

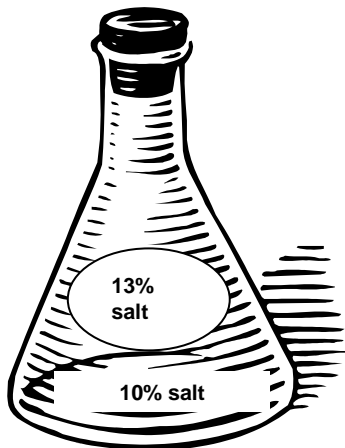


Name: \_\_\_\_\_ Period: \_\_\_\_\_

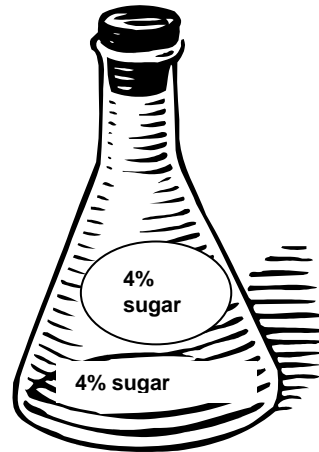
## CELLULAR TRANSPORT PRACTICE WORKSHEET

**READ THIS..... and follow the directions for the examples:**

- ✓ Diffusion is the movement of a substance from [high] to [low]. Osmosis is the diffusion of water. Neither process uses energy.
- ✓ Water and other molecules enter and exit cell membranes constantly. There may be a net gain/net loss of water, or no net gain/loss of water in a solution. WATER ALWAYS MOVES FROM THE AREA WITH LESS SOLUTE (MORE WATER) TO THE AREA WITH MORE SOLUTE (LESS WATER). So..... water moves from **hypotonic** to **hypertonic**!!
- [Solute + water] in the *cell* is compared to [Solute + water] in the *solution*. Both concentrations must equal 100%.
- If given only % solute (salt or sugar) in the cell and solution, you can still figure if the cell will have a net gain or loss of water!



**Example A.**



**Example B.**

In Example A, the [salt] is 13% inside the cell and 10% in the solution. This means [water] is 87% in the cell and 90% in the solution.....so water ENTERS THE CELL. **Draw an arrow to show water movement.** The solute concentrations can be written as a "greater than, less than, or equal to" formula. For the example,  $[solute_{cell}] > [solute_{solution}]$ . This solution is hypotonic.

In Example B, the amount of solute is equal. Water moves into/out of the solution at the same rate. **Draw an arrow to show water movement**, then write the solute concentrations as a "greater than, less than, or equal to" formula. For the example to the right,  $[solute_{cell}] = [solute_{solution}]$ . This solution is isotonic.

**Practice Makes Perfect!! Circle or write in the correct answers!!**

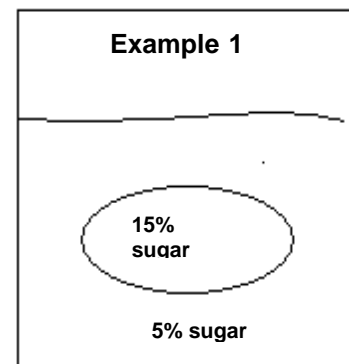
Ex. 1: 1. Where is the **[solute]** (NOT H<sub>2</sub>O!!) highest? (cell, solution, neither)

2. Where is the **[solute]** lowest? (cell, solution, neither)

3. Fill in a greater than, less than, or equal sign for  $[solute_{cell}]$  \_\_\_\_\_  $[solute_{solution}]$ .

4. Write the percentages of **water** for the cell and solution on the picture.

5. Water moves from the area with (more, less, equal) solute to the area with (more, less, equal) solute. Water will move (into, out of, into and out of) the cell: the result is that the cell will (shrink, swell, stay the same size). This solution is (hypertonic, hypotonic, isotonic).



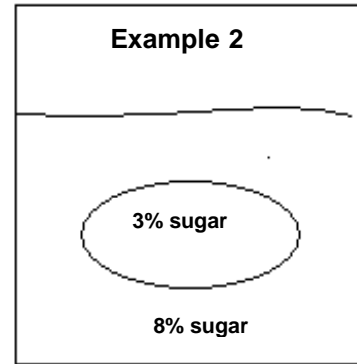


# Cell Theory, Structure and Transport

Name: \_\_\_\_\_ Period: \_\_\_\_\_

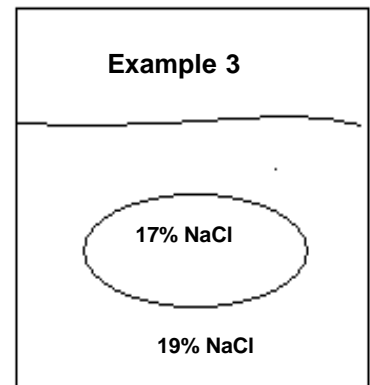
## Example 2:

1. Where is the **[solute]** (NOT H<sub>2</sub>O!!) highest? (cell, solution, neither)
2. Where is the **[solute]** lowest? (cell, solution, neither)
3. Fill in a greater than, less than, or equal sign for  $[solute_{cell}]$  \_\_\_\_\_  $[solute_{solution}]$ .
4. Write the percentages of **water** for the cell and solution on the picture.
5. Water moves from the area with (more, less, equal) solute to the area with (more, less, equal) solute. Water will move (into, out of, into *and* out of) the cell: the result is that the cell will (shrink, swell, stay the same size). This solution is (hypertonic, hypotonic, isotonic).



## Example 3:

1. Where is the **[solute]** (NOT H<sub>2</sub>O!!) highest? (cell, solution, neither)
2. Where is the **[solute]** lowest? (cell, solution, neither)
3. Fill in a greater than, less than, or equal sign for  $[solute_{cell}]$  \_\_\_\_\_  $[solute_{solution}]$ .
4. Write the percentages of **water** for the cell and solution on the picture.
5. Water moves from the area with (more, less, equal) solute to the area with (more, less, equal) solute. Water will move (into, out of, into *and* out of) the cell: the result is that the cell will (shrink, swell, stay the same size). This solution is (hypertonic, hypotonic, isotonic).



## Example 4:

1. Where is the **[solute]** (NOT H<sub>2</sub>O!!) highest? (cell, solution, neither)
2. Where is the **[solute]** lowest? (cell, solution, neither)
3. Fill in a greater than, less than, or equal sign for  $[solute_{cell}]$  \_\_\_\_\_  $[solute_{solution}]$ .
4. Write the percentages of **water** for the cell and the solution on the picture.
5. Water moves from the area with (more, less, equal) solute to the area with (more, less, equal) solute. Water will move (into, out of, into *and* out of) the cell: the result is that the cell will (shrink, swell, stay the same size). This solution is (hypertonic, hypotonic, isotonic).

