Science Interactions Carbon Recycling

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Part 1: Where does the carbon go?

Procedure

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| **Photosynthesis Exercise:** | |
| (1.) | Place about 75 ml of bromothymol blue solution into a 250 ml beaker and return to your workstation. At your station add 100 ml of water from the water bottle. |
| (2.) | Observe the color of the solution. The next step is to introduce carbon dioxide into the solution and record it in your notebook. We could do this with a carbon dioxide tank like those used for soda dispensers, but that would be overkill. Luckily, there is a ready source of cost-free carbon dioxide within you right now - your lungs. Use a straw from Station 1 to **slowly** blow CO2 into the solution until it **just** turns yellow. |
| (3.) | When comparing or describing colors, be sure to hold the tubes in front of a white background and be as detailed as possible when describing the color (e.g., use terms like "greenish-blue" or "yellow-green"). |
| (4.) | - Pour the solution into three small test tubes, dividing it evenly between them.  - Obtain two 2-inch pieces of Elodea from the open dish at the Elodea Station and place them in one of the tubes, and seal it with parafilm.  - Obtain two 2-inch pieces of Elodea from the covered dish, place them in a second tube covered with aluminum foil (to prevent the entry of light), and seal it.  - In both tubes, make sure the plant is completely submerged in the solution.  - Cap the remaining tube – it will serve as your control.  - Place the tubes upright on the lab bench approximately 8-10 inches from the lamp. Ensure the light hits all three tubes equally and from the side, not from the top. Turn on the lamp.  - While you allow the experiment to run, set up your notebook to report your findings. |
| (5.) | Allow the plants to sit undisturbed for 30 minutes, and then carefully remove the Elodea plants from the tubes. Determine the color of the solution against a white background, record them in your notebook. After all measurements have been completed, rinse out your glassware and throw away your used straw.  **[Q 1](http://www.esta-uk.org/jesei/plants/students.htm" \l "Q1)**.     What happened to the indicator in the tube containing Elodea?  **[Q 2](http://www.esta-uk.org/jesei/plants/students.htm" \l "Q2)**.     What does this mean?  **[Q 3](http://www.esta-uk.org/jesei/plants/students.htm" \l "Q3)**.     How do you know it was due to the Elodea?  **[Q 4](http://www.esta-uk.org/jesei/plants/students.htm" \l "Q4)**.     What caused this to happen?  **[Q 5](http://www.esta-uk.org/jesei/plants/students.htm" \l "Q6)**.     State two ways in which this carbon can be returned to the atmosphere. |