



# Grades 4-5

## ASHLAND NATURE CENTER PROGRAMS

### Birding with Binoculars

1½ hours, \$6/student

Explore the unique and varied adaptations of native birds, including body shape, beaks and feet and investigate how these adaptations help them survive in their habitats. View mounted specimens and study the diversity of species and lifestyles in our region during an interpretive hike. Learn to use binoculars and identification techniques, discover survival requirements and how birds are affected by seasonal changes, and record findings.

### Delaware Bay Study

3 hours, \$8/student

Investigate the diversity of life in four communities of the Delaware Bay Estuary: the open bay, beach, brackish pond, and salt-marsh. Study plant and animal life, arrange organisms in appropriate food chains, identify them as producers, consumers, or decomposers, and discover the structure and function of organisms in the Estuary system. Program meets at Woodland Beach and Bombay Hook National Wildlife Refuge.

### Demons, Dragons, and Damsels: Tales of the Night Sky Classroom Outreach

1 hour, free with application\*

Learn night sky tales told by ancient peoples and discover the modern interpretations of these same phenomena – the tales that science tells. Ancient stories were born of inspiration and imagination, and varied from society to society. Explore the reasons for this variation and learn why scientific accounts do not depend on cultural differences. Use your imagination to create constellations and sky stories. This program can be customized to fit your current curriculum in the sciences or the humanities and is offered free of charge\* through a partnership with the Delaware Humanities Forum.

### Exploring Ecosystems

2 hours, \$6/student

Explore forest, meadow, and pond habitats to determine which ecosystem has the greatest diversity of living things. Search for producers, consumers and decomposers and collect data on the non-living factors of the system. Using your data as evidence, determine which of the habitats was the most diverse and develop statements explaining why.

### Field Geology

2 hours, \$6/student

Investigate Ashland's geologic past and our local geology. Review the difference between minerals and rocks, learn about the rock cycle and the three rock types, look for evidence of geologic processes in action on an interpretive hike, and use rock hammers to collect samples for identification.

### Forest Succession

2 hours, \$6/student

Take a successional journey from open meadow to mature forest. Learn about the natural transition of open land to woodland and determine the age of the stages of forest succession using four tree-aging methods. As you travel through the stages, identify trees, search for examples of dominant plants and animals, and document progress by making a photographic journal.

### Maple Sugaring

1½ hours, \$6/student

Learn to identify maple trees and the function of roots, branches and leaves. Discover the history of maple sugaring, tap a tree, and observe the changes in maple sap as it is boiled and becomes maple syrup. February-March.



### The Mill and Machines

2 hours, \$6/student

Explore historic Cooch-Dayett Mills and discover how water makes energy for humans. Experience forces firsthand and use simple machines to understand how the Mill works. Tour the Mill to complete a simple machine scavenger hunt. (Available spring 2009)

### Native Americans in Delaware – The Lenni Lenape

2 hours, \$6/student

Explore the culture and customs of the early inhabitants of Delaware. Take an interpretive walk to discover pre-colonial Delaware history. Learn how Native Americans used nature to meet everyday needs and visit a replica wigwam for a hands-on experience with tools, animal furs and hides, clothing and musical instruments.



### **Native Americans in Delaware Classroom Outreach**

1 hour, \$6/student + \$35 travel fee

Investigate the lives of the early inhabitants of Delaware as you examine tools and clothing. Experience several activities that the Lenni Lenape tribe participated in as you learn about Delaware's Native Americans.

### **Native Wild Animals Classroom Outreach**

1 hour, \$6/student + \$35 travel fee

Learn about wild animals native to Delaware while looking at live and taxidermy specimens. Examine the characteristics of animals noting their similarities and differences and discuss their ecological niches within their habitats.

### **Nature Photography**

2 hours, \$8/student (includes materials fee)

Discover the natural world through a camera lens using digital cameras. Learn photography skills and compose instant photos. Print and frame favorite photos and create a poem to describe the image.

### **Pond Ecology**

2 hours, \$6/student

Visit a pond ecosystem and use dip nets to sample the diversity of aquatic organisms. In the lab, use a video microscope and individual microscopes to view small pond organisms. Examine and compare the structures of pond animals that help them survive in their environment and discuss their role in the pond food chain.

### **Reptiles & Amphibians Classroom Outreach**

1 hour, \$6/student + \$35 travel fee

Examine differences between reptiles and amphibians with live specimens. Discover the significance of their unique physical structures and life cycles. Learn how these animals function within their ecosystems and discuss the impact of human activities on their survival.

### **Skull Study Classroom Outreach**

1 hour, \$6/student + \$35 travel fee

Handle and classify a variety of skulls from local mammals, birds, and reptiles. Examine teeth, eye, and nose structures to determine if unknown animals are carnivores, herbivores or omnivores and discover how different animals survive in their environments.

### **Spring Amphibians**

1½ hours, \$6/student

Explore the world of amphibians during the time when they are chorusing and laying eggs. Learn how amphibians in Delaware survive the seasons and use nets and other collecting equipment to look for amphibians and the food they eat. March-June.

### **Stream Ecology**

2 hours, \$6/student

Determine a stream's health by examining its biological, chemical, and physical attributes. Catch and classify stream macro-invertebrates, and use test kits to record pH and dissolved oxygen. Discuss how humans and wildlife impact stream health and identify four basic types of stream pollution. This program qualifies your class to adopt a stream.



### **Unhuggables Classroom Outreach**

1 hour, \$6/student + \$35 travel fee

View live animals such as spiders, snakes and lizards to learn about the important role that these less popular and misunderstood animals play in the balance of nature.

**Additional programs offered** – See our website for complete descriptions.

- Bird Box Biology Field Study ~ 2 hours, \$6/student
- Cycle of Life Field Study ~ 2 hours, \$6/student
- Insect Study Field Study ~ 2 hours, \$6/student
- Mining & Minerals Field Study ~ 1½ hours, \$6/student
- Owls in Delaware Classroom Outreach ~ 1½ hours, \$7/student + \$35 travel fee
- Plant Kingdom Field Study ~ 2 hours, \$6/student

## **COVERDALE FARM PROGRAMS**

### **Colonial Farm**

2 hours, \$8/student (includes material fee)

Discover farm life as a child in colonial Delaware. Turn cream to butter after learning how cows turn grass to milk. Prepare corn from field to flour and explore the old fashioned refrigerator made of stone!



### “What’s For Lunch?”

2 hours, \$6/student

Create a delicious lunch, then determine how nutritious it is for your body. “Slice up” your meal to discover how many food groups are represented, and what vitamins and minerals are obtained. Trace your meal to the sources by exploring the farm gardens and livestock. Hands-on activities make this the most active meal you’ve ever “eaten.”



## ABBOTT’S MILL NATURE CENTER PROGRAMS

### Beach Ecology

3 hours, \$7/student

Comb the beach, seine the bay, study horseshoe crabs, and survey birds of the shore and saltmarsh. Compare and contrast these habitats and the unique organisms that occupy each site. Experience the interactions between shorebirds, horseshoe crabs, and other coastal organisms in the Delaware Bay. Program meets at Slaughter Beach. April-October.

### Birds in Focus

2 hours, \$5/student

Explore the unique and varied adaptations of native birds, including body shape, beaks and feet. Investigate how these adaptations help them survive in their habitats. See mounted specimens and study the diversity of species in the Delmarva region. Use binoculars on a guided bird survey through different habitats. Find out how birds are affected by seasonal changes.

### Birds in Focus Classroom Outreach

1 hour, \$5/student + \$35 travel fee

Explore the unique and varied adaptations of native birds, including body shape, beaks and feet. Investigate how these adaptations help them survive in their habitats. See mounted specimens and study the diversity of species in the Delmarva region. Use binoculars on a guided bird survey through different habitats. Find out how birds are affected by seasonal changes.

### Fantastic Fish

3 hours, \$7/student

Discover biological and ecological adaptations of fish by examining external and internal features. Read a fish by its structure and examine how form relates to function. Don chest waders and use a seine net in Abbott’s Pond to collect specimens. Hone your dissecting skills in our wet lab as we explore fish anatomy and biology.

### The Mill and Machines

2 hours, \$5/student

Explore historic Abbott’s Mill and discover how water makes energy for humans. Experience forces firsthand and use simple machines to understand how the Mill works. Tour the Mill to complete a simple machine scavenger hunt. Learn how the sun and water turn energy into plants and food for people!

### Native Americans of Delmarva

3 hours, \$7/student

Explore the culture and customs of the early inhabitants of Delaware. Take an interpretive walk to discover pre-colonial Delaware history. Learn how Native Americans used nature for their everyday needs and visit a replica longhouse for a hands-on experience with tools, animal skins, clothing and musical instruments. Program meets at the Lindale Tract.

### Native Wild Animals Classroom Outreach

1 hour, \$5/student + \$35 travel fee

Look closely at live animals and taxidermy native to Delmarva. Turtles, rabbits, snakes, fox, owls, and hawks are some of the amazing animals you meet. Examine the habitats and characteristics of these wild animals and learn which species might live in your backyard.

### Owls in Delaware Classroom Outreach

1½ hour, \$6/student + \$35 travel fee

Examine the structures and adaptations for survival of four resident owl species of Delmarva. Study mounted specimens, listen and learn owl calls, and dissect owl pellets to explore the eating habits of owls.





### **Pond Ecology**

2½ hours, \$6/student

Immerse yourself in Abbott's Pond with dip nets to sample the diversity of aquatic organisms. Use microscopes to view small pond organisms. Examine and compare the structures of pond organisms that help them survive in their environment.

### **Reptiles & Amphibians Classroom Outreach**

1 hour, \$5/student + \$35 travel fee

Discover fascinating facts about frogs and toads, salamanders, turtles, and snakes during this exciting animal program. Live specimens aid in examining the differences between reptiles and amphibians and exploring the significance of their unique adaptations and life cycles.



### **Rock Hounds**

2 hours, \$5/student

Learn about the rock cycle, where Delaware's rocks come from, weathering, and the differences between rocks and minerals. Use a dichotomous key to select and separate types of rocks. Perform a variety of tests to determine what minerals are present in the different rocks. Program meets at Slaughter Beach. April-October.

### **Skull Study Classroom Outreach**

1 hour, \$5/student + \$35 travel fee

Use detective skills to identify and classify a variety of skulls from local mammals, birds, and reptiles. Examine teeth, eye, and nose structures to determine their function and how the animals live in their environments.

### **Stream Ecology**

2½ hours, \$6/student

Use scientific tests to determine a stream's health by examining its biological, chemical, and physical attributes. Collect and classify stream macro-invertebrates and record pH and dissolved oxygen levels. Discover how humans and wildlife impact our stream and identify four basic types of stream pollution. Microscopes reveal the tiniest inhabitants of the stream. This program qualifies your class to adopt a stream.

### **Stream Study**

2 hours, \$5/student

Conduct physical tests to determine the health of Johnson Branch. Learn about different types of pollution and how they impact aquatic habitats. Become a raindrop and take an exciting journey downstream. Explore ways you can help to protect our aquatic habitats.

### **Unhuggables Classroom Outreach**

1 hour, \$5/student + \$35 travel fee

Spiders, bats, snakes and lizards are all animals that make many people shudder. Learn about the remarkable role these less popular animals play in the balance of nature and explore their wondrous adaptations.

**Additional programs offered** – See our website for complete descriptions.

- Maple Sugaring Field Study ~ 2 hours, \$5/student

