Light and Dark Investigation

**Question**: What is the effect of light and dark on photosynthesis?

1. How did you investigate this research question? (Describe the procedure in 5 or 6 sentences)
We investigated the research question by doing an experiment. We labeled 2 cups, light and dark. Then we did the vacuum with the leaf disks, and put the light cup in the light and the dark cup in the dark. We recorded our data for 15 minutes and then we put the dark cup in the light, and the light cup in the dark. We then recorded data for 15 more minutes, and cleaned up after we finished.
2. What were your variables in this experiment? What were your constants?

Independent- Environment

Dependent- Leaf Disks floating or not floating

Constants- Solution, type of leaf, light source

1. Use the following chart to describe what you learned from your data.

|  |  |
| --- | --- |
| **What evidence from your leaf-disk experiment helps you answer your research question?** (you may add more rows by pressing the tab key if you have run out of space.) | **Related Science Ideas** (You may have information from the reference readings or even prior experiences that relate to evidence from your experiment.) |
| Example: Bubbles formed around the edges of the leaf disks in the water with the baking soda | Example: The bubbles caused the leaf disks to float because gas is less dense than water.  |
| The leaf disk sunk in the dark because they could not perform photosynthesis | The oxygen produced by photosynthesis made the leaf disks float |
| The leaf disks floated in the light, not the dark. | Photosynthesis occurs quicker than cellular respiration. |
| The leaf disks started floating after being taken out of the dark and put into the light. | Light is needed for photosynthesis. |

1. Write a sentence to answer your research question (this is your claim)
Light and dark environments affect photosynthesis by allowing the plant to perform photosynthesis, which can only be performed in environments with light.
2. Were the results of your experiment similar to those of other teams? If so, what could be some factors that account for the differences?
Yes, we all found out that the leaf disks in the dark space did not float to the top, because photosynthesis couldn’t occur in the dark, only in the light. The leaf disks in the light floated because photosynthesis made it float using the oxygen around it.
3. If you did this experiment again, would you change anything in the procedure? Why or why not?
We would not change anything because the experiment went pretty smooth.
4. Refer back to the ideas about photosynthesis you wrote in the Leaf Disk Investigation. Do your experimental data provide information that either support or contradict some of your initial ideas about photosynthesis? Please explain.
No, our data rather supports our ideas. When we put the leaf disks in the dark, they sunk, and when they were put in the light they floated.

Use this space to record any other thoughts or questions you have about this experiment or about how it relates to photosynthesis. Also, write any new questions that you might want to investigate based on the results of this experiment.

How can you tell if the plant is performing photosynthesis or cellular respiration?

Does the light source affect photosynthesis?

How much oxygen pressure would be needed to make the leaf disks float?