School Environmental Science Programming

Eno River Association

We offer curriculum-aligned environmental education programming to local schools. *We can do both classroom visits and guided field trips out to the Eno. We find that much of our programming aligns best with curriculum standards for 5th and 8th grade. However, if you teach a different grade and feel that a version of one of these activities would be appropriate for your students, please don't hesitate to reach out!* ***Most of our activities can be adapted to different age groups.*** *Below are some of our programming options.*

For pricing and booking information, go to the last page of this document.

Hydrosphere

The purpose of this program is to help students develop a deeper understanding of the structure and importance of our hydrosphere, with a focus on local river basins like the Eno.

Activity Options:

- *Enviroscape Model* – This is a scale model of a river ecosystem in which students can add "pollutants" (i.e. syrup, sprinkles) and then learn how floods and "riparian buffers" (sponges) can affect pollution in riparian habitats.
- *Design a River Basin* – After discussing the difference between watersheds and river basins and going through a visual representation of the global water supply, students use crumpled paper and markers to design their own river basin with certain limitations.
- *Incredible Journey* – After some exercises about the makeup of water molecules, students imagine they are a water droplet and go on their own journey through the water cycle.
- *Weather Experiments* – After discussing what weather is as well as the difference between weather and climate, demonstrations on cloud formation and cold/warm fronts are conducted with help from student volunteers.

Vocabulary: watershed, river basin, pollution (point-source vs. nonpoint-source), sedimentation, impervious surface, erosion, water cycle, precipitation, evaporation, condensation, collection

Ecosystems & Biodiversity

The purpose of this program is to give students an introduction to the concept of biodiversity, the importance of ecosystem balance, and the roles that different organisms play in Eno food webs.

Activity Options:

- *Food Webs feat. Outreach Animals* – We will bring in live outreach animals

(snakes and/or turtles) and talk about their basic biology, ecology, and techniques to study them in the field. Students will gain an understanding of the consumer's role in ecosystems and energy cycling. They will also get hands-on exposure to some critical local consumers.

- *Insect Appreciation Day* – We will invite students to consider insects in a different light – without fear or disdain – and to learn about how incredibly important they are in maintaining healthy ecosystems that benefit humans, with an emphasis on their role in local ecosystems.
- *Plant Biodiversity Survey* – Students will learn about the important role that plants play in local ecosystems. They will make hypotheses, conduct a survey on their school campus, and calculate a biodiversity index, then compare it to biodiversity of other habitats around the world.

Vocabulary: food chain, food web, biodiversity, ecosystem, producer, consumer, decomposer, abiotic, biotic

Water Quality

The purpose of this visit is to introduce students to both biotic and abiotic water quality measurements and how they can be used to assess the health of a body of water.

Activity Options:

- *Biotic Water Quality Lab* – Students are introduced to aquatic macroinvertebrates, or water bugs. They learn about the different types, their importance in river ecosystems, and then practice identifying them using dichotomous keys.
- *Abiotic Water Quality Lab* – Students use chemical testing kits (pH, dissolved oxygen, nitrates, phosphates, etc.) to study the quality of water samples from various locations throughout the watershed.

  **Please note that these activities can be done separately as shorter sessions or together as a longer session. If there is a body of water on campus that is safe to sample from, we can facilitate this.*

Vocabulary: water quality, biotic, abiotic, macroinvertebrate, bioindicator, pollution, pH, dissolved oxygen, nitrate, phosphate

Geology

The purpose of this visit is to help students visualize the expansiveness of Earth's history and understand how the geology of the Eno River and surrounding areas

came to be.

Activity Options:

- *Eno-Centric Geologic Time Scale* – Students will use their math skills to determine where important Earth history events should be placed on a large time scale represented by a rope. If time allows, they will also be able to interact with various specimens collected along the Eno River and discuss how they fit into the evolutionary history of the area.

Vocabulary: geology, time scale, evolution, adaptation, Pangea, prokaryote, eukaryote, metamorphic, igneous, sedimentary

Climate Change

The purpose of this visit is to discuss the basics of climate change science and the major effects of climate change on vulnerable communities. Students will leave with an understanding of why climate change is happening and what its primary effects are.

Activity Options:

- *Model Climate Summit* – Following an introduction to the causes and effects of climate change, groups of students will each get background information on different countries and use that information to make decisions about international pollution limits, which they will vote on.

  NOTE: We can facilitate this activity OR provide teachers the materials necessary to facilitate the activity themselves.
- *En-ROADS Climate Simulator* – Following an introductory talk on climate change, students will work through different scenarios using the En-ROADS Climate Solutions Simulator.

Vocabulary: climate, weather, climate change, global warming, renewable resource, nonrenewable resource, zero-carbon, carbon pricing

Field Trip!

This visit typically takes place at either the Confluence Natural Area in Hillsborough (where the Eno River begins!) or Eno River State Park (Fews Ford Access) in Durham. Students will rotate through several stations, each of which will be related to previous topics we have covered.

Activity Options:

- *Macroinvertebrate Survey* – Students learn techniques for sampling and identifying macroinvertebrates (water bugs) and what they can tell us about water quality

- *Reptile and Amphibian Survey* – Students learn how scientists sample reptile and amphibian diversity and how to identify local species
- *Guided Hike* – One of our staff will guide groups of students along our trails and focus discussions around ecology, geology, history, or all of the above!
- *Pelts/Skulls* – Students can interact with our collection of skulls and pelts from local animals to learn about how different species are adapted to survive in the Eno River Watershed.

**Note that there are other activities to choose from as well for field trips, but the ones listed are our most common.*

PRICING

	Title I + within Eno watershed	**Not Title I + within Eno watershed**	**Title I + not within Eno watershed**	**Not Title I + not in Eno watershed**
Half Day (<4 hours)	NO FEE	$20 per day*	$20 per day*	$40 per day*
Full Day (>4 hours)	NO FEE	$40 per day*	$40 per day*	$60 per day*

*For field trips, these fees apply for 30 students or less. If there are more than 30 students, there is a $1 fee per additional student. (Title I schools within our watershed still have no fee no matter the number of students on a field trip).

HOW TO BOOK

To book a school program with us, fill out this form or send an email to education@enoriver.org.