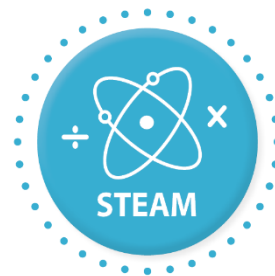


#NCScconnects Summer Camp Activity

Activity: Egg Diffusion

Category: STEAM

Suggested Grade Level: Grades 4-12



Description: In this experiment, little scientists will see how chemicals, including water, move across our bodies to keep us alive. Movement within the cell occurs by a process known as **Diffusion**. Molecules move across the cell membrane by a related process known as **Osmosis**.

Osmosis is the movement of molecules down a concentration gradient and at the same time across a membrane. Cell membranes do not allow all molecules to cross them. Only certain molecules can cross the membrane into or out of a cell. For example, water can cross the membrane while sodium and chlorine ions (dissolved salt) cannot.

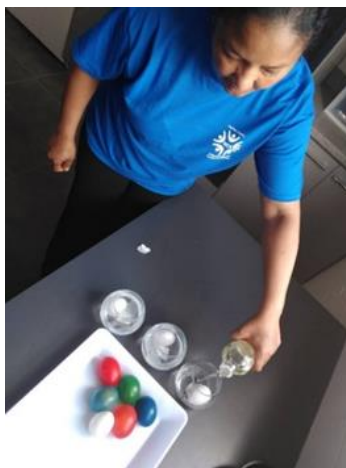
If there is a concentration gradient across the membrane – meaning there is more salt and less water on one side than on the other – water will move across the membrane down the concentration gradient, while the salt cannot. If there is more salt and less water inside a cell than outside, water will flow into the cell from the surrounding environment. This process is called osmosis.

Supplies:

- 3 eggs (same size)
- 3 clear jars
- Vinegar
- Water
- Sugar syrup
- Food coloring (optional)

Instructions:

1. Place an egg in each jar.
2. Add water to the first jar.
3. Add sugar syrup to the second one.
4. Add vinegar to the third one.
5. You may add food coloring to all jars if you choose (use a different color for each).
6. Leave the jars for 48 hours (about two days) and then check them. What do you see?





New Vocabulary

- **Cell:** The smallest unit of life.
- **Cell Membrane:** A barrier that separates the inside of all cells from the outside environment.
- **Molecules:** A group of atoms.
- **Diffusion:** The movement of molecules in and out of the cell. The molecules move from the side of the cell membrane (barrier) that has more molecules to the side with less molecules.
- **Osmosis:** The diffusion of water (the movement of water in and out of the cell).
- **Concentration:** The ration of solute in a solution to either solvent or total solution.

Takeaways: Osmosis is when water moves from one side of a barrier that has more water to the other side of a barrier that has less water.