

Name:

Date:

Period:

Bioskills: Diffusion Lab

Background: Diffusion is the word we use to describe how liquid or gas particles move apart over time. Particles move from where they are concentrated (or high in number) to where there are few. In general, particles of gas and liquid move until they are equally spread out, or have reached equilibrium. Some examples of diffusion include how a drop of dye spreads in a glass of water without stirring, and why you can smell perfume from someone across the room.

In this lab, we will examine how iodine diffuses in water. Iodine is a very small molecule that is normally brownish orange in color. Sometimes doctors use it on cuts or scrapes to prevent infection. Iodine is also a starch indicator, and changes color when it touches starch. Starch is a type of carbohydrate, or sugar molecule, that is found in potatoes, bread, pasta, rice, corn, and many other 'starchy' foods.

We will place starch and water in a plastic bag, tie it off, and place it in a beaker with water and iodine. We will examine how iodine moves through water and whether or not it can move through the plastic bag.

Purpose:

After reading the background, complete the following sentences...

The purpose of this lab is to:

We will do this by:

Hypothesis:

A hypothesis is a prediction about what you expect to happen. Select a hypothesis below:

Hypothesis 1: " In this lab, iodine will be blocked by the plastic bag."

Hypothesis 2: "In this lab, iodine will move into the plastic bag"

What evidence will prove your hypothesis correct?

Materials

2 250ml beakers

1 50 ml graduated cylinder

2 plastic bags

2 tablespoons of starch

Iodine

Water

Prelab Questions:

Read through the entire lab before answering these questions.

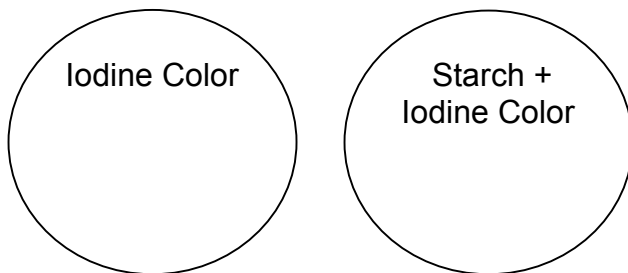
1. Which experimental set up is the control?
2. What color does iodine turn when it touches starch?
3. Where does the starch go in this lab set up?
4. Where does the iodine go in this lab set up?
5. Draw a picture of your lab setup here, and label the parts:

Procedures

1. Put a pinch of starch on a spot plate. Add two drops of iodine in an empty spot, and two drops onto the cornstarch. Record your observations in the circles of your data table section.
2. Get two beakers. Label one "A" and the other "B"
3. Fill both beakers with 200 mls of water
4. In one plastic bag, add 50 mls of water. Tie the bag closed and place in beaker "A"
5. In the second plastic bag, place 1 tablespoon of starch and 50 mls of water.
6. Tie the bag securely shut, and 'mash' the cornstarch and water together.
7. Place the cornstarch and water bag into beaker "B"
8. Add 5 mls of iodine solution to beakers A and B.
9. Record your observations in the 'start' section of your data table.
10. Wait 30 minutes, then record your observations in the "end" section of your data table.
11. Follow teacher directions for clean up.

Data Table: Record qualitative observations in the data tables below

Spot Plate Test:



Beaker A	Beaker B
Starting Observations	Starting Observations
Ending Observations	Ending Observations

Analysis Questions: Record the questions and answers into your lab notebook.

1. Describe what happened to the iodine in the beaker.
2. Describe what happened inside of the two sandwich bags.
3. Did the plastic sandwich bag act as a barrier to iodine? How do you know?
4. Did the plastic sandwich bag act as a barrier to starch? How do you know?
5. Do you think water was able to move through the plastic bag? What kind of test would you do to find out?

Conclusion: Write the conclusion in your lab notebook as the last part of the lab.

A scientific conclusion is an objective discussion of the results. By the end of the year, you will be expected to write your own conclusions. For the first few labs, please complete these sentence prompts to write your conclusion.

- Our lab group achieved the purpose of this lab by
- My hypothesis was
- This hypothesis was proved correct/ incorrect because....
- Iodine by itself is _____ in color. It turns _____ in the presence of starch.
- In our results, the baggie containing the cornstarch and water...
- Then, the baggie containing just water
- The purpose of the control was....
- The main ideas we explored in this lab were.....