

NAME: \_\_\_\_\_

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## Evidence 4: Homeostasis

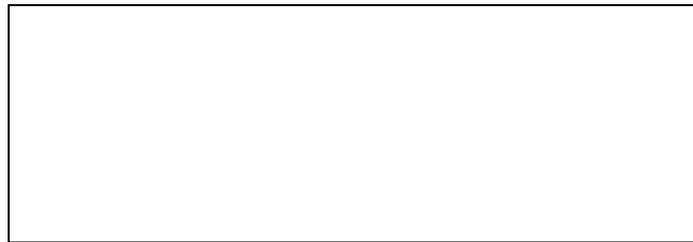
## Option 3: Worksheet/Color

### Cell Membrane and Homeostasis 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



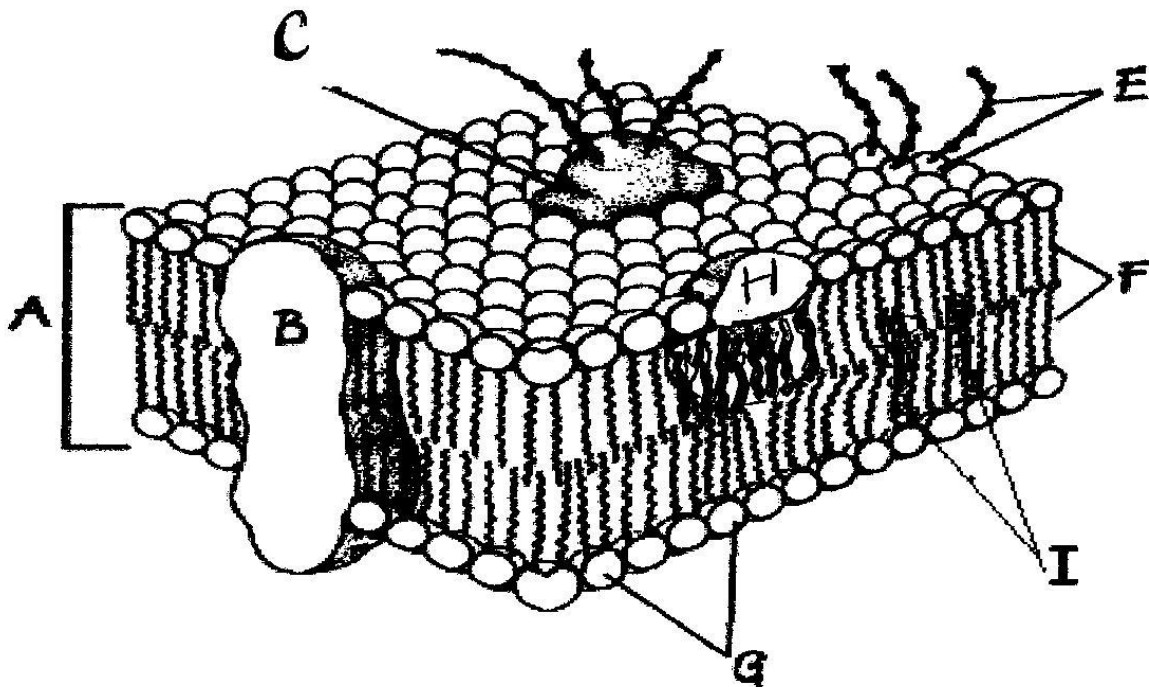
Another type of lipid in the cell membrane is \_\_\_\_\_ that makes the membrane more fluid. Embedded in the phospholipid bilayer are \_\_\_\_\_ that also aid in diffusion and in cell recognition. Proteins called \_\_\_\_\_ proteins go all the way through the bilayer, while \_\_\_\_\_ proteins are only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

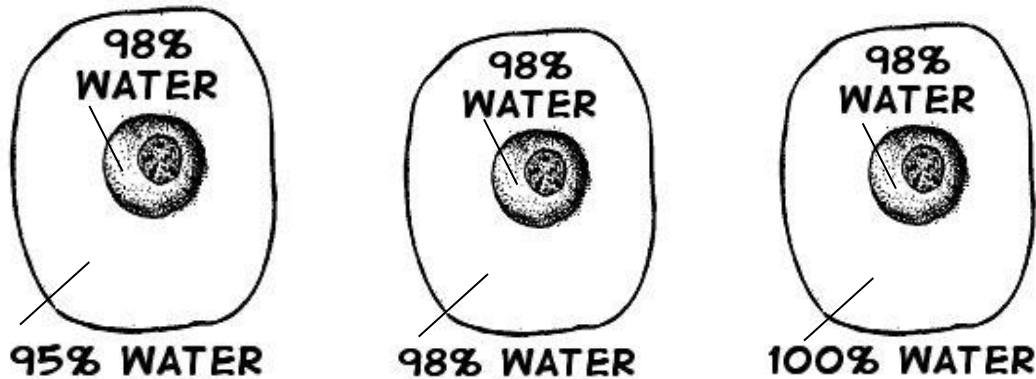
Define these 3 terms:

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.



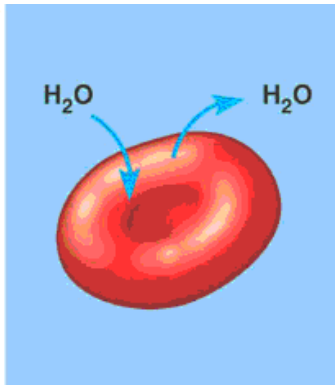
**Match the description or picture with the osmotic condition:**

- 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

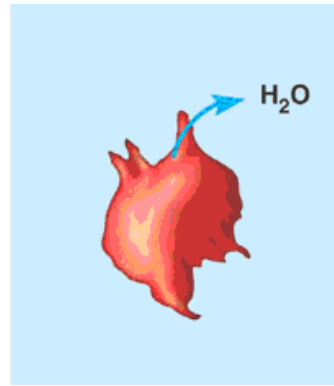
**Label the tonicity for each solution (isotonic, hypotonic, or hypertonic):**



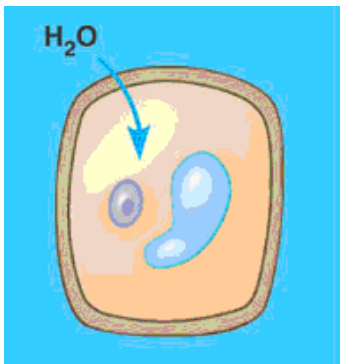
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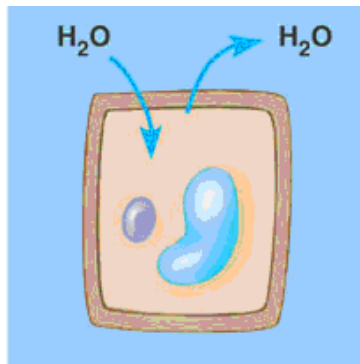
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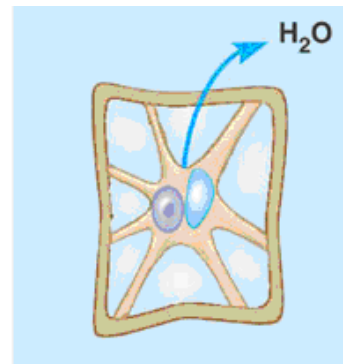
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\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_

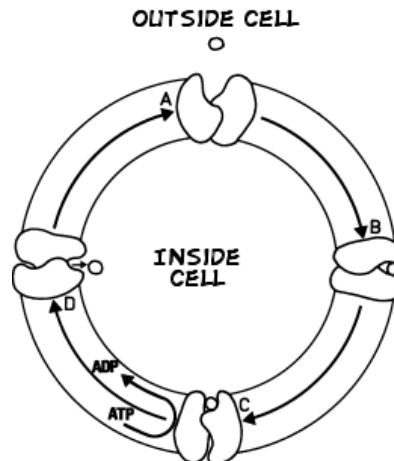
**Transport Requiring Energy**

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.

