

PRELIMINARY ACTIVITY FOR

Investigating Dissolved Oxygen

Dissolved oxygen is one of the primary indicators of the quality of an aquatic environment. Oxygen enters water from the surrounding air, as a product of photosynthesis, and as a result of rapid movement of water. A Dissolved Oxygen Probe can be used in a wide variety of tests or experiments to determine dissolved oxygen concentrations (DO) and changes in dissolved oxygen concentrations.

In the Preliminary Activity, you will gain experience using a Dissolved Oxygen Probe as you determine the DO level of a water sample provided by your teacher.

After completing the Preliminary Activity, you will first use reference sources to find out more about dissolved-oxygen issues in the environment before you choose and investigate a researchable question dealing with dissolved oxygen. Some topics to consider in your reference search are:

- water pollution
- eutrophication
- thermal pollution
- photosynthesis
- cellular respiration

PROCEDURE

1. Prepare the Dissolved Oxygen Probe for use following instructions from your teacher. Place the probe in a beaker filled with about 100 mL of distilled water.
2. Connect the Dissolved Oxygen Probe to the interface and open the data-collection program. Allow the probe to stay in the water for 5 minutes as the probe warms up.
3. Collect DO data.
 - a. Place the tip of the probe into the water sample being tested. Submerge the probe tip to a depth of 4–6 cm.
 - b. Start data collection. Gently stir the probe in the water sample. **Note:** It is important to keep stirring until you have finished collecting data.
 - c. Continue stirring and data collection until the readings have been relatively stable (stable to the nearest 0.2 mg/L) for about 30 seconds, then stop data collection.
 - d. Select the stable region of your graph, then display Statistics for that region. Note and record the mean value for that region as the DO of the water sample.

Experiment 3

QUESTIONS

1. What was the DO of the water sample you tested in the Preliminary Activity?
2. How is DO level related to the water quality of a stream?
3. List three factors that affect DO levels.
4. What is the role of oxygen in photosynthesis? What is its role in cellular respiration?
5. List at least one researchable question for this experiment.