

Watershed Education Resources

Materials and Programs for Teaching about the New York City Water System and the Catskill-Delaware Watershed

Cultural Programs

“City That Drinks the Mountain Sky,” a production of Arm-of-the-Sea Theater
www.armofthesea.org 845-246-7873

This lively, large-scale theater production tells the epic story of New York City's water supply system. The show, created in 1999, features hand-painted sets, dozens of mask and puppet characters and wonderful live music. It has received rave reviews at schools and festivals throughout the region. Arm-of-the-Sea Theater has been producing high quality arts-in-education programs for more than 20 years; this is one of their most successful school shows. Study guide and post performance discussion included with each school-day performance.

Fees in WOH Watershed: \$1,150 for one show; \$1,550 for two shows at same location
Fees in NYC: \$1,400 for one show; \$1,700 for two shows at same location

River of Words, and other programs offered by NYS DEC Educator Rich Parisio rfparisi@gw.dec.state.ny.us;
845-831-8780, ext. 302

River of Words is an interdisciplinary program in watershed education, for grades K-12. Students investigate their own watersheds by writing site-specific nature poetry which is enriched by their studies of local flora, fauna, geology, and cultural history. Workshops for teachers, and outreach programs for school classes are presented free of charge by NYS Department of Environmental Conservation environmental educator Rich Parisio. River of Words workshop participants receive a free Watershed Explorer Curriculum and K-12 Educator’s Guide. Rich Parisio also offers free illustrated talks for upper elementary, middle school, high school, and adult audiences: “History of the Catskill Region and Forest Preserve,” and “Naturalist John Burroughs: His Life and Work.”

Field Trips and Environmental Education Centers

Agroforestry Resource Center, a program of Cornell Cooperative Extension of Greene County
Acra, Greene County. 518-622-9820; www.cce.cornell.edu/arc

The Agroforestry Resource Center provides educational programs, supports research, and promotes collaboration among organizations concerned with sustaining the forest-dominated landscape of the Catskill Mountain/Hudson Valley Region. The goal is to promote sustainable practices that will provide economic benefits to landowners and communities while preserving forested areas so they continue to provide ecological, economic and public health benefits. Adjacent tree farm is site of annual Environmental Awareness Days for Greene County 6th graders. Contact Marilyn Wyman, mfw10@cornell.edu

Ashokan Field Campus of SUNY New Paltz
Olivebridge, Ulster County; www.ashokanfieldcampus.org,
ashokan@newpaltz.edu; 845-657-8333

The Ashokan Field Campus offers a Watershed Curriculum drawing on the facility's proximity to the Ashokan Reservoir. The activities are geared for elementary through high school students. You can choose from a list of natural history and science programs and hikes. Program durations vary. A three-day, two-night residential program (5 educational programs, 4 recreational periods, 7 meals, room, overnight dorm supervision) is approximately \$170 per person (rate varies depending on group size). A one-day /two-program visit is approx. \$11 per person.

Frost Valley YMCA Environmental Education Center

Claryville, Ulster County, www.frostvalley.org 845-985-2291; enved@frostvalley.org

At FV's campus: Choose from 11 science-related programs for elementary through high school level. Three-day, two-night stay costs \$151/person (students and chaperones) and includes room, board and educational programs. Streamside Classroom, acid rain research station, and composting/recycling center on campus. Also available: One-day Model Forest Tour with two related programs to help students understand the relationship between water quality and working forest landscapes: \$20 per person.

At your school: FV educators travel to schools within a 60-mile radius of Frost Valley to provide lessons ranging from Forest and Wildlife Ecology, to Resource Recovery, Environmental Ethics, and Outdoor Living Skills. Programs run for 90 to 120 minutes and cost \$150/class. Scholarship assistance may be available for both residential and in-school programs.

Model Forest Tours, offered by the Watershed Agricultural Council's Forestry Program www.nycwatershed.org/edu

The Watershed Forestry Program coordinates two model forests – the Lennox Memorial Forest in Delhi, Delaware County, and the Frost Valley Model Forest at Frost Valley YMCA in Claryville, Ulster County. The model forests integrate water quality research, and demonstration sites for various silvicultural practices. Visitors and groups travel a two-mile road marked with interpretive signs explaining Best Management Practices for logging and management techniques designed to achieve specific forestry, habitat and water quality objectives. Lennox contact: John Hannum, 607-865-6531; jth44@cornell.edu. Frost Valley contact: Jennifer Standish, 845-586-2291; jstandish@frostvalley.org

The Gilboa Museum and Fossils, a project of the Gilboa Historical Society Stryker Road, off Route 990V, Gilboa

Much of the evidence for what is known about terrestrial life during the Devonian period in North America has come from some extraordinary fossils discovered in Gilboa, Schoharie County over the last 150 years. The Gilboa Museum, one-half mile from NYS Route 30, has some of the world's oldest fossilized trees on display, along with a mural depicting Devonian Dawn, and photos and artifacts from the original village of Gilboa before it was condemned to construct the Schoharie Reservoir, completed in 1925. The museum is open weekends in summer and fall. Group tours are available mid-week, or during winter by appointment. Suggested donation \$1 per person. An outdoor fossil exhibit is on display along NYC Road 990V not far from the museum. The display has nine large fossilized tree stumps with an information kiosk. A book and video on the Gilboa Fossils are available for sale. To arrange a tour, contact Kristen Wyckoff, 607-588 9413; kwyckoff@dmcom.net. Tours not available February-early April.

Life at Lake Wawaka/Delaware & Ulster Rail Ride, a program of the Catskill Revitalization Corp. www.durr.org

A 14-mile round trip excursion aboard the Delaware & Ulster Rail Ride from Arkville to Halcottsville takes groups to the shores of Lake Wawaka (Halcottsville Pond). There they visit a learning station to explore the intersection of natural and human history in this little hamlet on the East Branch of the Delaware River. Pre- and post-visit classroom materials and teacher guide available. Cost is \$5 per student, program is available from late May through late October. Contact Dave Riordan, 607-652-2821; fun@durr.org.

Reservoir Kiosks, a project of the Catskill Watershed Corporation (CWC)

www.cwconline.org/special/comm_pro.html

In an effort to recognize the sacrifices made by the Watershed communities on behalf of New York City water, the CWC spearheaded a project to erect outdoor exhibits (kiosks) and road signs at the City's six West of Hudson reservoirs. The kiosks contain text and photographs explaining the history of the 25 communities which were removed or relocated to make way for the Ashokan, Schoharie, Neversink, Rondout, Pepacton and Cannonsville reservoirs built between 1907 and 1965. The exhibits also chart the NYC Water System, one of the world's engineering marvels, and explain what is being done to protect this critical resource. For kiosk locations, go to website above. For other information on Watershed history, contact Diane Galusha, 845-586-1400. ext. 29; galusha@cwconline.org

Classroom-based Science Programs

Streamwatch, a program of the Catskill Center for Conservation & Development

www.catskillcenter.org 845-586-2611

A program developed in partnership with local schools, Streamwatch is a four-day sequence, one hour each day, that promotes environmental stewardship and gets kids excited about science by collecting creatures in a local stream. This 4-day program costs \$500 for one class, and \$100 for each additional class. Contact Emma Bachmann, 845-586-2611; ebachmann@catskillcenter.org.

Trout in the Classroom, a program of Trout Unlimited

www.troutintheclassroom.com; 718-595-3503

Raise trout from eggs to fingerlings in a classroom tank. Students monitor fish development and water quality, collaborate and share data with other participating NYC and Watershed schools. A high level of commitment is required all year long, from the September tank set-up through release of trout in the spring. NYC schools wishing to release fingerlings in the Watershed are encouraged to apply for Watershed Forestry Bus Tour Grant (see Funding Sources) to cover transportation costs. \$1,300 purchases a 30- to 50-gallon tank and all equipment (chiller, sterilizer, filter etc.). Year-long support is available from the Trout in the Classroom Coordinator Rochelle Gandour, rgandour@tu.org.

Outdoor Ecology Lessons offered by New York State Department of Environmental Conservation

For middle-elementary age through high school students, these free programs are designed for classrooms and school grounds. They include Modeling a Watershed, Mapping Our Watershed, Stream Watch and Tree Study. To arrange for a lesson, contact Rich Parisio, 845-831-8780; rparisio@hotmail.com

Forest Lessons, offered by The Catskill Forest Association, Inc.

(845) 586-3054; cfa@catskill.net

Custom lessons are available to all school audiences on forestry and forest management topics ranging from tree growth, forest health and tree identification to forestry careers and wildlife habitat. Activities are usually done on school grounds, using on-site materials (leaves, seeds, skulls, twigs) as available. Indoor lessons are also an option. In addition to providing custom lessons, CFA often uses lesson plans from the nationally-renowned Project Learning Tree curriculum. Costs vary depending upon schedule, travel distance and preparation time.

Green Connections, funded by the Watershed Forestry Program of the Watershed Agricultural Council; coordinated by Catskill Center for Conservation & Development

Green Connections is a yearlong extension of the Watershed Forestry Institute for Teachers (*see Professional Development category below*) and is designed to establish a partnership between middle school classes in the West-of-Hudson NYC Watershed and the City. The purpose of Green Connections is to educate students about the important connection between water quality and healthy forests. Contact Jessica Olenych, 845-586-2611; jolenych@catskillcenter.org.

Cornell Cooperative Extension

Contact the following CCE representatives for information on environmental programs and materials available to teachers and students:

Delaware County: 4-H Director John Hannum, 607-865-6531; jth44@cornell.edu (contact for Lennox Model Forest)

Greene County: Environmental Educator Liz LoGiudice, phone: 518-622-9820; eml37@cornell.edu (coordinates Environmental Awareness Days for Greene County 6th graders)

Schoharie County: 4-H Director Eileen McGuire, 518-234-4303; em96@cornell.edu

Sullivan County: 4-H Director Barbara McCausland, 845-292-4641, Ext. 110; bbm1@cornell.edu (Offers Water Savers 2006, a free in-class, hands-on program)

Ulster County: 4-H Director Patti Zellner, 845-340-3990; psz@cornell.edu (coordinates Environmental Awareness Day for Ulster County 6th graders)

Education Programs and Materials offered by The New York City Department of Environmental Protection (DEP)

www.ci.nyc.ny.us/html/dep/html/educres

DEP's Bureau of Public and Intergovernmental Affairs offers free education [resources](#) for students, teachers, administrators and parents in the City and in its upstate Watersheds. These include information about the City's water supply and wastewater treatment systems, water conservation, water and air quality, and other environmental [topics](#). Fact sheets, maps, activity books, and other publications are available in class sets. [Professional development](#) workshops and [inquiry based](#) in-class education programs, reflecting the needs of different grade levels and student abilities, [are provided](#). A Water Conservation Art and Poetry contest is held annually for fifth and sixth graders in NYC and the watershed. For information about DEP's education resources, please visit the DEP website (listed above) or contact DEP at educationoffice@dep.nyc.gov

Professional Development for Educators

Watershed Forestry Institute for Teachers (FIT), a program administered by the Catskill Center for Conservation & Development funded by the Watershed Agricultural Council Forestry Program in partnership with the USDA and the NYC DEP

www.catskillcenter.org; 845-586-2611

Catskill region and NYC teachers come together for a week to build their knowledge base about the natural world, specifically the Catskill Mountain region. Participants learn about and receive copies of a variety of curricula and resources. Examples include *The Catskills: A Sense of Place*, *Project Learning Tree*, and *Trout in the Classroom*. Off-site field trip locations include a nearby reservoir, a model forest, a wastewater treatment plant, among others. The WFIT is held annually in August. Contact Aaron Bennett, 845-586-2611; abennett@catskillcenter.org.

Leaf Pack Network®, a program of Stroud Water Research Center, offered in the West-of-Hudson Watershed by the Catskill Center for Conservation & Development in partnership with Hudson Basin Riverwatch and Riverkeeper

The Center has partnered with Riverkeeper and the Stroud Water Research Center to support another terrific water quality monitoring effort that is available to West-of-Hudson teachers and adult volunteers. The Leaf Pack Network®, funded by New York State DEC, involves placing an artificial leaf pack (dry leaves in a mesh bag) in a local stream for 3-4 weeks. The contents of the packs are then

examined and participants discover the different types of aquatic life that exist and how they indicate stream health. Student and adult groups can share information on-line with other groups throughout in the Watershed and around the world. Contact Emma Bachmann, 845-586-2611; ebachmann@catskillcenter.org.

The Catskills: A Sense of Place, a program of the Catskill Center for Conservation & Development; www.catskillcenter.org; 845-586-2611

A series of curriculum modules helps teachers enliven and enrich their lessons and instill a sense of Catskills pride in their students through lessons and hands-on activities that address NYS Learning Standards. The lessons are designed to fit school curricula. The modules span grade levels 3-12, so students can benefit from these engaging, place-based studies over a period of years. Contact Aaron Bennett, 845-586-2611; abennett@catskillcenter.org.

Project WET, a program of the NYS Department of Environmental Conservation (DEC) Project WET (Water Education for Teachers) is an interdisciplinary program for educators and youth leaders. The goal is to facilitate the awareness, appreciation, knowledge and stewardship of water resources. WET workshops for teachers include a sampling from the Project WET activity guide which contains 91 hands-on, fun, easy-to-use activities for grades K-12. Participants receive a copy of the guide with assessment strategies and skill charts. Workshop and guide are free. To find out about Project WET workshops, call Dee Strnisa (Region 4), 518-475-0291; distrnis@gw.dec.state.ny.us; or Cindy Simpson (Region 3), 845-831-8780; cmsimpso@gw.dec.state.ny.us.

Funding Sources

Watershed Forestry Bus Tour Grants, a program of the Watershed Agricultural Council's Forestry Program, administered by the Catskill Center for Conservation & Development; www.nycwatershed.org/edu; 845-586-2611

The Bus Tour Grant Program, funded through the Watershed Forestry Program of the Watershed Agricultural Council, is designed to connect people in New York City with the Catskill Mountain and the East-of-Hudson region, where their water supply originates. The grants (up to \$3,000) are available to any group in NYC that has the capacity to organize and coordinate a tour. Itinerary planning assistance is available. Contact Jessica Olenych, 845-586-261; jolenych@catskillcenter.org.

Catskill Watershed Corp. Education Grants, a program of the CWC in partnership with the NYC Department of Environmental Protection www.cwconline.org; 845-586-1400

Grants ranging from \$750 to \$10,000 are available to schools and non-profit organizations in the West-of-Hudson watershed and the five boroughs of NYC for projects and programs to enhance awareness and understanding of water resources, the Watershed, and the NYC Water System. Collaborative projects and upstate-downstate partnerships are encouraged. Applicants may choose from a list of Special Options if they do not have an original proposal. Applications are available in mid-November for February submission. Contact Diane Galusha, 845-586-1400, ext. 29; galusha@cwconline.org.