

Name - _____

Cell Membrane Diagram

- I. Complete the diagram as follows (on a Large sheet of paper):
- Draw, color and label a diagram to show the fluid mosaic model of a biological membrane. The following membrane components must be included: phospholipids (hydrophilic and hydrophobic region labeled); integral protein; peripheral protein; glycolipid; glycoprotein; and cholesterol. The following "types" of membrane proteins and protein systems must be clearly drawn and labeled: an enzyme (using sucrase as an example); a cell surface receptor (using adrenalin or epinephrine as the signal molecule and cAMP as the second messenger); Cell surface marker; Cytoskeleton attachment; Direct Diffusion (using oxygen as an example); Diffusion through a protein channel (using sodium as an example); Facilitated diffusion (using glucose as an example); Osmosis (using water and an aquaporin as an example); Active transport (using the Na⁺/K⁺ pump as an example); Active transport pump (using a proton pump); Cotransport or Coupled transport (using sucrose-H⁺ symport or glucose-Na⁺ symport); Countertransport or Antiport (using the Na⁺-Ca⁺⁺ model); Phagocytosis; Pinocytosis; and receptor-mediated endocytosis (using cholesterol as an example) and Exocytosis (using a digestive enzyme as the example).
 - The interior of the cell must include the following organelles: Nucleus, rough ER, smooth ER, free ribosomes, Golgi apparatus, Lysosomes, Mitochondria, Peroxisome, and Centrioles.
 - The illustration must include the relationship of the endomembrane system using a digestive enzyme as the example.
- II. Complete the following chart on selective permeability - place the following molecules or compounds in the proper location in the chart below indicating their ability to penetrate the plasma membrane.

Carbon dioxide	Glucose	Proteins	Starch	Hydrocarbons
Ions	Alcohol	Water	Nitrogen gas	Amino acids
Fatty acids	Glycerol	Ether	Disaccharides	Polysaccharides

Rapid penetration	Slow to very slow penetration	No penetration (or very little)

- III. Complete the table below describing components of the cell membrane.

Component	Composition	Function	How it Works	Example
Phospholipid Bilayer				
Transmembrane Proteins				
Interior Protein Network				
Cell Surface Markers				