* The Phospholipid Bilayers has two components in it, the hydrophilic “head” and the hydrophobic tail.
  + Unsaturated- Forms kinks that prevent the phospholipids from packaging tightly together
* Carbohydrates: Serve as Cell Identification tags
  + Determine the species, individual cell that it belongs to and type of the cells
* Cholesterol: Wedged into the bilayer and helps stabilize the membrane at warm temperatures. It helps keep the membrane at a low temperature
* Proteins:
  + Peripheral Protiens: Peripheral proteins are attached to the exterior of the lipid bilayer. They are easily separable from the lipid bilayer, able to be removed without harming the bilayer in any way. Peripheral proteins are less mobile within the lipid bilayer.
  + Integral: Gives membrane strong “framework”. Attaches to the cytoskeleton on inside and extra-cellular matrix on the outside.
  + **Transmembrane**
  + Glycoprotiens: Cell-cell recognition, a second function of plasma membrane protiens.

MEMORIZE DRAWING IN SECTION 5.1

Passive Transport:

* Diffusion: tendency for particles of any kind to spread out evenly in an available space from more to less concentrated
* Requires no work (No ATP is used up in the process)
* Goes down its concentration gradient
  + Reaches dynamic equilibrium. No net change
* In our lungs, diffusion down concentration gradients is the sole means by which oxygen enters red blood cells and carbon dioxide pass them out.
* Small, non polar molecules that diffuse easily across the phospholipid bilayer
* Ions and polar molcules need transport protiens
* Facilitated Diffusion:
  + Used for substances that need assistance in order to diffuse
  + Uses a protein to move down its concentration gradient.
  + Number of sugars, amino acids, and ions use it.
    - Even water uses it as its diffusion is relatively slow.
    - Aquaporins are needed to apidly diffuse them.

Osmosis:

* Selectively permeable
* When it diffuses, the side with the high concentration gets more water ( concentration = molcules /ml of solution)
* The water molecules form weak bonds with the solute molecules.
* Goes from low solute concentration to high solute concentration down a solute concentration gradient
* Tonicity: Describes the ability of a solution to cause a cell to gain or loose water:
  + Isotoni:c Same amount of volume. Concentration is equal.
  + Hypotonic: A solution with a soolte concentration lower than that of the cell
  + Hypertonic: A solution with a soluteion with a higher solute concentration
* Animal Cells:
  + Isotonic: Normal
  + Hypotonic: Lysed [High Water]
  + Hypertonic Solution: Shirveled [Low Water]
* Plants Cells:
  + Isotonic: Flaccid
  + Hypotonic: Turgid
  + Plasma Memrabe: Plasmolyzed

Active Transport: Cell must expend its energy in order to move a solute AGAINST its concentration gradient.

* Known the process of a sodium pump.
  + Solute binding
  + Phsphorylation
  + Transport
  + Phosphate Detaches
* Allows cell to maintain concentrations of small molecules that are different from concentrations in its surroundings.

Exocytosis and endocytosis transport large molcules acorss membranes:

* Excyotosis: Used to transport bulky materials such as proteins and polysaccharides out of a cell.
* Endocytosis: Complete opposite. Transport process that takes in substances. Depression in the plasma membrane pinches in and forms a vesicle
* Phagocytosis: Cellular eating
* Pintocytosis: Cellular drinking
* Receptor mediate endocytosis: Highly specific. Receptor protiens for specific molecules embeedd themselves.