K-12 Water Education Materials
(Curriculum/activity guides, Audio tapes, videos, children’s books, references, equipment, posters)

May be borrowed from Center for Science & Environmental Outreach
105 Dillman Hall    Tel: (906)487-3341    Fax: (906)487-1620    Email: jchadde@mtu.edu

Curriculum/Activity Manuals

**Acid Rain Teacher’s Guide** by Lawrence Hall Science (LHS) Gems
Covers acids, bases, pH, ecosystems, and the effects of acid rain

**Children’s Groundwater Festival Outreach Packet**
A packet of teacher materials, lesson plans, student worksheets and resources for conducting water festivals

**Classroom GEMS (Groundwater Education in Michigan Schools) - Elementary**
Activities and resources for groundwater education

**Engineering is Elementary – Water Filtration** [http://www.mos.org/eie/units.php](http://www.mos.org/eie/units.php)
Grades 1-6

**Field Manual for Water Quality Monitoring** by William Stapp
Grades 7-12

**Groundwater Education in Michigan Schools (GEMS)**
Grades K-6

**Hands-On Nature** by Jenepher Lingelbach, Vermont Institute of Science
Grades K-6

**Lake Effects: The Lake Superior Guide** by the Lake Superior Center
Grades K-12

**Making Waves**
A detailed "how-to" & useful tips for putting on a water festival

**Making A Bigger Splash**
Grades K-12

**Michigan Environmental Education Curriculum Unit Support– Water Quality**
9 lessons, video, CD, maps, posters, aerial photos.
[http://wupcenter.mtu.edu/education/ecosystem_curriculum_units/index.html](http://wupcenter.mtu.edu/education/ecosystem_curriculum_units/index.html)
Grades K-12

**Michigan WISE (Waste Information Series for Education)**
Grades K-12

**Pond and Stream Safari: A Guide to the Ecology of Aquatic Invertebrates**
Excellent resource and activities for pond and stream studies

**Project WET (Water Education for Teachers)**
Grades K-10

**Project WILD—Aquatic**
Curriculum/activity guide that teaches about wildlife & water

**River Cutters Teacher’s Guide** by LHS GEMS
Information and activities on erosion, geologic events, pollution, and human effects on the environment

**Rivers Curriculum Guide: Biology** by Rivers Curriculum Project (RCP)
Explores the diversity of plant and animal life along rivers; uses benthic macroinvertebrates as the primary indicator of a river's health)

**Rivers Curriculum Guide: Chemistry** by RCP
Describes the nine water-quality tests used to assess stream health; links water-quality test procedures to basic chemical principles students study in class

**Rivers Curriculum Guide: Earth Science** by RCP
Provides information and activities on how to use the physical features of a river to discern important clues about a river's geological development

**Rivers Curriculum Guide: Geography** by RCP
Describes how the Earth’s surface is occupied and organized using the five themes of geography: location, place, movement, regions, and human-environment interactions
Science Book of Water by Neil Ardley  
Contains variety of water experiments  
Grades K-3

Streamkeeper’s Field Guide  
Watershed inventory & stream monitoring methods  
Grades 7-12

Water Precious Water by AIMS Activities  
Collection of elementary water activities  
Grades 2-6

Watershed Science for Educators by Cornell Extension  
“How to” for designing a stream investigation including: selecting stations, using aerial photos and topographic maps to delineate the watershed, collect and interpret data from chemical, biological and physical stream assessments.  
Grades 7-12

WOW! The Wonders of Wetlands  
Activities to teach about all aspects of wetlands  
Grades K-10

Science Equipment

Sampling Kit for Streams, Ponds and Wetlands  
Contains nets, magnifiers, tubs and other items for collecting and identifying aquatic organisms  
Grades K-10

Dripial Pursuit  
Patterned after “Trivial Pursuit” using water-related words  
Grades 6-12

Stencils for Storm Drain Stenciling  
Grades 6-12

Enviroscope  
2 x 2 ft tabletop model that demonstrates non-point sources of pollution: sediment, fertilizers, road salt, used motor oil, etc.  
All ages

Groundwater Flow Model  
Tabletop model of where groundwater is found; shows how groundwater can be polluted by landfills, underground storage tanks, and other sources using dye; illustrates connection between surface and groundwater  
All ages

“Investigating Groundwater: The Fruitylale Experience”  
A hands-on classroom activity that demonstrates the effects of groundwater contamination; students test 40 samples of “well water” & map a groundwater contamination plume  
Grades 7-10

Puddle Pictures  
Patterned after “Pictionary” using water-related words  
Grades 1-5

Stream Ecology Leaf Pack Experiment Kit by lame Company  
Contains materials to conduct a variety of experiments on the role of leaves in streams, and how to assess habitat and water quality for stream macroinvertebrates  
Grades 6-12

Stream Macroinvertebrate Flashcards  
Set of 18 laminated color illustrations of major stream/pond macroinvertebrates  
Grades 6-12

Waste Hierarchy: Where Is Away?  
Hands-on classroom activities address the four levels of waste treatment practices: landfills, incineration, reuse/recycle, and source reduction  
Grades 7-12

LaMotte Water Chemistry Test Kits  
DO, pH, P, N, turbidity, iron, copper  
Grades 7-12

Audio Cassette Tapes

Excuse Me Sir, That’s My Aquifer  
30 min.  
Songs about groundwater  
Grades K-6

Frogs & Toads of Michigan  
13 min.  
Contains songs/calls of Michigan’s 13 species of frogs & toads  
Grades 3-12

Nature Nuts  
58 min.  
Science & ecology songs including "Romp in the Swamp", "Garbage Man", "Recycle Blues", "Don't Throw It Away."  
Grades K-6

Videos

After the Rain by U.S. EPA & Weather Channel  
.29 min.  
Explores importance of water, the pressures our cities are placing on this precious resource, and ways to protect local drinking water supplies.  
Grades 6-12
<table>
<thead>
<tr>
<th>Title</th>
<th>Duration</th>
<th>Grades</th>
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<tbody>
<tr>
<td>Aquatic Invertebrates and Water Quality</td>
<td>7 min.</td>
<td>6-12</td>
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<tr>
<td>Down the Drain</td>
<td>30 min., 3,2,1 Contact Series</td>
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<td>Headwaters: The Lifeline of a River</td>
<td>28 min.</td>
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<td>It's Found Underground</td>
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<td>Life of the &lt;Great&gt; Lakes</td>
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<td>Michigan's Drinking Water--- Safe, Reliable, and Abundant</td>
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<td>Michigan's Great Lakes Coastal Zone - Part 1: Threatened and Endangered Species</td>
<td>22 min.</td>
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<td>Michigan's Great Lakes Coastal Zone - Part 2: Agriculture, Recreation, Fishing</td>
<td>17 min.</td>
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<td>Michigan's Great Lakes Coastal Zone - Part 3: Commercial Shipping, Industrial Development, Habitat Restoration</td>
<td>20 min.</td>
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<td>Our Valuable Wetlands Resource</td>
<td>27 min.</td>
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<td>Rise and Fall of the Great Lakes</td>
<td>12 min.</td>
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<td>SOS for American Streams</td>
<td>28 min.</td>
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<td>Thousand Friends of Frogs</td>
<td>10 min.</td>
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<td>Torch Lake: An Area of Concern</td>
<td>18 min.</td>
<td>7-12</td>
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<td>We All Live Downstream</td>
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<td>The Wealth of Wetlands</td>
<td>23 min.</td>
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<td>Children's Books</td>
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<td>Come Back, Salmon</td>
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<td>A Drop of Water</td>
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<td>Flush: Treating Wastewater</td>
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<td>Follow the Water from Brook to Ocean</td>
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<td>Henry Goes Underground</td>
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<td>Lake Superior</td>
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<td>2-5</td>
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Links:
Letting Swift River Go by Jane Yolen
Grades K-4
Discusses the destruction of homes to create a reservoir for a large city

The Magic School Bus: At the Waterworks: Water treatment by Joanna Cole
Grades K-4

The Magic School Bus: Wet All Over by Joanna Cole
Grades K-4

Marshes & Swamps by Gail Gibbons
Grades K-4
Information on marshes, swamps, and their importance to nature

McElligot’s Pool by Dr. Seuss
Grades K-3
A child patiently waits to catch a fish despite all the reasons why fish might not be there...

A New True Book: Water Pollution by Darlene R. Stille
Grades 4-6
How we use water and how pollution affects lakes and oceans

A New True Book: Wetlands by Emilie U. Lepthien and Joan Kalbacken
Grades 4-6
Defines different types of wetlands, where they’re found, wildlife uses, pollution, and laws

Oil Spill! by Melvin Berger
Grades K-4
Discusses how oil spills occur, how they are cleaned up, and how they can be prevented; specifically the Exxon-Valdez spill

One Small Square: Pond by Donald M. Silver
Grades K-4
Visiting a pond from a child’s perspective

Paddle-To-The-Sea by Holling C. Holling
Grades K-4
A toy wooden canoe’s journey from Lake Superior to the Atlantic Ocean

Peter’s Place by Sally Grindley
Grades K-3
Peter tries to help animals in an oil spill

The Rainstick: A Fable by Sandra Chisholm Robinson
Grades 2-6
A fable about a West African boy’s quest for rain; includes instructions for making rain sticks

The Salamander Room by Anne Mazer
Grades Pre-4
Describes a salamander’s habitat in a fun way
A fun, colorful beginning book about water

Water by Francois Michel
Grades K-6
An amazing pop-up, pull-tab, lift-the-flap guide to all aspects of water—groundwater, streams, floods, drinking water, and more

Water Dance by Thomas Locker
Grades K-4
Poems and Pictures about water

Where the River Begins by Thomas Locker
Grades K-4
Two boys follow a river to its beginning

Reference Books:
Aquatic Entomology by W. Patrick McCafferty
Grades 6-12
Illustrated guide to aquatic insects and their relatives.

How to Know the Aquatic Insects by Dennis Lehmkuhl
Grades 6-12
Provides a key to Aquatic Insect Orders and Families, morphology of insects, and use of aquatic insects as pollution indicators.

Great Lakes: An Environmental Atlas and Resource Book by U.S. EPA
Grades 5-12
Outstanding compilation of information and maps about the Great Lakes

Water Quality Indicators Guide: Surface Water USDA
Grades 7-12
Examines agricultural related nonpoint source pollution, how to identify pollutants, and recommends best management practices (BMPs) to reduce or eliminate pollution

Classroom Posters:
Eat Or Be Eaten At The Wetland Cafe
Grades K-2
Perfect for laminating as a placemat, for a daily reminder of food chains; EPA & TVA

The Water Cycle: Nature’s Recycling System
Grades 4-9
USDA & Water Environment Federation

Where Land Meets Water: Soil Erosion and Sedimentation
Grades 4-9
Great Lakes Commission http://www.glc.org/basin/pubs/wlmw.html

Great Lakes Basin Map (and maps of each Great Lake)
Grades 6-12
Michigan Sea Grant http://www.miseagrant.umich.edu/store

https://huskymail.mtu.edu/service/home/~/K-12 Water Educ
 Mats.docx?auth=co&loc=en_US&id=12349&part=3
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