

THINGS TO KNOW

- When you register for a class program, a member of the ESC team will contact you to set up a pre-visit planning discussion to help you align the ESC program with your curriculum through readings and pre/post visit activities.
- ESC is an experiential, hands-on learning center and our programs can be differentiated for most special needs populations. Our facility is wheelchair accessible. It should be noted that some of our animals make loud sounds. Please call us at 718.444.6560 so we can discuss your program needs.
- Teachers are welcome and encouraged to visit ESC before class programs. Please contact us at ESC@schools.nyc.gov or 718.444.6560 to schedule a time to tour the center and meet with the ESC team.
- The average class program is 2 ½ hours long. Longer or shorter program lengths will be noted on the registration page.
- Classes are held rain or shine. Dress appropriately – boots, hats, gloves, warm coats on cold/wet days and brimmed hats/sunscreen on sunny days.
- ESC requests that teachers do not combine classes. This will allow all students to get the most out of their time at ESC.
- Discipline is always the responsibility of the class teacher. Please have 1 adult chaperone (18 years or older) for every 10 students.
- Classes may bring lunch and eat in the picnic area outside (weather permitting.) We would strongly encourage school groups to be conscious of their lunch decisions and bring simple (plastic free) lunches that can be enjoyed quickly.
- If your bus is running late, please call us at 718.444.6560 so we can plan accordingly.
- Collecting plants and animals from our facility is not permitted.

ESC TEAM

 **Christine Mazza**, Director
cmazza4@schools.nyc.gov

 **Tracy Byrne**, Middle & High School Science Specialist
tbyrne@schools.nyc.gov

 **Fabiana Cellini**, Middle & High School Science Specialist
fcellini@schools.nyc.gov

 **Sarah Bowers**, Middle & High School Science Specialist
sbowers@schools.nyc.gov

 **Lori Gallagher**, Early Childhood Science Specialist
lgallagher4@schools.nyc.gov

 **Kathleen Roberts**, Ph.D., Program Coordinator
kroberts5@schools.nyc.gov

 **Victoria DiPaolo**, Animal Behaviorist & Caregiver
vdipaolo4@schools.nyc.gov

REGISTER NOW

Visit us at <http://schools.nyc.gov/environmentalcenter> to register for a class program.

PRICING FOR CLASS PROGRAMS

\$50.00 per Special Education Self-Contained class for NYC DOE and NYC charter schools (Check or Money Order)

\$75.00 per class for NYC DOE and NYC charter schools (Check or Money Order)

\$250.00 per class for private schools and schools outside NYC limits (Check or Money Order)

\$300.00 per class for a six-week hydroponic or aquaponic partnership (Check or Money Order)

Full payment is due four weeks prior to the scheduled program visit.

Cancellation Policy – Your notice of cancellation is required two weeks prior to your scheduled visit for a refund or to reschedule for an alternate date.

GETTING HERE

ESC is located in the Bergen Beach section of Brooklyn at **7151 Avenue T, Brooklyn, NY 11234**, next to PS 312. NYC school groups are encouraged to book a NYC Public School Bus for their transportation needs. Schools outside NYC should contact their local bus company.



Environmental Study Center
7151 Avenue T, Brooklyn, NY 11234

T: 718-444-6560
E: ESC@schools.nyc.gov
<http://schools.nyc.gov/environmentalcenter>

Like us on Facebook at www.facebook.com/EnvironmentalStudyCenter to be the first to hear about our teacher programs and our weekend, school vacation and summer programs for students in Pre-K through Grade 12.



The Environmental Study Center is operated by the NYC Department of Education, Division of Teaching and Learning, Office of Curriculum, Instruction, and Professional Learning.



7151 Avenue T Brooklyn, NY 11234
T: 718-444-6560 E: ESC@schools.nyc.gov
<http://schools.nyc.gov/environmentalcenter>



ENVIRONMENTAL
STUDY CENTER



THE ENVIRONMENTAL STUDY CENTER (ESC) offers rich and engaging experiential environmental science programs for students and teachers at all grade levels. Nestled in the Bergen Beach section of Brooklyn, this 7,000 square foot learning center, sitting on over an acre of beautiful grounds, is home to over 200 living organisms, four dynamic learning labs (Flora, Fauna, STEM and a fully equipped biotechnology lab), an outdoor learning space with pond habitat and a greenhouse laboratory.

As a premier informal science destination space, ESC's mission is to deliver hands-on environmental science and STEM instruction. Through targeted standards-based enrichment programs, ESC's highly trained staff encourage students to explore the urban habitats around them and become stewards for the environment. ESC engages students and teachers in experiences that challenge them to think critically about real-world contexts and issues from which STEM concepts and skills can be learned. ESC programs are age and grade appropriate, aligned to the NYC Science Scope and Sequence and the Common Core Learning Standards.

ESC has two unique learning labs dedicated specifically for plant (flora) and animal (fauna) investigations and research. Flora has four grow labs that provide ESC with a steady supply of plants to study. Flora also serves as a learning lab for our Hydroponics and Aquaponics classes. The greenhouse is an active lab for botany instruction including numerous hydroponic and aquaponic systems. Fauna is home to over 100 bess beetles, isopods and frogs. Students and their teachers can participate in a variety of classes that include observation and interaction with these animals and many more mammals, reptiles, birds, amphibians, insects and marine life. ESC's biotechnology lab provides students and their teachers the opportunity to work with professional, high-grade equipment. Our labs include DNA extraction, running gel electrophoresis, DNA fingerprinting and barcoding. Each lab is outfitted with a class set of microscopes and triple-beam balances.

CLASS PROGRAMS

WHO LIVES THERE? (PRE-K AND KINDERGARTEN)

Explore different animal habitats and discover who calls these habitats home. Young learners will investigate different animal habitats, characteristics and adaptations. Through hands-on activities learners will create a craft they can take home. Learners will meet some of the animals at ESC to discover their adaptations needed for survival within their habitats.

OUR FIVE SENSES (PRE-K AND KINDERGARTEN)

Through a series of hands-on activities, including a craft they take home, young learners will uncover the five senses. Learners will meet some of the animals at ESC to learn how they use their senses to survive and thrive.

SWEET PEAS (PRE-K AND KINDERGARTEN)

Young explorers will learn the importance of plants by engaging in a series of hands-on activities. Learners will discover that plants are living things that need air, water, nutrients, and light in order to live and thrive. Learners will begin to identify plant parts by creating a craft which they can take home. Learners will identify the differences between fruits and vegetables and discover where their food comes from.

FANTASTIC FROGS (GRADES K-2)

Examine several LIVE species of frogs! Identify physical characteristics of frogs and compare them to other animals at ESC to understand frog anatomy. Learners will practice observation skills, engage in sensory experiences, and explore adaptations that allow frogs to survive and thrive in the wild.

INCREDIBLE INSECTS (GRADES K-2)

Identify the physical characteristics of insects and discover their various forms, colors and adaptations. Encounter a variety of insects both indoors and outdoors, observe insect behaviors and discover the life stages from eggs to adults. Learners will be introduced to the features that distinguish an insect from other invertebrates and will explore real world scenarios regarding insect management and control to maintain the health of an ecosystem.

PLANT POWER JR. (GRADES 1-2)

Junior explorers will learn about plant parts and how they help with growth, survival and reproduction. Through hands-on learning, they will create a craft that helps them identify the plant parts. Learners will discover that plants are living things and will continue their learning back in the classroom by observing the growth of a seed as it sprouts and grows into a bean plant.

TOOLS OF THE TRADE: INTRODUCTION TO SCIENTIFIC INSTRUMENTS (GRADES 3-4)

Get a jump start on the skills needed to become a great scientist. Learners will rotate through a series of stations to practice science process skills using ESC's resources.

PLANT POWER (GRADES 3-5)

Explorers will investigate how humans rely on plants in their everyday lives. They will learn how the structures of plant parts support growth, survival and reproduction. Through observation with a series of different plants, explorers will identify plant adaptations and defense mechanisms for plant survival. The learning will continue back in your classroom with the observation of seed germination, sprouting and development of a mature plant.

EAT OR BE EATEN (GRADES 3-5)

Investigate the predator/prey relationships within an ecosystem. Deconstruct an owl pellet, construct an interactive Muir Web and observe live predator/prey relationships at ESC. Learners will be introduced to the fundamentals of energy transfer as it relates to the food chain and delve into the complicated connections within the food web.

ELEMENTARY HYDROPONICS (GRADES 4-5)

In small groups, students will set up, maintain, monitor, and harvest leafy greens and herbs in their own mini hydroponic system. Students will learn about water chemistry, plant nutrients, healthy eating, data collection, and photosynthesis in action. This course is offered as a six-week partnership.

ZOOM IN TO MICROBIOLOGY (GRADE 5)

Observe the hidden world of microorganisms. Learners will investigate the micro-world by learning to prepare slides and observe protozoa and algae. Uncover the secret lives of these tiny creatures and how they support plant life. Using microscopes to view organisms harvested at ESC, learners will discover how to harvest their own, be introduced to inquiry-based process skills and tools such as microscopes and slide preparation, and explore the unseen kingdoms of life.

ENERGY IN THE ECOSYSTEM (GRADE 6)

What are consumers? What are decomposers? How is the transfer of energy crucial to support biodiversity of living things? Through an owl pellet dissection students will investigate the key relationships in an ecosystem. Through a series of activities and observations learners will study how different organisms have different energy needs to live.

ZOOM INTO MICROBIOLOGY (GRADES 6-8)

Observe the hidden world of microorganisms. Learners will investigate the micro-world by learning to prepare slides and observe protozoa and algae. Uncover the secret lives of these tiny creatures and how they support plant life. Using microscopes to view organisms harvested at ESC, learners will discover how to harvest their own, utilize inquiry-based process skills and tools such as microscopes and slide preparation, explore the unseen kingdoms of life and focus on cell chemistry and homeostasis.

INQUIRY WITH ISOPODS (GRADES 6-8)

Join us at ESC for an authentic experience as your students practice using the scientific method. Learners will observe and work with live pillbugs, test variables, design an experiment, and test their hypothesis. We promise - no pillbugs will be harmed in this class!

HYDROPONICS (GRADES 6-8)

In small groups, students will propagate seeds, continually monitor water chemistry, collect data on plant growth, and finally harvest and enjoy their bounty. Not only will students be fully immersed in the scientific aspect of hydroponics, they will have the opportunity to connect hydroponics to the real-world. As part of

this program students will develop a research question, and set-up their system to complete their investigation. This six-week partnership program is recommended for highly motivated middle school classes.

WILDLIFE FORENSICS (GRADES 8-12)

Engage in the story of how DNA analysis is helping protect endangered wildlife. In this DNA gel electrophoresis lab experience, learners will develop a greater understanding of the scientific protocols and technical skills necessary to conduct this research. Upon completion of this lab, high school students are eligible for 3 hours of NYS lab time.

HYDROPONICS, AQUACULTURE AND AQUAPONICS (GRADES 9-12)

ESC offers two different partnership opportunities for high schools in our state-of-the-art Hydroponics, Aquaculture and Aquaponics Learning Lab. Hydroponic technology allows plants to grow in a nutrient rich solution without soil while Aquaponics integrates hydroponics with aquaculture to raise tilapia alongside lettuce in a symbiotic environment. Through our partnership with Cornell University Cooperative Extension, learners set up and maintain the NDFT (Nutrient Drip Flow Technique) hydroponic systems. Learners will propagate seeds, continually monitor water chemistry, collect data on plant and fish growth and harvest and enjoy their bounty. Not only will learners be fully immersed in the scientific aspect of aquaculture, they will have the opportunity to connect hydroponics to real-world business and marketing. This six-week partnership program is recommended for research classes, AP Environmental Science, AP Biology, and Living Environment Regents classes.

WATER QUALITY (GRADES 10-12)

Assess the water quality of ESC's aquatic habitats by using probeware to conduct a variety of tests. Learners will understand how these tests are utilized to monitor NYC's water sources and how humans impact the overall quality of the health of water.