Microscopes (pg 2 – 3)

The most common microscopes used today are Hooke's microscope; which has 2 convex lenses and was invented in the 16th Century by Robert Hooke (1635-1703).

To calculate magnification, multiply the magnifications of the two lenses together.

e.g. magnification of a microscope with a x5 eyepiece lense and x10 objective lens is: 5 x 10 = x50

Q. A microscope has x5 eyepiece lens with x5; x15; x20 objective lenses. Calculate the three total magnifications.

_____

_____.

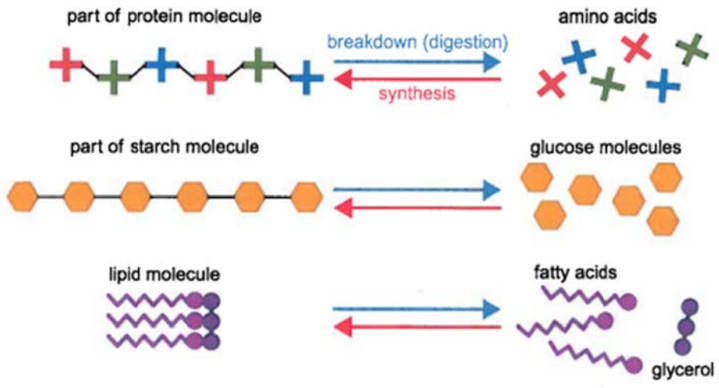
Q. If a flea is magnified x50 and is is 5mm long on a photograph, what is the unmagnified length of the flea? _____

Electron microscopes show more detail than light microscopes because they have greater magnifying abilities and greater resolution.

Q. What does a resolution of 0.002mm mean? *It means that two points that are 0.002mm apart or further would be seen as 2 points. If they are closer, they would be seen as 1 point.*

Enzymes and nutrition (pg 12 – 13)

Enzymes break down the large molecules of our food into the smaller subunits they are made of.

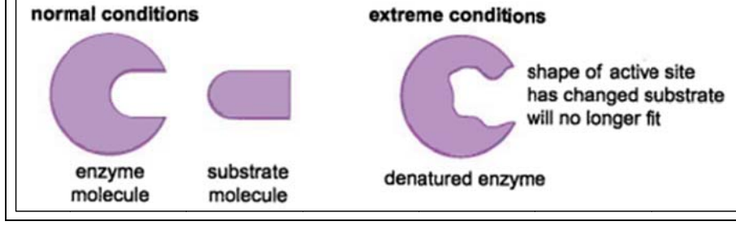


Enzyme action (pg 14 – 15)

Lock and key model: This model shows how enzymes and substrates fit together.

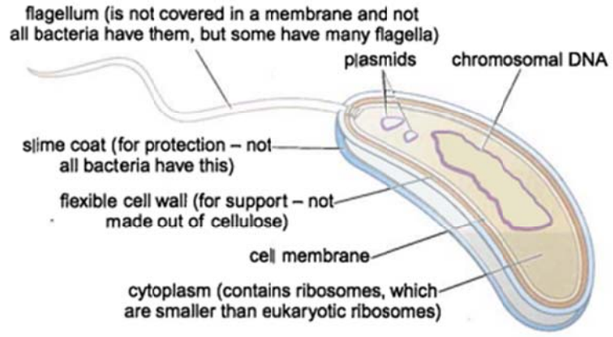
Denatured: Changes in pH or temperature can affect how the protein folds up, and so can affect the shape of the active site. If the shape of the active site changes too much, the substrate will no longer fit neatly in it. If the active site changes shape too much, the enzyme will no longer catalyse the reaction. This means the enzyme has been denatured.

Proteins are large 3D molecules formed by a chain of amino acids.



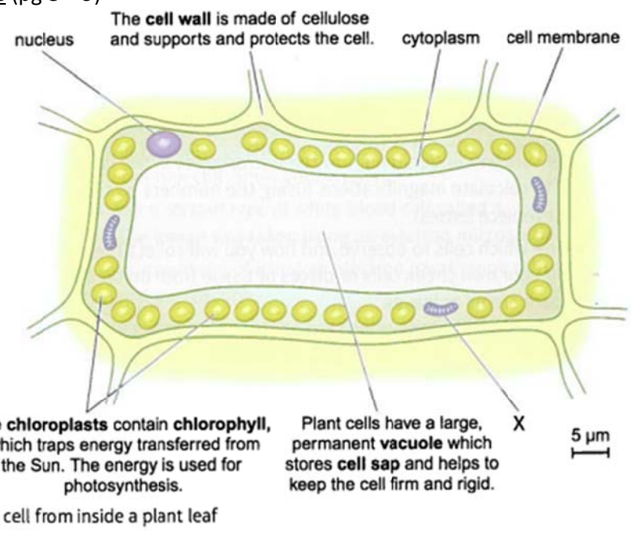
Inside bacteria (pg 10 – 11)

Bacteria are **prokaryotic**, which means that their cells do not have nuclei or chromosomes. Instead, the cytoplasm contains one large loop of **chromosomal DNA**, which controls most of the cell's activities. There are also smaller loops of DNA called **plasmids**. **Plasmid DNA** controls a few of the cell's activities. Prokaryotic cells do not have mitochondria or chloroplasts.



Q. State two sub-cellular parts that bacterial cells may have but animal cells never have. (2) _____.

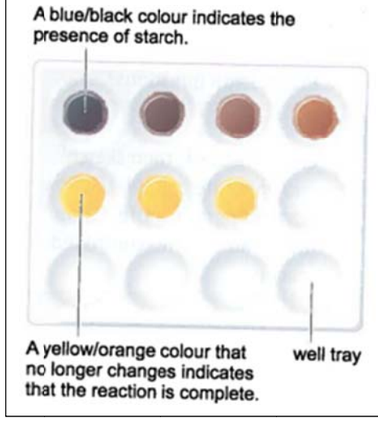
Plant cells (pg 8 – 9)



D a cell from inside a plant leaf

Q. Draw a table to show the parts of a plant AND an animal cell along with the functions of each part.

Core practical – Enzyme activity: Amylase digesting starch



In this practical, starch is digested by amylase into glucose.

Iodine is used to indicate the presence of starch.

Independent variable: _____

_____

Dependent variable: _____

_____

Control variables: _____

_____

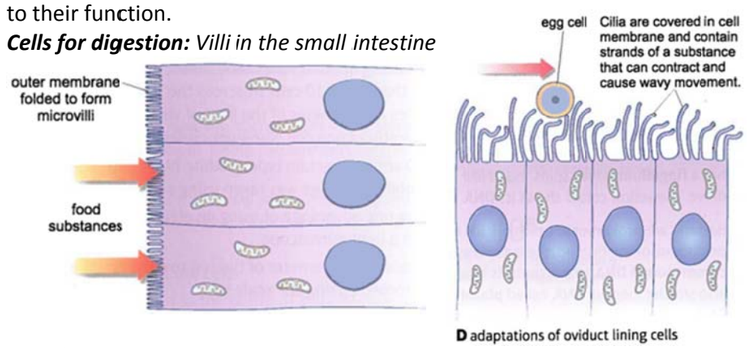
_____

_____.

Specialised Cells (pg 16 – 17)

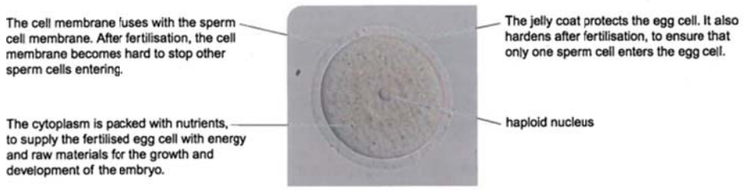
Specialised cells have a specific function (job). Specialised cells are **adapted** to their function.

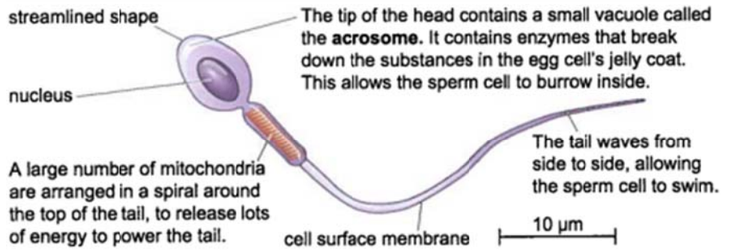
Cells for digestion: *Villi in the small intestine*



D adaptations of oviduct lining cells

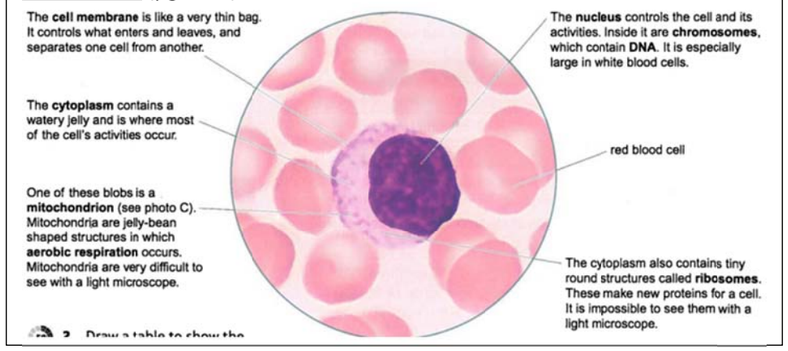
Cells for reproduction





C adaptations of a human male gamete

Animal cells (pg 4 – 5)



Core practical – Transporting substances: osmosis in potato tubes

We measured the mass of each potato tube at the start of the experiment, and then again at the end of the experiment.

Osmosis is the diffusion of water specifically, from a high water concentration (dilute solution) to a lower water concentration (concentrated solution), down a concentration gradient, through a partially permeable membrane.