

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

Period: \_\_\_\_\_

### Cell transport lab

#### Part1: Smelly balloons

Objective: Explore how scent molecules are able to diffuse through a selectively permeable membrane.

Procedure: You will have 2 minutes to smell the skin of each balloon. Record the scent you detect in the table below:

Balloon	What do you smell?
Balloon A	
Balloon B	
Balloon C	
Balloon D	
Balloon E	
Balloon F	
Balloon G	

#### Analysis Questions:

1. How do “smells” get out of the balloon?
2. The smell molecules are moving by \_\_\_\_\_ out through the \_\_\_\_\_ in the balloon.
3. The smell molecules are moving from an area of \_\_\_\_\_ concentration to an area of \_\_\_\_\_ concentration.

4. Tell two ways the latex skin of a balloon is like a cell membrane.

a. \_\_\_\_\_

\_\_\_\_\_

b. \_\_\_\_\_

\_\_\_\_\_

## Part2: T3he incredible egg

Objective: Observe changes to an egg, as a model for osmosis.

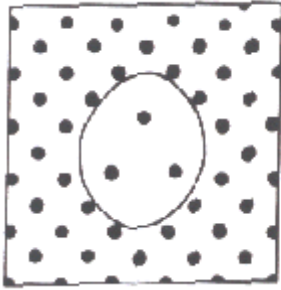
Data table:

Egg	Initial mass (g)	Final mass (g)	Change (final mass – initial mass)
vinegar			
corn syrup			
distilled water			

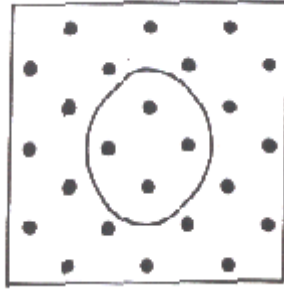
Analysis Questions:

1. What effect did the vinegar have on the eggs?
2. Why did the mass of the egg increase after soaking in the vinegar solution?
3. What caused the change in appearance in the egg after being soaked in corn syrup (in which direction did water move)?
4. What caused the change in appearance in the egg after being soaked in distilled water (in which direction did water move)?
5. What happened to the egg that sat in corn syrup for 2 days?  
Grew bigger                      Shrank smaller                      Stayed same size
6. What happened to the egg that sat in distilled water for 2 days?  
Grew bigger                      Shrank smaller                      Stayed same size
7. The molecule that moved to change the egg size was water. The movement of water across a cell membrane from a region of higher concentration to a region of lower concentration is called \_\_\_\_\_.

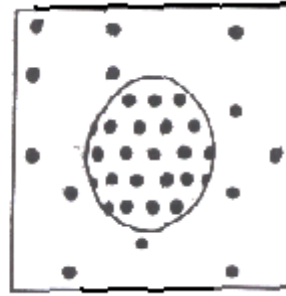
8. USE THE DIAGRAMS BELOW THE ANSWER THE FOLLOWING:  
 (Black dots represent solute in a solution)



A



B



C

Which diagram represents the egg in corn syrup?    A   B   C

Which diagram represents the egg in distilled water?    A   B   C

**Part3: Finding nemo**

Objective: Observe the effects of osmosis on plant cells

Procedure:

1. Place two pieces of eggplant on the paper plate in front of you.
2. Put salt on one of them and leave the other one without any changes.
3. Label the eggplant pieces: “saltwater” and “no water-control.”
4. Make observations every 5 minutes for 20 minutes (use a timer).

Analysis Questions:

1. What happened to the eggplant in salt water?

Grew bigger                      Shrank smaller                      Stayed same size

2. What happened to the eggplant without any water?

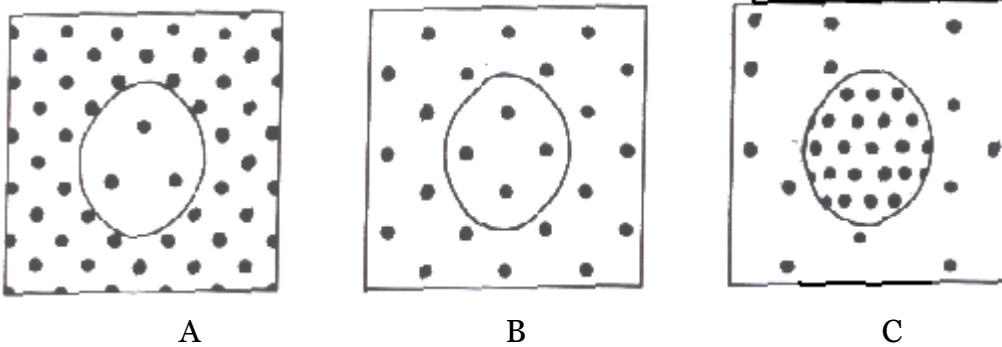
Grew bigger                      Shrank smaller                      Stayed same size

3. I observed \_\_\_\_\_

because \_\_\_\_\_

4. What would happen if we left the eggplant exposed to the salt for a longer period of time?

5. If we place plants in pure water, their cells don't burst. Why not?
6. In the winter time, many plants become severely dehydrated near roads. Explain why.
7. USE THE DIAGRAMS BELOW THE ANSWER THE FOLLOWING:



- a. Which diagram represents the eggplant in salt water?    A   B   C
  - b. Which diagram represents the eggplant with no change?    A   B   C
8. Watch the video titled *Why Nemo wouldn't have survived in a freshwater fish tank*:  
<https://www.youtube.com/watch?v=ELKekMaPo3c>
- a. Did Nemo's body have salt in it?
  - b. Why would Nemo have died in tap water?
  - c. Why do we have to be careful when moving organisms from their natural habitats?

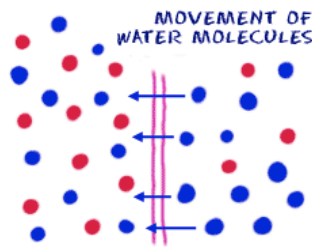
**Part 4: Cell transport review**

Tell how the molecules are moving in examples #1-8 below:

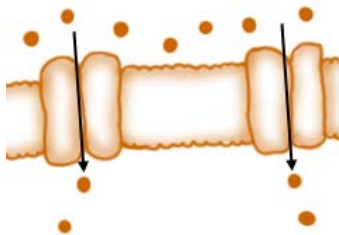
OSMOSIS	DIFFUSION
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1. The student sitting next to you just came from gym class and forgot to shower. \_\_\_\_\_
2. After sitting in the bathtub for hours, your fingers start to look like prunes. \_\_\_\_\_

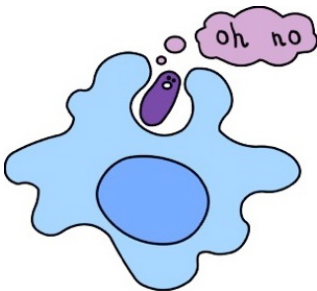
3. The girl sitting two rows ahead of you put on too much perfume this morning. \_\_\_\_\_
4. One way to get rid of slugs in your garden is to sprinkle salt on them, so they dry out and shrivel up. \_\_\_\_\_
5. Yum! Something smells good. The neighbors are cooking on the grill! \_\_\_\_\_
6. Gargling with salt water when you have a sore throat causes your swollen throat cells to shrink and feel better. \_\_\_\_\_
7. Oxygen molecules move from the air sacs in the lungs across the cell membranes into the blood \_\_\_\_\_
8. A Jewel employee sprays water on the veggies in the produce section to “plump them up”. \_\_\_\_\_
9. This diagram is moving from a high to a low concentration: \_\_\_\_\_



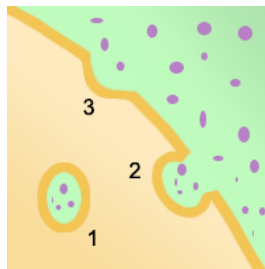
10. Using a transport protein to move particles across the membrane: \_\_\_\_\_



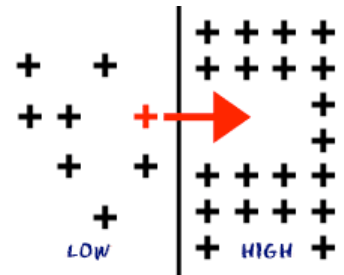
11. Describe the processes occurring in the following pictures:



\_\_\_\_\_



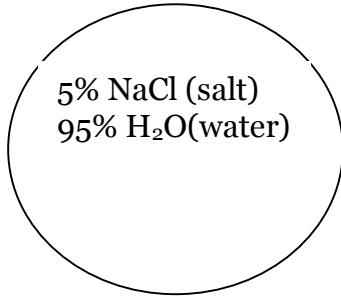
\_\_\_\_\_



\_\_\_\_\_

The diagrams below show the concentration of water and salt inside the cell and the concentration of water and salt surrounding the cell. **Complete the sentences below by comparing the concentration of the water inside the cell and the concentration outside the cell.**

12.

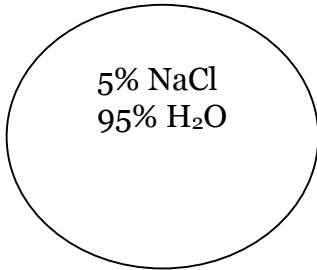


95% NaCl  
5% H<sub>2</sub>O

a. Water will flow \_\_\_\_\_  
(into the cell, out of the cell, in both directions).

b. The cell will \_\_\_\_\_  
(shrink, burst, stay the same).

13.

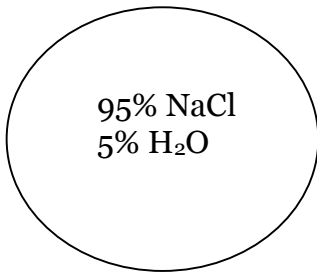


5% NaCl  
95% H<sub>2</sub>O

a. Water will flow \_\_\_\_\_  
(into the cell, out of the cell, in both directions).

b. The cell will \_\_\_\_\_  
(shrink, burst, stay the same).

14.



5% NaCl  
95% H<sub>2</sub>O

a. Water will flow \_\_\_\_\_  
(into the cell, out of the cell, in both directions).

b. The cell will \_\_\_\_\_  
(shrink, burst, stay the same).

15. Label the diagrams of cells using the following terms: diffusion, active transport, osmosis, equilibrium, facilitated diffusion. The arrows show the direction of transport. You may use the terms more than once!

