

Cellular Respiration - Do Plants Really Do It?

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It is a common misconception among urban community college students that only animals do cellular respiration. Students do not think that photosynthesis and cellular respiration are physiological processes that happen simultaneously. A simple lab demonstration is proposed to dissipate the myth, and to add another critical thinking opportunity to a lab, possibly a photosynthesis or respiration lab. Seeds are germinated and plants are grown for a week in the light, and in the dark. Students will observe that there is germination and growth on both cases, and are posed the questions: Where does the energy for growth come from? The answer to this question and a few more can be done as a group activity in the lab. As students reach the cellular respiration answer, further ideas can be incorporated, such as the growth of bulbs underground or the trees that have flowers before leaves in spring. These concepts can then be complemented by the presentation of a picture of a white plant (no chlorophyll) and the possible explanation of the energy source. A graph of photosynthetic response to light drawn in front of the students can help students understand negative CO₂ consumption rates with no light, as in release of CO₂ and the compensation point, the light intensity at which the release of CO₂ by cellular respiration equals the consumption by photosynthesis.

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