

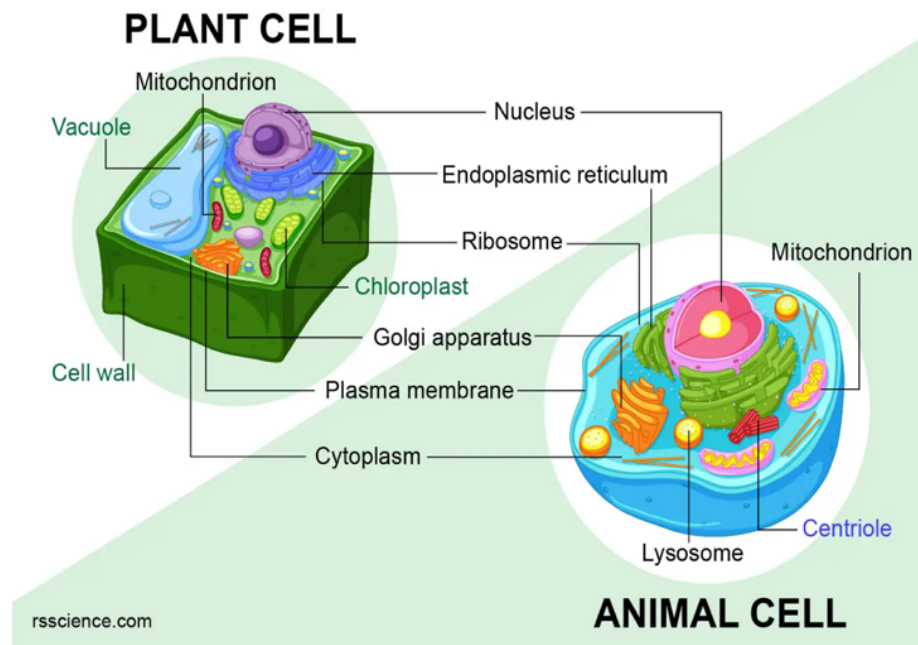
PLANT CELLS – ANIMAL CELLS

There are many similarities – but also, unique identifying differences – between cells in plants and animals.

Unique cell formulations

Though with variation, notice cell shape is typically different:

- Plant cells are rectangular – within a layered cell membrane and cell wall.
- Animal cells are rounded – within a cell membrane only.



Unique cell parts that differentiate cell types

- **Plants cells have:**
 - **Cell wall** – to retain shape/structure; to allow/block intercellular transfer.
 - **Chloroplast** – to receive/transfer light energy within the process of photosynthesis.
 - **Vacuole** – to store water/glucose/proteins; to store waste.
- **Animal cells have:**
 - **Centriole** – to organise cell division via the development of microtubules.

Cell parts for **animals (A)** and **plants (P)** described:

- **Cell wall (P)** – comprised cellulose and lignin for strength/flexibility, retaining structure according to turgidity (water content) and screening the inwards or outwards flow of all metabolic solutions.
- **Centriole (A)** – barrel-shaped organelles that organise cellular structure, acting as an internal skeleton, assisting in the division of cells.
- **Chloroplast (P)** – organelles containing the green pigment chlorophyll (used in photosynthesis) and found in respiratory aquatic/terrestrial plants only.
- **Cytoplasm (A/P)** – cell solution (comprising water/salts/proteins) surrounding all cellular organelles.
- **Endoplasmic reticulum (A/P)** – a membrane system, dealing with the synthesis, modification and transport of proteins.
- **Golgi apparatus (A/P)** – flattened disc-like structures, responsible for protein processing/sorting/preparation for transport to destinations.
- **Lysosome (A)** – responsible for waste disposal (equivalent to the vacuole in plants).
- **Mitochondrion (A/P)** – responsible for energy distribution/dispersal and storage within each cell.
- **Nucleus (A/P)** – responsible for storing hereditary material (DNA) and coordination of all cellular activities such as protein synthesis, cell division, growth and all other functions.
- **Plasma membrane (A/P)** – a thin/flexible living divider separating internal cell contents from other cells and/or an external environment.
- **Ribosome (A/P)** – specialised organelles that manufacture and synthesis proteins.
- **Vacuole (P)** – storage minerals, pigments and proteins, isolate harmful metabolic waste and maintain cell turgor pressure.

Explanations of terms used above:

- **DNA** – referring to deoxyribonucleic acid, a polymer carrying genetic instructions for development, function, growth and reproduction.
- **Organelle** – a sub-cellular structure undertaking particular synchronised singular/multiple function/s.
- **Polymer** – also, ‘biopolymer’ in plants – a naturally occurring structure formed from variable combinations of cellulose.
- **Protein** – complex organic substance, comprising amino acids, enzymes, hormones.
- **Salt** – a general term referring to raw minerals naturally found in soils, absorbed and used by plants.