Jay

Nov. 6, 18

Sci

Mr. Ewert

**Gummy vs Diffusion vs Osmosis**

**Question:** How will fresh water and then salt water affect a gummi bear when soaking overnight?

Materials

* Gummy bears (4)
* Beaker
* ¾ cup water
* Digital scale
* Copy of the Gummy Bear Lab (from Mr. E)
* Pencil and paper
* Salt

**Procedure**: See the Gummy Bear Lab (attached)

**Hypothesis**:

* Fresh water: I think that the gummy bear has some water in it but in a lower concentration than the actual water. I know that water tends to diffuse from a higher concentration to a lower concentration. If the conc. In the water is higher then it makes sense that the water will diffuse across the membrane of the bear (osmosis). This will continue until the bear achieves osmotic balance (or an equilibrium of water concentration). This means that the water in the bear and outside of the bear has an equal concentration of water (like molecules per square mm((density))). This will likely make the Gummy take on mass (water) and get taller and wider.
* Salt water: I know that I float in salt water higher than in fresh water. This indicates that the salt water may be more dense than fresh. Perhaps that means it is more dense. So, I think that maybe the water will still diffuse through osmosis but that once osmotic balance is achieved it will be even larger than before since it is now full of even heavier water.
	+ Or, the salt will serve the draw the fresh water out of the bear. I think this because I know that salt tends to absorb water

**Results:** See the gummy bear handout

**Observations:**

* I noticed that on day 2 the gummy was really “gummy” and fragile. Maybe that’s because the extra water was deteriorating it from the inside out. I know that gelatine with too much was starts to “un-form” or destabilize. Maybe the water is breaking down all the chemical bonds.
* I noticed that the bears shrunk down a bit from day 2 to day 3. It appears that the salt solution of water seems to have pulled water out. There must have been a negative gradient from in to out. This must mean that there was a higher concentration of water inside the bear than outside at that point.

**Conclusion:**

 In review it appears that my first hypothesis about the fresh water was correct: that the concentration of water outside of the bear was greater than the concentration of water inside the bear. This made a negative gradient from outside to inside.

* Revisit hypothesis – right wrong and why
* What did I learn?
* Explain all our observations