1. All cells have a cell membrane.
2. Functions:
   1. Controls what enters and exits the cell to maintain an internal balance called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
   2. Provides protection and support for the cell.
3. Structure of cell membrane

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- 2 layers of phospholipids.

* 1. Phosphate head is \_\_\_\_\_\_\_\_\_\_ (water loving)
  2. Fatty acid tails \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (water fearing)
  3. Proteins embedded in membrane

**Draw a phospholipid below. Draw a Lipid Bilayer below.**

1. Cell membranes have pores (holes) in it.
   1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: Allows some molecules in and keep other molecules out.
   2. The structure helps it be selective!

Types of Cellular Transport

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ : cell doesn’t use energy.
  + 1. Diffusion
  + 2. Facilitated Diffusion- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + 3. Osmosis- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: cell does use energy
  + 1. Protein pumps: transport proteins that require energy to do work.
  + 2. Endocytosis: “cell - \_\_\_\_\_\_\_\_\_\_\_”
  + 3. Ectocytosis: forces material out of cell in bulk
* Passive Transport
  + Molecules spread out from an area of \_\_\_\_\_\_\_\_ concentration to an area of \_\_\_\_\_\_ concentration.
  + Facilitated Diffusion: diffusion of specific particles through \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ found in the membrane—transports larger or charged molecules.
* Active Transport
  + Actively moves molecules to where they are needed
  + Movement from an area of \_\_\_\_\_\_\_ concentration to an area of \_\_\_\_\_\_\_ concentration.

Effects of Osmosis on Life

* Osmosis- diffusion of water through a selectively permeable membrane.
* \_\_\_\_\_\_\_\_\_\_\_\_ solution: has a lower concentration of solutes and a higher concentration of water than inside the cell. (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)
  + Result: Water moves from the solution to inside the cell; cell swells and bursts open (cytolysis)!
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ solution: has a higher concentration of solutes and a lower concentration of water than inside the cell. (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)
  + Result: Water moves from inside the cell into the solution: cell shrinks (Plasmolysis)!
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ solution: concentration of solutes in the solution is equal to the concentration of solutes inside the cell.
  + Result: Water moves equally in both directions and the cell remains the same size! (Dynamic Equilibrium)