Transport

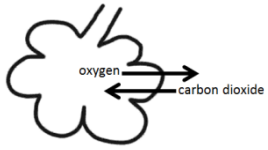
osmoregulation plasmolysed flaccid turgid isotonic hypertonic hypotonic osmosis diffusion

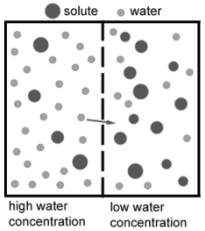
active transport carrier protein concentration gradient endocytosis pinocytosis phagocytosis contractile vacuole

Passive Transport

Process does not need energy to move materials across membranes.
Moves materials from high concentration to low concentration.

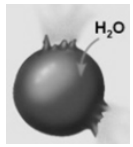
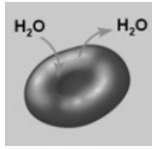
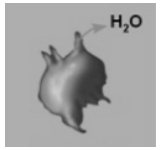
Diffusion is the movement of molecules from area of high concentration to low concentration. e.g. O_2 diffusing into blood across alveoli in lungs.
Facilitated diffusion; this involves special transport or carrier proteins in the membrane which provide a channel for the molecule to move through.





Osmosis is a special type of diffusion, where **water** moves across a selectively permeable membrane from high water concentration to low water concentration.
Hypotonic solution: a dilute solution/ high amounts of water.
Hypertonic solution: a concentrated solution/ low amount of water.
Isotonic solution: the two solutions have the same concentration.

Red blood cells in different solutions:

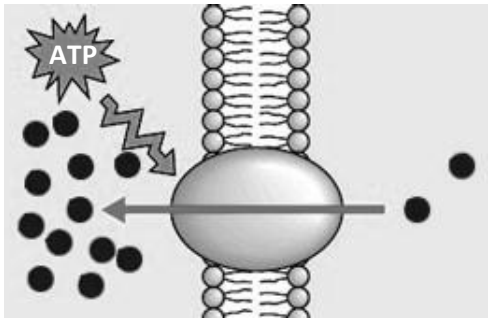
hypotonic	isotonic	hypertonic	
			**Cell gains water and become turgid (stiff and hard).** **If water keeps entering by osmosis animal cells** will explode. Cells lose water and become flaccid (floppy)
turgid/explodes	normal	flaccid	

Plant cells in different solutions:

				Cell gains water and become turgid (stiff and hard), does not explode because of the rigid cell wall. Cells lose water and become flaccid (floppy). If it keeps loosing water, water leaves the vacuole and membrane pulls away from wall. Becomes plasmolysed.
turgid - does not explode	normal	flaccid	plasmolysed	

Active transport

Process needs energy to move materials across membranes.
Moves materials from low concentration to high concentration.

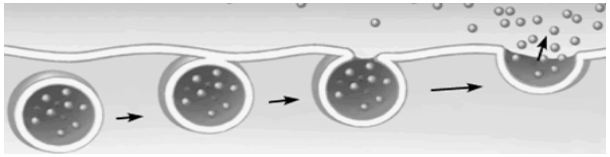


Active transport moves substances (molecules or ions) across membranes against a concentration gradient, i.e. from low concentration to high concentration.
This often involves the use of carrier proteins located within the membrane. The substance being carried binds with the protein, the protein changes shape and uses energy (ATP produced during respiration) to transport the substance across membrane where it is the released.

Types of active transport:

Endocytosis: this is the taking in of substances into the cell by the infolding of the cell membrane, to produce a vesicle.
If it's fluid being taken in – pinocytosis (cell drinking) or if it's solids - phagocytosis (cell eating).

Exocytosis: this is the removal of substance from the cell and is basically the reverse of endocytosis.



Excytosis adds to the cell membrane while endocytosis removes part of the cell membrane.

Osmoregulation.

This is the control of water inside a cell or organism. It is very important if you are a unicellular organism living in fresh water. Water is continually moving into the organism by osmosis (passive transport) and unless the excess water is removed the unicellular organism will explode/die. To prevent this, the unicellular organism has contractile vacuoles which collect and pump the Excess water out of the organism (active transport).

Paramecium

contractile vacuole