Diffusion Lab Name: _____

Eggcellent!

Introduction:

All cells contain three basic structures, cell membranes, nucleic acids and proteins. This lab will look at the properties of cell membranes. Because cells are very small, eggs will be used as a convenient substitute. First, the hard shell must be removed with a very weak acid (vinegar). The shell of an egg is made of material that is very similar to your bones and teeth, think about this when you see what happens to the egg after it has been soaked in vinegar. The eggs are raw, so **BE CAREFUL!**

Once the shell has been removed, only the thin membrane below will remain. The eggs will then be placed in different solutions (water or corn syrup) to see how the "cell" responds to different environments and how the "cell membrane" reacts.

Each group must determine which liquid used: One person per liquid.
Distilled Water, Colored Water, Corn Syrup, Vinegar

Purpose: To demonstrate Osmosis and Diffusion using an egg as a model for a cell.
To Visualize Hypertonic, Isotonic, and Hypotonic

Hypothesis: (What is your educated guess about what will happen to your egg in YOUR liquid?):

Procedure:

1. Get a mason jar and write your name on the jars label
2. Determine which liquid YOU will be using and write that on your jars label.
3. Write the names of all your group mates by their liquids in the chart
4. Carefully place the egg in the jar and cover with enough vinegar to cover the egg completely.
5. Place them on the counter by your group sinks
6. Next class: Carefully take the egg out of the vinegar by pouring the vinegar through the strainer and record your observations in the data table.
7. Carefully record the circumference in the data table.
8. Empty the vinegar out into the sink and rinse out your jar.
9. Carefully place the egg back into the jar and cover with your 2nd liquid.
10. Record the type of liquid used and its consistency.

11. Next class: Carefully take the egg out of the 2nd liquid and record your observations in the data table.
12. Carefully record the circumference in the data table.
13. Record any observations of the liquid left in the beak

Data:

DAY 1

Person	Liquid Used	Circumference (mm)	Observations
	Distilled Water		
	Vinegar		
	Corn Syrup		
	Colored Water		
Day 2			
Person	Liquid Used	Circumference (mm)	Observations
	Distilled Water		
	Vinegar		
	Corn Syrup		
	Colored Water		

Graph:

Construct a line graph of circumference of your egg on the y-axis vs. time on the x-axis. Use different color for each variable. Label each line (egg) as hypertonic (loss circumference), hypotonic (gain circumference) or Isotonic (no or very little change in circumference).

Analysis:

Your analysis should have five paragraphs.

1. The first paragraph should have you rewrite your hypothesis: My hypothesis was that egg will .....in the liquid.....
2. The second paragraph, describe what happened to the egg over the course of the experiment. Be sure to include any change in circumference and explain how that change occurred (did water move into or out of the egg). Remember to include all of your observations about the egg.
3. The third paragraph, explain if the egg was isotonic, hypertonic, or hypotonic and Wh The fourth paragraph should explain how the egg in this eggs-periment (get it?!) acts li a cell membrane.
4. The final paragraph should discuss whether or not your hypothesis was correct and ho you would change your hypothesis because of what you learned in this experiment!
    a. For example: My hypothesis was incorrect because I thought my egg would gr in salt water but my graph shows my egg shrunk instead. Next time I would change my hypothesis to: My egg will shrink in salt water because my egg will hypertonic and water will move out of the egg into the beaker from a high concentration to a low concentration.