Cell Transport

Solutions
Solutions include water molecules (the solvent) and molecules of another substance (the solute).

All living cells **are found within** a solution of water and different solutes.
All living cells **contain** a solution of water and different solutes.

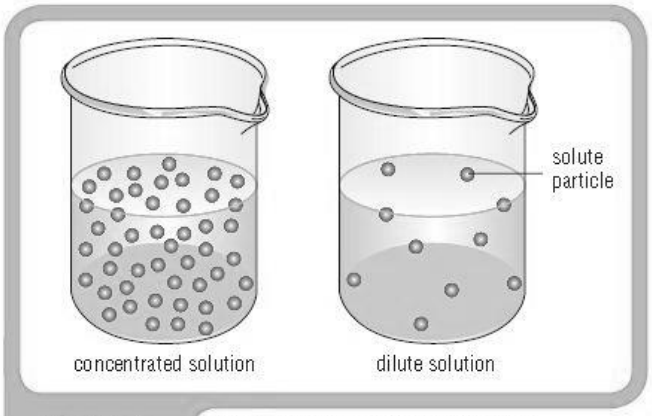
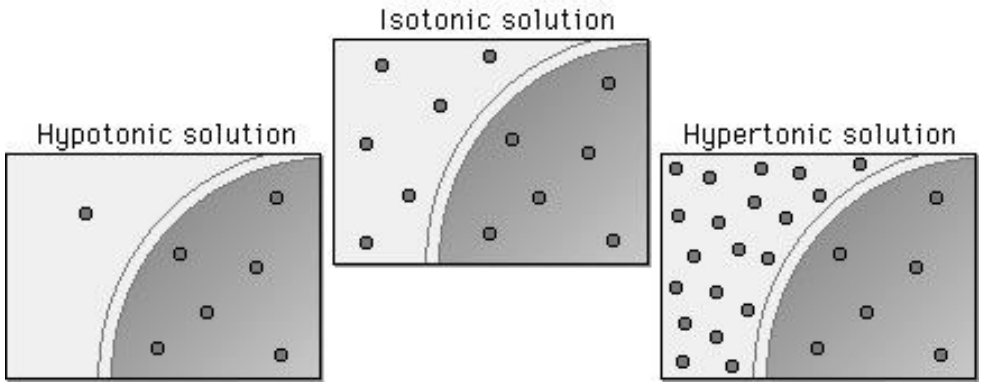


Fig 3.1.4 A concentrated and a dilute solution.

If a solution outside a cell has a higher concentration of solutes than inside the cell, the solution is **hypertonic.**

If a solution outside a cell has a lower concentration of solutes than inside the cell, the solution is **hypotonic.**

If a solution outside a cell has the same concentration of solutes as inside the cell, the solution is **isotonic.**



Passive Transport

Does not require energy
Molecules always move from an area of higher concentration to an area of lower concentration

Diffusion
The movement of **solutes** across a cell membrane

Osmosis
The movement of **water molecules** across a cell membrane

Facilitated Diffusion
The movement of **solutes** across a cell membrane through the use of a protein channel

Active Transport

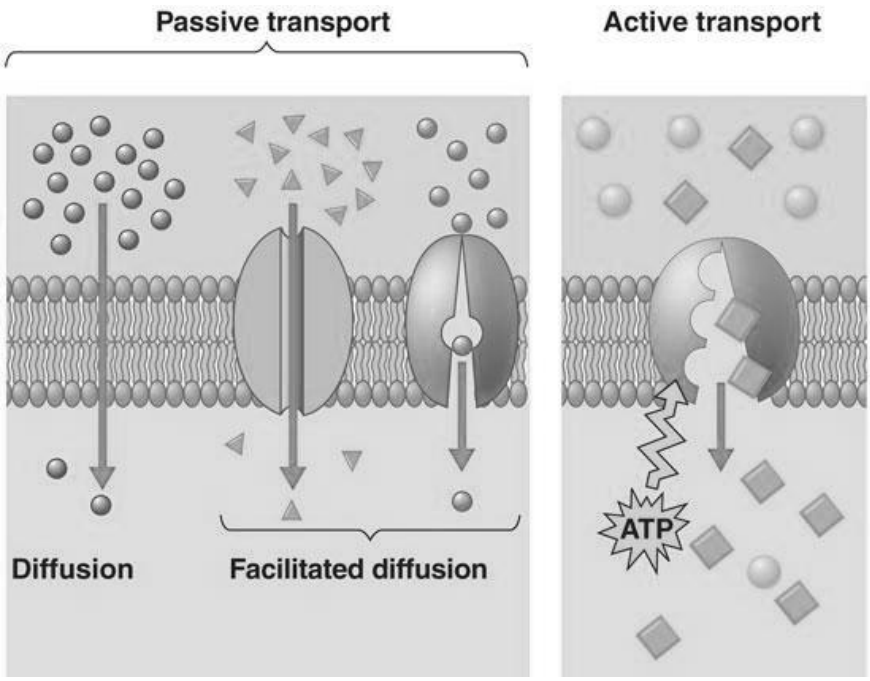
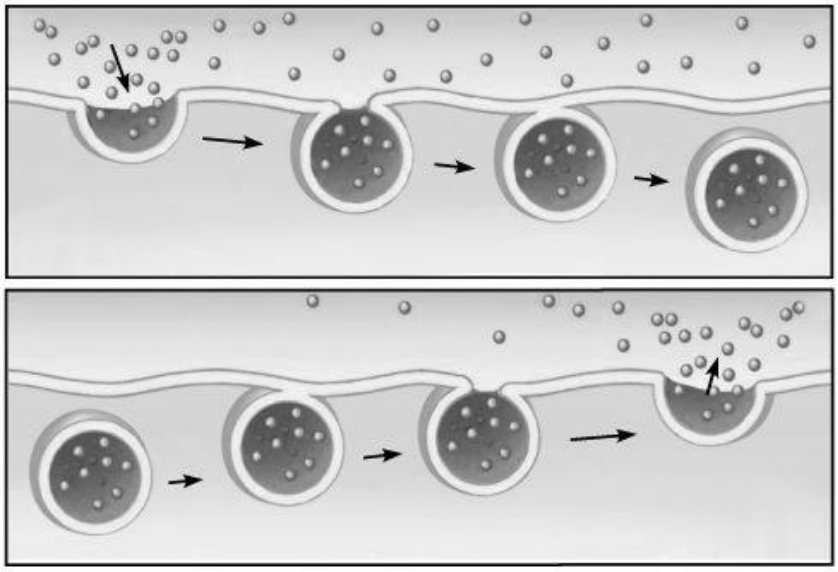
Requires energy
Molecules may move in either direction, regardless of solute concentration levels.

Some forms of active transport use **protein pumps**
Other forms of active transport use **vesicles**

Endocytosis
The movement of large amounts of material **into** a cell using vesicles.

Exocytosis
The movement of large amounts of material **out of** a cell using vesicles.

(see diagrams on next page)



Endocytosis (top diagram)
Exocytosis (bottom diagram)