

## Hands on Chemistry Activity 2

**Topic:** Osmosis

**Learning Objective:** Students will learn what the process of osmosis and the different ways it interacts with water.

### Alignment with NGSS Grades 3-5

Science and Engineering Practices

Analyzing and Interpreting Data Grades 3-5

- Analyze and interpret data to make sense of phenomenon, using logical reasoning, mathematics, and/or computation.

Constructing Explanations and Designing Solutions Grades 3-5

- Use evidence to construct or support an explanation or design a solution to a problem.

### Materials:

- Potatoes
- Gummy bears
- Salt
- Water

### Detailed Description

- Activity
  - At the end of a class session, students will prepare two osmosis demonstrations.
  - The class will have two potatoes, each sliced in half, and put into dishes containing water, salt water, nothing, and water with another additive of choice.
  - Each student will then receive 4 gummy bears and the same will be done with the gummy bears.
  - The dishes will be left overnight to let the process of osmosis to follow to completion.
  - The following day the results of the potato experiment will be observed. Was there any change in shape? Color? Size?
  - The students will compare the results of the potato with the results of their individual gummy bear experiment.
- Osmosis is the process by which any particles in a solution move from an area of high concentration to low concentration. The test subjects submerged in water would have taken in water, since they contain less water inside them than the concentration of water inside them. The subjects in salt water would have taken water out the subject to

make the concentration of water in the subject the same as the concentration salt water outside.

- Conclusion
  - The process of osmosis is the reason placing salt water fish or freshwater fish in different water can be deadly to them. Osmosis would cause water to exit or enter the fish if the concentrations differ too much from their usual environment.

**What science process skills will this lesson exercise?**

Students plan and perform their osmosis experiment to receive the results the next day. Students observe and compare the results from their group experiment to their individual experiments.

**Safety precautions**

None