

OSMOSIS LABS

NAME _____

BLOCK _____

EGG CELL EXPERIMENT

<https://www.youtube.com/watch?v=SSS3EtKAZYc>

1. A _____ solution has a lower concentration of solutes (dissolved substances)
2. _____ is considered a hypotonic solution since it is very low in solutes.
3. A _____ solution has a higher concentration of solutes.
4. Water with a lot of salt is _____ because it is very high in solutes.
5. Salt water can cause _____.
6. _____ membranes allow some substances to leave and some substances to enter a cell.
7. The semipermeable membrane allows _____ to enter and leave the cell but _____ molecules like salt and sugar are too big to pass through.
8. The reaction between vinegar and the egg shell:
_____ + _____ → _____ + _____ + _____
9. When a cell is in a hypotonic solution, water will _____ the cell.
10. When a cell is in a hypertonic solution, water will leave the cell.
11. What happened to the mass of the egg when it went from the corn syrup to the water? Explain.
12. What happened to the mass of the egg when it went from the water to the corn syrup? Explain.

Lab Results:

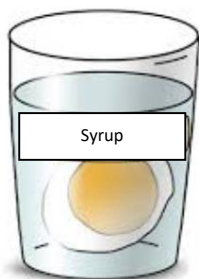
Solution	Egg Initial Mass	Egg Final Mass	Appearance of Egg
A) Vinegar			
B) Syrup			
C) Colored Water			
D) Salt Water			

For Part A:

Write the Reaction that took place to remove the shell from your egg.

_____ + _____ → _____ + _____ + _____

Part B: Egg in Syrup

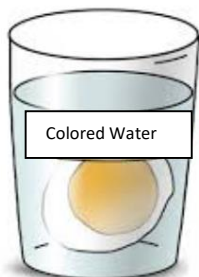


Did the mass of the egg increase, decrease or stay the same?

Which way did the water move through the membrane?

Is the solution hypertonic, hypotonic or isotonic? Explain your reasoning

Part C: Egg in Colored Water

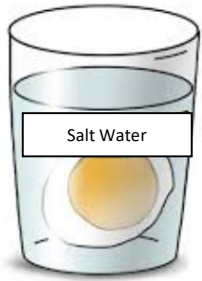


Did the mass of the egg increase, decrease or stay the same?

Which way did the water move through the membrane?

Is the solution hypertonic, hypotonic or isotonic? Explain your reasoning

Part B: Egg in Salt Water



Did the mass of the egg increase, decrease or stay the same?

Which way did the water move through the membrane?

Is the solution hypertonic, hypotonic or isotonic? Explain your reasoning

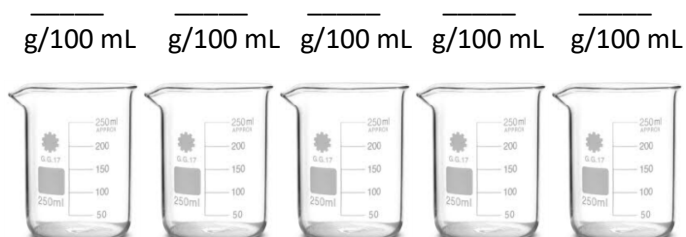
Lab Questions:

1. When the egg is first placed in vinegar, bubbles began appearing around it. What can be inferred about the cause of these bubbles?
2. Use a bar graph to show how each solution affected a change in the egg's mass. (Y-axis for mass, X-axis for solution type, and two bars for each solution: one bar for initial mass and the second bar for its mass after 24 hours)
3. Explain the changes of the egg's mass during each of the four parts in terms of osmosis.

POTATO OSMOSIS

<https://www.youtube.com/watch?v=jTDATlaBV-o&t=124s>

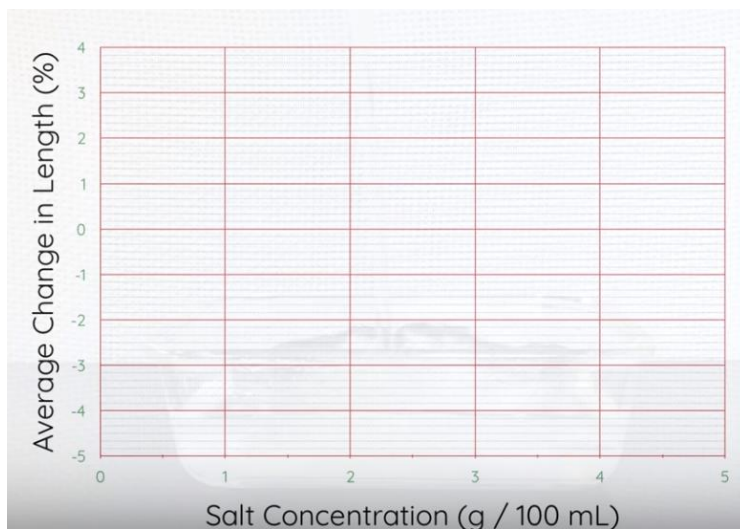
1. What is the original length of each potato core? _____
2. What is the solute in the solutions made in the lab? _____
3. What is the solvent in the solutions made? _____
4. Label the concentrations of each solution in the lab:



5. Fill in the table of results from the experiment:

Salt Concentration g/100 mL	Average Change in Length %
0	
1	
2	
3	
4	
5	

6. Fill in the graph:



7. The lower the salt concentration results in an _____ in the length of the potato strip, meaning the water _____ the potato strip by osmosis. This means the solution is _____.
8. At high salt concentrations, we have a _____ in potato strip length so water has _____ the potato by osmosis. This means the solution is _____.
9. Label the isotonic point on the graph. What does this mean?

Lab Results:

Contents in Beaker	Initial Mass	Final Mass	Mass Difference (initial mass – final mass)	Percent change in mass (mass difference/initial mass)X 100
0.0 M Sucrose				
0.5 M Sucrose				
1.0 M Sucrose				

1. Make a graph of average (%) change in mass vs molarity of sucrose. Using the graph, what is the molarity of the solution that is isotonic with the potato? _____ Explain how you determined this.
2. Label each beaker with the molarity of the sucrose solution and show the net movement of water into or out of the potato strip. Label the solution as being hypertonic, isotonic or hypotonic.

