Name:

Date:

**Photosynthesis Lab #1**

**Background information:**

Photosynthesis: Photo= Light Synthesis= Make food (Carbohydrates or Sugars)

Carbohydrates: Carbo= Carbon Hydrate= water

(Carbon and Water held together by chemical energy)= Food

Photosynthesis is the process of how plants make food with Light.

Here is the equation: Reactants 🡪 Products

**carbon dioxide + water+ light energy🡪 carbohydrates (contains chemical energy) + oxygen**

A good scientist only measures 1 thing at a time. This is the variable.

Everything else is kept the same. This is called “**controlling”** the experiment.

Because photosynthesis produces oxygen gas you can count the bubbles and see how much photosynthesis is going on.

**Purpose:**  Show that plants require carbon dioxide (CO2 ) in order to photosynthesize.

**Hypothesis: If** test tube A is carbonated water and test tube B is tap water, **then**  test tube \_\_\_\_\_\_ will have more bubbles.

**Procedure:**

1. **Take 2 test tubes. Label them A and B.**
2. **Fill test tube A with 40ml of carbonated water.**
3. **Fill test tube B with 40 ml of tap water.**
4. **Take 2 pieces of *Elodea* (100mm long) and place 1 in each test tube.**
5. **Install a lamp 100mm away from the test tubes.**
6. **Repeat at 10min., 15min., and 20min.**
7. **Count the number of bubbles of oxygen that are produced during 5 min.**
8. **Record the data.**

**Draw a diagram of the set up:**

**Data: Table 1.1 The effect of CO2 on the number of bubbles produced.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Variables tested** | **Observation**  **# of bubbles**  **in 5 min** | **# of bubbles**  **In 10 min.** | **# of bubbles**  **In 15 min.** | **# of bubbles**  **In 20 min.** |
| **Test tube A: Carbonated Water** |  |  |  |  |
| **Test tube B: Tap water** |  |  |  |  |

**Analysis:**

1. Which test tube is the control? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What does the control show you? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. Which Test tube is the variable? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Why is counting Bubbles of oxygen a good indication of photosynthesis?

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1. Which test tube had more bubbles? (This answers your hypothesis.) \_\_\_\_

**Conclusion:**

1. What effect does Carbon dioxide have on photosynthesis? (This answers your problem) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. How would you improve it the next time? Give me one problem and one solution.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_