

Assignment : Cellular Functions

9/23/2015 (Due 9/30)

Writing Assignment: Vocabulary Cards.

This week, you should have received all of your vocabulary cards for chapters 1&2 and you may have gotten some back already from chapter 3. Any cards with a FAC score of 3 or lower need to be revised and turned back in to me by next week. Remember that the FAC score is composed of three numbers. If you have a card with a FAC score of (1, 3, 5) the 1 refers to your definition and you need to revise it, the 3 refers to your sentence, and while you're on the right track, it also needs revision. The 5 relates to your penmanship, grammar and general neatness. FAC of 4 do not need to be revised, but feel free to work toward all 5s. You kids are doing great with your cards! Keep up the good work.

Reading Assignment: Chapter 4

Read Chapter 4 paying special attention to section 3.1. While there are no new vocabulary cards assigned this week, you will be making vocabulary cards for diffusion and osmosis next week so pay special attention to that part of the reading and if you have extra time feel free to go ahead and start the cards. Later in the year we will also be making vocabulary cards for photosynthesis and respiration, but we'll learn much more about that later, so while it would be good to get a general idea about those topics from sections 4.2 and 4.3, I would suggest waiting to start the cards.

Eggsperiment

We had fun with the bouncy ball eggs today and after measuring the mass of the eggs in different solutions for various periods of time, you now have a set of data! Everyone should have the cumulative (from everyone) class data recorded on the class data sheet that was handed out. Now that you have the data you need to analyze the data and draw conclusions.

Analyze the data: This means you need to take a bunch of numbers and use them in a way that they are most meaningful. For our experiment, you will make a graph of the data, using time on the x-axis and mass on the y-axis. You need to decide on the scale of your x and y axis (how high the numbers should go and how much each box with represent in terms of weight and time), then plot the points and draw a best fit line or curve. You can make 3 different graphs, one for each solution, or you can do a single graph and represent the points each solution with a different shape or color point. Be sure to label the resulting lines or curves with the solution that the data came from.

Draw Conclusions: When you look at your graph, your data and the observations that you wrote down about the eggs, do your results agree with your hypotheses? We didn't have time to go over the pre-lab questions, but make sure you have written answers either in your notebook, or on the printed lab protocol. We'll be using your answers to those questions (below) as the foundation for our discussion next week. What if you don't know some of the answers? Don't panic! That's what class is for. We'll discuss it, so be ready to write the answers down when we do and as always, feel free to e-mail me or post any class related questions on the CK-12 website.

1. What is the control in the experiment?
2. What is the independent variable?
3. What is the dependent variable?

4. What is your hypothesis about what will happen when the egg is placed in the glucose solution, where less water will be available in solution because the glucose will be binding to most of it?

5. What is your hypothesis about what will happen when the egg is placed in the pure water, with no salt or other impurities to bind it up?

Review the following questions to try to help you draw conclusions from your data and observations. We'll be discussing these questions and the conclusions we can draw from the osmosis lab next week. If there are any questions that seem confusing, you may want to star or circle them so you remember to ask about it in class.

Look at the data you collected.

- What happened to the weight of the egg in corn syrup?
- What happened to the weight of the egg in pure water?
- What other changes did you notice in the eggs.

- What was the molecule that moved into or out of the eggs to cause these changes? What makes you think so?
- Which way did molecules move in the distilled water solution over time (into the egg or out of the egg)? How does osmosis explain this?
- Which way did molecules move in the corn syrup solution over time (into the egg or out of the egg)? How does osmosis explain this?

- Based on your conclusions, what do you expect would happen if on day 2 you took the eggs out of their solutions, washed them and put them in the opposite cups for a day? Try it if you like.

- Saline solution is just a salt solution that has a concentration of salt identical to that of our human cells. Saline, rather than water is always used in any intravenous (IV) medication that is injected into a patient. Given what you know about how water moves across membranes, can you make a logical conclusion about why this is?
- Describe what you would expect to happen to the cells of an individual undergoing dehydration (the condition of not having enough water in the body and therefore in the bloodstream (outside the cells)).