

## **GCSE Biology – Plant and Animal Cells - Transcript**

Animals and plants are both multicellular, they are made of lots and lots of cells. But those cells aren't all the same. So, let's look at the similarities and the differences between them.

These are animal cells. All cells contain different structures called organelles, each with a specific function.

The genetic material, DNA, is enclosed in the nucleus. This is the structure that controls the different functions in the cell, as well as replication to form new cells. The whole cell is enclosed in a membrane. It controls the movement of substances in and out of the cell. Inside the membrane is the cytoplasm, where most of the chemical reactions happen.

The mitochondria are where aerobic respiration takes place, releasing energy for the cell. These tiny organelles are ribosomes, they are the structures where protein synthesis happens.

So how do these differ from plant cells? Plant cells have a regular fixed shape, typically a rectangle, while animal cells come in many different shapes.

Plant cells have several organelles in common with animal cells. These include the ones we've mentioned. The nucleus, the cytoplasm, the cell membrane, the

mitochondria and the ribosomes, which all have the same function as in the animal cell.

But, plant cells have three structures which you won't find in animal cells. Most plant cells are packed full of green structures called chloroplasts. These contain chlorophyll, which absorbs light energy for photosynthesis.

Plant cells are surrounded by a cell wall which is made from cellulose. It strengthens the cell and supports the plant.

Plant cells are filled with a large permanent vacuole, it's filled with a fluid called cell sap. It pushes the cytoplasm against the cell wall. This makes the cell turgid, firm and rigid. It helps keep the plant upright.

Whether plant or animal, most cells are specialised. This means they have special features, adaptations to help them carry out specific functions. Scientists call the process of turning into a specialised cell differentiation.

For example a sperm cells have a flagella, this enables it to swim to meet an egg cell. Root hair cells have an extra large surface area to maximise mineral and water uptake from the soil. It usually has no chloroplasts for photosynthesis because it's underground, so, no light.

So plant and animal cells have similarities and differences, and most are specialised to carry out a special function that the organism needs to survive.