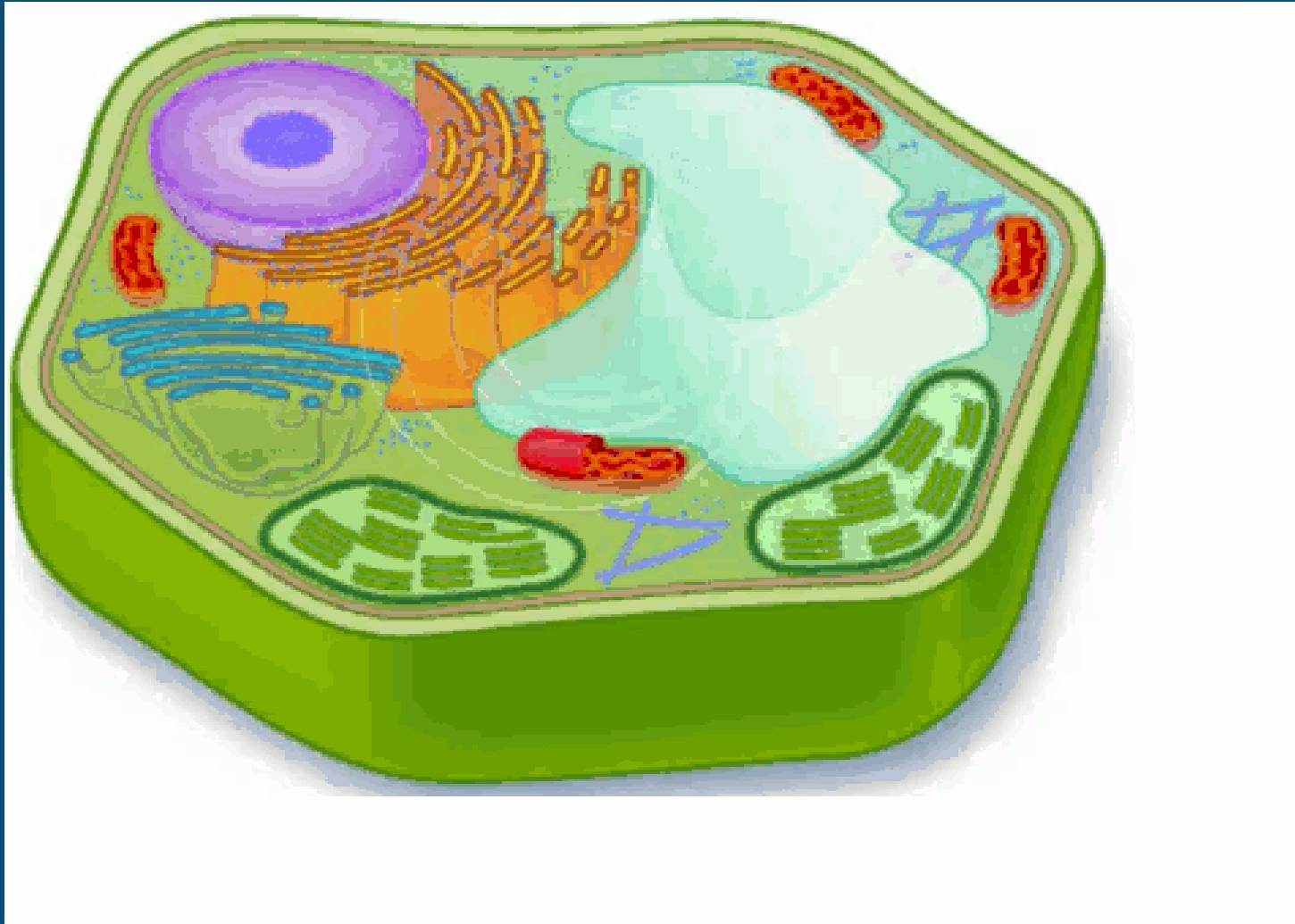


PLASTIDS



Plastids

- ❖ Membrane bound, mostly pigment containing bodies present in the cells are called Plastids. Plastids are present in plant cells only.
- ❖ There are three main types of plastids.
 - ❖ 1. Chloroplasts
 - ❖ 2. Leucoplasts
 - ❖ 3. Chromoplast

Chloroplasts

- ❖ In photosynthetic plant cells, there are membrane bound structures containing a green pigment, called chloroplasts. The green pigment is an organic compound, chlorophyll, which helps the cell to absorb light energy and utilize it to manufacture food. Chlorophyll molecule resembles the haem group of haemoglobin, a protein used in the transport of oxygen. The main difference between these two molecules is that chlorophyll has Mg^{++} while haem has Fe^{++} as the central atom.
- ❖ Chloroplasts vary in their shape and size with a diameter of about 4-6 μm . Under light microscope they appear to be heterogeneous structures with small granules known as grana embedded in the matrix.

Chloroplasts

- ❖ Under electron microscope, a chloroplast shows three main components, the envelope, the stroma and the thylakoid. The envelope is formed by a double membrane, while stroma covers most of the volume of the chloroplast.
- ❖ Stroma is a fluid which surrounds the thylakoids. It contains proteins, some ribosomes and a small circular DNA. It is in this part of the chloroplast where CO_2 is fixed to manufacture sugars. Some proteins are also synthesized in this part. Thylakoids are the flattened vesicles which arrange themselves to form grana and intergrana.

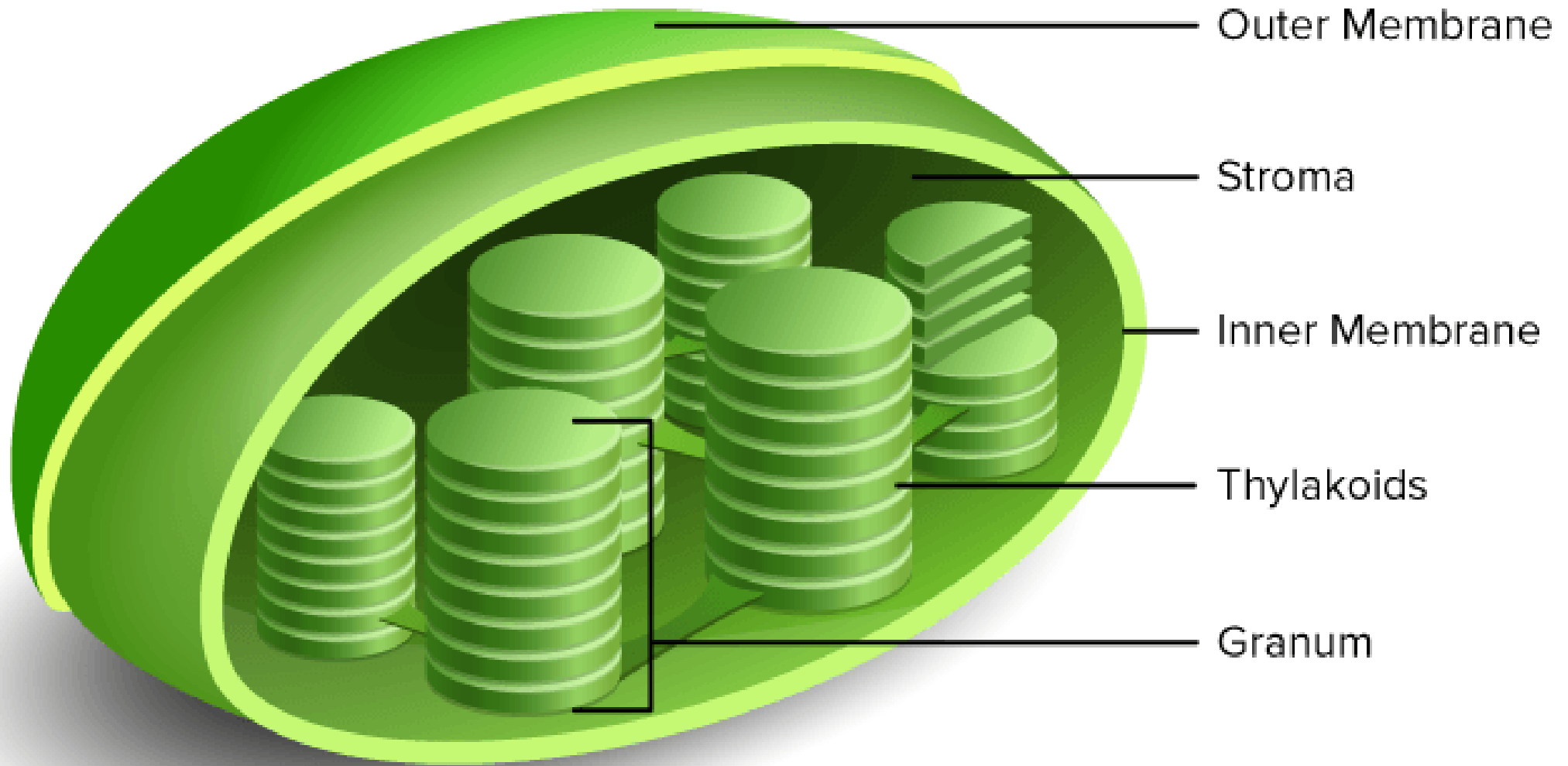
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Chloroplasts

- ❖ Granum appears to be a pile of thylakoids stacked on each other like coins. On an average, there are 50 or more thylakoids piled to form one granum. On the layers of thylakoids chlorophyll molecules are arranged and that is why granum appears to be green.
- ❖ Each granum is interconnected with others by the non-green part called **inter-granum**. Membranes of the grana are sites where sun light energy is trapped and where ATP is formed. Chloroplasts are self-replicating organelles.

Chloroplasts



Chromoplasts

- ❖ They impart colours to the plants other than green.
- ❖ They are present in the petals of the lower and in the ripened fruit.
- ❖ They help in pollination and dispersal of seeds.

Leucoplasts

- ❖ They are colourless. They are triangular, tubular or of some other shape.
- ❖ They are found in the underground parts of the plant and store food.

THE END