National Park Service
Rock Creek Park Environmental Education

Layers of a Forest

Watching a squirrel in search of acorns, rolling over a dead log to reveal a micro- habitat and learning to identify trees by looking at fallen leaves are just some of the experiences that students may encounter as they stroll through a forest in search of animal habitats. Students will discover what all animals, big or small, need for survival.

TOPICS: Habitat, Ecosystems, and Deforestation

BACKGROUND INFORMATION:
A forest is more than a bunch of trees. It is also comprised of soil, vines, bushes, flowers, seeds, fungi, pollinators, decomposers, and other animals. A healthy forest takes hundreds of years to develop, yet can be destroyed in moments.

Throughout the world, the forests are being cut at an alarming rate. Wood is a major component in thousands of items, from buildings to paper, and from tennis racquets to knife handles. In additions to forests being cut for lumber, a large percent is cleared so the land can be used for agriculture or grazing. Urban and suburban sprawl only adds to the problem.

The destruction of forest habitats has wide spreading detrimental effects. In the immediate area animals are forced to leave as their habitat is destroyed. With the trees cleared, the soil no longer has roots to hold it in and erosion takes place. Runoff can effect the local water quality. Globally, the loss of forests reduces biodiversity, air quality, and possible leads to global warming.

This program is designed to introduce the students to the forest as a dynamic system that needs to be protected through conservation and preservation.

Where: Rock Creek Park Nature Center

Length: 1.5 hours

Who: 4th- 6th grade classes

Students per group: maximum of 30

Chaperones per group: 4- 5

CURRICULUM BASE:
GRADE 4; describe how plants have different structures that serve different functions in growth, survival, and reproduction
GRADE 4; explain how all animals depend on plants for survival
GRADES 4 & 5; draw and explain food chains/webs to describe energy flow of nutrients

OBJECTIVES: By the end of the program, students will be able to;
1. Identify the basic parts of a tree.
2. Explain the flow of energy through the forest ecosystem.
3. Give an example of why protecting forests is important.

SAFETY AND RESOURCE MANAGEMENT MESSAGES:

1. Avoid Poison Ivy
   Do not pick live plants

The Layers of a Forest
Pre And Post- Trip Activities

Prior to your visit to Rock Creek Park, please take a moment to read this presite. The pre- trip activity will help introduce students to the types of plants and animals they may see at Rock Creek Park and the food chains inside the forest ecosystem. The post- trip activities are designed to reinforce the program by allowing the students to recreate the growth of a forest and experience the fragility of its food chain.

Pre- Trip Activity- WHAT'S FOR DINNER

What 's for dinner? Ask the students to think about what they eat and where it comes from. Every food should be traced back to a plant- create a flow diagram. This will help students realize that people depend on soil, trees, and the forest ecosystem.

Post- Trip Activities-

1. **FOREST IN A JAR**

- Place two inches of soil and three inches of water in a jar. Place the jar in the window, without a lid, and allow it to settle overnight.
- Plant an aquatic plant in the jar. It should grow well in this environment. If your classroom has no windows, substitute a grow- light.
- Do not replace the water that evaporates from the jar.
- Once or twice a week, have the students add three or four birdseeds to the jar. While there is water in the jar, the seeds should germinate and then rot. Continue adding seeds even after the water evaporates.
- As the water evaporates down to the soil, the aquatic plant will die. The birdseeds will now find the environment suitable for growth. Sunflower seed, which grow large, can be added to represent forest trees. You will now need to add water, as a substitute for rainfall, to keep the soil damp to keep things growing.
- Have each student describe what happened to his or her "pond". Introduce the term "succession".

2. **ECOSYSTEM LAP SIT**

- Divide the students into four groups; the producers, the herbivores, the predators, and the decomposers. You can name specific plants and animals if you wish.
- Have the group form an ecosystem circle. To start the circle, tell each producer stand between a herbivore and a decomposer. Next, tell each herbivore to make sure they are standing next to a predator as well as a producer. Each predator should be standing next to a herbivore and a decomposer. The decomposers, therefore, should be standing in between a producer and a predator. All students should now be standing shoulder to shoulder in the circle.
- Ask the students to turn toward their right, at the same time taking one step toward the center of the circle. They should be standing close together, with each student looking at the back of the head of the student in front of him or her.
- Don't panic, this will work! Ask everyone to listen carefully. Everyone should place their hands on the waist of the person in front of them. At the count of three, you want the students to sit down... on the knees of the person behind them.
- They have created an ecosystem of plants and animals!
- Follow up with a discussion about what would have happened if one of the animals or plants were missing. Would they have been able to succeed? The ecosystem is very fragile and can be easily broken.