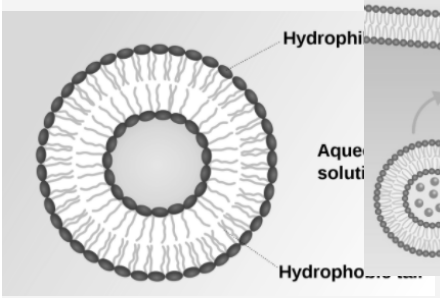
Vesicular Transport

- Active transport process
- Vesicles: small spheres a membrane
- Function in movement of material
- Occurs when larger molecules or big clumps of material need to be transported
- Endocytosis & Exocytosis

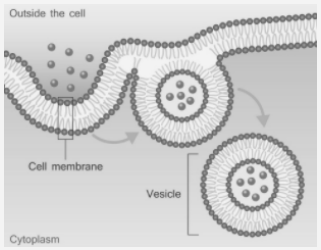
Vesicular Transport- image



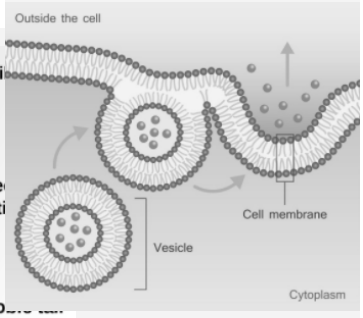
ENDOCYTOSIS VS EXOCYTOSIS

endocytosis	exocytosis
"in"	"out"
Used for large molecules, clumps of food and even whole cells	Used to get rid of wastes or release valuable materials cells have made
Phagocytosis	ex) releasing hormones like dopamine
Pinocytosis	
Receptor - Mediated Endocytosis	

Endocytosis



Exocytosis



simple vs facilitated diffusion

simple diffusion	facilitated diffusion
unassisted	assisted by carrier protiens
occurs through the phospholipid bilayer	occurs through the membrane protiens
small and non polar molecules transported	large and polar molecules transported
rate of diffusion is directly proportional to the concentration gradient and he membrane permeability of the solute molecule	rate depends the carrier protein o

Diffusion

In terms of molecules, explain what happens to a sugar cube when it is placed into a beaker of water.

> The sugar cube dissolves in the water, the sugar molecules break apart and dissolve in the water which is a solvent and the sugar cube is the solute.

VOCAB WORDS

word	definiton
solute	A substance that is dissolved in a solution.
solvent	In a solution, the substance in which the solute dissolves.
Solution	A mixture that forms when one substance (the solvent) dissolves another (the solute).
Selective permeability	A property of a plasma membrane that allows some substances to cross more easily than others.

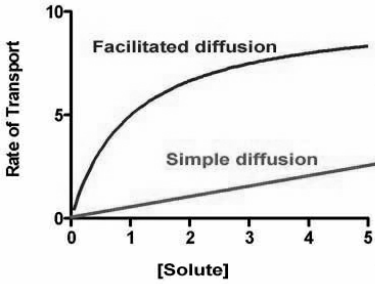
VOCAB WORDS (cont)

Tonicity	The ability of a solution to cause a cell to gain or lose water; it depends partly on the concentration of non-penetrating solutes relative to the inside of a cell.
What is the relationship between rate of diffusion and molecular weight?	Lower molecular weight substances diffuse faster; Higher molecular weight substances diffuse slower.
What does heating water do to the rate of diffusion of tea?	Higher temperatures increase the rate of diffusion.
What enviornment do plant cells work best at and why	hypotonic Water is constantly pushed up against the cell. The cell swells, but the cell wall prevents it from bursting.

VOCAB WORDS (cont)

Hyponatremia	consumption of too much water, over dilutes necessary ions and can cause death, osmoregulation failure

diffusion graphs



Passive vs Active transport

active	passive
requires energy in the form of ATP	does not require energy
occurs AGAINST the concentration gradient	occurs DOWN the concentration gradient
from low to high concentration	from high to low concentration
exocytosis	osmosis
sodium-potassium pump	facilitated diffusion
phagocytosis	diffusion
endocytosis	aquaporin

Tonicity and Osmosis

What is tonicity?

> Measure of water pressure inside a cell compared to outside the cell.

Tonicity and Osmosis

hypotonic	isotonic	hypertonic
The concentration of the solute outside the cell are **LOWER** than inside the cell	The concentration of the solute outside the cell are **EQUAL** than inside the cell	The concentration of the solute outside the cell are **HIGHER** than inside the cell
The water moves to the higher solute concentration **inside** the cell	The water has **no net movement** and nothing happens to the cells.	The water **leaves** the cell to the higher solute concentration
cell swells and can burst	no change	cells shrink
plant cells work best	*human cells work best*	
low osmotic pressure	equal osmotic pressure	high osmotic pressure

Transport and Cell Membrane

What is cell transport?

> Cell transport is the movement of substances across the cell membrane

What is the most important feature of the cell's phospholipid membrane?

> The phospholipid bilayer because it's selectively permeable.

Why is it important that cell membranes help maintain the homeostasis within the cell

> So certain things that shouldn't be in our cells can get in and the things we do need can.

What is the function of transport proteins embedded in the cell membrane?

> They move larger molecules in and out of the cell because they cant pass through the phospholipid bilayer

Real life scenarios

What type of transport is a friend spraying perfume in a room and you not noticing it for a few minutes

> Diffusion is used when someone prays perfume, the molecules with the scent in them will spread out across the room more and more.

Real life scenarios (cont)

If the amoeba was placed in salt water the amoeba will shrink because the solute concentration in the salywater is greater than in the amoeba so the water in the amoeba moves out to the salt water making the amoeba shrink.

> I think they would use phagocytosis because phagocytosis is taking in a large molecule that will eventually digest inside the cell. Or they use endocytosis because endocytosis is take in molecules.

Explain the difference between osmosis and diffusion

> in diffusion all particles move freely down concentration gradients. In osmosis only water (solvent) molecules move across a partially permeable membrane from a dilute solution to a concentrated solution.