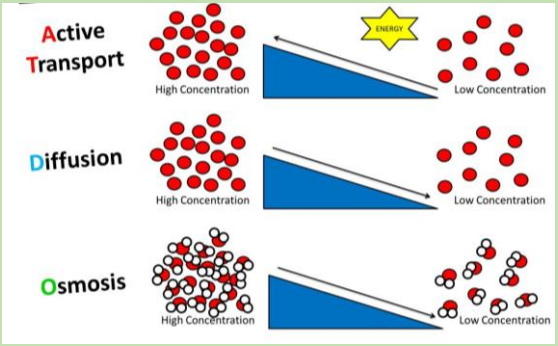
Biology: Transport

Key word	Definition
Diffusion	The net movement of particles from an area of high to low concentration (Passive)
Osmosis	The net movement of water from an area of high water concentration to an area of low water concentration, through a partially permeable membrane (Passive)
Active transport	The movement of dissolved molecules into or out of a cell through the cell membrane, from an area of lower concentration to an area of higher concentration. (Requires energy)
Concentration gradient	Occurs when particles are more concentrated in one area than another.
Partially permeable membrane	A membrane which allows small molecules e.g. water to pass through but does not allow the passage of large molecules.
Passive process	Does not require any energy

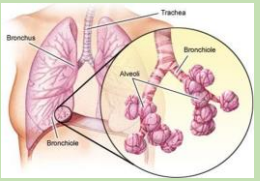


Substances need to move in and out of cells (**by active transport, diffusion** or **osmosis**) in a process called **exchange**. Living organisms need to exchange substances with their environment to survive

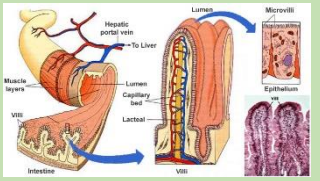
Exchange surface principles

Organisms are adapted to make substance exchange efficient:

- **Large** surface area
- **Thin** membrane
- Good blood supply
- Moist

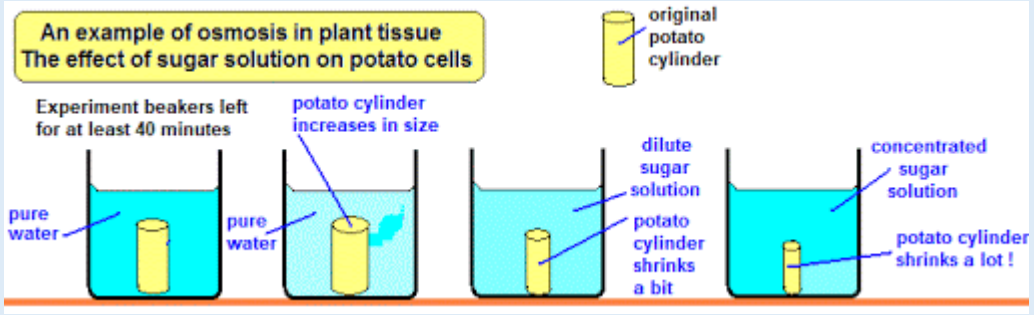


Alveoli in lungs



Villi in small intestine

Osmosis Required Practical:



Remember:

- If there are lots of sugar molecules in the solution there is a **low water concentration**
- Potato is just an example! You could be asked about anything with **a partially permeable membrane**

Larger organisms have a **smaller surface area to volume ratio.** They need to make sure their exchange surfaces are extra efficient!

Surface area = Length x Width Volume = Length x Width x Height