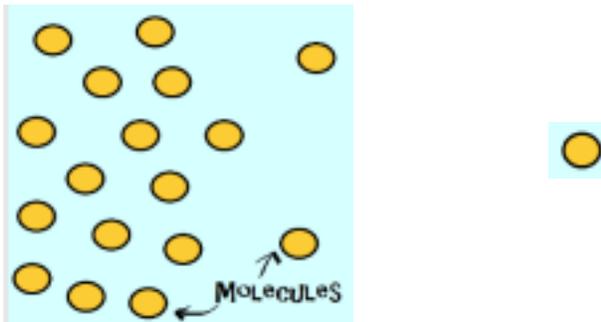


Amoeba Sisters Video Recap of *Osmosis*

1. The below picture represents **diffusion** of molecules. Place the following labels in the diagram: **high concentration**, **low concentration**, and an **arrow** showing the direction that the molecules would travel before equilibrium is reached.

High Concentration — — — — — > Low Concentration



2. **Osmosis** is a type of diffusion, but it involves the movement of water. Similar to diffusion, osmosis is the movement of molecules (water molecules if osmosis) from a high concentration to a low concentration.

The video clip explains that you can also look at water as moving to a **HIGHER** concentration of **solute** molecules.

Why can it also be viewed this way?

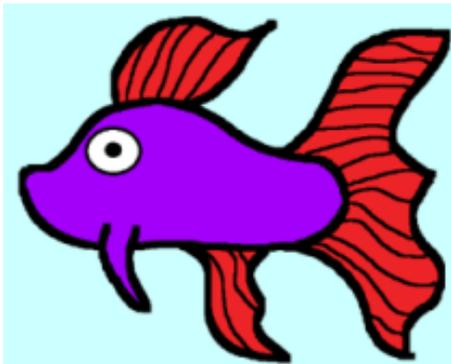
It is viewed this way because solutes are usually dissolved in solvents like water – water molecules will move toward higher solute concentrations to help equalize a solution so that there is an equal ratio of water molecules to whatever solute (sugar, salt, etc)

3. **Osmosis Scenario:** The video clip mentioned a disaster scenario of a saltwater fish being placed in fresh water. What would occur if, instead, a freshwater fish was placed in saltwater?

Your answer needs to have an **arrow** indicating the direction of water flow in osmosis, a label for

“hypertonic,” and a label for **“hypotonic.”**

The freshwater fish would be placed into a **“HYPERtonic”** solution compared to that of its cells. The water from its cells would move toward the saltwater concentrate, therefore causing its cells to shrink from trying to equilibrate.



4. **Osmosis Scenario:** Fluid movement into the brain after traumatic brain injury can result in dangerous brain swelling.

One treatment that can be used in some of these cases is adding a **HYPERTONIC** saline. You need to decide whether this blank should be the word hypertonic or hypotonic. Remember, you are trying to reduce the excessive fluid in the brain.

Explain your answer:

The hypertonic solution would draw fluid out of the brain and reduce swelling. Molecules move from areas of low solute concentration to high solute concentration.



The Gummy Bear Mystery

<p>Do you like gummy bears? We do! They are one of our favorite snacks, though we (try to) eat them in moderation because they are high in sugar. Consider that your sister is in a foul mood and decides to dump your gummy bears in your ice water about 30 minutes before you get home.</p> <p>The gummy bears are greatly enlarged by the time you get home! Your sister and some friends have different viewpoints for what happened. Draw a diagram below showing the enlarged gummy bears in a cup of water. Place the labels “hypertonic” and “hypotonic” in your diagram. One label should be for the gummy bears and one label should be for the water.</p> <p>5.</p> <p>Hypertonic</p>  <p>Hypotonic</p> 	Viewpoints:	<p>6. Whose viewpoint is correct in the viewpoint column? A good answer has a good defense! Defend your answer, and also give reasons why the other explanations are incorrect.</p> <p>B is correct because water moves to areas of higher solute concentration, making the gummy bears hypertonic compared to that of water.</p> <p>A is incorrect because if the sugar had moved out of the gummy bear to the water, the gummy bears wouldn't have swelled/enlarged.</p> <p>C is incorrect because water does not contain sugar molecules and does not move into areas of lower concentration.</p> <p>D is incorrect because osmosis is the movement of molecules from lower to higher concentrations – and the gummy bears would have to be hypertonic for the water to move into them.</p>
	<p>A) Your sister said that the sugar left the gummy bears, because the gummy bears were hypertonic compared to the water.</p>	
	<p>B) Your friend Joe said that water traveled into the gummy bears, because the gummy bears were hypertonic compared to the water.</p>	
	<p>C) Your friend Suzy said the sugar went into the gummy bears, because the gummy bears were hypotonic compared to the water.</p>	
<p>D) Your friend Will said that water traveled into the gummy bears by osmosis, because the gummy bears were hypotonic compared to the water.</p>		

These red blood cells have all been placed in different solutions! Based on their appearance after being placed in these solutions for a period of time, place on each line (A) for **hypertonic**, (B) for **hypotonic**, or (C) for **isotonic**.

7. The cells are **HYPERTONIC** compared to the **HYPOTONIC** solution.

SWELLING



8. The cells are **HYPOTONIC** compared to the **HYPERTONIC** solution.

SHRINKING



9. The cells are **ISOTONIC** compared to the **ISOTONIC** solution.

Stable



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