Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period\_\_\_\_\_\_\_ Group #\_\_\_\_\_\_\_\_

**Photosynthesis Investigation**

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**Procedure:**

1. Place 75 ml of bromothymol blue in a beaker.
2. Observe the color of the solution.
3. Introduce carbon dioxide into the solution. Use a straw to slowly blow carbon dioxide from your lungs into the solution until it just turns yellow.
4. Pour the solution into three screw cap test tubes, dividing it evenly.
5. Get one 6 cm piece of *Elodea*, place it in one of the tubes, and cap it.
6. Get another 6 cm piece of *Elodea*, place it in a second tube completely covered with foil (to prevent light from reaching the solution & *Elodea*), and cap it. In both of these test tubes, be sure the plant is completely submerged in the solution.
7. Cap the test tube that has no plant in it.
8. Place the test tubes into a beaker of water and put the beaker next to the window.
9. Allow the plants to sit undisturbed for overnight.
10. Compare the colors of the solutions by removing the plants and holding the tubes in front of a white background. Record the final colors of all three tubes.
11. After all measurements have been completed, rinse out your glassware.

**Data:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Observation of Test Tubes** | | | | | |
| **Test Tube 1:**  **BTB Solution & *Elodea***  **No Foil** | | **Test Tube 2:**  **BTB Solution & *Elodea***  **Foil** | | **Test Tube 3:**  **BTB Solution**  **No Foil** | |
| **START** | **After 24 Hours** | **START** | **After 24 Hours** | **START** | **After 24 Hours** |
|  |  |  |  |  |  |

**Data Analysis**

1. Which test tube(s) showed a color change in this investigation?
2. What does a color change indicate in this investigation?

**Questions**

1. What is the independent variable in this investigation?
2. What is the dependent variable in this investigation?
3. What are some controlled variables in this investigation?
4. What color is the water in all three test tubes at the start of the activity?
5. What does this color tell us?