Content :

1- Cell:

➤ **Definition:**

Cell is the basic building blocks of all livening things. Cell is the smallest unit that can't be seen from the naked eye.

➤ **Types of Cell:**

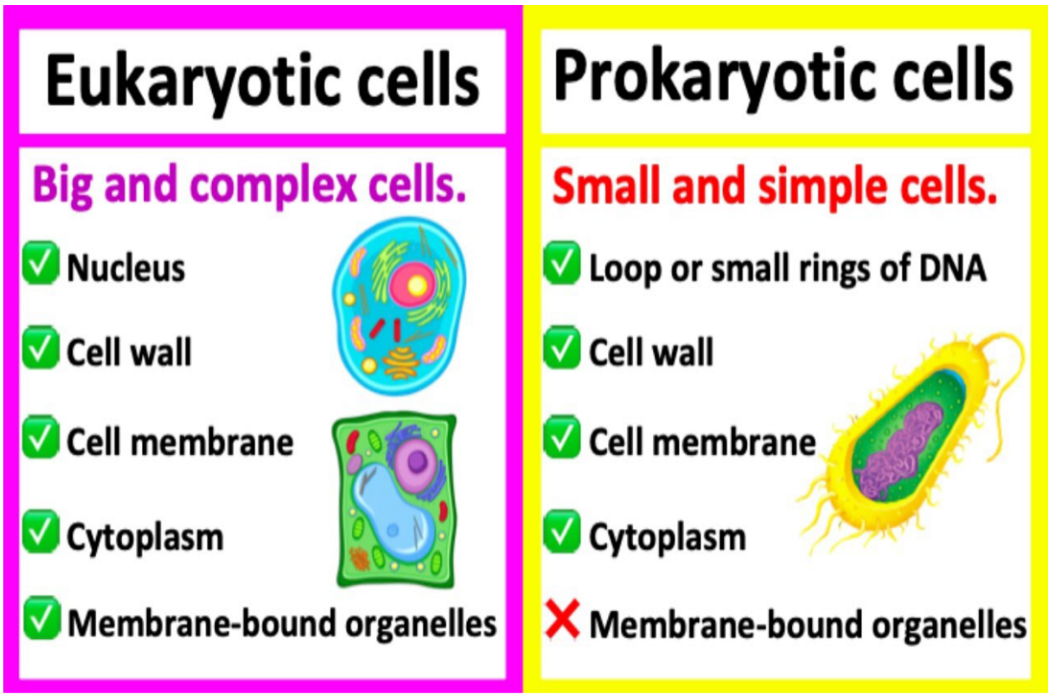
I. Eukaryotic Cell
II. Prokaryotic Cell

I. **Eukaryotic Cell:**

a. Eukaryotic cell are complex possess more than 1 cell including all plant and animals cell.
b. the living thing that possess eukaryotic cell are called **Eukaryotes**.

II. **Prokaryotic Cell:**

a. Prokaryotic cell are simple possess one cell including bacterial cell
b. The single cell living thing are called **prokaryotes**.

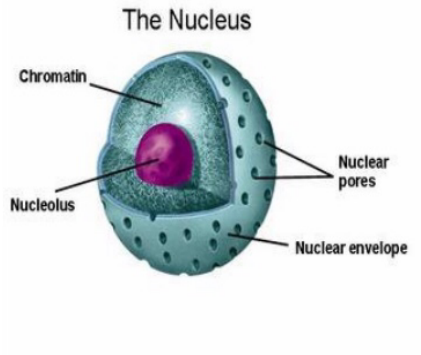


2- Plant and animal cell with similarities and differences

I. Animal Cell:

Different parts of the cell is called **sub cellular** structure. Animals cell have these sub cellular structure.

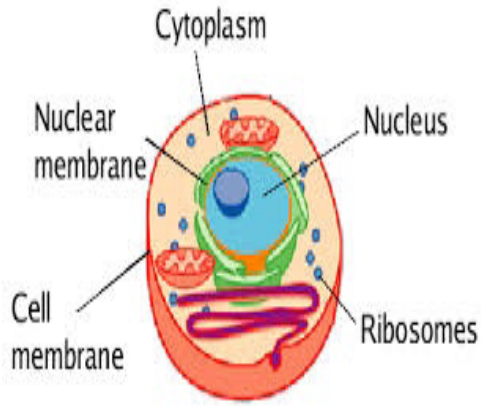
- **Nucleus**: contains genetic material (DNA) that controls the activity of cell.



- **Cytoplasm:** the gelatinous liquid that fills the inside of a cell

  Composition: composed of water, salts, and various organic molecules.

  Function: the place where most of chemical reactions happen.



- **Mitochondria:** double bounded membrane structure, also called power house of the cell

  Function: Aerobic respiration take place.

Aerobic Respiration: A chemical process in which oxygen is used to make energy.

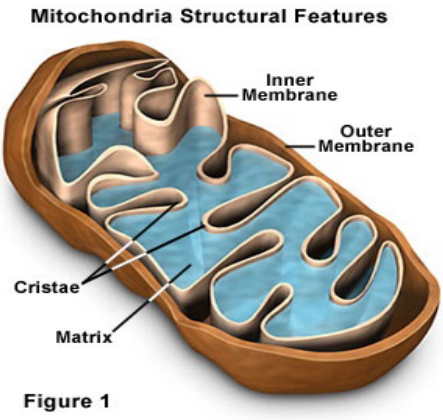
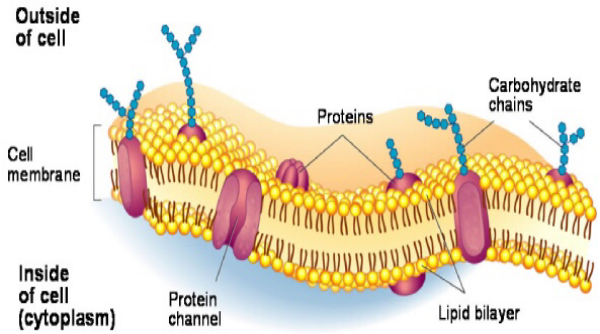
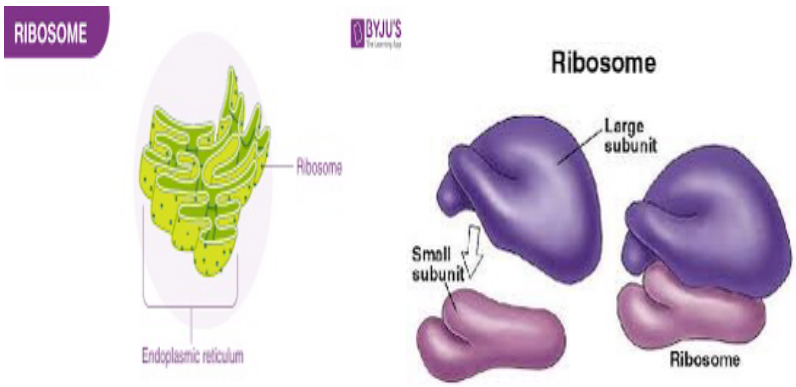


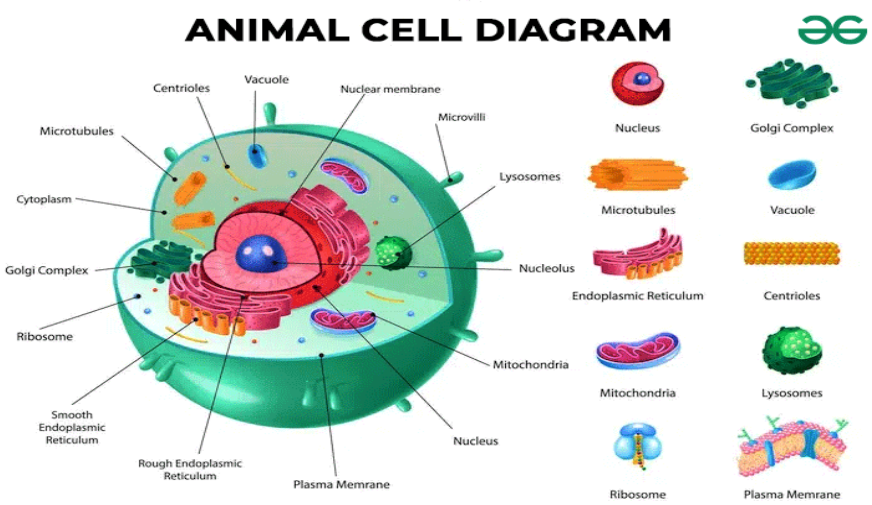
Figure 1

➤ **Cell Membrane:** also called plasma membrane. It is semi permeable membrane.
Composition : consist of lipids bi layers, carbohydrates and proteins
Function: Separates the interior of the cell from the outside environment.



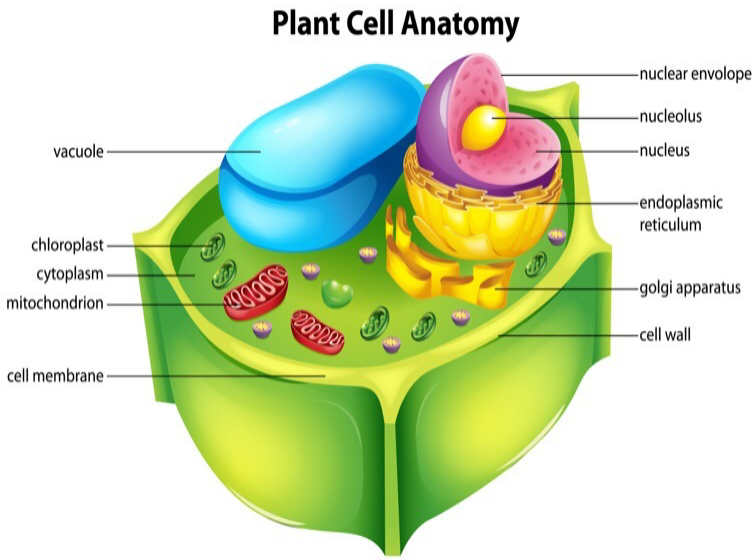
➤ **Ribosomes:** Where proteins are formed.





II- Plant Cell:

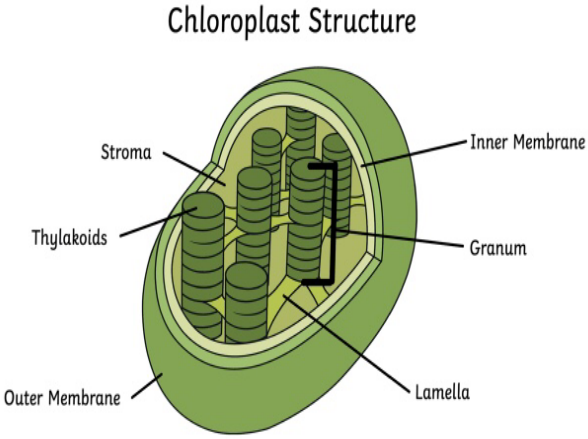
Plant cell have almost same sub-cellular structure, plus few extra sub- cellular structure.



- **Cell wall:** Outer layer of plant cell that is rigid.
  Composition of cell wall : made of cellulose
  Function : Give support and strengthen the cell.

- **Chloroplast** : sub-cellular structure present in only plant cell responsible for **photosynthesis**.

Function: chloroplast having green pigment called chlorophyll where sunlight absorb and make food for the plant. This process is called **Photosynthesis.**



Vacuole: also called cell sap (Mixture of sugar and salt).

Function: store nutrients and water on which a cell can rely for its survival.

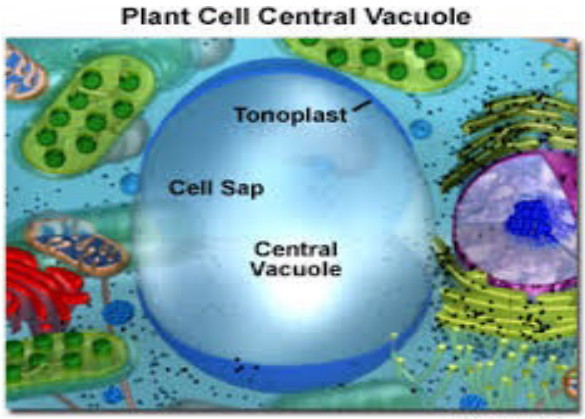
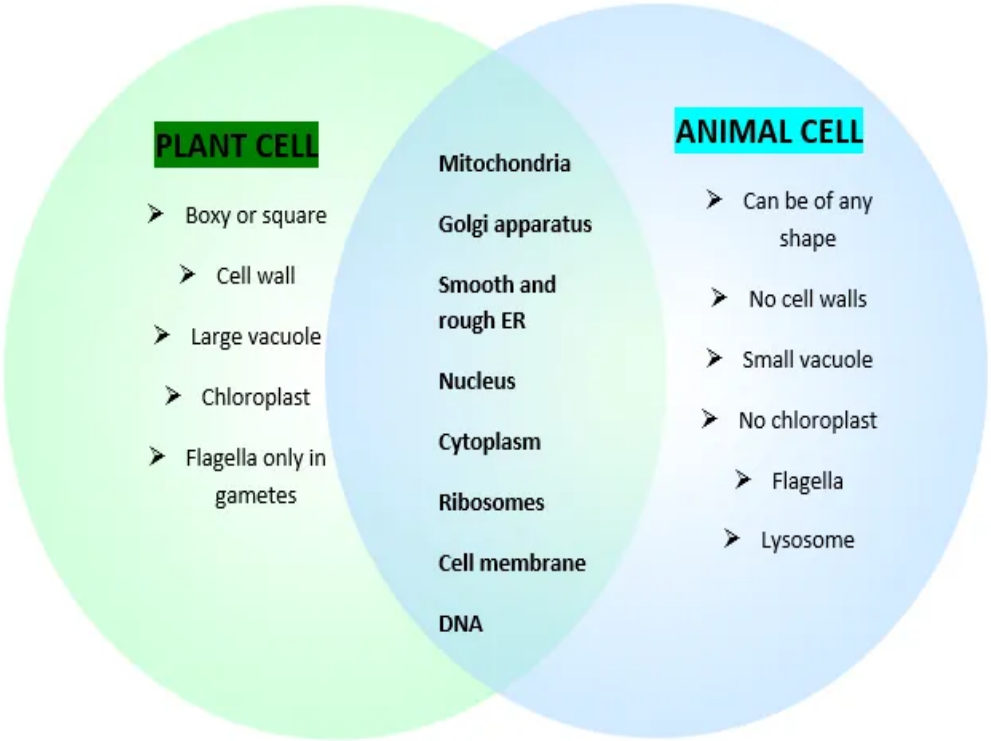


Figure 1

Plant and animal cell with similarities and differences



Prokaryotic Cell

a. **Prokaryotic Cell** are single cell living organisms including bacteria and archaea.
b. the living organism that possess single cell are called prokaryotes.

C. Prokaryotes lacks true nucleus and other organelles. E.g Bacterial cell.

III- Bacterial cell

- Bacterial cell are prokaryotes
- They have Single stranded DNA which floats freely in the cytoplasm instead of nucleus
- They may have one and more circular DNA called Plasmid.
- They don't have chloroplast, mitochondria or other organelles.