

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

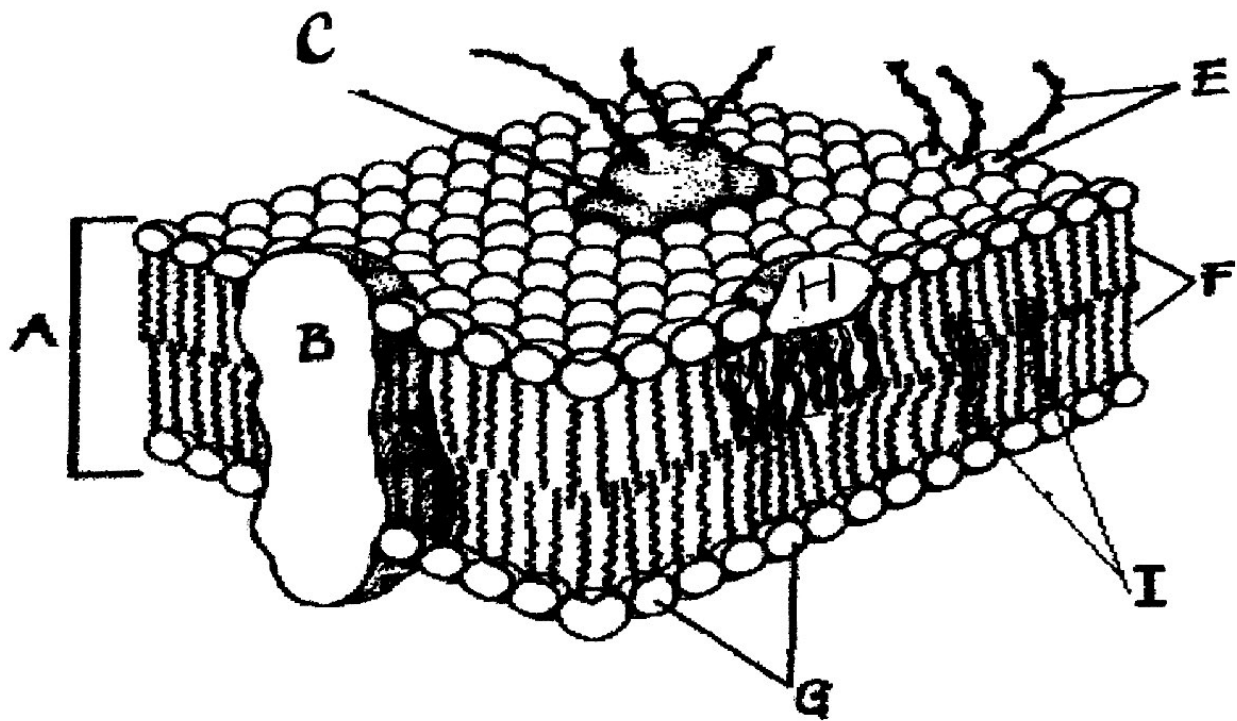
Another type of lipid in the cell membrane is _____ that makes the membrane more fluid. Embedded in the phospholipid bilayer are _____ that also aid in diffusion and in cell recognition. Proteins called _____ proteins go all the way through the bilayer, while _____ proteins are only on one side. Integral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



95% WATER



98% WATER

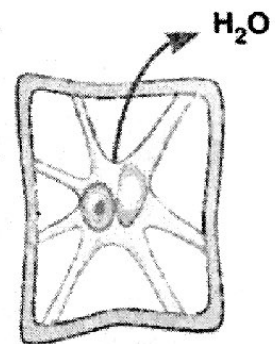
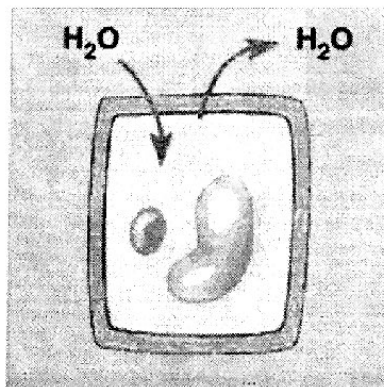
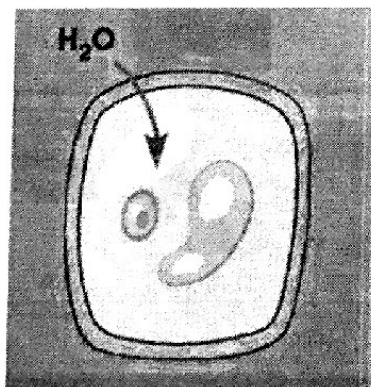
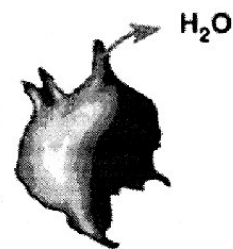
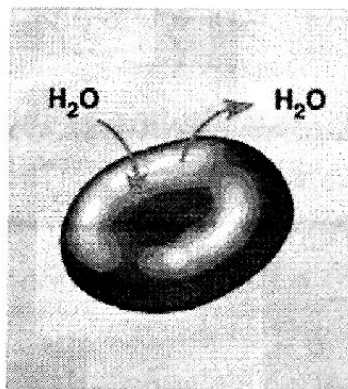
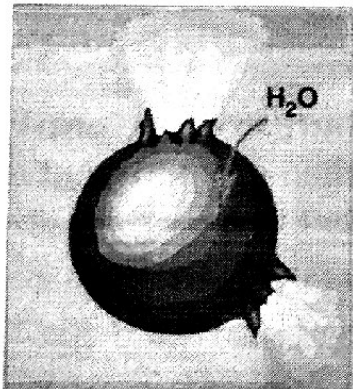


100% WATER

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
- C. Hypotonic** _____ 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):



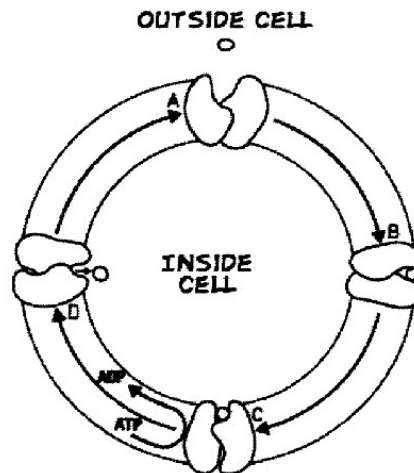
Transport Requiring Energy

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.

