Name: _____ Class: _____ Date: _____

Osmosis and Diffusion

Learner Outcomes:

- Describe the movement of gases and liquids into and out of cells during diffusion and osmosis based on concentration differences.

Key Terms:

Osmosis	Concentration gradient	Selectively permeable
Diffusion	Cell membrane	Indicator

Background Information: 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. In this case, iodine turns from yellow to dark purple when it reacts with starch.

Research Question: How do we observe osmosis in action through a selectively permeable membrane?

Hypothesis:

Materials:

Iodine	Disposable (food
Cornstarch	grade) gloves
Beaker (400 ml)	Water

Procedure:

1. Put one drop of iodine in a beaker half filled with room temperature water. Record your observations.
2. Fill a disposable plastic glove with one level teaspoon of corn starch and enough water to fill the fingers of the glove. Tie glove shut.
3. Add 20 more drops of iodine to the beaker.
4. Place the glove in the beaker so that the cornstarch mixture is submerged in the iodine water mixture.
5. Wait 15 minutes and record your observation in the data table.
6. Repeat steps 1-4 with the starch in the beaker and the iodine in the glove.

Observations:

Iodine drop in water:

Title: _____

	Starting color	Color after 15 minutes	What moved where?
Glove with starch			
Beaker with iodine			
Glove with iodine			
Beaker with starch			

Analysis:

1. What is the main difference between osmosis and diffusion?

2. Why is iodine called an indicator?

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

4. If the glove was permeable to starch, which way would the starch move and what color would the solution in the beaker be?

5. If the glove was permeable to iodine, which way would the iodine move and what color would the solution in the beaker be?

6. Which substance moved across the glove membrane? How do you know?

7. Does this experiment illustrate osmosis or diffusion? Explain.

Conclusion:

Extension:

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

2. After completing this lab, what are your thoughts about disposable plastic gloves that are used in food handling and preparations?

3. What substances would living cells be permeable to?

4. Investigate how gases are transported across a semi-permeable membrane. Give a specific example of gas transport in a living organism.