

Aquatic Ecology



An Environmental Study Unit For 5th – 8th Graders

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This project was funded by the U.S. Department of Education. The contents of this document do not necessarily reflect the views of the U.S. Department of Education.

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Lesson 5 – Culminating Activity - *Aquatic Times*

Note: This activity cannot be published on the Web. The activity can be found in the *Project Wild Aquatic* activity guide, on page 174. It can also be found as a sample activity on the Project Wild Web site, at <http://www.projectwild.org/documents/AquaticTimes.pdf>.

Project Wild Aquatic is published by the Council for Environmental Education, 5555 Morningside Drive, Suite 212, Houston, TX 77005, Phone: (713) 520-1936. E-mail: info@projectwild.org

In Pennsylvania, *Project Wild Aquatic* is sponsored by the PA Fish and Boat Commission as part of its “Keystone Aquatic Resources” (KARE) workshops. For more information in PA, go to http://sites.state.pa.us/PA_Exec/Fish_Boat/education/kare.htm or go to <http://www.fish.state.pa>, and click on “Education” from the left hand menu and then scroll down under “Instructors/Educators” to the KARE Program link.

To check out the sponsor in your state -

<http://www.projectwild.org/ProjectWILDK-12AquaticCurriculumandActivityGuide.htm> or go to <http://www.projectwild.org> and click on “Curriculum” from the menu across the top of the page. Then, from the left hand menu, choose “Project WILD K-12 Aquatic Curriculum and Activity Guide.”

Aquatic Ecology - Unit at a Glance

Unit Overview:

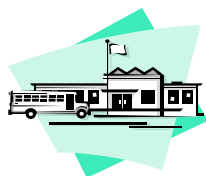


This unit is about aquatic ecology, the way in which the abiotic and biotic elements of the environment interact in an aquatic community. Students study the watershed of their body of water, water chemistry and how it contributes to water quality, hydrology (the movement of water on land), aquatic organisms, and how humans influence water quality.

Students gain skills in observation, systematic data recording, report writing, reading and following directions, creative expression, mapping, measurement, using chemical test kits, drawing, researching, using of field equipment—microscopes, aquatic dip nets, weather instruments, compass, etc., and following safety procedures.

Grade Level:

Fifth - Eighth



Subject Areas:



- Computer Literacy
- Language Arts
- Science
- Social Studies

State Standard Strands:

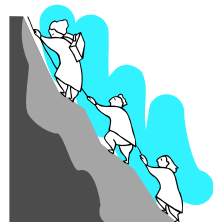
Environment and Ecology



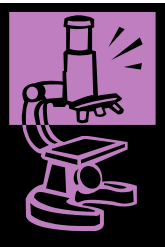


- *Watersheds and Wetlands*
- *Environmental Health*
- *Ecosystems and Their Interactions*

- *Threatened, Endangered and Extinct Species*
- *Humans and the Environment*

Unit Goal:



A study of a local aquatic ecosystem becomes the hands-on context for students to develop cognitive skills in environmental science. These skills will include making and recording observations in a systematic manner, using and creating maps, and presenting information in a variety of ways including verbally, visually and through writing.

<p>Unit Objectives:</p> 	<ul style="list-style-type: none"> ➤ Students will learn to make and record field observations of an ecosystem. They will present these observations in the form of a field study report, which will include written, verbal and visual depiction of their findings. ➤ Prior to the field study, students will learn various skills needed for the task. These include the ability to: <ul style="list-style-type: none"> ▪ List chemical and physical parameters of water quality, including temperature, dissolved oxygen, turbidity, pH, alkalinity, conductivity, nitrate nitrogen, and the presence of coliform bacteria. ▪ Recognize and identify aquatic macroinvertebrates found at the study site, and describe what their presence or absence indicates about water quality. ➤ During the field study, students will collect, observe and either draw or record their observation in a field study log book. These observation will include: <ul style="list-style-type: none"> ▪ Chemical and physical water quality measurements ▪ Collection and identification of aquatic organisms ▪ Description of the aquatic food web ▪ Description of the soil and land use in the watershed ▪ Weather conditions ➤ As a wrap-up, students will report their findings in the form of a class “newspaper” including written reports, visual data representation, creative writing, field sketches, and optional photos.
<p>Unit Outline:</p> 	<p>Lesson 1 – Physical and Chemical Qualities of Water Lesson 2 – Aquatic Indicator Organisms Lesson 3 -- Plankton and Biodiversity Lesson 4 – Aquatic Landscapes Aquatic Ecology Field Study Procedures Lesson 5 – Culminating Activity – Writing an <i>Aquatic Times</i> Newspaper</p>
<p>Assessments:</p> 	<ul style="list-style-type: none"> ➤ Water quality quiz ➤ Aquatic Organisms and Pollution Monitoring Review Sheet ➤ Plankton Food Web Diagram ➤ “Create a Plankton” Worksheet ➤ Watershed Review Sheet ➤ Pond or Stream Map and Diagram ➤ Identify three issues involving aquatic animals, aquatic plants or aquatic habitats. ➤ Explain why it is important to accurately report environmental information to others. ➤ What are the characteristics of a good environmental report?