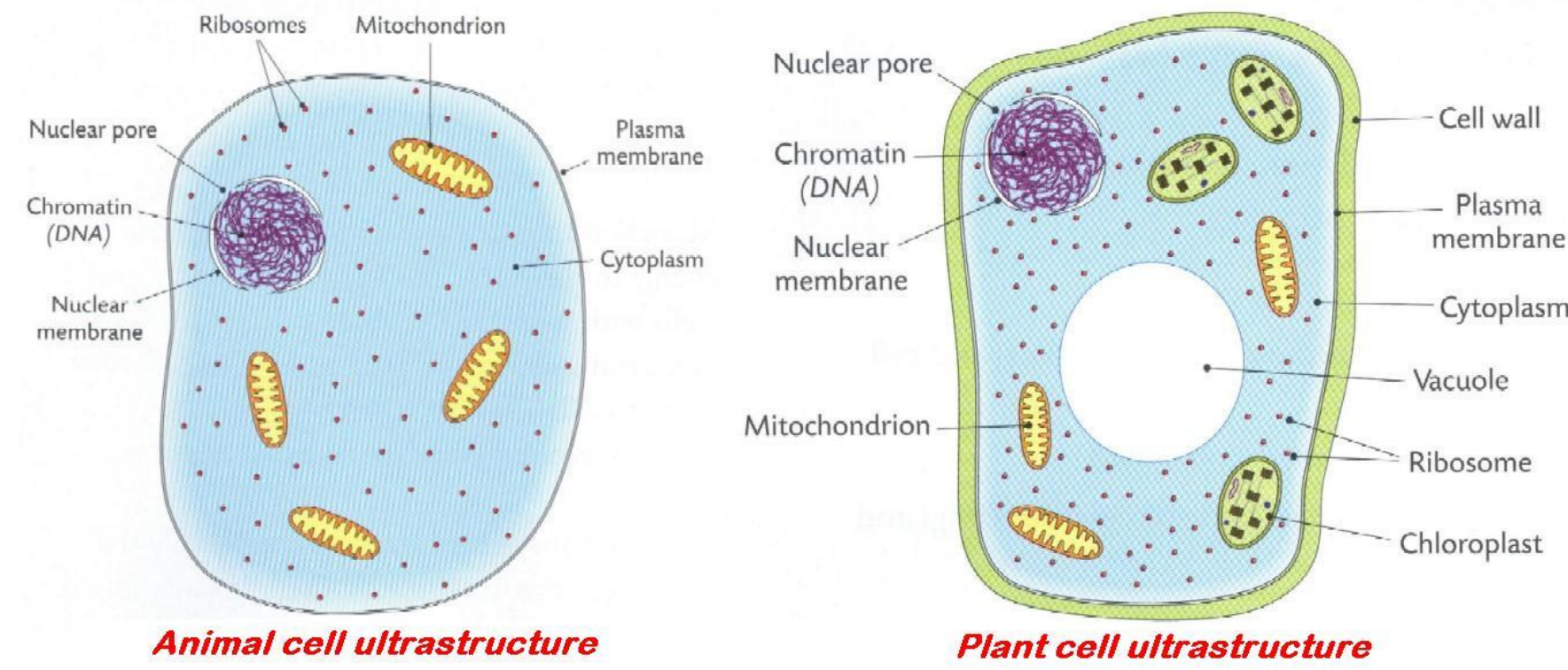


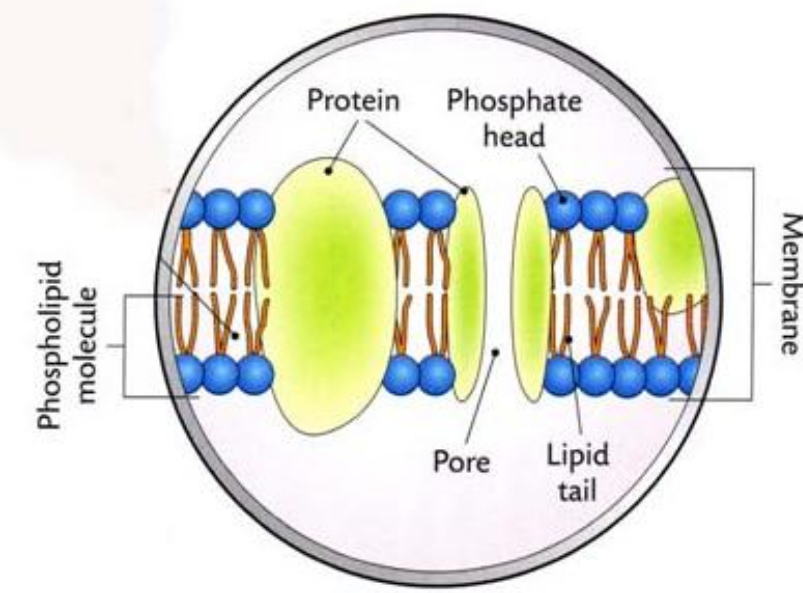
# 2.1.2 – 2.1.4 + 2.4 Cells & Tissues

**Cell:** the smallest unit of matter that can carry on all the processes of life. They are the basic units of structure and function in an organism.

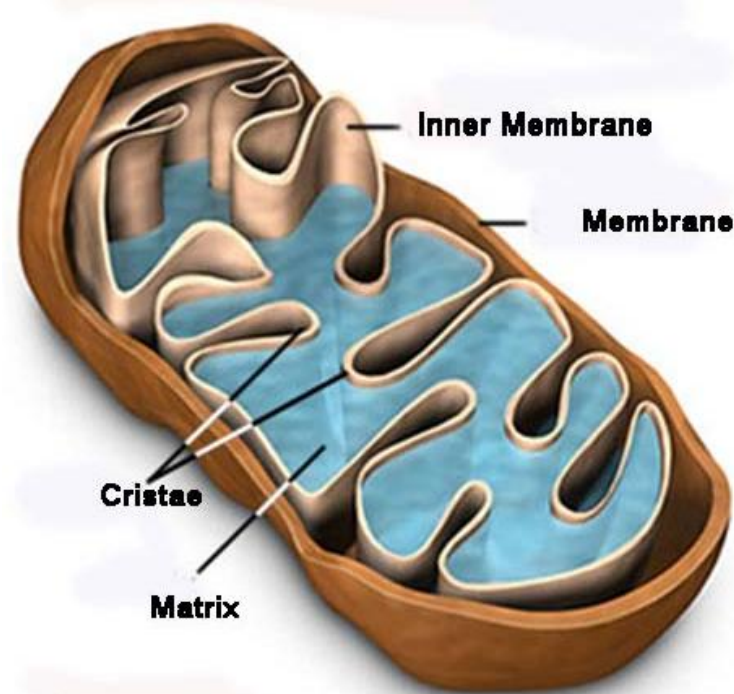


**Organelle:** a structure in a cell specialised to perform particular specific function, e.g. Cell membrane, Nucleus, Mitochondria, Chloroplast, Ribosomes, DNA, Cell Wall, Vacuole.

**Cell membrane:** made of phospholipids and proteins. Is semi-permeable. Retains cell contents. Allows substances enter or leave the cell by diffusion, osmosis and active transport.



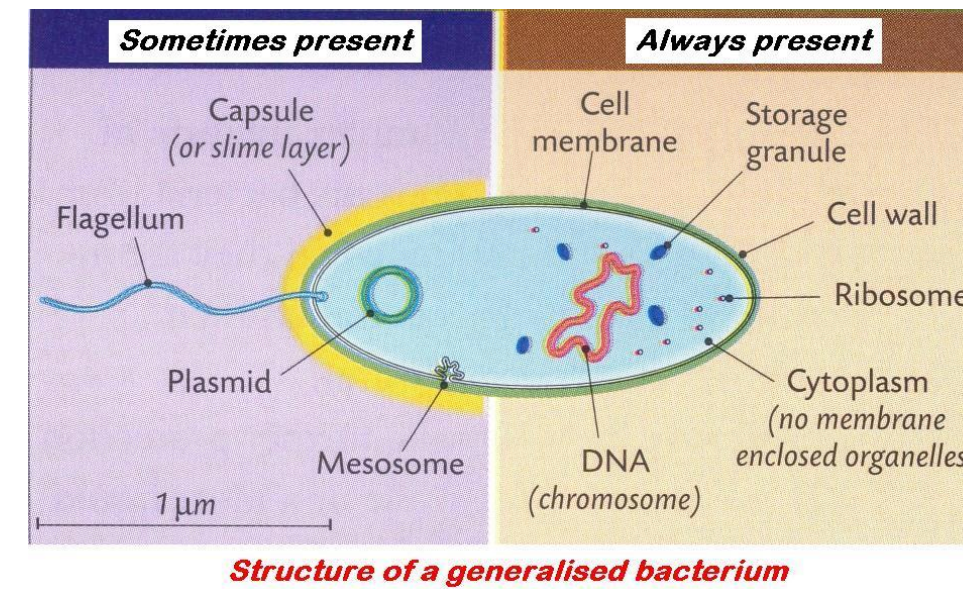
**Nucleus:** contains the cell's genetic information that is passed on to future generations. It controls the activities of the cell. May contain nucleoli, which function in protein synthesis.



**Mitochondrion:** supply energy to the cell by the process of respiration. Cells with lots of mitochondria produce a lot of energy.

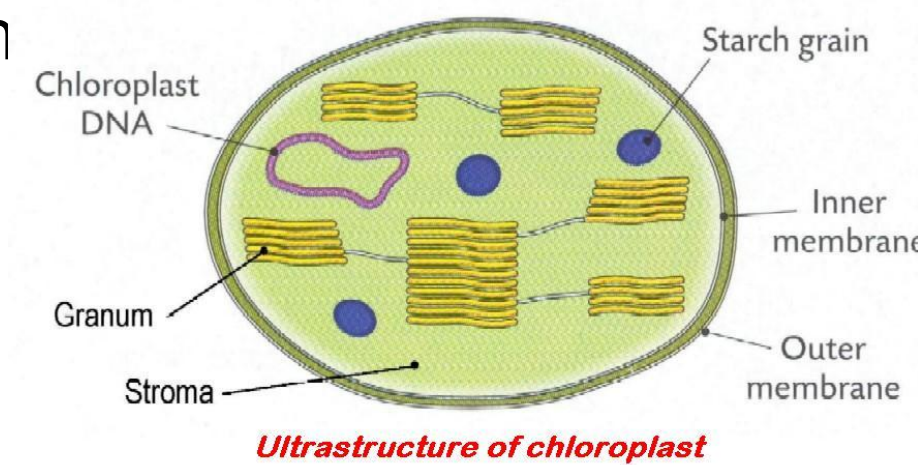
**eukaryote:** cell that has a membrane-bound (true) nucleus. It may also have mitochondria and/or chloroplasts, e.g. plant and animal cells.

**prokaryote:** cells that do not have a membrane-bound (true) nucleus or membrane-bound organelles, e.g. bacteria.



**Ribosome:** rich in RNA and functions in protein synthesis.

**Chloroplast:** contain chlorophyll and function during photosynthesis. They are composed of grana (used during the light stage) and stroma (used during the dark stage) of ph

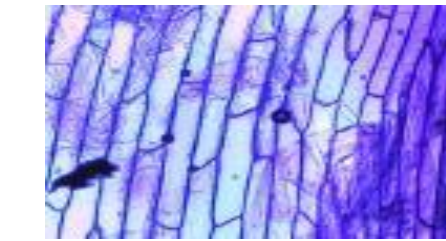


**Cell wall:** (only in plant cells) non-living, rigid and fully permeable. Found outside the cell membrane, made of cellulose by the cytoplasm. Gives shape, strength and support. See Plant cell ultrastructure diagram above.

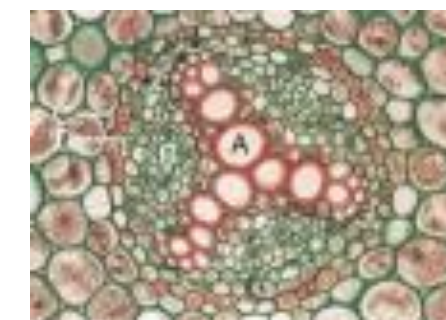
**Vacuole:** (usually only in plant cells) fluid-filled cavity in the cytoplasm containing aqueous solutions/salts. Provide structural support, maintains turgidity of cell by osmosis, helps in osmoregulation. Also involved in storage, waste disposal, protection and growth.

**Tissue:** a group of similar cells that are adapted to carry out the same function

## Plant tissues

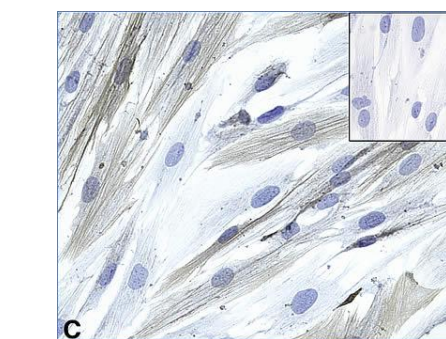


**Dermal tissue** - a single layer of cells that surrounds the different parts of a plant. Epidermis protects the plant

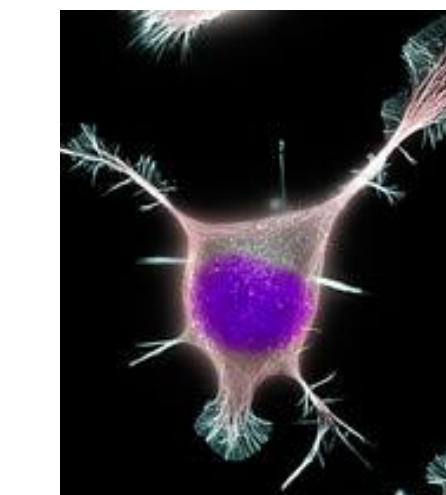


**Vascular Tissue** - Transports materials around the plant  
Xylem transports water and minerals up from the roots.  
Phloem transports food from the leaves to the other parts of the plant.

## Animal tissues



Muscle tissue can contract and cause movement.



Nervous tissue composed of nerve cells called neurons.

**Organ:** a structure containing a group of tissues with a common function(s), e.g. plant organs: leaf, root, stem, flower; animal organs: stomach, ear, testis, ovary, etc.

**(Organ) System:** group of organs concerned with one function, e.g. digestive system.

**Organism:** living thing or group of systems functioning together for living, e.g. human, plant, mouse, etc.