

Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

## Dissolved Oxygen and Photosynthesis

**Background:** In this experiment, you will find out if plants produce oxygen underwater and be able to understand how this affects the aquatic life in a river or other ecosystem. Do plants produce oxygen during the day?

**Materials:** elodea plants, bromthymol blue solution, glassware with tops, test tube rack (if necessary), grow lights

**Procedure:** Design your own!

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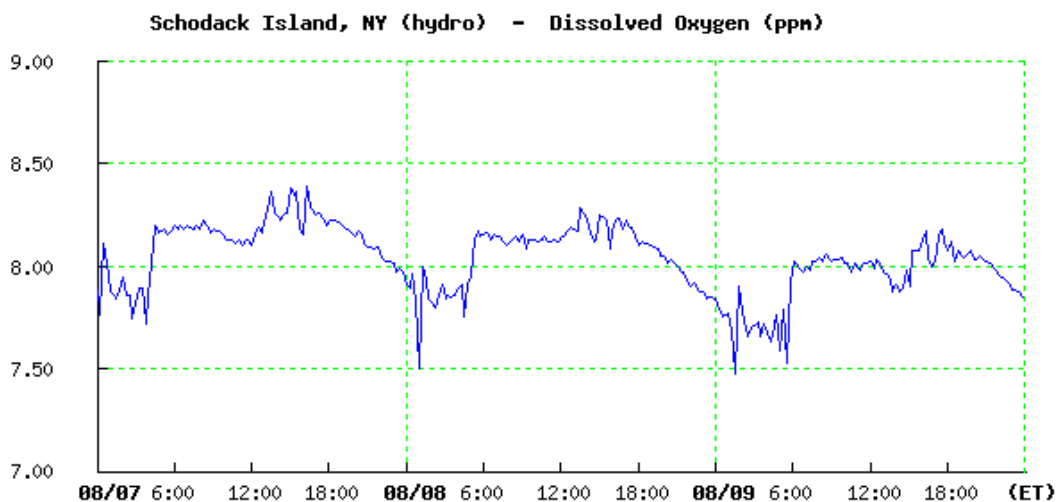
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**Results:** Record your results in your lab notebook.

### Discussion:

1. What happened to the blue solution when someone exhaled into it? Why do you think this happened?
2. What color was the solution when you added the elodea plant? Why?
3. What color did the solution turn after 24 hours? Why? What does this prove about the presence of oxygen in the water?
4. What would you expect to happen if the tube was left in the dark overnight?
5. What would you predict if you added a snail to the tube with the plant? A snail without a plant?
6. What does this experiment tell you about oxygen and plants?
7. During what time of day do you think plants produce the most oxygen?
8. Using the graph below, answer the questions that follow. These data were collected through the Hudson River Environmental Conditions Observing System, or HR-ECOS ([www.hrecos.org](http://www.hrecos.org)). Schodack Island is near Albany, NY.



- What happens to the DO levels during the day? Why?
- What happens to the DO levels at night? Why?
- How do these data compare with the data from your experiment?

**Bonus:** Go to the HR-ECOS website and find another data station in the Hudson River estuary. Compare the dissolved oxygen levels at another time of year with the data found above, and explain how the graph is different.

Modified with permission from: "A light snack" 1997. Living in Water, National Aquarium in Baltimore, Kendall Hunt Publishing, Iowa.