

IN
THIS
ISSUE

FEATURE ARTICLE:

Nature Education in
Preschool

page 1

CLASSROOM HINTS:

Nature Activities for
Preschoolers

page 8

SPECIAL EDUCATION:

Preschoolers and Nature —
Snug as a Bug in a Rug

page 12

TRAINER-TO-TRAINER:

The Great Outdoors:
It's Not Just Nature,
It's a Necessity!

page 14

NEWS BRIEFS

page 16

ASK US

page 16

Nature Education in Preschool

BY DEBBIE HANDLER, HIGHSCOPE FIELD CONSULTANT, AND ANN S. EPSTEIN,
HIGHSCOPE SENIOR DIRECTOR OF CURRICULUM DEVELOPMENT

At outside time, Jamie, Fiona, and Manuel are playing in the wooded area not long after it has rained. Jamie turns over a rock and the children peer at its mud-encrusted underside and the creatures inhabiting the ground beneath it. "Those guys are runnin' around like they're scared," observes Manuel. "I think they're mad we moved their house," says Fiona. "Maybe we should put it back." "We might crush them," worries Jamie. "Let's make 'em a new house," suggests Fiona, "that's not so heavy." The children collect leaves and twigs and build "a house for the bugs." When the area is covered, they gently lift one leaf and bend down to make sure the bugs are okay. "I think they like it in there," says Manuel with satisfaction.

Everything around us is connected to nature. Most of our food originates in nature — growing from the soil, swimming in the sea, flying through the air, or walking on the earth's surface. Fiber from plants and the skins and other parts of animals provide materials for our clothing. Nature inspires, refreshes, and nurtures us. When experiences with nature are embedded in the preschool curriculum and daily routine, children benefit physically, emotionally, and intellectually as they have new experiences, exercise their bodies, and enjoy the feeling of freedom that comes from being connected to the natural world. This also helps them to become good stewards of the earth's resources!

Whether a program's outdoor space is an urban pocket park, a city or suburban playground, a tidal pool, a rural field, or other setting, nature provides almost limitless opportunities for hands-on learning. Children can turn over a rock or a piece of wood and find



Playing outdoors allows children to use their whole bodies as they experience the natural world.

insects, worms, plant roots, and fungi. They can look at clouds or collect leaves and gain an appreciation of the variety of forms and textures in nature. They can hear birds or feel the wind and become aware of a whole sensory world beyond the classroom door. They feel joy.

Benefits of Including Nature in the Curriculum

An emerging body of research shows the harmful effects of children's separation from nature and the benefits of strengthening those ties. There are implications for children's physical, intellectual, and social-emotional development.

Physical development: This country has seen an unprecedented rise in childhood obesity, and the lack of time playing outdoors in nature is cited as one of the causes. According to the White House Task Force on Childhood Obesity (2010), one in five children is overweight or obese by the time they reach their sixth birthday. Along with poor diet, "physical inactivity has contributed to the 100% increase in the prevalence of childhood obesity in the United States since 1980" (Sanders, 2002, p. xiii).

According to a 2010 Centers for Disease Control report quoted in the *New York Times* (Stout, January 5, 2011), "Only one in five children live within walking distance (a half-mile) of a park or playground." Combine that with parents' increased fear of letting their children play outside, and you get children who are less likely to see the outdoors as an exciting possibility for play. By contrast, children who are physically active are more likely to become healthy adults (National Center for Health Statistics, 2004).

The increase in children's "screen time" contributes to obesity through physical inactivity and the advertising of unhealthy food. Although the American Academy of Pediatrics (AAP) Committee on Public Education (2001) recommends that children under age two watch no television, and children over age two watch no more than 1–2 hours a day, research shows 43% of children under age two watch television daily, and 90% of children aged 4 to 6 use screen media an average of two hours a day. Studies cited by AAP show a significant correlation between watching media and being overweight. The guidelines issued by the National Association for Sports and Physical Education (NASPE, 2010) recommend preschoolers get at least one hour a day of vigorous physical activity, yet studies show children fall far short of this goal.

Intellectual development: Efforts to limit children's exposure to the media indicate that children play more creatively in green space (Linn, 2010). As children explore the sensory variety of the outdoors, they learn important concepts in science (e.g., the living habits of plants and animals; the physical properties of different materials such as water, soil, and stone) and ecology (e.g., the importance of preserving

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Jennifer Burd
Marcella Weiner
Joanne Tangorra
Editors

Katie Bruckner
Publications Assistant

Nancy Brickman
Director of Publications

Kacey Beach
Marketing Specialist

Sherry Barker
Membership Manager

Kathleen Woodard
Director of Marketing and Communication

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Being outside may lead children to express themselves differently than they do when in the classroom.

natural resources; how their actions affect the environment).

Exposure to nature also enhances young children’s language development (Miller, 2007). Children inquire about the names of the things they investigate and seek words to describe the processes they observe. Time in nature is also positively associated with sustained attention (Taylor, Kuo, & Sullivan, 2001). Being outdoors helps children release energy, which allows them to focus on quieter tasks; further, the interest that nature inherently holds for children invites concentration. Finally, experiences in nature enhance the intellectual richness and complexity of children’s collaborative play (Moore, 1996). They incorporate what they learn about the natural world into their pretend play scenarios.

Social-emotional development: Because children are increasingly cut off from the outdoors, their fears and misconceptions about nature are growing (Sobel, 1996). They often acquire their ideas from the media instead of direct contact with living things (Cohen & Horm-Wingerd, 1993). Media images are often negative, causing children to become anxious or even develop “biophobia” — a fear of the natural world and a sense of powerlessness about ecological problems (White & Stoecklin, 2008). For example, interviews with children from preschool to age nine found that their attitudes toward the natural environment (plants, animals, weather) included more expressions of fear and dislike than of appreciation, caring, or enjoyment (Simmons, 1994). Moreover, most media bombard children with the message that material goods are essential to self-fulfillment. “Research shows that children with materialistic values are less likely to engage in environmentally sustainable behavior such as recycling or conserving water” (Linn, 2010, p. 65).

By contrast, “repeated, regular, and sustained positive experiences playing outdoors in the natural environment are influential for attaining sustainable behaviors and lifestyles” (Samuelson & Kaga, 2010, p. 58). Helping young children to engage with nature on a daily basis thus promotes their overall development, and benefits the planet, too.

Setting the Stage for Nature Learning

Nature learning happens naturally whenever children are outdoors. They experience and learn about nature whether enjoying free play or a group activity. Nature activities can also take place indoors, such as growing plants from seeds. In this section, we look at how you can enhance children’s learning during *all* these different types of experiences.

Attitude. Adult attitudes toward the natural environment have a profound effect on how children view and experience it. It is important to share their sense of wonder. Many teachers are unsure about their own science knowledge, but if you let yourself explore and discover alongside the children, then you don’t have to pretend to know it all. Acknowledge your own squeamishness and find ways to overcome it so you don’t convey misapprehensions to the children.

Research Findings on Benefits of the Outdoors

- Children with symptoms of Attention Deficit Hyperactivity Disorder (ADHD) are better able to concentrate after contact with nature (Faber Taylor et al., 2001).
- Children with views of and contact with nature score higher on tests of concentration and self-discipline. The greener the view, the better the scores (Faber Taylor et al., 2002; Wells 2000).
- Children who play regularly in natural environments show more advanced motor fitness, including coordination, balance and agility, and they are sick less often (Fjortoft 2001; Grahn et al., 1997).
- When children play in natural environments, their play is more diverse, with imaginative and creative play that fosters language and collaborative skills (Faber Taylor et al., 1998; Fjortoft, 2000; Moore & Wong, 1997).
- Exposure to natural environments improves children's cognitive development by improving their awareness, reasoning, and observational skills (Pyle, 2002).
- Nature buffers the impact of life stress on children and helps them deal with adversity. The greater the amount of exposure to nature, the greater the benefits (Wells, 2003).
- Play in a diverse natural environment reduces or eliminates antisocial behavior such as violence, bullying, vandalism, and littering, and also reduces absenteeism (Coffey, 2001; Malone & Tranter, 2003; Moore & Cosco, 2000).
- Nature helps children develop powers of observation and creativity and instills a sense of peace and being at one with the world (Crain, 2001).
- Early experiences with the natural world have been positively linked with the development of imagination and the sense of wonder (Cobb, 1977; Louv, 1991). Wonder is an important motivator for lifelong learning (Wilson, 1997).
- Children who play in nature have more positive feelings about each other (Moore, 1996).
- A decrease in children's time spent outdoors is contributing to an increase of children's myopia (Nowak, 2004).
- Natural environments stimulate social interaction between children (Moore 1986; Bixler, Floyd, & Hammitt, 2002).
- Outdoor environments are important to children's development of independence and autonomy (Bartlett, 1996).

— *From Real Science in Preschool: Here, There, and Everywhere*, by Polly Neill, HighScope Press, 2008.

This list of research findings providing evidence of the benefits of outdoor experiences for children are from the article *Young Children's Relationship with Nature: Its Importance to Children's Development and the Earth's Future* (White, 2004 [Note: Article includes complete bibliographic references to the cited research]).

Respect children's initial reservations, too. Though we tend to romanticize children's infatuation with nature, previous experiences or hesitation about the unknown can cause them to feel anxious about strange sights, sounds, smells, or textures. Never force children to engage with the natural world, but support and encourage them as you sense they are ready. Finally, rev up your energy. Except for extreme weather conditions, make a commitment to spend time outdoors with children every day.

Safety. As you explore nature with children, make their safety a top priority. Check with your local poison control center or extension service to make sure the plants you observe with children or cultivate are nontoxic. Your local garden shops and home centers can be good resources for finding things to grow outdoors and in the classroom. Show children what can be touched and what cannot be touched. You can also discuss protecting the animals, plants, and insects from harm as you explore with children. In doing this you can incorporate the larger picture of protecting the planet.

If some children or their parents are concerned about getting the clothes they wear to school dirty or damaged, ask parents to supply a set of old clothes the children can wear so there is no worry as they go outside to explore mud, dig in the ground, play in the water, walk in the woods, and so forth.

Materials and equipment. In small-group activities outdoors, you can provide children with opportunities to explore nature and record their findings using magnifying glasses, tape measures, rulers, paper, colored pencils, crayons or markers, clipboards, and binoculars. These can be put in a cloth bag or backpack and can be carried by the children. The bags can also be used to collect items. Children can then use these materials if they wish during free play at outside time.

You can also provide children with additional opportunities to explore nature on their own or as part of small-group activities by placing equipment such as bird feeders and/or bird-houses, thermometers, and rain gauges in your outdoor area. Plant native plants as the children become familiar with their surroundings.



By tending plants indoors, teachers and children learn about plant life cycles as they observe and talk about changes as the plants grow.



Transitioning between school and home, this parent shares a moment on the playground with his child at departure time.

For some specific ideas for small-group nature activities to do with children, see this issue's Classroom Hints article. For additional ideas, see the environmental action kit developed by the World Forum Nature Action Collaborative for Children (2010; www.worldforumfoundation.org).

Print resources for children. Using books as resources can help motivate children's exploration of nature. The National Wildlife Federation (<http://www.nwf.org>), has a wonderful magazine for children ages 2–4 called *Animal Babies*. Many books that children enjoy (e.g., *Rosie's Walk*, by Pat Hutchins, *The Snowy Day*, by Ezra Jack Keats, *Bringing the Rain to Kapiti Plain*, by Verna Ardema, or a book on dinosaurs) portray a variety of outdoor settings and the creatures that live there. As you read these books with children, listen to their observations as you turn each page, explore and support their interest in a particular subject, and think about other books or materials you might add to the classroom.

Providing children with informational books on nature can stimulate their interest. Field guides and books with large pictures of plants, bugs, flowers, and charts of local plants and animals can also motivate children to identify what they are seeing as they relate to nature. In addition, books that explore environments from around the world are fascinating to children and stimulate their imagination.

Field Trips. Field trips can provide another opportunity for children to explore nature outdoors, whether it's a walk around the neighborhood or a drive to a garden, orchard, or farm. Whatever it might be, be sure to plan trips based on children's interests and use follow-up activities to build on the children's experiences during the field trip. For example, after a visit to a local farm, children may wish to draw the animals they saw or shuck the corn they picked. You may also notice ideas from the field trip entering children's pretend play. This gives you further opportunities to scaffold children's learning.

The Home-School Connection

Talk to families about making a commitment to spending time outdoors with their children. Provide them with information about the importance of nature education to children's health. One model you could use is the National Wildlife Federation's program known as "Green Hour." This initiative, begun in 2007, asks for a commitment from families — an hour each day — to go outside with children to explore their natural surroundings. You can provide parents with this information (see www.greenhour.org) and suggest they participate with their children in a daily or weekly "green" period of time outdoors.

Encourage parents to participate on field trips (or to take family trips) to city parks, community gardens, arboretums, botanical gardens, farms, orchards, public gardens, national parks, beaches, tidal pools, indoor or outdoor butterfly habitats, aquariums, nature



Ann S. Epstein, PhD, is Senior Director of Curriculum Development at HighScope and is the author or coauthor of numerous research and curriculum publications, including *The Intentional Teacher: Choosing the Best Strategies for Young Children's Learning* (published by the National Association for the Education of Young Children).



Debbie Handler has worked in the field of early childhood education for the past 37 years. She has been a HighScope consultant and representative for the state of Texas for over 20 years. She has conducted teacher trainings and workshops throughout the United States and Internationally.

trails, and similar destinations. The interactions they share with their children on these trips will not only stimulate follow-up conversation, they may also lead to more experiences of nature together!

• • •

Each teacher's unique range of knowledge and interests will provide innumerable opportunities for introducing children to the wonders of nature. More important — we may be the primary link by which some children are introduced to the natural world and their place in it. What greater gift could there be to transform the life of a child?

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CLASSROOM HINTS

Nature Activities for Preschoolers

BY DEBBIE HANDLER AND ANN S. EPSTEIN

The possibilities are nearly endless when it comes to nature activities that will involve children's minds and bodies. This article will give you ideas for nature observations, nature hunts, gardening with children, activities to do inside the classroom, and resource conservation activities.







Nature Observations

Being outside allows children to use all their senses. The set of activities described below will encourage children to experience nature using sight, sound, touch, smell, and taste.



Sight. Before children go outside, ask them what they might see. Chart their responses by listing their name (or letter link) together with pictures and words representing their ideas.

Provide children with paper, clipboards, and pencils or crayons so

| What we might see outside | |
|---|---|
| Debbie  | ant  |
| Rick  | bird  |
| Moya  | flower  |

they can draw or write (using scribbles, letters, or words) what they see. Photograph what they find and write or record what the children say as they begin exploring. Give each child a resealable bag in which he or she can collect nature specimens to explore back in the classroom.

You can also give children a sheet of self-adhesive paper used for labels (remove the back from the sticky part) and

let the children stick items to their paper. Have a conversation with children about what sorts of things they might want to put in the bag or stick on the paper. Remind them that living creatures and plants should be left alone to grow. Insect catchers can be purchased in stores and used by children to observe insects before releasing them back outside.

Make your own collection too. You will not only find things that the children have overlooked, you will also ensure that there are sufficient materials to use for the small-group time you have in mind.

As part of your small-group time, make sure that each child has paper, glue or glue sticks, tape, and the materials he or she collected. Some of the children may want to sort their collections and you may be surprised at the reasons behind their decision to sort in a particular way. For example:

Ella said, "Look Amber, the green things are here, the brown things are over there, the tan things are there, and there is one red berry."

Christopher pointed to his two piles and said, "Plants and bugs."

Some children may be interested in investigating their objects in more detail. This provides you with an opportunity to offer gentle extensions by describing an object. You might also introduce particular vocabulary words to name objects or label their characteristics (e.g., *stem, berry, root, seed pod, feather*).



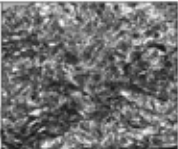
Make a book from the pictures of what the children find, and/or their actual specimens, and include their comments. You'll be on the way to your first classroom nature book. Title it something like "Our Nature Exploration" (or ask the children to suggest a title) and put it in the book area where the children can refer to it and show it to their families.

Sound. Many children love to make noise when they go outside. If you have noticed this among your group of children, one activity you might try is putting together a "sound wall" — a collection of sound-making items that children can freely explore by striking with different types of objects. You can do this on a fence, the side of a storage shed, or other outdoor space where children can swing their arms freely without hitting anyone or anything. For example, you might create the sound wall with pots and pans, metal lids, metal tubing, different types of percussion instruments, and anything else you think would make an interesting sound. Be sure to include natural items you might find in your local area, such as dried gourds or extra-thick shells.

For "mallets" you can supply drumsticks; metal, plastic, or wooden silverware; chopsticks; pieces of bamboo or other stalks; and other items. Fallen twigs with dried leaves, tufted grasses, and other natural materials also make interesting sounds when brushed or stroked on different surfaces. Children will experiment with making different sounds by hitting or stroking the hanging items with dif-

ferent mallets, and you may even begin noticing them predicting the types of sounds that different objects will make. And they will have fun!

Touch. Nature provides many different textures that can be explored in small-group activities. You might first have one large-group-time activity that takes place outside, in which children explore and collect different items (stones, bark, sticks, nuts, shells, leaves, pinecones, etc.). You can even do this in the form of a scavenger hunt, with children searching for items with particular colors, shapes, or other characteristics. Then, for small-group time on a different day, have children explore the different textures of the entire collection. Record their responses on a chart like the one below.

| | | | |
|----------|---|---|---|
| |  |  |  |
| Jacob | soft | | noisy |
| Tania | like Lamby | Owl Prickery | |
| Kathleen | soft | Prickles, very rough | shiny, rough |
| Doug | A cloud | | pizza |
| Freddie | fluffy, soft | bumpy, sticky | rough |

Smell and taste. If you live in a warm climate or have a summer program, planting a flower and vegetable garden is a wonderful way to get children actively involved outdoors and encourage them to explore nature. Taking care of the garden — appreciating that plants need light and water to grow — also helps children develop empathy for living things and take responsibility for the environment (see lead article).

Plant flowers and vegetables that are hardy and grow quickly so children can see concrete evidence of their efforts. Encourage them to smell the moist earth as well as the flowers and vegetables growing in it. As the vegetables become ready to eat, pick them with the children and prepare them for snacktime and lunch. Listen to the children's comments as they eat the fruits of their labors. Do they notice appearance? Texture? Smell? Taste? Possibly even sound? As with the other nature activities, take photos, write down children's comments, and create a book. Invite parents to help in the class garden and/or to share food from their home gardens. Invite families to join in a class feast! (For more ideas on exploring plant growth and soil, see "Gardening" below.)

Gardening

Gardening with children is a wonderful way to engage children with nature. Not only does it provide opportunities for watching things grow and for learning what plants need to thrive, it also allows children to explore the properties of different types of soil.

Planting a garden. Plan and plant a vegetable, flower, or butterfly garden with the children to teach them how plants grow. Alternatively, locate a garden in your neighborhood and take the children on a field trip to explore it. Visit it regularly so they observe changes in the growth and appearance of the plants. (Be sure to let the individual or group cultivating the garden know of your plans. Most people are proud of their gardens and happy to have appreciative observers.)

If you plant seeds with the children, discuss the amazing transformation the seeds undergo in becoming living plants. As the garden begins to grow, look closely at the plants with the children (their size, shape, texture, and so on) and comment on interesting features of the garden or how the plants have changed since the last time you were outdoors.

Exploring soil. Also have a place where the children can dig in the dirt and not worry about disturbing plants. Look at the soil with the children to see what it consists of. Is there life in the soil? Use a magnifying glass to help children see the small insects in the dirt. Provide the children with tools such as child-sized rakes, hoes, shovels, and gloves. Also have pots or containers available for the children to explore, play with, and use for planting.

Before you begin to plan your outside garden, you can put soil in your water

or sand table to let the children begin exploring dirt. You might want to add earthworms to the dirt. Have small gardening tools and children's

gardening gloves available near the dirt. Also provide resources such as books, posters, and pictures of garden plants, butterflies, vegetables, and the like, for the children to look at.



Gardening Tips

- * Herb gardens are a great way to engage children's senses as they learn about the life cycles of plants. Invite children to touch, smell, and taste the herbs you grow with them.
- * Creating a butterfly garden with plants that attract butterflies is always a favorite with children.
- * If you do not have enough space for a garden, plants can be planted in buckets with the same result.

Nature Inside the Classroom

Creating natural spaces inside the classroom is a wonderful way to provide opportunities for children to learn about and value the natural world. Having animals, fish, plants, or insects in the classroom will capture children's love for nature.

Adopting a class pet. Adopting a class pet lets children observe animals firsthand and learn how to care for them. Before undertaking this option, make sure you and/or the children's families are willing to be responsible for caring for the animal during holidays and vacations. See if families or the local animal shelter has low-maintenance pets for adoption. You can also conduct a fundraising activity to adopt an animal for the classroom. This can be done through some local zoos or through the World Wildlife Fund, <http://www.worldwildlife.org/home>. Often, a picture of the adopted animal with a certification of adoption is sent to the classroom.

Raising silkworms. Silkworms can be an exciting addition to the classroom. You can find numerous sources for purchasing silkworm eggs online. As the silkworms spin their cocoons, you can see the silk of the silkworms. The moth emerges from the cocoon about 21 days later. The moth then lays eggs about two days after emerging from the cocoon. The silkworms eat fresh mulberry leaves. If these are not available in your area, artificial food can be purchased online as well.

Planting seeds. The children can plant fast-growing seeds indoors to watch plants germinate and grow. Plant them near a

south-facing window or under a grow light, to maximize growing conditions. You can fill a plastic basin or empty food containers with potting soil and plant ryegrass, birdseed, string beans, or other species that grow quickly. The children can pull a plant once it is tall and see the roots, stem, and leaves. You can also put seeds on sponges and watch the seeds sprout. You might consider buying edible sprouting seeds, such as alfalfa, sprout them in the classroom, and later include them in a salad that can be made at small-group time.



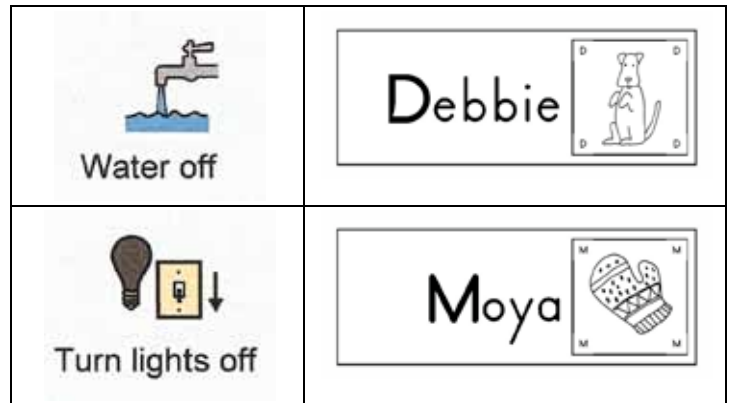
Watching silkworms turn into moths, seeds grow into plants, or tadpoles turn into frogs teaches children about life cycles. As they make their observations, the children can also draw in journals and take pictures of the changes they see taking place.

Other ideas. Place digital pictures of flowers, birds, insects, rocks, squirrels, trees, and so forth around the classroom at children's eye level. Items that the children actually saw or photographed will remind them of the world outside. You can also put a prism in the class window to explore the colors of a rainbow.

Conservation Activities

Recycling. Young children love to sort things, and recycling supports this activity while providing opportunities to learn about making good use of limited resources. Help the children make signs for the school trash cans and help start a recycling program. Signs for paper, metal, and plastic can include pictures (drawings and photos), objects, and/or words. Children might also choose to put up signs displaying familiar phrases about recycling they have seen in their community (e.g., signs reminding people to “reduce, reuse, recycle”). Local recycling organizations also might make signs available for free.

Saving energy and water. Young children can understand the idea of scarcity if it is made concrete to them. For example, they have experiences with a limited number of certain items in the classroom (e.g., there are only two computers) or materials running out (e.g., all the large blocks have been used). You can build on this awareness to help children begin to understand the importance of conserving things that are meaningful and useful to them. On a helper chart, during greeting time, use letter links to identify a helper



for switching the lights off and checking that the water is completely off and not dripping.

Providing these and other activities that you think of will ensure that children develop a connection with nature and have many key learning experiences in the process!

SPECIAL EDUCATION

Preschoolers and Nature — Snug as a Bug in a Rug

BY JAN DOWLING, HIGHSCOPE FIELD CONSULTANT AND SPEECH LANGUAGE PATHOLOGIST, ALPINE SCHOOL DISTRICT, AMERICAN FORK, UTAH

Children and nature — does it get any better than that? With the current emphasis on reading, math, and science I am elated that there is renewed interest in nature experiences for preschoolers. Oh, wait... reading, math, and science learning take place in nature too! This makes nature education even more important — a great match for preschoolers, and just plain enjoyable for both children and adults! And, as we think about accommodations for children with special needs, we see that the fit is perfect — “snug as a bug in a rug,” if you will.

Preschoolers and nature education go hand-in-hand for a number of reasons. Young children are endlessly curious, relatively unafraid and unbiased, and nature is something that preschoolers can experience directly. Their brains are wired to learn about nature as they construct knowledge through sensory-motor and concrete experiences. They are even built for it; they are closer to the ground than we are.

Natural settings also offer cause-and-effect experiences and opportunities to explore and manipulate items. All of these things, and more, facilitate children’s construction of new knowledge. Our task is to watch the children and help them understand their experiences, learn through nature, and respect and enjoy the natural environment. These concepts are the same for children with special needs.

In the remainder of this article we will talk about how, with a few accommodations and thoughtful planning on the part of adults, children with special needs can enjoy, participate in, and learn about nature.



Prioritizing Children’s Safety and Comfort

As with many activities, safety is the first consideration. Our preschoolers with special needs are often still in the sensory-motor stage of development and therefore likely to put objects in their mouths. Or we may have a child in our classroom who has a tendency to dart away from the group without warning. Some of our children do not have the typical fears (e.g., of heights, animals, or people they don’t

know) that act as a warning and serve to protect them. And we have children with motor concerns for whom balancing their bodies or using mobility equipment on uneven surfaces can be problematic.

Together with the members of your teaching team, being aware of each child’s needs and planning the location of each classroom adult prior to a given activity lessens the likelihood of a problem. Plan beforehand who will be watching for what type of situation. Clearly state your concern for the children to each team member so each knows his or her role (e.g., “Jenny will take the children one by one across the little foot bridge. Sam will wait with those who haven’t yet crossed, and be on the lookout for leaves they might grab or put in their mouths. Maybe if they were singing ‘The Leaf Song’ it would keep them — and their mouths — occupied! And Delia will greet the children on the other side. What can she do to keep them busy and interested while the others finish crossing the bridge?”).

But remind team members to intervene only when necessary, to allow children to work and play as independently as possible, while still being ready to help if necessary. Research materials and equipment that will support this independence. For example, compare how easily wheelchairs and walkers can navigate a trail surfaced with wood chips, gravel, grass, or pavement.

Using Nature to Support Children With Special Needs

Nature offers a number of learning opportunities for children with special needs. For example, some of our children may be sensitive to tactile input. Oftentimes, however, children who resist many textures in the classroom are more open to a variety of textures outside. They can experience tactile sensations on their own terms, based on their own interests. Still, some may have reservations about touching things. For those children, you can provide tools that allow them to participate in activities; for example, tongs for picking things up, or a child-sized rake for exploring textures, movement, and natural objects. Even gloves can be a supportive way for children to explore and become more comfortable with new objects, activities, and sensations. As children sense their control and become comfortable exploring on their own, they will become more likely to touch things with their bare hands.

Some in your class may have mobility concerns. Some will still be learning to walk, have balance concerns, or be in a wheelchair. While there are many ways to experience nature in a wheelchair, it is important to help all children in your class be able to access activities (your planned activities as well as their own) in all ways. Provide

a variety of activities for less mobile and nonmobile children. Find ways for all children to explore and experience nature.

For example, focus on plants that can be seen, touched, or smelled without one's having to bend down. Plant gardens in tall containers and raised beds. Encourage all the children to sit or lie down and look up at the sky to watch and talk about cloud formations. Feel the wind or moisture in the air brush up against the skin. Listen to the sound of rustling leaves or bird calls.

Physical limitations may prevent children from having some outdoor sensory experiences (such as seeing what plants or animals look like). However, these challenges also present opportunities to think of alternative sensory experiences (such as listening carefully or gently stroking things). Encourage children to share their experiences with one another. For example, a child in a wheelchair may not be able to collect shells or stones, but those who are able to can assemble and share their collections on that child's wheelchair tray or pick up items the child asks them to. Ask a child who can see to describe a plant or creature to one who can't. Do the same with the sounds of nature. In these ways, you can support both children's communication skills and social interactions.

Bringing Nature Into the Classroom

Don't hesitate to bring nature into your classroom. One teacher, noticing the children's interest in worms on the sidewalk after a rainstorm, brought the worms into the class. She put butcher paper on a table, added a variety of materials such as grass clippings, dirt, and a little water so the children could observe the worms interacting with these materials. The teacher then got out magnifying glasses. After a while she explained to the children that it would be harmful to the worms to keep them in the room so they gently scooped them into paper cups and took them back outside. I was particularly impressed that a child named Emanuel, though not very verbal and typically very inflexible and demanding, wanted to continue playing with the worms. Yet he understood when Ms. Jean explained that we didn't want the worms to get hurt. His demeanor calmed as they gently took the worms back outside and the teacher explained that he would be able to continue observing them there — especially after it rained again!

Activity Planning

Be flexible with time and activities when planning for children with special needs. You may decide to shorten or lengthen activity times to match the children's interest levels or you might repeat or expand upon an activity over successive days. One day Ms. Kathy took her class out with tools and magnifying glasses to explore in the leaves and turn over rocks to look at bugs. Her class became so interested in the seedpods that, after school, she gathered a number of them up and took them into her class so the children could investigate them

for many days after that. The children noticed and described more of their characteristics, made "soup" with them in the house area, shook them while they moved to music at large-group time, and explored and experienced the seedpods in myriad ways.

There are children for whom the unstructured environment of the outdoors seems to bring out the most challenging aspects of their temperament. Be prepared to support these children by planning to offer safe but realistic and nondisruptive choices.

For instance, you may have planned an activity outside in which children experiment with how different items the children have found, such as leaves, pinecones, rocks, and such, float in water. Experience has taught you that James often dumps, pours, or even throws water. You want to give him the opportunity to participate but you don't want him throwing water at the other children. You could have some of his favorite things available to try floating in the water or, depending on his needs and level, you might support him by giving him the choice of placing things in the water or safely throwing water in an area apart from but in sight of where the other children are experimenting with floating objects. You can also allow him to do an activity outdoors that he enjoys doing indoors. You might consider having his favorite adult stand next to him to support and encourage his play and exploration.

Also be sure to plan transitions. Provide structure by using familiar warning signals that indicate that an activity is drawing to a close. For instance, if you use a chime in the classroom to signal a change or a five-minute warning, take the chime outside with you. When possible, plan a natural way to bring the activity to a close, such as cleaning up or putting things away.

As you plan activities, also keep in mind that nature provides wonderful opportunities for rich language experiences. Match your language level to that of your children as you scaffold vocabulary and sentence length a bit. Use adjectives (*cold, wet, rough, long, slimy*), verbs (*running, flying, scurrying*), comparison words (*longer, more*), and ask authentic questions ("Why do you suppose it has such long legs? Does the way it feels remind you of anything else?"). Refer the children to other children to build social language skills.

• • •

As you experience the natural world with children, remember to take joy in nature yourself. Express your enthusiasm to the children. Observe nature and observe your children in nature. Soon you will be doing what comes naturally!



Jan Dowling is a HighScope field consultant. She works as a speech-language pathologist for the Alpine School District in American Fork, Utah, where she specializes in work with preschool children with special needs. She co-authored the book *I Belong, an Active Learning Approach to Educating Young Children With Special Needs* (HighScope Press).

TRAINER-TO-TRAINER

The Great Outdoors: It's Not Just Nature, It's a Necessity!

BY POLLY NEILL, HIGHSCOPE EARLY CHILDHOOD SPECIALIST

This 90-minute workshop is designed to encourage teachers to take advantage of the outside spaces available to them. The objectives of this workshop are to enable participants to (1) state why it is important for children to be exposed to nature; (2) discuss some of the things children do outside; and (3) identify how children's outside activities might relate to the key developmental indicators (KDIs). You should plan on holding this workshop outside, weather permitting, so find out ahead of time what kind of space you will be using — and be prepared. Possible locations include botanical gardens, a wooded picnic area, or a beach, stream, nature trail, or rock formation. If there is no onsite sitting area, bring blankets or lightweight folding chairs.

What You'll Need: KDI lists; two-sided handout (created from shaded box in feature article titled “Research Findings on the Benefits of the Outdoors for Children” and the box in this article titled “A Kindergarten Child Must Experience”; chart paper, easel, and markers (Central Ideas and Practice); latex gloves and something for participants to hold their nature samples in (buckets, baskets, boxes, bags; Central Ideas and Practice)

Opening Activity

(30 minutes)

1. Ask the participants to spend 10 minutes exploring the surroundings.
2. In small groups, have participants discuss how they felt when they learned that this workshop was going to be outside.
3. As a whole group, discuss the following questions:
 - What experiences might you have outside that will be different from those you might have had in a training room? List on chart paper.
 - Do you think children have different experiences inside and outside? If so, what are they? List on chart paper.

Central Ideas and Practice

(40 minutes)

4. Pose the question “Why is it so important for children to be exposed to nature?”
Discuss the following points with participants:
 - To provide opportunities for child-initiated, unstructured play.
 - To provide an alternative to the over-stimulating, frequently materialistic, and/or violent world of electronic media that surrounds them.

- To support young children's inborn connection to nature, before they outgrow it or learn to see the outdoors as something strange and frightening.
- To invite imaginary, exploratory play — an important ingredient of healthy child development.

5. Read the handout titled “Research Findings on the Benefits of the Outdoors for Children” (see “What You'll Need” at the top of this article). In their small groups, have participants discuss what they learned and what might have surprised them. Discuss these points with the whole group.

6. Ask “What do children do outside?”

When children have the opportunity to be outdoors, particularly in a variety of landscapes (long and short grasses, large rocks/ boulders and logs, bushes or hedges, trees, in a stream or mud puddle, etc.) they are presented with an endless number of things to observe, question, and discover. In small groups, have participants draw up a list of some of the things children do when they are outside. Discuss as a whole group. List ideas on chart paper:

Children...

- | | | | |
|----------|---------|---------|---------|
| • Run | • Walk | • Roll | • Slide |
| • Throw | • Kick | • Pedal | • Dig |
| • Catch | • Taste | • Smell | • Build |
| • Listen | • Sing | • Climb | • Touch |
| • Feel | | | |

Have participants look over the other side of the handout, titled “A Kindergarten Child Must Experience...” and discuss it in their small groups. Ask, “What do you think? Does anything on the list shock you?”

7. Find the KDIs in nature.
 - Pass out latex gloves and collection containers to participants. Ask participants to go off and, without harming anything, select three items from nature — for example, a bug, a rock, a leaf, some dirt, a piece of long grass, or a description of a bird's nest they saw (have them just describe it so they don't disturb the nest). Ask participants to bring the items back and combine them with the items chosen by the other members of their small group.

“A Kindergarten Child Must Experience:”¹

Early childhood educators with the Green Kindergartens in Denmark developed the following list of 52 things a child must experience before reaching age six:

- Climbing trees
- Playing in tall grass
- Jumping in puddles
- Falling into the water
- Walking on bare feet in the snow
- Climbing up to a level where they cannot come down on their own*
- Seeing a tadpole become a frog*
- Eating from nature
- Swinging on a rope
- Hearing a bird sing*
- Rolling down a hill
- Building dens
- Tasting the soil and the sand
- Getting muddy and being hosed off*
- Bathing in the rain
- Fishing*
- Building dams in rivers
- Flying kites
- Sledding*
- Hearing the sounds of the forest and the ocean*
- Smelling the scent of the forest floor*
- Smelling the scent of rain*
- Encountering life and death*
- Hearing amazing stories from the wild*
- Being in all kinds of weather*
- Exploring the beach, a forest, a field, and a meadow*
- Encountering ice on puddles*
- Holding a fish or other creature

*Items slightly altered to make the translation clearer

¹Adapted from Neblong, H. (2009, November/December). Trees, grass, and the sounds of the forest. Wonder: *The Bimonthly Newsletter of the Nature Action Collaborative for Children*. 1(2). Retrieved 14 January, 2011, from http://www.worldforumfoundation.org/wf/nacc/pdf/Wonder_Nov09.pdf

- Once participants have a variety of items, ask them to think of an outdoor play idea children might initiate that would incorporate one or more of the materials. Have them identify the KDI category or categories the children would be engaged with.
- Ask them to try to cover as many of the KDI categories as possible.
- Discuss the ideas from the different small groups as a whole group.

Application Activity

(10 minutes)

8. Introduce more nature to your outdoor play space.

Ask participants to work in teaching teams to think about the ways their children currently use their outside play space and then come up with some ideas for adding more “nature” to it. Prompts for those who are stuck:

- Is there a low spot that often collects water and always attracts the children? How could you make this more permanent?
- Are there bushes or hedges that could be trimmed in such a

way that would invite a variety of pretend play?

- Are there any tall grasses? These are cheap and easy to plant, and they offer a wealth of play opportunities. Three or four buckets of tall grass clustered together, even in a small urban space, not only soften the area but also introduce new play possibilities.
- Are there areas for plants (in the soil or in buckets) that make sounds (e.g., rustling leaves) or add smells (e.g., herbs) to the play space?
- Is there a place for children to dig in the dirt (other than a sand box) and explore different types of soil?
- Are there stumps, logs (staked so they won’t roll), or boulders for children to climb on and jump from?

Implementation Plan

(10 minutes)

9. Ask participants to think about what they have learned today and to write down two ways they will try incorporating nature and the outdoors into their daily routine. And be sure to remind them that “the world is mud-lucious...puddle-wonderful” (e.e. cummings, from “Chansons Innocentes: I”)!

[Click here for entire newsletter](#)

NEWS BRIEFS

Michigan Leaders Convene at HighScope

Michigan's investment in young children must be a top priority — this was the conclusion of a group of more than two dozen Michigan legislative and business leaders who gathered at HighScope's Ypsilanti headquarters on Monday, March 21. It was sponsored by HighScope, Michigan's Children, The Center for Michigan, and the Early Childhood Investment Corporation of Michigan.

The event included presentations by early childhood experts giving evidence that investment in early childhood education is key to building an educated and skilled workforce for Michigan. "The first days, weeks, and years of a child's life are critical learning periods," Jack Kresnak, president and CEO of Michigan's Children, told the group. "From an educational and economic viewpoint, we all benefit by seizing this period to optimize learning and later earnings."

Dr. Larry Schweinhart, HighScope president and lead researcher and author of the ground-breaking Perry Preschool study, said that such investments are particularly important during difficult economic times "when families are struggling most and public expenditures must be on programs and services proven to work and yield high returns."

[Click here to get the full press release from the event.](#)

2011 HighScope International Conference

Don't miss this popular annual event! **"Better Together: Working in Partnership to Help Children Succeed"**

will take place in Ypsilanti, Michigan, May 4 to 6, 2011. [Click here](#) for more information, including a preview of topics, speaker bios, schedule information, and more!

Help support the HighScope Demonstration Preschool by participating in our **silent auction!** Our Demonstration Preschool is many things: a laboratory for new ideas and teaching tools, a resource for HighScope educational videos, a high-quality neighborhood preschool, and a training venue for teachers from around the world. One of the highlights of the 2011 conference will be a silent auction to benefit this remarkable resource. Whether or not you plan to attend, please consider donating an item or asking a local business to contribute merchandise or gift certificates for the auction. All proceeds will go to the Demonstration Preschool fund.

You can help by bringing an item that is special or identifiable to your home community, city, state, or country to be auctioned

ASK US

BY POLLY NEILL

We use the local park for our playground, and we take the children twice a day. It has the typical playground equipment, and the parks department lets us use a shed to store trikes, other wheeled vehicles, balls, pails, shovels, etc. But how do we introduce our children to nature when we are surrounded by sirens, horns honking, and bells ringing?

— An urban preschool teacher

Just because you are in a city, doesn't mean that you don't have access to nature. Look for nature on your walks with children to and from the park. For example, there may be trees planted along the sidewalk, or small garden plots or flower boxes outside the houses. Listen for birds, look up at the clouds, look at the shadows made by the sun, or check out the texture of liquid and frozen puddles. Look for worms on the pavement after it rains.

Once at the park, encourage the children to explore the park and see what they discover. Did they find a variety of pinecones? Or some acorns or chestnuts? Perhaps they found a feather. Ask the parks department staff



if they could find an out-of-the-way corner that would be suitable for hole digging and mud making. You may have to help those adults understand that digging in the dirt produces different experiences for children than does playing in a sandbox. Often city parks have large groupings of tall grasses (in the right climate it could be bamboo) because they are cheap and hardy. Since they are usually taller than most preschoolers, these grasses can become forests, jungles, castles, swamps — anything children can imagine. You may be surprised how readily the children will leave the horns and sirens of the city behind when they engage their imagination with the natural world. At the same time, when children become familiar with some of the things that grow out of the earth and grow and crawl under the earth, they are more likely to develop respect for the earth and its living creatures, and thus are more likely to become future protectors of the earth.

NEWS BRIEFS CONT.

off. Items should be brand new and have a retail value of \$20.00–\$150.00. Donations are tax deductible.

It's easy to participate! Please e-mail Marianne McDonnell at mmcdonnell@highscope.org to let her know you plan to provide an item to donate to the auction. Simply bring the item with you to the conference and drop it off at the HighScope registration desk when you arrive. Or, if you are not able to attend this year and still want to help, please send your item to arrive by April 19 to:

Marianne McDonnell, Conference Manager, HighScope Foundation, 600 North River Street, Ypsilanti, MI 48198

The auction will run from Wednesday at 8:00 a.m. to Thursday at 3:00 p.m. during the conference, with winning bids announced at 4:00 p.m. prior to the Thursday evening folk dance — you must be present to win. More information will be provided in the conference program.

National Head Start Association (NHSA) 2011 Conference

Look for us at the annual NHSA conference, April 5–8, in Kansas City, Missouri. Stop by HighScope's booth, number 306, and receive a gift!

Coming Soon...Online PQA!

We are working diligently to get HighScope's Preschool Program Quality Assessment (PQA) into an online format. It will be ready soon...keep an eye out for coming announcements on this convenient new delivery system for the PQA!

[Click here for entire newsletter](#)