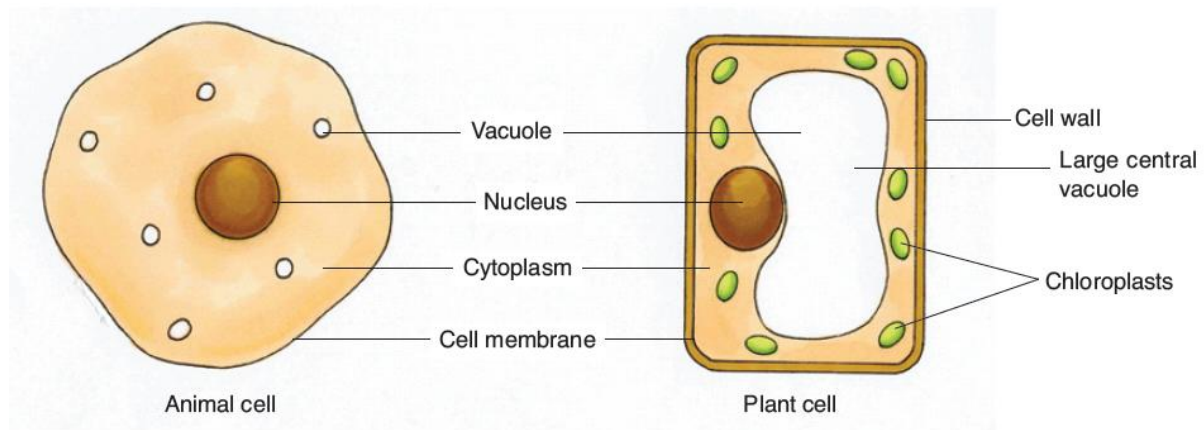


Chapter 2 – Animal and Plant Cells

Plant and Animal Cells

The cell is the building block of all living things. Cells can only be seen under the microscope and about 100 of them would fit on a full stop. Even smaller structures are found inside cells and these keep the cells functioning. Normally cells work together in groups to carry out the same purpose **e.g.** skin is made up of millions of similar cells working together.



Differences between plant and animal cells

Plant Cell

Has a chloroplast
Has a cell wall
Has large vacuoles

Animal Cell

No chloroplast
No cell wall
Small vacuoles

Both plant and animal cells have a nucleus, a cell membrane and a cytoplasm.

Functions of Cell Parts

Nucleus	This is the control centre of the cell.
Vacuole	This is the food storage area.
Membrane	This is the thin outer skin of the cell; it controls what goes in and out of the cell.
Chloroplast	This is the green structure within a plant cell that makes food.
Cytoplasm	this is a jelly like substance in which food, minerals and salts are dissolved.
Cell Wall	This is the outer rigid structure; it gives shape and protection to the plant cell.

The Microscope

The microscope is an instrument for looking at tiny objects that cannot be seen with the naked eye.

It consists of a number of lenses which magnify the light and make the specimen look bigger.

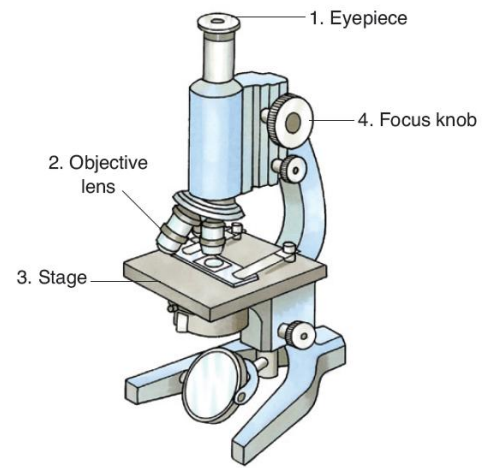
Function of the Parts of a Microscope

Eyepiece: This is the part of the microscope that is looked through. It contains a magnifying lens.

Objective Lens: This lens gives greater magnification; there are usually three lenses of different strength.

Focus Wheel: This is what is adjusted to focus the object.

Stage: This is the part of the microscope that holds the slide.



How to use the microscope

Place the cells on a clean slide. Always observe under the lowest power first, focus clearly and then move the specimen to the centre of the field of view of the eyepiece. Swing the medium power lens into use, refocus slowly and carefully and move the specimen to the centre again if necessary. If possible, swing the high power lens in and focus again. Take care not to crush the glass slide when focussing.

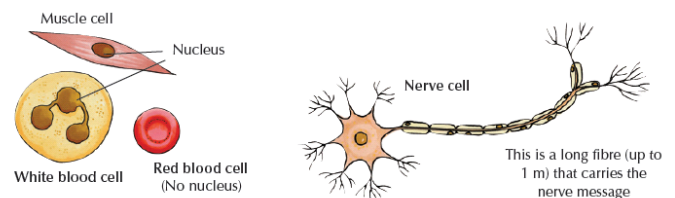
How to prepare a slide

Place the cells on a clean slide. Stain the sample with methylene blue stain to show up the cell contents more clearly. Place a cover slip carefully over the specimen to prevent it drying out due to the heat from the light. Avoid trapping air bubbles when lowering the cover slip as they spoil the view.

Cell Organisation

There are many different types of cells, each with a different and important function:

Muscle Cell	Allows movement
Red Blood Cell	Carries oxygen in the blood
White Blood Cell	Defends against disease
Nerve Cell	Carry messages around the body.



Tissues Organs and Systems

A **tissue** is a group of similar cells working together with the same function **e.g.** bone, blood and skin.

An **organ** is a group of tissues working together **e.g.** the heart.

A **system** is a collection of organs working together **e.g.** The digestive system.

Cell Division and Growth

Growth is measured in terms of the making of new cells.

