

Nolde Forest Environmental Education Center School Field Lessons (K through High School)

K to 2nd Grade (Ages 5-8)

Program Duration: 1.5 hours
Max Students per Session: 60
Chaperone to Student ratio: 1:15



Animal Evidence: Students learn the requirements of a habitat and the interactions between living things and their environment in this exploration of animal “clues” left behind in the forest. For those interested in comparing terrestrial and aquatic habitats, this lesson can be booked with a water stop option.

*** Seasonal Changes:** What’s different in the forest during the year? How do plants and animals prepare for the different seasons? Students will investigate these questions during this hands on exploration of the forest.

***Using the Senses:** Students will explore the environment using smell, touch, hearing, and sight. Activities include identifying colors, shapes, textures, smells, and sounds.

“Winter” Greens: Winter forests are not the brown, desolate landscapes we think they are. In fact, there are lush green plants all over! What are the adaptations that allow some plants to thrive in the winter months while most others go dormant? Dress for the weather as we investigate the winter plants in the forest. **Offered November through March.**

* These lessons can be adapted for pre-K learners.

About Our Lessons

These hands-on lessons are conducted outdoors and are aligned with 3 dimensional learning practices and PA STEELS standards. Activity times vary, but we can always work with you to lengthen or shorten a program to fit into your schedule. Sessions can be offered in both the morning and afternoon.

Lessons cost \$5.00 per student with a minimum charge of \$65.00. This charge covers the cost of staff and materials and is based on the amount of students you confirm. We do not offer refunds for last minute student cancellations. Schools will be billed by the BCIU for payment after the date of their lesson. Please do not bring payment on your trip.

Programs are most effective when the students are already familiar with the content. Discuss your curriculum with the education supervisor so that we can best compliment what students are learning in the classroom. Grade levels are suggested, but programs can be tailored to meet the abilities of your students.

Picnic lunches can be eaten in our outdoor picnic area – **we do not have indoor lunchroom space.**

Nolde Forest Staff will cancel field trips in the case of dangerous weather, but cancellations for rain or light snow are up to the classroom teacher. We will do our best to accommodate rescheduling, but cannot guarantee a rain date.

Contact Information

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pennsylvania
DEPARTMENT OF CONSERVATION
AND NATURAL RESOURCES

3rd to 5th Grade (Ages 8-11)

Program Duration: 2 hours

Max Group Size per Session: 60 students

Chaperone to Student ratio: 1:15

Birding Basics and Avian Adaptations: Birds are all around us, even in winter. Learn the basics of bird ID, how to use a field guide, and investigate bird wings, feet, and feathers to learn how different birds are adapted for the forest. Collect bird count data like an ornithologist for a community science program.

Offered December through March.

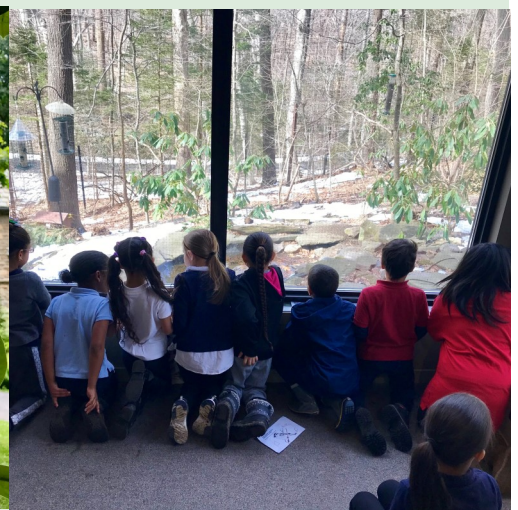
Circle of Life: All plants and animals are dependent on other living and nonliving things for survival and all matter cycles through the environment. Students learn the requirements of a habitat and the interactions between different living things and their environment in this exploration of the life cycles in Nolde Forest. This lesson uses the life cycle of a tree to explain the stages of the cycle and the transfer of energy, but touches on the other organisms that need the tree to survive.

Meaningful Watershed Educational Experience (MWEE)/Student Inquiry Research Assistance: Bring your students' driving questions and use the tools and expertise of Nolde Forest Staff to help investigate their student research. Staff will be on hand to assist with equipment and to facilitate experimental design, but students should come with an idea of what they will be researching on site. Nolde Forest makes a great comparison site for data collected in more developed areas!

Nature Journaling: Scientist? Artist? Why not both? Students will record observations, perceptions, and feelings about the natural world in this intersection between art and science. The difference between a personal journal, science notebook, and nature journal will be discussed.

Water Wonders: Students will observe the water in different forest habitats and investigate how water changes from place to place. How does the changing water affect the surrounding plant and animal communities? Offered April through November.

"Winter" Greens: Winter forests are not the brown, desolate landscapes we think they are. In fact, there are lush green plants all over! What are the adaptations that allow some plants to thrive in the winter months while most others go dormant? Dress for the weather as we investigate the winter plants in the forest. Offered November through March.



Grades 6th-8th (Ages 11-14)

Program duration: 2 hours
Max group size per session: 60 students
Chaperones to student ratio: 1:15

Exploring Freshwater Communities:

Investigate the macroinvertebrates that live in Punches Run. In this inquiry science lesson, students will learn proper sampling procedure, observe and identify their specimens using various resources and dichotomous keys, and analyze their data to assess stream quality. **Offered April through November.**

Forest Ecology: Explore the different communities within Nolde Forest. Students will investigate the stream, the pond, and the forest floor and use their observations to explain how the various communities work together to form the ecosystem of the forest.

“Flownominal” Physics: How does the movement of water in a stream affect the surrounding ecosystem? Students will observe different sections of the stream and compare the different characteristics as it flows down hill from the spring fed headwaters to the confluence of Angelica Creek. Students will use mathematics and basic physics to measure and calculate the flow rate of our stream in this Earth Systems lesson. **Offered April through November.**

Meaningful Watershed Educational Experience (MWEE)/Student Inquiry Research Assistance: Bring your students’ driving questions and use the tools and expertise of Nolde Forest Staff to help investigate their student research. Staff will be on hand to assist with equipment and to facilitate experimental design, but students should come with an idea of what they will be researching on site. Nolde Forest makes a great comparison site for data collected in more developed areas!

Nature Journaling: Scientist? Artist? Why not both? Students will record observations, perceptions, and feelings about the natural world in this intersection between art and science. The difference between a personal journal, science notebook, and nature journal will be discussed.

“Winter” Greens: Winter forests are not the brown, desolate landscapes we think they are. In fact, there are lush green plants all over! What are the adaptations that allow some plants to thrive in the winter months while most go dormant? Dress for the weather as we investigate the winter plants in the forest. **Offered November through March.**



High School (Ages 14-18)

Program duration: 2 hours
Max group size per session: 60 students
Chaperones to student ratio: 1:15

Exploring Freshwater Communities: Investigate the macroinvertebrates that live in Punches Run. In this inquiry science lesson, students will learn proper sampling procedure, observe and identify their specimens using various resources and dichotomous keys, and analyze their data to assess stream quality. **Offered April through November.**

“Flownominal” Physics: How does the movement of water in a stream affect the surrounding ecosystem? Students will observe different sections of the stream and compare the different characteristics as it flows down hill from the spring fed headwaters to the confluence of Angelica Creek. Students will use mathematics and basic physics to measure and calculate the flow rate of our stream in this Earth Systems lesson. **Offered April through November.**

Meaningful Watershed Educational Experience (MWEE)/Student Inquiry Research Assistance: Bring your students’ driving questions and use the tools and expertise of Nolde Forest Staff to help investigate their student research. Staff will be on hand to assist with equipment and to facilitate experimental design, but students should come with an idea of what they will be researching on site. Nolde Forest makes a great comparison site for data collected in more developed areas!

Nature Journaling: Scientist? Artist? Why not both? Students will record observations, perceptions, and feelings about the natural world in this intersection between art and science. The difference between a personal journal, science notebook, and nature journal will be discussed.

Turtle Trends: Take a deep dive into population ecology with the Nolde Forest turtles. In this STEM based, community science project, students will learn about the historic turtle species in the park and investigate their current population pressures. Students will determine current population numbers with statistical formulas and data analysis and participate in population data collection.

Watershed Chemistry: Learn how to test the water quality of our onsite streams using chemical test kits. In this hands on program students will work in small groups to collect chemical watershed data streamside and then share data to analyze results. **Offered April through November.**

“Winter” Greens: Winter forests are not the brown, desolate landscapes we think they are. In fact, there are lush green plants all over! What are the adaptations that allow some plants to thrive in the winter months while most go dormant? Dress for the weather as we investigate the winter plants in the forest. **Offered November through March.**

Full Day Labs/MWEE Field Work

Program duration: 4 hours, minimum
Max group size per session: 60 students
Chaperones to student ratio: 1:15

Watershed Lab: In this day long lab, students will investigate the watershed of Punches Run through biological, chemical, and physical parameter testing. Using the collected data, students will work together to assess the stream health of the watershed and compare their results to prior data to track changes in the stream or compare to a different water body they have studied. **Offered April through November.**

Meaningful Watershed Educational Experience (MWEE)/Student Inquiry Research Assistance: An extended version of the MWEE Assistance lesson described above.

Nolde Forest Environmental Education Center In School and Virtual Programs

Schoolyard Science

Program Duration: variable depending on classroom needs. 1.5 hours recommended.
Max Group Size per Session: 1 classroom

These lessons are designed for outdoor exploration of your school yard, playground, or a nearby natural area. Students will use the outdoors as their classroom so it is necessary for students to leave the classroom and go outside to participate in these lessons. Nolde Forest Staff will provide all necessary equipment for these programs.

Animal Evidence [K-3rd]: Students learn the requirements of a habitat and the interactions between living things and their environment in this exploration of animal “clues” left behind in the schoolyard.

Schoolyard Bird ID [3rd-8th]: Birds live all around us—including right outside your school. Students will learn how to observe field marks, use field guides, and investigate the habitats most likely to host birds in this lesson on bird identification.

Meaningful Watershed Educational Experience (MWEE)/Student Inquiry Research Assistance: Use the tools and expertise of Nolde Forest Staff to help assist with student research. Staff will be on hand to assist with equipment and to facilitate experimental design, but students should have their own investigation questions prepared ahead of time.

Nature Journaling [3rd-HS]: Scientist? Artist? Why not both? Students will record observations, perceptions, and feelings about the natural world in this intersection between art and science. The difference between a personal journal, science notebook, and nature journal will be discussed.

Circle Safari [6th-8th]: Explore the biodiversity right outside your door. By examining and classifying the different species within a random plot students can compare their data with other students’ findings and use math to draw biological conclusions.

Stream Study [6th-HS]: Investigate the water quality of your school stream by collecting and analyzing the creatures who call it home and/or testing the chemicals present in the water.

About Our Lessons

While we hope you can visit the Forest for a field trip we know that bussing logistics and transportation costs sometimes prohibit schools from attending a field trip to the Education Center.

These lessons have been designed to take place outdoors on your grounds (the **Schoolyard Science** series), entirely in person in your classroom (the **Classroom** series), or conducted virtually (the **Virtual Lessons** series). Recommended grade levels are suggested for each lesson in the brackets following the title.

Nolde Forest Educators can accommodate up to 2 classrooms simultaneously for in-person lessons, but schools with more than 2 classrooms will need to book multiple sessions in order to accommodate all students. Schools may book multiple sessions in one day, as time permits. Virtual programs can only be held one at a time due to bandwidth, but you are welcome to have multiple classrooms log in at the same time.

Programs are most effective when the students are already familiar with the content. Discuss your curriculum with the education supervisor so that we can best compliment what students are already learning.

Classroom Lessons

Program Duration: variable depending on classroom needs. 1 hour recommended
Max Group Size per Session: 1 classroom

Wonderful Worms [K-2rd]: There is a whole world to explore underground! Students will learn about worm biology, vermicomposting, and meet our classroom worms up close.

Birding Basics and Avian Adaptations [3rd-5th]: Birds are all around us, even out your classroom window! Learn the basics of bird ID, how to use a field guide, and investigate bird wings, feet, and feathers to learn how different birds are adapted for the forest. Collect bird data like an ornithologist and graph your classroom homework results.

Who Ate the Donut? [3rd-5th]: A local Nolde Forest animal broke into the office and took a bite of my donut! Can your class of nature detectives help me determine whodunit? Students will investigate animal skulls, tracks, pelts, and scat to help solve the mystery... and learn more about different Pennsylvania animals that live in Nolde Forest based on their observations along the way.

Turtle Trends and Trouble [HS]: Take a deep dive into population ecology with the Nolde Forest turtles. In this STEM based, community science project, students will learn about the historic turtle species in the park and investigate their current population pressures. Students will determine current population numbers with statistical formulas and data analysis and consider what that means for this vulnerable species.

Virtual Lessons

Program Duration: variable depending on classroom needs. 1 hour recommended
Max Group Size per Session: n/a

Let Nolde Forest Staff interact with your students virtually! Teachers can provide us with a Google Classroom/Zoom link and we can offer a combination of live and pre-recorded video instruction.

Birding Basics [3rd-HS]: Learn the basics of bird ID, how to use a field guide online, and investigate bird wings, feet, and feathers to learn how different birds are adapted to their habitat. Collect bird data like an ornithologist and graph your classroom homework results. Older students will learn how to use smartphone technology to ID birds in the field and participate in community/citizen science data collection and why that is so important.

Turtle Trends and Trouble [HS]: Take a deep dive into population ecology with the Nolde Forest turtles. In this STEM based, community science project, students will learn about the historic turtle species in the park and investigate their current population pressures. Students will determine current population numbers with statistical formulas and data analysis and consider what that means for this vulnerable species.

Meet a Scientist [6th-HS]: Challenge your students' preconceived notions about who can be a scientist and what it is they do. In this live virtual program students will get to follow a **local** field scientist as they accomplish their day to day work and participate in a question and answer session about the scientist's research, areas of interest, training, career path, job skills, and more. Students will gain an awareness of their local environment and factors relating to their personal health through the scientist's research as well as career awareness and acquisition in the science field.