Experimental Design Group Experiment

1. Research Question:Our research question is, will different colored light sources affect photosynthesis.
2. What is your independent variable?

Colour of Light Source

1. What will be your dependent variable?  
   Number of leaf disks floating, number of leaf disks not floating
2. What will be your constants?

* How much time the leaf disks will be under the lamps
* The solution
* Type of leaf disks

1. Describe the steps that you will follow to complete your experiment.   
   We will prepare three beakers with 100 mL of distilled water and a pinch of baking soda. We will also punch holes in spinach leaves to create leaf disks. Then we will infiltrate the leaf disks to remove any oxygen. Cellophane bags (red, blue, and yellow) will be placed over the beakers. One beaker will have no bag over it so it is a control group. The beakers will then be placed under a desk lamp for 20 minutes and record how many disks are floating and not floating each minute.
2. Design the data table.   
   Trial 1

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Time (per minute) | Red Light (floating) | Red Light (not floating) | Yellow light (floating) | Yellow Light (not floating) | Blue Light (floating) | Blue Light (not floating) | Light (floating) | Light (not floating) |
| 0 |  |  |  |  |  |  |  |  |
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| 20 |  |  |  |  |  |  |  |  |

Trial 2

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Time (per minute) | Red Light (floating) | Red Light (not floating) | Yellow light (floating) | Yellow Light (not floating) | Blue Light (floating) | Blue Light (not floating) | Light (floating) | Light (not floating) |
| 0 |  |  |  |  |  |  |  |  |
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Trial 3

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| Time (per minute) | Red Light (floating) | Red Light (not floating) | Yellow light (floating) | Yellow Light (not floating) | Blue Light (floating) | Blue Light (not floating) | Light (floating) | Light (not floating) |
| 0 |  |  |  |  |  |  |  |  |
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1. How will you present your data to others? (charts, graphs, photos, etc)  
   A data chart.
2. Prediction:

If the leaf disks are placed in beaker with yellow, blue, or red cellophane bags converting the light into the colors, then the leaf disks in the blue light will have the fastest rate of photosynthesis.

1. Hypothesis:   
   The leaf disks in the beaker with the blue cellophane bag will have the fastest rate of photosynthesis because plants absorb mostly blue light.