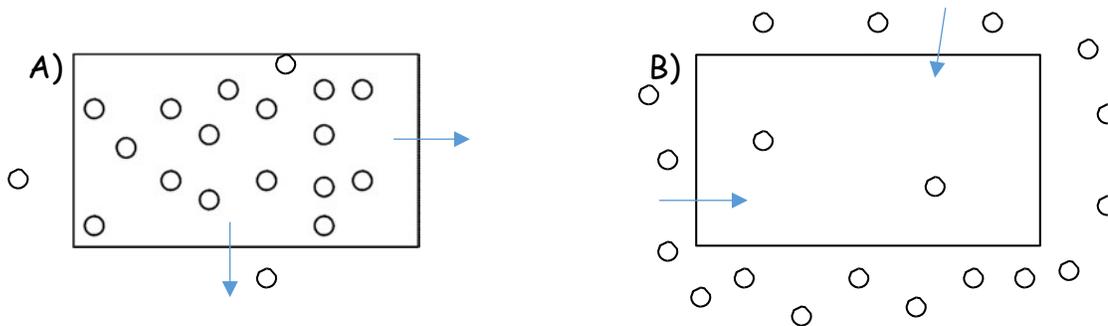


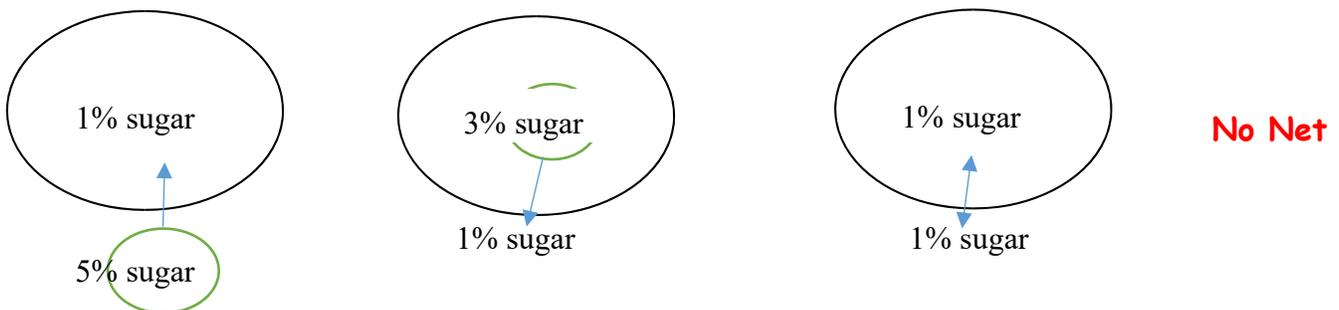
## Diffusion and Osmosis Worksheet

1. How are the molecules moving in the examples below? Write **OSMOSIS** or **DIFFUSION**.
- The student sitting next to you just came from gym class and forgot to shower and you can tell. **D** \_\_\_\_\_
  - After sitting in the bathtub for hours, your fingers start to look like prunes. **O** \_\_\_\_\_
  - The girl sitting two rows ahead of you put on too much perfume this morning. **D** \_\_\_\_\_
  - One way to get rid of slugs in your garden is to sprinkle salt on them, so they shrivel u
  - Yum! Something smells good. The neighbors are cooking on the grill! **D** \_\_\_\_\_
  - Gargling with salt water when you have a sore throat causes your swollen throat cells to shrink and feel better. **O** \_\_\_\_\_
  - Oxygen molecules move from the air sacs in the lungs across the cell membranes into the blood **D** \_\_\_\_\_
- 

2. Use arrows to indicate the direction of diffusion in each case below



3. For each of the situations below use an arrow to indicate the net movement of sugar into or out of the cell. (Assume that the sugar molecules can pass through the the cell membrane in each case.)



4. Diffusion always causes particles to move from a region of **HIGH** concentration to a region of **LOW** concentration.

5. Does a cell use energy when molecules diffuse in or out of the cell? **NO**

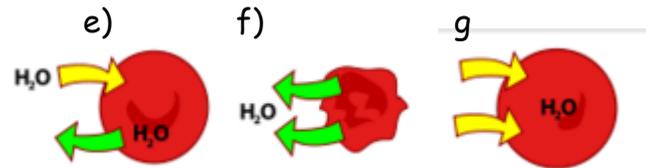
**Diffusion is the passive movement of particles - energy does not need to be added for it to occur.**

Match each term on the left with the best descriptor on the right. Use each only once.  
Match each term on the left with the best descriptor on the right. Use each only once.

6. Concentration   B
7. Diffusion   A
8. Equal amount of water inside a cell as outside   E
9. More water outside a cell than inside   G
10. Osmosis   C
11. More solute outside a cell than inside   F
12. Selectively permeable membrane   D

**Descriptor**

- a) Moves of particles like oxygen into cells
- b) Amount of a substance in a certain place
- c) Moves water into and out of cells
- d) Allows some substances through



13. You have just bought a tropical fish for your freshwater (no salt) aquarium. Unfortunately, you do not realize it is a saltwater fish, which is isotonic to salty water environments. Using your knowledge of osmosis, **explain** why this fish will not survive in your aquarium.

**Fresh water is a hypotonic to fish, so water will move INTO the fish. It will expand & explode.**

14. Complete the table by writing whether solutes and water move **INSIDE** or **OUTSIDE** the cell.

□ Hints: With **diffusion**, solutes move from an area of high concentration to an area of low concentration.

□ With **Osmosis**, wherever more salt is, water follows! Or, water also goes from an area of high amount of water to an area of low amount of water.

DIFFUSION	OSMOSIS	IN	OUT
Does the <u>SOLUTE</u> move <b>INSIDE</b> or <b>OUTSIDE</b> the cell?	Does <u>WATER</u> move <b>INSIDE</b> or <b>OUTSIDE</b> the cell?	intracellular fluid (inside the cell)	extracellular fluid (outside of cell)
<b>IN</b>	<b>OUT</b>	5% salt	10% salt
_____	_____	10% salt	10% salt
<b>OUT</b>	<b>IN</b>	3% glucose	1% glucose
<b>OUT</b>	<b>IN</b>	2% protein	1% protein
_____	_____	9% salt	9% salt
<b>OUT</b>	<b>IN</b>	13% water	25% water