

Name:

Date:

Period:

### Carbon Transfer through Snails and Elodea

Go to the following website: [http://www.classzone.com/cz/books/bio\\_07/resources/htmls/virtual\\_labs/virtualLabs.html](http://www.classzone.com/cz/books/bio_07/resources/htmls/virtual_labs/virtualLabs.html) and click on the link that has the same title as above.

Question: Explain how carbon dioxide cycles in the aquarium water through snails and elodea.

Hypothesis: Write a hypothesis answering the question of the virtual lab using the “if/then” format.

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Materials: Write down the descriptions for each of the following materials.

- Beaker of BTB Solution: \_\_\_\_\_
- Pond Snails: \_\_\_\_\_
- Elodea: \_\_\_\_\_
- Test Tubes: \_\_\_\_\_
- Grow Light: \_\_\_\_\_
- Test Tube Rack Cover: \_\_\_\_\_
- CO<sub>2</sub> and O<sub>2</sub> Poster: \_\_\_\_\_
- Color Key: \_\_\_\_\_

Dependent Variable: The level of carbon dioxide in the test tube

Independent Variable: Amount of light

Control Variable: Test tube free

Procedure:

1. Make sure to follow the written/verbal directions in the experiment simulation. The written directions can be found in in the upper left hand corner in a yellowish box.
2. In the box below the, “In my experiment, I will measure the level of CO<sub>2</sub> by,” type, testing different snail and elodea conditions measured by the BTB reaction to carbon dioxide.
3. In the box below the, “In my experiment, my independent variable will be:,” type, the amount of light in the box.
4. In the box below the, “The set-up for my control condition is,” type, leaving one test tube without both elodea and snails.
5. In the small box in the Experimental Design, type 4.
6. In the test tube boxes that pop up, type the following information:
  - a. Test Tube 1: one snail
  - b. Test Tube 2: one elodea
  - c. Test Tube 3: one snail and one elodea

d. Test Tube 4: empty

- Exit the pop-up box and go up to the yellow procedure button and click the next arrow. Follow the remaining directions.
- Make sure you follow the test tube directions as stated in instruction 5 when putting either snails and/or elodea into the test tubes.
- Fill in the Predicted end color in the table in the lab notebook tab in the virtual simulation and below in the result segment.
- Continue following the directions and proceeding to the next steps as indicated in the procedure area in the upper left corner in yellow boxes.
- At the end, write the end colors of each test tube in the data tables.

Data:

Dark: In test tube rack cover:

Test Tube #:	Contents:	Predicted End Color:	End Color:
1	one snail		
2	one elodea		
3	one snail and one elodea		
4	Empty: no snails or elodea		

Light: In grow light:

Test Tube #:	Contents:	Predicted End Color:	End Color:
1	one snail		
2	one elodea		
3	one snail and one elodea		
4	Empty: no snails or elodea		

- What was your experimental design? What is the relationship between snails and elodea?
- Why did the color of the BTB solution change?
- What was the importance of the control in the experiment? What could you conclude if the color of the solution in the control changed?
- When you began the experiment, was the CO<sub>2</sub> in the water? In the test tubes containing the elodea, where did the elodea go?
- Which gas did the snails release? What observations support this inference/claim?
- Based on the experiment, explain why you need to add elodea into the snail aquarium?