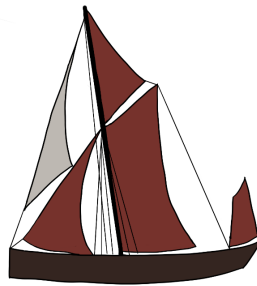

AQA

CELL STRUCTURE AND FUNCTION NOTES

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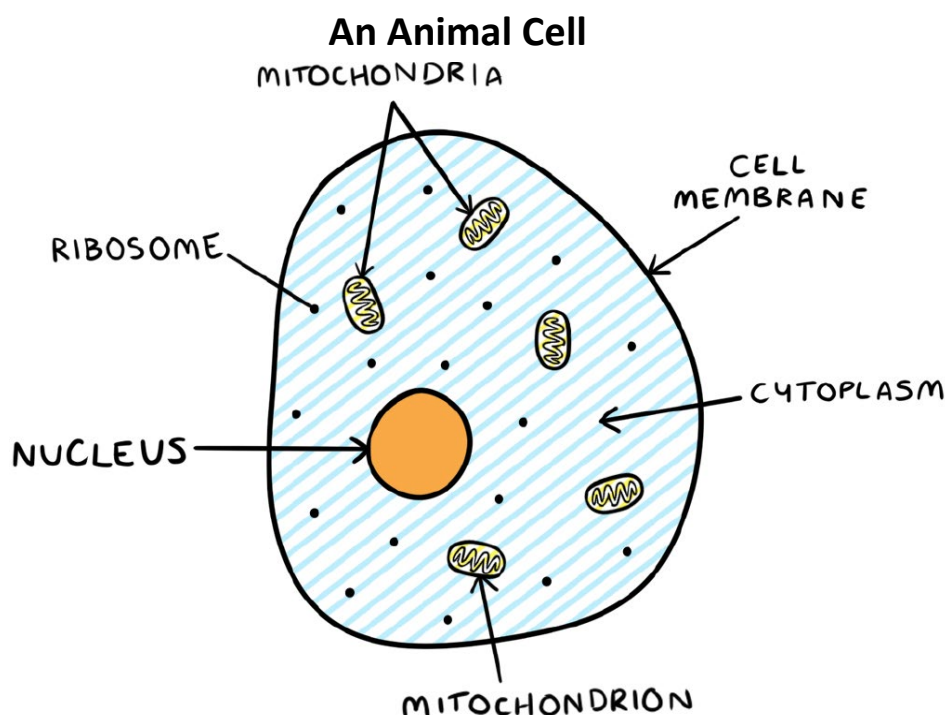
AQA Cell Structure and Function Notes

All organisms are made up of cells. The cell is the simplest unit that can live. Cells can be either **Eukaryotes** or **Prokaryotes**.

Eukaryotic cell: a cell which contains a nucleus and membrane bound organelles. E.g. muscle cells in animals or palisade mesophyll cells in plants.

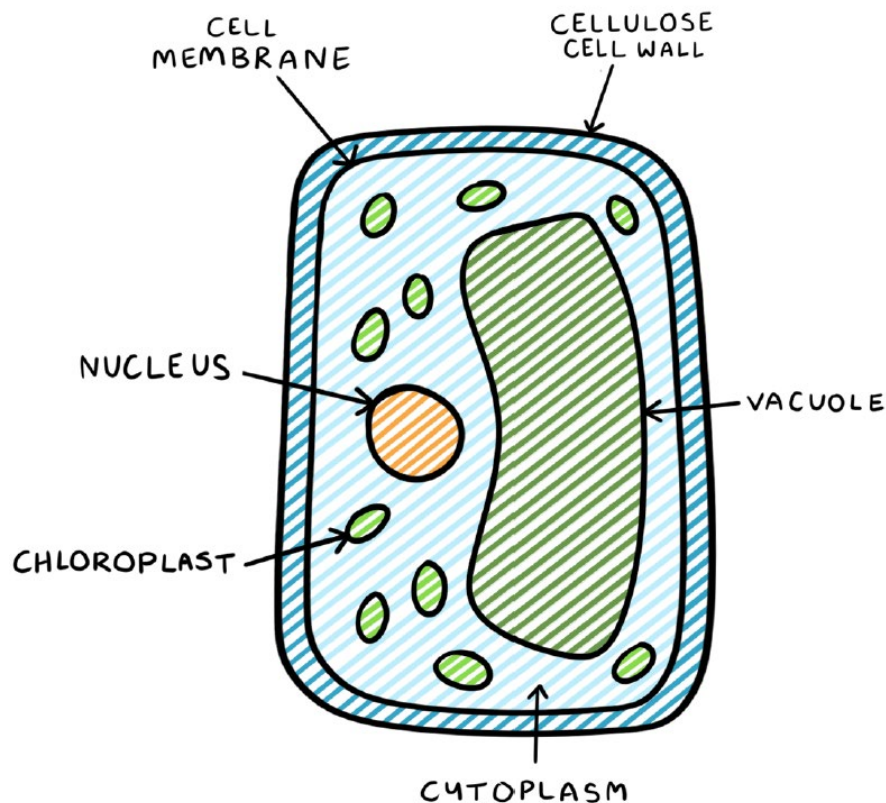
Prokaryotic cell: a cell which does **not** contain a nucleus or membrane bound organelles. E.g. any bacterial cell.

In this booklet we shall look at the structure and function of each of the cells that appear at GCSE. We shall begin by looking at the **animal cell**.



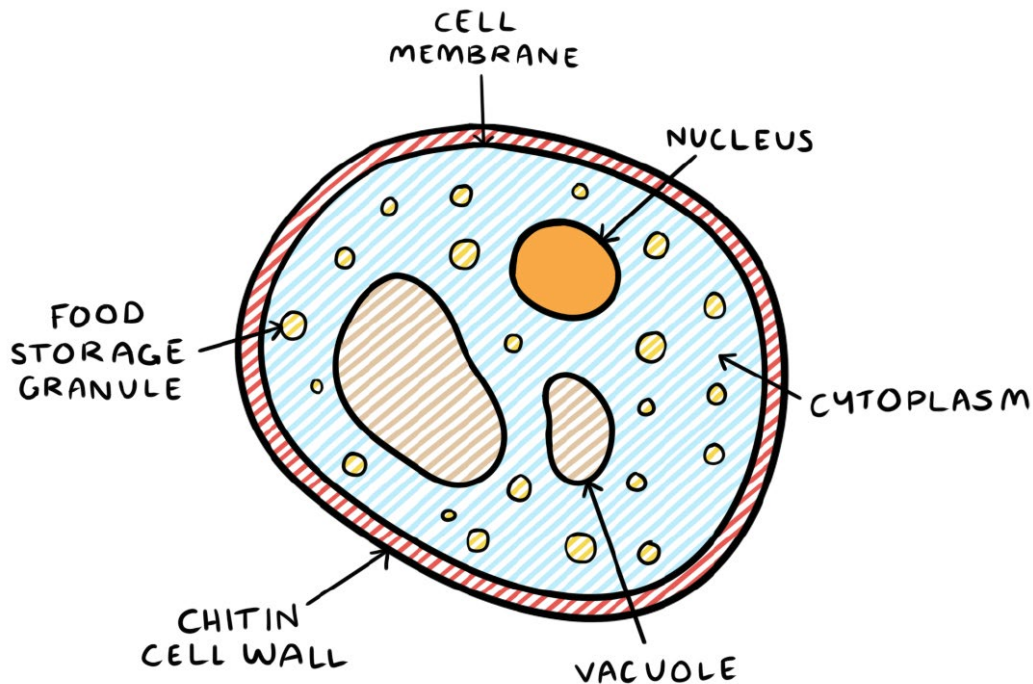
Structure	Function
Nucleus	Contains the cells <u>genetic material</u> , including DNA, which controls the cell's activities.
Cell membrane	Is <u>partially permeable</u> to substances and so controls the <u>movement of substances in and out of the cell</u> .
Cytoplasm	A <u>jelly-like material</u> that contains dissolved nutrients and salts and structures called organelles. It is <u>where many of the metabolic chemical reactions take place</u> .
Ribosome	<u>The site of protein synthesis</u> , where proteins are made.
Mitochondria (plural)	Organelles (mini organs inside a cell) that contains the enzymes for respiration, and where most energy is released in respiration. <u>Site of aerobic respiration</u> . One is a <u>Mitochondrion</u>

A Plant Cell



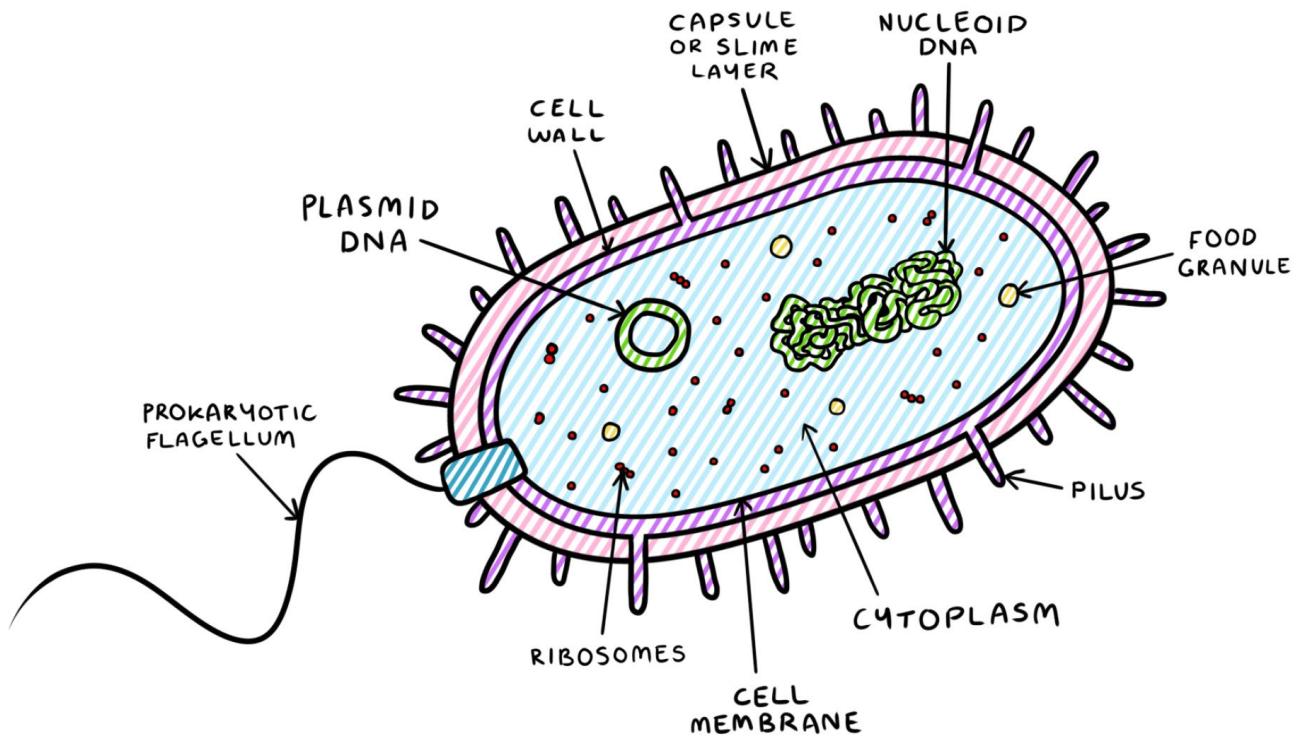
Structure	Function
Nucleus	Contains the cells <u>genetic material</u> , including DNA, which controls the cell's activities.
Cellulose cell wall	<u>Provides structure and support</u> to the cell. Only plant cells have walls that are made from <u>cellulose</u> .
Cell membrane	Is <u>partially permeable</u> to substances and so controls the <u>movement of substances in and out of the cell</u> .
Permanent vacuole	Stores cell sap and water within the cell. It is involved in keeping the cell turgid (normal size).
Chloroplast	An organelle that contains the <u>green pigment, chlorophyll</u> , which absorbs light energy for photosynthesis. Contains the enzymes needed for photosynthesis. <u>Is the site of photosynthesis</u> .
Cytoplasm	A <u>jelly-like material</u> that contains dissolved nutrients and salts and structures called organelles. It is <u>where many of the metabolic chemical reactions take place</u> .

A Fungal Cell



Structure	Function
Nucleus	Contains the cells genetic material, including DNA, which controls the cell's activities.
Cell wall	<u>Provides structure and support</u> to the cell. Only fungal cells have walls that are made from <u>chitin</u> .
Cell membrane	Is partially permeable to substances and so controls the movement of substances in and out of the cell.
Vacuole	Stores cell sap and water within the cell. It is involved in keeping the cell turgid (normal size).
Cytoplasm	A jelly-like material that contains dissolved nutrients and salts and structures called organelles. It is <u>where many of the metabolic chemical reactions take place</u> .
Food storage granule	<u>An energy store for the cell</u> . They normally store glycogen (fat) or a similar carbohydrate.

A Bacterial Cell



Structure	Function
Bacterial DNA	The DNA of bacterial cells is found loose in the cytoplasm. It is called chromosomal DNA and is not contained within a nucleus.
Cell membrane	Is <u>partially permeable</u> to substances and so controls the movement of substances in and out of the cell.
Cell wall	<u>Provides structure and support to the cell.</u> Only bacterial cells have walls that are made from <u>peptidoglycan</u> .
Plasmid	Bacteria also have small, closed-circles of DNA called plasmids present in their cytoplasm. Unlike the chromosomal DNA, plasmid DNA can move from one bacterium to another giving variation.
Pilus	Attachment to surfaces; protection against phagocytic cells.
Cytoplasm	<u>Jelly-like material</u> that contains dissolved nutrients and salts and structures called organelles. It is <u>where many of the metabolic chemical reactions take place</u> .
Flagellum	Bacteria can have one or more flagella. These can rotate or move in a whip-like motion to move the bacterium.
Ribosome	<u>The site of protein synthesis</u> , where proteins are made.
Capsule	Protection against phagocytic engulfment.