**Cell Processes**

**Transport**

* **Passive Transport**
  + Movement without energy
  + Moves from high concentration 🡪 low concentration
  + **Diffusion** – movement of particles
  + **Osmosis** – diffusion of water
    - **Types of osmosis** – hypertonic, isotonic, hypotonic
* **Active Transport**
  + Movement with energy
  + Utilizes carrier proteins to pull across membranes
  + Moves from low concentration 🡪 high concentration

**Diagram of Cell Membrane**

**Energy Production and Usage**

**Photosynthesis**

* Conversion of solar energy (sunshine) to chemical energy (glucose)
* Takes place in the chloroplasts of plant (and other similar) cells
* Formula
  + Sunlight + Carbon Dioxide + Water 🡪 Glucose + Oxygen

Sunlight + CO2 + H2O 🡪 C6H12O6 + O2

**Respiration**

* Creation of energy in the form of ATP
* ALWAYS starts with glucose
* ALWAYS ends with ATP, CO2, and a third product
* 2 types:
  + **Aerobic respiration**
    - Uses oxygen to make energy
    - VERY efficient
    - Occurs in the mitochondria
    - Creates 26-28 ATP
    - Formula:
      * Glucose + Oxygen 🡪 ATP + Carbon Dioxide + Water

C6H12O6 + O2 🡪 ATP + CO2 + H2O

* + **Anaerobic Respiration**
    - Does not use oxygen
    - Occurs in the cytoplasm
    - Aka “fermentation”
    - Creates 2 ATP
    - Formula:
      * Glucose 🡪 ATP + Carbon Dioxide + \_\_\_\_\_\_\_\_\_\_\_\_\_\_

C6H12O6 🡪 ATP + CO2 + \_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + - 2 types:
      * Lactic acid fermentation: creates lactic acid in muscles
      * Alcoholic fermentation: creates ethanol