

# APPALACHIAN FOREST ECOLOGY

## CORE CONTENT

## *Study Concept*

### **SC-E-3.1.1**

#### ***Ecosystems***

Things in the environment are classified as living, non-living, once living. Living things differ from non-living things. Organisms are classified into groups by using various characteristics.

### **SC-E-3.1.2**

#### ***Habitats***

Organisms have basic needs. For example, animals need air, water, and food: plants need air, water, nutrients and light. Organisms can only survive in environments where their needs can be met.

### **SC-E-3.1.3**

#### ***Adaptations***

Each plant or animal has structures that serve different functions in growth, survival, and reproduction. For example, humans have distinct body structures for walking, holding, seeing and talking.

### **SC-E-3.3.1**

#### ***Food Chains and Food Webs***

Plants make their own food. All animals depend on plants. Some animals eat plants for food. Other animals eat animals that eat the plants.

### **SC-E-3.3.2**

#### ***Appalachian Forest Ecology***

The world has many different environments. Distinct environments support the lives of different organisms. When the environment changes, some plants and animals survive and reproduce, and others die or move to new locations.

### **SC-E-3.3.3**

#### ***Stewardship***

All organisms, including humans, cause changes in the environment where they live. Some of these changes are detrimental to the organisms or other organisms; other changes are beneficial.

# APPALACHIAN ECOLOGY VOCABULARY LIST

**Adaptation:** the ability of an organism to adjust to its surroundings so that it can survive.

**Biodiversity:** the variety of life forms in a place.

**Community:** all the plants and animals that live in a place.

**Consumers:** organisms that are not able to produce their own food, and must eat other organisms for the energy to live; all living things except plants.

**Decomposers:** living things that break down matter; for example fungi and bacteria.

**Ecology:** the study of the interrelationships/interconnections of organisms and their environments.

**Ecosystem:** a community of living things and the environment in which they live.

**Environment:** all non-living things that surround the living things in a place.

**Food chain:** the path energy takes when one living thing eats another living thing.

**Habitat:** a home or place where a living thing lives, that includes food, water, shelter and space adequate for its survival.

**Interconnected:** the dependency of living things upon one another for survival.

**Living:** an organism that breathes and consumes energy.

**Non-living:** a thing that neither breathes nor consumes energy at any time in its existence.

**Once-living:** an organism that used to breathe and consume energy but no longer does so; has died.

**Pollution:** something that causes damage or harmful change to a habitat.

**Population:** the number of living things that live in an area.

**Predator:** an animal that hunts and eats other animals.

**Prey:** an animal that is hunted and eaten by another animal.

**Producers:** an organism that makes its own food; plants.

**Stewardship:** the responsible care of and for one's environment; the protection and rehabilitation of that environment.

**Web of life:** the interconnection of all life forms thru the food chain/energy chain.

# Appalachian Forest Ecology

## Post Test

1. \_\_\_\_\_ are places where living, non-living and once-living things interact. Examples are a forest, a lake, a river, a desert or a meadow.
2. The environment is made up of all the \_\_\_\_\_ things in an ecosystem. Some examples are air, water, rocks and soil.
3. \_\_\_\_\_ things are organisms that have recently died.
4. \_\_\_\_\_ and \_\_\_\_\_ things are the same thing. They must all breathe air, get energy and reproduce. Examples are a plant, an animal or bacteria.
5. A home or place where an organism is normally found is called its \_\_\_\_\_. An animal will move away or fail to survive if its home does not have proper food, water, shelter and space.
6. The \_\_\_\_\_ of an organism is the number of organisms that live in a particular place.
7. A hawk or a bobcat is called a \_\_\_\_\_ because it hunts for and eats other animals.
8. An animal that is hunted by another animal is called its \_\_\_\_\_.
9. \_\_\_\_\_ is the way in which an organism changes to better survive in its habitat.
10. All life in an ecosystem is \_\_\_\_\_, or dependent upon one-another for survival.
11. In a food chain, plants are called \_\_\_\_\_ because they have the ability to use the sun's energy directly to produce their own food.
12. \_\_\_\_\_ are organisms that eat other organisms to get energy. Examples are everything except plants.
13. In a food chain, bacteria and fungi are two examples of \_\_\_\_\_, since they eat dead organisms and return nutrients to the soil.
14. The web of life is the interconnection of all life forms through the \_\_\_\_\_, or path that energy takes when one thing eats another thing.
15. \_\_\_\_\_ is the variety of life forms in a place.

adaptation  
environment  
once-living

biodiversity  
food chain  
organisms

consumers  
habitat  
population

decomposers  
interconnected  
predator

ecosystem  
living  
prey  
non-living  
producers

# Appalachian Forest Ecology

## Post Test

1. **Ecosystems** are places where living, non-living and once-living things interact. Examples are a forest, a lake, a river, a desert or a meadow.
2. The environment is made up of all the **non-living** things in an ecosystem. Some examples are air, water, rocks and soil.
3. **Once-living** things are organisms that have recently died.
4. **Organisms** and **living** things are the same thing. They must all breathe air, get energy and reproduce. Examples are a plant, an animal or bacteria.
5. A home or place where an organism is normally found is called its **habitat**. An animal will move away or fail to survive if its home does not have proper food, water, shelter and space.
6. The **population** of an organism is the number of organisms that live in a particular place.
7. A hawk or a bobcat is called a **predator** because it hunts for and eats other animals.
8. An animal that is hunted by another animal is called its **prey**.
9. **Adaptation** is the way in which an organism changes to better survive in its habitat.
10. All life in an ecosystem is **interconnected**, or dependent upon one-another for survival.
11. In a food chain, plants are called **producers** because they have the ability to use the sun's energy directly to produce their own food.
12. **Consumers** are organisms that eat other organisms to get energy. Examples are everything except plants.
13. In a food chain, bacteria and fungi are two examples of **decomposers**, since they eat dead organisms and return nutrients to the soil.
14. The web of life is the interconnection of all life forms through the **food chain**, or path that energy takes when one thing eats another thing.
15. **Biodiversity** is the variety of life forms in a place.

adaptation  
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## Appalachian Forest Ecology Teacher Evaluation

We are glad you had the opportunity to participate in the Appalachian Forest Ecology Program with Appalachia-Science in the Public Interest and the Mary E. Fritsch Nature Center. Please help us to continue to improve and develop our programs by taking a few minutes to fill out this form. We know how valuable your time is, and want to insure our curriculum and programs are serving your needs. Thank you for your input.

Name of School: \_\_\_\_\_

Address: \_\_\_\_\_

Teacher's Name: \_\_\_\_\_ Grade Level: \_\_\_\_\_

Date of Visit: \_\_\_\_\_

How did you learn about this program? \_\_\_\_\_

Was the reservation system convenient for you? Yes \_\_\_\_\_ No \_\_\_\_\_

Did the program meet your expectations? Yes \_\_\_\_\_ No \_\_\_\_\_

Please comment on the strengths and weaknesses of program/presenter and methods/materials used. \_\_\_\_\_

What was the best part of the educational experience? \_\_\_\_\_

Would you recommend this program to other teachers, why or why not? \_\_\_\_\_

Please circle your response to the following questions:

(1 poor-----5 superb)

Usefulness from a curriculum standpoint	1	2	3	4	5
Quality	1	2	3	4	5
Interest level of students	1	2	3	4	5
Age appropriateness	1	2	3	4	5
How well did it teach KY's Core Content	1	2	3	4	5
Relevant to curriculum	1	2	3	4	5
Suitable for class size	1	2	3	4	5
Appropriate length	1	2	3	4	5
Use program in future	1	2	3	4	5

Would/Could you pay to have this program at your school? \_\_\_\_\_

Please make any suggestions or other comments: \_\_\_\_\_

Please return form to: ASPI, 50 Lair st., Mt. Vernon, KY 40405-9806



## Homeschool Offerings:

Set aside one day a month to visit ASPI's  
Mary E. Fritsch Nature Center!

*Join us for Third Thursdays!*

We offer a 4-hour day-program with a different theme each month on 3<sup>rd</sup> Thursdays (or contact us for other options). Come join us for a fun-filled day of nature education in the woods! Our programs correspond with Core Content standards so you can include them as a part of your regular school curriculum. Our "school year" begins in August and runs through July with no programs in December or January. See below for a summary of each month's offerings. Regular program prices are \$5.00 per person attending. Contact us about pricing for special programs and supplies. We recommend a limit of 8-10 students per program in order to enjoy a quality experience. These programs are open to all groups. **There is still time to sign up for our February 2007 offerings! Begin your school year adventure now!**

### **Jump In Now!**

- Feb:** Thursday Feb. 15<sup>th</sup> Come join us for a quiet winter walk in the sleeping forest.  
**Mar:** Thursday Mar. 15<sup>th</sup> Take an early spring hike to hunt for signs of springtime in the Appalachians.  
**April:** Thursday April 19<sup>th</sup> Celebrate Earth Day!  
We will be participating in activities to celebrate Earth Day.  
**May:** Thursday May 17<sup>th</sup> Watersheds and water quality:  
**June:** Saturday June 2<sup>nd</sup> River Day! Note: NOT on Thursday!  
**July:** Thursday July 19<sup>th</sup> At Great Salt Petre Cave

### **A New Year Begins!**

- Aug:** Thursday Aug. 16<sup>th</sup> Learn about the web of life!  
**Sept:** Thursday Sept. 20<sup>th</sup> Take an early fall hike! Then get an introduction to solar energy.  
**Oct:** Thursday Oct. 18<sup>th</sup> Join us for a spectacular fall hike!  
**Nov:** Thursday Nov. 15<sup>th</sup> Last chance for a fall hike!

**Winter Program Break:** Contact us for special arrangements if a program is desired in December or January.

**Call or email for complete program details.**

See our brochure or web site for scheduling information.

Contact the Nature Center at ASPI:

[www.a-spi.org/naturecenter](http://www.a-spi.org/naturecenter)

Email: [naturecenter@a-spi.org](mailto:naturecenter@a-spi.org)

Or: [aspi@a-spi.org](mailto:aspi@a-spi.org)

Main office: 50 Lair St. Mt. Vernon, KY 40456

Ph. 606-256-0077

Fax 606-256-2779

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## **Jump In Now!**

**Feb:** Thursday Feb. 15<sup>th</sup> Come join us for a quiet winter walk in the sleeping forest.

*The trees - Why do trees sleep in winter? Study the differences between deciduous and evergreen strategies.*

*Animals in winter - What do animals do to survive in winter? Learn to walk like an animal, read winter tracks and signs. How many animals can you find?*

*Geology of the Appalachians - An introduction to the basic geology and rock formations of the Appalachians and how the mountains were formed. We'll inspect rock formations along the trail as we hike along.*

**Winter bird watching.** *Let's do some bird watching & learn to identify some of our common bird friends using a field guide. We'll do bird counts and comparisons at front & rear feeder stations.*

**Build a bird feeder!** *We'll build platform bird feeders for the Nature Center and have an option (for an extra charge) of building a feeder to take home.*

**Mar:** Thursday Mar. 15<sup>th</sup> Take an early spring hike to hunt for signs of springtime in the Appalachians.

*We'll learn about Appalachian forest ecology - Get an introduction to forest ecology and what makes the Appalachian forests unique. We'll talk about what we can do to protect and preserve our forests, mountains and waters. Stewardship of the Earth and why we should care.*

*Look for signs of spring - Looking high and low for signs of spring. Who's out and about this time of year? Can you find signs of the awakening of the trees and flowers? How do the plants and animals know it's spring? What are they doing this time of year?*

*Trees are tremendous! We'll learn about why trees are important and of their usefulness to wildlife and to people. Learn to use a key to identify trees, make your own "tree key".*

*Soil types and their meanings. Bring soil sample from home to compare and analyze.*

*The importance of soils - Soil types of the region & what they mean. We'll be getting dirty today! Let's grub about to really see the soil beneath our feet.*

**Composting and garden prep** - *A basic on how to compost - we'll build a compost pile! Introduction to organic gardening and permaculture. Why? How? Can I do it, too?*

**April: Thursday April 19<sup>th</sup> Celebrate Earth Day!**

**We will be participating in activities to celebrate Earth Day.**

Earth Day activities - *We may plant trees, clean up a roadside, do a stream sweep, or if you prefer, come up with an idea of your own.*

Plant a butterfly & hummingbird garden - *Come ready to dig in the dirt! We'll be designing and planting a small garden to make these tiny visitors happy.*

Earth changes - *What is global warming? Is it real? We'll study Earth changes over time and compare past and present patterns.*

Being a responsible Earth citizen - *Bring the names and addresses of your state and federal legislators to the program. We will be learning how to speak up and have a say in protecting our Earth.*

**Gardening** - *We will build on last month's organic and permaculture basics and work on our garden.*

**OPTION: "Walden: The Ballad of Thoreau"** - *If you like theater, your group may choose to put on this two act play designed for older students as a testimony to the Earth. The play was written by Michael Jonathan, of 'Woodsongs Old-time Radio Hour' fame, to be used as an Earth Day production by schools and others.*

**May: Thursday May 17<sup>th</sup> Watersheds and water quality:**

Map your watershed - *Learn what a watershed is and how to identify it. We'll draw out the local watershed and identify the watershed where each student lives.*

Understanding the water cycle - *Study how the water cycle works in nature. Learn the basics of water quality monitoring and do some macroinvertebrate sampling. Learn how people impact water quality and what we can do to keep our water clean and abundant.*

Composting toilets & constructed wetlands - *We'll look at ASPI's composting toilets and greywater treatment beds and learn how to design a system to fit your needs. We'll look at basic construction, plans, the why's of using dry toilets and constructed wetlands. We'll have an opportunity to work in the wetland, planting plants and getting hands-on experience with the system.*

**June: Saturday June 2<sup>nd</sup> River Day! Note: NOT on Thursday!**

Come out for a full day of fun activities on the river. Join us for our annual River Day!

Bring a dish for the potluck and enjoy the camaraderie of other friends of the rivers and forests!

Hike the trails! Join in the games! Play music! Sing and dance! Canoe the river! (bring your own canoe)

Enjoy the bonfire! Or just bring a chair, sit and relax by the banks of the beautiful Rockcastle River.

**July: Thursday July 19<sup>th</sup> At Great Salt Petre Cave**

Explore a cave! *Take a tour through Great Salt Petre Cave outside of Mt. Vernon. Learn about cave and karst ecology. What is karst? How is karst topography special? The making of a cave - how are caves formed? Critters of the cave and karst - We'll learn about cave life with an emphasis on bats. Bats are your friends and mine! Dispel the myths about bats and discover why they are important to the web of life. Build a bat house (for extra charge) to put up at your home. Bring caving gear - a list will be sent upon registration.*

**A New Year Begins!**

**Aug: Thursday Aug. 16<sup>th</sup> Learn about the web of life!**

We will learn about food chains: *From the least little to the biggest bold, they are all a part of nature! Learn about wildlife big and small, interconnections between plants, animals and even people.*

**Predators and prey:** *Their relationships as a part of the food chain. Good and bad? Or just nature's way?*

**Study:** *herbivores, carnivores and omnivores; producers, consumers and decomposers.*

Be a nature investigator: *get down and dirty with magnifiers. Take a close-up look at life in an old log and use litter sifters to discover the what's, how's and why's of life in the small.*

Take a look at creepy crawlies (bugs): *Not just creepy, but important too, and interesting, maybe even beautiful. Learn to plant for beneficial insects.*

Hurray for Herps! *Learn about reptiles and amphibians of the Appalachians; invite nature's helpers to your garden by making a toad house. Bring a 4" clay pot to class!*

**Sept: Thursday Sept. 20<sup>th</sup> Take an early fall hike! Then get an introduction to solar energy.**

*See all of nature preparing for winter - Look for signs of winter preparation by plants and animals.*

*Learn about animal adaptations - Learn about ears, noses, eyes, body parts and types, and physical vs. behavioral adaptations.*

**Solar energy basics:** *From hot water to heating a home - An introduction to living in a more energy sustainable way.*

*Then join us for an introduction to solar cooking - We'll build a cooker to take home (extra charge for materials) and we'll cook a meal during the day's program (weather permitting).*

**Oct: Thursday Oct. 18<sup>th</sup> Join us for a spectacular fall hike!**

*The colors of autumn - why do trees change? what causes the color change? why do some trees turn brighter colors than others? why do trees lose their leaves? why do evergreens hold their needles?*

*Animals on the move - migration, food storage, hibernation, winter pelts; let's explore just what the change of seasons means to animals in the wild.*

*More about Appalachian Forest Ecology - we'll go into more depth (than the March program) about just how special our Appalachian Mountains are in the larger context of world ecosystems, as well as learning to better understand our own southern-mid Appalachian ecosystem.*

**Nov: Thursday Nov. 15<sup>th</sup> Last chance for a fall hike!**

*Habitats of the Appalachians - forest, stream, meadow... discover the many different habitats of the mountains*

*Mammals of the forest - mammals that live in the Appalachians; looking for signs, where do they live? We'll study animals and their habitats; why does one animal like the deep forest while another prefers a field or a stream bank?*

*Birds of prey - learn about raptors, and their place in nature. How are they different from songbirds? Gamebirds?*

**Winter Program Break:** *Contact us for special arrangements if a program is desired in December or January.*

**Contact the Nature Center at ASPI:**

[www.a-spi.org/naturecenter](http://www.a-spi.org/naturecenter)

Email: [naturecenter@a-spi.org](mailto:naturecenter@a-spi.org)

Or: [aspi@a-spi.org](mailto:aspi@a-spi.org)

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