



1.3 TRANSPORT IN CELLS

Diffusion

Movement of molecules from a region of high concentration to a region of low concentration down their concentration gradient

Factors affecting rate of diffusion

Temperature

Concentration gradient

Surface area

Passive

Osmosis is a form of passive diffusion

Movement of water molecules from a region of high water potential to a region of low water potential down their water potential gradient

Osmosis

Plant tissue

Placed in hypertonic solution: mass decreases

Placed in hypotonic solution: mass increases

Substances

- Carbon dioxide
- Oxygen
- Urea

Need for mass transport systems

Surface area: volume ratio too small

Adaptations

Good ventilation and blood supply

Thin cell walls of root cells giving a short diffusion distance

Alveoli and cells of the small intestine have a large surface area

Thin membrane giving a short diffusion path

Transport in organisms

Active Transport

e.g. absorption of ions in plant roots

e.g. absorption of sugar in the small intestine

Requires energy from respiration

Movement of molecules from a low concentration to a high concentration against their concentration gradient

AQA