Lime Hollow Nature Center

Coyote's Edge

Nature in the Classroom: Science, Technology, Engineering, and Math integrated with Environmental Education

Coyote's Edge at Lime Hollow Nature Center

Lime Hollow Nature Center

Visitor Center
338 McLean Road, Cortland NY 13045
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Environmental Education Center
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Our Goals at Lime Hollow are to

- ✓ assist all people in the development of environmental awareness, appreciation, knowledge, commitment and primitive survival skills;
- ✓ provide low-impact, nature-based recreation opportunities; and
- ✓ protect, through employment of wise-use management techniques, an ecologically diverse, natural aquifer recharge area currently known as Lime Hollow.

What is Coyote's Edge?

Bringing the natural world to the classroom and the classroom into the natural world, Coyote's Edge is a new approach to minds-on and hands-on environmental education. We designed this program to integrate Science, Technology, Engineering, and Math (STEM) learning with direct application to understanding natural systems and appreciating the natural world. With Coyote's Edge we continue our decades long tradition and practice at Lime Hollow of connecting the youth of our community to the natural world—using our growing preserve of protected wetlands, fields, forests, and streams—and expand to facilitate collaborative classroom teaching and learning for students in our area schools. Coyote's Edge is naturally aligned with the New York State Common Core Learning Standards.

"Since the students of today will be the elected officials and informed public of tomorrow, the teacher should encourage a diversity of activities that will allow students to explore, explain, and apply conceptual understandings and skills necessary to be environmentally literate."
— NYS Living Environment Core Curriculum

Teacher Information

Coyote's Edge Program Logistics

We have designed a themed program for each grade level that includes two classroom visits by Lime Hollow educators and one field trip to the Lime Hollow Nature Center. Classroom visits are one hour in duration, scheduled one or two months apart. Field trips conclude the program with a four-hour opportunity for students to apply their classroom knowledge in the out door setting with guidance from Lime Hollow educators and staff.

Making the most of the outdoor learning environment

At Lime Hollow we work and play outside! Except in cases of severe weather—*e.g.* lightening, very high winds, or rain that might produce a flash flood in local streams—we will be outside. Students, teachers, and other field trip participants should wear loose-fitting comfortable clothing appropriate for the season, bring a raincoat, and wear shoes for hiking on uneven or wet terrain. Students (and sometimes teachers!) get dirty and wet while exploring nature at Lime Hollow.

Field Trip Funding

Funding is available to help with transportation costs of the final Coyote's Edge field trip.

4th Grade: Life & Energy

Students will explore energy in its many forms and the role of energy in living and non-living natural systems.

Learning Standards

The Physical Setting
Key Idea IV
Performance Indicators 4.1 & 4.2

The Living Environment
Key Idea VI
Performance Indicator 6.2

First Classroom visit: Bow Drill Fire

Outdoor (school grounds, 1 hour)

Fire without matches or a lighter? Fire depends on a series of transformations of energy that are vital to life. Students will learn to make fire using the bow drill technique used by the Native American people.

Second Classroom visit: Energy

Any season/Indoor (1 hour)

What is energy? Energy has many types and each type of energy can be transformed by a natural process into any other type of energy. Students will explore these ideas through discussion and a collaborative activity.

Field Trip: Life & Energy

Spring or Summer/Outdoor (4 hours)

Explore the trails on a short walk to identify examples of energy and transformation of energy in nature: plants and animals, solar panels on the visitors' center, weather. Reprise our discussion of energy and use tools to notice details of energy in nature. Build a scale model of the solar system: all of our energy comes from the sun and our planet is in the life-enabling habitable zone of our solar system.

6th Grade: Dendro Detectives

Using observations of trees on the school grounds, students will explore naming and categorization as tools for understanding nature and communicating that understanding to others.

Learning Standards

Common Core Language
6-12—4b, 6

Common Core Writing
6-12—1, 2, 3

Common Core Reading
6-12—RI.1, RI.3, RI.7

The Living Environment
Key Idea VI
Performance Indicator 1.1h+6

First Classroom visit: What's in a Name?

Any season/Indoor (1 hour)

Why do animals and plants have 'scientific' names? Names and groupings are important to understanding nature and communicating that understanding with others. Students will explore the history of the binomial naming system, and learn to use a dichotomous key.

Second Classroom visit: Names in the Neighborhood

Early Fall or Late Spring/Indoor (1 hour)

How can we identify organisms? Students will use a dichotomous key to identify trees on the school grounds and bordering neighborhood.

Field Trip: Application, Service, and Research

Spring or Summer/Outdoor (4 hours)

Naming matters! Students will use an expanded dichotomous key to identify trees at Lime Hollow (Application), plant trees at the Chicago Bog (Service), and participate in a "citizen science" project in the Chicago Bog using counting and measurement of plants and/or trees.

Why Coyote?

The coyote is always listening, always observing, aware of its surroundings and its place in nature. The coyote walks the edge, off the beaten path, experimenting and learning. These attributes are at the core of learning about nature and the process of science. We learn by observing, by seeing and listening; we learn by paying attention to details, by noticing patterns, by walking off the path from time to time. Thus, the coyote is one of nature's many role models for our students as they explore the connections between their classroom science and technology lessons and the rich experience of the natural world where those lessons take root.

Why the elementary school focus?

Lasting and effective STEM education must begin in elementary school, integrated with other learning, and reinforced with application in many contexts. This instills habits of mind and an intuitive approach to learning that serves and a foundation for students deepening science and technology understanding as they enter middle and high school.

"Environment-based education produces student gains in social studies, science, language arts, and math; improves standardized test scores and grade-point averages; and develops skills in problem-solving, critical thinking, and decision-making."

Richard Louv
Last Child in the Woods