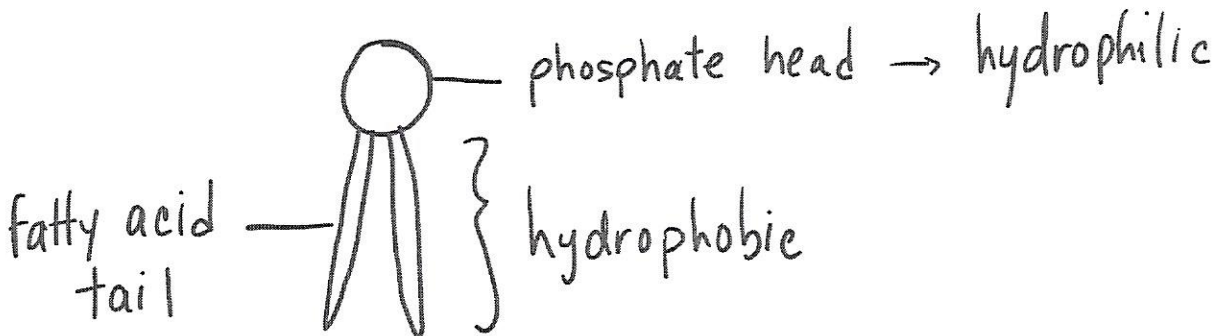




Plasma Membrane Structure and Function Worksheet

- According to the fluid - mosaic model for the plasma membrane, there is a phospholipid bilayer in which proteins are scattered throughout the membrane. The hydrophilic (water loving) polar heads of the phospholipids face the intracellular and extracellular fluid. The hydrophobic (water hating) nonpolar tails of the phospholipid molecules face each other.
- Why is the cell membrane called the fluid-mosaic model? - fluid consistency = light oil
proteins scattered throughout the membrane (mosaic)
- Phospholipids have their hydrophilic polar heads facing the intracellular and extracellular fluid. The hydrophobic nonpolar tails face each other. The other two types of lipids present in the plasma membrane are the glycolipids and cholesterol
- Where are integral and peripheral proteins found in the plasma membrane?
integral - embedded within bilayer peripheral - attached to inside/outside surface of membrane
- Can the phospholipid molecules move sideways and flip-flop? Why or why not?
Yes can move sideways but do not flip-flop
- In general, can the proteins in the plasma membrane migrate? Why or why not?
Yes, proteins can move laterally (back + forth)
- The proteins found in the plasma membrane may be integral proteins, which are found within the membrane, or peripheral proteins, which occur either on the cytoplasmic side or the outer surface side of the membrane.
- Protein form different patterns in particular membranes and also within the same membrane at different times. (True or False?) True. The peripheral proteins associated with a membrane often have a structural role to stabilize and shape the plasma membrane.
- Place an "X" next to any of the statements below that are true about the plasma membrane.
 The greater the concentration of unsaturated fatty acids, the more fluid is the bilayer
 Phospholipid molecules flip-flop from one layer to the other.
 Most proteins can drift laterally in the fluid lipid bilayer.
 The carbohydrate portions of glycoproteins and glycolipids project internally externally
- Draw and label a phospholipid. Show the hydrophobic and hydrophilic regions.



11. Complete the following table to understand the functions of each component in a plasma membrane.

CHEMICAL COMPONENT	FUNCTION
Lipids:	
Phospholipid bilayer	- separates the internal/external environment of a cell. Regulates entry/exit of materials in a cell.
Cholesterol (reduces membrane permeability)	- stiffen + strengthen the membrane - regulates membrane fluidity
Proteins:	
Channel protein (Cl ⁻ channel)	- allows substances to move across membrane with [] gradient & NO ENERGY
Carrier protein (Na ⁺ /K ⁺ pump)	- combine with a substance to help it move across membrane NEED
Receptor protein	- allows specific molecules to bind to it e.g. hormone, cause protein to change its shape
Enzymatic protein	- carries out metabolic reactions directly, catalyzes a specific reaction.
Carbohydrates:	
Glycolipids - glycoproteins	- protect the cell, facilitate adhesion, signal reception, cell-to-cell recognition

12. Label this diagram of the plasma membrane with the following terms: glycoprotein, cholesterol, hydrophilic region, hydrophobic region. Phospholipid bilayer, protein molecules.

