

WJEC (Wales) Biology A-level

Topic 1.3 - Cell membranes and transport

Definitions and Concepts

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Active transport - The active movement of substances from a low concentration to a higher concentration (against the concentration gradient) with the use of energy in the form of ATP.

Cholesterol - A mostly hydrophobic molecule that sits in the hydrophobic portion of the membrane and regulates membrane fluidity.

Cyanide - A chemical compound that inhibits the production of ATP, preventing active transport.

Endocytosis - The bulk uptake of substances into a cell by invagination of the membrane to form a vesicle trapping the substances inside the cell with the use of energy in the form of ATP.

Exocytosis - The bulk transport of substances out of a cell via a vesicle that fuses with the plasma membrane using energy in the form of ATP.

Facilitated diffusion - The net movement of substances from a high concentration to a lower concentration (down their concentration gradient) through transport proteins without the use of energy.

Fluid-mosaic model - A model that describes membrane structure as a sea of mobile phospholipids studded with various proteins.

Incipient plasmolysis - The effect produced by placing plant cells in an isotonic solution causing the cell membrane to pull away from the cell wall in some areas; the cell is neither plasmolysed nor turgid.

Integral membrane protein - A type of protein bound to the membrane with strong interactions.

Osmosis - The passive diffusion of water molecules from a region of high water potential to a region of lower water potential (down a water potential gradient) through a selectively permeable membrane without the use of energy.

Peripheral membrane protein - A type of protein that is weakly bound to the surface of the membrane.

Phagocytosis - The ingestion of solid material (particularly pathogens and foreign material) by phagocytic cells.

Pinocytosis - The bulk uptake of liquids into the cell using energy in the form of ATP.

Plasma membrane - A semipermeable lipid bilayer studded with proteins that surrounds the cell and many organelles.

Plasmolysis - The effect produced by placing plant cells in a hypertonic solution causing the cell to shrivel from water loss, resulting in the membrane pulling away from the rigid cell wall.

Simple diffusion - The passive spreading out of substances from a high concentration to a lower concentration (down their concentration gradient) without the use of energy.



Turgid - A term used to describe a cell that is swollen due to large amounts of fluid uptake.

Water potential - A measure of the tendency of water molecules to move from one area to another measured in kilopascals (kPa) and given the symbol Ψ .

