



*Lutherlyn Environmental  
Education Program*

*Program*

*Field Guide*

Lutherlyn Environmental Education Program  
Lutherlyn Camp, Conference, and Retreat Center  
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# *The Lutherlyn Environmental Education Program is . . .*

. . . an experiential learning opportunity appropriate for all age levels, from pre-school to high school.

. . . located among a variety of ecosystems, including 660 beautifully diverse acres of deciduous woodlands, conifer plantations, streams, lakes, wetlands, meadows, and fields.

. . . a flexible structure, which customizes every field trip and program to fit the environmental education needs of each school.

. . . a team of qualified staff members comprised of experienced instructors with backgrounds in education, biology, and environmental science.

. . . a creative way to work toward meeting PA academic standards, with each of our activities cross-referenced to the relevant standards for Environment & Ecology, Science & Technology, Mathematics, Social Studies, and Reading/Writing/Listening.

. . . a popular and growing program that serves over five thousand students annually from school districts all over Western Pennsylvania.

## **To Schedule a Field Trip:**

- 1. Contact the Lutherlyn Environmental Education Program at (724) 865-9079 or [leep@lutherlyn.com](mailto:leep@lutherlyn.com) to set up a date and program.**
- 2. Return a signed copy of the contract that is issued, and the required deposit. (Final payment will be invoiced the day of the trip and is not due until after the trip.)**





# Program Options

## Introduction

The Lutherlyn Environmental Education Program (LEEP) customizes each field trip. The Program Options that follow contain hands-on activities that are currently available and a brief description of each. The duration of each activity is listed to facilitate scheduling. Grade levels are also listed, but activities are adapted for each particular grade level. (For example, a 9<sup>th</sup> grade class learning about the forest will study it at a different level than a 4<sup>th</sup> grade class.)

The program options are divided into ten areas: Animals, Awareness of the Natural World, Ecosystems, Geology, History, Night Activities, Outdoor Skills and Group Building, Plants, Stewardship, and Water. Some activities fit into more than one area. Following these program areas is a listing of Special Programs. (These are programs that are complete field trip experiences.)

Sample schedules follow the Program Options and may be used as a reference when choosing activities. Once you have selected activities for your field trip, please contact the LEEP staff and we will take care of the scheduling from there.

If you are interested in concepts that are not listed under these options, please contact the LEEP staff and we will work with you to design appropriate activities.

***Please note:*** Each activity is followed by a listing of PA Department of Education Academic Standards to which it can be applied. The activities have been cross-referenced to the PA Learning Standards for Early Childhood and the PA Academic Standards for Environment & Ecology (4.x.x), History (8.x.x), Science & Technology (3.x.x), Mathematics (2.x.x) and Reading, Writing, Speaking & Listening (1.x.x). These standards are available on-line from the PA Department of Education at <http://www.pdesas.org/Standard/View>. The standards have been listed in order of grade level. (The third integer in the standard number refers to the grade level. For example, 4.1.5.A refers to a standard for 5<sup>th</sup> grade. Standards for Pre-Kindergarten and Kindergarten are noted as *(pre-K)* and *(K)*, respectively.)

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## Animals

### Animal Tracking

Duration: 1 - 1¼ hours

Grade Level: 4<sup>th</sup> - 12<sup>th</sup>

Students learn the basics of identifying animal tracks using tracking keys and measuring skills. Students practice on tracking plates and then hike into the forest to use their skills.

*Standards: 3.1.3.A1, 3.1.4.A1*

### Adaptation

Duration: 1 - 1¼ hours

Grade Level: 1<sup>st</sup> - 12<sup>th</sup>

This hiking activity focuses on what adaptation is and challenges students to identify adaptations in animals as they look for animal signs along the trail. The concept of camouflage is focused on during part of this activity. An insect investigation, with a focus on adaptations, may also be scheduled. (See Insect Investigation)

*Standards: 3.3.1.C, 4.7.1.A, 4.7.2.A, 3.1.3.A2, 3.1.3.C2, 4.1.3.D, 3.1.4.A2, 3.1.4.C1, 3.1.4.C2, 4.1.4.A, 4.1.4.D, 4.5.7.D.*

### Bird Observation Hike

Duration: 1 - 1¼ hours

Grade Level: 3<sup>rd</sup> - 12<sup>th</sup>

Students learn how to use binoculars and what field marks to look for when identifying birds. The students then take a hike to various habitats and use the skills they have learned to identify the birds they see. LEEP has 20 pairs of binoculars available.

*Standards: 3.1.3.A2, 3.1.4.A2.*

### Creating Habitats

Duration: 1 hour

Grade Level: 3<sup>rd</sup> - 6<sup>th</sup>

Students learn how habitat components and human impact can affect the distribution of wildlife. A scavenger hunt then introduces students to methods of providing habitats for wildlife and inviting animals into yards or neighborhoods.

*Standards: 3.1.3.A2, 4.1.3.D, 3.1.4.A2, 4.1.4.A.*

### Habitat and Wildlife

Duration: 1 - 1¼ hours

Grade Level: Pre-K - 12<sup>th</sup>

Students use their observation skills to find signs of animals while hiking through a forest. Elements of a habitat are discussed with respect to each animal (or animal sign) encountered.

*Standards: 4.7(pre-K), 3.1a.1(K), 4.7(K), 3.3.1.A, 4.3.1.A, 4.6.1.A, 4.7.1.A, 3.3.2.A, 4.6.2.A, 4.7.2.A, 3.1.3.A2, 3.1.3.C2, 4.1.3.D, 3.1.4.A2, 3.1.4.C1, 4.1.4.A, 4.5.7.D.*

### Insect Investigation

Duration: 1 - 1¼ hours

Grade Level: Pre-K - 12<sup>th</sup>

Students investigate the insect world by collecting insects. Students focus on the definition of an insect, adaptations, and life cycles. Insects are easiest to find May through October.

*Standards: 3.1a.8(pre-K), 3.1a.8(K), 3.3.1.B, 4.5.1.A, 4.5.2.A, 4.5.3.B, 3.1.5.A.3*

### Pond Study (see Water section)

### Predator/Prey Relationships

Duration: ½ - 1¼ hours

Grade Level: K - 12<sup>th</sup>

Students participate in games and simulations that lead them to a greater understanding of predators, prey, limiting factors, habitat needs, and human impacts on wildlife.

*Standards: 4.1.4.A, 4.1.6.D, 4.1.10.A, 4.1.10.D,*

### Stream Investigation

(see Water section)



## Awareness of the Natural World

### Creative Expression

Duration: ¼ - ¾ hour

Grade Level: 3<sup>rd</sup> - 12<sup>th</sup>

Students use nature and natural places as inspiration for writing poetry and for journaling.

*Standards: 1.4.3.A, 1.4.3.B, 1.5.3.B, 1.4.4.A, 1.4.4.B, 1.5.4.B, 1.4.5.A, 1.4.5.B, 1.5.5.B, 1.4.6.B, 1.5.6.B, 1.4.7.B.*

### Discovery Room

Duration: ¼ - ½ hour

Grade Level: Pre-K - 12<sup>th</sup>

The nature center at Lutherlyn contains displays and mounted animals. The displays allow students to touch animals that live in the surrounding environment. Students can explore the center at their own pace or participate in a scavenger hunt.

### Grab Bag

Duration: ¼ - ½ hour

Grade Level: Pre-K - 2<sup>nd</sup>

Students use their sense of touch to learn about the diversity of the natural world.

*Standards: 3.1a.9(pre-K), 3.1a.9(K), 3.2.1.B, 3.2.2.B.*

### Journal Writing

Duration: ¼ - ½ hour

Grade Level: 3<sup>rd</sup> - 12<sup>th</sup>

Many teachers use journals as a tool for learning. Why not bring them along for the field trip? The subject of the journal writing may be determined by the LEEP staff or by the teacher.

*Standards: 1.4.3.A, 1.4.3.B, 1.5.3.B, 1.4.4.A, 1.4.4.B, 1.5.4.B, 1.4.5.A, 1.4.5.B, 1.5.5.B, 1.4.6.B, 1.5.6.B, 1.4.7.B.*

### Sensory Exploration

Duration: 1 - 1¼ hours

Grade Level: Pre-K - 5<sup>th</sup>

There is much more to the natural world than most people perceive. Students actively use their senses to come to a better understanding of life around them.

*Standards: 3.1a.9(pre-K), 3.1a.9(K), 3.2.1.B, 3.2.2.B.*

## Ecosystems

### Ecosystem Investigation

Duration: 1 - 1½ hours

Grade Level: 3<sup>rd</sup> - 12<sup>th</sup>

The ecosystem concept is explored through this hiking activity. Students visit 4 to 6 different ecosystems and collect data about air and soil temperatures, sunlight penetration, wind speed, and biological factors. The data collected is used to investigate the inter-relatedness of ecosystems. Learning about wetlands and visiting a marsh are highlights of this activity.

*Standards: 4.1.3.A, 4.2.3.B, 4.2.3.C, 4.1.4.E, 4.2.4.B, 4.2.6.B, 4.1.7.A, 4.1.7.D, 4.1.7.E, 4.2.7.B, 4.2.8.B, 4.2.10.B, 4.1.12.A.*

### Forest Comparison Study

Duration: 1¼ - 1½ hours

Grade Level: 4<sup>th</sup> - 12<sup>th</sup>

Students work in pairs to collect data on soil texture, temperature, soil pH, sunlight penetration, tree types, and plant densities in a deciduous and a coniferous forest. Students compare the data to explore how forests differ.

*Standards: 3.1.4.C1, 4.1.4.A, 4.4.4.C., 4.1.7.A.*



**Healthy Forests**Duration: 1¼ - 1½ hours    Grade Level: 4<sup>th</sup> - 12<sup>th</sup>

Forests are incredibly diverse and complex ecosystems. Students learn how the plants and animals in a forest are interrelated and about the different layers in a forest. Students also measure trees to figure out their age and how much carbon dioxide they sequester. All of these factors help students determine how healthy a forest is.

*Standards: 3.1.4.C1, 3.2.4.A1, 4.1.4.A, 4.1.4.B, 4.1.5.A, 4.1.7.D, 4.1.12.A, 4.3.4.A, 4.3.10.A, 4.5.4.C, 4.5.7.C.*

**Marsh Investigation**Duration: ¾ - 1 hour    Grade Level: 3<sup>rd</sup> - 12<sup>th</sup>

In this activity, students experience a wetland (in this case a marsh) and compare it with a forest through collecting data on the soil and vegetation. They learn about the role that wetlands play in water quality and as important habitat.

*Standards: 4.2.3B, 4.2.4.B, 4.2.6.B, 4.2.7.B, 4.2.8.B, 4.2.10.B.*

**Pond Study**

(see Water section)

**Stream Investigation**

(see Water section)

**Geology****Geology Hike**Duration: 1¼ - 1½ hours    Grade Level: 4<sup>th</sup> - 12<sup>th</sup>

This activity introduces students to several different facets of geology, including land formation, geologic history, and rock formation in western PA. Students hike to a large rock outcropping and explore it as they climb to the top (weather permitting). They then discuss how the rock was formed and how it was affected by glaciers during the last Ice Age.

*Standards: 3.3.5.A1, 3.3.7.A1, 3.3.7.A3, 3.3.7.A6, 4.1.7E, 3.3.8.A.*

**Soil Study**Duration: 1¼ hours    Grade Level: 4<sup>th</sup> - 12<sup>th</sup>

In this activity, students visit various locations to study soil types. Students use soil keys to identify soil type, use pH kits to determine soil acidity, and use augers to determine soil depth.

*Standards: 4.4.4.C, 4.4.5.C, 4.2.6.B, 4.4.6.B.*

**Water Cycle and Watersheds**

(see Water section)

**Weather Study**Duration: ½ hour    Grade Level: 3<sup>rd</sup> - 12<sup>th</sup>

Students use equipment such as thermometers, psychrometers, barometers, and anemometers to measure weather factors and make forecasts. Overnight groups have the opportunity to measure weather at different times during the day.

*Standards: 3.3.3.A5, 3.3.4.A5, 3.3.6.B.*



# History

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## **Archaeology**

Duration: 2½ - 4 hours

Grade Level: 3<sup>rd</sup> - 12<sup>th</sup>

Western Pennsylvania history comes alive as students unearth artifacts, clean what they have found, and try to identify these clues to the past. Some students have found artifacts dating back one thousand years. In order to preserve the integrity of the archaeological site, group size may be limited.

*Standards: 8.2.3.B, 8.2.4.B, 8.2.5.B, 8.2.6.B, 8.2.7.B, 8.2.8.B.*

## **Early Settlers and the Venango Trail**

Duration: 1 - 1½ hours

Grade Level: 3<sup>rd</sup> - 12<sup>th</sup>

This hike brings students in contact with historic homestead sites that were settled between 120 and 180 years ago. Students learn to look for clues of early settlement and explore a former home site that was built along the historic Venango Trail.

*Standards: 8.2.3.B, 8.2.4.B, 8.2.5.B, 8.2.6.B, 8.2.7.B, 8.2.8.B.*

## **The Historic Semiconon Valley**

Duration: 2½ - 3 hours

Grade Level: 4<sup>th</sup> - 12<sup>th</sup>

The history of the Semiconon Valley parallels much of the history of western PA. This 2.3 mile hike allows students to explore a site used by Native Americans, a dam and homestead site associated with a former grist mill, the site of a former coal mine (and resulting pollution), and an abandoned gas well.

*Standards: 4.3.4.A, 4.3.7.A, 4.3.10.A, 4.3.10.B, 8.2.3.B, 8.2.4.B, 8.2.5.B, 8.2.6.B, 8.2.7.B, 8.2.8.B.*

## **Life Skills of the Woodland Tribes**

Grade Level: 3<sup>rd</sup> - 12<sup>th</sup>

The following modules may be combined to form one activity, which focuses on some of the life skills used by Native American peoples of the woodlands.

### **Edible and Medicinal Plants**

Duration: ¾ - 1 hour

See description in Plants section.

*Standards: 8.2.3.C, 8.2.4.C, 8.2.6.C, 8.2.7.C, 8.2.8.C.*

### **Games**

Duration: ¼ - 1 hour

Games were a great way for Native American children to develop the physical and mental skills needed to live in the forest. Students learn and play several games from the Native American tradition and discuss what skills the games may help develop.

### **Nonverbal Communication**

Duration: ½ - 1 hour

Students learn about two methods used by woodland tribes to record or share information – sign language and pictographs. Students learn basic signs and phrases, as well as how to read a simple pictograph.

### **Shelter**

Duration: ½ - ¾ hour

Native Americans used the forest around them to provide them with shelter. Students will construct a debris shelter and visit a rock shelter that was used by Native Americans. An archaeological dig is currently taking place at the rock shelter.

### **Trapping and Tracking**

Duration: ½ - 1 hour

Capturing food was a major life skill for Native Americans. Students will learn about several small game traps and construct a demonstration one.



**Pioneer Life Activities**Grade Level: 2<sup>nd</sup> - 12<sup>th</sup>

Central Western Pennsylvania was the "Western Frontier" from about 1790 until about 1810. The people who settled the area faced many hardships in clearing the virgin forest, building shelter, planting crops, raising a family, and surviving Native American raiding parties. The following activities help students gain insight into the hard working souls on the Pennsylvania frontier.

**Primitive Shelter**

Duration: ½ - ¾ hour

It took several months to clear land and build a cabin on the frontier, so most families lived in a three-sided shelter temporarily. Students will be led in the construction of a shelter using the natural resources at hand. Discussion will focus on the survival needs of the first settlers and what resources they had available.

*Standards: 8.2.3.C, 8.2.4.C, 8.2.6.C, 8.2.7.C, 8.2.8.C.*

**Children's Games on the Frontier**

Duration: ½ - ¾ hour

Growing up on the frontier did not allow children much free time, but they still found time to play various games. Students will participate in several games and discuss what children may have learned from mastering a game.

*Standards: 8.2.3.C, 8.2.4.C, 8.2.6.C, 8.2.7.C, 8.2.8.C.*

**Frontier Chores**

Duration: ½ - ¾ hour

Children on the frontier were part of the family workforce. In this activity, students will be introduced to some of the many daily or seasonal chores that young people were responsible for.

*Standards: 8.2.3.C, 8.2.4.C, 8.2.6.C, 8.2.7.C, 8.2.8.C.*

**Food - from Soil to Mouth**

Duration: ½ - 1 hour

Raising or obtaining food was a chief focus of daily pioneer life. Students will use a homemade hoe to break the ground for planting, participate in grinding grain or nuts, and taste some of the everyday foods eaten on the frontier. (For an additional fee, this activity can be expanded into a meal.)

*Standards: 8.2.3.C, 8.2.4.C, 8.2.6.C, 8.2.7.C, 8.2.8.C.*

**Edible and Medicinal Plants**

Duration: ¾ - 1 hour

See description in Plants section.

*Standards: 8.2.3.C, 8.2.4.C, 8.2.6.C, 8.2.7.C, 8.2.8.C.*

**Night Activities****Campfire**

Duration: 1 hour

Grade Level: K - 12<sup>th</sup>

A classic camp activity, this is often the highlight of overnight field trips. The LEEP staff leads songs and tells stories around the campfire. It is also possible to schedule a storytelling campfire that focuses on Native American legends.



**Constellations**

Duration: 1 hour

Grade Level: 3<sup>rd</sup> - 12<sup>th</sup>

On clear nights, this activity is a wonderful ending to the day. Students are taught many of the major constellations through myths and stories.

*Standards: 3.3.3.B1, 3.3.4.B1, 3.3.8.B1.*

**Night Sounds Hike**

Duration: 1 hour

Grade Level: 3<sup>rd</sup> - 12<sup>th</sup>

Students experience the forest at night by walking in silence. The pace of the hike is slow and stops are made for optimum listening. After the hike, students discuss what they heard and learn about what created those sounds.

**Night Sensory Hike**

Duration: 1 hour

Grade Level: 3<sup>rd</sup> - 12<sup>th</sup>

Students investigate the forest and their own senses at night. Some listening is done, as in the night sounds hike, but most of the activities focus on night vision.

## Outdoor Skills and Group Building

**Compasses**

Duration: 1 – 1¼ hours

Grade Level: 3<sup>rd</sup> - 6<sup>th</sup>

This activity begins with a brief history of compasses and navigation. Students then learn to identify compass parts and how to use a compass. The activity concludes with students using compasses to find their way between different points on a compass course.

**Group Building (Challenge Course)**

Duration: 1½ - 3 hours

Grade Level: 4<sup>th</sup> - 12<sup>th</sup>

Students are challenged personally and as a group to accomplish given tasks. The activity begins with a “ground school”, which prepares students for the upcoming challenges. The students then move to the Challenge Course where they are challenged on one or more activities (time permitting). The activity concludes with a discussion of how the group worked together and lessons that can be learned and applied in other situations.

**Orienteering**

Duration: 1¼ - 1½ hours

Grade Level: 5<sup>th</sup> - 12<sup>th</sup>

This activity begins, as does the compass activity above, with learning to identify compass parts and how to use a compass. Students are then asked to use their multiplication and division skills to estimate distances. The activity concludes with students applying this knowledge on an orienteering course that requires them to be able to use a compass and calculate a distance.

*Standards: 2.2.6B, 2.2.7B, 2.2.8.B*

**Survival Challenge**

Duration: 2 - 2½ hours

Grade Level: 4<sup>th</sup> - 12<sup>th</sup>

The Survival Challenge has been designed for students who have taken part in the Group Building, Orienteering, and Survival Skills activities. This is a culminating activity involving different stations. At each station, a group of students must use the skills that they have learned to solve a specified problem.

**Survival Skills**

Duration: 1 - 1½ hours

Grade Level: 3<sup>rd</sup> - 12<sup>th</sup>

This introduction to survival skills teaches students the basics of survival in a forest. Students learn how to: construct a debris shelter, find water sources, practice safe fire-building skills, and (time permitting) investigate sources of wild food.



## Plants

### Edible and Medicinal Plants

Duration:  $\frac{3}{4}$  - 1 hour

Grade Level: 3<sup>rd</sup> - 12<sup>th</sup>

Students explore the foods and medicines available from plants in the forest. Although some plants are still used today, many of the plants were more commonly used by early settlers and Native Americans.

### Tree Identification

Duration: 1 - 1 $\frac{1}{4}$  hours

Grade Level: 4<sup>th</sup> - 12<sup>th</sup>

This activity introduces students to leaf and twig characteristics, the use of a dichotomous key, and some of the vocabulary necessary for tree identification. Students work in groups to identify trees using the keys provided. (Tree identification is difficult in April and May.)

*Standards: 4.3.4.A.*

### Tree Parts and Functions

Duration:  $\frac{1}{4}$  -  $\frac{3}{4}$  hour

Grade Level: Pre-K - 12<sup>th</sup>

Through a simulation students learn about the amazing processes, such as photosynthesis, that allow trees to survive. If time permits, students will also become more acquainted with the trees in the forest through a blindfold activity.

*Standards: 3.1A.8(pre-K), 3.1a.5(K), 3.1a.8(K), 3.1.1.A, 3.3.1.B, 4.2.1.A, 4.2.1.B, 3.1.2.A, 3.3.2B, 3.1.3.A5.*

## Stewardship

### Creating Habitats

(see Animals section)

### How Many Trees?

Duration:  $\frac{1}{4}$  -  $\frac{1}{2}$  hours

Grade Level: 3<sup>rd</sup> - 12<sup>th</sup>

Our society uses many products that come from trees. This activity contrasts how many trees it takes to support each person's need for paper, paper products, and furniture with the benefits that are derived from a standing forest. Students explore how recycling can reduce the need for paper.

*Standards: 4.3.3.A, 4.5.3.A, 4.1.4.A, 4.3.4.A, 4.5.4.A, 4.3.7.A, 4.3.7.B, 4.3.10.A, 4.3.10.B, 4.3.12.A.*

### Integrated Pest Management

Duration: 1 - 1 $\frac{1}{4}$  hours

Grade Level: 3<sup>rd</sup> - 12<sup>th</sup>

Students explore alternatives to chemical pesticides by participating in a simulation of the food chain, collecting insects in a garden ecosystem, and learning how to use the food chain to control pest species.

*Standards: 4.5.3.B, 4.5.4.B, 4.5.7.B, 4.5.10.B.*

### Re-Cycling/Completing the Loop

Duration: 1 $\frac{1}{4}$  - 1 $\frac{1}{2}$  hours

Grade Level: 3<sup>rd</sup> - 12<sup>th</sup>

Students also participate in a game that demonstrates how energy is conserved through recycling and investigate how recycled materials have been used in the construction of the home at Terra Dei Homestead.

*Standards: 4.3.3.A, 4.5.3.A, 4.3.4.A, 4.5.4.D, 4.5.6.D, 4.3.7.A, 4.5.7.C, 4.5.7.D, 4.5.8.C.*



**Terra Dei Homestead Tour**Duration: 1¼ - 1½ hours Grade Level: 3<sup>rd</sup> - 12<sup>th</sup>

Terra Dei Homestead was designed to demonstrate ways that people can conserve energy and resources in daily lifestyles. Students begin by participating in a game that focuses on fossil fuels and alternative energy sources. They then explore Terra Dei Homestead and the many ways that energy and resources can be conserved in a home environment.

*Standards: 3.3.4.E3, 4.3.4.A, 4.5.4.A, 4.5.4.C, 4.5.4.D, 4.5.4.E, 3.4.7.B2, 3.4.7.E3, 4.3.7.A, 4.5.7.C, 4.5.7.D, 3.3.8.A2, 3.4.8.B2, 4.3.8.A, 4.5.8.C, 4.5.8.D.*

**Trash Stash**Duration: ½ - ¾ hour Grade Level: Pre-K - 4<sup>th</sup>

This activity focuses on reducing, reusing, and recycling. Students learn about what materials can be recycled and what happens to materials that are not.

*Standards: 4.2 (pre-K), 4.9 (pre-K), 4.2(K), 4.9 (K), 4.2.1.C, 4.2.1.D, 4.3.1.A, 4.8.1.B, 4.8.1.C, 4.9.1.A, 4.2.2.C, 4.2.2.D, 4.3.2.A, 4.8.2.B, 4.8.2.C, 4.9.2.A.*

**World Population Simulation**Duration: 1¼ - 1½ hours Grade Level: 5<sup>th</sup> - 12<sup>th</sup>

Students explore how resources are allocated around the world by becoming citizens of six regions. The simulation concludes with a discussion of what the students have learned about resource allocation and pollution production.

*Standards: 4.5.7.A, 4.3.10.B, 4.3.12.B,*

## Water

**Abandoned Mine Seep**Duration: 1½ - 3 hours Grade Level: 4<sup>th</sup> - 12<sup>th</sup>

The site for this activity is near a closed coal mine on Lutherlyn's property. As in much of PA, the mine was not sealed properly and the result is constant pollution that threatens life in the nearby stream. A passive treatment system has been installed to remove the pollution. Students use water testing kits to investigate the chemistry of the mine water as it passes through the system. The site is reached by bus or by a 1½-mile hike. The hike can be done in conjunction with the Historic Semiconon Valley activity.

*Standards: 4.2.5.C, 4.2.6.C, 4.2.7.B, 4.2.7.C, 4.5.7.C, 4.2.8.B, 4.5.8.C, 4.2.10.C, 4.3.10.B, 4.5.10.C, 4.5.12.C.*

**Food Chain/Food Web**Duration: ¼ - ½ hour Grade Level: 1<sup>st</sup> - 12<sup>th</sup>

Students explore the food chain learning about producers, consumers (herbivores, carnivores, and omnivores), and decomposers. This activity is usually done in conjunction with the Pond Study or Stream Investigation, but can be used on its own.

*Standards: 4.6.1.A, 4.6.2.A, 4.2.3.C, 4.1.4.A, 4.1.4.B, 4.1.4.C, 3.1.5.A2, 4.1.5.A, 4.1.5.C, 4.1.7.C, 4.1.10.B, 4.1.10.C.*

**Marsh Investigation**

(see Ecosystem section)



**Microscopic Life**

Duration: ½ - 1 hour

Grade Level: 3<sup>rd</sup> - 12<sup>th</sup>

Through the use of microscopes, students investigate the tiny creatures that inhabit aquatic environments. Common organisms include algae, ostracods, copepods, scuds, daphnia, and insects.

*Standards: 4.2.3.C, 4.1.4.A, 4.2.4.C, 4.1.5.A, 3.1.6.A1, 3.1.6.A6, 4.2.7.C.*

**Pond Study**

Duration: 1 - 1½ hours

Grade Level: K - 12<sup>th</sup>

The lentic environment is explored as students learn about food chains/food webs and collect specimens of pond life. Time is taken to focus on adaptations of aquatic organisms. Microscopes may also be used, if time (1¼ hours or more) and weather permit.

*Standards: 4.1(K), 3.5.1.D, 4.1.1.A, 4.1.1.C, 4.6.1.A, 4.7.1.A, 3.5.2.D, 4.1.2.A, 4.1.2.C, 4.6.2.A, 4.2.3.C, 4.1.4.A, 4.1.4.B, 4.1.4.C, 4.2.4.C, 3.1.5.A2, 3.1.5.A3, 4.1.5.A, 4.1.5.C, 3.1.6.A2, 4.1.7.C, 4.2.7.C, 4.1.10.B, 4.1.10.C.*

**Stream Flow Calculation**

Duration: ¼ - ½ hour

Grade Level: 4<sup>th</sup> - 12<sup>th</sup>

Students use math and measurement skills to calculate the amount of water that flows down a stream on a given day. This activity is often done as an extension of the Stream Investigation.

*Standards: 2.2.6B, 2.2.7B, 2.2.8.B*

**Stream Investigation**

Duration: 1 - 1¼ hours

Grade Level: K - 12<sup>th</sup>

Students collect and study specimens from a moving water (lotic) environment. The organisms found are then used to determine the health of this habitat. If the students have also participated in the Pond Study, they compare the adaptations of aquatic organisms from moving versus standing bodies of water.

*Standards: 4.1(K), 3.5.1.D, 4.1.1.A, 4.1.1.C, 4.6.1.A, 4.7.1.A, 3.5.2.D, 4.1.2.A, 4.1.2.C, 4.6.2.A, 4.2.3.C, 4.1.4.A, 4.1.4.B, 4.1.4.C, 4.2.4.C, 3.1.5.A2, 3.1.5.A3, 4.1.5.A, 4.1.5.C, 3.1.6.A2, 4.1.7.C, 4.2.7.C, 4.2.8.C, 4.1.10.B, 4.1.10.C, 4.2.10.C.*

**Water Cycle and Watersheds**

Duration: 1 - 1¼ hours

Grade Level: 4<sup>th</sup> - 12<sup>th</sup>

Students discover the many ways molecules move through the water cycle and the forces that make it all happen. They explore the water cycle and watershed concepts during several activities. If time permits, a hike to a natural spring and a stream valley is included.

*Standards: 4.2.3.A, 4.2.4.A, 4.2.5.A, 4.2.7.A.*

**Water Quality Testing**

Duration: 1 - 1¼ hours

Grade Level: 5<sup>th</sup> - 12<sup>th</sup>

Students take water samples from a stream, pond or both and use chemical testing kits to determine levels of acidity, alkalinity, dissolved oxygen, nitrogen, phosphates and pH. They then discuss the environmental or human factors causing their results and the effects these chemicals could have on organisms living in the water.

*Standards: 4.2.5.C, 4.2.6.C, 4.2.7.C.*



# Special Programs

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The programs listed below are complete field trip experiences. The activities in each program are the same for each field trip. Although a portion of these programs may be integrated with the Programs Options listed previously, these are primarily stand-alone programs. These programs are seasonal in nature and can only be scheduled at certain times of the year. Please note the seasons specified in the information below.

## **Archaeology**

Duration: 5 hours – several days      Grade Level: 3<sup>rd</sup> - Adult

In this ultimate hands-on field trip experience, students delve into the exciting world of archaeology and really “get their hands dirty”. Students learn the basics of setting up an actual archaeological dig and how to carefully excavate a site. Western Pennsylvania history comes alive as students unearth artifacts, clean what they have found, and try to identify these clues to the past. The current dig site has been the site of human activity for hundreds of years. There is evidence of Native American, as well as pioneer, activity. In order to preserve the integrity of this archaeological site, group size may be limited. For an extended Archaeology experience, this may be done as a multi-day/overnight field trip. The seasons for this program are **April-May** and **August – November**.

*Standards: 8.2.3.B, 8.2.4.B, 8.2.5.B, 8.2.6.B, 8.2.7.B, 8.2.8.B.*

## **Maple Sugaring**

Duration: 3 ½ - 5 hours      Grade Level: Pre-K - Adult

This field trip experience allows students to learn about biology and an aspect of pioneer and Native American cultures. Maple Sugaring is a high interest, hands-on program divided into four separate activities. Students begin by learning about tree parts and their functions, learning where the sap comes from, and how the sugar got into the sap in the first place. In the second activity, students are taught the basics of winter tree identification. Following this identification lesson, students locate maple trees and measure their circumference to determine if the trees are “tappable.” Groups of students then drill holes in the trees, tap in the spiles, and hang the buckets. The final activity involves collecting sap from many maple trees and taking it to the Sugar Shack, where a sugar maker is making maple syrup. The boiling process is demonstrated at the Sugar Shack and students get to taste the finished product. These four activities are interwoven with Native American stories and explorations of pioneer and Native American sugaring techniques. Older students delve deeper into tree physiology and the calculations of sap flow. For an additional fee, students may have a pancake and maple syrup lunch. The Maple Sugaring experience may also be done as an overnight field trip, giving the students more time to participate in the sugaring process. **Maple Sugaring season runs from the beginning of February through the middle of March.**

*Standards: 3.1A.8(pre-K), 3.1a.5(K), 3.1a.8(K), 4.2(K), 3.1.1.A, 3.3.1.B, 4.2.1.A, 4.2.1.B, 3.1.2.A, 3.3.2B, 3.1.3.A5, 3.1.6.A2.*



# Sample Schedules

[All schedules are flexible according to arrival and departure times and particular curriculum needs.]

## **TYPICAL ONE-DAY SCHEDULE:**

9:30	Overview/Orientation
9:45	Activity I: Pond Study
11:00	Activity II: Habitat and Wildlife
12:10	Lunch
12:40	Activity III: Terra Dei Homestead Tour
1:50	Activity IV: Predator/Prey Relationships
2:15	Wrap-up Session
2:30	Return to School

Optional store time available upon request in advance. Nature books, buttons, magnifiers, T-shirts, hats, and candy are available.

## **TYPICAL TWO-DAY SCHEDULE:**

### **DAY 1:**

10:00	Arrive and Settle into Cabins
10:45	Overview/Orientation
11:00	Activity I: Pond Study
12:15	Lunch
1:30	Activity II: Insect Investigation
2:45	Bathroom and Drink Break
3:00	Activity III: Habitat & Wildlife
4:15	Activity IV: Predator/Prey Games
5:15	Dinner
6:15	Recreation Time
7:00	Evening Program*
9:00	Return to Cabins

### **DAY 2:**

7:00	Birding Observation Hike (only offered as an <u>optional</u> activity)
8:15	Breakfast
8:50	Pack/Clean-up Cabin
9:30	Activity V: Stream Investigation
10:50	Activity VI: Forest Study
12:15	Lunch and Wrap-up
1:00	Store Time
1:30	Depart for School

\* Evening programming is the responsibility of the school and a list of recommended programs is available upon request. For an additional fee, the LEEP staff will provide 1-2 hours of programming.



**TYPICAL THREE-DAY SCHEDULE:****DAY 1:**

10:00 Arrive and Settle into Cabins  
 10:30 Overview/Orientation  
 10:45 Activity I: Pond Study  
 12:15 Lunch  
 1:30 Activity II: Sensory Exploration  
 2:45 Bathroom and Drink Break  
 3:00 Activity III: Eco-Network  
 4:15 Journal Writing  
 5:15 Dinner  
 6:15 Recreation Time  
 7:00 Evening Program  
 9:00 Return to Cabins

**DAY 3:**

8:00 Breakfast  
 8:40 Pack/Clean-up Cabin  
 9:15 Activity IX: Insect Investigation  
 10:30 Activity X: Terra Dei Homestead Tour  
 11:45 Wrap-up and Review  
 12:15 Lunch

**DAY 2:**

7:00 Bird Observation Hike (only offered as an optional activity)  
 8:15 Breakfast  
 9:30 Activity IV: Geology Hike  
 10:45 Activity V: Forest Study  
 12:15 Lunch  
 1:30 Activity VI: Stream Investigation  
 2:45 Bathroom and Drink Break  
 3:00 Activity VII: Early Settlers & the Venango Trail  
 4:15 Activity VIII: Predator/Prey Relationships  
 4:45 Journal Writing  
 5:15 Dinner  
 6:30 Recreation Time  
 7:00 Campfire/Sing-along\*  
 8:00 Night Sounds Hike\*  
 9:00 Return to Cabins

\* Events of two or more nights may request 1-2 hours of LEEP programming for one night, free of charge. See Night Activity listing for options.

**TWO-DAY SCHEDULE - MULTIDISCIPLINARY FOCUS:****DAY 1:**

10:00 Arrive and Settle into Cabins  
 10:45 Overview/Orientation  
 11:00 Activity I: Orienteering (*Math*)  
 12:15 Lunch  
 1:30 Activity II: Habitat & Wildlife (*Science*)  
 2:45 Bathroom and Drink Break  
 3:00 Activity III: Stream Flow (*Math*)  
 3:30 Activity IV: Stream Investigation (*Science*)  
 4:35 Activity V: Creative Expression (*Language Arts*)  
 5:15 Dinner  
 6:15 Recreation Time (*Phys. Ed.*)  
 7:30 Campfire/Sing-along\* (*Music*)  
 9:00 Return to Cabins

**DAY 2:**

7:00 Birding Observation Hike (optional) (*Science*)  
 8:15 Breakfast  
 8:50 Pack/Clean-up Cabin  
 9:30 Activity VI: Early Settlers & the Venango Trail (*Social Studies*)  
 10:50 Activity VII: Life Skills of the Woodland Tribes (*Social Studies*)  
 12:15 Lunch and Wrap-up  
 1:00 Store Time  
 1:30 Depart for School

\*Additional fee would apply for evening programming provided by LEEP.



## Where is Lutherlyn?

Lutherlyn is located in an exceptional part of the world. It is part of one of the most biologically diverse regions of North America and reflects an intriguing human and geologic history.

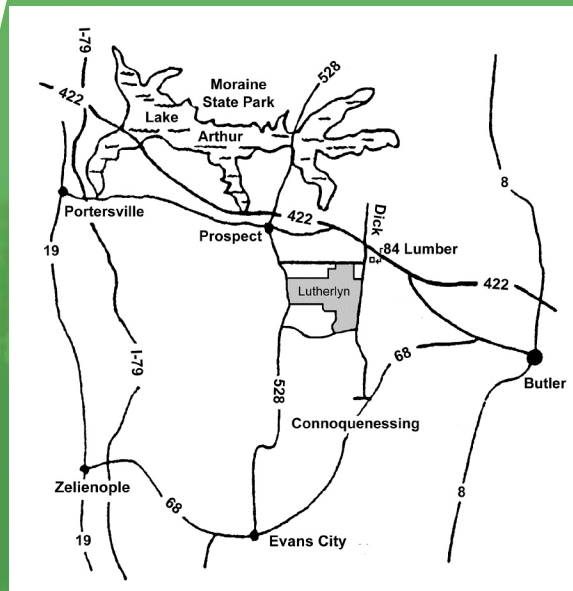
The sandstone boulders and outcroppings that dot the upper reaches of Lutherlyn's stream valleys reveal the presence of an ancient sea that once covered western Pennsylvania and Ohio. The subsequent uplift of the Appalachian Mountains exposed the geology that had been forming underneath the waters. Over time the erosion of this landscape created the hills and valleys of western Pennsylvania.

The forest that eventually grew in this landscape contains one of the most diverse communities on the planet. The Mixed Mesophytic or Mixed Appalachian Forest extends from central Alabama to approximately 50 miles northeast of Lutherlyn. It supports over 130 species of trees and 7 distinct forest communities. The forest at Lutherlyn primarily falls into the Oak-Hickory Forest community and contains red maple, black cherry, cucumber magnolia, and white ash, as well as the many dominant species of oaks and hickories. These trees provide habitat for wild turkeys, white-tailed deer, squirrels, chipmunks, gray foxes, scarlet tanagers, ruffed grouse, 7 species of salamanders, 7 species of frogs, and 8 species of reptiles. The forest wildflowers erupt in the spring with trillium, wild ginseng, spring beauties, mayapples, violets, bluets, and jack-in-the-pulpit blossoms.

The forest has also provided habitat for humans. Artifacts have provided evidence of people dating back to the Archaic period, when atlatls were used to hunt prey animals. As time passed, this land sat very close to the intersection of two very important trails. The Venango Trail passed right through Lutherlyn and ran from Lake Erie to Pittsburgh. The Kuskusky Path intersected the Venango Trail near Prospect and continued eastward to Kittanning; and then, as the Great Shamokin Path, through the mountains and into eastern PA.

These same trails were used by people of European descent as they came to the frontier in the late 1700s. The area that Lutherlyn occupies not only included frontier homesteads, but the streams also supported sawmills and a grist (flour) mill. In the late 1800s, the millers began mining coal that formed in the wetlands that surrounded the ancient sea, to power steam engines. In the mid-1900s the vision of several Lutheran pastors brought Lutherlyn into being as a place apart to build community, train leaders, and explore the beauty of creation.

### Location:



**Lutherlyn is located 40 miles north of Pittsburgh off of Route 422 between Prospect and Butler.**

