



Review: Oxygen from plants

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Problem 11: Oxygen from plants

Suggest an **experimental method** to measure **how much oxygen** is produced by a green plant.

Task was not fulfilled!



Overview

- Theory
- Experiment
- Results
- Agreement between theory and experiment
- Conclusions

Green = very good

Yellow = average

Red = needs improvement



Reporter



1. Basic understanding of photosynthesis
2. Visualised results with graphs
3. Experimented with different wavelengths of light
4. Varied parameters

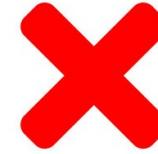


1. Not concentrated on the method (and important parameter of the method as the accuracy of it) but on the measurements they obtained
2. Not enough tests obtained.
3. Discrepancies in theoretical part
4. 500 nanometers is green light - sun produces light in all of the visible spectrum, with a maximum at 500 nm
5. Maximum photosynthesis is not obtained at yellow part of the visible spectrum!
6. No quantitative information obtained from the error bars
7. The x-axis represents the volume produced and the y-axis the time (should be the opposite)
8. Incorrect setting of the trendline

Opponent



1. Prioritized important questions
2. Asked about method for measuring the volume of the produced oxygen
3. Highlighted errors in reporter's theory
4. Highlighted the inversion of the graph axis



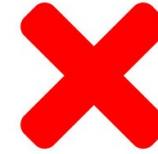
1. Not concentrated on the parameters which describe the method.
2. Did not ask about the accuracy of the used method
3. Concentrated too much on theory
4. Thinks that 5 repetitions of the experiment are enough
5. Asked a question that was featured in the presentation
6. The titration method which was proposed is impossible due to the fact that the CO₂ cannot dissolve in a water

DISCUSSIO

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1. Theory discussed
2. Rate of photosynthesis was noted
3. Discussed possible errors (if the measured gas is really oxygen)



1. Opponent asked question that was already featured in the report
2. Did not focus on main task (investigate **methods**)
3. Opponent didn't prioritise the questions for the discussion.
4. Did not discuss the accuracy of the method
5. Reporter couldn't answer all of opponent's questions

Clash

Point of discussion: The metabolism of the plant

Reporter: The metabolism of the plant is constant throughout the whole process

Opponent: Oxygen production of the plant is not linear

Missed points

Is the type of light produced by the LED lamps all of the same wavelength?

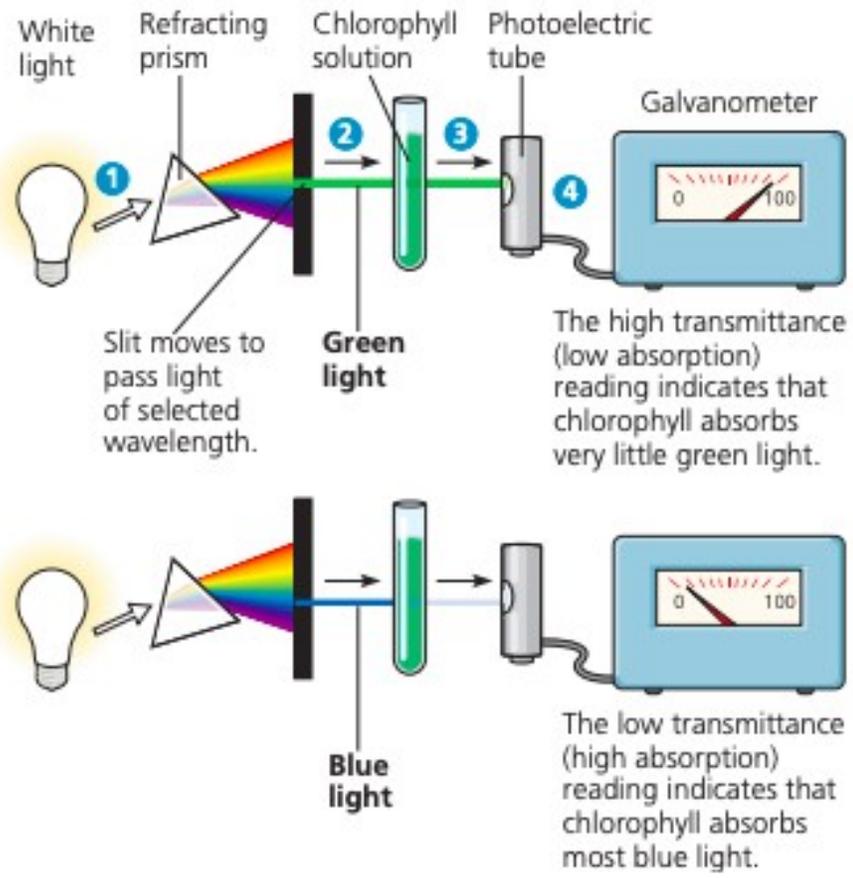
Did not discuss the production of oxygen over time.

Did not concentrate on the method for the oxygen production.





Thank you!



Rate of photosynthesis
(measured by O_2 release)

