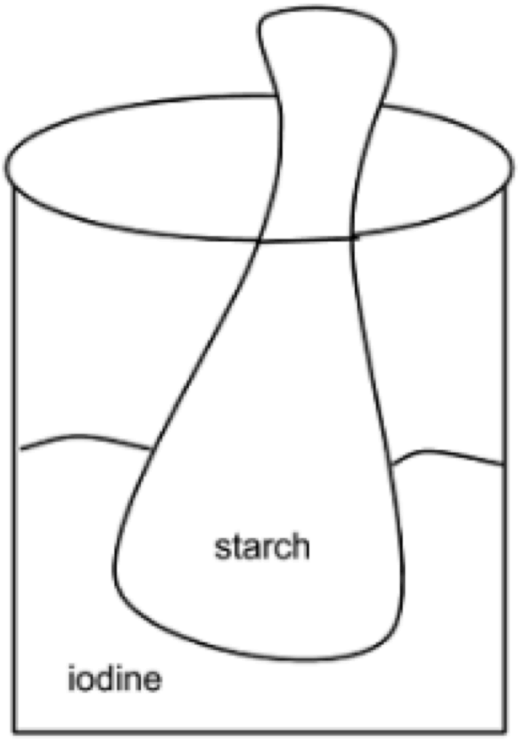
How Can Diffusion Be Observed Across a Semipermeable Membrane?



Introduction: In this lab, you will observe the diffusion of a substance across a semipermeable membrane. Iodine is a known indicator for starch. An indicator is a substance that changes color in the presence of the substance it indicates. Watch as your teacher demonstrates how iodine changes in the presence of starch. You are responsible for completing the areas marked in **red** on a separate piece of paper.

Pre-lab Observations: Describe what happened when iodine came into contact with starch.

Procedure:

1. Fill a plastic baggie with **100 mL of water**. Add 1 **tablespoon** of cornstarch and mix. Zip the bag. Try to get all the air out.
2. Fill a beaker with **150 mL** of water and add **100 drops** of iodine. Briefly mix.
3. Place the baggie in the cup so that the 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 on your separate sheet of paper.

Questions:

1. Define diffusion. _____

2. Why is iodine called an indicator?

_____

3. Molecules tend to move from areas of _____ concentration to areas of _____ concentration.

What's in the Bag?

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

1. Which is more concentrated in starch? [beaker / baggie]

2. Which is more concentrated in iodine? [beaker / baggie]

Make Some Predictions

1. If the bag is permeable to starch, which way would the starch move? [into bag /out of bag]

2. If the bag is permeable to iodine, which way would the iodine move? [into bag /out of bag]

Observations

Write your observations in the table below:

	Starting Color	Color after 15 minutes
Solution in Beaker		
Solution in Bag		

Post Lab Analysis

1. Based on your observations, which substance moved, the iodine or the starch? How did you determine this?

2. The plastic baggie was permeable to which substance?

3. Explain how the bag is a model for the cell.

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

5. 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.

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