



Lesson Name:	Macroinvertebrates and Water Quality
Name of Sanctuary:	Berkshire Sanctuaries
Grade Level:	3-5
Location Options:	At sanctuary or in classroom
Time:	1-2 hour
For more info:	berkshires@massaudubon.org

Program Description

Students learn how some species of aquatic macroinvertebrates can be an indicator of water quality

Massachusetts Curriculum Frameworks

Framework:	Science and Technology
Strand:	Life Science
Topic:	Aquatic Indicators

Learning Standards

Next Generation Science Standards

Cross cutting concepts-

Some species are habitat specific, and can be used as indicators or markers of characteristics in an ecosystem. Certain macroinvertebrates can only survive in a small range of habitat conditions.

Aquatic Habitat conditions- temperature, flow rate, turbidity, Ph- are limiting factors for wildlife.

Lesson Objectives

What will students know and be able to do? These objectives must be observable and measurable.

Students will know and be able to:

Capture, identify and key the various macroinvertebrate species

- Apply information to draw conclusions about water quality

Vocabulary

Macroinvertebrate

Biological key



Assessments

How will you know that the students have met the standards?

- Students will make conclusions about water quality based upon the species they locate.

Summarizer

How will the Mass Audubon Educator close the lesson to see if students met the objectives?

- Students will present conclusions about the water quality of the subject water body being tested
- Students, using a key, will be able to identify several species of macroinvertebrates.



Mass Audubon School Programs

At Mass Audubon we strive to create learning experiences that are enriching, innovative, meaningful, and engaging. All our school programs are aligned with Massachusetts Curriculum Frameworks. Our network of wildlife sanctuaries and nature centers located in urban, suburban, and rural communities around the state enable us to have strong relationships with local schools.

Our Education Foundations

- Place-based education is an educational philosophy that connects learning to what is local for an individual. We help build conservation communities, working with students and teachers in cities and towns to develop place-based environmental education that is linked directly to their home community.
 - Inquiry-based learning is focused on teamwork, being learner-centered, questioning ourselves and the world around us, providing a more focused, time-intensive exploration, promoting lifelong learning, communication, and learning as fun.
 - We are fully committed to creating a positive and supportive environment for all learners.
 - We strive to be culturally sensitive, recognizing and embracing cultural differences.
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Differentiated Instruction

- We strive to create a positive learning environment that is inclusive, supportive to all learners, and sensitive to cultural diversity.
 - Outdoor classroom experiences are structured to meet the needs of the particular learners.
 - Students work in small groups using hands-on materials.
 - A variety of educational media are used, including colorful illustrations.
 - With advance notice, efforts will be made to accommodate all learning styles and physical needs.
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Notes

- Nature exploration is dependent upon the weather and other conditions. A class might observe different wildlife than they expected to see. An outdoor lesson can sometimes provide unexpected, but enriching teachable moments on a natural history topic that was not planned.
- Mass Audubon nature centers each have a unique landscape and will customize programs to work best at their particular site.
- Our lessons can be adapted to incorporate a classroom teacher's needs.

