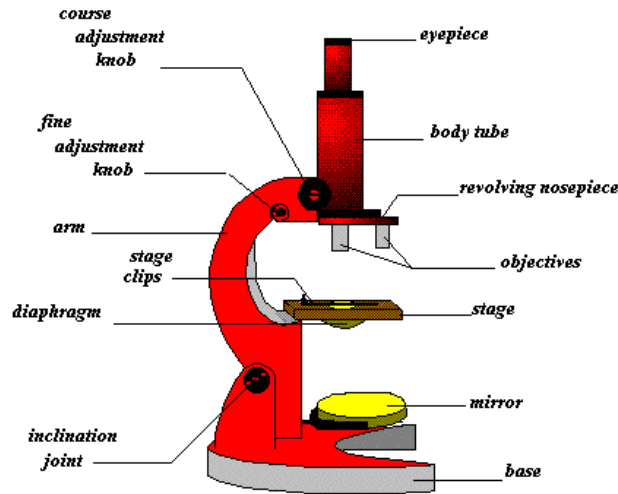


Cells are the basic building blocks of all living things. Cells are very small and you need a microscope to see them. You should be able to identify the **eyepiece lens**, **focusing knob**, **objective lens**, **stage** and **mirror** on a diagram of a microscope.

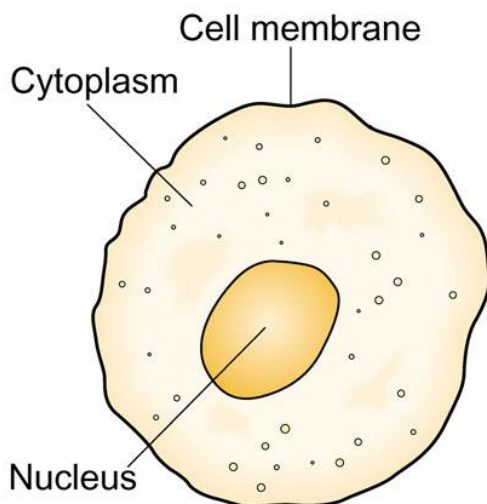


Cells can be stained using **iodine solution** to make the parts easier to see.

Parts of cells

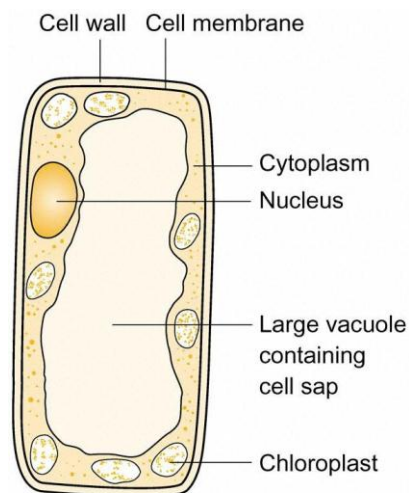
Plant cells and animal cells are different. Both plant and animal cells have a nucleus, cytoplasm and a cell membrane. Plant cells also have a vacuole, a cell wall and chloroplasts.

Animal cell



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Plant cell



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What the different parts of cells do:

Part of cell	Function
Cytoplasm	Jelly like substance where all chemical reactions occur
Nucleus	Controls all the cell's activities
Cell Membrane	Controls what enters and leaves the cell
Central Vacuole	Contains a liquid called cell sap
Cell Wall	Gives the plant cell shape and support
Chloroplast	Contains chlorophyll which is used for photosynthesis

Plants and animals are made up of lots of different types of cells, all doing different jobs. Here are a few examples:

Type of cell	Special features	Function
Sperm cell	Streamlined shape with a tail	Swims in fluid to fertilise female egg
Red Blood Cell	Concave shape giving a large surface area	To transport oxygen to the cells of the body
Nerve Cell	Long thin fibres	To carry electrical messages around the body
Root Hair	Long extended cell with large surface area	Absorbs water from the soil

Similar cells are grouped together to form **tissues**, for example nerve cells make up nerve tissue, and muscle cells make up muscle tissue.

Different tissues join together to make an organ, e.g. muscle tissue and nerve tissue join together to make the heart organ.

Cells → Tissues → Organs

Reproduction

- Fertilisation occurs when the nuclei of the sperm and egg fuse together.
- The placenta is the organ which provides oxygen and nutrients for the developing foetus.
- The umbilical cord attaches the foetus to the placenta.
- You should understand the process of foetal development.
- You should understand the risks that face the developing embryo.

Respiration is the chemical reaction which provides the body with energy.