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Cell Membrane Worksheet

Composition of the Cell Membrane & Functions – use the words listed below to fill in the blanks.

Tails, Head, Bilayer, Plasma, Chains, Protein channels, Cholesterol

The cell membrane is also called the _____ membrane and is made up of a phospholipid _____. The phospholipids have a **hydrophilic** (water-loving) _____ and two hydrophobic (water-hating) _____. Phospholipids allow water and other molecules to pass through into or out of the cell.

SKETCH AND LABEL a phospholipid coloring the heads **red** and the tails **blue**.

PHOSPHOLIPID

Large molecules pass through the cell membrane using _____ because they are too big to go through the phospholipid bilayer. Some of the proteins have carbohydrate _____ attached to help cells to **recognize each other** and certain molecules. _____ are in the phospholipid bilayer to help prevent the tails of the phospholipids from sticking together and to keep the membrane **fluid/flexible.**

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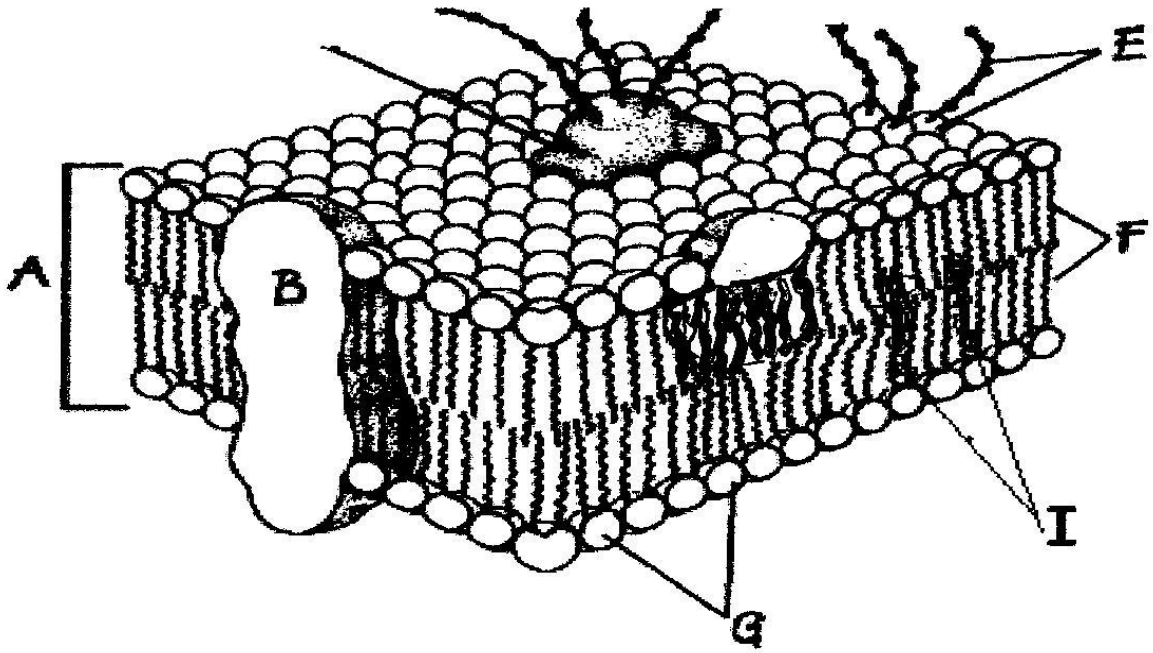
Correctly ***color code and identify*** the name for each part of the cell membrane.

Letter	Name/Color	Letter	Name/Color
_____	Phospholipid bilayer	_____	Protein Channels— 2 of them (red)
_____	Fatty acid tails (orange)	_____	Cholesterol (green)
_____	Phosphate heads (yellow)	_____	Carbohydrate Chains (purple)



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(water-loving)	_____	Repels water (water-hating)
_____	Helps maintain flexibility of membrane (keeps it fluid)	_____	Make up the bilayer
_____	Involved in cell-to-cell recognition (identification)	_____	Help transport large materials across the cell membrane

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Osmosis and Tonicity

Define osmosis. _____

In which direction does water move across membranes, up or down the concentration gradient? _____

Define these 3 terms:

a. isotonic- _____

b. hypertonic _____

c. hypotonic _____

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

B. Hypertonic

C. Hypotonic

_____ solution with a lower solute concentration

_____ solution in which the solute concentration is the same

_____ 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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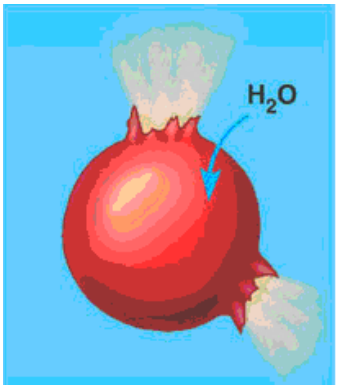
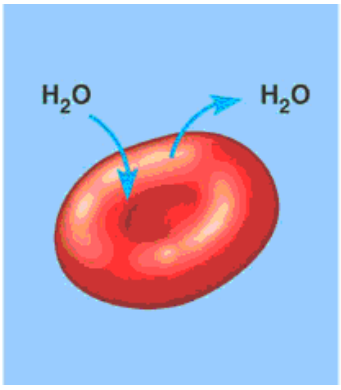
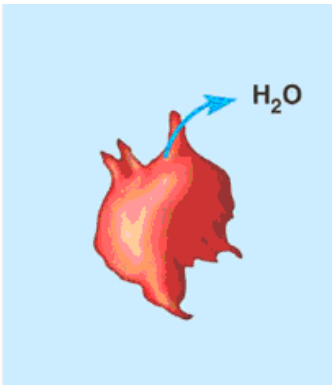
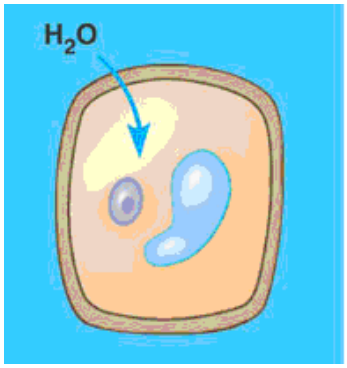
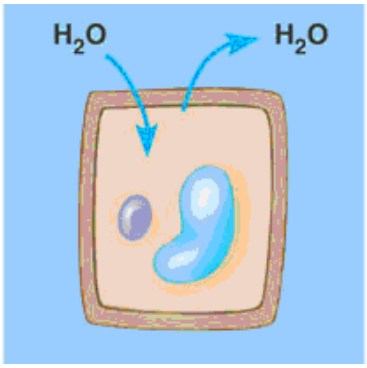


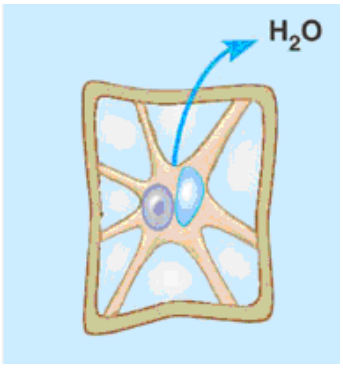




_____ _____ _____







_____ _____ _ _____

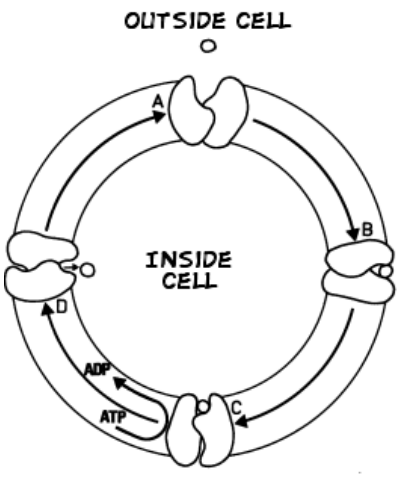
Transport Requiring Energy

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

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changes its _____ to move the ions across the cell membrane. ***Label and color*** the carrier proteins red and the ions green.