Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_

**Diffusion and Osmosis Worksheet**

How are the molecules moving in the examples below (1-9)? Write **OSMOSIS** or **DIFFUSION.**

1. The student sitting next to you just came from gym class and forgot to shower and you can tell. \_\_\_\_\_\_\_\_\_\_\_\_\_

2. After sitting in the bathtub for hours, your fingers start to look like prunes. \_\_\_\_\_\_\_\_\_

3. The girl sitting two rows ahead of you put on too much perfume this morning.\_\_\_\_\_\_\_\_\_

4. One way to get rid of slugs in your garden is to sprinkle salt on them, so they shrivel up. \_\_\_\_\_\_\_\_\_\_\_\_

5. Yum! Something smells good. The neighbors are cooking on the grill! \_\_\_\_\_\_\_\_\_\_\_\_

6. Gargling with salt water when you have a sore throat causes your swollen throat cells to shrink and feel better. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. Oxygen molecules move from the air sacs in the lungs across the cell membranes into the blood \_\_\_\_\_\_\_\_\_\_\_\_\_

8. Robert sprays water on the veggies in the produce section to “plump them up”.\_\_\_\_\_\_\_\_

9. You put raisins in a glass of water and they plump up. \_\_\_\_\_\_\_\_\_\_\_\_\_

10. Use arrows to indicate the direction of diffusion in each case: is a molecule that can pass through the cell membrane. is a cell membrane.

A) B)

11. The cell membrane is made of a p\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ b\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

12. The cell membrane is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_permeable. This means that \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

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

14. Does a cell use energy when molecules diffuse in or out of the cell against the concentration gradient?\_\_\_\_\_\_\_\_\_\_\_\_

15. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ requires energy (ATP) to transport molecules against a concentration gradient.

16. In \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ no energy is used.

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

|  |
| --- |
| a) Moves 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 |

17. Concentration \_\_\_\_\_\_

18. Diffusion \_\_\_\_\_\_

19. Osmosis\_\_\_\_\_\_

20. Selectively permeable membrane \_\_\_\_\_\_\_

21. You have just bought a tropical fish for your freshwater aquarium. Unfortunately, you do not realize it is a saltwater fish. Using your knowledge of osmosis, **explain** why this fish will not survive in your aquarium. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Fill in this table. Write whether solutes and water move INSIDE the cell or OUTSIDE the cell.

 Hint: With diffusion, solutes move from an area of high concentration to an area of low concentration.

 Hint: 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** | |
| Does the SOLUTE move  **inside** or **outside** the cell? | Does WATER move  **inside** or **outside** the cell? | **intracellular fluid**  (inside the cell) | **extracellular fluid**  (outside of the cell) |
| 26. | 27. | 5% salt | 10% salt |
| 28. | 29. | 10% salt | 10% salt |
| 30. | 31. | 3% glucose | 1% glucose |
| 32. | 33. | 2% protein | 1% protein |
| 34. | 35. | 9% salt | 9% salt |
| 36. | 37. | 13% water | 25% water |
| 38. | 39. | 59% water | 45% water |
| 40. | 41. | 90% water | 92% water |