



Name:

Date:

Student Exploration: Photosynthesis Lab

Directions: Follow the instructions to go through the simulation. Respond to the questions and prompts in the orange boxes.

Vocabulary: carbon dioxide, chlorophyll, glucose, limiting factor, nanometer, photosynthesis, wavelength

Prior Knowledge Questions (Do these BEFORE using the Gizmo.)

- To survive, what gas do we need to breathe in?
- Where is this gas produced?

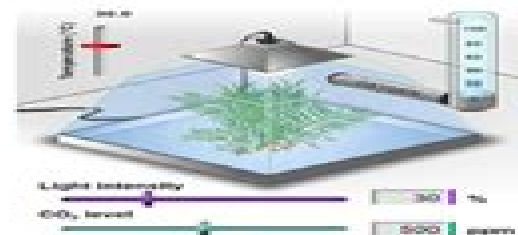
Oxygen

Plants

Gizmo Warm-up

During **photosynthesis**, plants use the energy of light to produce **glucose** ($C_6H_{12}O_6$) from **carbon dioxide** (CO_2), and water (H_2O). Glucose is a simple sugar that plants use for energy and as a building block for larger molecules.

A by-product of photosynthesis is oxygen. Plants use some of the oxygen they produce, but most of it is released. In the *Photosynthesis Lab* Gizmo, you can monitor the rate of photosynthesis by measuring oxygen production.



1. Observe the left pane closely. What do you think the bubbles are?

Those Oxygen Bubbles

2. Select the **BAR CHART** tab. On the graph, notice the **Oxygen production** bar. Move the **Light intensity** slider back and forth. How does light intensity affect oxygen production?

Oxygen production decreases with reduced light intensity.

3. Experiment with the vertical **Temperature** slider (upper left) and the **CO₂ level** slider.

A. How does temperature affect oxygen production?

When Temperature decreases, Oxygen production decreases.

B. How does CO₂ level affect oxygen production?

CO2 decreases Oxygen production decreases

C. How does oxygen production relate to the rate of photosynthesis?

Less Oxygen Production the rate of photosynthesis is slow.

Answers For Student Exploration Photosynthesis Lab Gizmo

**Jennifer Wilhelm, Ronald
Wilhelm, Merryn Cole**



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