The Great Outdoor Adventure

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HOW TO MAKE A KID SANDWICH
AND OTHER SAFETY TIPS

Welcome to the great outdoor adventure! The information in this book is intended to give you ideas for integrating environmental education into your curriculum. Nature is a wonderful place with inexpensive (free!) materials and an endlessly fascinating curriculum. A bit of advance planning will insure that you and the children make the most of your outdoor experiences.

Whether you are on the sidewalk in front of your building, on the playground, or in the forest across the county, help children understand what it means to respect the environment.

• Remind children to look, but don’t touch until they know it is safe.
• Every plant and animal plays a part in the delicate balance of nature. Don’t pick too many flowers, don’t take leaves off the plants, don’t capture insects (unless you return them to their home after observing them).
• Leave no trace of your visit—take all of your belongings and trash when you leave
• Know your children and avoid settings in which they might not be successful. If they won’t be able to resist picking the flowers, don’t visit the rose garden.
• Supervise handwashing immediately after the outdoor adventure.

Outdoor adventures may require additional preparation to insure children’s health and safety. Know your location and plan for safety. Here are some examples of things to consider beyond minimum licensing requirements and field trip guidelines.

• Wear comfortable clothing and shoes
• Use insect repellant, if needed, with parent permission
• Be alert to the environment and ready to manage “surprises” (plants, animals, weather, other people, and the children)
• Be aware of guidelines for the environment, such as water safety and safe handling of plants and animals.
• On field trips (and sometimes in your own backyard) additional adults may be needed.

How to make a kid sandwich: Anytime your group ventures away from your usual space, make a kid sandwich. One adult is at the front of the group and one at the back of the group, with the children (and any additional adults) in between. The adults are the bread and the children are the peanut butter, bologna, cheese, and other ingredients. The children enjoy deciding which sandwich ingredients they will be. When a child starts to stray from the group, a simple reminder is all that’s needed, “Are we losing our bologna? Let’s get it back into the sandwich.”
Exploring the Great Outdoors with Children

Whether you are going around the block or into the woods, the following guidelines will assist you in implementing a developmentally appropriate outdoor exploration.

Most appropriate
Children are encouraged to discover things along the trail. The group travels short distances, stopping frequently to regroup and provide time for free exploration and play. Discoveries are made by the children and discussions are open-ended. There is always at least one adult in front and one in back.

For example, a small group of three- and four-year olds and their teachers take a short walk to the field. They find a group of hay bales to climb and jump on. They then walk along the trail to a pond where they look for sunfish and make pretend fishing poles. Some children play school bus on a nearby log. Some children count earthworm castings found in the middle of the trail.

Somewhat appropriate
The group moves at a steady pace along the trail and is told to look for specific things at occasional stops. Information is conveyed about things they see along the way.

For example, a naturalist leads the group along the trail at a quick pace. He stops occasionally and encourages the children to look for things under rocks and logs. He tells the children the names of things they find. They move quickly to the nearby field to identify prairie flowers.

Least appropriate
Children are taken on a walk and talk. They walk along the trail and are expected to keep up and listen.

For example, a naturalist stays in front and leads the children down the trail. They stop occasionally and he tells them interesting things about forest ecology before moving on.

QUICK QUOTES ABOUT NATURE

• 95% of children in the United States live in cities. (Stephens, 2002)

• The average American spends more than 95% of his/her time indoors. (Wilson)

• The radius children are allowed to roam outside their homes has shrunk to less than 1/9 of what it was 20 years ago. (Karnasiewic)

• Children ages 3-5 have one-third less free play time (indoor and outdoor) than a generation ago and nearly triple the amount of time in organized sports. (Oliver & Klugman)

• Only 19% of children under 2 have daily outdoor play time. (Oliver & Klugman)

• 39% of 2-5 year olds “run around or play outdoors” every day. (Oliver & Klugman)

• 30 years ago children knew their immediate environment, but didn’t necessarily connect it to a larger ecosystem. Now children know a lot about the Amazon rain forest, but can’t recall the last time they lay under a tree and watched the clouds. (Karnasiewic)

• Children learn to love nature through “…regular opportunities to leisurely explore the natural outdoor world through hands-on, unstructured play.” (Stephens, 2000)

• Put another way, “Young children learn about the environment by interacting with it.” (Wilson)

• Many adults with strong connections to nature say their childhood nature experiences occurred primarily within the boundaries of a few “neighborhood blocks.” Children don’t have to live in the country or spend lots of time in the woods—experiences with nature can occur in almost any setting. (Stephens, 2000)

• Adults must find safe ways for children to explore the outdoors. “…ultimately, human survival depends on all of us becoming earth-wise.” (Stephens, 2000)
- Environmental education “can help young children understand themselves better as well as discover the world around them.” (Environmental Education Council of Ohio)

- Children who are given early and ongoing positive exposure to nature thrive in intellectual, spiritual, and physical ways that their “shut-in” peers do not. (Karnasiewic)

- Preschoolers engage in richer symbolic play outdoors than indoors. (Karnasiewic)

- “Nature play” is seen to reduce stress, sharpen concentration, promote problem solving. (Karnasiewic)

- Researchers have identified factors that contribute to children’s resilience. One of those factors is nature. (Stephens, 1999)

- Interacting with nature “reduces stress, increases attention span, and fosters brain development.” (Bohling-Philippi)

- Nature provides a haven of peace and quiet, predictable rhythms, patterns, and cycles that relax and soothe anxious children. (Stephens, 1999)

- Spontaneous and regular contact with nature in the child’s immediate environment is needed much more than outings to the zoo or other special events. (Stephens, 1999)

- The most important thing that young children can learn about the Earth is that it is full of beauty and wonder. (Environmental Education Council of Ohio)

- It is the teacher’s own sense of wonder, more than his or her scientific knowledge, that will ignite and sustain a child’s love of nature. (Wilson)

[References are found on pages 58-60.]
When should environmental education begin—in the third grade; first grade; kindergarten? Even earlier. Environmental education based on life experiences should begin during the very earliest years of life. Such experiences play a critical role in shaping life-long attitudes, values, and patterns of behavior toward natural environments (Tilbury, 1994; Wilson, 1994).

Because young children learn about the environment by interacting with it, educators and other adults must attend to the frequency, nature, and quality of child-environment interactions during the early years. Many young children have limited opportunities for such experiences. Studies indicate that the average American spends more than 95% of his or her time indoors (Cohen, 1984), and that by the year 2000, more than 90% of all Americans will live in urban areas (Schicker, 1988). Studies also indicate that children growing up in urban areas tend to develop unfounded fears and feelings of disgust in relation to natural objects (Bixler, Carlisle, Hammitt, & Floyd, 1994).

Yet, it’s not just children living in urban areas who should be targeted for environmental education during their preschool years. Many young children, regardless of where they live, spend most of their time in settings and activities that keep them essentially isolated from direct contact with the natural world. Recreation tends to be indoors (e.g., watching TV); transportation tends to be by car or other motor vehicle versus walking; and daycare programs—where many children spend most of their waking hours—tend to be more oriented toward the classroom than outdoors. The result is that many young children are at risk of never developing positive attitudes and feelings toward the natural environment or achieving a healthy degree of competency on the environmental literacy continuum (as outlined by Disinger & Roth, 1992). Attention to environmental education at the early childhood level is proposed as a partial antidote to this concern.
Rationale

The rationale for environmental education during the early childhood years is based on two major premises. The first premise is that children must develop a sense of respect and caring for the natural environment during their first few years of life or be at risk for never developing such attitudes (Stapp, 1978; Tilbury, 1994; Wilson, 1994).

The newly emerging field of early childhood environmental education reflects an increasing awareness that “environmental experiences in the critical phase of the early learning years can determine subsequent development in environmental education” (Tilbury, 1994, p. 11) and that the preschool years may “prove to be critical for the environmental education of the child” (Tilbury, 1994, p. 11).

The rationale for environmental education at the early childhood level is also based on the premise that positive interactions with the natural environment is an important part of healthy child development (Carson, 1956; Cobb, 1977; Crompton & Sellar, 1981; Miles, 1986/87; Patridge, 1984, Sebba, 1991; Wilson, 1994) and that such interactions enhance learning and quality of life over the span of one’s lifetime (Wilson, 1994). Children who are close to nature tend to relate to it as a source of wonder, joy, and awe. Their spirits are nurtured by nature and they discover through it “sources of human sensibility” (Wilson, 1992, p. 348).

Nature-related experiences tend to foster a child’s emerging sense of wonder—referred to by Plato as the source of knowledge and by Cobb (1977) as our source of imagination. According to Cobb, it is through wonder that we come to know the world. It’s wonder—rather than books, words, or learning all the facts—that provides the direction and impetus for environmental education in early childhood.

Guidelines for Program Development

Environmental education opportunities for preschool children should be offered on an on-going rather than a sporadic basis (Bixler, Carlisle, Hammitt, & Floyd, 1994; Gaylord, 1987). On-going environmental education programs for preschoolers, however, are relatively scarce, and those that do exist tend to serve primarily middle- and upper middle-class white families (Wilson, in press). This is unfortunate since children living in low-income minority neighborhoods are more likely to be affected negatively by environmental assaults (e.g., air pollution, noise, congestion, solid wastes, etc.) (Harding & Holdren, 1993) and less likely to have frequent positive interactions with the natural environment.
Environmental education for the early years should be based on a sense of wonder and the joy of discovery. Consistent with this approach, the following guidelines are proposed as a framework for developing and implementing an environmental education program for preschool children.

1. **Begin with simple experiences.** Young children learn best through experiences that relate to what is already familiar and comfortable. Thus, the best place to start is in an environment that is similar to what they already know. For example, focus on a single tree in a backyard or playground before venturing into a heavily wooded area.

2. **Provide frequent positive experiences outdoors.** Because children learn best through direct, concrete experiences, they need to be immersed in the outdoor environment to learn about it. Optimally, the exposure should be provided on an almost daily basis. A one-time trip to a park or nature preserve will have very limited impact on young children. Far better to provide ongoing simple experiences with the grass, trees, and insects in environments close to home or school than to spend time and energy in making arrangements for field trips to unfamiliar places the children may seldom visit.

   In addition to investigating the elements of the natural world already present in an outdoor setting, there are also many different ways to transform a typical playground into an environmental yard. Start by adding bird feeders, wind socks, flower and vegetable gardens, tree houses, rock piles, and logs, and then provide children with tools for experimenting and investigating (e.g. magnifying glasses, water hose and bucket, hoes, rakes, etc.).

3. **Focus on “experiencing” versus “teaching”.** Because young children learn through discovery and self-initiated activities, the role of an adult is to be more a facilitator than a teacher. Learning among young children requires active involvement: hands-on manipulation, sensory engagement, and self-initiated explorations. Young children should not be expected to “watch and listen” for any length of time, nor should they be expected to always follow the teacher’s lead or agenda. Far better to focus on what children find of interest than to compete for attention through teacher-selected activities and materials.
4. **Demonstrate a personal interest in and enjoyment of the natural world.** A teacher’s expressions of interest in and enjoyment of the natural world are critical to the success of an early childhood environmental education program. It is the teacher’s own sense of wonder, more than his or her scientific knowledge, which will ignite and sustain a child’s love of nature. Therefore, even teachers with a minimal background in science need not be intimidated by the thought of implementing an environmental education program for young children. Feelings are more important than facts when it comes to introducing young children to the world of nature. No one has stated this more clearly than Rachel Carson (1956) when she wrote, “I sincerely believe that for the child, and for the parent [or teacher] seeking to guide him, it is not half so important to know as to feel” (p. 45).

5. **Model caring and respect for the natural environment.** Teachers should also model caring and respect for the world of nature. Talking to children about taking care of Earth is far less effective than demonstrating simple ways of expressing care. Care and respect can be modeled through the gentle handling of plants and animals in the classroom, establishing or maintaining outdoor habitats for wildlife, attending to the proper disposal of trash, and recycling or reusing as many materials as possible.

**Conclusion**

Young children tend to develop an emotional attachment to what is familiar and comfortable to them. If they are to develop a sense of connectedness with the natural world, they need frequent positive experiences with the outdoors. Providing opportunities for such experiences and sharing them with young children is the essence of what environmental education is all about. Rachel Carson, in *The Sense of Wonder*, was one of the first to articulate the importance and characteristics of environmental education at the early childhood level. In her words (Carson, 1956), “If a child is to keep alive his inborn sense of wonder...he needs the companionship of at least one adult who can share it, rediscovering with him the joy, excitement, and mystery of the world we live in” (p. 45). Environmental education for the early years focuses primarily on young children exploring and enjoying the world of nature under the guidance and with the companionship of caring adults.
References


Things to Do
With Children
This section provides suggestions for integrating the great outdoor adventure into the daily curriculum. If your children have had limited opportunities for first-hand investigation of the environment, use these ideas to get started. Note the four types of suggestions. (Be sure to review the safety tips on page 5.)

**Experiencing**

By experiencing nature, children gain first-hand knowledge through observation. Adults provide lots of time for children to be outdoors. Using appropriate informal comments ("I feel the wind on my face.") helps children notice natural elements as they play. These ideas are particularly suitable for younger children and for initial investigations of a selected element of the environment.

**Appreciating**

As children pursue more focused investigations to satisfy their curiosity, they gain knowledge about the environment. Appreciating nature means to be fully aware of and sensitive to the environment. The adult role is to provide time to explore, tools for investigation, and guidance and support for children’s investigations. These ideas are generally suitable for preschool and school-age children.
Valuing

When children have had abundant experiences with the natural world and have had many opportunities for first-hand investigations, they come to regard the environment as precious. Valuing includes understanding the cycles, systems, and interdependence of nature. Children respect the environment and feel a responsibility to preserve and nurture the natural world. Some of these activities will be more appropriate for school-age children than for younger children.

Responding

Interactions with nature frequently inspire creative expressions in children (and adults!). Ideas for responding to nature are not intended to be used as cute activities that relate to a theme. Rather, they are examples of ways in which children might respond. The adult’s role is to provide materials and support so that children can represent their experiences and investigations through art, music, movement, literature, photography, and dramatic play. Children of all ages should be involved in creative responses to the natural world.
Things to do with Trees

Experiencing

- Eat a picnic snack or lunch in the shade of a tree.
- Rake leaves. Walk in the leaves.
- Make pine straw playhouses.
- Gently rub your cheek against the bark of different trees.
- Crawl over exposed tree roots. Sit among the roots and read a good book.
- Pick up acorns, pecans, or pine cones.

Appreciating

- Measure the diameter and height of tree trunks. Invite children to suggest techniques for measuring.
- Compare leaves from different trees.
- Observe the same tree over a period of time. Document changes.
- Observe and sketch parts of a tree: roots, trunk/bark, limbs, leaves.
- What do you wonder about trees? How might you find out more?
- Learn to identify different types of trees.
Valuing

- Plant a tree.
- Recycle paper products.
- Create a gallery of products that come from trees.
- Find out about animals that live in the trees in your neighborhood.
- Learn about the life cycle of a tree.

Responding

- Make tree shapes with your body.
- Use twigs, pine straw, or small branches as paint brushes.

The Heartbeat of a Tree

Select a tree that is at least 6 inches in diameter and has thin bark. Press a stethoscope firmly against the trunk, holding it very still. You may have to try several different spots to find the best “pulse point”. It is easiest to hear the tree’s “heartbeat” in early spring. Children may also want to listen to their own hearts. [From Sharing Nature with Children, by Joseph Cornell, p. 25]

Related children’s books

A Tree Is Nice, by Janice Mae Udry
Have You Seen Trees? by Joanne Oppenheim
The Seasons of Arnold’s Apple Tree, by Gail Gibbons
The Gift of a Tree, by Alvin Tresselt
A Log’s Life, by Wendy Pfeffer
Things to do with Seeds

Experiencing

• Provide a tub of seeds and some tools, such as cups, spoons, and funnels.

• Blow dandelion “puffs” to scatter seeds.

• Pick up acorns and pine cones.

• Involve the children in food preparation experiences that require removing seeds from fruits, such as apples, oranges, or peaches.

Appreciating

• Count and sort seeds.

• Measure seeds.

• Plant seeds and document their growth.

• Find out how seeds travel in nature.

• Soak large bean seeds in water, then open the seed to see the baby plant (embryo).

• Collect seed pods.

• Compare seeds from different plants: carrot, bean, strawberry, tomato, apple, pumpkin, nasturtium, maple tree.

• What do you wonder about seeds? How might you find out more?
Valuing

- Eat some seeds.
- Create a game using seeds.
- Scatter wildflower seeds to beautify an area.
- Grind seeds to make meal or flour.

Responding

- After reading *The Tiny Seed*, by Eric Carle, invite children to write and/or dramatize stories about seeds they have investigated.
- Create acorn creatures, using markers, paint, paper scraps, and glue.

Related children’s books

*One Child, one Seed: A South African Counting Book*, by Kathryn Cave
*The Tiny Seed*, by Eric Carle
*Growing Vegetable Soup* by Lois Ehlert
*The Carrot Seed*, by Ruth Krauss

Seed Swooshes

Squeeze a swoosh of glue on a sheet of wax paper. Drop seeds on the swoosh. Be sure to cover all the glue. When the glue is dry (probably the next day), carefully peel the wax paper from the swoosh. These look great hanging in windows or from the ceiling. [Adapted from *Good Earth Art*, by MaryAnn Kohl, page 102]
Things to do with Flowers

Experiencing

- After obtaining permission, pick a few flowers for the classroom.
- Enjoy the fragrance of different flowers.
- Pick clover blossoms and make chains.

Appreciating

- Expand children’s vocabulary of color words by learning new names for different shades and tints of flower colors.
- Examine the parts of a flower: roots, stem, leaves, blossom. A magnifying glass will provide more detail.
- Visit a florist or invite a florist or gardener to visit your program.
- What do you wonder about flowers? How might you find out more?
- Plant and maintain a flower garden. This might be on the playground or in pots or other containers.

Valuing

- Find out how flower colors help and protect flowers.
- Investigate the ways in which people and animals use flower products.
- Participate in a community beautification project.
- Make potpourri using dried flower petals.
Responding

- Provide a variety of art supplies for children to use in re-creating flowers that they have observed: play dough of various colors, tissue paper, chenille stems, coffee filters, watercolors, construction paper, water-based stamp pads.

- Discover paintings of flowers by artists such as Van Gogh and Monet.


Related children’s books

The Happy Day, by Ruth Krauss
The Rose in My Garden, by Arnold Lobel

A Butterfly Garden

Try planting flowers that will attract butterflies to your play yard. A quick Internet search for “butterfly garden directions” will provide a wealth of information on how to proceed. Here are two sites to get you started.

http://www.butterflyschool.org/teacher/teachgarden.html
This site provides teachers with detailed plans for involving children in designing, planting, and using a garden that will attract butterflies.

http://www.thebutterfliesite.com/gardening.shtml
Here you will find lots of butterfly information and a link to butterflies of Arkansas, which identifies counties in which each species is likely to be found.
**Our Visit to a Flower Place**

Visit a “flower place” with your child. This might be a florist shop, a landscape nursery, your neighbor's garden, a park, or your own backyard. Talk with your child about the sentences below. Your child might want to bring this page to school so that we can find out about your flower place.

This is the place that we visited: ________________________________.

Some of the flowers we saw were ____________________________________________
__________________________________________________________________________.

The “flower place” smelled ___________________________________________
__________________________________________________________________________.

Besides flowers, we saw __________________________________________
__________________________________________________________________________.

Draw a picture of some of the flowers you saw.
Things to do with Grass

Experiencing

• Lie in the grass and make “grass angels”.
• Run barefoot through the grass. Gently brush grass across your cheek or palm.
• Watch someone mow the grass.

Appreciating

• Closely observe a small area of grass (about one square foot). Describe what you see.
• Plant grass seeds in a cup. You can trim the growing grass with scissors.
• What do you wonder about grass? How might you find out more?
• Interview a landscaper or groundskeeper.

Valuing

• Water the grass.
• Find out about soil maintenance and erosion issues in your community.

Responding

• Make rubbings of different grasses.
• Write a story about an animal that lives in the grass.

Related children’s book

In the Tall, Tall Grass, by Denise Fleming
Things to do with Rain

Experiencing

- Press your nose to the window and watch the rain.
- Stand on the porch and watch the rain. Put out your hand to feel the rain.
- Take a walk during a gentle rain. Don’t forget your raincoat and umbrella! Be sure there’s no chance of lightning in the area.
- Slosh through puddles.
- Fill the water tub with rainwater.

Appreciating

- Invite children to develop a strategy for measuring the rain.
- Learn something about different types of clouds. Which produce rain? Which might mean storms?
- What do you wonder about rain? How might you learn more?
- Explore different types of rain, such as mist, sprinkles, shower, thunderstorm.
- Brainstorm all the ways we use water.
- Make a list of the ways that people waste water.
- Visit a well.
- Collect water samples from different sources (pond, puddle, swimming pool, aquarium, faucet, etc.). Use a microscope or magnifying glass to compare the samples.
Valuing

- Explore the water cycle from rain to evaporation to rain.
- Use the Internet or contact your local Cooperative Extension office to find out what you can do to conserve water.
- Interview a nutritionist or health care provider about the importance of water for good health.
- If appropriate, help children find out about clean water and pollution issues in your community and what they might do to help.

Responding

- Create rain paintings. Place a large sheet of construction paper on a tray. Sprinkle dry tempera powder on the paper. Briefly place the tray outdoors in a very gentle rain. Allow the paper to dry and enjoy nature’s painting!

Related children’s books

Bringing the Rain to Kapiti Plain, by Verna Aardema
Umbrella, by Taro Yashima
Rain Rain, Rivers, by Uri Shulevitz
Rain by Peter Spier
Things to do with Birds

To protect children’s health, it is best to use only feathers that have been purchased from a craft or nature store.

Experiencing

• Brush a feather across your cheek.
• Lie on the ground and watch for birds in the air.
• Take an “I Spy Walk”, looking for birds and nests.

Appreciating

• Drop a feather from the highest point you can reach. Observe the movement of the feather as it falls to the ground. Try it with different types of feathers. Record your findings.
• Listen for birds. Can you hear different “songs”?
• Observe feathers with a magnifying glass. Make sketches of what you see.
• Examine a bird’s nest. What materials were used to make the nest? What holds it together? How does it protect the eggs?
• What do you wonder about birds? How might you find out more?
• Look at your neighborhood from a “bird’s eye view” (aerial photo or map).
• Find out what birds eat. Do all birds eat the same foods?
• At the library or on the Internet, find examples of the drawings of John James Audubon.
• Interview a bird-watcher.
Valuing

- Listen to recordings of bird songs.
- Provide nest-building materials for birds. Fill a mesh bag with pieces of string, yarn, strips of paper, ribbon, and long grasses. Hang the bag where birds can get to it.
- Plant a hummingbird garden.
- Build a bird house for your playground.
- Make a bird feeder for your playground.
- Why can birds fly? Explore the unique characteristics of birds that allow them to fly.

Responding

- Experiment with instruments and other materials to re-create bird songs.
- Paint pictures that show what you might see when flying.
- Fold paper into bird-like shapes. Try to make some that will fly.

Related children’s books

*Have You Seen Birds?* by Joanne Oppenheim
*Counting is For the Birds*, by Frank Mazzola, Jr.
*From Egg to Robin*, by Susan Canizares & Betsey Chessen
*A Nest Full of Eggs*, by Priscilla Belz Jenkins
**Things to do with Ants**

**Experiencing**
- Sit quietly on the ground and watch ants.
- Observe ants in an ant farm.
- Use a magnifying glass to observe ants.

**Appreciating**
- Sprinkle bread crumbs on the ground. Observe ants as they move the crumbs.
- How strong are ants? Find out the maximum load that one ant can carry.
- Build an ant farm. Visit your library of search the Internet for instructions.
- Observe ants in an ant farm for several days. Document your observations.
- Learn about different types of ants. Which ants live in your area?
- What do you wonder about ants? How might you find out more?
Valuing

- Investigate safe, effective methods for keeping ants away from your house.
- Find out how pesticides affect the environment.

Responding

- Represent the ants’ travel patterns using string or tape on the floor or on large sheets of paper.
- Use the eraser end of a pencil and a stamp pad to create the ants’ paths. You can also use your fingertips.

Related children’s books

*Thinking About Ants*, by Barbara Brenner
*Ant Cities*, by Arthur Dorros
*The Little Red Ant and the Great Big Crumb*, by Shirley Climo
**Things to do with Wind/Air**

**Experiencing**

- Stand outside on a windy day. Feel the wind in your hair and on your face.
- Lie on your back and watch the clouds move. (Be sure to protect children’s eyes and skin from the sun.)
- Listen to wind chimes.

**Appreciating**

- Invite children to brainstorm ideas for measuring the wind and then help them try some of their ideas.
- Encourage children to make sketches and notes about the effects of the wind each day.
- After collecting wind data for several days, encourage children to review and talk about their observations. Assist children in preparing their documentation to share with others.
- On a windy day, observe a weathervane, windsock, or windmill.
- Observe treetops on a windy day. Represent your observation with paint on a large sheet of paper.
- Listen to the sounds the wind makes. Try to re-create those sounds using household objects.
- What do you wonder about wind? How might you find out more?
Valuing

- Make a wind sock, wind chime, or kite.
- If appropriate, find out about clean air and pollution issues in your community.
- Explore weather concepts related to wind.

Responding

- Read several children’s poems about wind. Robert Louis Stevenson and Christina Rosetti are two authors whose work is familiar to many adults: “I saw you toss the kites on high...” and “Who has seen the wind?”

- After reading several wind poems with a small group, invite the children to write their own poems. If needed, offer a framework for writing the poem: describe the sound of the wind, describe what the wind does, and then tell what happens because of the wind.

  “Whoosh! Whoosh! My hair in my face. Turn around, hair behind.
  No sound at all. Leaves not moving. Put away the kite.

Related children’s books

*Mirandy and Brother Wind*, by Patricia McKissack
*Gilberto and the Wind*, by Marie Hall Ets
*The Wind Blew*, by Pat Hutchins
*Who Took the Farmer’s Hat?*, by Joan L. Nodset
Things to do with Sand, Dirt, and Rocks

Experiencing

• Wiggle your toes in the sand, dirt, or mud.
• Toss rocks into a pond or lake.
• Dig in the sand or dirt.
• Work with real clay (not play dough or modeling clay).

Appreciating

• Provide containers of sand, dirt, and rocks, a pitcher of water, measuring spoons and cups, medicine droppers, small funnels, and towels. Suggest that children try adding water to the containers of sand, dirt, and rocks. Help children think about their work: “What happened when you added just a little water?” “How much water do you need?” “What’s happening to the rocks?” Provide pencils, paper, and clipboards so that children can document their work with sketches and notes.

• Draw with sticks in the sand or dirt.

• Interview someone who works with sand, dirt, or rocks such as a geologist, a contractor, a landscape architect, a farmer, or an engineer.

• What do you wonder about sand, dirt, and rocks? How might you find out more?

• Make up a game to play with pebbles and rocks.

• Create a class rock collection. Examine the rocks to find colors and patterns.

• Visit a pottery studio.
Provide tubs of sand, mud, and dirt for children to explore. Add tools such as small shovels and rakes, small plastic bowls, funnels, cups, cardboard, or sieves. Observe children as they explore the materials, noting vocabulary used, perceptions about the materials, problem solving strategies, and interactions among children. After children have had sufficient time to explore the materials, invite them to discuss their experiences.

For each of the three materials, you might ask question such as those listed below:
- What words describe how the sand/mud/dirt feels?
- What could you do with the sand/mud/dirt?
- What could you NOT do with the sand/mud/dirt?
- What things were the same about the sand and mud [or dirt]?
- What things were different about the sand and mud [or dirt]?
- Which did you most enjoy playing with? Why?

Valuing

- Find out about crops that are grown in your community.
- Examine different types of soil. What types of soils are best for different uses?

Responding

- Paint designs on a large rock and use it to decorate your yard or garden.
- Layer colored sand in a clear container and secure the lid with glue.
- Make a sand painting by drawing a design with glue and sprinkling sand over the glue.

Related books for children

I Am Clay, by Byrd Baylor
On My Beach Are Many Pebbles, by Leo Lionni
A Hole Is To Dig, by Margaret Wise Brown
The Mud Center

Each mud center is different, based upon the needs and interests of the children and the imagination and creativity of the staff. Materials can be added and taken away as the center is used and new interests emerge.

**Necessary materials** (borrowed, scrounged, donated)

- Cooking appliance—old range or box made into an oven
- Pots, pans, cooking tins
- Large metal or plastic bowls
- Cooking utensils
- Dirt
- Large buckets of water for cleanup
- Large bucket for discarded creations (prevents excess mud on the ground)
- Pitchers of water for cooking
- Recycled containers to hold “spices”
- Recycled or found materials representing spices and condiments
- Labeled storage unit (such as milk crates wired together to make shelves)
- Plastic smocks to protect children’s clothing

**Materials that enhance the mud center**

- Recipe cards, pencils, recipe box
- Tables and plastic tablecloths
- Canisters to hold different kinds of dirt
- Play sink and refrigerator
- Pegboard for hanging utensils, drainer for dishes
- Sifter, colander
- Towels, dishrags, pot holders

Fill assorted spice shakers, sugar sprinklers, and condiment containers with found items such as sawdust, dried coffee grounds, dried and ground orange peel, pinecones, crushed leaves, dried grass, twigs, and pebbles and stones of various sizes. The children enjoy going on foraging trips to replenish their supplies and expand their collection. Woodchips, sand, small pine needles, green grass, crushed colored leaves, dried flowers, and a variety of dried seeds can be added. Since the children loved experimenting with colors in their cooking, the teachers contributed bottles of colored water.

Adults already know the joys of gardening, a hobby that has seen an explosion of interest in recent years. But we're just starting to understand what the experience of gardening can mean for children. Whether based in a neighborhood or at a school, childcare center or summer camp, we're finding that children reap benefits from sowing seeds and helping plants grow.

New programs have sprung up to introduce young children to gardening, supporting program goals that are similar among program types and the ages of children served. These programs - and yours if you choose to incorporate a garden into your programming - achieve goals that include environmental stewardship, personal growth/social skills, an integrated learning environment, nutrition/health, science education, practical living skills and just plain FUN (1).

How the goals for your gardening program get implemented will depend on the ages of the children in your program. Developmentally appropriate gardening programs base their activities on sound principles of child development and learning.

These principles are based on years of extensive research with young children and are used by professionals in the field of early education. While many current gardening books on the market provide a variety of different types of activities, they give very little support to teachers or horticulturists on how to understand the developmental needs of children and how to adapt activities to meet children's needs.
Principles of Developmentally Appropriate Gardening

The first principle - and an important foundation for developmentally appropriate gardening - is that children are active learners. The best teaching occurs when the emphasis is more on joining the child in hands-on interaction, play and discovery than on imparting knowledge. Children have a natural curiosity that requires direct sensory experience rather than conceptual generalization.

The tendency of adults is to create activities from the adult perspective rather than finding ways to adapt adult activities to children's needs. If we as adults fail to provide an engaging hands-on experience for children, they will find their own, often inappropriate, way to interact with the garden.

I have experienced this phenomenon many times in the children’s garden where I volunteer. When we do a garden tour, if it does not include enough "hands-on" experiences like stopping to collect, touch, taste and smell, I quickly lose the interest of the children and they find their own way to interact with the garden, like balancing on the garden rails, running through the beds and wandering to the next available space.

The second principle of developmentally appropriate gardening is that development occurs in children in an orderly sequence during the first nine years of life. All domains of development—physical, emotional, social, language and cognitive-change in a predictable way. Knowing typical child development for the age span that your program serves will provide a framework to guide teachers and horticulturists in preparing the learning environment and planning realistic goals and objectives. Age-appropriate gardening activities take into account children's differing cognitive capabilities and psychological needs.

The third principle is that experiences and activities that stimulate children's development should be presented in increasingly complex and organized ways. For example, children below age seven or eight are extremely visual in their orientation to the world, partially because, depending on the age of the child, they do not read or read well. A pitfall is to rely too much on verbal explanations of concepts rather than using visual representations of the same concepts, such as with pictures.

I made this mistake myself with a group of eight-year-olds, and I failed to use a visual prop when I asked them to make rows for planting. They did not fully understand the concept of rows, much less know how to implement it in the soil as a team working together. Short-term memory and information processing is improved in the six-to-eight year olds in comparison with preschool children, but these skills are far from mature.
For example, the adult capacity for short-term memory is seven chunks or bits of information...for preschoolers, five chunks of information, while 7-year-olds can usually retain six chunks of information (2).

A fourth principle of developmentally appropriate gardening is that children need to be able to practice their newly acquired gardening skills. Since research shows that children's development occurs more rapidly with practice, how can we expand our gardening scope to include others who influence the child's choice of activities? How can horticulturists support teachers in the classroom and how, in turn, can teachers support parents, who determine what children do at home?

Activities chosen and shared with teachers and parents must not only include information on the activity itself, but why it is important and how it can be implemented. For example, it's not enough to send a child home with a seed, you should also include an explanation about what children learn from planting seeds, a small baggie of potting soil and maybe a peat pot or information on what other types of recycled materials could be used as a pot. Many parents would not have the time or money to buy soil or pots, but may participate in the activity if it is fully explained to them and they have the resources at hand to do so. Developmentally appropriate gardening looks at how to support the child within the context of the classroom and family.

The last principle is that children have preferred or stronger modalities of learning. A variety of activities will support children with the contrasted learning styles of visual, auditory and tactile. Howard Gardner has taken this concept a step further by identifying at least eight kinds of intelligence in humans. The multiple intelligences include linguistic, logical-mathematical, musical, spatial, bodily kinesthetic, intrapersonal, interpersonal and naturalistic (the ability to read the natural environment). A variety of activities will allow children time to use their preferred modes of learning and also provide time for them to develop in areas where they might not be as strong.
Goals of Developmentally Appropriate Gardening

Now that we have explored the philosophy of developmentally appropriate gardening, let's go back to our gardening goals and more fully explore how these goals can be implemented for different age groups.

The first important goal of a gardening program is teaching environmental stewardship. Environmental education needs to start at an early stage with hands-on experiences with nature (3). Our tendency as a society is to assume that learning starts with public school, however, research clearly shows that value formation begins in children at ages two, three and four.

It's difficult to teach children regard for nature at seven or eight if they haven't had the chance to fully understand what the concept means. Experiences with nature have taken on new meaning in our society, where children at home or at school have very little opportunity to explore the wonders of plants, bushes, trees and flowers. Many schools and child-care facilities are asphalt jungles, and many new homes have little landscaping beyond sod lawns.

Additional research in the new fields of eco-psychology and evolutionary psychology shows that if children do not have time to explore and fully understand nature, they are at danger for developing what is known as biophobia, an aversion to nature. I see this phenomenon manifested at the children's garden where I volunteer. Whether the children come from the suburbs or the inner-city schools, they have little to no understanding of the natural world. Their first impulse, when confronted with some natural element like an insect, is to first be afraid and then to kill whatever they have observed. Children must be allowed time in their early years to interact with nature and living elements before they can understand it well enough to want to preserve it.

A second goal of a gardening program is to provide activities for children to practice personal growth and social skills. Children are so proud of all of their accomplishments in the garden, even if it is as simple as watering. Many schools provide very little opportunity for children to work together, although the skills of creativity, problem solving and teamwork are needed in the real world. The garden provides opportunities for children to work together cooperatively as a team to solve problems.
The third goal of a gardening program is to **provide for multidisciplinary, active learning**. Gardens are unsurpassed in providing a hands-on approach to seeking information, observing changes and learning skills. Gardens are constantly changing and highly attractive learning labs. While most teachers and horticulturists tend to stick to science and ecology lessons, the garden can also be used as a springboard for

- math skills like charting, mapping, graphing and counting
- reading and writing skills like dictation, creating signage, storybook making, and reading books
- social studies skills like foods of other cultures, feeding the homeless, map-making
- art skills like designing the garden, identifying colors and patterns, creating drawings, painting, papermaking and creating collages.

Each of these garden activities will be based on the differing capabilities and needs of the age child for which it was created.

A fourth goal of a gardening program is to **teach about nutrition and health**. Children love to try new foods, especially when they have grown the food themselves or at least been involved in collecting the food source. A gardening program allows children the opportunity to make food choices based on new experiences.

A fifth goal of gardening programs is to **provide opportunities for science education**. Children can learn about interdependent plant and animal needs, photosynthesis, seed production, pests both harmful and beneficial, and composting.

The last two goals are really the most important. Gardening is fun and is a skill that can be used later in life in many ways. I have received thank-you letters from some of the children who come to the children's garden in the summer. The letters often speak about starting gardens at home now that their interest has been sparked, but the best part of the letters is that all the children talk about how much fun they had doing simple things like tasting fresh beets or cherry tomatoes, digging a sweet potato,
picking berries or just watching the fish in the small pond. But, I think that my new friend Cherie says it more eloquently:

"Dear Vicki,
I had so much fun! The cherry tomatoes were the best! I thought the beets were kind of good. I never really like beets that much. I’m going to ask my mom to have my own garden. If she says yes I’ll use the seed I picked."

Thanks,
Cherie
2nd grade

As someone who loves to garden, I’ve found that their enjoyment is equal to my own, in getting to introduce young people like Cherie to the pleasures of digging and planting and harvesting. That enjoyment, like the program goals, is something that is true wherever adults provide children the chance to interact with nature.

References

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Books, Children and Nature
Books, Children, and Nature

Children’s books are an important resource for supporting interactions with the natural world. As children show curiosity, books can provide more information about the subject. Books can also be used as a catalyst for experiences with nature—enjoyment of a book leads to hands-on investigation of a related topic.

**Song of the Water Boatman & Other Pond Poems**

Author: Joyce Sidmon  
Illustrator: Beckie Prange  
Houghton Mifflin Company, 2005  
Caldecott Honor Book  
Winner of Giverny Book Award (best children’s science picture book)

A blend of science and poetry, this book celebrates the beauty and mystery of ponds and wetlands. The award-winning illustrations progress through the pond’s seasons, from the first thaw of spring to the hibernation of winter. Among the topics are the spring peeper (frog), the wood duck, green darner (dragonfly), cattails, and the painted turtle.

The illustrations are large enough to use with a small group, but the richness of the language and the illustrations might better be enjoyed with one or two children.

Some children may be interested in creating their own poetry and/or pictures of a habitat with which they are familiar—a field, a park, the tree on the playground. The suggestions that follow may serve as a guide for exploring the topic over several days or weeks. Avoid rushing the process. Allow plenty of time for the child to observe the habitat, to investigate the selected topic, and to consider the words he/she will use.
**Investigate the habitat**
Support the child in investigating the habitat by observing its inhabitants, by talking to others who have knowledge of the habitat, and by using books and/or the Internet.

**Select a topic**
Suggest that the child select one inhabitant or aspect of the habitat as the topic of his/her poem. For example, if the child is interested in the tree on the playground, the teacher might say, “The author of the book wrote poems about many different pond things. What are some of the things you have observed about the tree? Which of those things might you write about?”

**Think about the words**
Encourage the child to think of many words that describe the topic of the poem. If the child has chosen to write about leaves, for example, the teacher might ask, “When you look at the leaves, what do you see and hear?” (If it is safe to touch the topic item, ask how it feels.) “What are some words that tell us about how the leaves move? What words describe how the leaves live—food, friends, enemies, family, needs, contributions to the environment?” “What words might you use to tell how you investigated the leaves and how you feel about them?”

**Think about the message**
Help the child think of the important information he/she wants to say about the topic. “What are some things about the leaves that you would like other people to know? What words might you use to tell people about these things?”
Reflect on the work

After the child has written the poem, he/she may wish to reflect on the work. The purpose of this experience is to help children evaluate and edit their work. Be careful not to send the message that something should be changed. Some children may not want to spend time in reflection and evaluation; respect this choice and continue to appreciate the learning that occurred during the process of producing the poem.

The teacher might ask...

- “Have you thought any more about the leaves?”
- “Which part of your poem is most satisfying to you? Why?”
- “Does your poem say everything you wanted to say? Is there anything that you think should be added to your poem or do you need to write another poem?”
- “Have you thought of any words that you like better than the words you first used? How might you adjust your poem to use those new words?”

<table>
<thead>
<tr>
<th>Some Poems by Mrs. C.’s Apple Room Preschoolers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow.</td>
</tr>
<tr>
<td>Pick some, not all.</td>
</tr>
<tr>
<td>Dandelions</td>
</tr>
<tr>
<td>Haley</td>
</tr>
<tr>
<td>Brown, just brown.</td>
</tr>
<tr>
<td>Jumped over the fence.</td>
</tr>
<tr>
<td>Went on the road,</td>
</tr>
<tr>
<td>Donkey.</td>
</tr>
<tr>
<td>Danna</td>
</tr>
<tr>
<td>Yellow.</td>
</tr>
<tr>
<td>Wear sunglasses</td>
</tr>
<tr>
<td>When it’s too bright.</td>
</tr>
<tr>
<td>Gives you light.</td>
</tr>
<tr>
<td>Sunshine.</td>
</tr>
<tr>
<td>Ledley</td>
</tr>
</tbody>
</table>

Related books

*The Rose in My Garden*, by Arnold Lobel
*Over in the Meadow*, by John Langstaff
*Owl Moon*, by Jane Yolen
*In the Small, Small Pond*, by Denise Fleming
Everybody Needs a Rock

Author: Byrd Baylor
Illustrator: Peter Parnall
Aladdin Paperbacks, 1974

The child narrator of this book believes that everyone should have a special rock and then provides ten charming rules for rock hunting.

The obvious related activity is to begin hunting for rocks! Involve families in the hunt, perhaps by sending home a family field trip guide, such as the one on pages 48-49.

Related books

Sylvester and the Magic Pebble, by William Steig
If You Find a Rock, by Peggy Christian
Stone Soup, by Marcia Brown
On My Beach Are Many Pebbles, by Leo Lionni
Let’s Go Rock Collecting, by Roma Gans
LET’S GO ROCK HUNTING!

At school we have enjoyed reading a book called *Everybody Needs a Rock*, written by Byrd Baylor. The child in the story says that everyone needs a special rock to “keep as long as you can—maybe forever.”

Your family might enjoy going rock hunting. Some suggestions for your rock hunt are listed below. Have fun!

Go to a place where you might find rocks. Be sure to choose a place where you will be allowed to take a rock home with you.

- Your backyard
- A field, forest, or pond
- A sidewalk, driveway, or parking lot
- A park, a garden, or a river

Spend some time quietly exploring the area. Pick up rocks that look interesting. Try not to talk to each other--just think about the rocks. Think about the following questions.

- How does the rock feel in your hand?
- What colors can you see in the rock?
- How does the rock smell?
- Look the rock in the eye. Is this the right rock for you?

If you find a good rock, take it home with you.

- Choose a special place to keep your rock.
- Make up games to play with your rock.
- Make up a story about your rock.

Use the attached sheet, “Our Rock Hunt”, to record information about your rock hunting trip. Your child might want to bring his/her rock and the sheet to school to share.
OUR ROCK HUNT

Draw a picture of the place where you hunted for rocks.

Describe some of the rocks that you saw..

Sketch some of the special rocks that your family found.


**Listen to the Rain**

Authors: Bill Martin, Jr. and John Archambault
Illustrator: James Endicott
Henry Holt and Company, 1988

The rhythm of the authors’ language evokes the feel of rain, from mist to thunder. The clear design and color of the illustrations add to the mood as each page is turned.

*On a rainy day...*
Suggest that children close their eyes and listen. Afterwards, as regular activities are resumed, look for opportunities to engage individual children in conversation about the sounds of the rain. What pictures did you imagine as you listened? What words might you use to tell someone about sounds of the rain? Did the sounds of the rain remind you of other sounds you have heard?

*On a rainy day...*
Invite two or three children to go for a walk in a gentle rain. (Be safe—don’t go outdoors when there is lightning in the area.) Wear rain ponchos or use an umbrella. Join the children in looking and listening. Limit conversation while you are walking. When you return to the classroom, encourage children to represent their rain walk experience using art materials, words, blocks, music, and/or dramatic play. As children work, talk with them about the effect of the rain on the world. How did things look different? What did they hear? How did the rain affect the sounds of the environment? How did it feel to be in the rain?
On a stormy day...
Gather children to listen to a thunderstorm pass through the area. Afterwards, provide a variety of musical instruments, noise makers, and other objects (metal lids, wooden spoons, oatmeal boxes, etc.). As children explore the items, ask if they might use these instruments to recreate the sounds of the thunderstorm. Toward the end of this musical experience, some children might want to document the process of creating rain sounds. Encourage them to think about ways in which they could share their experience with others, such as writing, drawing and painting, photography, audio recording.

On a rainy day with infants and toddlers...
Hold the child and watch the rain together. Talk with the child about what you are observing. “I see raindrops on our window.” “The rain is making puddles in our yard.” “Rain makes the street look wet and shiny.”

Allow plenty of time for listening; describe the sounds that you are hearing. “Drip, drip, drip; the rain is dripping off the roof.” “Swoosh! The car is driving on the wet street.” Open the window or door so that the child can feel the rain on his/her fingers. Gently pat the wet hand on the child’s cheek. “Rain is water and it’s wet.” “Rain feels cool and smooth.”

Related books

Rain, by Robert Kalan and Donald Crews
Rain, by Peter Spier
The Other Way to Listen, by Byrd Baylor and Peter Parnall
The story grows from a sunflower, “tall and bright”, to seeds and rain and sun, and a patch of new sunflowers. The repetitive language produces a strong rhythmic chant that children will enjoy.

*Plant flower seeds* (why not sunflowers?) in a corner of your outdoor play area. Engage children in planning, predicting, investigating, and documenting the process.

- Where is the best place to plant the seeds?
- How will we prepare the ground?
- What tools will be needed and where might we obtain them?
- What care will the seeds need after they are planted?
- How long will it take for the seeds to grow into mature flowers?
- How tall will the flowers be?
- What is the best way to chart the growth of the flower?
- What will we do with the flowers that bloom?
- How can we share our gardening experience with others who might be interested?
Investigate sunflower seeds.

- Scatter seeds in an area where birds feed. Observe the birds and record the different types of birds that come to feed. Measure the amount of seeds scattered, the time it takes for the first bird to arrive, and for the last seed to be eaten. Count the number of birds that eat the seeds.

- Compare seeds sold for bird food to seeds packaged for snacking by people.

- Find out why sunflower seeds are salted.

- Find out how many seeds are produced by one sunflower.

Related books

*Wild, Wild Sunflower Child Anna*, by Nancy White Carlstrom
*Sunflower House*, by Even Bunting
*The Rose in My Garden*, by Arnold Lobel
*The Happy Day*, by Ruth Krauss

*And don't forget to explore Van Gogh's sunflowers!*
The story and illustrations re-create the glory and simplicity of a family’s connection to the land. The child narrator takes the reader to all the special places that each family member loves: the river, the meadow with wildflowers, the marsh, and the hill where you can see the sun rise on one side and set on the other.

Plan for children to experience different nature places in your neighborhood.

Take time to rest under the tree on the playground. Sit beside the fountain in the park. Read a story under the honeysuckle. Stop beside the pond to watch the clouds.

Make repeated visits to these nearby nature places so that children can connect with nature over a period of time.

Document these visits with photographs and/or video recordings. Make the photos and videos available in the classroom to help children recall their experiences.

Help children learn about the nature places that they visit.

Locate people in the community who can share their knowledge of the environment. These “experts” might visit the classroom and/or join the children on a visit to a nature place. Use the Internet and books for additional information.
Invite children to tell stories about nature places they love.

These might be places you have explored together or other places where they spend time. Talk about how the place looks, sounds, and smells. Help children think about and verbalize the reason that they love that place.

Provide art materials, blocks, boxes, and household discards.

Some children may choose to use these materials to represent their special nature places.

Help children think of ways to share their special places with others.

This might be a family night, with families joining the class in visiting their special places. It might be a display of photographs and children’s work. The children might choose to create a video or to dramatize what they have learned about “all the places they love.”

Involve families.

Use the family field trip guide, “Loving the Great Outdoors” (page 56) to involve families in the exploration and sharing of all the places to love.

Related books

Daniel and His Walking Stick, by Wendy McCormick
Earthdance, by Joanne Ryder
LOVING THE GREAT OUTDOORS

At school we have enjoyed reading a book called All the Places to Love, by Patricia MacLachlan. In the story, each family member has an outdoor place that he or she loves—the river, a meadow, the marsh, and a hill.

What are the outdoor places that you love? Take some time for your family members to share with each other the "nature places" they love. If you don’t yet have any places to love, begin spending more time outdoors so that you can develop a special connection with nature.

As a family, talk about outdoor places where you like to spend time. The places you love might be a tree in the backyard, a fountain on the square, a nearby park, or a neighbor’s garden. Why do you like those places? Write your thoughts here.

Visit the nature place that each family member loves. While you are there, do something together—have a picnic, play a game, tell a story, draw pictures. List the places that you will visit.

Visit some new outdoor places. Talk about what you like (or don’t like) about these new places.
Resources for the Great Outdoor Adventure
Children’s Books About the Great Outdoors

Trees

Someday a Tree, by Eve Bunting  
A Tree Is Nice, by Janice Mae Udry  
The Seasons of Arnold’s Apple Tree, by Gail Gibbons  
Leaf Man, by Lois Ehlert  
Red Leaf, Yellow Leaf, by Lois Ehlert  
Pie in the Sky, by Lois Ehlert  
Tell Me, Tree: All About Trees for Kids, by Gail Gibbons  
We’re Going on a Leaf Hunt, by Steve Metzger  
The Gift of the Tree, by Alvin Tresselt  
A Log’s Life, by Wendy Pfeffer  
Have You Seen Trees? by Joanne Oppneheim

Seeds

The Tiny Seed, by Eric Carle  
Growing Vegetable Soup, by Lois Ehlert  
Nuts to You, by Lois Ehlert  
The Carrot Seed, by Ruth Krauss  
One Child, One Seed: A South African Counting Book, by Kathryn Cave

Flowers and Grass

This is the Sunflower, by Lola M. Schaefer, illustrated by Donald Crews  
Wild, Wild Sunflower Child Anna, by Nancy White Carlstrom  
Planting a Rainbow, by Lois Ehlert  
The Happy Day, by Ruth Krauss  
The Rose In My Garden, by Arnold Lobel  
In the Tall, Tall Grass, by Denise Fleming  
Sunflower House, by Eve Bunting

Rain and Water

Listen to the Rain, by Bill Martin, Jr. and John Archambault  
Bringing the Rain to Kapiti Plain, by Verna Aardema  
Umbrella, by Taro Yashima  
Rain Rain, Rivers, by Uri Shulevitz  
Rain, by Peter Spier  
Rabbits & Raindrops by Jim Arnosky  
Rain, by Robert Kaplan and Donald Crews

Insects and Spiders

Thinking About Ants, by B. Brenner  
Ant Cities, by Arthur Dorros  
The Little Red Ant and the Great Big Crumb, by Shirley Climo  
The Very Busy Spider, by Eric Carle  
The Very Quiet Cricket, by Eric Carle  
A Fly Went By, by Barbara McClintock  
The Very Hungry Caterpillar, by Eric Carle  
Inch by Inch, by Leo Lionni  
Spiders, by Gail Gibbons
Wind and Air

Mirandy and Brother Wind, by Patricia McKissick
Gilberto and the Wind, by Marie Hall Ets
Who Took the Farmer's Hat? by Joan L. Nodset
The Wind Blew, by Pat Hutchins
It Looked Like Spilt Milk, by Charles G. Shaw

Sand, Dirt, and Rocks

Everybody Needs a Rock, by Byrd Baylor
A Hole Is to Dig, by Margaret Wise Brown
On My Beach Are Many Pebbles, by Leo Lionni

Animals

The Waterboatman and Other Pond Poems, by Joyce Sidmon
Over in the Meadow, by John Langstaff
In the Small, Small Pond, by Denise Fleming
All About Frogs by Jim Arnosky
Box Turtle at Long Pond by William T. George
In the Woods: Who's Been Here? by Lindsay Barrett George
Wonderful Worms, by Linda Glaser

Birds

Owl Moon, by Jane Yolen
Have You Seen Birds? By Joanne Oppenheim
Counting Is for the Birds, by Frank Mazzola, Jr.
From Egg to Robin, by Susan Canizares & Betsey Chessen
A Nest Full of Eggs, by Priscilla Belz Jenkins

The Natural World

All the Places to Love, Patricia MacLachlan
Daniel and His Walking Stick, by Wendy McCormick
All I See, by Cynthia Rylant
Mr. Gumpy's Outing, by John Burningham
We're Going on a Picnic, by Pat Hutchins
The Other Way to Listen, by Byrd Baylor
Earthdance, by Joanne Ryder
SELECTED RESOURCES FOR TEACHERS

Books

Arkansas Department of Human Services Division of Child Care and Early Childhood Education. (2005). Beginnings: A Year in the Life of a Tree. Little Rock: DHHS DCCECE.


**Articles**


**Internet Resources**

- The National Arbor Day Foundation  

- The Nature Conservancy  
  [http://nature.org/activities/](http://nature.org/activities/)

- Project Learning Tree  
  [http://www.plt.org](http://www.plt.org)

- U.S. Bureau of Land Management  
  [http://www.blm.gov/education/LearningLandscapes/index.html](http://www.blm.gov/education/LearningLandscapes/index.html)

- Earth Day Grocery Bags Project  

- Online resources and activities from Georgia Pacific  

- School Garden Wizard  

- Life of the Forest, from International Paper  
  [http://www.internationalpaper.com](http://www.internationalpaper.com)
  Click on *Our Company--Learning Center--Life of the Forest*

- National Wildlife Federation and Ranger Rick  

- EcoLibrary  
  Download color nature photographs

- World Wildlife Federation  

- Hooked on Nature  
  [http://www-hookedonnature.org/index](http://www-hookedonnature.org/index)

- KinderNature  
  [http://kindernature.storycounty.com](http://kindernature.storycounty.com)

- Keep Arkansas Beautiful  
Out and About in the Natural State

From roaring waterfalls to serene lakes, limestone bluffs to wildflower-filled meadows, the natural beauty of Arkansas is abundant! On the next few pages, you’ll find information on child-friendly walking trails, hiking trails, and other nature experiences throughout the state.

Arkansas Arboretum Loop, Pinnacle Mountain State Park
This ½ mile trail is paved for easy stroller and wheelchair accessibility. Children will enjoy the audio recordings along the trial, while adults may be interested in the garden areas featuring plants native to each of the state’s geographical regions. Stop by the visitor’s center to meet some live, local wildlife! Exit #9 off I-430 at Little Rock; seven miles west on AR 10, then go two miles north on AR 300; www.arkansasstateparks.com/pinnaclemountain/

Arkansas River Valley Nature Center, Fort Smith
Operated by the Arkansas Game and Fish Commission, the nature center includes an aquarium area, interactive exhibits, and several short hiking trails. Some trails are paved or boardwalk, accessible to strollers and wheelchairs. Convenient restrooms. 8300 Wells Lake Rd Fort Smith; www.rivervalynaturecenter.com

Bona Dea Trail, Russellville
This multi-use fitness and nature trail, located along the banks of Lake Dardanelle, provides a number of different, looped routes to explore. Trail lengths start at just 0.2 miles of paved, accessible trail, up to 3.5 miles of paved and gravel trail. You can visit many times and never have the same hike twice! Enjoy up-close views of the wetland and low woodland habitats, and keep an eye out for waterfowl! Convenient restrooms. AR 326 off Scenic 7 Byway, Russellville

Butterflies and Blooms Trail, Lake Charles State Park
Spring and early summer are perfect times to view wildflowers planted on both sides of this short, easy trail. Packed gravel may make accessibility difficult for wheelchairs and standard strollers. For more adventure, older children may prefer the hilly, 1.5-mile White Oak Loop Trail, which travels into the hardwood forest before emerging along the lake shore. From Hoxie, go eight miles northwest on U.S. 63, then six miles south on AR 25; www.arkansasstateparks.com

Crane Fly Trail, Logoly State Park
This ¾ mile gravel trail provides some of school-agers’ favorite things: a pond with a boardwalk and dam, a picnic area, steep hills and, best of all, a swinging bridge! The nearby visitor's center often includes live reptile exhibits. From U.S. 79 at McNeil, go one mile on County Road 47 (Logoly Road) to the park; www.arkansasstateparks.com
Crater of Diamonds State Park, Murfreesboro
A different kind of nature experience! This one-of-a-kind park allows visitors to dig for natural crystals and even diamonds! Best of all, it is “finders keepers”! Digging takes place in a large, plowed field, the top layer of an ancient volcanic pipe where gemstones were deposited thousands of years ago. Bring your own tools, or rent tools on site. Children under age six can dig for free; a small fee is charged for older children and adults. Don’t forget sunscreen and drinking water, and consider digging during the cooler morning hours if you visit during the warm weather months! At Murfreesboro, take Ark. 301 and go southeast approximately 2 1/2 miles to the park; www.craterofdiamondsstatepark.com

Delta View Trail, Cane Creek State Park
This looped, hilly, but not-too-challenging, trail provides forest and lakeshore experiences. Benches offer a chance to rest and enjoy an overlook of Cane Creek Lake. This is a great place for spotting deer and enjoying dogwoods and other flowering trees in spring! Provide at least 3 hours to hike this trail with children. The park also offers a unique kayak trail and kayak rentals - a perfect adventure for older children and teens! From Star City, go five miles east on Hwy. 293; www.arkansasstateparks.com

Discovery Loop, Delta Rivers Nature Center
This half mile, paved and boardwalk trail is accessible to wheelchairs and strollers. Children will enjoy the Black Dog Lake overlook, as well as an up-close look at Black Dog Bayou. Be on the lookout for alligators and other water reptiles, as well as birds of prey! Visit the nature center while you’re there to see interactive exhibits and two aquariums. You may even catch an alligator feeding time! Convenient restrooms. 1400 Black Dog Road in Pine Bluff's Regional Park; www.deltarivers.com

Habitats Trail, Crowley's Ridge Nature Center
This accessible, ¼ mile trail explores pond, ridge, prairie, and bottomland forest habitats; watch for butterflies and hummingbirds in the center’s blooming gardens. A large diorama and observation deck provide plenty to do indoors. Check the website for a schedule of periodic stories and activities provided by Arkansas Game and Fish Commission employees. Convenient restrooms. 600 E. Lawson Road, Jonesboro; www.crowleysridge.org

Friendship Interpretive Loop, Jessieville
Situated in the Ouachita Natural Forest, this scenic, wheelchair and stroller accessible trail is the perfect place for a picnic! Enjoy peaceful pine forests, a bird and wildflower-filled meadow, a pond overlook, and wonderful wooden bridges. Convenient restrooms. Just outside of Jessieville, 18 miles north of Hot Springs on Highway 7; look for the visitor’s center!
Garvan Woodland Gardens, Hot Springs
Carefully landscaped gardens spotlight hundreds of native Arkansas plants. Children will enjoy the small waterfalls and rock gardens. Most trails are wheelchair and stroller accessible. A children’s “adventure garden” is in the works; plans include tree houses, climbing slopes, a natural maze, and more. Check the garden’s website for the latest information on this project! Convenient restrooms. 550 Arkridge Road, Hot Springs; www.garvangardens.org

Knapp Loop, Toltec Mounds State Park
This archaeological park includes Native American ceremonial mounds dating from A.D. 600 to 1050. Measuring almost a mile in length, the paved, barrier-free Knapp Trail takes walkers past several mounds and along a boardwalk on Mound Pond. Look for cypress trees and turtles here! Much of the trail is sunny; don't forget the sunscreen and water! Convenient restrooms. 490 Toltec Mounds Road, Scott, AR; www.arkansasstateparks.com

Lost Valley, Ponca
One of the state’s hidden treasures! This moderately-difficult, 2 mile trail takes hikers through hardwood forest, past a boulder-filled dry creek bed, along a natural bridge and through massive rock formations carved by wind and water, before climbing uphill to a waterfall that cascades from a natural cave. Consider bringing flashlights to explore the cave; a 200 foot, muddy crawl will lead young explorers to a large, underground room with a second, secret waterfall! This trail includes bluffs and slippery creek crossings. It is not ideal for the youngest hikers, unless they have very close supervision! Convenient restrooms. Hwy 43 from Boxley toward Ponca; look for signs.

Louisiana Purchase Boardwalk, Brinkley
Follow elevated boardwalk trail through a headwater swamp that would be un-accessible otherwise. Take a moment to sit quietly and listen to the sounds of the living wetland, including the hum of insects and the call of birds and frogs. Dense cypress trees make this short trail feel “a million miles away” from home! Historical markers located along the trail may interest older children/teens. Don't forget the insect repellant! From I-40 at Brinkley, take U.S. 49 and travel 21 miles south, then go two miles east on Ark. 362 to the park; www.arkansasstateparks.com

Orchard Trail, Ouachita National Forest, Mena
This fully accessible, half mile trail provides a peaceful journey through towering pine trees. Short, safe, and level, the trail is perfect for even the youngest hikers. Make bark rubbings, lie down to get an ant’s eye view of a tree, or try out a bird call! One mile north of Mena on Highway 88, next to the Forest Service’s East End Visitor Center
Periwinkle Trail, Felsenthal National Wildlife Refuge, Crossett
This 1.5 mile trail allows school-age hikers to explore pine forest, meadows, and a pond. Plenty of bridges and a vine-covered archway make this an interesting route! This low-lying trail can be muddy during rainy weather, and is closed during hunting season. Call 870-364-3167 to ensure that the trail is open and safe for hiking, and don’t forget the insect repellant!
Convenient restrooms. 5 miles west of Crossett on Highway 82, near the Crossett Harbor RV Park; www.fws.gov/felsenthal/

Riverside Park, Searcy
This lovely, 99-acre park contains something for everyone, including several wheelchair and stroller accessible trails, picnic areas, playgrounds, and scenic Little Red River overlooks. A great place for spotting squirrels, birds, and other hardwood forest animals, as well as birds, amphibians, and reptiles that make a home near the river!
Convenient restrooms. Riverside Park Road, Searcy; www.cityofsearcy.org/parks/

South Arkansas Arboretum, El Dorado
Managed by South Arkansas Community College, this site offers a maze of connecting trails through forest, pond, and meadow habitats. The many trail options make this an ideal site for children of all ages, and exploring will lead to many exciting discoveries, including waterfalls, hidden nooks, and wildflower glades. Mount Holly Rd, behind El Dorado High School

Tanyard Creek Nature Trail, Bella Vista, AR
A looped, gravel trail with several choices of length and route. Children will enjoy the swinging bridge, bluffs, and impressive waterfall, and there are plenty of shallow, rocky stream areas to explore. Trail includes a few steep drop-offs; close adult supervision is imperative! Convenient restrooms. Approx. 1 mile west of Town Center, Hwy 340, Bella Vista; www.beautifulbellavista.com/tanyardcreek.htm

Waterfowl Way, Millwood State Park
This easy, level, 1.5 mile loop visits a bog, a prairie, and hardwood and pine forests. Be on the lookout for signs of beaver activity! Many species of migratory waterfowl can be seen here, especially during the fall and winter months. The trail includes a picnic area. 16 miles north of Texarkana on Hwy 71, then 9 miles east on Hwy 32; www.akansasstateparks.com

Wildflower Garden Trail, Bull Shoals State Park
This wheelchair/stroller accessible trail offers a peaceful, ¼ mile stroll through acres of native wildflowers. Benches provide a perfect place to observe, sketch, and photograph songbirds, hummingbirds, butterflies, and busy honey bees! From Mountain Home, travel six miles north on AR. 5, then go eight miles west on AR 178; www.arkansasstateparks.com