New York State Department of Environmental Conservation

Environmental Science Education Programs

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The New York State Department of Environmental Conservation is a government agency dedicated to conserving and protecting New York’s natural resources, as well as enhancing the health and safety of the people of the state. The DEC Environmental Education unit also aims to communicate our message to the people of New York, to help the citizens become more knowledgeable and responsible for the environment around their community.

The DEC offers environmental science programs to students, scouts, and other members of the public with the goal of engendering a sense of stewardship for our natural resources through environmental education. The DEC has a team of skilled environmental educators that can visit your sites to provide quality environmental science education. Our lessons augment your existing curricula, and help you coordinate with the NYS Common Core requirements. With each presentation, we offer you a full lesson plan, additional activities for both pre-visit and after we’ve gone, and informational sheets, games, puzzles and activities on the theme of the presentation.

We offer a broad array of programs to school groups ranging from first grade through high school. Included in this brochure are some of the programs we can bring to your students.

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DEC Educator Workshops in Environmental Education

The DEC offers workshops for teachers, youth group leaders and educators using national environmental education programs. The workshop activities and lessons provide teachers with tools to help students strengthen their critical thinking, team building, and problem solving skills. Upon completion of the workshop, you will receive a free lesson book including dozens of topics and many different interdisciplinary approaches to classroom and outdoor teaching. In most cases, these workshops count toward teacher professional development hours. These workshops can be a valuable resource to augmenting an existing science curriculum with hands-on activities and games for your students. The duration of most workshops is three hours, with some six hour sessions.

We maintain a listserv of emails to notify interested educators of upcoming workshops. If you provide your email, we’ll happily add you to the list. If you would like to host a workshop at your school or venue of choice, you’ll need a minimum of 15 participants. We will provide the instructors, facilitators and materials. We can offer workshops on weekends, evenings and teacher-development days. You can contact the DEC Environmental Education unit at education1@dec.ny.gov, or by calling (631)444-0347.

Core Workshops

**Project WILD grades PK-12** ([www.projectwild.org](http://www.projectwild.org))
This award-winning workshop offers lessons and activities intended to teach wildlife-based conservation and environmental education to teachers and community leaders. The goal is to foster a sense of stewardship in students, promoting responsible actions toward wildlife and related natural resources.

**Project WET grades PK-12** ([Water Education for Teachers](http://www.projectwet.org))
This workshop is an interdisciplinary water science program for educators. Project WET lessons are designed to help students make informed decisions about water resource management and to promote student stewardship of natural resources.

**Project Learning Tree grades PK-8** ([www.plt.org](http://www.plt.org))
An award-winning curriculum that uses the forest as a “window” to help students and educators gain awareness and knowledge of the natural world. Much of the curriculum focuses on practical, familiar examples of trees, plants and household products to paint a broader picture of the issues facing the environment today.
Focused Workshops

Project WILD Aquatic
This highly acclaimed workshop emphasizes aquatic wildlife and aquatic ecosystems. The lessons encourage problem-solving and decision-making skills, while inviting students to explore and understand the fascinating world of water and the aquatic habitats it supports. The hands-on activities are designed for integration into existing courses of study for students in grades K-12. (www.projectwild.org)

Flying WILD
This exciting workshop introduces middle school students to bird conservation through standards-based classroom activities and environmental stewardship projects. Flying WILD also supports educators by providing opportunities to inspire students to discover more about the natural world, helping them understand the importance of migratory birds and their conservation. (www.flyingwild.org)

Growing Up WILD
This early childhood education program builds on children’s sense of wonder about nature and invites them to explore wildlife and the world around them. Through a wide range of activities, Growing Up WILD provides a foundation for developing positive impressions about nature and lifelong skills. (www.projectwild.org/GrowingUpWILD.htm)

Project Learning Tree: Environmental Experiences for Early Childhood
This Project Learning Tree early childhood education program focuses on exploring nature as a complete sensory experience. Early experiences with the natural world excite children’s imaginations and foster their inborn sense of wonder and curiosity. Environmental Experiences for Early Childhood provides the framework for influencing lifelong learning and positive values toward the natural world. (www.plt.org)

Project Learning Tree: Exploring Environmental Issues (www.plt.org)
This Project Learning Tree early childhood education program focuses on exploring nature as a complete sensory experience. Early experiences with the natural world excite children’s imaginations and foster their inborn sense of wonder and curiosity. Environmental Experiences for Early Childhood provides the framework for influencing lifelong learning and positive values toward the natural world.

Four separate modules of PLT for teachers of students in grades 9-12

PLT: Places We Live
This Project Learning Tree secondary education module provides educators with a useful tool for place-based education to help create a bond between young citizens and their communities. Students will explore current and future community environmental issues, enabling them to make informed decisions about those issues.

PLT: Focus on Forests
This Project Learning Tree secondary education program is designed to foster student understanding of and appreciation for forested lands throughout North America. The module’s activities provide an opportunity for hands-on study of forest resources while addressing concepts in biology, civics, ecology, economics, forest management and other subject areas.

PLT: Municipal Solid Waste
This Project Learning Tree secondary education module uses hands-on experiences to show interrelationships among waste generation, natural resource use, and disposal. The activities guide students through the waste management strategies and solutions while providing the necessary tools to make informed decisions and choices on waste management issues.

PLT: Focus on Risk
This secondary education module helps students explore the different aspects of environmental and human health risks that affect their everyday lives. Through eight hands-on activities, students analyze, explore, discover, and learn about risk assessment, risk communication, risk perception, and risk management. There are also three special topics that encourage students to apply their knowledge real-life risk issues. Critical thinking, problem solving, and decision making are emphasized throughout the module.
Programs Taught at Your School

- If a topic you’d like us to present is not listed here, please contact us; often we can adapt to your needs.
- Please allot each class the time indicated for each program. Some presentations can be extended.
- Please organize your groups so that there are no more than 40 students per class. If you have a larger group, please let us know when you schedule your program so we can make accommodations.
- We would prefer to have one location at the school and move the class to us.
- We provide the lesson plan, additional activities, puzzles and games for you on CD prior to our visit.

Elementary Education Programs

Meet the Animals
Grade 1
45 minute program
Your students will be introduced to live animals and animal artifacts, ranging from insects to mammals. Students will learn about the great diversity of animals in New York and around the world. We will examine similarities and differences among different animal classes, such as mammals, amphibians, fish, insects, birds and reptiles.

Insects Galore!
Grades 1 through 3
45 minute program
Your students will brush up on their familiarity with bugs as we introduce them to the life cycles and the roles insects play in our environment. Through role-play, question-and-answer and demonstrations, we will define what makes an insect different from other ‘bugs,’ the parts of an insect, metamorphosis, and food chains.

Wildlife Conservation - Habitat
Grades 1 through 3
45 minute program
What do animals need to survive? Your students will learn about the needs of local wildlife, including the parts of the habitat: food, shelter, water and space. We will examine why some species are easy to find, and others are very hard to see. Students will help tell the difference between a domestic animal and a wild one, and learn what they can do to help preserve habitat and wildlife around their home.
Reptiles  
*Grades 1 through 5*  
45 minute program  
We will share some facts about these scaly creatures with your classroom. By comparing them with other vertebrates, especially amphibians, your students will learn some basic taxonomy and many interesting reptilian characteristics. We will compare reptiles found in Long Island habitats to reptiles from around the world, including snakes, box turtles and sea turtles.

Wild Defenses  
*Grades 1 through 6*  
45 minute program  
Students will learn all about amazing defenses animals use to avoid being eaten. Educational props will encourage children to look at unusual animals and discover their defensive strategies and adaptations. A narrated power-point presentation offers colorful examples; and props include horns, scales, shells, quills and fur. Topics include camouflage, armor, predator-prey relationships, warning colors, venom, and spines, to name a few.

Long Island Bats  
*Grades 3 through 6*  
45 minute program  
Learn about these common yet elusive creatures with an in-depth power point presentation. Dispel common misconceptions about bats and learn some amazing facts about the Earth’s only flying mammals. Topics include bat anatomy, their role in the food chain, echolocation, diversity, and conservation.

Skull Science  
*Grades 3 through 6*  
45 minute program  
Animal skulls can tell us many things. During this program, students will study the skulls of New York State mammals, and try to determine the diet of the animal based on dentition. Educators will point out muscle attachments, eye placement, skull size, and other characteristics to help students see the animal through the bones. Topics covered include decomposition, adaptations, diets, food chains, conservation, predation and biology.

Water Wonders  
*Grades 4 through 6*  
2 or 3 25 minute activities  
Through a series of three independent interactive activities, students will explore: how pollution can potentially contaminate our aquifer, how vegetation helps reduce erosion, and how vegetation in wetlands can positively effect runoff. Students will feel empowered to make a difference in their environment by better managing potential water pollutants and recognizing areas affected by runoff and erosion.
**Pond Ecology**  
*Grades 4 through 6*  
45 minute program

Explore the mysteries of pond life without leaving the classroom! Educators will bring the pond right to you. Students will have the opportunity to study a large variety of small pond dwellers common in neighborhood ponds using a number of scientific methods taught by our educators. Students will learn how to use scientific tools, hone their observation skills, and learn as a cooperative scientific team.

**Long Island Beach Life**  
*Grades 3 through 6*  
45 minute program

Students will have the opportunity to consider the bounty of the sea. Educators will bring a collection of assorted marine artifacts, including shells, shark teeth, and a sea turtle shell. We will relate the artifacts to understand the marine food web, beach ecology, pollution, tides and the relationship every Long Islander has to our beaches and waters.

**Wildlife Conservation - Endangered Species**  
*Grades 4 through 6*  
45 minute program

Through this program, students will explore why some animals become scarce when their habitat becomes threatened. We will examine human impacts on wild animal populations. Through animal artifacts, products, and a live example, students will learn about the effects of habitat loss, pollution, and over-hunting on local wildlife and animals worldwide.

**The Five Classes of Vertebrates**  
*Grades 4 through 8*  
45 minute program

Your students will be introduced to examples of mammals, birds, amphibians, reptiles and fish. We use live examples and taxidermy props in hands-on learning about the differences and similarities that these taxonomic groups share. Students examine adaptations that help each animal live in its habitat. Comparative anatomy helps students differentiate between vertebrate classes.

**Where is Away?**  
*Grades 4 through 8*  
45 minute program

This program is all about trash! Where does the garbage go once you throw it in the wastebasket? There are many things we can do to help reduce our impact on the Earth, and we’ll look at some easy steps you can take to reduce the waste you create. Learn about waste reduction, recycling, composting, landfills, and garbage.
Secondary Education Programs

**Tree Cookies**  
*Grades 5-8*  
40 minute program

Your students will have the opportunity to see the ‘forest for the trees’ as they learn how trees live, grow and compete. We will bring *tree cookies* - thin sections of tree trunk - and encourage your students to determine the age of the tree. Basic forestry methods will be used to measure the wood cookie and students will use the evidence they discover to interpret how that tree grew throughout its many years.

_This program can be extended to include outdoor measurements of trees on your school campus. Please ask us about other forestry opportunities for your students._

**Aquatic Science**  
*Grades 7-9*  
40 minute program  
*Available May through October*

Students become researchers in the classroom. They will have the opportunity to study live macro-invertebrates at school collected from Long Island ponds. They will use scientific exploration, observation skills and cooperative learning. Topics explored include invertebrate biology, food webs, pollution, life cycles, bioaccumulation, conservation of resources and scientific method.

**Biology of Bats**  
*Grades 6-12*  
40 minute program

Learn about these common yet elusive creatures with an in-depth power point presentation. Dispel common misconceptions about bats, and learn some amazing facts about the Earth’s only flying mammals. Topics include bat anatomy, their role in the food chain, echolocation, diversity, and conservation.
Wildlife Forensics
Grades 6-12
40 minute program

Students will become scientists, studying mammal skulls of New York State. The students will determine the diet, the species and other characteristics of the animal based on observations of the teeth and the shape of the skull. Educators will point out muscle attachments, eye placement, skull size and other characteristics to help students see the animal through the bones. Topics covered include decomposition, adaptation, diet, food chains, conservation, predation and biology.

An in-program extension is available to examine horns, antlers and pelts. This would increase the duration of the program to 60 minutes, or two periods.

Wildlife Conservation - International Trade of Wildlife
Grades 6-12
90 minute program
Or a double-period

Using animal products and educational props, environmental education staff will help students explore the importance of habitat protection and conservation. The program will focus on how some creatures became threatened or endangered, as well as how people can choose to make a positive impact on the environment. This presentation can be a useful tool in preparing students for the environmental section of the 10th grade Regents test. Topics covered include loss of habitat, invasive species, pollution, the pet trade, over-hunting, local stewardship and biodiversity.
Educator-led Hikes
Locations vary, availability may be limited. We work with you to find a park location near your group to make busing and carpooling as convenient as possible. Hikes can be conducted on school grounds as well if there are sufficient trails.

Wonders of the Woods
Grades 2 through 5
Allow 1 ½ hours of programming
Explore nature! Your students will learn birding and botany basics with our education staff. Children will be introduced to a variety of areas where they will investigate the importance of conservation, food chains, defenses and habitats. This hike will be hands-on, and students will use their senses to explore the world around them. Topics include the geology of Long Island, wetland habitats, biodiversity, invasive species, endangered species, animal defenses, succession and the importance of the Pine Barrens to Long Island. Habitats and specifics vary by site.

Field Biology
Grades 6 through 12
Allow 1½ to 2 ½ hours of programming
Our educators will guide your students through an exploration of Long Island’s wild places. As a group, we will see the effects that development has had on the ecosystem, and whether or not the flora and fauna have adapted to human impacts. Topics analyzed may include seasonal wildlife adaptations, land succession, water and soil quality, loss of biodiversity and the importance of open spaces. Habitats and specifics vary by site. A water quality testing kit is available. If you are interested, please ask to have it included in the hike.

Pond Life
Grades 4 through 12
Allow 1½ to 2 hours of programming
Splash into learning about pond life! Students will use magnifying glasses and scientific keys to identify local fauna in our ponds, from near-microscopic larvae to large turtles. Cooperative learning is encouraged as students team up in groups to identify critters they have found. Topics covered include food webs, life cycles, predation, animal defenses, invertebrate biology, decomposition, succession and human impacts.

We can offer many additional topics to match your curricula needs. If there is a topic that you do not see described above, please contact us. We have offered programs on topics such as marine biology, forestry, fire ecology, insects, reptiles, pollution, water cycles, geology, and more.
Scout Programs

The DEC environmental education staff can help your scout group accomplish a variety of badges and service projects. Staff is available to make presentations at monthly pack nights or gatherings. These evening presentations are free of charge, and available on a limited basis. Please call as far in advance as possible.

Badge Work:
We are often asked to help achieve badge requirements. We can act as the ‘expert’ needed to answer questions for the badge. You will need to organize a group of scouts so we can lead a hike at an appropriate park, and incorporate the badge requirements in the exploration. We need at least 10 participating scouts, and appropriate chaperones and scout leaders. You will need to provide us with the requirements you’d like us to fulfill in advance to allow us to prepare.

Pack Nights / Troop Meetings:
Our educators can be a guest speaker at your scout gathering. We offer several of our in-school presentations to your whole group of scouts, siblings and parents. We recommend one of the following:

- Wild Defenses (pg5)
- Long Island Bats (pg5)
- Skull Science (pg5)
- Where is Away? (pg6)
- Wildfires (pg7)

These programs have been offered in the past to large groups of mixed ages with success. Wild Defenses and Long Island Bats require you to provide electricity and a screen.
Frequently Asked Questions:

Q: Can I attend a workshop if I’m not a formal classroom educator?
A: Yes. As long as you work with youth, we’d love to have you. We’ve had scout leaders, pre-service educators, school administrators, nature center volunteers, home-school moms and dads, and park staff attend workshops.

Q: Do you offer presentations to the whole school at once?
A: No. We do not offer assembly presentations other than our scout group events. We believe it is more effective to work with one classroom at a time.

Q: Can you travel from classroom to classroom?
A: Yes, but only if there is no other alternative. Our presentations include a good number of animal artifacts that take time to set up for each presentation. Please provide a single location for us to use for the day, and have the classes visit us.

Q: Is anything that you have dangerous?
A: No. Any live animal can bite, but we do not bring dangerous animals to schools. We make great efforts to ensure that the students we meet have a positive impression of the organisms we share. If there are classroom allergies, please let us know in advance.

Q: Are you insured?
A: Yes. DEC is a governmental agency and is self-insured.

Q: How much time do you need between each presentation?
A: We request 10 minutes between each presentation.

Q: Do you work with special education students?
A: Of course. We can offer presentations to their class by themselves, or they can join a full class for a presentation. If the group will require a special approach, please let us know in advance.

Q: How do you offer these programs free of charge?
A: DEC is a governmental agency. Our outreach program intends to connect New Yorkers to nature. We are fully funded and do not require charging for our presentations.