

# CHAPTER = 3

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## The Fundamental Unit of Life

### Exercise

1. Make a comparison and write down ways in which plant cells are different from animal cells.

Ans	Animal Cell	Plant Cell
1.	Animal cells are generally small in size.	Plant cells are larger than Animal cells.
2.	Cell Wall is absent.	The plasma membrane of plant cell is surrounded by a rigid cell wall of cellulose.
3.	Except the protozoan Euglena, no animal cell possesses plastids.	Plastids are present.
4.	Vacuoles in animal cells are many, small and temporary.	Most mature plant cells have a permanent and large central sap vacuole.
5.	Animal cells have a	Plant cells have

single highly complex and prominent Golgi apparatus.

many simpler units of Golgi apparatus, called dictyosomes.

6. Animal cells have centrosomes and centrioles.

Plant cells lack centrosome and centrioles.

2. How is prokaryotic cell different from a eukaryotic cell?

Ans.	Prokaryotic cell	Eukaryotic cell
(i)	Size of a cell is generally small (1-10 $\mu$ m)	(i) Size of a cell is generally large (5-100 $\mu$ m)
(ii)	Nucleus is absent (Nuclear region or nucleoid is not surrounded by a nuclear membrane).	(ii) Nucleus is present (Nuclear material is surrounded by a nuclear membrane)
(iii)	It contains single chromosome.	(iii) It contains more than one chromosome.
(iv)	Nucleolus is absent.	(iv) Nucleolus is present.
(v)	Membrane bound cell organelles are absent.	(v) Membrane bound cell organelles are present.
(vi)	Cell division takes place by fission or budding (no mitosis).	(vi) Cell division occurs by mitotic or meiotic cell division.

3. What would happen if the plasma membrane ruptures or breaks down?

Ans. There will be spilling of cytoplasm and cell organelles, bursting of lysosomes and digestion of cellular contents.

4. What would happen to the life of a cell if there was no Golgi apparatus?

Ans. There would not be any lysosome, no complexing of molecules, no excretion and no formation of new plasma membrane.

5. Which organelle is known as power house of cell? Why?

Ans. Mitochondria is known as power house of the cell because it produces most of the molecules of ATP (adenosine triphosphate) which are required for providing energy for syntheses of new chemicals, mechanical and other cellular

functions.

6. Where do the lipids and proteins constituting the cell membrane get synthesised?

Ans. Proteins are synthesised over ribosomes of RER while lipids are synthesised over SER.

7. How does Amoeba obtain food?

Ans. Plasma Membrane of Amoeba is flexible with its help, Amoeba engulfs food particle. The engulfed food particle passes into the body of amoeba as a phagosome. Phagosome combines with lysosomes to produce digestive or food vacuole. Digestion occurs in food vacuole. The digested food passes into surrounding cytoplasm. The undigested matter is thrown out of the cell.

8. What is osmosis?

Ans. Osmosis is diffusion of water from the region of its higher concentration (pure water or dilute solution) to the region of its lower concentration (strong solution) through a semipermeable membrane.

Incoming transport vesicles

CIS face

Lumen

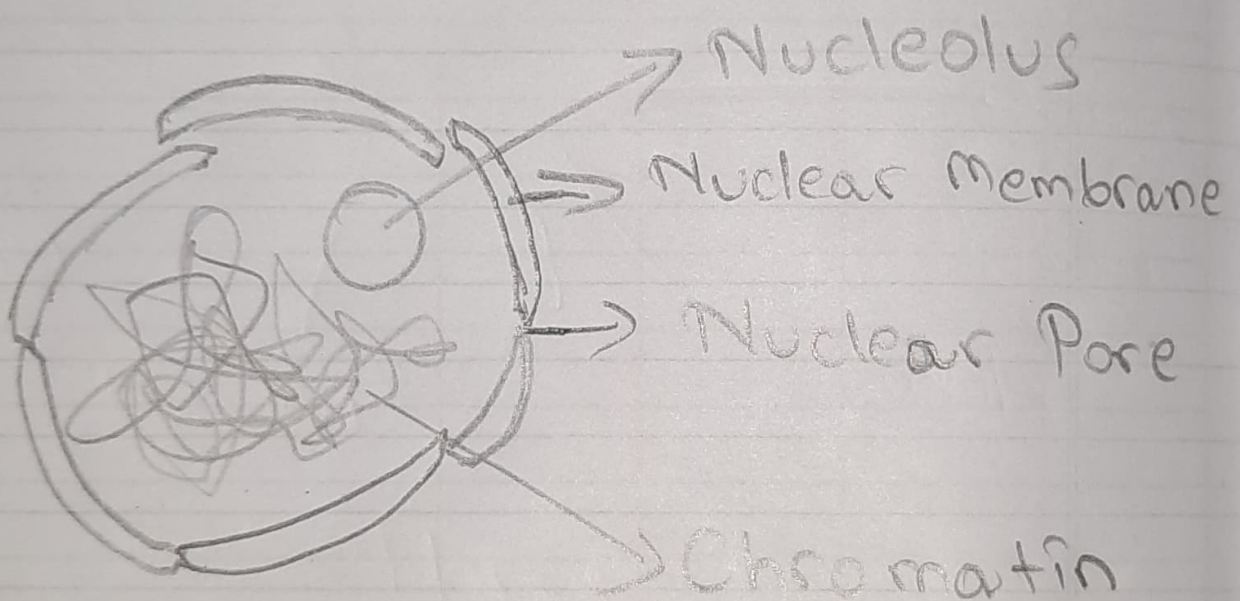
CIS transverse

Newly forming vesicle

Trans face

secretory vesicle

Golgi Apparatus



Nucleolus

Nuclear Membrane

Nuclear Pore

Chromatin

Nucleus

