



Appendix 3



Schoolyard Ecology Leaders' Handbook

Annotated resource directory

Resource Directory

- [Science Education and Pedagogy](#): Guides and references for science education.
- [Schoolyard/Backyard Ecology Activities](#): Resources and references for schoolyard and backyard ecology.
- [Field Guides for Children](#): Guides made especially for children. Comprehensive and easy to use.
- [Hands-On Science Curricula](#): Nature and science guides and projects for all ages.
- [Field Guides for Adult Learners](#): Nature guides and pamphlets.
- [Ecology & Natural History Resources for Adults](#): Resources for adults - various subjects and topics.
- [Teacher Development Resources](#): Resources for teachers and teacher planning.
- [Resources on Cooperative Learning](#): Accounts of how two-week institutes are spent. What is accomplished and how.
- [Assessment Resources](#): A collection of articles, periodicals, and books on student learning.
- [Resources on Integrating Science](#): Publications on how science interacts with other areas of learning.
- [Agency, Organization Publications](#): Various publications from agencies, organizations and government-related groups.
- [Online Addresses](#): Sites online for environmental, ecology & education information.
- [Science Resource Suppliers](#): Names, addresses, and information on suppliers around the country.

[Top of Page](#) | [Main Appendix List](#) | [Table of Contents](#) | [Help](#) | [About IES](#)
[Search](#) | [Print](#) | [Forums](#) | [Contact Us](#) | [Home](#)

© Institute of Ecosystem Studies 2000, all rights reserved.



Appendix 3



Schoolyard Ecology Leaders' Handbook

Annotated resource directory

Science Education and Pedagogy

Blosser, P. 1991. **How To Ask The Right Questions.** Arlington, VA: The National Science Teachers Association.

This booklet will help you analyze your questioning techniques, classify your questions and improve your questioning behavior.

Brooks, J.G. 1993. **In Search of Understanding: The Case for the Constructivist Classroom.** Alexandria, VA: Association of Supervision and Curriculum Development (ASCD).

This book presents a case for the development of classrooms in which students are encouraged to construct deep understandings of important concepts.

Carey, S. 1993. **Science For All Cultures.** Arlington, VA: National Science Teachers Association.

A collection of articles from NSTA journals. These articles provide a basic understanding of multicultural science education, its scope, and suggestions for using such an approach as an instructional process.

Doris, E. 1991. **Doing What Scientists Do - Children Learn To Investigate Their World.** Portsmouth, NH: Heineman Educational Books, Inc.

Deals with logistics & techniques to manage a classroom that encourages focus and interest, inspires curiosity, & addresses the differing needs of the individual child & teacher.

Duckworth, E., et al. 1990. **Science Education: A Minds-On Approach for the Elementary Years.** Hillsdale, NJ: Lawrence Erlbaum Associates.

Four author's reflections on the problems and issues of teaching science in elementary schools.

Freedman, R. 1994. **Open-Ended Questioning.** Menlo Park, CA: Addison Wesley.

This book gives you a method for writing and using open ended questions and for assessing student responses. Illustrated with examples from many grade levels and subjects.

Funk, H. James. 1985. **Learning Science Process Skills.**

Part One covers skills for pre-school and lower elementary grades. Part Two covers skills for older children, and Part Three covers adaptation of materials, activities, and resources.

Hale, M., Ed. 1993. **Ecology In Education.** Cambridge, MA: Cambridge University Press.

Presents an account of the status, progress, and underlying concepts of ecological education across the globe.

Harlen, W., Ed. 1985. **Primary Science...Taking The Plunge.** Portsmouth, NH: Heinemann Educational Books, Inc.

Examples of chapters include: Helping children to observe, Helping children raise questions and answer them, Helping children to plan investigations.

Harlen, W., and S. Jelly. 1989. **Developing Science in the Primary Classroom.** Portsmouth, NH: Heinemann

Educational Books, Inc.

Guides the beginner (and the experienced) in getting ideas, developing curriculum and classroom organization, and developments for learning and teaching science.

Kramer, S. 1987. **How to Think Like a Scientist: Answering Questions by the Scientific Method.** New York: Thomas Y. Crowell.

Written for upper elementary students, this short book addresses how we ask questions, the scientific method and how to use it, and illustrates one experiment as an example.

Liem, Tik. 1987. **Invitations to Science Inquiry.** Chino Hills, CA: Science Inquiry Enterprises.

Over 400 tested discrepant events that arouse student interest, motivate teachers and students, and reinforce nearly any science concept.

Loucks-Horsley, et al. 1990. **Elementary School Science for the '90s.** Alexandria, VA. ASCD.

Myron, J., and A. Atkin. 1989. **Improving Science Education Through Local Alliances.** Santa Cruz, CA: Network Publications.

Examines K-12 science education in the light of inter-institutional alliances; between pre college schools and industry, universities, and others organizations.

Osborne, R., and P. Freyberg. 1985. **Learning In Science: The Implications of Children's Science.**

Looks at findings of studies on children's science learning, their significance for the teacher, and suggests both general and specific solutions to problems identified.

Ruef, K. **The Private Eye: Looking and Thinking by Analogy.**

A K-12 thinking skills book encouraging development of concentration skills, creativity, and scientific literacy through investigations with a hand-lens.

Rowe, M.B., Ed. 1990. **What Research Says to the Science Teacher: The Process of Knowing.** The National Science Teachers Association.

Exploration of "gaps" between what teachers intend for their students to learn and what they actually learn.

Rutherford, F.J., and A. Ahlgren. 1989. **Science for All Americans.** Washington, DC: American Association for the Advancement of Science.

Supports science literacy through problem solving skills and hands-on learning in an interdisciplinary setting. Explores types of effective learning and teaching.

Schlichting, S. 1993. **You, The Investigator: A Science Project Guide for Kids.** Riverview, FL: Idea Factory.

A guide for students to setting up experiments and identifying variables, how to collect data, make graphs, analyze results, and draw conclusions.

Steiner, B., and K. Phillips. 1991. **Journal Keeping with Young People.** Englewood, CO: Teachers Ideas Press.

For grades 4-9, but is adaptable to all grades. Includes techniques in recording and remembering, and reflecting, plus reviewing and sharing the journal.

Tobkin, K., Ed. 1993. **The Practice of Constructivism in Science Education.** Washington, DC: American Association for the Advancement of Science (AAAS).

Articles on various aspects of constructivism theory for teaching math and science from elementary through university level classes. Good background information for educators.



Appendix 3



Schoolyard Ecology Leaders' Handbook

Annotated resource directory

Schoolyard/Backyard Ecology Activities

Betros, H. F. 1972. **Understanding Schoolyard Ecology**. Jericho, NY: Exposition Press.
Classroom organization techniques plus many activity chapters on plants, animals, soils, and water.

Blaustein, E. and R. Blaustein. 1978. **Investigating Ecology**. New York: Arco Publishing.
Open-ended set of projects based on ecological principles. Each project has a background section, procedures, and ideas for further investigation.

Booth, C. R. **Ecology in the National Curriculum: A Practical Guide to Using School Grounds**. Winchester: Learning Through Landscapes Trust.
The British National Curriculum's attainment goals and programs for study for ecology are defined in this resource, as well as outlining investigation questions and methods.

Bowman, M.L. 1976. **Environmental Education in the Urban Setting: Rationale and Teaching Activities**. Columbus, OH: ERIC/CSMEE.

Busch, P. S. 1972. **Exploring as You Walk in the Meadow**. J.B. Lippincott Company.

Carman, S. 1992. **Guidelines and Features for Outdoor Classrooms**. Indiana Department of Natural Resource.
Planning for the development of your schools outdoor lab.

Corvine, C.; Welting, W.; and E. Arms. 1988. **Beyond The Classroom: Exploration of Schoolyard and Backyard**. Lincoln, MA: Massachusetts Audubon Society.
Introductory section gives rationale and strategies for using the schoolyards for science. Contains a collection of 33 activities in life, physical, and earth science.

Clark, R. and P. Walters. 1992. **Trees in the School Grounds**. Devin, England: Southgate Publishers.
Background text enhanced with detailed illustrations, this book devotes many chapters to tree activities and projects, such as "discovering tree dwellers", and "investigating wood properties."

Cronin-Jones, L. 1992. **The Schoolyard Wildlife Activity Guide**. Tallahassee: Florida Game & Freshwater Fish Commission.
Contains a curriculum framework, identifying key ecological concepts addressed in the lesson plans, 35 individual activity lessons, and large appendix and cross reference section.

Debris, J. 1989. **Schoolyard-Backyard Cycles of Science**. Carthage, IL: Good Apple.
Features reproducible activity pages in physical, biological, earth, and space science. Major emphasis is placed on starter activities to prompt children to ask "why?"

Denny and Hand. **Exploring the Secrets of Meadow-Thicket: A Story of Seasonal Activities for the Curious**

Child.

Cooperative learning activities usable in local parks, fields, lawns, or lots.

Dunning, E. and A.B. Mills. 1992. **Backyard and Beyond: A Guide for Discovering the Outdoors.** Golden, CO: Fulcrum Publishing.

A how-to book on stalking, tracking, and observing common backyard critters.

Gale, W. and P. Warren. 1989. **Ecology Discovery Activities Kit.** West NYC, NY: The Center for Applied Research in Education.

49 Easy-to-use, hands-on activities covering the essential areas of ecology: populations, communities, food web/energy flow, recycling. Good for grades 4-8.

Hancock, J. 1991. **Biology Is Outdoors! : A Comprehensive Resource for Studying School Environments.** Portland, ME: J. Weston Walt.

Consists of 10 investigations in and around the school grounds. Each investigation has reproducible student pages, a teacher's section, spin-off ideas, and references.

Hogan, K. 1994. **Eco-Inquiry: A Guide to Ecological Learning Experiences for the Upper Elementary/Middle Grades.** Dubuque, IA: Kendall/Hunt Publishing.

In-depth curriculum focusing on nutrient and energy cycling in ecosystems. The three modules incorporate cooperative learning, inquiry techniques, and alternative assessment.

Hunker, J. 1994. **Ecology For All Ages.** Old Saybrook, CT: Globe Pequot Press.

Investigative activities and background information about the following topics: backyard ecology, water systems, fields and borders, trees and woods, and dry zones.

Johns, F.; K. Liske; and A. Evans. 1986. **Education Goes Outdoors.** Menlo Park, CA: Addison Wesley Publishing.

Outdoor activities to integrate into all aspects of curriculum: science beyond the classroom, schoolyard math, outdoor language adventures, group building activities, etc.

McCormack, J. 1979. **Outdoor Areas as Learning Centers.** Columbus, OH: ERIC/CSMEE.

Perdue, P. 1991. **Schoolyard Science.** Glenview, IL.: Goodyear Books, Scott, Foresman, and Co.

25 class-tested activities to develop cooperation, thinking, and process skills in physical, soil, life, and environmental science. Grades 2-4.

Roth, C. and L. Lockwood. 1979. **Strategies and Activities for Using Local Communities as Environmental Education Sites.** Columbus, OH.: ERIC/CSMEE.

Russell, H.R. 1990. **Ten Minute Fieldtrips.** Arlington, VA: National Science Teachers Association.

Chapters devoted to different areas of science (includes an ecology section), with lots of teacher background, schoolyard fieldtrip possibilities, and related classroom activities.

Schaefer, J., et al. 1992. **Schoolyard Ecosystems for Northeast Florida.** Tallahassee, FL: Florida Advisory Council on Environmental Ed.

Focus is on schoolyard enhancements like trails and specialty gardens.

Schiff, P., and C. Smith-Walters. 1993. **Wild School Site: A Guide to Preparing for Habitat Improvement Projects on School Grounds.** Western Regional Environmental Education Council.

Shaffer, C., and E. Fielder. 1987. **City Safaris: A Sierra Club Explorer's Guide to Urban Adventures for**

Grownups and Kids. San Francisco, CA: Sierra Club Books.

A unique book of ideas for urban fieldtrips in many subject areas: food, trash, and energy expenditure, city people, etc. One chapter devoted to neighborhood wild places.

Smith, D. 1984. **Practical Ecology Series.** Urban Ecology. London: George Allen and Unwin Publishers, Ltd. A British resource containing 24 exercises in three main areas of focus: disturbed areas, man-made niches, and pollution.

Thomas, Gill. 1993. **Science in the School Grounds.** Southgate Publishers.

A British resource with major sections in weather, mini beasts, trees, ponds, grassed areas, wild flowers. Appendix has teacher/parent background sheets and pupil worksheets.

Williams, G. M., and W. H. Dowdeswell. 1990. **Ecology For The National Curriculum.** London: Unwin Hyman.

Investigations based on ten easily accessible habitats likely to occur around schools.

Young, K. **Using School Grounds as an Educational Resource.** Learning through Landscapes.

[Top of page](#) | [Main appendix List](#) | [Back to Appendix 3](#) | [Table of Contents](#)
[Help](#) | [About IES](#) | [Search](#) | [Print](#) | [Forums](#) | [Contact us](#) | [Home](#)

© Institute of Ecosystem Studies 2000, all rights reserved.



Appendix 3



Schoolyard Ecology Leaders' Handbook

Annotated resource directory

Field Guides for Children

Audubon Pocket Guides. Alfred A. Knopf Publishing.

Small and easy to handle. Uses photos instead of illustrations. Devotes two pages (description & photo) per species.

Selected titles: Animal Tracks, Butterflies, Eastern Birds, Eastern Flowers, Eastern Trees, Insects and Spiders, Mammals, Mushrooms, Reptiles and Amphibians, Western Birds, Western Flowers, Western Trees.

Golden Guides. Golden Press. Pocket-sized old favorites. Smaller illustrations than above series, but good text about families and specific species.

Selected titles: Bats, Birds, Flowers, Insects, Mammals, Reptiles and Amphibians, Spiders and Their Kin, Sky Observer's Guide, Trees, Weather, Weeds.

Instant Guides. Bonanza Books.

Small and colorful books, though with small print. Uses color code system and symbols to lead reader to information about each species.

Selected titles: Birds, Butterflies, Insects, Mammals, Reptile and Amphibians, Trees.

Peterson First Guides.

Small and easy to use. Contains the most common and conspicuous species, but sometimes lump Eastern and Western species together. Large and colorful illustrations.

Selected titles: Birds, Caterpillars, Butterflies, Clouds and Weather, Insects, Mammals, Reptiles and Amphibians, Trees, Urban Wildlife, Wildflowers.

Ecology-related tradebooks & literature for children

Arnold, C. 1992. **House Sparrows Everywhere.** Minneapolis, MN: Carolrhoda Books Inc.

This book provides a close up view of one of the most common, yet least understood birds. Outstanding photographs illustrate the "feathering out" process. Intermediate reading level.

Bash, Barbara. 1990. **Urban Roosts: Where Birds Nest in the City.** San Francisco: Sierra Club/Little, Brown, & Co.

Includes information on snowy owls, swifts, swallows, pigeons, crows, starlings, falcons and other birds that have successfully adapted to city life.

Bellamy, D. 1988. **The Roadside.** New York: Clarkson Potter.

This is a low key story about changes wrought in a community of plants and animals living in an abandoned farm when a superhighway is built through the area. Grades 1-5.

Burnie, D. 1991. **How Nature Works.** New York: Dorling Kindersley.

Excellent photographs and activity suggestions.

Busch, P.S. 1972. **Exploring as You Walk in the Meadow.** J.B. Lippincott Company.

Dekkers, M. 1988. **The Nature Book - Discovering, Exploring, Observing, Experimenting with Plants and Animals at Home and Outdoors.** New York: Macmillan Publishing.

Discovering Nature Series. New York: Bookwright Press.
Outstanding photographs and in-depth text.

Eyewitness Series. Produced in England, but are published and distributed by different U.S. publishers. Though some of the European animals and plants portrayed will be unfamiliar to us, all books in this series are alive with stunning photographs and in-depth text. The different series are listed below, with selected titles for schoolyard ecology needs.

Eyewitness. New York: Dorling Kindersley.
Selected Titles: Birds, Mammals, Fish, Insect, Tree

Eyewitness Science. New York: Dorling Kindersley.
Selected Titles: Ecology, Evolution, Energy

Eyewitness Juniors. New York: Alfred Knopf Publishing.
Grades pre K-3.
Selected Titles: Amazing Insects, Amazing Beetles, Amazing Spiders, Amazing Birds, Amazing Mammals

Eyewitness Explorers. New York: Dorling Kindersley.
Grades 1-5.
Selected Titles: Birds, Flowers, Butterflies and Moths, Insects, Mammals, Trees

Eyewitness Visual Dictionaries. New York: Dorling Kindersley.
Selected Titles: Plants, Animals

Eyewitness Look Closer. New York: Dorling Kindersley.
Grades 1-4.
Selected Titles: Tree Life, Meadow, Forest Life.

Fife, D. 1991. **The Empty Lot.** Sierra Club/Little Brown, and Co.
This engaging story describes the preservation of a small patch of land and one man=s new found respect for the creatures who call it home. Grades K-4.

Gardener, R., and D. Webster. 1987. **Science In Your Backyard.** New York: Julian Messner (Division of Simon & Schuster).
Written for upper elementary students and above, this book devotes chapters to backyard astronomy, backyard weather, trees and weeds, signs of wild animals, & an insect safari.

Glaser, L. 1992. **Wonderful Worms.** Brookfield, CT: Millbrook Publishing.
Simple and informative book about worms for primary grades. Two page fact sheet is helpful in discussions with children.

Goodman, S. 1995. **Bats, Bugs, and Biodiversity Adventures in the Amazonian Rain Forest.** Simon and Schuster.

Grenier, N. 1998. **Following Indian Trails.** Young Discovery Library.
No. 9 in a series of books of discovery for children five years old and upwards.

Herberman, E. 1989. **The City Kid's Field Guide**. New York: Simon and Schuster.

Excellent photographs of familiar urban places highlight niches and homes for urban wildlife. An easy to read, engaging resource for upper elementary students.

Hickman, P. 1991. **Bugwise**. Menlo Park, CA: Addison-Wesley Publishing Co.

Background information and easy investigations about insects. Clear and accurate drawings. Suitable for grades 3-6. Also companion texts Birdwise and Plantwise.

Hughey, P. 1984. **Scavengers and Decomposers: The Cleanup Crew**. New York: Atheneum Books (Macmillan).

Defines the roles of scavengers and decomposers with chapters on bird and mammal scavengers, water scavengers, and soil decomposers.

Jennings, T. 1982. **The Young Scientist Investigates Small Garden Animals**. Chicago: Children's Press.

Keeping Minibeasts Series.

Addresses the care, ecology, and behavior of animals brought temporarily into the classroom. Selected titles: Ants, Beetles, Butterflies and Moths, Caterpillars, Earthworms, Grasshoppers and Crickets, Ladybugs, Slugs and Snails.

Kudlinski, K. 1988. **Rachel Carson: Pioneer of Ecology**. New York: Viking Publishers.

Scientist and author Rachel Carson brought awareness of our environment to the general public. Her childhood, pioneer spirit, and accomplishments come to life in clear text with soft black & white drawings.

Kuhn, D. 1990. **More Than Just A Vegetable Garden**. Englewood Cliffs, NJ: Silver Press.

A beautifully photographed look at the changing world of a vegetable garden and the many creatures that inhabit it.

Lavies, B. 1990. **Backyard Hunter - The Praying Mantis**. New York: Dutton Children's Books.

Outstanding photographs document a thorough discussion of the behavior, life cycle, and development of an impressive insect.

Lavies, B. 1993. **Compost Critters**. New York: Dutton Publishing.

An exploration of a compost heap, with close ups on all the inhabitants. An accurate text explains the composting process. For Intermediate grades.

Lerner, C. 1990. **Plant Families**. New York: Morrow.

A concise introduction to taxonomic principles through examination of 12 of the largest and most common plant families. Meant primarily as a study guide for young adults.

Lerner Natural Science Series. Minneapolis, MN: Lerner Publishing.

Series won Children's Science Book Award from NY Academy of Science.

Selected Titles: Beetles, Wasps, Fireflies, Ladybugs.

Leslie, C.W. 1991. **Nature All Year Long**. Greenwillow Publishers.

Written in the form of a nature journal, this book describes the changing natural world throughout the year. Can help young readers develop the important habit of becoming careful observers. For grades 2 and up.

MacPherson, M. 1989. **Bird Watch: A Young Person's Introduction To Birding**. Toronto, Canada: Summerhill Publishing.

An introduction to birding for children in grades 5-8. It is well-organized, simply written, and contains many clear

and uncluttered line drawings.

Major, T., and T. Tempest Williams. 1984. ***The Secret Language of Snow**. San Francisco, CA: Sierra Club Books.

*Now out of print, look in library or used book stores. Poetry, background information and activities related to 10 different kinds of snow identified by the Inuit people of Alaska. For upper elementary to adult.

Markle, S. 1994. **Outside and Inside Spiders**. Bradbury/Simon & Schuster.

For primary and intermediate grades, this book highlights the life processes of a spider. Companion book is Outside and Inside Birds.

McLaughlin, M. 1986. **Earthworms, Dirt, and Rotten Leaves: An Exploration in Ecology**. New York: Athenum Books (Macmillan).

Written for upper elementary students (and older), this book concentrates on the earthworm's body, life story, and its community relations. Suggestions for easy experiments with them.

Merrick, M. 1993. **Invertebrates in the School Grounds**. England: Southgate Publishers.

A small book with clear, large illustrations of terrestrial and pond invertebrates with background information and "How To Investigate" chapters. Some unfamiliar European species listed.

Myers, C. 1990. **McCrephy's Field**. Boston, MA: Houghton Mifflin Co.

In simple, direct words and vivid pictures, this book records and explains the changes that occur on an Ohio farm over a fifty-year period.

Nature Club Series. Mahwah, NJ: Troll Associates.

Great illustrations, text written for upper elementary students. Reasonably priced. Selected Titles: Plants and Trees, Insects and Other Small Creatures, Animal Homes, Birds.

Norsgaard, E. J. 1990. **Nature's Great Balancing Act: In Our Own Backyard**. Cobblehill Publishing.

The interrelationships of plants, animals, insects, and birds are explored in a semi-wild New England backyard.

Parker, Steve. 1994. **Eyewitness Natural History**.

A new encyclopedic book from Dorling Kindersley addressing form and function, life cycles, and natural survival. For upper elementary to adult.

Parker, P. **Your Wild Neighbors**. A Project Eco-City Book.

Explores environments of schoolyards, sidewalk cracks, small pond, piles of rubble for animals.

Parker, P. **Your Living Home**. A Project Eco-City Book.

Explores the home habitat for creatures such as silverfish, grain weevils, and more. For ages 9+.

Parnall, P. 1990. **Woodpile**. New York: Macmillan Publishing.

A lyrical portrait of a habitat depicts how a variety of woodland creatures live, hide, store food, and stalk prey in and around a common woodpile.

Pringle, L. 1969. **Discovering the Outdoors**. Garden City, NY: Natural History Press.

General information, resource, and activity book for upper elementary students to adult.

Rockwell, A. 1992. **Our Yard Is Full Of Birds**. New York: Macmillan Publishing.

Accurate color drawings accompany simple text on what common birds can be observed right at home. Good for very young readers.

Rotner, S., and K. Kreisler. 1991. **Nature Spy**. New York: Macmillan Publishing.

Photographic essays of a young girl's observations of plants, animals, and scenes from nature. Good for teaching children how to observe carefully objects around them.

Ryder, J. 1990. **Under Your Feet**. New York: Macmillan Publishing.

A unique approach to living things that dwell underground follows a lone boy on walks through the changing seasons. Beautiful illustrations. Grades K-3.

Schwartz, D. 1988. **The Hidden Life of the Meadow**. New York: Crown Publishing.

In well written text and striking full color photographs, animals, plants, and the ecology of the meadow is described. A companion book is *The Hidden life of the Forest*.

Selsam, M., and J. Hunt. 1989. **Keep Looking!** New York: Macmillan Publishing.

Wonderfully illustrated snowy scenes around a country house reveal hidden birds and animals. Simple text encourages readers to observe new details at every reading. Grades K-3.

Settel, J., and N. Baggett. 1986. **How Do Ants Know When You're Having A Picnic?** New York: Macmillan Publishing.

General information about terrestrial invertebrates written in question/answer format. Easy, user-friendly reading for upper elementary students to adults.

Sheperd, E. 1988. **No Bones: A Key To Bugs & Slugs, Worms, Ticks, Spiders, Centipedes, and Other Creepie Crawlies**. New York: Macmillan Publishing.

An excellent introduction to dichotomous keys, plus good background information and illustrations on insects and other arthropods. Written for upper elementary students.

Silver, D. 1993. **One Small Square Backyard**. New York: W.H. Freeman and Co.

Well-written and illustrated resource book for kids about what's in, under, above, and passing through a small patch of backyard habitat.

Simon, Seymour. 1994. **Winter Across America**. Hyperion Books.

For primary and intermediate grades. Addresses the ecology of winter by looking at animal migrations, animal survival, snow, etc.

Souza, D.M. 1991. **Insects Around The House**. Minneapolis, MN: Carolrhoda.

This is a short, but informative volume for upper level elementary school students, discussing insect morphology and in-depth portraits of some common insects.

Suzuki, D. 1986. **Looking At Insects**. New York: Warner Books.

A resource with easy to read text about general insect characteristics, insect orders, and insect relatives (spiders). Also "Something To Do" activity sections in each chapter.

Swanson, D. **Coyotes in the Crosswalk, True Tales of Animal Life in the Wilds of the City**.

Stories about those species able to survive in urban habitats.

Taylor, K. 1990. **Hidden Underneath**. New York: Delacorte Press.

Part of the "Secret Worlds" series. In addition to discussing creatures under stones and logs, the book addresses animals under a mother bird and even under fur (a flea).

Usborne Science & Experiments Series. Tulsa, OK: EDC (Educational Development Corporation).

Technical but well written and challenging for upper elementary students.

Selected Titles: Spurgeon, Richard. *Ecology. The World of the Microscope.*

[Top of page](#) | [Main appendix List](#) | [Back to Appendix 3](#) | [Table of Contents](#)
[Help](#) | [About IES](#) | [Search](#) | [Print](#) | [Forums](#) | [Contact us](#) | [Home](#)

© Institute of Ecosystem Studies 2000, all rights reserved.



Appendix 3



Schoolyard Ecology Leaders' Handbook

Annotated resource directory

Hands-On Science Curricula

Appelhof, M.; Fenton, M.F.; and B. Harris. 1993. **Worms Eat Our Garbage: Classroom Activities For A Better Environment.** Kalamazoo, MI: Flower Press.

Basics for setting up and maintaining a worm composting system, with additional information on decomposition, food webs, and recycling.

Ahlgren, A., and F. Halberg. 1990. **Cycles of Nature: An Introduction to Biological Rhythms.** Arlington, VA: National Science Teachers Association.

Activities guide for students recognizing and measuring common rhythms, then challenges them to experiment with rhythms found in nature. For middle school students and up.

Brown, V. 1983. **Investigating Nature Through Outdoor Projects.** Harrisburg, PA: Stackpole Books.

Intended for use in backyards and neighborhood lots, this book provides information and guidelines for drawing in watchable wildlife.

Bowden, M. 1989. **Nature for the Very Young.** New York, NY: John Wiley and Sons.

Written specifically for pre-school children, but may be adaptable for early primary grades. Includes indoor and outdoor activities with tips for leading nature expeditions.

Bourgeois, P. 1993. **The Amazing Dirt Book.** Menlo Park, CA.: Addison Wesley Publishing.

Investigative activities about soil using simple, everyday materials. Part of the "Amazing" Series about such familiar items as eggs, apples, paper, etc.

Burnett, R. 1992. **The Pillbug Project: A Guide to Investigation.** Arlington, VA.: National Science Teachers Association.

Science investigations revolving around pillbugs and their habits.

Chinery, M. 1988 ed. **The Complete Amateur Naturalist.** New York, NY: Crown Publishers.

Cornell, J. 1979. **Sharing Nature With Children.** Nevada City, CA: Dawn Publications.

An old stand-by in nature center libraries, this small book contains activity ideas to stimulate and engage kids, using little equipment but one's senses and imagination.

Cornell, J. 1990. **Sharing The Joy of Nature.** Nevada City, CA.: Dawn Publications.

A sequel to the above book, more nature activities for all ages.

Christie, N. 1991. **Regional Environmental Education Program (REEP) B Cycles Grade 5.** The Schuykill Center for Environmental Education.

Introduce students to the finite and cyclic nature of minerals, air and water; and the need to conserve these elements.

Cvancara, A. M. 1992. **Exploring Nature In Winter: A Guide to Activities, Adventures, and Projects for the Winter Naturalist.** New York: Walker and Co.

Combination of both ecology content and investigative ideas. Includes chapters on winter botany, winter wildlife, winter astronomy, ice and snow.

Docekal, E. 1989. **Nature Detective: How to Solve Outdoor Mysteries.** New York: Sterling Publishing Co. Backyard environmental education activities using cases, clues, and suspects. Appropriate for 2-6. Written for older children to read themselves.

Falada, S. 1989 **Basic Projects in Wildlife Watching.** Harrisburg, PA.: Stackpole Books. A unique book covering the techniques of wildlife observation, tracking, and baiting.

Finkelstein, R. 1980. **The Central Park Workbook: Activities for an Urban Park.** Central Park Task Force. All activities revolve around a park, with one chapter devoted to nature in a park.

Gates, J. 1989. **Consider the Earth: Environmental Activities for Grades 4-8.** Englewood, CO.: Teacher's Ideas Press.

A no-frills book without photos or lots of illustrations, but packed with activities in many science subjects: water, wildlife, ecosystems, and an extended chapter on soil.

Gutnik, M. 1984. **Ecology: Projects for Young Scientists.** New York: Franklin Watts, Inc. Ecological projects aimed at science fair enthusiasts, but can be adapted for classroom use.

Hancock, J. 1992. **What Is It?: A Guide to Biological Identification for Teachers and Students.** Portland, ME.: J. Weston Walch.

An introduction to field identification and classification through the use of hands-on activities and a review of guides and supplies for instruction.

Hapai, M.N., and L.H. Burton. 1990. **Bug Play: Activities with Insects for Young Children.** Menlo Park, CA.: Addison Wesley Publishing.

Contains 26 interdisciplinary activities about insects, with sections on care and handling, observation, rearing and release.

Harlow, R., and G. Morgan. 1991. **175 Amazing Nature Experiments. New York: Random House.**

This book catalogs activities under 4 headings: How things grow, Minibeasts, Trees and Leaves, and Seasons. Each section contains experiments, games, and things to make.

Harlow, R., and G. Morgan. 199x. **175 More Amazing Nature Experiments.** New York: Random House.

Headstrom, R. 1991. **Adventures with a Hand Lens.** Dover Publications.

Assuming no previous science background, this resource opens the world of the small and delicate through detailed illustrations and 50 adventures using a hand lens.

Henry, L.K. 1989. **Science in Special Places: Worksheets and Activities to Explore Animal Habitats.** Belmont, CA.: David S. Lake Publishing.

Collection of blackline masters is a supplement for primary science classes. Focuses on a variety of animals and their corresponding habitats: forest, pond, desert, etc.

Henry, L.K. 1989. **Science Through The Seasons: Worksheets and Activities to Explore the Four Seasons.** Belmont, CA.: David S. Lake Publishing.

Combination of reproducible worksheets and ideas for related science activities. Addresses process skills of

observation and classification.

Holley, D. **Animals Alive!: An Ecological Guide to Animal Activities.**

Katz, A. 1986. **Naturewatch: Exploring Nature with Your Children.** Menlo Park, CA.: Addison Wesley Publishing.

A British handbook to common backyard life, with suggestions for simple projects and activities.

Knott, R. 1989. **Earthworms.** Berkeley, CA: Lawrence Hall of Science, UC-Berkeley.

Experiments regarding the biology of the earthworm, with opportunities for observing, recording, and graphing.

Knott, R.C., and Herbert D. 1992. **Delta Education Scis 3 B teachers guide level 3. Populations. Delta Education.**

Kutz, M. 1987. **The Doing Science - Adventure Series. Adventures in Life Science: Process Oriented Activities for Grades 4-6.** Belmont, CA.: David S. Lake Publishing.

Consists of teacher lesson plans, copy pages, and discussion questions on various life science topics.

Lingelbach, J. 1986. **Hands on Nature.** Woodstock, VT: Vermont Institute of Natural Science.

Activities, each beginning with a question, are grouped into four separate chapters: Adaptations, Habitats, Cycles, and Designs of Nature. Good teacher background sections.

Lowery, L., and C. Verbeeck. 1989. **The Fearon Book of Doing Science: Explorations and Adventures in Life, Earth, and Physical Sciences for Grades 1-6.** Belmont, CA.: David S. Lake Publishing.

Process-oriented activities are organized into units for grades 1-3 and 4-6. Skill development in observation, comparison, measurement, data collection, and formulation of conclusion.

Lowery, L., and C. Verbeeck. 1987. **Explorations in Life Science: Process Oriented Activities for Grades 1-3.** Belmont, CA.: David S. Lake Publishing.

A sister text to the above Adventures in Life Science, this book contains activities with teacher's plans and reproducible pages for younger students.

Lowery, L. 1985. **The Everyday Science Resource Book.** Palo Alto, CA: Dale Seymour Publications.

Source of science concepts, activity suggestions, suggested materials to supplement any science program. Great resource when developing units. Elementary & middle school use.

Miller, L. 1986. **The Nature Specialist.** North Martinsville, IN: American Camping Association.

Written for camps, but easily adapted to schools, this resource contains over seventy activities indexed by age appropriateness, and leader preparation.

Pearce, T. 1990. **Exploring Woodlands.** Exeter: Wheaton Education and Hampshire Books.

Activity units focusing on single trees and their properties, followed by the woods as habitat, succession, and food webs. Clear, reproducible pages with good student charts.

Rights, M. 1981. **Beastly Neighbors.** Boston, MA: Little, Brown, and Company Ltd.

Chapters focus on urban flora and fauna, and urban environmental issues, with project ideas in building feeders, terrariums using simple materials.

Roa, M. L. 1993. **Environmental Science Activities Kit.** West Nyack, NY: The Center for Applied Research in Education.

Thirty two lessons on the following focus areas: land, wildlife, water, atmosphere, energy, and human issues. Reproducible student activity pages and charts, discussion questions.

Ross, M. 1993. **The World of Small**. Yosemite Association.

Hands-on nature explorations using a hand lens, for ages 6-12. Each book comes with a 5x magnifier.

Russo, M. 1991. **The Insect Almanac: A Year Round Activity Guide**. New York: Sterling Publishing Co., Inc.

Brief activity suggestions accompany background information and excellent illustrations. Easy to read so this resource can be used by upper elementary students.

Savan, B. 199x. **Earthwatch B Earthcycles and Ecosystems**. Addison-Wesley Publishing Company, Inc.

Examines how natural cycles and specific ecosystems work and suggests activities to protect the Earth from further damage by pollution and waste.

Sisson, E.A. 1982. **Nature with Children of All Ages**. Englewood Cliffs, NJ: Prentice-Hall.

An older resource book with activities and background information about plants, insects, mammals, and birds. Also has a chapter on tips and tricks for teaching outdoors.

Stangl, J. 1994. **Science Toolbox**. New York: McGraw-Hill Publishing.

Introduces children in grades 1-3 to basic science tools, providing them with 47 activities and easy directions for constructing their own tools.

Stenhouse - Kneidel, S. 1993. **Creepie Crawlies and the Scientific Method**. Golden, CO: Fulcrum Publishing.

Presents an overview of the scientific method and over 100 experiments with insects and other organisms, using the scientific method. Reproducible worksheets and charts.

Stronglin, H. 1991. **Science on a Shoestring**. 2nd Ed. Menlo Park, CA: Addison Wesley Publishing.

Organized around three topics: matter, change, and energy, these science experiments utilize only inexpensive, readily available materials. For K-8 teachers.

Tolman, M., and J. Morton. **Life Science Activities for Grades 2-8**. Prentice Hall.

Hundreds of activities featuring the discovery/inquiry approach. Lessons include starter ideas, activity directions, and reproducible student pages.

Van Cleave, J. 1990. **Biology for Every Kid**. New York: John Wiley and Sons, Inc.

101 easy experiments for all grades. A companion text is Earth Science for Every Kid.

Wasserman, P., and A. Doyle. 1991. **Earth Matters**. Washington, DC: Zero Population Growth, Inc.

A resource peripheral to schoolyard ecology, but good for discussion of populations.

Wellnitz, W. 1992. **Science in Your Backyard**. Blue Ridge Summit, PA: TAB Books.

Basic experiments for plants, animals, and earth science. Easy procedures using household materials.

Wilson, R. 1993. **Fostering a Sense of Wonder During the Early Childhood Years**. Columbus, OH: Greyden Press.

Addresses the appropriateness and implementation of environmental education into early childhood curriculum. Also has activity suggestions and good bibliographies.

[Top of page](#) | [Main appendix List](#) | [Back to Appendix 3](#) | [Table of Contents](#)
[Help](#) | [About IES](#) | [Search](#) | [Print](#) | [Forums](#) | [Contact us](#) | [Home](#)

© Institute of Ecosystem Studies 2000, all rights reserved.



Appendix 3



Schoolyard Ecology Leaders' Handbook

Annotated resource directory

Field Guides for Adult Learners

Below are guides that highlight a whole habitat or region, including its living organisms and its abiotic factors. The Stokes Guides are unique in that they focus on the behavior and ecology of organisms, rather than on their appearance.

Audubon Society Nature Guides. New York: Chanticleer Press.

Series includes: Grasslands, Atlantic and Gulf Coasts, Deserts, Eastern Forests, Western Forests, Pacific Coast, Wetlands.

Benyus, Janine M. **Field Guide to Habitats Series.** New York: Simon & Schuster/Fireside Books and Northword Press. Series includes: A Field Guide to Habitats of the Eastern United States, A Field Guide to Habitats of the Western United States, Northwoods Wildlife - A Watcher's Guide to Habitats.

Finder Series. Berkeley, CA: Nature Study Guild.

Pocket sized guides (for separate regions) that engage reader in using a key to identify their plant or animal. Handy and easy to use with adults and upper elementary students. Selected titles: Tree Finder, Flower Finder, Bird Finder, Fern Finder, Berry Finder.

Regional Tracking Guides. Seattle, WA: The Mountaineers.

Pocket sized guides for separate regions of the U.S., detailing tracks of both birds and mammals.

Sierra Club Naturalist's Guides. San Francisco, CA: The Sierra Club.

Series includes: The Deserts of the Southwest, The Middle Atlantic Coast, The North Atlantic Coast, The Northwoods of MI, WI, MN, and Southern Ontario, The Piedmont of Eastern North America, Southern New England.

Stokes, Donald and Lillian Stokes. **Stokes Nature Guide Series.** Boston, MA: Little, Brown, and Co. Publishers.

Series includes: A Guide to Nature in Winter, A Guide to Bird Behavior - Vols. I,II, III, A Guide to Animal Tracking and Behavior, A Guide to Amphibians and Reptiles (Tyning, Thomas), A Guide to Observing Insect Lives, A Guide to Enjoying Wildflowers, A Natural History of Shrubs and Vines.

General miscellaneous field guides (not in a series)

Eastman, J. 1992. **The Book of Forest And Thicket: Trees, Shrubs, and Wildflowers of North America.** Harrisburg, PA.: Stackpole Books.

Basic information and line drawings plus folklore and discussion of plant's ecological role in its particular community.

Glassberg, J. 1993. **Butterflies Through Binoculars: A Field Guide to Butterflies in the Boston-New York-Washington Region.**

Guidebook for identifying butterflies in the field, without collecting.

Rezendes, P. **Tracking and the Art of Seeing: How to Read Animal Tracks and Signs.**

Roest, A.I. 1991. **A Key-Guide to Mammal Skulls and Lower Jaws: A Non-Technical Introduction for Beginners.** Eureka. CA.: Mad River Press.

Excellent, detailed key for identifying skulls and jaws. Clear illustrations labeling parts of skulls to focus on for ID.

[Top of page](#) | [Main appendix List](#) | [Back to Appendix 3](#) | [Table of Contents](#)
[Help](#) | [About IES](#) | [Search](#) | [Print](#) | [Forums](#) | [Contact us](#) | [Home](#)

© Institute of Ecosystem Studies 2000, all rights reserved.



Appendix 3



Schoolyard Ecology Leaders' Handbook

Annotated resource directory

Ecology & Natural History Resources for Adults

Adams, L. 1994. **Urban Wildlife Habitats: A Landscape Perspective.** University of Minnesota Press. Provides an overview of ecological processes, introduces plant and animal communities of the urban habitat, and wildlife management strategies.

Allaby, M. 1994. **The Concise Oxford Dictionary of Ecology.** New York: Oxford University Press. A dictionary aiming to explain ecological concepts and terms, and describe ecological processes. Companion dictionaries in botany, natural history, zoology, and earth sciences.

Berenbaum, M.R. 1994. **Bugs in the System: Insects and Their Impact on Human Affairs.** Reading, MA: Addison-Wesley. A history of entomology laced with anecdotes about how insects and people have interacted throughout history.

Brodie, J. 1985. **Practical Ecology Series. Grassland Studies.** London: George Allen & Unwin Publishers. Excellent chapters, each with 5 or more experiments, on vegetation analysis, animal analysis, decomposition analysis, energy flow, and climatic factors.

Brown, V. 1980. **The Amateur Naturalist's Handbook.** Englewood Cliffs, NJ: Prentice-Hall. A comprehensive sourcebook for detailed information on botany, ecology, geology, zoology, meteorology, etc. Also contains field activities and experiments.

Collins, M. 1984. **Urban Ecology: A Teacher's Resource Book.** Cambridge, MA: Cambridge University Press. Resource text containing in-depth sections on urban habitats, collecting/sampling/preserving methods, project ideas, I.D. keys and information on a wide variety of urban organisms.

Dowden, A.O. 1972. **Wild Green things in the City.** New York: Thomas Y. Crowell Co. An elegantly illustrated book describing urban plants and their life cycles. Offers species lists for urban plants in three U.S. cities: Los Angeles, New York, and Denver.

Durrell, G. 1982. **A Practical Guide for the Amateur Naturalist.** New York: Random House. A good background resource examining 17 different environments from wetlands to deserts to backyards, with hands-on activities.

Feinsinger, P., and M. Minno. **Handbook to Schoolyard Plants and Animals of North Central Florida.** Florida Game and Freshwater Fish Commission. Identification and natural history information on common plants and animals. Has specific sections on interactions each organism has with other organisms, & suggested activity ideas.

Feltwell, J. 1991. **Beekeeping: A Practical Guide to Beekeeping in the School Grounds.** England: Learning Through Landscapes Trust.

A great primer on the honeybee and beekeeping. Great illustrations and photographs of students working with hives.

Feltwell, J. 1990. **Butterflies: A Practical Guide to Their Study in School Grounds via the National Curriculum.** England: Learning Through Landscapes Trust.

Basic questions answered about butterflies, with ideas for observation, activities in the schoolyard. European species are noted, but the basic information holds true for all areas.

Feltwell, J. 1991. **Slugs, Snails, and Earthworms: A Practical Guide to Their Study in the School Grounds.** England: Learning Through Landscapes Trust.

Resource for basic information on form and function of slugs, snails, and earthworms. Great photographs (some European species), and ideas for schoolyard investigations.

Garber, S.D. 1987. **The Urban Naturalist.** New York: John Wiley and Sons.

Chapters devoted to major plant and animal groups, with a focus on the species found in urban areas. Large reference section, and a background chapter on urban ecosystems.

Halfpenny, J., and R.D. Ozanne. 1989. **Winter: An Ecological Handbook.** Boulder, CO: Johnson Books.

A very complete overview of the research and current understanding of winter; from the physics of snow to animal and plant adaptations, to population fluctuations.

Imes, R. 1992. **The Practical Entomologist.** New York: Simon and Schuster/Fireside.

Illustrated with great photographs, this book introduces basic entomology then devotes specific chapters to eight major insect orders.

Lawrence, G. 1979. **The Beginning Naturalist.** Shelburne, VT: The New England Press.

A seasonal approach to wildlife and plants, highlighting various species each season. Background information on many common species and their lifecycles.

Mitchell, J. 1986. **The Curious Naturalist.** New York: Prentice Hall Press.

Series of one page synopses on seasonal happenings in the natural world. Ideas for activities, too. Hand-lettering and nice illustrations.

Mitchell, J. 1985. **A Field Guide to Your Own Backyard.** New York: W.W. Norton and Co.

Chronicles the seasons with information about "who's doing what and when" in your backyard.

Sagan, D., and L. Margulis. 1993. **Garden of Microbial Delights: A Practical Guide to the Subvisible World.** Dubuque, IA: Kendall/Hunt Publishing Co.

Comprehensive resource for ages 12 to adult on microbiology - a blend of science, history, and art.

Vessel, M., and H. Wong. 1987. **Natural History of Vacant Lots.** Berkeley, CA: University of California Press. Addressing California, but could be applicable to other western states. This book has a general section depicting this urban ecosystem and its seasons, plus descriptions of the local flora and fauna.

[Top of page](#) | [Main appendix List](#) | [Back to Appendix 3](#) | [Table of Contents](#)
[Help](#) | [About IES](#) | [Search](#) | [Print](#) | [Forums](#) | [Contact us](#) | [Home](#)

© Institute of Ecosystem Studies 2000, all rights reserved.



Appendix 3



Schoolyard Ecology Leaders' Handbook

Annotated resource directory

Teacher Development Resources

Bellanca, J. **Designing Professional Development For Change - A Systemic Approach.** Palatine, IL: IRI/Skylight Publishing.

Practical Methods for designing, promoting, and assessing change.

Braus, J., and Monroe. **Designing Effective Workshops.** Ann Arbor, MI: National Consortium for Environmental Education and Training (NCEET).

Designing, logistics planning, assessment and follow-up tips for workshops.

Feinsinger, F., et al. 1997. **Some Themes Appropriate for Schoolyard Ecology and other Hands-On Ecology Education.** Bulletin of the Ecological Society of America.

Feinsinger, F. 19XX. **Conceptual Framework for Development of Activities in Ecological Biology.**

Joyce, B., Ed. 1990. **Changing School Culture Through Staff Development.** Alexandria, VA: ASCD Yearbook.

Addresses the stages of a teaching career and how they affect staff development, and barriers to staff development innovations.

Mason, C. 1993. **Preparing and Directing A Teacher Institute.** Arlington, VA: National Science Teachers Association.

A small booklet containing samples of letters, surveys, evaluation instruments, sample timelines, and other details you will need for a great program.

Sharp, P. 1993. **Sharing Your Good Ideas: A Workshop Facilitator's Handbook.** Portsmouth, NH: Heineman Publishing.

A thorough discussion of presentation and workshop ideas, and gives strategies and presentation guidelines based on adult education and principles.

[Top of page](#) | [Main appendix List](#) | [Back to Appendix 3](#) | [Table of Contents](#)
[Help](#) | [About IES](#) | [Search](#) | [Print](#) | [Forums](#) | [Contact us](#) | [Home](#)

© Institute of Ecosystem Studies 2000, all rights reserved.



Appendix 3



Schoolyard Ecology Leaders' Handbook

Annotated resource directory

Resources on Cooperative Learning

Bellanca, J., and R. Fogarty. **Blueprints for Thinking in the Cooperative Classroom.** Palatine, IL: RPI/Skylight Publishing.

Resource focuses on building student teams and trust.

Brandt, R., Ed. 1991. **Cooperative Learning and the Collaborative School: Readings from Educational Leadership.** Alexandria, VA: ASCD.

Articles from the journal Educational Leadership trace the beginnings of cooperative learning research to current applications.

Crary, E. 1983. **Kids Can Cooperate.** Seattle, WA: Parenting Press.

Looks at why children quarrel and offers a step-by-step negotiation process for children.

Eberle, B., and B. Stanish. **CPS for Kids: Teaching Creative Problem Solving.** East Aurora, NY: D.O.K. Publishers.

Activities for children that teach excellent problem solving processes.

Fogarty, R. **Designs for Cooperative Interactions.** Palatine, IL: IRI/Skylight Publishing.

Twelve strategies to incorporate into daily lessons, including lesson planner and application examples.

Hassard, J. 1990. **Science Experiences: Cooperative Learning and the Teaching of Science.** Menlo Park, CA: Addison Wesley Publishing.

Part one of this book discusses the theory of science teaching and cooperative learning, Part Two has 8 units dealing with various science disciplines, including ecology, and environmental education.

Johnson, D.; Johnson, R.; and E. Johnson Holubec. 1994. **The New Circles of Learning: Cooperation in the Classroom and School.** Alexandria, VA: ASCD.

Updated best seller with new insights on modeling cooperation, incorporating cooperative skills into daily lesson plans, and essential components of cooperative learning lessons.

Johnson, D., and F. Johnson. 1982. **Group Theory and Group Skills.** New Brighton, MN: Interaction Book Co. An excellent book full of interesting experiential activities that focus on cooperative learning.

Johnson, D., and T. Rogers, Eds. 1984. **Structured Cooperative Learning: Lesson Plans for Teachers.** New Brighton, MN: Interaction Book Company.

Contains sample lesson plans for primary, intermediate, and secondary grade levels.

Lawrence Hall of Science - GEMS Project. 1992. **Group Solutions: Cooperative Logic Activities for Grades K-4.** UC-Berkeley.

Activities based on groups of four students having clues to problems which can only be solved through sharing information among team members.

Lyman, L., and H. Foyle. 1990. **Cooperative Grouping for Interactive Learning: Students, Teachers, and Administrators.** The National Education Association.

Provides dynamic ways to build productive group learning among students, in parent-teacher interactions, and with colleagues in team meetings and in-services.

Marcus, S. Archibald, and Penny McDonald. **Tools for the Cooperative Classroom.** Palatine, IL: IRI/Skylight Publishing.

Designed for Grades K - 12, provides visual aides to help students learn cooperative roles.

Prutzman, P., et al. **The Friendly Classroom for a Small Planet.** Philadelphia, PA: New Society Publishers, 1988.

A handbook of creative approaches to living and problem solving for children.

Slavin, R. 1991. **Student Team Learning: A Practical Guide to Cooperative Learning.** Washington, DC: The National Education Association.

A practical, down-to-earth approach to effective use of cooperative learning explores three student team learning techniques that significantly increase learning.

Slavin, R. 1987. **Cooperative Learning: Student Teams.** Washington, DC: The National Education Association.

A concise, easy-to-read book on the effects cooperative learning has on academic achievement, inter-group relations, mainstreaming, self esteem, and other outcomes.

[Top of page](#) | [Main appendix List](#) | [Back to Appendix 3](#) | [Table of Contents](#)
[Help](#) | [About IES](#) | [Search](#) | [Print](#) | [Forums](#) | [Contact us](#) | [Home](#)

© Institute of Ecosystem Studies 2000, all rights reserved.



Appendix 3



Schoolyard Ecology Leaders' Handbook

Annotated resource directory

Assessment Resources

Burke, K., Ed. **Authentic Assessment: A Collection**. Palatine, IL: IRI/Skylight Publishing. Grades K B college.

Burke, K. **The Mindful School: How to Assess Authentic Learning**. Palatine, IL: IRI/Skylight Publishing. (K - college.)

Burke, K.; Fogarty, R.; and S. Belgrad. **The Mindful School: The Portfolio Connection**. Palatine, IL: IRI/Skylight Publishing.

Brandt, R. 1992. **Performance Assessment: Readings from Educational Leadership**. Alexandria, VA: ASCD. Articles from the Journal Educational Leadership trace the development of alternative assessments to latest strategies.

Champagne, A.B., et al. **Assessment in the Service of Instruction**. Washington, DC: AAAS. Papers from the 1990 AAAS Forum for School Science.

Hart, D. 1994. **Authentic Assessment: A Handbook for Educators**. Menlo Park, CA: Addison Wesley Publishing.
Current topics including mastery, portfolios, scoring rubrics, authentic assessment are explained with examples from many subjects and grade levels.

Hein, G.E., and S. Price. 1994. **Active Assessment for Active Science: A Guide for Elementary School Teachers**. Portsmouth, NH: Heinemann.
Written for teachers interested in knowing the background and rationale for alternative assessment, but also includes many examples and practical suggestions.

Herman, J.; Aschbacher, P.; and L. Winters. 1992. **A Practical Guide to Alternative Assessment**. Alexandria, VA: Association for Supervision and Curriculum (ASCD).
Examples of assessment tasks, scoring criteria, and rating procedures provide concrete ideas for planning assessment in any subject area.

Kingore, B. Portfolios: **Enriching and Assessing All Students, Identifying the Gifted**. Tucson, AZ: Zephyr Press.

Kulm, G., and S.M. Malcolm. 1994. **Science Assessment in the Service of Reform**. Hillsdale, NJ: Lawrence Erlbaum and Associates.

Lazear, D. **Multiple Intelligence's Approaches to Assessment: Solving the Assessment Conundrum**. (Grades K - 12.)

Marzano, R.J.; Pickering D.; and J. McTighe. 1993. **Assessing Student Outcomes**. Alexandria, VA: Association

for Supervision and Curriculum (ASCD).

Includes techniques and rubrics for five categories of outcomes emphasized in the "Dimensions of Learning" program: complex thinking, information processing, communication, collaboration, and habits of mind.

Meng, E., and R.L. Doran. 1993. **Improving Instruction and Learning Through Evaluation: Elementary School Science.** Columbus, OH: ERIC/CSMEE.

A thorough overview of general techniques for assessing science process skills, concepts, and problem solving, with many examples.

Mitchell, R. 1992. **Testing For Learning: How New Approaches To Evaluation Can Improve American Schools.** New York: The Free Press, Macmillan, Inc.

Perspectives on alternative assessment more useful for those interested in educational policy than for practitioners looking for practical methods.

National Education Association. **Teacher-to-Teacher Series. Student Portfolios.** West Haven, CT: NEA Professional Library.

Each chapter is written by different teachers describing how they have used portfolios. Includes many examples and reproducibles.

Ostlund, K. 1992. **Science Process Skills: Assessing Hands-On Student Performance.** Menlo Park, CA: Addison Wesley Publishing.

Six levels of process skills have an assessment technique for each skill, with materials lists, procedures, and reproducible worksheets.

Perrone, V., Ed. 1991. **Expanding Student Assessment.** Alexandria, VA: Association for Supervision and Curriculum (ASCD).

Thought-provoking, academic articles on the rationale for authentic assessment.

Raizen, S.A., et al. 1989. **Assessment In Science Education: The Middle Years.** Andover, MA: The National Center for Improving Science Education, The NETWORK.

[Top of page](#) | [Main appendix List](#) | [Back to Appendix 3](#) | [Table of Contents](#)
[Help](#) | [About IES](#) | [Search](#) | [Print](#) | [Forums](#) | [Contact us](#) | [Home](#)

© Institute of Ecosystem Studies 2000, all rights reserved.



Appendix 3



Schoolyard Ecology Leaders' Handbook

Annotated resource directory

Resources on Integrating Science

Butzow, C. 1989. **Science Through Children's Literature: An Integrated Approach.** Libraries Unlimited.

Translates theory that reading and science process skills are co-dependent into new activities and lessons. Life, earth, and physical sciences all represented.

Criswell, S. 1994. **Nature Through Science and Art.** New York: McGraw-Hill Publishing. Activities for grades 3-6, blending science explorations and outlets for artistic expression.

Freedman, R. 1990. **Connections: Science by Writing.** Paradise, CA: Serin House Publishers. Over 50 minds-on, hands-on activities, teachers help students learn the meaning of hypothesis, observation, experimentation, and verification.

Saul, W., et al. 1993. **Science Workshop: A Whole Language Approach.** Portsmouth, NH: Heinemann Educational Books.

Focusing on three elements that characterize whole language classrooms: authenticity, autonomy, and community, education professionals reflect on promoting student involvement in learning science.

Scott, J., Ed. 1993. **Science and Language Links: Classroom Implications.** Portsmouth, NH: Heinemann Educational Books, Inc.

Emphasis is on children being actively involved in science and language learning. Book has three sections: Science & Talking, Science & Writing, and Science & Reading.

Tolley, K. **The Art and Science Connection.** Menlo Park, CA: Addison Wesley Publishing.

Thirty hands-on activities highlighting the themes on structure, energy, and interactions. Two volumes: one for primary (K-3) and the other for intermediate (4-6) grades.

Integrating Science and Mathematics in Teaching and Learning. Columbus, OH: ERIC/CSMEE. (Bibliography.)

[Top of page](#) | [Main appendix List](#) | [Back to Appendix 3](#) | [Table of Contents](#)
[Help](#) | [About IES](#) | [Search](#) | [Print](#) | [Forums](#) | [Contact us](#) | [Home](#)

© Institute of Ecosystem Studies 2000, all rights reserved.



Appendix 3



Schoolyard Ecology Leaders' Handbook

Annotated resource directory

Agency, Organization Publications

Alameda County Office of Education. 1988. **The California State Environmental Education Guide**. Hayward, CA.

A Curriculum Guide for grades K-6.

American Forest Foundation. 1987. **Project Learning Tree**. Washington, DC.

K-8. Interdisciplinary activities based on trees and forests. Curriculum guides available through PLT workshops.

Barash, D. 1986. **Project Seasons: Seasonal Teaching Ideas**. Shelbourne, VT: Shelbourne Farms Resources. (K-6.)

California Department of Education. 1990. **Science Framework for California Public Schools**. Sacramento, CA.

Curriculum Research and Development Group. **FAST Project: Foundational Approaches in Science Teaching**.

1992. **The Local Environment: Teacher's Guide**. 2nd Ed. Honolulu, HI: University of Hawaii. Contains a conceptual framework for FAST, based on constructivist principles, and two main activity sections: physical science and ecology.

Educational Development Center, Inc. 1991. **Insights: Hands-On Inquiry Science Curriculum Series**. Newton, MA: EDC.

"Habitats" Guide is most appropriate for ecology.

Harding, D. 1992. **Ecology Projects: Ideas and Practicals from the Journal of Biological Education**. London: Institute of Biology.

Kane, P., et al. 1992. **Bridges to the Natural World**. Franklin Lakes, NJ: NJ Audubon Society.

Lawrence Hall of Science, UC-Berkeley. **OBIS: Outdoor Biology Instructional Strategies**. Hudson, NH: Delta Education, Inc.

Units include "Lawns And Fields," "Neighborhood Woods," "Pavement and Parks," "Schoolyard," etc.

Lawrence Hall of Science, UC-Berkeley. 1992. **Once Upon A GEMS Guide**.

A reference guide to children's literature that supplements and enhances their GEMS (Great Explorations in Math and Science) activities.

Macdonald Educational. 1973. **The Science 5/13 Project**. Milwaukee, WI: Macdonald-Raintree, Inc.

Units for Teachers including "Minibeasts," "Using The Environment - Investigations," "Trees," etc. *Last Reprint 1982.

Missouri Department of Conservation. **Conservation Education Series. A Guide To The Planning and Development of Outdoor Classrooms**. Jefferson City, MO.

National Science Resources Center. **Science for Children: Resources for Teachers.** Washington, DC: National Academy Press.

Annotated guide to science resources and teaching materials.

National Wildlife Federation. **NatureScope Publications Series. Trees Are Terrific, Incredible Insects, Birds, Birds, Birds, and More.** Washington, DC.

O'Connor, M., and K. McGlaufflin. 1982, 1992. **Living Lightly in the City.** Milwaukee, WI: Schlitz Audubon Center.

Set for curricular activities on resource issues and ecological concepts. Volume I (K-3) and Volume II (grades 4-6).

Rutgers, The State University of New Jersey. 1992. **Science Teams: Teacher's Manual.** New Brunswick, NJ: Consortium for Environmental Equity.

Lessons in environmental education and cooperative learning.

Schuykill Center for Environmental Education. **Regional Environmental Education Program (REEP).** Philadelphia, PA.

Kindergarten through grade six units, each focusing on one ecological concept.

Sonoran Arthropod Studies, Inc. **Backyard Bugwatching Series.** Tucson, AZ.

Tucson Audubon Society. 1990. **Dr. Strangeplant (or How I Learned to Stop Worrying and Love the Weeds).**

Upper Elementary curriculum/science unit for studying urban "weeds."

UNESCO-UNEP International Environmental Education Program. 1992. **Environmental Education Activities for Primary Schools: Suggestions for Making and Using Low Cost Equipment.** (#21 in an UNESCO Environmental Education series.)

University of Arizona-Center for Insect Science. 1993. **Using Insects in Elementary Classrooms for Early Lessons in Life.** Tucson, AZ: Center for Insect Science Education Outreach, University of Arizona.

Background information and curriculum guide for K-3 teachers.

University of Wisconsin-Madison. **Bottle Biology.** Madison, WI: UW-Madison, Department of Plant Pathology.

U.S. Department of Agriculture, Soil Conservation Service. **Teaching Soil and Water Conservation: A Classroom and Field Guide.**

Virginia Tech Museum of Natural History. 1997. **The MINTS Book.**

Western Regional Environmental Education Council. 1986. **Project Wild.** Boulder, CO: WREEC, Project Wild. Supplementary, interdisciplinary guides for K-12, available through attendance in PW teacher workshops. New programs include Aquatic Wild and Wild School Sites.

World Resources Institute. 1994. **Teacher's Guide to World Resources 1994-95.** Baltimore, MD: WRI Publications.



Appendix 3



Schoolyard Ecology Leaders' Handbook

Annotated resource directory

Online Addresses for Environmental, Ecology & Education Information

- [Envirolink Network](#): Has menus for environmental information libraries, a clearinghouse of environmental education materials, and Internet environmental resource directory. E-mail address is admin@envirolink.org This address is for more information about how to access the Envirolink Network.
- [Florida Cooperative Extension Service B](#)
- [GLOBE](#): A hands-on program that joins K-12 students, educators, and scientists from around the world in learning about the global environment through studying their local environments.
- [HotList of K-12 internet school sites](#): List of schools and school districts that is updated weekly.
- International Society of Ecological Educators: E-mail address is gaial@aol.com.
- [Resources for educators](#): List of online educational resources geared toward educators.
- [Journey North](#): An Internet-based migration tracking of eagles, butterflies, sea turtles, songbirds, caribou, loons, etc. E-mail address is jnorth@informns.k12.mn.us
- [National Consortium for Environmental Education and Training \(NCEET\)](#): Manages "EE-Link," a www and gopher site for environmental education information on the Internet.
- The [National Science Foundation](#): Includes directories, publications, and more.
- [The Smithsonian Institution of Natural History](#)
- SNAP: School Nature Area Project, St. Olaf College, Northfield, MN. For a subscription, E-mail address issnap-request@stolaf.edu (contact person is Karen Van Norman)

[Top of page](#) | [Main appendix List](#) | [Back to Appendix 3](#) | [Table of Contents](#)
[Help](#) | [About IES](#) | [Search](#) | [Print](#) | [Forums](#) | [Contact us](#) | [Home](#)

© Institute of Ecosystem Studies 2000, all rights reserved.



Appendix 3



Schoolyard Ecology Leaders' Handbook

Annotated resource directory

Science Resource Suppliers

NSTA Science Education Suppliers Catalog. National Science Teachers Association. A yearly publication that lists names, addresses, and available materials and services for various suppliers. Sections include: equipment, educational services, computer software, media producers, and publishers. Available for \$5.00 from NSTA.

Science Resource Suppliers	
American Association for the Advancement of Science Publications Promotion Dept. 1333 H Street NW Washington, DC 20005 202-326-66	Publishes reference books on science literature and AV materials for children. Their publication "Science Education News" comes out 6 times/year.
Accent Science P.O. Box 1444 Saginaw, MI 48605 517-799-8103	Aquatic sampling equipment, nets, core samplers, field biology catalogs.
Acorn Naturalists 17300 East 17th Street Suite J-236 Tustin, CA 92680 800-422-8886 714-838-4888	Hands-on science and environmental education books, curriculum materials and field equipment, rubberized scat samples.
American Biological Supply Company 5819 NW 57th Way Gainesville, FL 32611-0270	Scientific supplies (recommended by Don Hall for entomological and botanical supplies)
Association for Supervision and Curriculum Development (ASCD) 1250 North Pitt Street Alexandria, VA 22314 703-549-9110	Publishes a variety of science education books/documents.
Ben Meadows 3589 Broad Street Atlanta, GA 30341 800-241-1601	Field and lab equipment for forestry, geology, horticulture, wildlife, biology, botany, entomology, etc.
The Biology Store P.O. Box 2691 Escondido, CA 92033 619-745-1445	Labware, field study supplies, specimens, charts, slides, etc.
BioQuip Products 17803 LaSalle Avenue Gardena, CA 90248-3602	Scientific supplies (recommended by Don Hall for entomological and botanical supplies)

<p>Carolina Biological Supply Co. 2700 York Road Burlington, NC 27215 910-584-0381</p>	<p>Huge array of biological, chemical and physical science supplies. Field equipment, books, posters, models, specimens, etc.</p>
<p>Connecticut Valley Biological Supply Co. 82 Valley Road, P.O. Box 326 Southampton, MA 01073 800-628-7748</p>	<p>Science activity kits, hands-on materials, science books, field equipment.</p>
<p>Creative Teaching Associates P.O. Box 7766 Fresno, CA 93747 209-291-6626</p>	<p>Lab resources for elementary schools. Supplier of Project AIMS materials.</p>
<p>Cuisenaire Company of America, Inc. 10 Bank Street White Plains, NY 10606 font face="verdana, arial, helvetica" size=2></p>	<p>Labware, field supplies, models, etc. Supplier for Addison Wesley and Science Weekly</p>
<p>Delta Education P.O. Box 915 Hudson, NH 03051-0915 800-258-1302 603-889-8899</p>	<p>Supplier for OBIS. Supplier for SCIIS (Science Curriculum Improvement Supply). Complete line of lab supplies and equipment. Also produce their own Delta Science modules.</p>
<p>Discovery Scope, Inc. P.O. Box 607 Green Valley, AZ 85622 800-398-5404</p>	<p>Hand-held microscope using available light in classroom and field.</p>
<p>Educational Instruments, Inc. 11 Robinson Lane Oxford, CT 06483 203-888-1266</p>	<p>Field study supplies and labware for all science disciplines.</p>
<p>ERIC/CSMEE Publications Office 1929 Kenny Road Columbus, OH 43210-1080</p>	<p>Clearinghouse for Science, Math, and Environmental Education publications. Send/call for their publication list.</p>
<p>Flowerfield Enterprises 10332 Shaver Road Kalamazoo, MI 49002 616-327-0108</p>	<p>Provides "worm-a-way" composting systems and live red worms.</p>
<p>Forestry Suppliers 205 West Rankin Street P.O. Box 8397 Jackson, MS 39284-8397</p>	<p>Earth, life, and environmental science equipment for field, classroom, and lab.</p>
<p>Frey Scientific Co. 905 Hickory Lane Mansfield, OH 44905 800-225-FREY (3739)</p>	<p>Science equipment, teaching aids, and curriculum programs.</p>
<p>General Supply Corporation P.O. Box 937 Jackson, MS 39286-9347 601-981-3882</p>	<p>Equipment for field studies. Portable test kits for sampling air, soil, and water. Bags, compasses, lenses, microscopes, sieves, etc</p>
<p>Grau-Hall Scientific 6401 -6501 Elvas Ave. Sacramento, CA 95819 800-331-4728</p>	<p>Science toys, books, specimens, and lab supplies for biology, chemistry, geology, and astronomy.</p>

Hach Company P.O. Box 389 Loveland, CA 80539 800-227-4224	Test kits, portable instruments, labware, and chemicals.
Hands On Science Outreach 4910 Macon Road Rockville, MD 20852 301-881-1142	Hands on science program teacher's guide
Hubbard Scientific, Inc. 3101 Iris Ave. Suite 215 Boulder, CO 80301 800-446-8767	Equipment for the study of plants, animals, weather, geology, and earth history.
Interpretive Publication and Resource Center P.O. Box 310 North Stonington, CT 06359 800-321-8725	Library of interpretive and environmental education titles.
Kons Scientific Company, Inc. P.O. Box 3 Germantown, WI 53022-0003 414-242-3636	Hands-on science materials including models, audio-visuals, books, posters, and living materials.
Learning Alternatives, Inc. 2370 West 89-A Suite #5 Sedina, AZ 86336 800-HANDS-ON	Supplemental hands-on materials, kits, preserved specimens, biological and lab supplies.
Learning Spectrum 1390 Westridge Drive Portola Valley, CA 94025 415-851-7871 415-566-0165	Science on a Shoestring microscope kits, and supplementary kits.
Let's Get Growing! 1900 Commercial Way Santa Cruz, CA 95065 408-464-1868	Lifelab science program, indoor and outdoor garden supplies, books, and projects.
MECC 6160 Summit Drive North Minneapolis, MN 54430-4003 800-685-6322	Science Inquiry Collection for grades 2-9, investigating science concepts.
NASCO Modesto P.O. Box 3837 Modesto, CA 95352 800-558-9595	Complete line of science teaching aids. Equipment supplier for Western Publishing. Also a NASCO in the midwest: P.O. Box 901, Fort Atkinson, WI 53538-0901.
National Education Association NEA Professional Library P.O. Box 509 West Haven, CT 06519 203-934-2669	NEA publishes a variety of books on cooperative learning, questioning techniques, and other pedagogy topics.. Send for a catalog.
National Teaching Aids, Inc. 1845 Highland Ave. New Hyde, Ny 11040 516-326-2555	Biological models, "science made easy kits".
Nature Discoveries 389 Rock Beach Road Rochester, NY 14617 716-865-4580	Breeder and supplier of butterfly and moth stages. Supplier of butterfly egg laying cages and caterpillar rearing cages.

Putnam/Northern Westchester BOCES 200 Boces Drive Yorktown Heights, NY 10598-4399 914-245-2700 ext. 349	The elementary science program: 37 units of instruction, teachers guides and hands on kits for a class of 30 students.
Schoolmasters Science 745 State Circle P.O. Box 1941 Ann Arbor, MI 48106 313-761-5072	Distributor of teaching aids for life, earth, and physical sciences, including videos, overhead transparencies, charts, books, lab equipment & experiential kits.
Science Kit and Boreal Labs 777 East Park Drive Tonawanda, NY 14150 800-828-7777	Science labware, field equipment, teaching aids, and other teacher developed, classroom tested products.
The Science Man Co. (A Division of TSM Marketing) 4738 N. Harlem Ave. Harwood Hts. IL 60656 708-867-4441	Supplementary K-12 materials emphasizing process-oriented science education. Unique selection of teacher resource books.
The Science Source P.O. Box 727 Waldoboro, ME 04572 207-832-6344	Curriculum materials for grades K-12. Classroom kits in biology and environmental science.
Silver Burdett Ginn 250 James Street CN 1918 Morristown, NJ 07960-1918 800-848-9500	Science Horizon Classroom Kits, including performance assessment equipment kits, creature kits, and scientific method equipment kit.
Swift Instruments, Inc. P.O. Box 562 San Jose, CA 95106 800-523-4544	Microscopes, binoculars, telescopes, weather instruments.
Teacher's Laboratory, Inc. P.O. Box 6480 Brattleboro, VT 05302 802-254-3457	Hands-on math and science materials and equipment, supported by instructional guides for teachers, grades K-8.
Tennessee Valley Authority Attn: Carol Davis 311 Broad Street Chattanooga, TN 37402-2801	Set of two booklets on water quality sampling equipment: one describes professional equipment and suppliers, the other has instructions for do-it yourself.
Uptown Sales 33 North Main Street Chambersburg, PA 17201 800-548-9941	Insect collecting supplies, science experiment books, posters, Usborne books.
Ward's Natural Science Establishment, Inc. 5100 West Henrietta Road P.O. Box 92912 Rochester, NY 14692-9012 800-962-2660	Field and lab supplies, materials cross reference for most biology and earth science texts.
Wind and Weather P.O. Box 2320-ST Mendocino, CA 95460 707-964-1284	Barometers, hygrometers, anemometers, psychrometers, rain gauges, cloud charts, etc.
Young Entomologist's Society, Inc. 1915 Peggy Place Lansing, MI 48910-2553 517-887-0499	Buggy Bookstore catalog with comprehensive selection of invertebrate books, educational kits, audio visuals, charts, etc.

Young Naturalist Company 1900 North Main Newton, KS 67114 316-283-4103	Nature Education kits - plant identification and classification.
Zephyr Press P.O. Box 13448 Tucson, AZ 85732-3448 602-322-5090	Science Series Learning Packets - ecology, entomology, geology, rocks and minerals, etc.

[Top of page](#) | [Main appendix List](#) | [Back to Appendix 3](#) | [Table of Contents](#)
[Help](#) | [About IES](#) | [Search](#) | [Print](#) | [Forums](#) | [Contact us](#) | [Home](#)

© Institute of Ecosystem Studies 2000, all rights reserved.