**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:

   ![Diffusion Diagram](image)

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.)

   ![Sugar Concentration Diagram](image)

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.

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 ________

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

e) f) g)

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.

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.

<table>
<thead>
<tr>
<th>DIFFUSION</th>
<th>OSMOSIS</th>
<th>intracellular fluid (inside the cell)</th>
<th>extracellular fluid (outside of cell)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the SOLUTE move INSIDE or OUTSIDE the cell?</td>
<td>Does WATER move INSIDE or OUTSIDE the cell?</td>
<td>5% salt</td>
<td>10% salt</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10% salt</td>
<td>10% salt</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3% glucose</td>
<td>1% glucose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2% protein</td>
<td>1% protein</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9% salt</td>
<td>9% salt</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13% water</td>
<td>25% water</td>
</tr>
</tbody>
</table>