



# Forests: Nature's Air Filter

Activities for children and  
adults that build upon Play Trail  
experiences outdoors



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## **Activities for children and adults that build upon Play Trail experiences outdoors**

Getting children comfortable in the outdoors may be one of the greatest gifts we can offer the next generation. Given what we know about the physical and psychological consequences of a sedentary, electronic media-dominated lifestyle, it also might be one of greatest health tips we can offer. A childhood rich in outdoor experiences provides an inexpensive antidote for a number of medical problems, including depression, attention deficit disorder, and obesity.

But there is more. Letting young children freely explore their world outdoors can instill a lifelong connection to the environment. It can also help cultivate an ethic of caring for the environment.

The role of adults in this process focuses less on teaching and more on coaching. While most children want to explore their world, some may be hesitant or even fearful. Parents and other caregivers need to be there to offer encouragement and guidance without stifling the important work called play.

# Tips for adults

We offer the following tips to help make the most of your Play Trail explorations.

1. Find activities in these booklets that are appropriate for your child's age and interests, as well as environments that are readily accessible to you.
2. Share the booklet with your child in advance.
3. Let your child initiate the exploration, but be ready to offer suggestions in the event encouragement is needed. Consider the booklet's investigations to be jumping-off points that pique curiosity.
4. Avoid the tendency to teach. Share the information you glean from these booklets as "incidental" points of interest.
5. Model positive behaviors and respectful attitudes toward nature.
6. Respect your child's fears. Never force a child to touch something they do not want to touch. Courage and interest come about through positive, graduated experiences.
7. Foster play and accept the fact that dirty hands, mud-caked shoes, and wet clothes often come with it.
8. Avoid the tendency to "helicopter." Too often we over-protect and stifle explorations inadvertently.

## Forests, wonderful forests

We have reason to marvel at trees. They compose the world's forests. They come in a variety of forms, from the Dr. Seuss-like curves of a boojum tree to the towering column of a giant sequoia. They make their own food. They transport water from roots to leaves, sometimes "pumping" it hundreds of feet. They absorb minerals directly from the air. They use clever strategies to reproduce. And like most other plants, they enable us to breathe oxygen.

Trees use the energy of the Sun to convert carbon dioxide and hydrogen into starch and glucose through a process called photosynthesis. Lucky for us, the waste product they release into the atmosphere is oxygen.

## What does it take to be a tree?

A tree has a woody stem, branches, and leaves. Some trees produce flowers and fruit. A tree is taller than a shrub (at least 17 ft tall) and usually has a single stem that might divide. Sometimes the environment dictates growth patterns. A tall tree in an open valley might be a low-growing shrub on a rocky, windy hillside.



## A walk around trees

Take a walk with your child through your neighborhood or local park. Get to know trees by closely observing them, studying their shapes and comparing them to shrubs. What plants grow nearby? How does the shade created by the tree affect the growth of other plants? Do you see any animals in the trees?

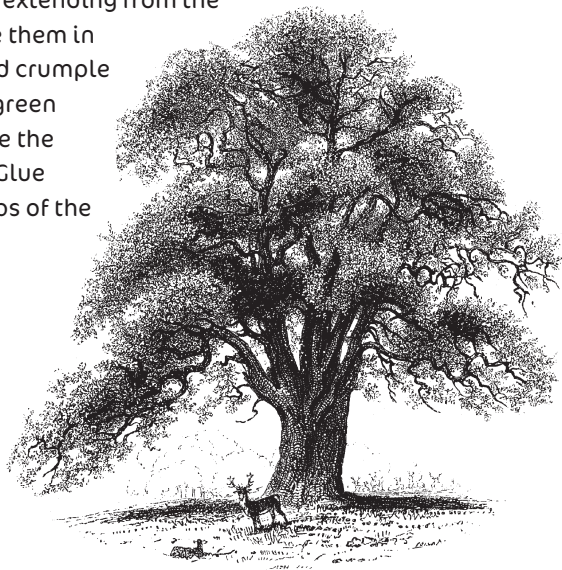
## Go on a scavenger hunt in search of:

- ✓ a young tree that is as tall as you are
- ✓ a tree with pine cones
- ✓ a tree with more than 10 branches
- ✓ a squirrel
- ✓ seeds from a tree
- ✓ tree roots on the ground
- ✓ a tree trunk you can reach your arms around

## Paper mosaic art

**Materials:** One piece of blue construction paper, multiple pieces of brown and green construction paper, scissors, glue

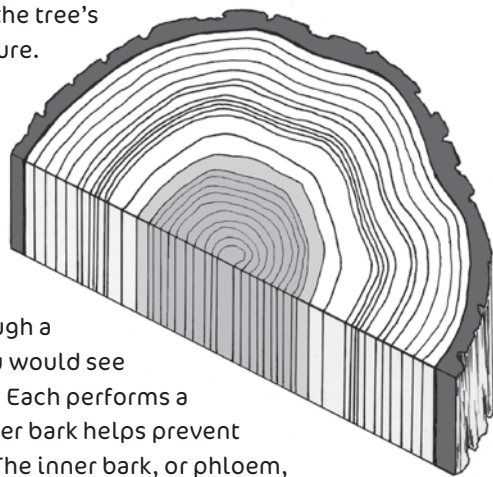
**Procedures:** Arrange the blue construction paper vertically on your workspace. Tightly twist one piece of brown construction paper lengthwise into a “tree trunk.” Glue it onto the blue paper. (You might also need to secure it with tape.) Tightly twist smaller strips of brown construction paper for “branches.” Arrange these extending from the trunk and glue them in place. Tear and crumple pieces of the green paper to create the leaf clusters. Glue them to the tips of the branches.



## The trunk of a tree

The trunk serves as the tree’s main support structure.

It also serves as the tree’s “plumbing system,” moving water and minerals up from the roots and sugar down from the leaves. If you could look through a trunk to its core, you would see five different layers. Each performs a specific job. The outer bark helps prevent injury and disease. The inner bark, or phloem, carries sugar and nutrients (sap) from the leaves down to the rest of the tree. In spring, it does the same thing from the roots up. The cambium is a very thin layer of growing tissue that creates new inner bark and sapwood. The sapwood is also called the xylem. It carries water and nutrients from the roots up. The central core of the tree is called the heartwood. Though it is not a living part of the tree, it gives the tree its strength.



## Bark rubbings

The characteristics of bark vary from species to species. It can be shaggy or smooth, spongy or firm, thin or thick. Because dead cells make up bark, it cannot grow. As the trunk expands, the bark cracks or peels.

You can capture the texture of a tree's trunk with a bark rubbing. Hold a piece of white paper flat against the trunk. Rub lightly with a crayon or pencil, covering the entire surface of the paper. Label your rubbing with the tree's name. Create another rubbing of a different tree and compare the patterns. How are they different?

## A blindfolded bark walk

Blindfold your child and carefully lead him (her) to a tree that has textured bark. Encourage your child to feel (and even sniff) the bark and study telltale clues while still blindfolded. Lead your child back to where you started your walk. Remove the blindfold and challenge him (her) to find the tree. What clues did they use in their search?

## Traffic in the treetops

A forest can be a very busy place. Tree-dwelling animals move through the layers of a forest in a variety of ways. In North America, unless they are a flying insect, bird, bat, or flying squirrel, they likely climb up a tree's trunk to reach the higher branches



and leaves. They grip with claws and grab with tails. Some, like flying squirrels, leap and glide from tree to tree.



**Safety tip:** Some tree roots grow above the ground. Be careful walking around trees to avoid tripping.

## Taking count

Take a walk in a forest or woodland in search of wildlife. If possible, bring a pair of binoculars your child can use easily. While the forest floor and other layers of the forest provide habitat for many different plants and animals, the focus of this activity is the higher reaches of the tree trunks and canopies.

Stop and quietly listen for any clues—the drilling of woodpeckers, shrieks of hawks, chatter of squirrels and jays, and calls of chickadees and nuthatches. When you hear a sound, challenge your child to find the animal that made it. How do you think it reached its spot in the tree?

**Conservation message:** Forests offer habitat for wildlife and renewable resources for people. Their protection and careful management ensure that their health and diversity are maintained while the needs of people are met.

## Citizen Science

Biologists conduct large research studies to catalog how many different kinds of trees exist regionally or even nationally. Sometimes they focus on a particular species of tree or health problem, like sudden oak death syndrome. Often they ask for help because the scope of their research is so large. “Citizen science” invites individuals to record their observations about a certain kind of tree on a website. By doing this, ordinary people contribute important information to a central database that is analyzed by trained biologists.

Your family can become involved in several forest- and tree-based “citizen science” projects. They include the Forest Breeding Bird Monitoring program conducted in 11 Northeast national parks, the Listening to the Trees program coordinated by the New York Botanical Garden, The Sudden Oak Death Syndrome “bio blitzes” organized by UC Berkeley, and the Urban Tree Phenology project, a joint effort of Project BudBurst and the USDA Forest Service.

The best way to find out about active ones in your area is to look them up on the Internet or check them out at [www.thedailygreen.com](http://www.thedailygreen.com). These projects often are conducted by the USDA Forest Service, Urban Natural Resources Institute, natural history museums, botanical gardens and arboreta, the National Park Service.

**More titles in the Play Trails series:**

*Ants: cooperative colonies*

*Bees: fantastic farmers*

*Birds: engineers by instinct*

*Butterflies: the magic of metamorphosis*

*Habitats: there's no place like home*

*Leaves: hidden colors*

*Pond Life: a busy ecosystem*

*Spiders: silk spinners*

*The Forest Floor: a living layer*



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