



### **Diffusion Description:**

Explore what candy and semiconductors have in common! Diffusion is the movement of molecules from areas of high concentration to low concentration. Candy is a high concentration of sugar and coloring, when placed in water, the molecules will gradually try and move towards the plain water. With microchips, we can expose a semiconductor like silicon to gas or liquid containing other elements to chemically alter the composition of the wafer.

**Lesson Plan.** Diffusion! Exploring the science behind conductivity

**Grade Level:** 6<sup>th</sup>-8<sup>th</sup>

**Subject:** Science and Technology

### **Materials:**

- Candy coated candies
- Plate
- Water
- Timer

### **Essential Question:**

1. How is diffusion used in manufacturing semiconductors?

### **Before viewing:**

### **Introduction:**

1. Explain to students that they will be exploring an engineering process called diffusion. Diffusion is used to manufacture semiconductors to alter the conductivity, or how freely electrons move, across specific spots on the microchip.



## **Diffusion Experiment**

**Materials needed:** candy coated candies, water, plate, timer

Set- up Instructions:

1. Distribute materials: candy coated candies, water, plate, timer
2. Ask students to predict what will happen when they add the water to the plate.  
What will it look like?

## **Conduct Experiment:**

1. Place the candy around the edge of the plate in a circle, making a pattern of colors.
2. Pour the water in the center of the plate until it is just touching the bottom of the candy.
3. Set a timer for 5 minutes and observe what is happening with the water and the candy.

## **Reflective Discussion:**

1. Ask students if the experiment look as they predicted? Were they surprised?
2. This experiment allowed us to see how diffusion is used in making semiconductors.  
What other molecules can diffuse in solids or liquids?