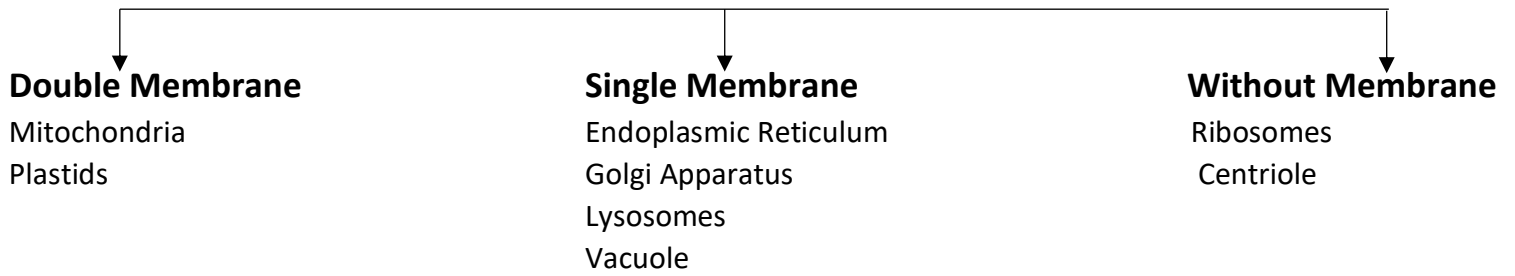
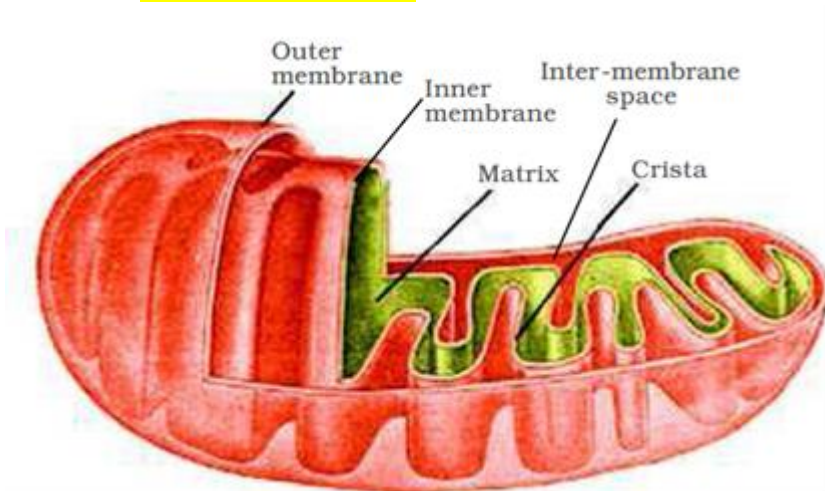


## Cell Organelles



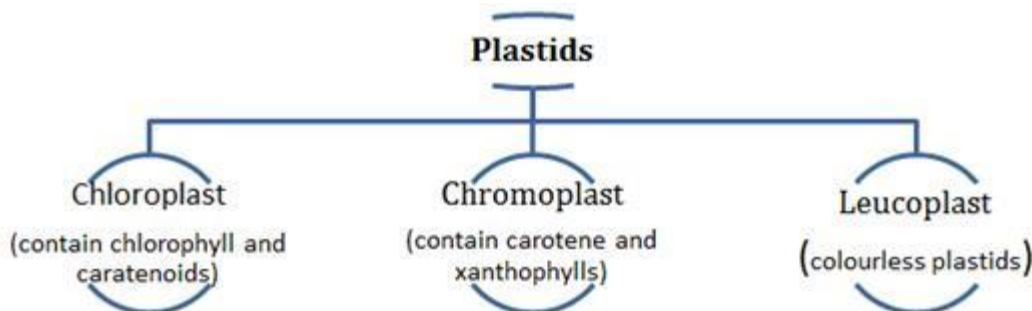
### Mitochondria: Power House of the Cell

- Found in all living cell except, prokaryotic cell and RBCs.
- **Site of aerobic respiration** in eukaryotic cells. Produces energy in the form of ATP.
- Not easily visible under microscope unless specifically stained.
- Sausage or cylindrical shape of diameter 0.2-1 micrometers and length 1-4.1 micrometers.
- **Double membrane bound organelles** having its own specific enzyme.
- Outer membrane continuous and inner membrane is semipermeable and forms number of infoldings called **Cristae** to **increase surface area**.



- Inner compartment is filled with dense homogenous substance called **Matrix**.
- Matrix contains- various enzymes controlling Krebs's Cycle Single Circular double stranded **DNA**, a few **RNA**, **Ribosomes (70S)** and other protein synthesis components. Hence called **Semi-Autonomous Organelle**.
- It divides by fission.

**Plastids**- Kitchen of the Cell found in plant cells and in Euglenoids.



- 1) **Chromoplast** provides colour to fruits and contain fat soluble Carotenoid pigment like **Xanthophyll**- (yellow), **Carotene** (orange and red).
- 2) **Leucoplasts** are colourless plastids that store food,  
Ex: **Amyloplasts** (store carbohydrates)  
**Elaioplasts** (stores oils)

**Aleuoplasts** (store proteins).

3) **Chloroplast** contains chlorophyll (traps solar energy for photosynthesis) & Carotenoid pigments.

**Shape:** Varies

Biconcave & Circular- Higher Plants

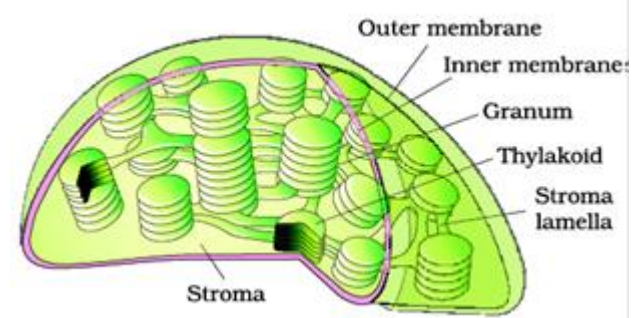
Spiral Shape - Spirogyra

Cup Shaped - Chlamydomonas

**Size-** 3-10 micrometers

**Number-** 20-30 parenchyma leaf

1- Chlamydomonas



- Double membrane bound organelle. Inner- less permeable.
- Space limited by inner membrane **Stroma** (Dark reaction take place here)
- Flattened coin shaped membranous sacs inside chloroplast- **Thylakoids** (contain Chlorophyll).
- Enclosed space inside thylakoid called Lumen.
- Flat membranous tubule connecting thylakoid- Stroma Lamella
- Stack of thylakoid- **Grana** (Light reaction take place here) **or Intergranal thylakoid.**
- Stroma contain enzyme required for synthesis of carbohydrates and protein.
- It contain double stranded circular DNA molecules and ribosomes (70S). Hence, called Semi-autonomous organelle.