

FIELD REPORT

TIME: 2 one-hour sessions

OBJECTIVE: To introduce the interrelatedness of water, soil, air, and forests.

MATERIALS: Large roll of paper, watercolor markers, camera and film, thermometer, small shovel, and pencils

BACKGROUND:

The quality of our environment is largely the result of actions created by forest plant life. Our planet's air supply is dependent upon the exchange of carbon dioxide and oxygen between plants and mammals. A stand of trees filters air through its leaves. Water traveling through a root system of grasses, shrubs, trees, and bushes becomes cleaner and water released by trees through transpiration cools the air. Additionally, tree leaves shelter us from the sun, help keep us comfortable, and lower our energy costs.

Trees help in other ways less noticed by humans. Root systems hold forest soil in place thus preventing widespread erosion which would, in turn, cause water pollution. Certain types of trees add nutrients to the soil allowing other plants to grow. An example is the black locust tree that can fix (add) nitrogen to the soil from the nitrogen gas in the atmosphere and improve growth in the forest community. Dead and decaying trees, too, along with shrubs and other plant and animal life nourish the soil.

Plant and animal habitats vary with the forest's location, its rainfall, temperature, and human disturbance. Moist, well-drained clay and loamy soil supports beech, cherry, elm, oak, and hickory trees. Sandy, well-drained soil supports pines and other species that can tolerate drought conditions. Mesic (medium) soil that is not as rich but receives adequate rain will support white pine, hemlock, sweet gum, and oak. Swampy or large wet areas can have cypress, gum, willow, and Atlantic white cedar.

Each forest environment creates a particular habitat for animal life.

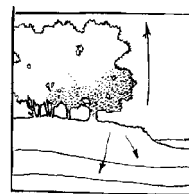
BEFORE THE ACTIVITY:

Plan a field trip to a forested area. Try to make the trip soon after rainfall.

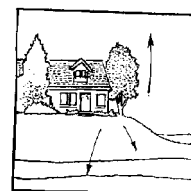
Arrange for a camera to use during the field trip.

Where Does the Water Go?

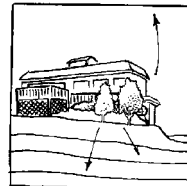
Rainfall can infiltrate the soil, become runoff or be lost via evaporation and transpiration.



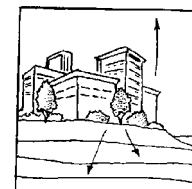
Forest



Rural



Urban



Suburban

Have students compare the impact of vegetative cover and human activity on water quality.

BRANCHING OUT The NC Forest Stewardship Activity Guide

Gather examples that aid in identifying plants and animals.

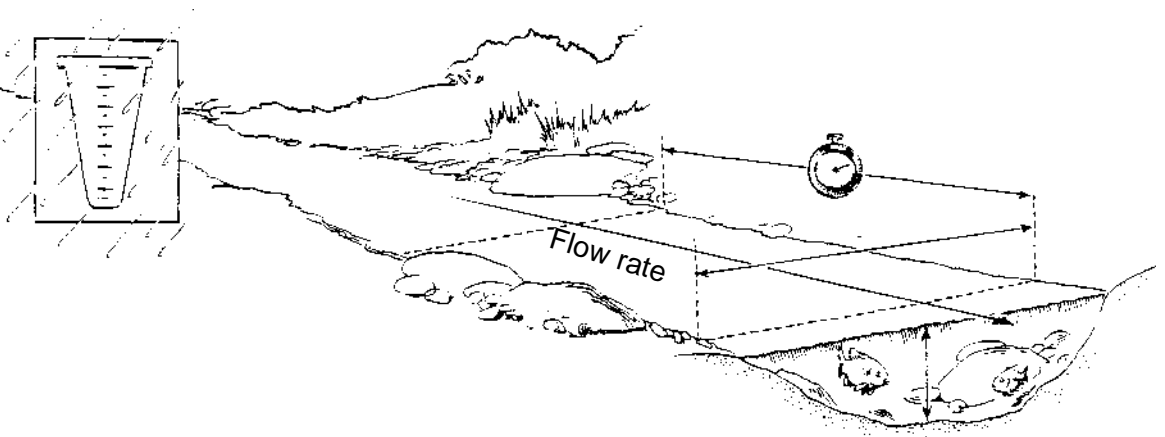
LEAD-IN:

A forest is much more than trees. What are some of the other components of a forest?

How does forest life affect us? (Trees provide oxygen, animals transport seeds, predators control rodents.) How would our lives be affected if there were no forests?

ACTIVITY:

1. Instruct students that a new housing development or industrial site is planned and they have been assigned to conduct an environmental impact study.
2. Take a field trip to a forested area with at least one acre of trees (about the size of a football field).
3. Before the field trip, have students collaborate on a simple outline map of the forest area that can be filled-in with what is found during the visit. Have each student prepare a copy of the map.
4. Assign one or two students to photograph aspects of the forest.
5. In small groups, students should walk through the forest and record what is observed such as the types of flowers, shrubs, and bushes, the types of trees and soils, and any decayed matter. Students should also note signs of animal life including feathers, fur, paw prints, droppings, or nests. Evidence of rainfall such as puddles or wet ground and streams or drainage ditches should be recorded as well as the temperature inside and outside the forested area. A soil sample could be taken from inside and outside the forest. (The North Carolina Department of Agriculture will test the sample. Contact the county cooperative extension service for information.)
6. Back in the classroom, have students study their maps identifying what was found in the forest. What impact will development have on the forest environment; for instance, how will tree removal affect soil, water, air, and animal habitat?
7. Can the groups make suggestions to eliminate or reduce the amount of disruption the forest could experience?



How does rain fall impact runoff?

Can you use measurements to calculate stream flow?

BRANCHING OUT:

1. To help visualize how an area can change, choose a proposed construction site and keep a diary of environmental changes as construction takes place.
2. Research the geology of the region. What is the origin of the parent mineral material in the forested area visited during the field trip.
3. Look at old pictures of the town or county. How has the area changed?
4. Study the history of the forested area visited. Were the trees planted specifically for the area? Did the trees regenerate after a farming activity? How old are the trees? Was there a fire or harvesting to take out old trees allowing new trees to grow?
5. Ask a forester/ecologist to explain how the history of a property can be read.

Field Report

SOIL	WATER	TREE COVER	WILDLIFE SIGN	PLANT COVER

Field Map	
Legend	Water Courses Tree Cover Scale