

A decorative graphic on the left side of the slide consisting of overlapping geometric shapes. It includes a blue parallelogram, a light green parallelogram, and a dark grey parallelogram, all with thin black outlines.

Cell Organelles

Various cell organelles of different types of cells



Universal cell organelles

Cell surface membrane- Separates the cell interior from the outside environment

Made up of three layers, primarily proteins and lipids.

Phospholipids spontaneously form stable bilayers, with their polar head groups exposed to water and their hydrophobic tails buried in the interior of the membrane.

Cytoplasm- The cytoplasm is usually colorless and contains all the cellular organelles.

All the cellular activities like and processes take place.

“Protoplasm” which includes all the substances of a cell included nucleus and nucleoplasm

Genetic material-controls the organism's composition

Has the ability to replicate with the cell so new cells contain the same genetic material as the parent cell

DNA is composed of different combinations of four nucleotides

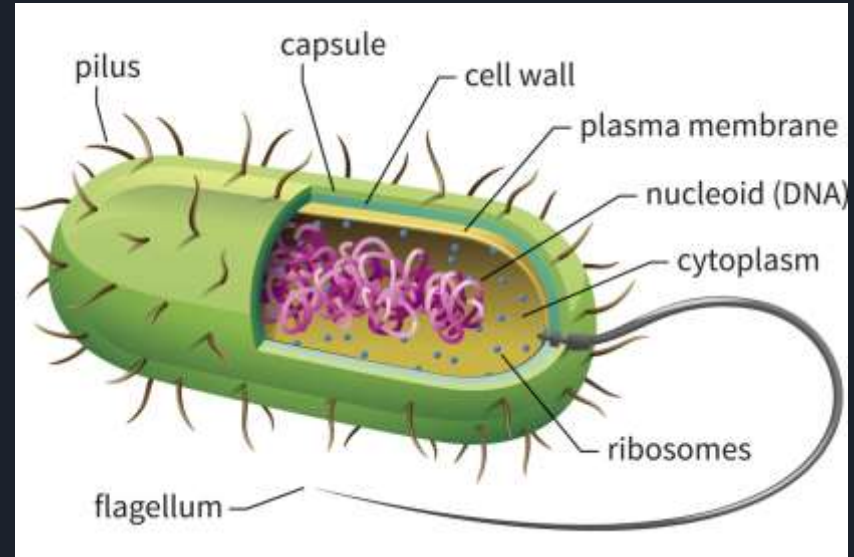
Prokaryotic cell organelles

Cell wall- A permeable wall that surrounds cell membranes and gives structural support and protection and acts as a filter for what goes in and out of the cell.

Ribosomes- Tiny organelles where protein synthesis takes place.

Capsule- Prokaryotes have a sticky outermost layer called the capsule, which is usually made of polysaccharides (sugar polymers). The capsule helps prokaryotes cling to each other and to various surfaces in their environment, and also helps prevent the cell from drying out.

Nucleoid DNA- The irregularly-shaped region within a prokaryotic cell where the genetic material is localized.



Eukaryotic cell organelles

Nucleus-contains the genetic material (DNA) and controls the growth and reproduction of the cell

Endoplasmic reticulum-**the transportation of proteins and other carbohydrates to** another organelle, makes proteins and lipids

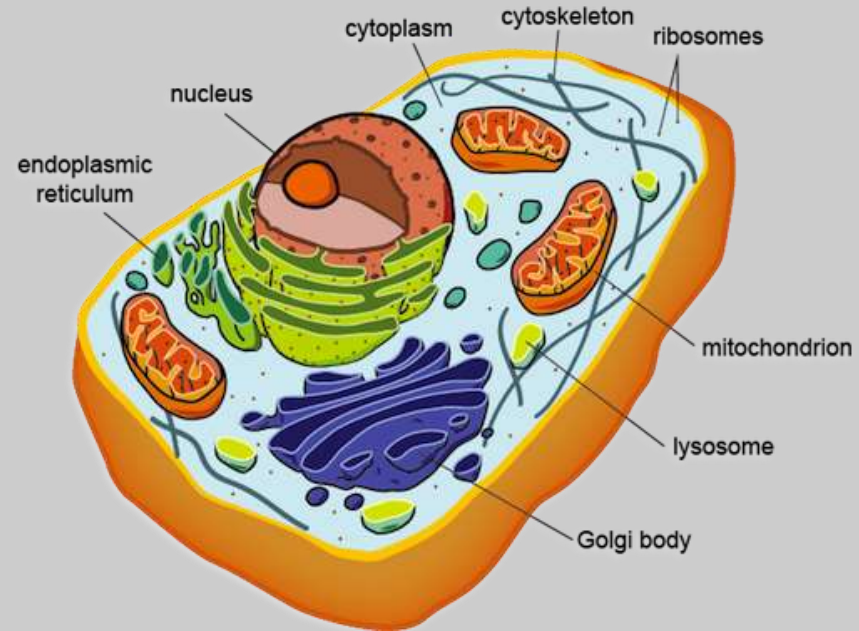
Golgi body- stack of small flat sacs formed by membranes

Lysosome-**break down excess or worn-out cell parts**, they may be used to destroy invading viruses and bacteria.

Mitochondria-breaks down glucose into energy during respiration

Ribosome-synthesis proteins for the cell

Cytoskeleton - helps maintain cell structure and internal organization, and provides mechanical support

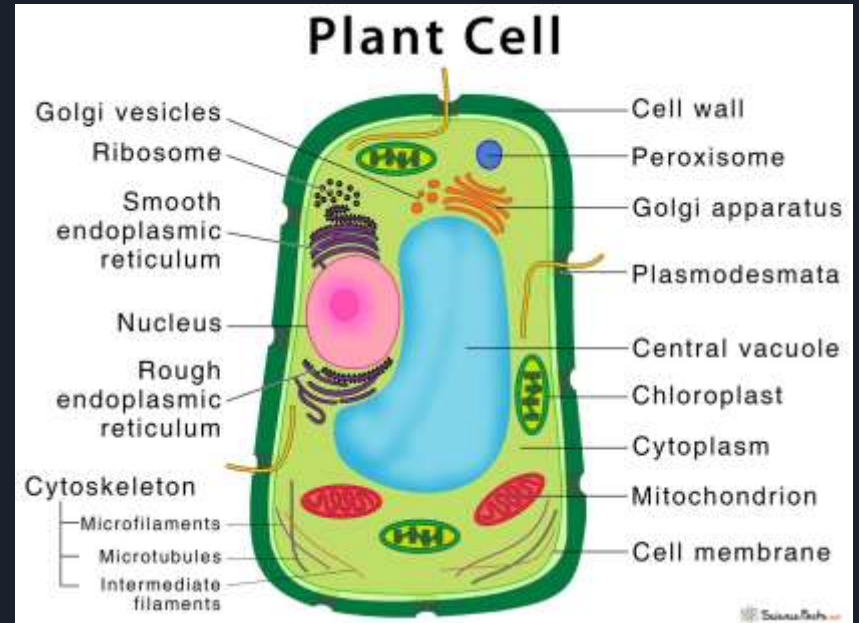


Organelles exclusive to plant cells

-Chloroplasts are organelles in plant cells that contain chlorophyll and where photosynthesis takes place.

-Cell walls are permeable wall that surrounds cell membranes and gives structural support and protection and acts as a filter for what goes in and out of the cell and is primarily made of cellulose

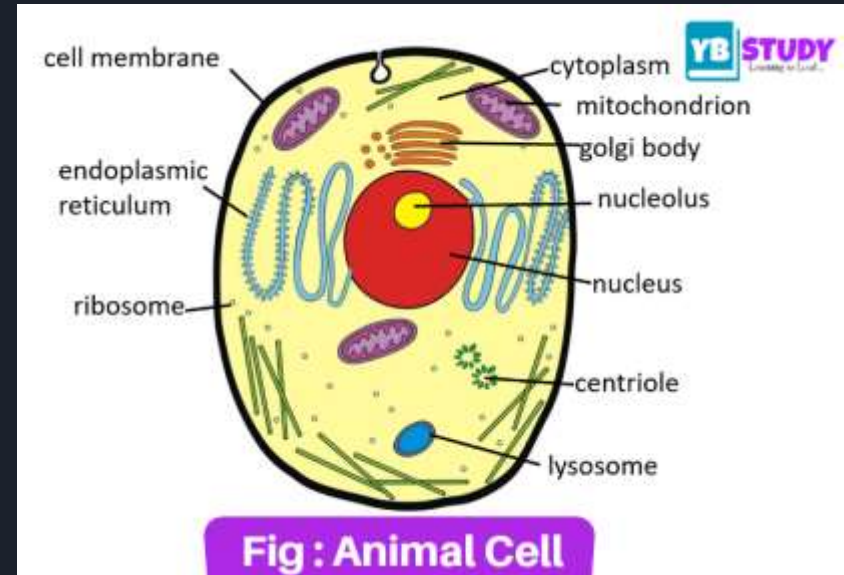
-Plasmodesmata are small channels that directly connect to the cytoplasm of neighbouring plant cells to each other and enables communication.



Organelles exclusive to animal cells

-Centrioles are self-replicating organelles made up of nine bundles of microtubules and are found only in animal cells.

-Lysosome is an organelle that contains digestive enzymes and helps to break down excess cell parts and those that have no benefits. and destroy virus and bacteria.

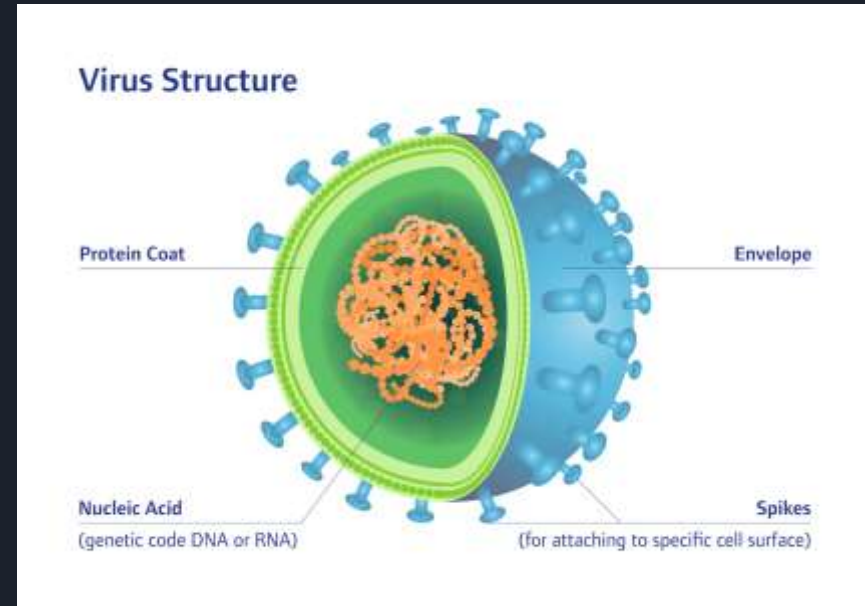


Virus cell organelles

Protein coat- A protein coat called a **capsid** constitutes their surface, which houses the viral genome which encoding the genes needed to build and replicate the virus inside its host.

Nucleic acid- The nucleic acid encodes the genetic information unique for each virus

Envelope- Although not all viruses have it, envelopes are the outermost layer of many different types of viruses and protects genetic material when travelling to host cells.





Difference in membrane in organelles

-Nucleus

-Chloroplast Nuclear envelope

-Mitochondria

-Lysosome

-Golgi apparatus Single membrane

-Endoplasmic reticulum

-Vacuole

-Ribosome

-Cell wall

-Centrioles and centrosome

No membrane