

Evidence 4: Homeostasis Regular

Option 1: 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.

DRAW AND LABEL A PHOSPHOLIPID



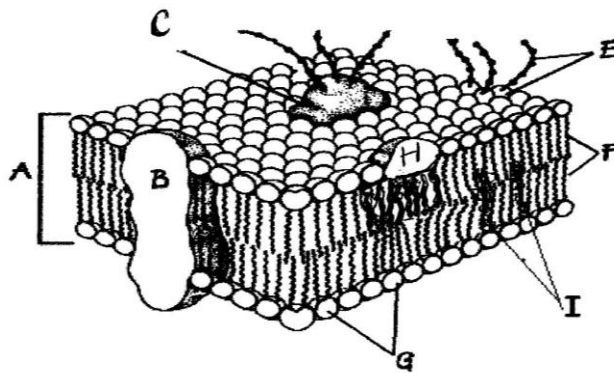
Another type of lipid in the cell membrane is _____ that makes the membrane more fluid. Embedded in the phospholipid bilayer are _____ that also aid in diffusion and in cell recognition. Proteins called _____ proteins go all the way through the bilayer, while _____ proteins are only on one side. Integral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

Letter	Name/Color
A	Phospholipid bilayer (no color)
B	Integral protein (pink)
F	Fatty acid tails (orange)
G	Phosphate heads (yellow)



Osmosis and Tonicity

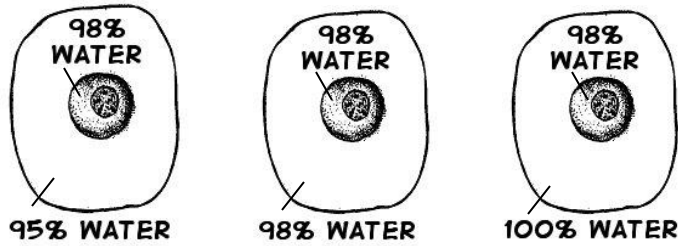
Define osmosis. _____

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

Define these 3 terms:

- a. isotonic- _____
- b. hypertonic _____
- c. hypotonic _____

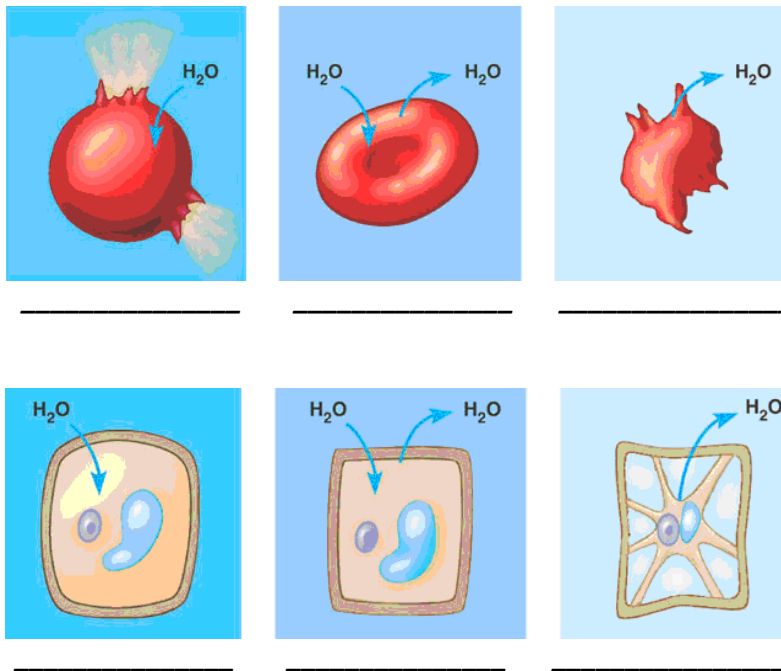
Use **arrows** to show the direction of water movement into or out of each cell. **Color and label** the cell in an isotonic environment light blue, the hypotonic environment yellow, and the hypertonic environment light green.



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* _____ solution with a high water concentration
- _____ solution with a higher solute concentration
- C. *Hypotonic* _____ red blood cell bursts (cytolysis)
- _____ plant cell loses turgor pressure (Plasmolysis)

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



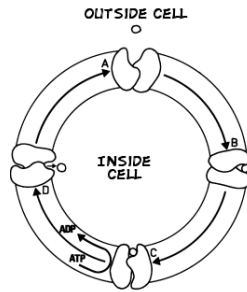
Transport Requiring Energy

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**.

