IV. Section 4 The Cell and Its Environment

A. Diffusion

1. Cell Membrane is selectively permeable, which means some substances can pass through while others cannot
2. Materials like oxygen, water and carbon dioxide can go through
3. Does not allow large molecules like salt
4. Diffusion- Molecules in Motion
5. Diffusion- the process by which molecules tend to move from high to low concentration
6. Collisions cause molecules to move
7. Eventually molecules will spread out evenly
8. Oxygen molecules diffuse from higher to lower concentration

B. Osmosis

1. Osmosis- the diffusion of **water** molecules through a selectively permeable membrane
2. Cells need water to survive
3. Osmosis and diffusion do not require any energy
4. Passive Transport- the movement of material through a selectively permeable membrane **without** using energy
5. Active Transport- the movement of materials through a membrane **using energy** an important process in cells
6. In osmosis water molecules move by diffusion from high to low concentration

C. Active Transport

1. Transport proteins- cell membrane pick up materials and bring them in and out using energy (active transport)
2. Engulfing- cell membrane surrounds the particle using energy (active transport)
3. Why Are Cells Small?
4. It is much harder to transport materials in a larger area
5. If it was too large a cell could not survive