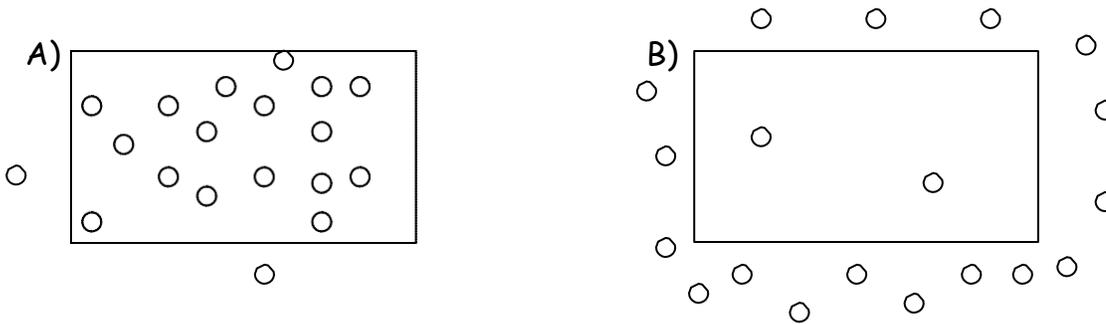


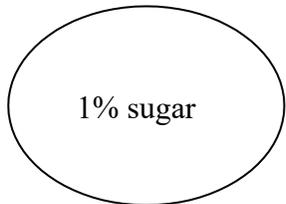
## Diffusion and Osmosis Worksheet

1. How are the molecules moving in the examples below? Write **OSMOSIS** or **DIFFUSION**.
- a. The student sitting next to you just came from gym class and forgot to shower and you can tell. \_\_\_\_\_
  - b. After sitting in the bathtub for hours, your fingers start to look like prunes. \_\_\_\_\_
  - c. 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 up. \_\_\_\_\_
  - e. Yum! Something smells good. The neighbors are cooking on the grill! \_\_\_\_\_
  - f. Gargling with salt water when you have a sore throat causes your swollen throat cells to shrink and feel better. \_\_\_\_\_
  - g. Oxygen molecules move from the air sacs in the lungs across the cell membranes into the blood \_\_\_\_\_
- 

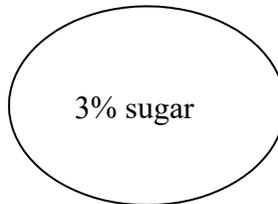
2. Use arrows to indicate the direction of diffusion in each case below:



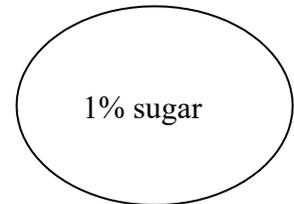
3. For each of the situations below use an arrow to indicate the net movement **of sugar** into or out of the cell. (Assume that the sugar molecules can pass through the cell membrane in each case.)



5% sugar



1% sugar



1% sugar

4. Diffusion always causes particles to move from a region of \_\_\_\_\_ concentration to a region of \_\_\_\_\_ concentration.

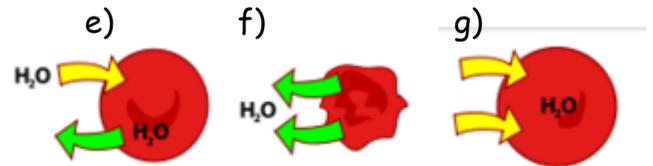
5. Does a cell use energy when molecules diffuse in or out of the cell? \_\_\_\_\_  
Why?

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

**Descriptor**

- 6. Concentration \_\_\_\_\_
- 7. Diffusion \_\_\_\_\_
- 8. Equal amount of water inside a cell as outside \_\_\_\_\_
- 9. More water outside a cell than inside \_\_\_\_\_
- 10. Osmosis \_\_\_\_\_
- 11. More solute outside a cell than inside \_\_\_\_\_
- 12. Selectively permeable membrane \_\_\_\_\_

- 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.

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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.

<b>DIFFUSION</b>	<b>OSMOSIS</b>		
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?	<b>intracellular fluid</b> (inside the cell)	<b>extracellular fluid</b> (outside of cell)
		5% salt	10% salt
		10% salt	10% salt
		3% glucose	1% glucose
		2% protein	1% protein
		9% salt	9% salt
		13% water	25% water