Natural Wonders

A Guide to Early Childhood for Environmental Educators

Created by the Minnesota Early Childhood Environmental Education Consortium

Marcie Oltman, Editor

Natural Wonders

A Guide to Early Childhood for Environmental Educators

Created by the Minnesota Early Childhood
Environmental Education Consortium

Editor

Marcie Oltman
Minnesota Children's Museum

Contributors

Jenny Eckman
Tri District Community Cultures/
Environmental Science School

Sandra Hudson
Tamarack Nature Center

Mark Granlund
Como Park Zoo & Conservatory

Julie Powers
Dodge Nature Preschool

April Rust
Project WET/MN
Department of Natural Resources

Nikki Schneider
Dodge Nature Center

Design/Layout

Nora L. Koch
Gravel Pit Publications

Copy Editor

Mary Kate Boylan
Indigo Ink Communications

Illustrator

Peter Quinlan

Cover Design

Tara Lundborg

This project would not have been possible without the generous funding
provided by the Minnesota Office of Environmental Assistance.

To request additional copies and alternative formats, contact—

Minnesota Children's Museum
10 W. 7th St.
St. Paul, MN 55102
651-225-6001
651-225-6006 (fax)

Clearinghouse Coordinator
Minnesota Office of Environmental Assistance
520 Lafayette Rd N Floor 2
St. Paul, MN 55155-4100
651-215-0232
651-215-0246 (fax)
800-877-6300 (toll free)

Printed on paper with 50% total recycled fiber and 20% post-consumer waste.

Contents

About this Guide

Environmental education organizations and other informal education venues have recently recognized the need to provide specialized programming for infants, toddlers, preschoolers and their families. Likewise, record numbers of parents, daycare providers and early childhood educators have begun seeking out nature centers, zoos and museums as places to help their not-yet school-aged children learn, grow and develop an appreciation of and love for nature. On the surface, it's a match made in heaven. However, unlike teachers in the formal school system who specialize in certain age groups, informal educators have to be ready and able to provide dynamic, interesting, relevant and appropriate programs for all ages—from preschool to senior citizens—often at a moment's notice.

While this kind of versatility is necessary, it can lead to one-size-fits-all programming that leaves preschoolers behind. But the more we learn about the brain and how experience affects growth and development, the more we see the need to specialize our approach to educating young children. Thanks to educators and researchers like Rousseau, Piaget, Froebel and Montessori, we've known for decades that children are not just smaller versions of adults, nor are preschoolers smaller versions of school-aged children. From years of research and practice, we know that very young children—infants, toddlers and preschoolers—are fundamentally different than older children and need to be taught in fundamentally different ways.

Since the late 1980's, the National Association for the Education of Young Children (NAEYC) has led the way in defining what those ways are. This information has been available to early childhood educators for years, but has not been translated for use in environmental educational settings—until now.

This guide was written especially for naturalists and environmental educators who are interested in learning more about how and why young children think and act and how they can use this information to design developmentally appropriate programs and activities. However, it is not intended to be a recipe book. You won't find a prescribed method for teaching about maple syruping or pond study. Although we do provide guidelines on what makes a program or activity developmentally appropriate, we recognize that everyone's situation is different and allow for as much flexibility as possible.

How to use this guide

The sections of this guide become progressively more practical and specific—from understanding the basics of how young children think to evaluating the developmental appropriateness of programs and everything in between. Each section contains specific topics that explain in greater detail the elements of child development and what it means to facilitate young children's learning.

At the end of each topic, a chart is provided detailing information and examples of most appropriate, somewhat appropriate or least appropriate practices associated with those topics. We have provided this chart as a gauge educators can use to identify where their teaching methods currently are on the developmentally appropriate continuum and what they can change about their methods to make them more developmentally appropriate. No one is developmentally appropriate 100 percent of the time. But if you challenge yourself to keep progressing along the continuum, you'll find it becomes easier and more rewarding for you and the children.

Practicing developmentally appropriate education is a constant and evolving process. Even veteran early childhood educators must evaluate their practices on a regular basis and adapt them to changing situations and children. The best way to evaluate your programs for developmental appropriateness is by being an active learner yourself—experiment, explore, seek questions and answers, test theories and invent new ways of approaching learning.

And don't forget to have fun!

Acknowledgements

This guide is the culmination of a two-year project of the Minnesota Early Childhood Environmental Education Consortium with generous funding from the Minnesota Office of Environmental Assistance. The authors would like to gratefully acknowledge everyone involved in the project and the creation of this guide.

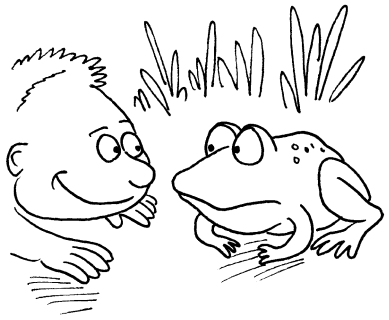
To the sponsoring organizations that offered support, meeting space and in-kind financial assistance: Minnesota Children's Museum, Tamarack Nature Center, Ramsey County Parks and Recreation, Como Zoo and Conservatory, City of St. Paul, Dodge Nature Center, Dodge Nature Preschool, Tri District Community Cultures/Environmental Science School, Project WET, Minnesota Department of Natural Resources, Duluth Aquarium, Ney Environmental Center, Moorhead State University Regional Science Center, Quarry Hill Nature Center and the Minnesota Office of Environmental Assistance.

To the individuals who supported the project by contributing ideas, time, expertise and encouragement: Karen Stimpson, Myra Smisek, Jeff Ledermann, Kelly Finnerty, Bekah Stendahl, Joey Schoen, Kathleen Mountain, Barb Poblete, Michelle Blodgett, Sheila Williams Ridge, Dave Metzen, Sarah Sivright, Jim Roe, Ken Finch, Kelly Osborn, and Mark Hoffman.

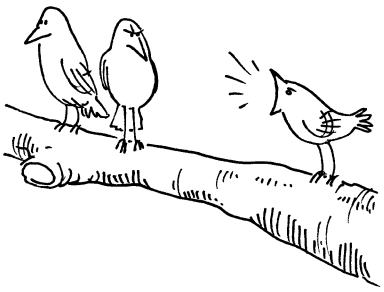
To the individuals who served as reviewers of early drafts of the guide and provided valuable feedback and editorial comments: Mary Adams, Michelle Anderson, Patti Bailie, Helen Bartee, Cheryl Bauer, Arta Cheney, Kathleen Cohen, Jenna Daire, Sandra Gavin, Judy Gibbs, Beth Girard, Paige Guetter, Jen Hagen, Karrie Holler, Margie Jones, Michelle Kelly, Louie Kolberg, Shelly Lewis, Corinne Lines, Elaine Loranz, Christine Lukes, Becky McConnell, Lori Olson, Jennifer Perry, Becky Rosendahl, Pat Rummenie, Kim Schilla, Sue Shockey, Glenn Shoemaker, Bekah Stendahl, Alyssa Szepi, Suzanne Trapp and Terry Wittnebel.

Special thanks to Colleen Schoenecker of the Office of Environmental Assistance and Greg Allen of Minnesota Children's Museum for help and support in managing the project.

And last but not least, to the individuals who patiently worked with naïve writers, met very tight deadlines with grace and good humor and who helped produce this wonderful resource: Nora L. Koch, Mary Kate Boylan, Peter Quinlan and Tara Lundborg.



About the Authors



Marcie Oltman

Marcie Oltman has a bachelor of science in biology from the University of Northern Iowa and a master of science in environmental education and interpretation from the University of Wisconsin-Stevens Point. She is a state-certified early childhood educator with a master of education in early childhood education from the University of Minnesota. An advocate for the inclusion of young children in the environmental education agenda, Marcie has shared her early childhood environmental education expertise with educators in numerous workshops and conferences across the nation since 1987.

Marcie has published articles in the monograph *Environmental Education at the Early Childhood Level, Cooperative Learning*, and *Legacy* and serves as a consultant on exhibit and building design, early childhood environments and early childhood environmental curricula for clients around the country. She is on the board of the Minnesota Association of Environmental Education and an advisor to the Early Childhood Outdoors Institute in Omaha and the Dodge Nature Preschool in West St. Paul, Minnesota. Marcie has worked at Minnesota Children's Museum since 1994 in exhibit and curriculum development, interpretation and as the coordinator for Project GreenStart, the Museum's environmental education initiative for young children.

Mark Granlund

Mark Granlund has been the resident artist at the Como Park Zoo and Conservatory, in St. Paul since 1994 and is currently the arts and community gardening coordinator for St. Paul Parks and Recreation. In this capacity, he coordinates art classes and programs for adults and children, develops and implements public art projects and oversees the more than 80 community gardens in St. Paul's parks. Mark received his masters degree in painting and drawing from Brooklyn College, Brooklyn, New York in 1990 and has exhibited his environmentally-themed art work in New York and throughout the upper-Midwest. He has taught undergraduate art classes at Brooklyn College; Bethel College, Arden Hills, Minnesota; Lakewood Community College, White Bear Lake, Minnesota; and the Vermont Studio Colony, Johnson, Vermont.

Mark owns and operates an environmental consulting business, Green Crayon, and published articles in O*rion Magazine* and the *American Community Garden Association Newsletter*.

April Rust

April Rust earned a bachelor of science in natural resources and environmental studies from the University of Minnesota in 1995. April worked as an intern naturalist at William O'Brien State Park in Minnesota, where she taught seasonally from 1994 to 1997. As part of her master of science in forestry, she studied social forestry programs in Kitui, Kenya through the Minnesota Studies in International Development program. Her master's focus was environmental education and international environmental issues. After graduating in 1998, she developed and established an elementary-level, sustainability-focused environmental curriculum for the nonprofit organization, Full Circle Institute (FCI) in Minneapolis. While working at FCI, April joined the Early Childhood Environmental Education Consortium Project. In 2000, April became the

Minnesota Project WET (Water Education for Teachers) coordinator and was elected in 2002 to serve on the national Project WET council. She continues to be an active environmental educator in Minnesota.

Julie Powers

Julie Powers holds a bachelor of science in child development from the University of Arizona and a master of science in human development with specialization in early childhood and parent and community work from Pacific Oaks College in Pasadena, California. She was the founding director of Dodge Nature Preschool at the Dodge Nature Center in West St. Paul, Minnesota and now serves as a consultant to the program. Julie also serves as a validator for the National Association for the Education of Young Children, making site visits to early childhood programs that are seeking certification. She works as a consultant in the areas of early childhood programming, early childhood environmental education and natural play areas. Julie currently lives in Telluride, Colorado.

Jenny Eckman

Jenny Eckman is a primary, multiage teacher at the Tri-District Community Cultures and Environmental Science Elementary School in Maplewood, Minnesota. She is a national board certified teacher in early childhood education and was named a *Minnesota Teacher of Excellence* in 2001 through the Minnesota Teacher of the Year program.

Jenny has been involved in environmental education with ages birth to adult and was integral in the creation and cultivation of the Tri-District garden program. Her teaching emphasizes making connections between environmental education and multicultural and antibias issues. Before joining the world of elementary education, she spent eight years in the company of young children and their families in various roles including Head Start teacher and home visitor, early childhood educator and work in therapeutic preschools.

Sandra Hudson

Sandra Hudson is a naturalist at the Tamarack Nature Center in Ramsey County, Minnesota, specializing in preschool environmental education. She has also worked as a seasonal naturalist for Wisconsin State Parks and the Dodge Nature Center in West St. Paul, Minnesota. Sandra has a bachelor of science in biology from the University of Wisconsin-River Falls and has done graduate work at Iowa State and the University of Wisconsin-River Falls.

Nikki Schneider

Nikki Schneider has bachelor of science in biology from Stetson University. She is currently working on her master of education in early childhood education at the University of Minnesota. She is a certified trainer in the National Guidelines for Excellence in Environmental Education and the Material Guidelines for Excellence in Environmental Education. Nikki has shared her expertise in the best practices for environmental education at local, state and national conferences since 1995.

Nikki is the current president of the Minnesota Association for Environmental Education and has served on their board since 1999. She is a city-appointed board member for the Lino Lakes Environmental Advisory Board. She also served as the chairperson for the Environmental Education Consortium from 1995 to 1999, creating partnerships between environmental educators and formal teachers to develop age-appropriate curriculum in environmental education. She is the director of education at the Dodge Nature Center, West St. Paul, Minnesota, developing curriculum and coordinating early childhood, elementary and middle school environmental education programs.

Introduction
Reed's Story

Reed, a naturalist at a community nature center planned a presentation on animal homes for a group of three-year-olds and their parents. Reed modified a 60 minute program into a 30 minute one thinking that young children have short attention spans, have trouble staying in one place, like to touch things and have difficulty taking turns. Several activities were to last only a few minutes each. She marked the floor with tape so children would know where to sit, collected real examples of animal homes and eliminated the need for turn-taking by deciding to choose only one child to help her put felt animals in their felt homes. Reed planned to end her program with a hike through the forest in search of real animal homes.

Despite those plans, the program did not go well for Reed, the children or their parents. Distracted by an aquarium and other objects in the room, it took ten minutes to get everyone settled. As soon as she brought out an old hornet's nest, all fifteen children mobbed Reed, eager to get their hands on it. She managed to get everyone back in place by promising to pass the nest around which ended up shredded into pieces. Using only one helper for the felt animal home activity was disastrous as it was accompanied by cries of "I want to do it!" and "When is it my turn?"

The craft activity was no more successful. As Reed carefully explained each step in the craft she noticed that the parents were making the craft while the children stood idly by. Knowing she was running short on time, she herded everyone to the door for the hike. She hurried along the trail, attempting to point out animal homes along the way. The group quickly became spread out, several children needed to go back to the building to the bathroom and the program fizzled out. Needless to say, Reed decided that preschoolers weren't her cup of tea.

The best intentions

Reed is not alone in her experience. We've all been there or done something like it. Thinking we are planning with young children's best interests in mind, we inadvertently plan inappropriate programs based on meeting our needs instead of the children's developmental needs. In Reed's case for example, it seems logical to respond to short attention spans by planning short activities. In reality, this doesn't help children extend their attending abilities and may only exacerbate the problem. *Adults tend to react to the nature of young children by placing limits on individual behavior rather than creating supportive situations where they can freely and actively participate.* By doing so, we may be creating negative experiences with nature instead of the intended positive experiences and making more work for ourselves in the process. Reed made her program choices on deficit-based assumptions (what she thought children couldn't do) instead of on how she, the program and the environment could best support the emerging abilities of her young audience.

Following the guidelines offered in this manual will help you plan appropriate, productive and joyful early childhood environmental education programs. Children will have room and time to play, explore, experiment, run, leap, balance and climb; time to nurture friendships and learn about caring and sharing; and a chance to discover for themselves the beauty and wonders of nature.