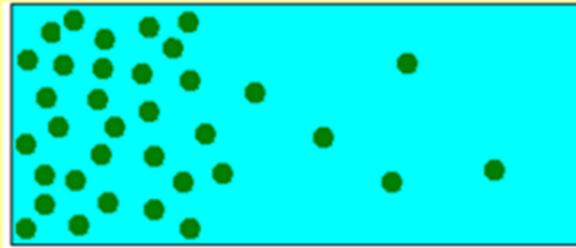


Transport

Diffusion

The net (overall) movement of particles from a region of high concentration to a region of low concentration, down a concentration gradient. This is a passive process (no energy is required).



High Concentration Low Concentration

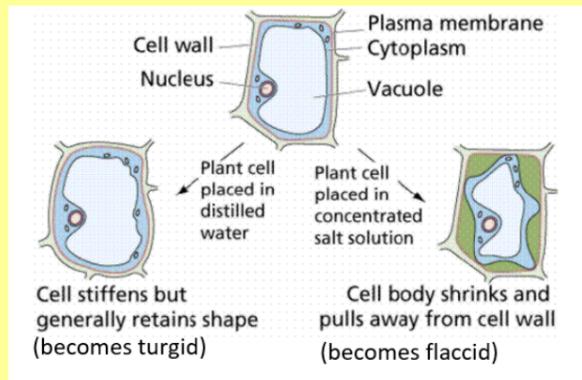
Factors affecting rate of diffusion

- Decrease the diffusion distance
- Increase the concentration gradient
- Increase the surface area

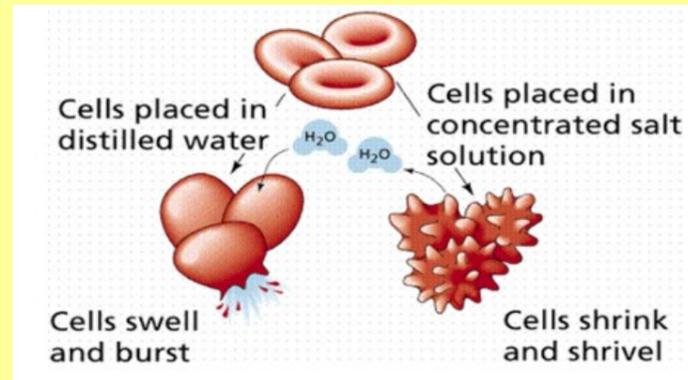
Osmosis

The movement of water molecules from an area of high water potential to a lower water potential (down a water potential gradient) across a selectively permeable membrane.

Osmosis in plant cells

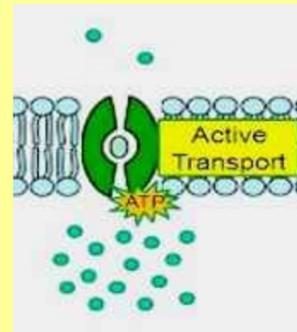


Osmosis in animal cells



Active Transport

Movement of substances from an area of low concentration to high concentration, against the concentration gradient, energy (ATP) is required.



Passive	A process that does not require energy
Active	A process that requires energy
Partially permeable membrane	A partially permeable membrane is a membrane that allows certain types of molecules to pass through but blocks others
Water potential	The concentration of free water molecules is known as water potential
Flaccid	Plant cell containing a low volume of water
Turgid	Plant cell containing a high volume of water

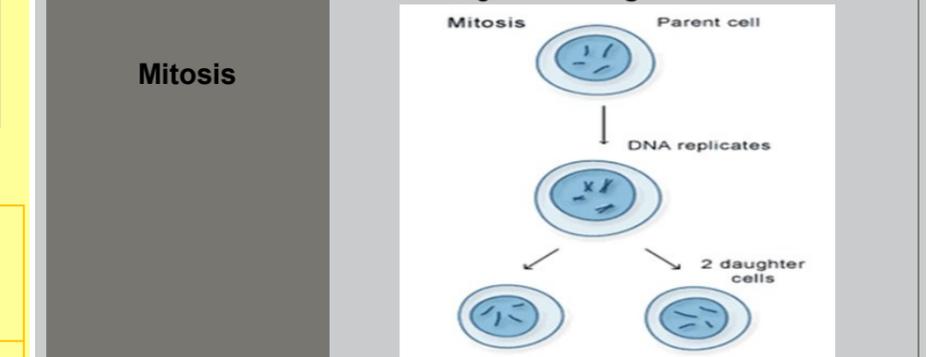
Cell Division

Stem Cell: An undifferentiated cell

Stem Cell	Location	Division
Embryonic	Embryos	Can differentiate into any type of cell (multipotent.)
Adult	Various body tissues (e.g. bone marrow, brain, skin)	Can only differentiate into one type of cell e.g. stem cells in the skin can only form new skin cells
Plants	Found in meristem tissue located in roots and shoots.	

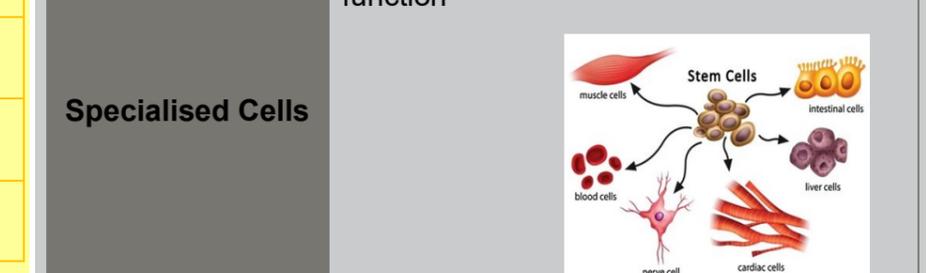
Cell Division

Mitosis is a process of **cell division**. Each cell divides to produce two **genetically identical daughter cells (clones)**. Mitosis is used to **replace** worn out cells, **repair** damaged tissue and enables organisms to **grow**.



Cell differentiation When cells become specialised to perform a job.

Cells specialised to carry out a specific function



Trinity TV
For more help, visit Trinity TV and watch the following videos:
Trinity TV > Year 9 > Science > Cell Transport 1