

WESTERN SUFFOLK BOCES



Long Island's diverse ecosystems are perfect classrooms for science learning and exploration. Western Suffolk BOCES Outdoor Environmental Education Program (OEEP) capitalizes on the geography, plants, animal species and aquatic life of the region to cultivate multidisciplinary programs that promote science learning. Through direct observation and hands-on experiences, the OEEP expands the existing school curriculum beyond the traditional classroom and provides students opportunities to explore and connect with the natural world. This exploration directly supports NYS Science Learning Standards and fosters appreciation for the natural environment and encourages its preservation and rational use.

The OEEP supports districts by developing and providing authentic science activities and interactive experiences with nature that: incorporate natural resources in inter-disciplinary projects where students must analyze and interpret data, observe, hypothesize, experiment and draw conclusions; integrate environmental concepts into language arts, math, social studies, science and arts instruction; support teachers with in-service training, curriculum development and special services.

TEAMING WITH TEACHERS THROUGH DAY-USE CLASSES

Teacher participation is essential to the success of OEEP programs. Our environmental education training program provides teachers with the knowledge and professional resources to conduct engaging and effective classes at our outdoor learning labs. During training, teachers engage in activities relating to NYS

Science Learning Standards; marine, freshwater and terrestrial ecology; earth's systems, weather and climate, structure and function of organisms, and inheritance and variation in traits.

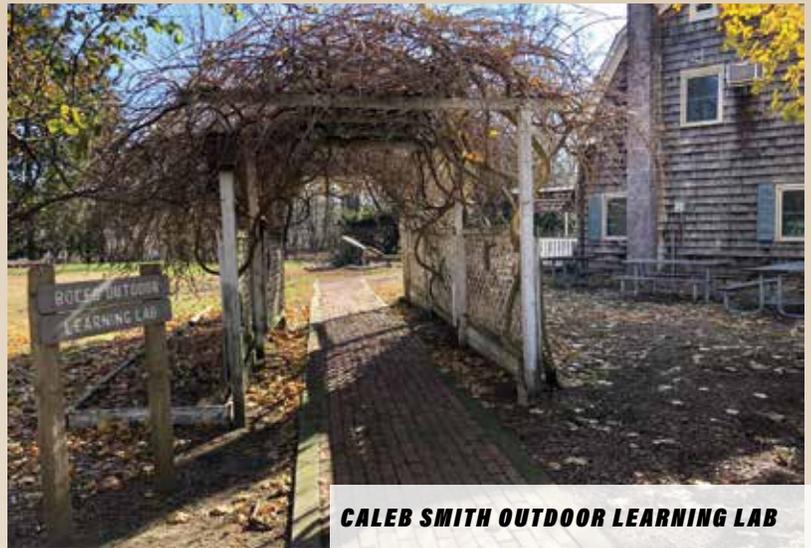
Throughout the training, teachers build site-specific curriculum guides for lessons that take full advantage of the equipment, resources and staff at each outdoor learning lab.



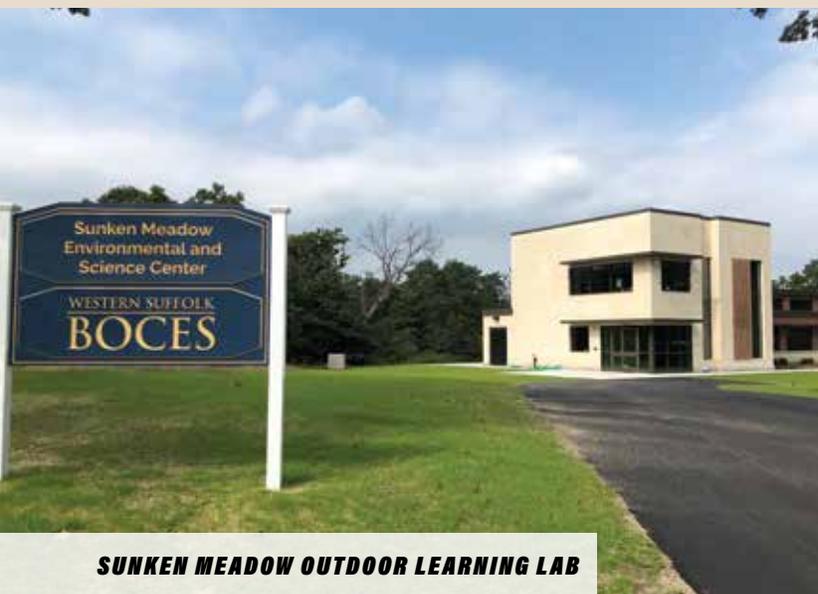
CALEB SMITH OUTDOOR LEARNING LAB

Located in the 543-acre Caleb Smith State Park Preserve in Smithtown, the laboratory contains displays that reflect the environment that surrounds it and encourages exploration of the vast deciduous woodlands and ponds in the park. Learning opportunities include:

- Freshwater ecosystem study
- Insect study
- Macroinvertebrate bioindicator investigation and water quality testing
- Ornithology investigations
- Weather, animal adaptations, and bird study
- Mineral identification, topographical maps, erosion study
- Weather and Earth systems
- Weather and the Water Cycle



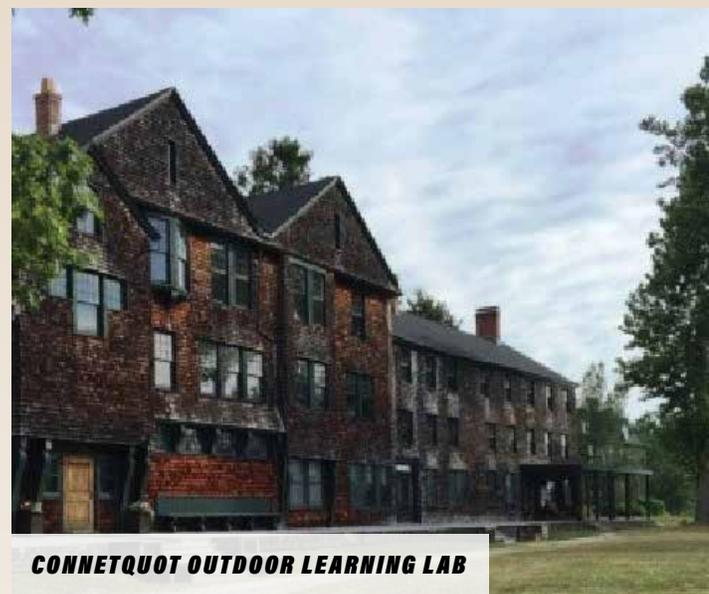
CALEB SMITH OUTDOOR LEARNING LAB



SUNKEN MEADOW OUTDOOR LEARNING LAB

Our newly renovated and energy efficient science facility is located in a secluded area of the 1,226-acre Sunken Meadow State park that borders the Long Island Sound. The lab serves as a base for teacher trainings and STEM-based student activities and offers a wealth of interpretive displays and aquaria. This unique facility offers an exciting variety of hands-on learning opportunities including:

- Earth Science investigations
- Geology-mineral identification, topographical maps, erosion study
- Glaciers and Long Island's formation
- Greenbelt hiking -trails, map reading, orienteering and compass course
- Low Ropes Challenge Course and Team Building
- Macroinvertebrate study and water quality testing
- Ornithology investigations
- Plankton studies
- Plant and animal identification
- Pond study
- Salt marsh
- Seine fishing
- Interaction with salt marsh plants and animals
- Seasonal signs (combination of weather, animal adaptations, and bird study)
- Trees and plant identification and feature analysis
- Waves and energy



CONNETQUOT OUTDOOR LEARNING LAB

Located in the Connetquot River State Park, in part of the historic Snedecor Inn, this location is surrounded by the Long Island Pine Barrens. This lab provides an opportunity for students to explore a freshwater stream, a river ecosystem and a working trout hatchery and centuries-old gristmill.

- Environmental Chemistry
- Freshwater ecosystem study
- Hiking, map reading, orienteering and compass course
- Biosphere, geosphere, hydrosphere and atmosphere interactions
- Macroinvertebrate bioindicator investigation and water quality testing
- Nicoll's Grist Mill tours
- Ornithology investigations
- Pine Barrens ecology
- Soil studies and aquifers
- Southside Sportsmen's Club Main House history
- Trout hatchery/life cycles



RESIDENTIAL PROGRAMS

With the intensive residential experiences, teachers and students live together and build an unrivaled bond as they participate in group and team activities. Residential programs are preceded by in-service training.

LONG ISLAND OPTIONS

Dorothy P. Flint (Fall/Spring)

Cornell Cooperative Extension/ 4H Division, Riverhead

- Features: woodlands, working farm and boardwalk/trail to the seashore
- Facilities: science center, open-air arts and crafts building and 40 cabins
- (Fall/Spring)

Camp Quinipet (Fall/Spring)

United Methodist Church, Shelter Island

- Features woodland property on Peconic Bay
- Facilities: 7 heated guest houses, indoor recreation and arts/crafts facility, meeting rooms, modern dining hall

OFF LONG ISLAND

Frost Valley Environmental Education Center (Fall/Winter/Spring)

Frost Valley YMCA, Oliverea

- Activities: Project Adventure, geology, and orienteering
- Features: 4,500-acre Catskill Forest Preserve
- Facilities: winterized facilities, two program centers, 45 cabins, 9 lodges, and dining hall

Greenkill Outdoor/Environmental Education Center (Fall/Winter/Spring)

YMCA-YWCA Camping Services of Greater New York, Huguenot

- Activities: wildlife studies, Project Adventure, forest ecology
- Features: deciduous and coniferous forest, fields and ponds
- Facilities: activity lodges, modern dormitories, dining hall

Sharpe Reservation (Fall/Spring)

The Fresh Air Fund, Fishkill

- Activities: hiking, camping, fresh-water studies
- Features: 2550-acre site in southern Dutchess County
- Facilities: self-contained residences, dining hall

CUSTOMIZABLE OUTDOOR ENVIRONMENTAL EDUCATION PROGRAMS

OEEP staff guide students through customized, first-hand investigations of the natural world, providing them with unique, authentic science experiences at sites throughout Long Island. Recognizing that each school district has its own unique curricula needs, the Outdoor Environmental Education Program staff are available to collaborate with district staff to create innovative and customized programs that allow students to practice authentic science. These programs assist students in acquiring the skills necessary to master NYS Learning Standards across all content areas.

BAY INVESTIGATIONS

Conducted in Shinnecock Bay aboard the research vessel Peconic, or in the Great South Bay from Captree Boat Basin, students investigate the physical and biological environment of the bay with nets and sampling equipment.

CHALLENGE COURSE

Supporting the Character Education curriculum, the Challenge Course at the Sunken Meadow Lab allows students to work cooperatively under the guidance of an instructor/facilitator on increasingly difficult group tasks and team-building exercises.

CONSERVATION BIOLOGY

Engaging real world projects include a native brook trout reintroduction, invasive pine beetle study and pine tree reintroduction project.

DISSECTIONS

In school or at an Outdoor Learning Lab, a trained biologist leads students through dissection of owl pellets, albatross bolus, frogs, pigs, sheep brains, sheep eyes, bovine hearts, bovine ovaries, squid, clams and other specimens. This is a great addition to any biology, physiology or psychology class.

EARTH BALLOON

This 19-ft. inflatable globe employs high quality satellite images for exciting and interactive science and geography programs ranging from Biomes

to Human Development. Grade-appropriate programs that emphasize geographic literacy take place in home school and the Earth Balloon can be used in multiple classes each day.

ECOLOGY AWARENESS

Basic ecology principles and concepts are introduced through the investigation of woodland, freshwater, and marine environments.

EXPLORING LONG ISLAND'S FISHERIES RESOURCES

Students investigate fish anatomy, physiology and ecology, explore fishery habitats and learn about the socio-economic factors affecting fisheries.

EXPLORING LONG ISLAND'S SECRET WILDERNESS

The Pine Barrens are the center of student exploration through field excursions, classroom and field exercise, a canoe trip and guest lectures. Students gain an understanding of groundwater, watershed, fire climax forest, and plant and animal competition.

FARMING THE SEA: A MARICULTURE PROJECT

Students learn about a new type of agriculture – mariculture – by growing hard-shelled clams under controlled conditions which are then seeded in Long Island Sound to help restock coastal waters. Field work included.

FIELD NATURAL HISTORY

Students learn the geology, biology, and history of freshwater, marine, and terrestrial environments by studying the Nissequogue and Peconic watersheds.

FIELD RESEARCH EXPEDITION PROGRAM

Critical-thinking skills are strengthened as students investigate environmental issues and conduct independent research which involves local travel and research and publication of projects.

FIRE ISLAND ECOLOGY

Focused on interpreting Long Island's barrier beach environment and showing students its diversity, the program facilitates an understanding of how this environment influences the inhabitation of organisms.





MARINE STUDIES I

Students explore, investigate, and compare marine habitats, flora, fauna and Long Island nautical heritage.

MARINE STUDIES II

Students explore, investigate, and compare marine environments, including estuary/salt marsh, rocky inter-tidal, and seashore at various locations across Long Island.

NATURE DISCOVERIES

Activities emphasize an interdisciplinary approach to geology, botany, reptiles and amphibians, insects and mammals. Students learn about the availability of natural materials, how they are used, and how to use them in crafts and hobbies.

ORNITHOLOGY

An introduction to the avian world through bird watching, field work and readings, students observe and

learn firsthand how birds function.

STARLAB

This state-of-the-art digital portable planetarium provides an introduction to astronomy and the wonders of the night sky. Grade-appropriate programs take place in your school and can be tailored to meet each class's learning objectives. StarLab is used by one class at a time, and can be used in multiple classes each day.

STUDIES IN LONG ISLAND HISTORY

Incorporating primary source documents and fieldwork to support the NYS Social Studies Standards, this program includes field trips, guest speakers and a written research project focusing on Long Island's history.

WHALES: STUDY AND RESEARCH

Students learn about marine mammal behavior and adaptations, and their role in the ocean's ecosystem.

INSECTS

Focused on the insects of Long Island and their adaptations, anatomy, morphology, and diversity, each topic in this program contains an associated "hands-on" activity.

INTRODUCTION TO INTERMEDIATE LEVEL SCIENCE

Students investigate either a freshwater ecosystem or compare two different biological communities as they employ inquiry-driven skills emphasized in the NYS Science Learning Standards, including transect studies, use of dichotomous keys and microscopy.

MARINE MAMMALS

Students work with a researcher to conduct a postmortem investigation on a porpoise, dolphin or seal in a classroom. This program is highly interactive and allows students to cultivate a deeper understanding of mammals.





SCIENCE ENRICHMENT EXCURSIONS

Through cooperative agreements with other agencies, the OEEP can broaden program offerings and help participating districts choose an education experience that best supports their curriculum or enrichment objectives.

GRADES K-12

OEEP will discuss and offer assistance with all science-based excursions. The OEEP works with arboretums, aquariums, farms, historic sites, museums and nature centers.

BROOKHAVEN NATIONAL LAB

A diverse selection of science activities and laboratory investigations on site at Brookhaven National Lab

COLD SPRING HARBOR LAB

CSHL educational programs introduce students to the newest ideas, discoveries and technologies in biology and life sciences, and allow them to work alongside some of the most innovative scientists in the world in an open and collaborative environment.

CORNELL COOPERATIVE EXTENSION

Educate students by providing research-based information on a wide array of topics including nutrition and wellness, horticulture, environmental protection, marine restoration, sustainable agriculture and more.

SUNY STONY BROOK INSTITUTE FOR STEM

A unique set of hands-on experiences allow students to apply their knowledge of science to solve problems within such subjects as biotechnology, chemistry, sustainable chemistry, earth science, ecology, engineering, physics, and mathematics.

NYS SCIENCE AND ENGINEERING FAIR

OEEP coordinates with NYSSEF and offers this program as a state aidable program.

STEM CURRICULUM MATERIALS

This program provides school districts with the opportunity to collaborate with Western Suffolk BOCES staff and other school districts when making STEM curricula, material and service decisions. The STEM curricula, materials and services offered through this program are designed to assist teachers and administrators with the design and delivery of engaging STEM instruction that supports the New York State P-12 Science Learning Standards.

STEM ACTIVITIES

REMOTE OPERATED VEHICLES (ROV)

This program takes a unique spin on field science by emphasizing engineering and business and tasks students with building a fully functional remotely operated vehicle (ROV) that will explore and collect data in a marine environment. The goals set for the student are to have a functional ROV, keep it within budget, and, in a Shark Tank style presentation, market it to their peers.



MAKERSPACE ACTIVITIES

Through a variety of engineering and problem-solving activities, students are tasked with designing and assembling objects or machines. Some of the resources available are a 3D printer, Littlebits™ and MakerSpace Kits.

BUILDING TASKS

Students learn about the basics of structural engineering to compete in a design challenge. Working in groups, students explore the research and development stage of engineering, design a structure and ultimately construct a structure that will be used to compete against other groups.



The Outdoor Environmental Education Program is a collaborative service of Western Suffolk BOCES and SCOPE Educational Services and is conducted under a Cooperative Agreement between NYS Parks and Western Suffolk BOCES.



For further information contact:

Outdoor Environmental Education Program

810 Meadow Road
Smithtown, NY 11787
631-360-3652

WESTERN SUFFOLK BOCES

Board of Education Administration

Salvatore Marinello, *President*
Jeannette Santos, *V. President*
Ilene Herz, Esq.
Brian J. Sales
Peter Wunsch
Maryann Zumpano

Michael Flynn, *Chief Operating Officer*
Angelique Johnson-Dingle, *District Superintendent*
Renee Allen, *Divisional Administrator*
Daniel Oggeri, *Program Coordinator*

Western Suffolk BOCES Non-Discrimination Notice

The Board of Cooperative Educational Services of Western Suffolk County, New York does not discriminate on the basis of age, religion, creed, ethnic origin, national origin, marital status, race, color, gender, sexual orientation, veteran status, weight, disability or handicap in the educational programs or activities it operates and provides equal access to the Boy Scouts and other designated youth groups. This policy of non-discrimination includes the recruitment, hiring and advancement of employees; salaries, pay and other benefits; counseling services to students; student access to course offerings; lawful political activities; educational programs and other

activities; and the business activities of the Board. Inquiries concerning the application of regulations prohibiting discrimination may be referred to the BOCES Compliance Officer, Dr. Hugh M. Gigante, who may be contacted at 507 Deer Park Road; PO Box 8007, Huntington Station, NY 11746-9007 or 631-549-4900, ext. 204 or email hgigante@wsboces.org. Or, inquiries may be made by contacting the Office for Civil Rights at NY Office for Civil Rights, U.S. Department of Education, 32 Old Slip, 26th Floor, New York, NY 10005-2500 or call 646-428-3900, or fax 646-428-3843, or TDD 800-877-8339 or email OCR.NewYork@ed.gov or file form at <http://www2.ed.gov/about/offices/list/ocr/complaintintro.html>