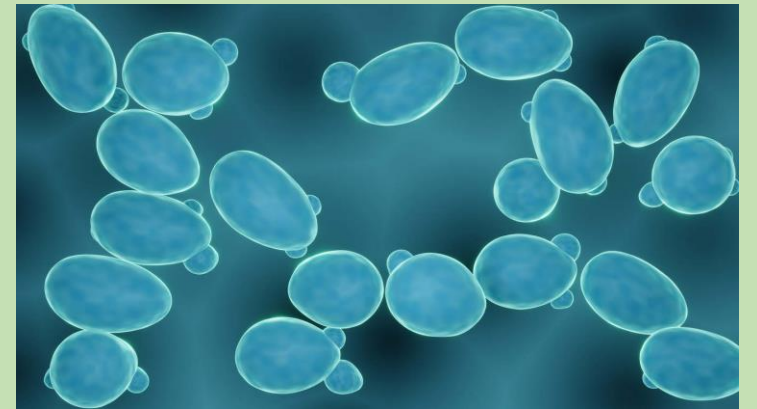
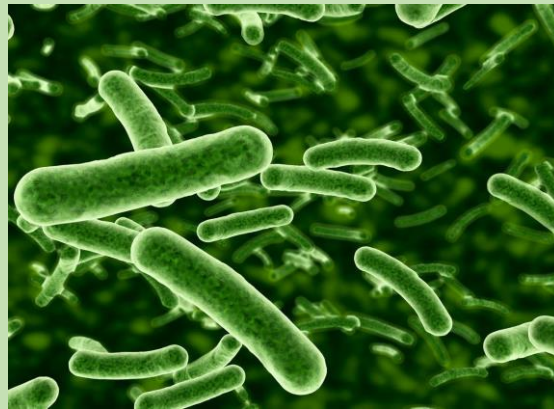
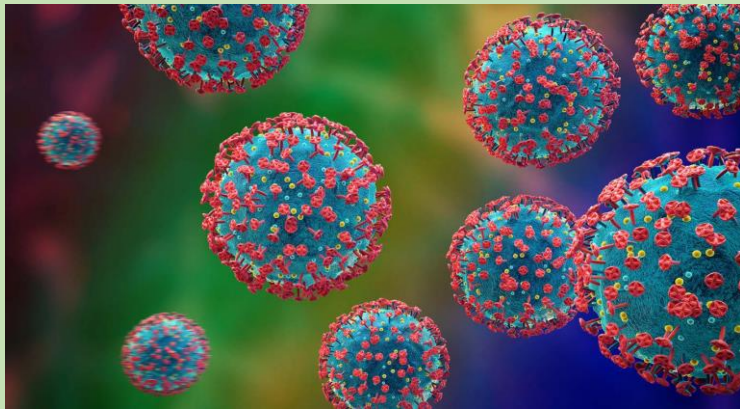
Bacteria form the largest group of any kingdom by far. Bacteria can be used in food production, such as to turn milk into yoghurt. They can also cause diseases.

A micro-organism is living thing that is too small to be seen with the naked eye. In order to see micro-organisms, we have to use powerful microscopes. Micro-organisms include bacteria, fungi and viruses.





Just like plants and animals, micro-organisms need certain things to survive. They need water and food but some create their own food, like plants do, while others feed off the objects around them. Some also need oxygen. Different types of micro-organisms can survive in different places. Some live in freezing conditions, others in boiling hot temperatures.



# Fungi

Fungi can be different sizes ranging from a single cell, like yeast (used to make bread rise), or other fungi such as mould or toadstools.

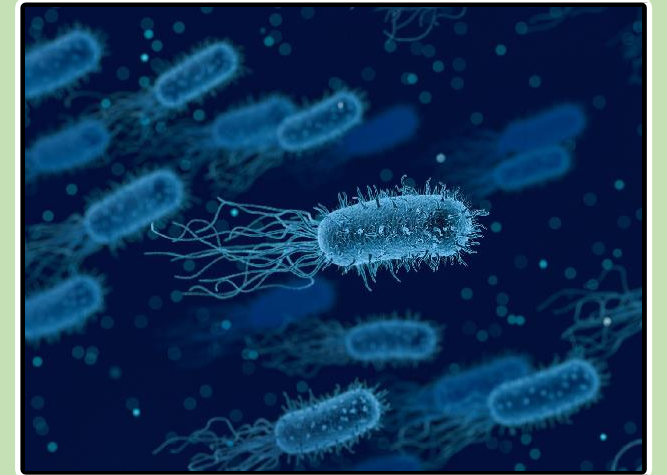
Mushrooms are classed as fungi!



# Bacteria

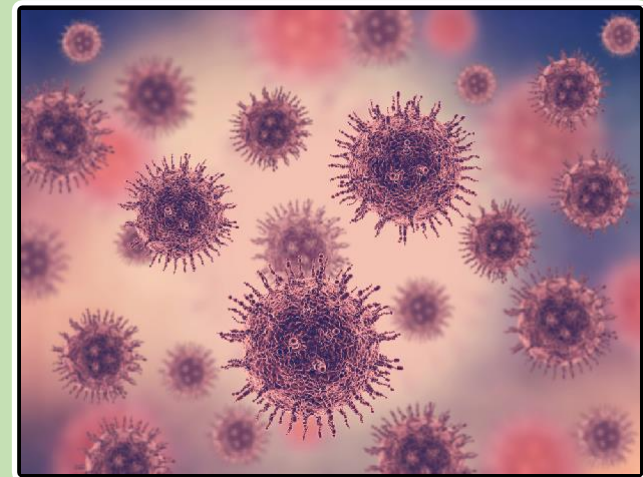
Bacteria can be rod-shaped, spiral-shaped or spherical.

Some bacteria can be useful, such as certain types found in the stomach, but other nasty kinds can give you a bad tummy ache or a sore throat. Bacteria is everywhere and we can pick it up very easily!



# Viruses

Viruses are parasites. This means they can only survive if they get inside the cells of other living things. They can cause infectious diseases, such as chicken pox or measles. Viruses are difficult to treat with medicine as they use the 'host cell' to protect it.





# Algae

Algae can also be many different sizes - some single-celled algae are actually used in toothpaste!

Algae are aquatic micro-organisms which means you will find them in or around water.



# Protozoa

Protozoa are single-celled organisms and can cause many diseases, although they are occasionally helpful too.



We can see the evidence of micro-organisms all around, even if we can't actually see the microbes themselves.

Can you guess how these pictures show evidence of the micro-organisms?



There are billions of microbes on and in your body. Most of these microbes are necessary for us to stay healthy.

However, some microbes get into our systems and cause us to become ill.

These microbes can then travel from person to person, making lots of people poorly.

These diseases can range from mild illnesses like colds and chicken pox to much more harmful illnesses like food poisoning, cholera, hepatitis and many, many more.





Microbes are why foods rot and go mouldy. Even though it isn't very nice seeing or smelling mouldy food, having foods broken down by micro-organisms is very important. The mould you can see on food is the fungi feeding and growing.





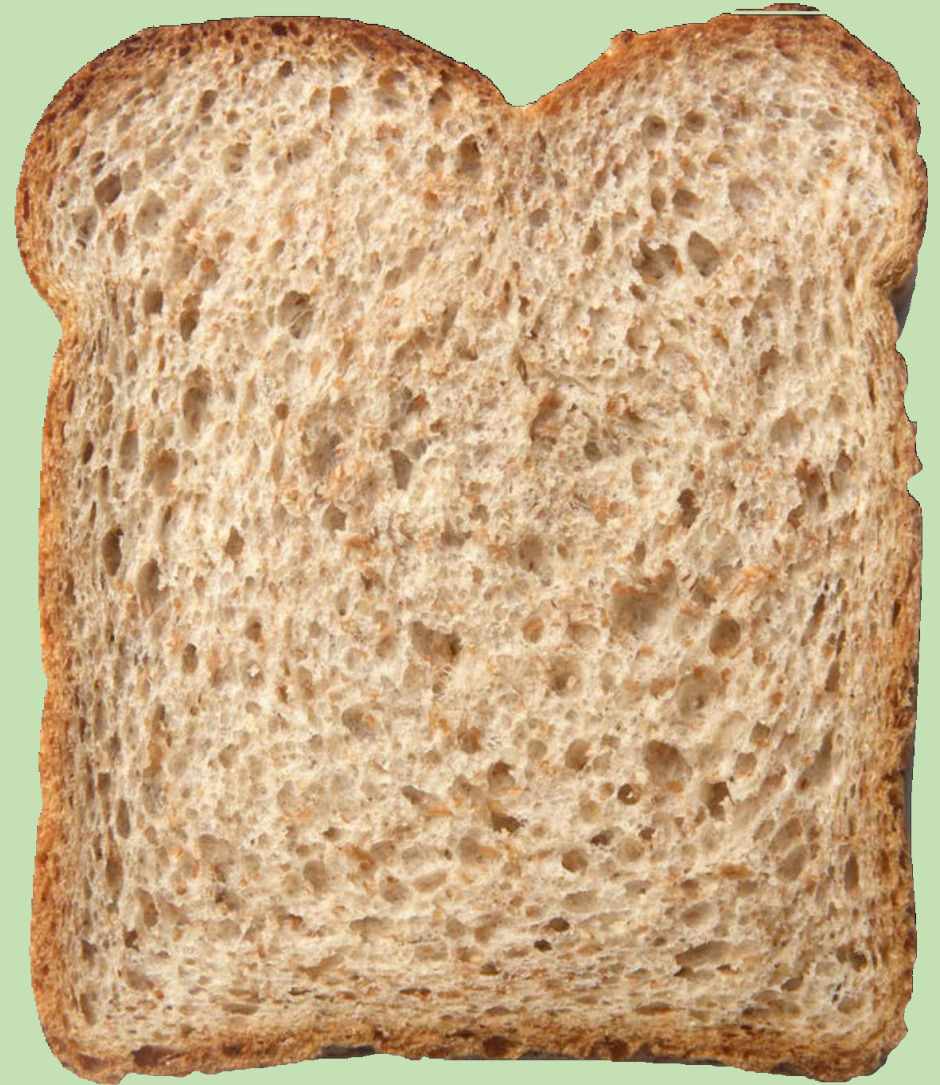


However, some moulds are specifically cultivated to make food, such as the blue veins in blue cheese. These moulds are safe to eat.

Micro-organisms are also used a lot in other types of food production. Cheese and yogurt, for example, use lactic acid to turn them into these products from milk. Wine and beer need yeast to be brewed. Bread needs yeast to make it rise.



The holes in bread are air bubbles. These bubbles are produced by yeast. Yeast is a micro-organism that is used in bread-making to make the bread rise. The yeast feeds on the bread and then produces  $CO_2$  gas which forms the air bubbles. The more the yeast feeds on the dough, the more gas will be produced and the more the bread will rise.



# Your task

Create a poster about micro-organisms in your book.

You must include:

- What are micro-organisms?
- What do micro-organisms look like?
- How are micro-organisms grouped?
- How can micro-organisms be helpful?
- How can micro-organisms be harmful?