Carbon Transfer Through Snails and Elodea – Virtual Lab

Directions to Virtual Lab

From the Internet: Go to <u>http://www.classzone.com/cz/books/bio_07/book_home.htm?state=NJ</u> Under Labs, select virtual labs. Select Carbon Transfer through Snails and Elodea from the list of labs.

Background:

All organisms are dependent on a healthy carbon dioxide-oxygen balance. Photosynthesis and cellular respiration are key processes in maintaining this balance. Plants, through the process of photosynthesis, use energy absorbed from sunlight, water, and carbon dioxide to produce carbohydrates and oxygen. Animals and plants, through the process of cellular respiration, use oxygen and sugars to produce carbon dioxide, water, and energy needed to maintain life.

Purpose:

To determine how carbon dioxide cycles through a biological system.



Follow directions in the yellow box in the top left corner to move through the lab. You must type in information in the virtual notebook to continue throughout the lab

<u>1. Explore Materials:</u>

- Select each item in the lab that is listed on the checklist. Read the description that appears for each item. Once you have selected all the items (8 total), click procedure to start the lab.

Hypothesis (15pt): write your hypothesis below. (complete sentences; no emotion; no pronouns)

<u>2. Procedures:</u> Follow the steps to the lab given on the screen until you complete all seven (7) steps.

Describe your variables (9pts)

- A. Dependent Variable:
- B. Independent Variable:
- C. Control: _____
- D. You will use 4 test tubes in this set up. Set up the test tubes to match your variables. Write down the setup and "starting color" on your paper data table AND virtual table.

3. Data/Results: (16 pts)

Test Tube	Contents	Starting Color	Predicted End Color	End Color
1 (control)				
2				
3				
4				

<u>4. Predict End Color</u> – using the color key and your knowledge of the energy cycle, predict the end color for each test tube. Write down predictions on data table.
<u>5. Begin experiment</u> – add stoppers then press START to begin experiment.
<u>6. Record End Color</u> – record on paper data table

7. Discussion: (50pts) write in complete sentences; no emotion; no pronouns

1) Conclude.(5pt) What is the relationship between snails and Elodea?

2) Analyze. (5pt) Why did the color of the Bromthymol Blue (BTB) solution change?

3) Analyze. (10pt) What was the importance of a control in your experiment? What would you conclude if the color of the solution in the control changed?

4) Infer. (10pt) When you began the experiment, was there CO_2 in the water? In the test tubes that contained Elodea, where did the CO_2 go?

5) Infer.(10pt) Which gas did the snails release? What observation supports this inference?

6) Apply.(10pt) Based on the results of your experiment, explain why you need to add the Elodea to your snail aquarium.