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### Cell Membrane Coloring Worksheet

## Composition of the Cell Membrane & Functions The cell membrane is also called the \_\_\_\_\_ membrane and is made of a phospholipid \_\_\_\_\_\_. The phospholipids have a hydrophilic (water attracting) \_\_\_\_\_ and two hydrophobic (water repelling) \_\_\_\_\_. The head of a phospholipid is made of an alcohol and \_\_\_\_\_ group, while the tails are chains of \_\_\_\_\_\_. Phospholipids can move \_\_\_\_\_ and allow water and other \_\_\_\_\_ molecules to pass through into or out of the cell. This is known as simple \_\_\_\_\_ because it does not require \_\_\_\_ and the water or molecules are moving \_\_\_\_\_ the concentration gradient. SKETCH AND LABEL a phospholipid coloring the heads red and the tails blue. PHOSPHOLIPID Another type of lipid in the cell membrane is \_\_\_\_\_ that makes the membrane more fluid. Embedded in the phospholipid bilayer are \_\_\_\_\_ that also aid in diffusion and in cell recognition. Proteins called \_\_\_\_\_ proteins go all the way through the bilayer, while \_\_\_\_\_ proteins are only on one side. Integral proteins are also called \_\_\_\_\_ proteins. Large molecules like \_\_\_\_\_ or carbohydrates use proteins to help move across cell membranes. Some of the membrane proteins have

carbohydrate \_\_\_\_\_ attached to help cells in recognize each

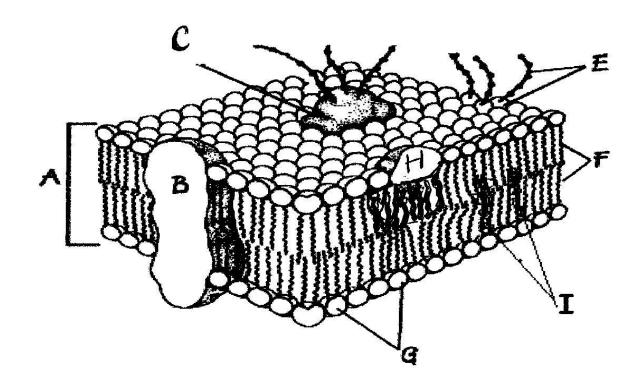
other and certain molecules.

List 4 functions of the cell or plasma membrane:

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Correctly *color code and identify* the name for each part of the cell membrane.

Letter	Name/Color	Letter	Name/Color
	Phospholipid bilayer (no		Peripheral protein
	color)		(red)
	Integral protein (pink)		Cholesterol (blue)
	Fatty acid tails		Glycoprotein (green)
	(orange)		
	Phosphate heads		Glycolipids (purple)
	(yellow)		



*Match* the cell membrane structure or its function with the correct letter from the cell membrane diagram.

Letter	Structure/Function	Letter	Structure/Function
	Attracts water		Repels water
	Helps maintain flexibility of membrane		Make up the bilayer
	Involved in cell-to-cell recognition		Help transport certain materials across the cell membrane
Osmosis	and Tonicity		
Define o	smosis.		
	direction does water moration gradient?	ove acros	s membranes, up or down the 
Define t	hese 3 terms:		
a. isoton	ic		
b. hyper	tonic		
c hypoto	onic		

Use arrows to show the direction of water movement into or out of each cell. Color and label the cell in an isotonic environment light blue, the hypotonic environment yellow, and the hypertonic environment light green.



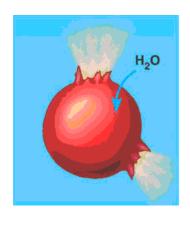


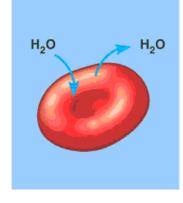


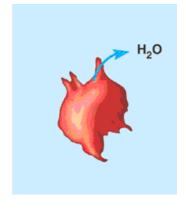
#### Match the description or picture with the osmotic condition:

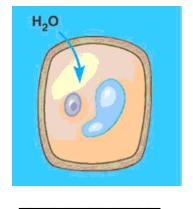
A. Isotonic \_\_\_\_\_ solution with a lower solute concentration \_\_\_\_\_ solution in which the solute concentration is the same B. Hypertonic \_\_\_\_\_ condition plant cells require \_\_\_\_\_ condition that animal cells require \_\_\_\_\_ red blood cell bursts (cytolysis) \_\_\_\_\_ plant cell loses turgor pressure (Plasmolysis) \_\_\_\_\_ solution with a higher solute concentration \_\_\_\_\_ plant cell with good turgor pressure \_\_\_\_\_ solution with a high water concentration

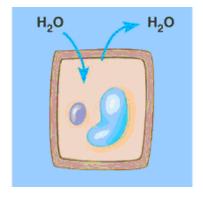
# Label the tonicity for each solution (isotonic, hypotonic, or hypertonic):



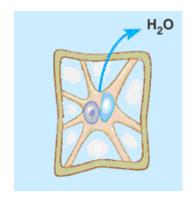








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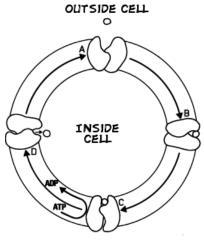
#### Transport Requiring Energy

What type of transport is represented by the following picture?

What energy is being used? \_\_\_\_\_\_

In which direction (concentration gradient), is the movement occurring?

*Color* the internal environment of the cell yellow. *Color and Label* the transport proteins red and the substance being moved blue.



One type of active transport is called the \_\_\_\_\_\_ pump which helps muscle cells contract. This pump uses \_\_\_\_\_ to move ions \_\_\_\_\_ the concentration gradient. The protein that is used to pump the ions through is called a \_\_\_\_\_ protein and it changes its \_\_\_\_\_ to move the ions across the cell membrane. Label and color the carrier proteins red and the ions green.

