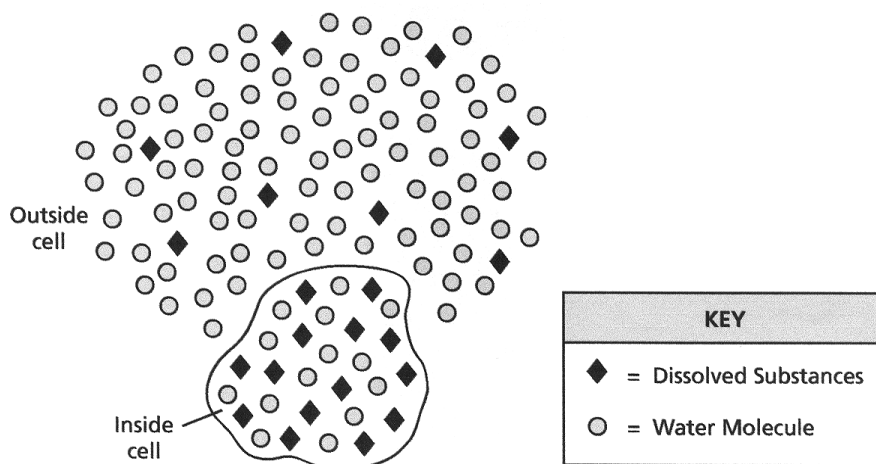


## Osmosis Problems



1. Which of the following does the solution in the above diagram represent?
  - a. Salt water
  - b. freshwater
  - c. plasma
  
2. Which of the following describes what will most likely happen?
  - a. Water will flow into the cell
  - b. Water will flow out of the cell
  - c. Water will flow both ways
  
3. A student designed an experiment to see if plants grow better when watered with a sugar solution. He divided the plants into six groups, measured the initial height of each plant, and calculated the average height for each group. Once a week, for two months, he watered the plants in each group using a different sugar solution for each plant group. At the end of two months, he measured the final height of each plant and calculated the average height for each group. The student's data are shown in the table below.

**EFFECT OF SUGAR SOLUTION ON THE HEIGHT OF PLANTS**

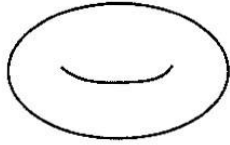
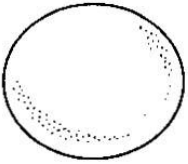
Plant Group	Percent Sugar Solution	Average Initial Height (centimeters)	Average Final Height (centimeters)
A	0	2	30
B	10	2	28
C	20	3	15
D	30	2	10
E	40	3	(died)
F	50	3	(died)

Which of these statements explains why the plants in Group E and F died?

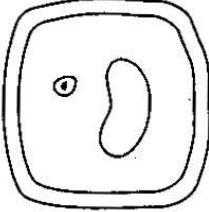
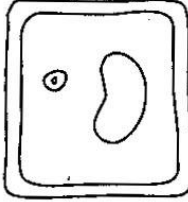
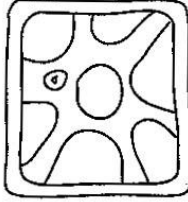
- a. The higher sugar content caused too much water to move out of the root cells
- b. The high sugar content caused too much water to move into the root cells
- c. The high sugar content prevented the plant from capturing energy
- d. The high sugar content clogged the pores in the cell membranes

**Directions:** The diagrams below represent red blood cells or plant cells placed in various solutions. Identify which cell was placed in salt water and indicate whether water flowed into the cell or out of the cell. Identify which cell was placed in freshwater and indicate whether water flowed into or out of the cell. Finally, identify which cell was placed in blood plasma, or isotonic solution and indicate the net flow of water.

**RED BLOOD CELL**



**PLANT CELL**



**Directions:** Draw an arrow to show the direction of water movement in the diagrams below

