

Name: _____

Photosynthesis Virtual Lab

Site 1: Glencoe Photosynthesis Lab Site: bit.ly/pholab

Experiment Question: "**Which colors of the light spectrum are most important for plant growth?**"



1. Make a hypothesis about which color in the visible spectrum causes the most plant growth and which causes the least plant growth.

Plants will grow best with [red / violet / blue / green / orange] light (circle)

Plants will not grow well with [red / violet / blue / green / orange] light (circle)

2. Collect data by changing the color of light. Test each type of plant and use the ruler to measure the height. Take an average for each plant at each color.

Color	Spinach		Radish		Lettuce	
	Individual	Average	Individual	Average	Individual	Average
Red						
Orange						
Green						
Blue						
Violet						

3. Write your **conclusions** which include an answer to the original question / hypothesis. Your answer should be in a complete sentence.

Site 2: Photolab

<http://biol.co/weedsim2>

This simulation allows you to manipulate many variables. You already observed how light colors will affect the growth of a plant, in this simulation you can directly measure the rate of photosynthesis by counting the number of bubbles of oxygen that are released.



Propose hypotheses on how each of these **variables** effect the production of oxygen from a plant. (circle below)

- a) Increasing the light intensity will [increase / decrease] rate of photosynthesis.
- b) Increasing CO₂ levels will [increase / decrease] rate of photosynthesis.
- c. Increasing temperature will [increase / decrease] rate of photosynthesis.

I. Question: How Does Light Intensity Affect the Rate of Photosynthesis?

Procedure: The purple slider can be used to change the light levels. You will count the number of bubbles at each level. The timer in the square box can be used to measure 30 seconds.

Light Intensity	0	5	10	15	20	25	30	35	40	45	50
Number of bubbles (30 sec)											

A) Based on the light tests, as you increase the intensity of light, the rate of photosynthesis

[increases / decreases / stays the same]. (circle)

B) How do you know?

C) What are the bubbles really showing?

II. Question: How Does Carbon Dioxide Affect the Rate of Photosynthesis?

Procedure: Set the light to its highest intensity (50). Adjust the CO₂ levels by clicking on the bottle.

	Full CO ₂	Half CO ₂
Number of bubbles (30 sec)		

*Write a conclusion in a complete sentence that describes how the level of CO₂ affects the rate of photosynthesis. *(Use Question 1A to help you write this. It will look similar.)*

III. Question: How Does Temperature Affect the Rate of Photosynthesis?

Create a data table (use the ones above to help you) and input values for at least 3 Temperatures

Use your data to write a conclusion. This should be in a complete sentence.