NAME_____ DATE_____ PERIOD_____

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

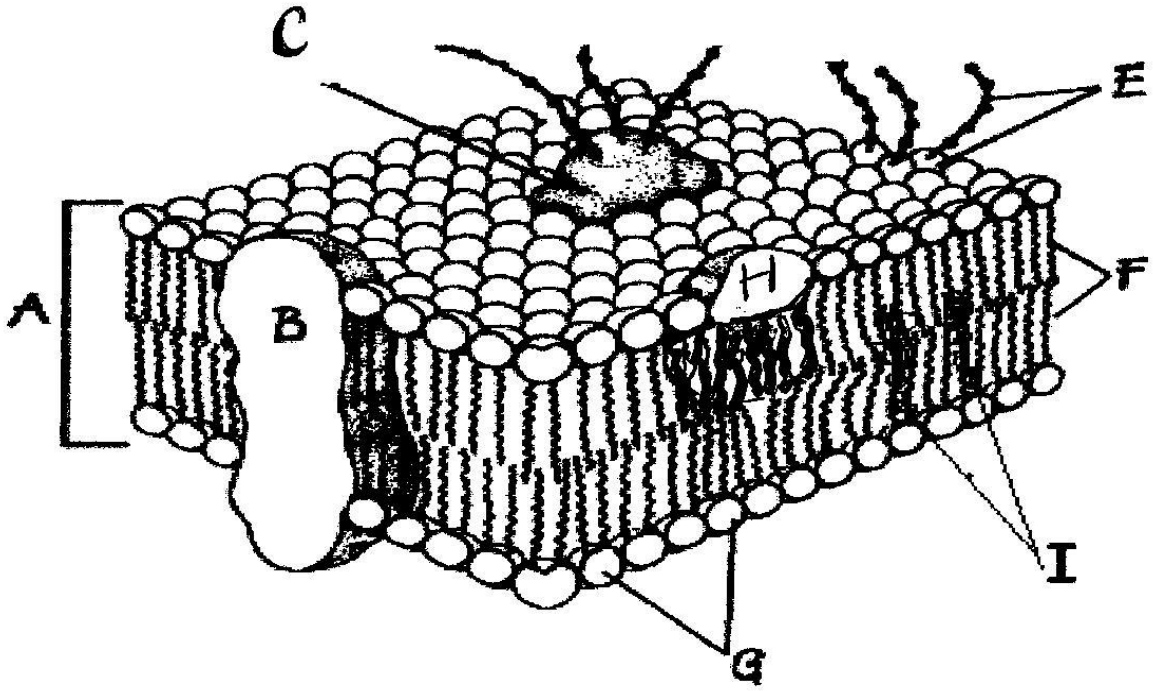
Another type of lipid in the cell membrane is _____ that makes the membrane more fluid. Embedded in the phospholipid bilayer are _____ that also aid in diffusion and in cell recognition. Proteins called _____ proteins go all the way through the bilayer, while _____ proteins are only on one side. Integral 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:

a. _____
b. _____
c. _____
d. _____

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

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

Transport Requiring Energy

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)

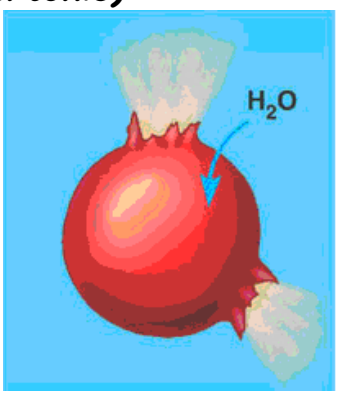
_____ plant cell loses turgor pressure (Plasmolysis)

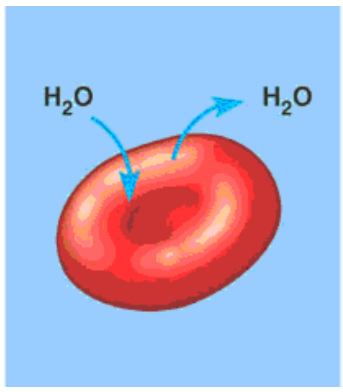
_____ solution with a higher solute concentration

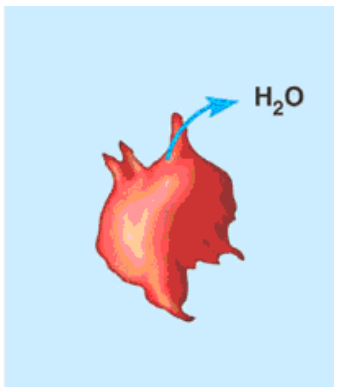
_____ plant cell with good turgor pressure

_____ solution with a high water concentration

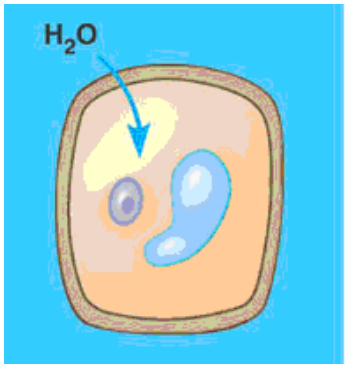
Label the tonicity for each solution (isotonic, hypotonic, or hypertonic):

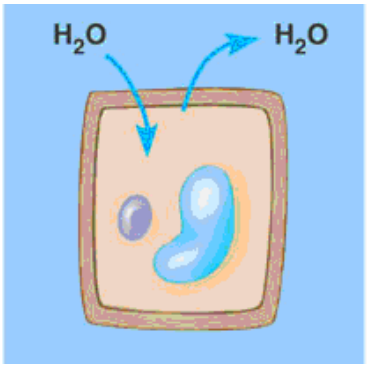


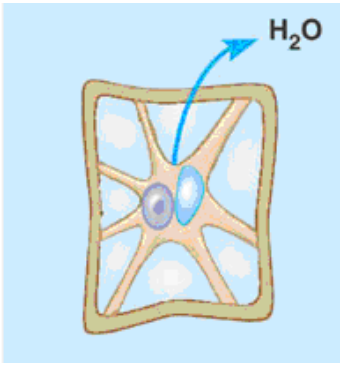




_____ _____ _____







_____ _____ _____

Transport Requiring Energy

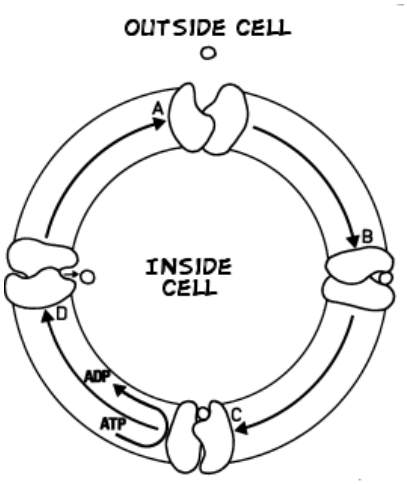
What type of transport is represented by the following picture?

_____

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.