



AQUATIC PLANTS AND INVASIVE SPECIES OUTDOOR LABS TEACHER'S GUIDE

Learning Goal: Learners will be able to use aquatic plant materials to identify native and invasive species and understand the value of aquatic plants.

Objectives:

- Collect a sample of aquatic plants.
- Discern emergent, free-floating, submerged, floating-leaf aquatic plants.
- Determine the benefits and value of aquatic plants and life cycles.
- Differentiate between native and invasive aquatic plants.

Note: Before beginning this lesson, collect plant samples from all four different aquatic plant types for students to use as reference. This lab could be done with pre-collected samples, if options for students to be on the water are not available. Set up foldable tables and lay out the samples in trays with wet paper towels underneath the samples to keep them moist. When the samples are not being used, place wet towels on top to keep the samples hydrated. Place reference materials for identification on the table.

1. Introduce the instructors and leaders for the session.
2. The module leader(s) should briefly review aquatic plant types (emergent, submerged, floating-leaf, free-floating) and their role in the lake ecosystem. Ask students what benefits aquatic plants give to the environment.
 - Habitat and cover for animals, spawning areas, absorb excess nutrients (phosphorus and nitrogen), food source, stabilize sediments at shoreline and lake bottom, oxygen released into the water, nesting habitats for birds and fish.
3. Review safety expectations for boating and ensure all students have properly fitting life jackets on. Have students board a pontoon with instructors and motor to a selected area.
4. Demonstrate how to use the rakes to sample the aquatic plant community. Make sure students know to attach ropes to the boat and hold on to the ropes as the rake is released. Students should retrieve their samples and place the plants in a bucket.
5. Bring students back to shore with their samples. They should compare a plant from their sample with the instructor's samples and reference books to identify each aquatic plant. They should also determine if the plant is native or invasive. Students should show the instructors their identification and have their lab manuals initialed if correct.

6. Be sure to leave time to discuss the critical thinking question at the end of the lab, focusing on how aquatic invasive species can alter lake ecosystems and what students can do to prevent their spread. Make sure students record these ideas in their lab packets.
7. Students should be directed to clean-up their stations at the table before leaving and scores should be transferred to the cover sheet of the lab manual with instructor's initials.