

# Osmosis and Diffusion Egg Lab

Name: \_\_\_\_\_ Partner: \_\_\_\_\_

## Objectives:

- Observe osmosis across the membrane of an egg.
- Measure the amount of liquid that moves across the cell membrane of the egg.

## Key Words to Define:

1. cell membrane:

\_\_\_\_\_

2. diffusion:

\_\_\_\_\_

3. osmosis:

\_\_\_\_\_

4. graduated cylinder:

\_\_\_\_\_

## Materials:

10 oz plastic cup

200 ml vinegar

200 ml clear syrup

egg

## Procedures

### Lab Day 1

1. Using the masking tape and permanent marker, label the plastic cup with your names and “vinegar.”
2. Carefully look at the egg.
3. Note the appearance of the eggshell and write your observations on the *Observations* section of the lab sheet.
4. Using your pencil, trace the egg in the space provided on the *Drawings/Dimensions* section of the lab sheet.
5. Using the centimeter side of the ruler, measure the length and width of the drawing to find the dimensions of the egg. Record that information in the space provided.
6. Use the graduated cylinder to measure 200 ml of vinegar. Place the egg in the labeled cup and pour the vinegar on top of it. The vinegar should completely cover the egg. If it does not, talk to Mrs. Hoover.
7. Cover the cup with a lid (1/2 of a Petri dish) and place the cup in the red tray on the teacher’s desk. Leave it undisturbed for 2 days.

8. In the restroom, rinse and dry the graduated cylinder. Show Mrs. Hoover the graduated cylinder so she can inspect it and check it in.

### Lab Day 2

1. Observe what has happened to the egg and the surrounding liquid. You may gently touch the egg with your finger, but do not remove it from the cup because it is so delicate.
2. Write your observations in the space provided in the *Observations* section of the lab sheet.
3. Measure the amount of vinegar left in the cup by pouring the vinegar surrounding the egg into a graduated cylinder. Use your finger to keep the egg from flowing out of the cup. Record the amount in *Table 1* of the lab sheet.
4. In the restroom, gently rinse the cup and egg with water. Be sure to drain all of the liquid from the cup before coming back to class.
5. Gently remove the egg from the cup and pat it dry with a paper towel.
6. Use a brown colored pencil to trace the egg in the space provided on the *Drawings/Dimensions* section of the lab sheet. Put the egg back in the cup.
7. Using the centimeter side of the ruler, measure the length and width of the drawing to find the dimensions of the egg. Record that information in the space provided.
8. Relabel your cup so it now reads "syrup." Pour 200 ml of clear syrup over the egg in the cup. Make sure that the syrup covers the egg.
9. Cover the cup with the lid and place the cup in the red tray on the teacher's desk and leave it for one day.
10. Thoroughly clean and dry the graduated cylinder. Show Mrs. Hoover the graduated cylinder so she can inspect it and check it in.

### Lab Day 3

1. Get a new cup and label it with your names and "water."
2. Gently remove the egg from the syrup cup, being careful to let any syrup or liquid fall back into the cup. In the restroom, carefully rinse and pat dry the egg. Return to the classroom.
3. Observe what has happened to the egg and the surrounding liquid.
4. Write your observations in the space provided in the *Observations* section of the lab sheet.
5. Use a red colored pencil to trace the egg in the space provided on the *Drawings/Dimensions* section of the lab sheet. Put the egg into the NEW cup labeled "water."
6. Using the centimeter side of the ruler, measure the length and width of the drawing to find the dimensions of the egg. Record that information in the space provided.
7. Pour 200 ml of water over the egg in the cup. Make sure that the water covers the egg.
8. Cover the cup with the lid and place the cup in the red tray on the teacher's desk and leave it for 1-3 days.
9. Measure the amount of syrup left in the cup by pouring the syrup that was surrounding the egg into a graduated cylinder. Record the amount in *Table 1* of the lab sheet. Throw away the syrup cup.
10. Thoroughly clean and dry the graduated cylinder. Show Mrs. Hoover the graduated cylinder so she can inspect it and check it in.

#### Lab Day 4

1. Observe what has happened to the egg and the surrounding liquid. You may gently touch the egg with your finger, but do not remove it from the cup because it is so delicate.
2. Write your observations in the space provided in the *Observations* section of the lab sheet.
3. Measure the amount of water left in the cup by pouring the water surrounding the egg into a graduated cylinder. Use your finger to keep the egg from flowing out of the cup. Record the amount in *Table 1* of the lab sheet.
4. Pat the egg dry with a paper towel. Use a green colored pencil to trace the egg in the space provided on the *Drawings/Dimensions* section of the lab sheet. Put the egg back into the cup.
5. Using the centimeter side of the ruler, measure the length and width of the drawing to find the dimensions of the egg. Record that information in the space provided.
6. Thoroughly clean and dry the graduated cylinder. Show Mrs. Hoover the graduated cylinder so she can inspect it and check it in.
7. Take your egg with you to Mrs. Hoover to see if you want to do an extension experiment.