

Kids in the Woods¹

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Children usually need no encouragement to go outside. The trick in environmental education programs is to create an opportunity for youth to learn outdoors. Ideally, these experiences will help them understand how the world works, be memorable, and support positive attitudes toward the environment.

A walk in the woods can provide an opportunity to explore many concepts associated with natural resources, land use practices, and cultural history. Interactions between air, water, and soil over the eons have created the natural communities of plants, animals, fungi, and bacteria, or ecosystems, that we see today. This document is focused on one ecosystem, the forest. It presents some basic concepts that young people should understand and offers some outdoor activities that youth leaders can use to help bring these concepts to life.

Important Concepts About Trees and Forests

Forest-based educational activities (Figure 1) tend to be built upon the following concepts:

Tree Growth and Development - Trees are made of roots, a trunk, and branches with leaves.



Figure 1. Rotten logs are often full of interesting insects and other small creatures. Outdoor exploration can be a memorable learning experience.

Different trees can be identified by characteristic bark, shape, branching patterns, fruit and cones, and leaves. Each of these structures performs a job to keep the tree alive. Roots absorb water and nutrients from the soil and send these ingredients up through the trunk and stems to the leaves. Leaves take in carbon dioxide and sunlight and use them to produce energy for the tree. Any creature eating part of the tree gets some of this energy, too.

Forest Systems - Forests are complex, dynamic ecosystems. Florida has several forest ecosystems that vary mainly according to water availability and

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soil type. Cypress swamps, pine flatwoods, mangrove estuaries, oak and pine uplands, and hardwood bottomlands are some of our forest types. Insects, mammals, birds, shrubs, and herbaceous plants live in these forests ecosystems. Some are specific to one ecosystem (e.g., red-cockaded woodpecker lives only in longleaf pine forests) and some live in several ecosystems (e.g., deer). Nutrients cycle through the forest in producers, consumers, decomposers, and back to producers. Energy flows through the ecosystem, but does not recycle; it is stored as food energy, given off as heat as each organism lives and grows, or changes form, as in a forest fire.

Forests Change - Forests change slowly over time as individual trees grow and die. Trees grow, shade the understory, and change the microclimate. Different types of trees may grow in the shade, waiting for their turn to reach the canopy when large trees fall and create an opening. Trees may die from disease, insect damage, high winds, or lightning. Human intervention can sometimes be used to maintain a forest that would otherwise change. Humans also alter forest areas, often quickly, for recreation, housing, wildlife habitat, and wood production to meet a diversity of wants and needs.

Forest Benefits - Trees and forests provide us with a variety of benefits. There are benefits of living near forests and trees, such as shade, songbirds, noise reduction, beauty, and increased land value. There are benefits to having forest landscapes in our state: visual interest, watershed protection, air quality, habitat for wildlife, recreation, and climate moderation. We use many forest products: nuts, fruits, syrup, turpentine, rubber. And finally, there are benefits to harvesting trees: paper, lumber, paint, rayon, medicine, cellophane, cellulose, tannin, ink, etc. We make thousands of products with ingredients from trees, including clothing, carpet, toothpaste, and steering wheels! (See FOR 81.)

Forest Management - Some forests are managed specifically for harvesting trees on a regular basis. There are many ways to manage forests for timber production. Sometimes only a few trees are harvested, leaving the rest of the forest to grow or regenerate new trees. In forests where all the trees are the same age (like a pine plantation), harvesting

usually means a clear-cut. With some preparation of the soil, the area will be ready for a new planting of seedlings. When the new trees and other plants are small, these plantations can provide habitat for wildlife and many other benefits. Although the birds and squirrels that nest in the treetops will need to relocate to the adjacent forest when the trees come down, other animals will find food to eat and places to hide and nest in the new growth. These areas usually do not contain the same combination of plants and animals that a natural forest has, but they do support wildlife.

Making Learning Memorable

Children tend to remember the things they *do* rather than the information they are *told*. You can capitalize on this by involving young people in measuring, counting, finding, and comparing. Older youth may enjoy games and challenging adventures. Projects are also good learning activities, as they enable students to be creative, to choose their own application, and to work at their own speed.

Supporting Positive Attitudes

It is important to have fun. Once you grab a child's interest, they are more compelled to continue learning. A hike through a woodlot or a scavenger hunt are pleasant activities for a group of youngsters. Planned educational activities can be fun, too. Is there something they can take home, like a bug box, pinecone bird feeder, or picture? Can you serve a tree-related snack from nuts, fruits, or syrup? Can a portion of the activity be completed at home with parents? Conversations about issues may be prompted with open-ended questions. Worksheets can focus youngsters' attention on particular features, tasks, or concepts. Group activities tend to be easy, fun strategies to engage young people who may be unfamiliar with the woods.

A Few Activity Ideas

There are books full of things to do outdoors with youngsters (see page 4). Here are a few ideas to get started in an exploration of trees and forests.

Hunts and Hikes

Young children often enjoy looking for things outdoors. You can ask them to match colors (use a paint-chip sample book), find various textures (smooth, bumpy, sharp), or collect things you specify (a leaf with round edges, or a rock with three colors). Check the area for poison ivy, or identify the boundaries of the “safe” space as you send them off. Older kids may draw or check off the items on a list that is configured to introduce a concept or compare ecosystems. For example, you could send them out to find: evidence of a decomposer, the track of a consumer, something that won't change very soon, the remains of a meal, and something that depends on something else. (See Figure 2)



Figure 2. Hand lenses help youngsters investigate pinecones along their “micro-nature” trail.

Comparing

A favorite forest game is “One of a Kind” (see Resource 1). You can provide a collection of things (cones, leaves, twigs) and ask everyone to pick one. Ask each child to study his or her object very, very well. Then collect all the objects, mix them up, and spread them out in the middle of a circle. One at a time, ask each child to find his or her own special object again. You might add a few extra items if the kids are old enough to do the task well.

Similarly, you can blindfold youngsters and walk each one to a tree (see Resource 2). Encourage

them to get to know their tree so well that when you lead them back to the common area and remove their blindfold, they can find their own tree again. Some kids have been seen climbing their tree to discover the first branch. This activity is more challenging in a pine plantation, but not impossible!

Counting, Measuring, and Observation

Ask children to record the temperature of the air inside and outside a forest, or at the ground surface and 5 feet above the ground. You can use a max/min thermometer to record the peak day and night temperatures. Dig a hole and compare the soil at the surface to the soil 1 foot down, in terms of color, texture, and moisture. What might these differences mean to the insects that live there? What can youngsters infer about air movement? Use an increment borer to drill a straw-like tube of wood and count the rings of a tree. Make a leaf collection from one kind of tree and look at differences, or make a collection from a variety of trees. Take pictures of tree shapes or draw silhouettes. Make a collection of bark rubbings. Slice a young tree trunk and compare the growth rings. Ask youngsters why some growth years are fast (larger space between rings) and some are slow. Knots from branches, fire scars, and insect damage, all read from these tree cookies, can help tell the story of life as a tree.

Trees are Homes

Investigate the animals that live in and around a tree. You may not see the animals, but you might find evidence of their passing. Look for feathers, nests, and eggshells. Listen for bird songs and cicada buzzes. Look under the bark for insects, on the bark for moths, and in the bark crevices for spiders and scorpions. Look for curled leaves, leaves with holes, and leaves with tunnels to indicate insects have used the area. Look around the roots for mouse tunnels, earthworms, slugs, etc. Create a mural or stage a play of forest animal interactions. Use tools to extend our range of vision, such as a hand lens or binoculars.

Dead trees also provide homes for animals. While standing as snags, dead trees may be homes for flying squirrels, beetles, and woodpeckers. As rotten logs, dead trees can be a treasure chest of insect activity (Figure 1). Use a bug box to capture and

study a sample of the critters, and remember to release them where they were collected to demonstrate the importance of returning animals to their proper homes.

Trees Give us Wood Products

Everyone knows paper and lumber come from trees, but they are less likely to know the origins of rayon, cellophane, toothbrushes, photographic film, and important ingredients in some inks, paints, perfumes, and foods. Challenge kids to read ingredients on food for vanillin, cellulose, or cellulose gum—they often come from wood and pulp processing. Have them hunt for other tree products in their homes. Trace the story behind one of these wood products. Ask your group to brainstorm the product life cycle, going backward from your ownership (store, warehouse, manufacture, harvest, growing in a forest) and forward through likely stages of reusing, recycling, or decomposing (see Resource 3).

Planning Ahead

As with any youth activity, good planning will lead to a more rewarding experience for everyone. You should visit your woods in advance of the field trip, thinking about cautions you will need to explain as the youngsters assemble. Staying on the trail usually minimizes exposure to poison ivy and helps protect the natural area. Is there a nearby shelter, or do you need a foul weather plan? Are bathroom facilities available? Provide drivers with maps clearly showing where they can legally park. If you are meeting anyone at the site, confirm their participation and meeting location. Bring extra water, insect repellent, a first aid kit, and all the props you need for the activities.

As you plan your activities, consider your objectives for the excursion. It might be best to choose *one* concept for the trip, and construct a series of activities to answer important questions about that concept. Introduce the program by communicating your goals and helping youngsters see how the activities fit together to complete a big picture.

Conclusions

Trees and forests may be everywhere, but they should not be taken for granted. We benefit from having forests in Florida in many ways, both ecologically and economically. Forests can be restful to visit, interesting to study, profitable to own, and vital to maintaining the ecosystem support services that allow life on earth. Trees and forests can be fun to explore, too. You can help young people learn about and appreciate these interesting and important components of our natural world.

Resources for Environmental Education

The ideas mentioned above, and others, can be found in the following books:

1. "One of Kind" is from Steve Van Matre's Acclimatizing. He has several books through the Earth Education Institute.
2. "Meet a Tree" is from Joseph Cornell's Sharing Nature with Children. He also wrote Sharing the Joy of Nature, which includes a helpful model for constructing outdoor lesson plans.
3. Project Learning Tree is available through educator workshops. Call the PLT Office at 352-846-0848. Several **4-H project books** also provide activity ideas and background information:

Adopt a Tree, Florida Cooperative Extension Service, 4H FOM 11 and <http://edis.ifas.ufl.edu/FR121>.

Trees and Me, Florida Cooperative Extension Service, 4H FOM 12 and <http://edis.ifas.ufl.edu/FR122>.

Florida's Fabulous Forests, Florida Cooperative Extension Service, 4H FOM 13 and <http://edis.ifas.ufl.edu/FR123>.

Leader Guide to Forest Resources Project Books, Florida Cooperative Extension Service, 4H FOL 10 and <http://edis.ifas.ufl.edu/4H095>.

Use the 4H Forest Ecology web site to learn about Florida's forests: <http://www.sfrc.ufl.edu/4h>.