

Ecology is the study of how living things interact with each other and their environments. Ecology not only involves plants and animals, but people as well. The activities in this handout can be completed at Fernbank Museum. After your visit, be sure to look at your badge book to find additional activities on the subject. As always, you must complete six activities to earn your badge.

Vocabulary

Knowing these words will help on the way to earn your badge and to 'talk' like a scientist.

Ecosystem—All of the living and nonliving material in a given area and the complex interactions and interrelationships which exist between them.

Adaptation—An alteration or adjustment in structure or habits, often hereditary, by which a species or individual improves its condition in relationship to its environment.

Food Web—The interconnected feeding relationship in an ecosystem.



**BE AN
 ECOLOGIST:
 YOUR STUDY
 AREA**

AT THE MUSEUM

In *A Walk Through Time in Georgia* select one of the regions (Piedmont, Ridge and Valley, Coastal Plain, etc.) as your study area. Using this selected ecosystem, complete the activities below.

List some of the plants and animals you observe in this ecosystem.

Do you have different levels of plant life in your ecosystem (under-story, mid-story, and upper story)? How do you think the different levels affect each other?

Find examples of how plants and animals interact with soil, water, sun and wind in this ecosystem.

Find examples of organisms from all parts of the food web. Look for producers, consumers and decomposers.



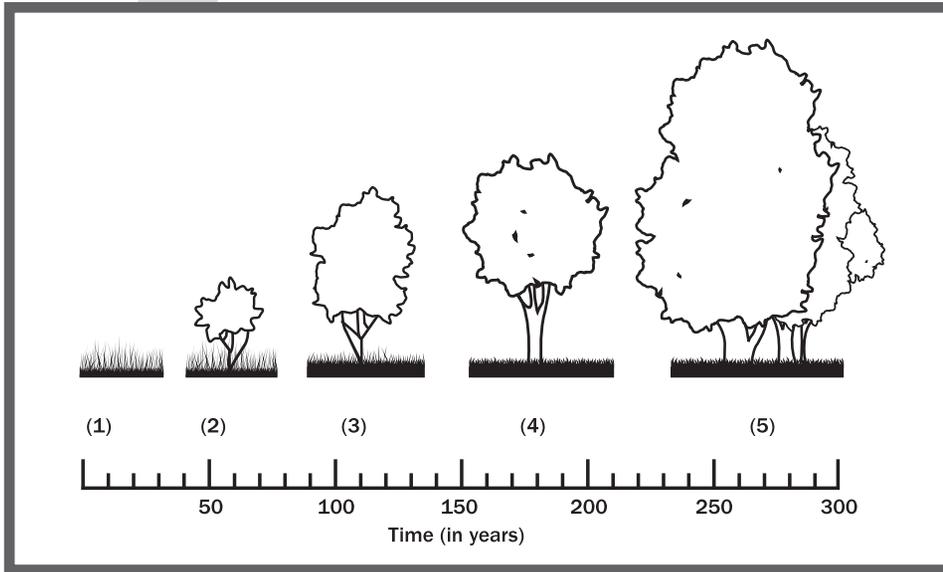
Draw or create a simple food web using plants and animals from your selected ecosystem. There are many correct answers.



**TRAVELING
THROUGH
TIME**

AT THE MUSEUM

Ecological succession is a natural process of change when one community is replaced by another over a period of time. This is a process that never stops because it can happen on a large scale (the whole forest changing together), while at the same time happening at a small scale (when a tree falls or an animal digs a hole). This process of change is natural and constant. A pond might fill in to become a meadow, a meadow might become a forest, or a small disturbance could restart the process in either of these situations.



In *A Walk Through Time in Georgia* think of yourself as a time traveler. In the next century what do you predict these locations would look like? In five centuries? Draw what you think your camera might record in the future for two of the regions.



**IDENTIFY
THAT TREE**

AT THE MUSEUM

In *A Walk Through Time in Georgia*, identify the ten tree species listed below. Look at leaves, seeds, fruit and bark. Describe the ecosystem where each is found using the field guides available in each region to help you to check your identification. Write what you find below. One example is completed for you.

<p>Tree Georgia Oak</p>	 <p>Characteristics Small to medium tree with shiny green leaves. Leaves have five irregular, pointed, bristle-tipped lobes.</p>	<p>Ecosystem/Region Found in the Piedmont region of Georgia, this tree grows on dry granite and sandstone outcrops.</p>
Loblolly Pine		
Long Leaf Pine		
Tulip Poplar		
White Oak		
Chestnut Oak		
Flowering Dogwood		
Virginia Pine		
Live Oak		
Sourwood		

**AFTER
YOUR VISIT**

Keep an eye out for these native trees in your school yard, neighborhood and parks. Which ones do you see the most? Does it correspond with the region you found it in?

ECO-GAMES

AFTER YOUR VISIT (or during a break on the front lawn)

Playing games is a very good way to reinforce and practice what you have learned. Playing an eco-game that demonstrates the interaction and balance in an ecosystem will further reinforce what you have learned during your visit. You can design your own game, or play the example game below.

"Oh Deer"

This game, adapted from *Project Wild*, emphasizes the most important things animals need in order to survive and reproduce. The essential components of habitats are food, water and shelter.

Count off in fours. Have all "ones" go to one area and all "twos," "threes" and "fours" go together to another area.

Mark two parallel lines about 5 to 10 m apart.

Have "ones" line up behind one line. Have the rest of the Scouts line up behind the other line facing the "ones."

"Ones" are the deer in this game. For this game we will be assuming that the deer have plenty of space, so they will be seeking food, water and shelter to survive and increase their population.

At the start of each round each deer must decide if she wants to seek out food, water or shelter. She will indicate what she is seeking by making a sign. She must keep the same sign for the whole round.

- Food: Hands on stomach
- Water: Hands on mouth
- Shelter: Hands over head like a roof

"Twos," "threes" and "fours" are food, water and shelter. Each individual will get to decide if she will be food, water or shelter at the beginning of the round using the same indicators. They will also have to keep their sign.

Have all the players turn around with their backs to each other, give them a minute to decide what sign they are going to use. When everyone has decided, the group leader will shout "Oh deer!" and the players will turn around and display their signs.

When each deer finds what she is seeking, she can return with her food, water or shelter to her line. By satisfying her survival needs, the population will increase. This means that the food, water or shelter she brought back with her will become a deer in the next round.

If a deer does not find what she is seeking she will 'die' and become part of the environment. This dead deer will be food, water or shelter in the next round.

NOTE:

This game teaches that the deer population grows and shrinks with the availability of the essential elements of survival. By keeping the number of elements random, you will be able to create different environmental scenarios without planning them. For example, if there is not enough food, there is a famine; or not enough water, there is a drought. This game also shows that even by dying, animals impact their ecosystems.

ADAPT OR PERISH

AT THE MUSEUM

Look for examples of ways that plants or animals have developed or adapted in order to survive in their habitats. Observe how different ecosystems and regions call for different adaptations by visiting *A Walk Through Time in Georgia*.

ACTIVITY

There is a turtle in all but two regional displays in this exhibition. Find the turtles and tortoises in the table below. Draw or explain what makes these animals best fit to their environments. One example is already completed for you.

Region	Animal	Adaptation	
Piedmont	Eastern Box Turtle		
Appalachian Mountains	Common Snapping Turtle		
Coastal Plain	Gopher Tortoise		The Gopher Tortoise is adapted perfectly for burrowing in the loose sandy soil found in it's environment. Its front legs are shovel shaped.
Okefenokee Swamp	Soft Shelled Turtle		
Coast and Barrier Islands	Diamondback Terrapin		
Gray's Reef	Sea Turtle		

PLANTS AND PEOPLE

AT THE MUSEUM

In *A Walk Through Time in Georgia* identify the five different plants listed below that are native to your area. Draw and/or explain identifying features of these plants in the space provided so that you can look for them and identify them in the wild.

AFTER YOUR VISIT

On your own or as a troop, research if and how these plants were used by native people and pioneers. If utilized, find out how they were used. One has been done for you.

Plant	Drawing	Use
Long Leaf Pine		
Live Oak		
Spanish Moss		
Wild Hydrangea		
Tulip Poplar		<p>Native Americans and early pioneers frequently hollowed out a single log to make a long dugout canoe, giving it the common name “canoe tree” in some regions. Tea made from the bark was used to treat rheumatism; chronic gastric and intestinal diseases; dysentery; coughs; and hysteria. Externally, the tea was used as a wash and a poultice on wounds and boils. The root bark and seeds have been used to expel worms from the body.</p>

EARTH AS AN ECOSYSTEM

AFTER YOUR VISIT

Now that you have learned about ecosystems in Georgia, have a discussion to investigate situations which affect ecosystems on a global scale. Discuss with your troop, family or friends and record how you think two or more of the following might affect the Earth as a balanced ecosystem and yourself as part of that ecosystem. Write your findings in these boxes.

Situation	Affects the Earth	Affects You
Factories emitting pollutants into the air in the midwest United States		
Trees being cut down in South American rain forests to create grazing land for cattle		
An oil spill in coastal waters		
Running out of landfill sites for garbage in major cities		
A person who does not recycle or turn off lights when not in use		