

# Diffusion Lab

**Introduction:** In this lab you will observe the diffusion of a substance across a semi permeable membrane. Iodine is a known indicator for starch. An indicator is a substance that changes color in the presence of the substance it indicates.

## **Procedure:**

1. Fill a plastic baggie with a teaspoon of corn starch and a half a cup of water. Tie the bag. (This may already have been done for you)
2. Fill a beaker halfway with water and add ten drops of iodine.
3. Place the baggie in the cup so that the bag and cornstarch mixture is submerged in the iodine water mixture.
4. Wait fifteen minutes and record your observations in the data table
5. While you are waiting, answer the questions.

## **Questions:**

1. Define diffusion
2. Define osmosis
3. What is the main difference between osmosis and diffusion?
4. Why is iodine called an indicator?
5. Molecules tend to move from areas of \_\_\_\_\_ concentration to areas of \_\_\_\_\_ concentration.

## **What is in the Bag?**

We are going to think about concentrations now, which substances are more or less concentrated depends on which one has the most stuff in it.

1. Is the baggie or beaker more concentrated in starch?
2. Is the baggie or beaker more concentrated in iodine?
3. Iodine solution: is the baggie or the beaker hypertonic?
4. Starch solution: is the baggie or the beaker hypertonic?
5. Which one is hypotonic in relation to starch, baggie or beaker?

## **Make Some Predictions**

1. If the baggie was permeable to starch, which way would the starch move, into the bag or out of the bag?
2. If the baggie was permeable to iodine, which way would the iodine move, into or out of the bag?

3. If the baggie was permeable to iodine, what color would you expect the solution in the baggie to turn? \_\_\_\_\_  
What about the solution in the beaker? \_\_\_\_\_

4. If the baggie was permeable to starch, what color would you expect the solution in the baggie to turn? \_\_\_\_\_  
What about the solution in the beaker? \_\_\_\_\_

5. Make a prediction about what you think will happen:

### Data Table

	<u>Starting Color</u>	<u>Color after 15 minutes</u>
Solution in Beaker		
Solution in Bag		

### Post Lab Analysis

1. Based on your observations, which substance moved, the iodine or the starch?

2. How did you determine this?

3. The plastic baggie was permeable to which substance?

4. Is the plastic baggie selectively permeable?

5. Sketch the cup and baggie in the space below. Use arrows to illustrate how diffusion occurred in this lab.

6. What would happen if you did an experiment in which the iodine solution was placed in the baggie, and the starch solution was in the beaker? Be detailed in your description.

7. Why is it not a good idea to store iodine in a plastic bag?