

Do Now:

1. What does selective or semi permeable mean?

2. In what direction do substances move across a membrane (in terms of concentration)?



Solutions

- Cells are surrounded by watery solutions and are filled by watery solutions.
- A **solution** is made up of a solute and a solvent
 - **Solute:** _____
 - **Solvent:** _____
- The _____ is important to organisms.
 - Organisms cannot live unless the concentration of dissolved substances stays within a narrow range.
- Since many solutes cannot easily move across the cell membrane, the movement of _____ across the membrane helps to _____

Osmosis

- The _____ transport of the movement of _____ across a selectively permeable membrane.
- Like other molecules, the movement of water is controlled by _____
_____ (a concentration gradient)
- Water will move in the direction where there is a _____
(hence a lower concentration of water)
 - **“Salt Sucks”**

Tonicity = the measurement of _____ on either side of a membrane.

The tonicity of a cell's environment affects the rate of osmosis (movement of water) across the cell membrane.

Hypertonic Solution	Hypotonic Solution	Isotonic Solution
<ul style="list-style-type: none"> • Has a _____ solute concentration compared to the cell • When a cell is placed in this type of solution, water will _____ _____ to achieve an equal concentration of solute inside and outside the cell. • This causes the cell to _____ 	<ul style="list-style-type: none"> • Has a _____ solute concentration compared to the cell • When a cell is placed in this type of solution, water will _____ _____ to achieve an equal concentration of solute inside and outside the cell. • This causes the cell to _____ 	<ul style="list-style-type: none"> • Has a _____ solute concentration compared to the cell • When a cell is placed in this type of solution, water will _____ _____ to achieve an equal concentration of solute inside and outside the cell. • This causes the cell to _____

Active vs. Passive Transport

- **Passive Transport**

- _____
- Substances naturally move from areas of _____ to _____
- _____ are examples of passive transport

- **Active Transport**

- _____
- Substances are transported from areas of _____ to _____
- _____ is an example of active transport

Cell Membrane Transport WS

1. A solution is made up of a solute and a solvent. What is the difference between solute and solvent?
2. A Plant cell which contains 68 percent water, 2 percent salt, and 30 percent other materials is placed in a solution which contains 70 percent water, 1 percent salt, and 29 percent other materials. How would you describe the solution in which the cell has been placed?

Hypotonic

Hypertonic

Isotonic

Justify your answer.

3. Draw a picture that best represents the above situation in the space below. Draw arrows in the picture depicting the direction the water will flow.



4. Two students received two different solutions. One solution was distilled water. The other was a salt solution with concentrations of salts slightly greater than that of a living cell. The solutions were labeled X and Y, respectively. They were instructed to place some fresh-water protozoans in each of the solutions and to identify the solutions on the basis of their observations. The protozoans in solution X shriveled. Those in solution Y swelled up and burst.

a. Identify solution X and Y as hypertonic, hypotonic, or isotonic. Justify your answer.

b. Based on the results of the experiment which solution was salt water? Explain your answer.

5. How do the results of the experiments described in 2 and 4 show the importance homeostasis in cells?

6. List two differences between passive and active transport.