Plastids

Plastids are double-membrane organelles which are found in the cells of plants and algae.

Types:

Chloroplasts

Chromoplasts

Leucoplasts

Chloroplast:

Chloroplasts are biconvex shaped, semi-porous, double membraned, **cell organelle** found within the mesophyll of the plant cell.

Function:

Sites for synthesizing food by the process of photosynthesis.

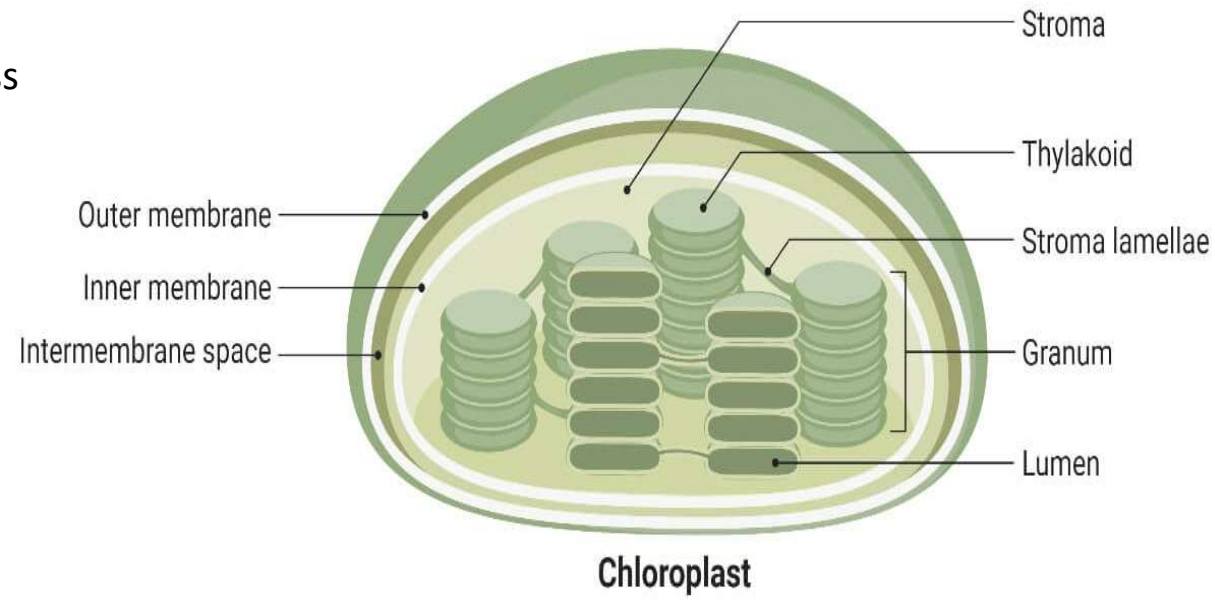
Membrane Envelope:
Double membrane structure, The outer membrane is relatively permeable, while the inner membrane is less permeable.

Thylakoid membrane:
A complex network of membranes inside the inner membrane. This membrane forms flattened sacs, or thylakoids, that can stack together to form grana. The thylakoid lumen is the space inside the thylakoid membranes.

Grana:
Stacks of thylakoids,site of reactions of photosynthesis.

Stroma:
The space within the inner membrane, excluding the thylakoid lumen. The stroma contains enzymes, starch granules, and copies of the chloroplast genome.

Intermembrane space:
The space between the outer and inner membranes.



Chloroplast

Chromoplast:

- Plastids containing carotenes and xanthophyll.
- Develop from chloroplasts when chlorophyll and thylakoid membrane disappear and carotenoids are accumulated.
- Provide distinct colour to plant parts like orange, yellow etc.
- Helps to attract pollinators.

Leucoplast:

- Non-pigmented, colourless organelles.
- Usually found in most of the non-photosynthetic parts of the plant like roots.
- act as a storage sheds for starches, lipids, and proteins depending on the need of the plant.

Leucoplasts are of three types:

- **Amyloplasts** – Store and synthesize starch.
- **Proteinoplasts** – Help in storing the proteins and can be typically found in seeds.
- **Elaioplasts** - Helps in storing fats and oils.

Proteinoplasts are also called aleuroplasts or aleuronplasts.