

Class -IX

Biology [L-7 CELL]

Worksheet - Parts of Cell(Also called as Organelles)

Plasma Membrane :

Outermost covering of cell (animal) that separates the components of cell from its external environment.

Living,thin,elastic,selectively permeable.

Made up of proteins and lipids along with carbohydrates.

Present in both plant and animal cell.

Functions : 1)Gives definite shape to the cell

2)Separates the contents of a cell from its surrounding medium.

3)Provides mechanical barrier for the protection of internal components of the cell.

4)Selectively permeable ; allows only selective substances to pass through it

Cell Wall :

Rigid protective covering outside the cell membrane of a plant cell only.

Non-living.freely permeable

Made up of cellulose

Functions : 1)Provides structural strength to the plant cells.

2)Permits the plant cell to withstand very dilute external medium without bursting.

3)Protects the cell against pathogens and mechanical injury.

4)Gives a definite shape to plant cell.

Differences between :

Cell Wall	Plasma membrane
1.Present in plant cells only	1.Present in both plant and animal cell.
2.Outermost covering of plant cells	2.Outermost covering of animal cell
3.Present outside the cell membrane	3.Present outside the cytoplasm of cell
4.Rigid and comparatively thick	4.Comparatively flexible and thin.
5.Non-living and permeable	5.Living and selectively permeable.

Nucleus :

Discovered by Robert Brown(1831)

Largest cell structure,spherical or oval,located in the centre of the cell.

Parts of Nucleus : A nucleus has four main components :

1)**Nuclear membrane** - Double layered membrane that separates nucleus from cytoplasm .

Contains pores called nuclear pores which allow the transfer of materials between nucleus and cytoplasm.

2)**Nucleoplasm** - A homogeneous,granular dense fluid inside te nucleus

Contains chromatin and nucleolus.

3)**Chromatin Material** a) It is a long,coilednetwork of thread like structure made up information from one generation to another generation.

b)Chromatin at the time of cell division condenses into compact rod like bodies.

4)**Nucleolus** - a)A round dense structure inside the nucleus.

b)Contains RNA and proteins.

c)RNA is helpful in protein synthesis in the cytoplasm.

Functions of Nucleus : 1)Nucleus controls all the metabolic activities of the cell.

3)Transmission of hereditary informations from parents to their offsprings(children)

Mitochondria :a)**Rod shaped** or **sausage shaped** structures in the cytoplasm of all eukaryotes **except RBC of mammals** but absent in prokaryotes.

b)Outer membrane is porous while inner membrane is produced into finger like processes called as **cristae**.

c)Also called as **Powerhouse of the cell** as it is the site of synthesis of energy which can be stored in a molecule called as **ATP** during a process called as cellular respiration.

d)Also called as self-replicating Organelle as they contain DNA ,RNA and ribosomes to carry out protein synthesis.

Functions : 1)Sites of cellular respiration.

2)Provide energy (in the form of ATP) for the vital activities of the cell

3)Able to make their own proteins so also called as **semiautonomous organelle**.

Plastids : Largest cell organelle in plant cells only.

On the basis of pigments present in plastids , they are of three types-

Leucoplast	Chromoplast	Chloroplast
1.Colourless(stores oils,starch etc.)	1.coloured or pigmented	1.Pigmented(Green coloured)
2.Found in plant body	2.found in fruits and flowers	2.Found in leaves

Chloroplast :

Bounded by two membranes , contains a fluid like structure inside it called as **matrix** or **stroma** ,a membrane bound flattened sac called as **granum** filled with chlorophyll.

Stroma contains a variety of enzymes,DNA and RNA.

Functions : 1)Leucoplasts store oils,starch etc.2)Chromoplasts imparts colour to flowers,fruits. 3)Chloroplasts trap sunlight to manufacture food.

