



WATER QUALITY OUTDOOR LAB TEACHER'S GUIDE

Learning Goal: Understand the importance of water quality and human impact on our water resources.

Objectives:

- Conduct various water quality tests and record data on a water sample.
- Determine water quality based on chemical and physical factors.
- Relate water quality parameters to the health of the lake, including the impact on organisms.
- Discuss how personal behaviors and choices impact water quality in local water systems.

Note: To prepare for this outdoor module, you will want to ensure you have a pontoon boat and/or adequate support boats equipped for safety. Supplies to test water quality (Secchi disc, fresh pH strips, oxygen meters, thermometers, etc. should all be housed on the pontoon boat for ease of instruction. Select a deepwater site as close to the dock as possible.

1. Ensure students have properly fitted life jackets on and are seated before departing on the pontoon boat.
2. Introduce the instructors and leaders for the session. Review safety concepts, such as being aware of the location of others while performing the tests.
3. The module leader(s) should briefly review water quality testing options and the equipment available.
4. Demonstrate the methods for sampling water quality using the various instruments and tests that are available.
 - Use the Secchi disc by lowering it down into the water until you can no longer distinguish the white and black sections/you cannot see the disc.
 - Use the meters to determine the temperatures at various depths. Get a read at the surface and then lower the meter incrementally by 10 feet, stopping to collect the reading at each depth.
 - Obtain a water sample to use on the boat for the pH strips and chemette oxygen analysis. Show students where to dispose of the glass vials after use.
5. Have students record data in their lab manuals. Make sure each person in the group has the opportunity to use the equipment, if desired.

6. Be sure to leave time to discuss the critical thinking question at the end of the lab, focusing on healthy water quality and how it can be assessed using the parameters they tested. Refer to the water quality resource table to discuss the effects on the lake ecosystem. Make sure students record these ideas in their lab packets.
7. At the end of the module, return to shore with students. Labs should be scored and then transferred to the cover page with initials.