

Name: _____

Date: _____

Gummy Bear Osmosis

Lab #: _____

Purpose: to investigate the movement of water into and out of a Gummy Bear

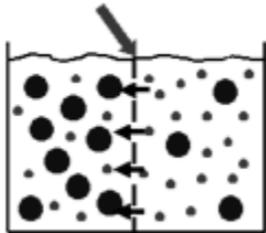
Problem: Where is the concentration of water molecules highest, tap water or salt water?

Background Information:

Molecules are in constant motion, and tend to move from areas of **higher concentrations to lesser concentrations**. **Diffusion** is defined as the movement of molecules from an area of **high** concentration to an area of **low** concentration. The diffusion of **water** molecules through a **selectively permeable membrane** is known as **OSMOSIS**.

Selectively permeable means that some molecules can move through the membrane while others cannot. Movement through membranes is called **transport**. Diffusion and osmosis are **passive** forms of transport; this means that do not need energy to move areas of high concentration to areas of low concentration. **Active** transport requires energy to transport molecules from low concentration to high concentration.

Selectively Permeable Membrane



Osmosis is the movement (transport) of water (small dots) through a selectively permeable membrane from an area of high concentration to an area of low concentration.

Vocabulary: define the following terms

1. **Concentration:**
2. **Diffusion:**
3. **Osmosis:**
4. **Membrane:**
5. **Selectively Permeable:**
6. **Transport:**
7. **Active Transport:**
8. **Passive Transport:**

Answer the following predictions:

QUESTION 1: How will soaking gummy bears in tap water affect the size of the candy?

Prediction: explain your prediction based on your knowledge and the background information

QUESTION 2: How will soaking gummy bears in salt water affect the size of the candy?

Prediction: explain your prediction based on your knowledge and the background information

Materials:

1 beaker with tap water
Ruler

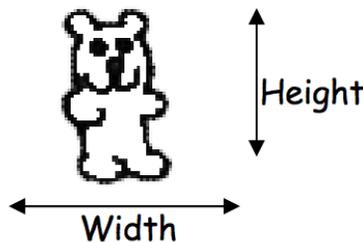
1 beaker with salt water
Scale

Masking tape
Wax paper

Marker
Spoon

Procedure: DAY 1

1. **Label** each of the beakers with one group member's name and class period.
2. Choose one of the colored gummy bear to enter tap water and one to enter salt.
Record which color will enter each solution in the data table on page 3
3. Use the ruler to find the height & width of each bear. **Record your results in the data table on page 3. Round your measurements to the nearest tenth**



4. Use the scale to weigh each gummy bear. **Record your results in the data table under on page 3. Round your answers to the nearest tenth.**
5. Record any other qualitative observations about the gummy bear in the **data table on page**
6. Place one gummy bear into the tap water and the other gummy bear into salt water. Let them sit over night.

Procedure: DAY 2

1. Use the scale to weigh the piece of wax paper. **Record the mass here** _____
2. **GENTLY** take your gummy bear that was in tap water out of the beaker using a spoon and place it on wax paper.
3. Use the ruler to find the height & width of the tap water bear. **Record your results in the data table below. Round your measurements to the nearest tenth**
4. Place the tap water bear on the wax paper and weigh it. SUBTRACT the weight of the gummy bear + wax paper from the wax paper alone.
(bear and wax paper – wax paper alone = mass of bear alone)
Record your results in the data table below. Round your answers to the nearest tenth.
5. Record any observations for the tap water bear **on the data table below**
6. Place this bear aside on a paper towel
7. Follow steps 2-6 for the gummy bear in salt water. **Record the results in the data table below**

DATA TABLE

	TAP WATER		SALT WATER	
	Gummy Bear 1: Color _____		Gummy Bear 2: Color _____	
Measurements	INITIAL: DAY 1 (before soaking in tap water)	FINAL: DAY 2 (after soaking in tap water)	INITIAL: DAY 1 (before soaking in salt water)	FINAL: DAY 2 (after soaking in salt water)
Width (cm)				
Height (cm)				
Mass (g)				
Observations				

Analysis:

1. Which bear(s) served as the control group(s) in this experiment?
2. Which bear(s) served as the experimental group(s) in this experiment?

3. What happened to the bear after soaking it in tap water overnight? Why?

4. What happened to the bear after soaking it in salt water overnight? Why?

5. What do you think would happen to the salt water bear if it was placed back into tap water overnight? Why?

6. Write a short paragraph (about 5 sentences) to explain the results of this investigation using the concept of osmosis. Include specific data to support what you say.