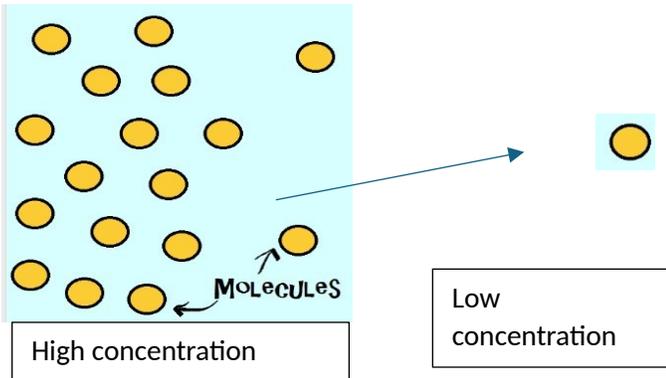


Amoeba Sisters Video Recap of Osmosis

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.



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?

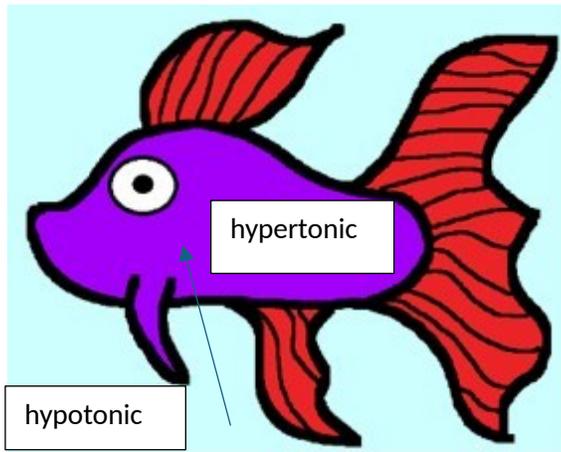
Osmosis can be viewed this way because if there are MORE solute molecules, than there is less room for water molecules. So with osmosis, it tries to equal out, going to where there is less water molecules, which would be more solute molecules.



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**.”



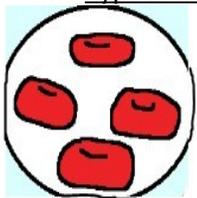
4. **Osmosis Scenario:** Fluid movement into the brain after traumatic brain injury can result in dangerous brain swelling.

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:

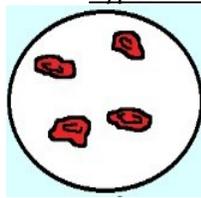
We would give a hypertonic saline solution to encourage osmosis and bring the increased water in the brain to the lower concentration of water, carrying the fluid from the brain to other areas.

7. The cells are hypertonic compared to the hypotonic solution.



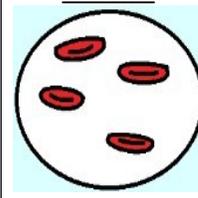
SWELLING

8. The cells are hypotonic compared to the hypertonic solution.



SHRINKING

9. The cells are isotonic compared to the isotonic solution.



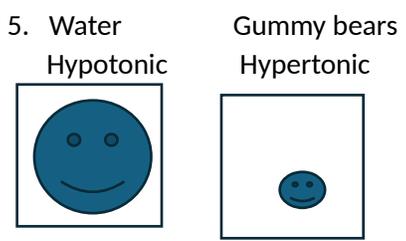
STABLE

The Gummy Bear Mystery



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.

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.



Viewpoints:

- A) Your sister said that the sugar left the gummy bears, because the gummy bears were **hypertonic** compared to the water.
- B) Your friend Joe said that water traveled into the gummy bears, because the gummy bears were **hypertonic** compared to the water.
- C) Your friend Suzy said the sugar went into the gummy bears, because the gummy bears were **hypotonic** compared to the water.
- D) Your friend Will said that water traveled into the gummy bears by osmosis, because the gummy bears were **hypotonic** compared to the water.

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.**

Out of the four viewpoints, Will is most correct. This is because the gummy bears were hypertonic compared to the water they were placed in. The gummy bears swelled due to osmosis and the water traveling to the lower concentration of water since the gummy bears were hypertonic meaning they had more solute molecules. This means that Will is wrong as he states the gummy bears were hypotonic, and the other friend and sister are wrong because in their viewpoint they are stating that the sugar is leaving the gummy bears. Osmosis is the traveling of water molecules, not sugar so this proves them incorrect.

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