

Osmosis Inquiry Lab

Objective:

Students will observe the qualitative effects of osmosis in plant cells and will quantitatively measure the rate of osmosis in potato slices. This should help you, the student, understand how cells maintain homeostasis with the aid of organelles like the cell membrane and cell wall. This will also help you, the student, learn how to create and design an inquiry lab.

My Group Members' Names/Contact Information (no more than 4 in a group)

1.

2.

3.

Background:

The plasma membrane is a selectively permeable barrier around cells that allows some molecules to pass while restricting others. WE have learned that, in general, large molecules and charged molecules/ions cannot freely pass through the membrane while small, uncharged molecules can. Diffusion occurs when molecules move down a concentration gradient, from an area of high concentration to an area of low concentration. Osmosis is the diffusion of water across a selectively permeable membrane.

For this lab, I have 3 sucrose (sugar) solutions: one is 7% sugar, one is 15% sugar, and one is 30% sugar, each solution is a different color. I will also have distilled water available. Your table is to design a lab that will determine which colored sugar solution is the 7%, 15%, and which is the 30% solution. To do this you will cut out pieces of potatoes-potatoes consist of cells and can be used to model the transport across membranes (think of the potato pieces as giant cells).

Helpful Hints for You:

Purpose:

Hypothesis:

Name: _____ Period: _____

Materials:

List the materials you will be using (with Quantities):

Procedure:

Write a step-by-step procedure that you will use to carry out your lab experiment. Be as detailed as possible so that ANYONE can read our procedure and perform this lab! Should have at least 10 steps.

Data:

You will need to show your data in both a table and a graph. Make sure to include quantitative and qualitative data.

Analysis of Results:

- Restate the purpose of the lab and your hypothesis
- Write a CER that explains your findings from this lab. Specifically,
 - Your claim should tell me which solution was the 7%, which was the 15% and which was the 30% sucrose solution.
 - Your evidence is the data you collected in the lab (quantitative and qualitative)
- Discuss possible sources of error and anything unusual that may have happened that could have affected your results.

***Create a PowerPoint/google slide presentation for your Analysis of Results**

You will have one presentation for your entire group.

Presentations need to be to Mrs. Bosna by _____.