

## Egg Osmosis Lab

Name:

Partner's name:

Objective: To observe osmosis in a cell

### Background Information:

Osmosis is the diffusion of water across a selectively permeable membrane. This means that water can go through membranes from areas where there are a lot of water molecules to areas where there are not so many water molecules. To perform their functions, cells must keep an internal steady state even when the environment outside of the cell is changing. This steady state is called homeostasis. Homeostasis maintained in part by controlling the movement of materials into and out of the cell. To achieve this control, cells are surrounded by a membrane that can tell different substances apart, and can slow down or stop the movement of some substances while allowing others to pass through freely. Because not all substances can go through the cell membrane equally well, the membrane is said to be differentially, or selectively permeable.

Selectively permeable membranes are those that have openings called pores that let water, oxygen, carbon dioxide and certain other small molecules go through the membrane. Cells in the human body need a constant supply of oxygen and water. They are also making carbon dioxide as a waste, and this needs to be removed from the cell. These substances can move into and out of a selectively permeable membrane around a cell through the process of osmosis.

### Materials:

- 2 raw eggs
- Vinegar
- Graduated cylinder
- Syrup
- Water
- Balance

### Procedure:

#### *Day 1 – Dissolving the egg*

1. Dissolve your eggs in vinegar. Record your observations.

#### *Day 2 – Observing the egg*

1. Carefully rinse your egg under running cold water, and damp dry. Use the balance to find the mass of your egg.
2. Observe the eggs. Record your observations. You may use your cell phone to take a picture of the egg for your lab report.
3. Put 1 of the 2 eggs in another clean beaker/cup and pour enough syrup to cover the egg. (Try to conserve the syrup for others)
4. Put your 2<sup>nd</sup> egg into a separate beaker/cup and pour enough water to cover the egg.
5. Set the beakers aside AND clean up

Day 3 – Weighing the egg

1. Observe the egg. Record your observations. You may use your phone to take a picture
2. Use the spoon to remove the egg from the beaker. Be EXTREMELY careful. The egg is still very, very fragile.
3. GENTLY rinse the eggs and find its mass of each. Record.
4. Now reverse the order by placing the egg that has been in the syrup in the water solution and the egg that has been in the water solution into the syrup. Set aside.

Day 4 – Weigh and observe.

1. Rinse and dry your eggs and weigh on the balance. Record.

INTRODUCTION

In this section, you are to write a brief description of what the experiment is about, what you are trying to investigate, and the expected results of the experiment:

DATA:

Egg A: Mass before submerging into solutions \_\_\_\_\_ g.

Egg B: Mass before submerging into solutions \_\_\_\_\_ g.

Egg A: Mass AFTER submerging into WATER \_\_\_\_\_ g.

Egg B: Mass AFTER submerging into SYRUP \_\_\_\_\_ g.

Egg A: Mass AFTER submerging BACK into SYRUP \_\_\_\_\_ g.

Egg B: Mass AFTER submerging BACK into WATER \_\_\_\_\_ g.

The mass difference of Egg A after submerging into water: \_\_\_\_\_ g

The mass difference of Egg A after submerging into syrup from original mass:  
\_\_\_\_\_ g

The mass difference of Egg B after submerging into syrup: \_\_\_\_\_ g

The mass difference of Egg B after submerging into water from original mass:  
\_\_\_\_\_ g

# OBSERVATIONS

What did you observe? (In this section, write down all your observations in a descriptive manner. Illustrations are encouraged).

# CONCLUSION

In this section, you are to wrap up the experiment by writing a descriptive conclusion about the experiment. You are to start the conclusion by describing what the experiment is about, the theory behind the experiment, and relating the actual results with the expected results. Finally, conclude by explaining what the outcome of the experiment and how it relates to real life applications.