

Chapter Four: The Cell in Action

Section 1: Exchange with the Environment

Cells are like a factory: obtain energy and raw materials and get rid of wastes

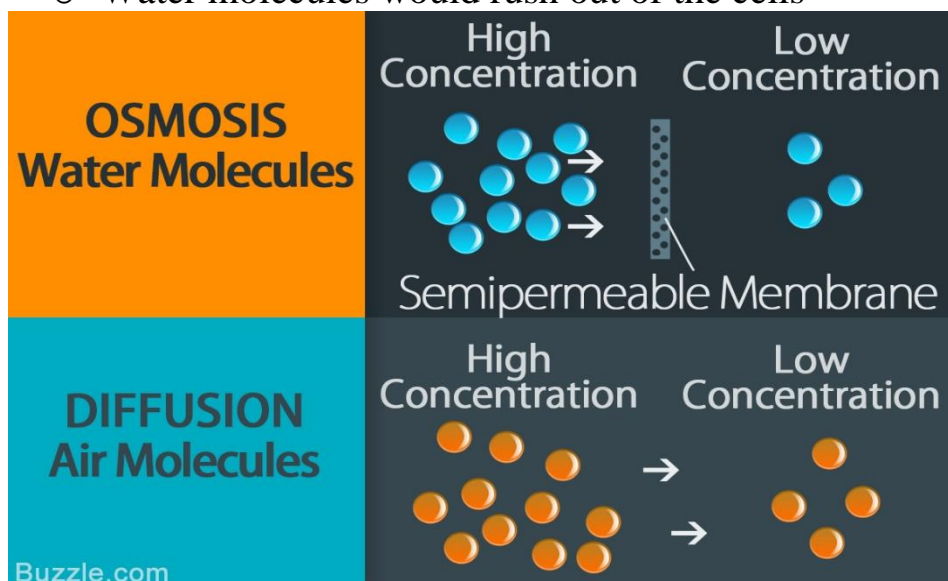
- This allows the cell to divide which in turn allows the organism to grow

Diffusion: the movement of particles from areas of high concentration (crowded) to areas of low concentration (less crowded)

- Ex. Dyes in water, smells
- Cells do not need energy for diffusion

Osmosis: the diffusion of water particles through a semipermeable membrane

- Water is made up of particles called molecules
 - Pure water has the highest concentration of water molecules
- *Semipermeable:* only certain substance can pass through
- Red Blood Cells in pure water...burst
 - Water molecules would rush into the cells
- Red Blood Cells in salt water...shrink
 - Water molecules would rush out of the cells



Moving of Particles: small particles (such as water and sugar) cross the cell membrane through passageways called channels

- Made up of proteins

Passive Transport: the movement of particles across a cell membrane without the use of energy

- Ex. Diffusion and osmosis
- Movement from high to low concentration

Active Transport: the process of transporting particles that require the cell to use energy

- Moving particles from a low to a high concentration

Endocytosis: a cell surrounds a large particle and encloses the particle in a vesicle to bring the particle **into** the cell

- *vesicle*: sacs formed from pieces of cell membrane

Exocytosis: a vesicle forms around a large particle within the cell, it then carries the particle to the cell membrane and releases it **outside** the cell

