

CELLS

How do fungi affect us?

Our every day life is affected by fungi. They have a large impact on our environment as they act as decomposers playing an essential role in both the carbon and nitrogen cycles. Some fungi live in mutual associations with other species, where both species benefit from the presence of the other. An example is that the roots of most plants contain a fungus that supplies the plant with minerals and water.

Many fungi have great medical value. They produce statins, used to lower blood cholesterol level, and antibiotics used to treat infections. The first antibiotic discovered was penicillin and this is produced from a mould fungus.

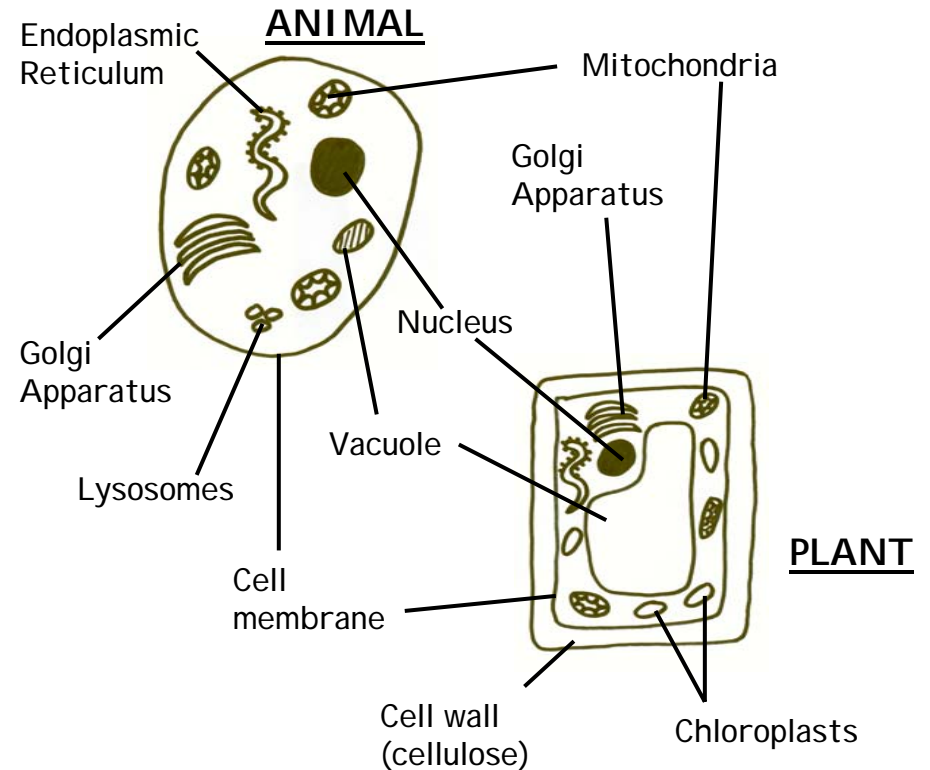
Other uses of fungi are:

- making the citric acid for fizzy drinks
- flavouring cheeses like stilton and Danish blue
- the yeast for brewing alcohol and making bread
- truffles dug from the ground to flavour food.

Other fungi are parasites causing disease in both animals and plants. Diseases such as ringworm and athletes foot affect humans, and other fungi cause large damage to agricultural crops such as cereals and fruit, in fact, 10-50% of the world's fruit harvest is lost each year to fungal attack.

You have probably studied cells from an early stage in your school career but do you know all there is to know about them? Do you, for example, know anything about fungi? If the answer is no, then read on.

Quick revision about animals and plants



FUNGI

Living things are classified into 5 Kingdoms. Plants, animals and fungi make up the 3 Kingdoms of higher organisms (the other Kingdoms are Prokaryota (bacteria) and Protocista (algae and protozoa)). Many people confuse fungi with plants but there are several key differences between the two cell types.

How are they different to plants?

One of the main ways in which they differ is in their mode of nutrition. Plants are primary producers. They are able to make their own food in a process called photosynthesis which utilises sunlight and a chemical present in plant cells called chlorophyll to turn light energy into chemical energy. Fungi, like animals, cannot produce their own food as their cells do not contain chlorophyll. But, unlike animals, they do not ingest their food, instead they grow on their food source and secrete enzymes into it to digest it. They then absorb the digested food into the cell.

What are fungi?

It is estimated that there are about 1.5 million species of fungi. They exist in many different forms including; puffballs, moulds, yeasts, rusts, mildews and your everyday mushroom! Some fungi exist as single-celled organisms, like yeast, whereas most exist as multi-cellular organisms, e.g. mushrooms. Multi-cellular fungi have a body structure which allows maximum absorption of nutrients from the food source. Underneath the fruit body of the fungus exists a large network of tiny filaments called hyphae. Fungal hyphae form a large interwoven mass called a mycelium, the structure of which maximizes the surface area to volume ratio of the fungus ensuring maximum absorption. Most energy obtained from nutrients is used to grow the hyphal tips into new substrates to absorb more food.

Hyphal Tip - absorbs nutrients from the surroundings.

