

1.2 ULTRASTRUCTURE OF CELLS

PROKARYOTIC CELL STRUCTURE

- have the simplest cell structure without compartments.
- do not have a nucleus
- have a cell wall and nucleoid.
- cytoplasm is one continuous chamber without any compartments (membrane).
- do not have cytoplasmic organelles apart from ribosomes.

Cell division in Prokaryotic cells:

- use binary fission - mode of asexual reproduction.
- the single circular chromosome is replicated and two copies of the chromosome move to the opposite ends of the cell.
- division of cytoplasm of the cell happens next.
- each daughter cell contains one copy of the chromosome.
- they are genetically identical

EUKARYOTIC CELL STRUCTURE

- have compartments within the cell that contain chromosomes called nucleus which is bounded by a nuclear bilayer.
- have organelles which perform various activities.
- they are compartmentalized. the partitions are single or double membranes.

Advantages of being compartmentalized:

- enzymes and substances are more concentrated rather than being spread out in the cytoplasm.

- substances that could damage the cells can be kept inside the membrane of an organelle.

Example: digestive enzyme of lysosome could digest & kill a cell if not stored in the lysosome membrane.

- conditions such as PH can be maintained at an ideal level for a particular process, which may be different to the levels needed for some other process.
- organelles with their contents can be moved around within the cell.

CELL ORGANELLES

