

INTRODUCTION

Excellence in Environmental Education—Guidelines for Learning (Pre K-12) provides students, parents, educators, home schoolers, administrators, policy makers, and the public a set of common, voluntary guidelines for environmental education. The guidelines support state and local environmental education efforts by:

- Setting expectations for performance and achievement in fourth, eighth, and twelfth grades;
- Suggesting a framework for effective and comprehensive environmental education programs and curricula;
- Demonstrating how environmental education can be used to meet standards set by the traditional disciplines and to give students opportunities to synthesize knowledge and experience across disciplines; and
- Defining the aims of environmental education.

These guidelines set a standard for high-quality environmental education across the country, based on what an environmentally literate person should know and be able to do. They draw on the best thinking in the field to outline the core ingredients for environmental education.

Environmental Education: A Vision for the Future

Excellence in Environmental Education—Guidelines for Learning is grounded in a widely shared understanding of effective environmental education. For many educators, that understanding begins with two founding documents of the field: the Belgrade Charter (UNESCO-UNEP, 1976) and the Tbilisi Declaration (UNESCO, 1978).

The Belgrade Charter was adopted by a United Nations conference and provides a widely accepted goal statement for environmental education:

The goal of environmental education is to develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations, and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones.

A few years later, the world's first intergovernmental conference on environmental education adopted the Tbilisi Declaration. This

declaration built on the Belgrade Charter and established three broad goals for environmental education. These goals provide the foundation for much of what has been done in the field since 1978:

- To foster clear awareness of, and concern about, economic, social, political and ecological interdependence in urban and rural areas;
- To provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment;
- To create new patterns of behavior of individuals, groups and society as a whole towards the environment.

As the field has evolved, these principles have been researched, critiqued, revisited, and expanded. They still stand as a strong foundation for a shared view of the core concepts and skills that environmentally literate citizens need. Since 1978, bodies such as the Brundtland Commission (Brundtland, 1987), the United Nations Conference on Environment and Development in Rio (UNCED, 1992), the Thessaloniki Declaration (UNESCO, 1997) and the World Summit on Sustainable Development in Johannesburg (United Nations, 2002) have influenced the work of many educators, highlighting the importance of viewing the environment within the context of human influences. This perspective has expanded the emphasis of environmental education, focusing more attention on social equity, economics, culture, and political structure.

Environmental education is rooted in the belief that humans can live compatibly with nature and act equitably toward each other. Another fundamental belief is that people can make informed decisions that consider future generations. Environmental education aims for a democratic society in which effective, environmentally literate citizens participate with creativity and responsibility.

Essential Underpinnings of Environmental Education

Environmental education builds from a core of key principles that inform its approach to education. Some of these important underpinnings are:

Systems: Systems help make sense of a large and complex world. A system is made up of parts. Each part can be understood separately. The whole, however, is understood

The Need for Environmental Literacy

The ultimate goal of environmental education is the development of an environmentally literate citizenry. Environmental literacy is not, however, a goal that is reached easily. We are asking individuals to go beyond the fact by fact, piece by piece examination of our environment and begin to understand and think in terms of systems bound together. We are asking individuals to develop a sophisticated set of skills that allow them to solve novel environmental problems and determine the best set of actions. We are asking individuals to become thoughtful, skillful, and active citizens in a democracy.

We need an environmentally literate citizenry that is not only capable of taking individual action, but of making well-informed public policy decisions collectively. Increasingly, individuals are asked to make choices on complex issues that affect their own lives, the lives of their families, their communities, and the world beyond their shores. Choices are made every time people enter a store, turn on a water faucet, plant a butterfly garden, or set the thermostat in their homes. Each time citizens vote, they make environmental decisions. When public policy is made, these decisions not only impact the economy and jobs, but the environment. Environmental literacy is predicated on the belief that if we educate our citizens so they are capable of making quality decisions, they will do so when the time comes.

only by understanding the relationships and interactions among the parts. The human body can be understood as a system; so can galaxies. Organizations, individual cells, communities of animals and plants, and families can all be understood as systems. And systems can be nested within other systems.

Interdependence: Human well being is inextricably bound with environmental quality. Humans are a part of the natural order. We and the systems we create—our societies, political systems, economies, religions, cultures, technologies—impact the total environment. Since we are a part of nature rather than outside it, we are challenged to recognize the ramifications of our interdependence.

The importance of where one lives: Beginning close to home, learners forge connections with, explore, and understand their immediate surroundings. The sensitivity, knowledge, and skills needed for this local connection provides a base for moving out into larger systems, broader issues, and an expanding understanding of causes, connections, and consequences.

Integration and infusion: Disciplines from the natural sciences to the social sciences to the humanities are connected through the medium of the environment and environmental

issues. Environmental education offers opportunities for integration and works best when infused across the curriculum, rather than being treated as a separate discipline or subject area.

Roots in the real world: Learners develop knowledge and skills through direct experience with the environment, environmental issues, and society. Investigation, analysis, and problem solving are essential activities and are most effective when relevant to the real world.

Lifelong learning: Critical and creative thinking, decision making, and communication, as well as collaborative learning, are emphasized. These skills are essential for active and meaningful learning, both in school and over a lifetime.

The Importance of Thinking Skills

Environmentally literate citizens are constantly challenged to use and improve their critical and creative thinking skills. Creative thinking is defined as thinking which results in connections or possibilities previously unrecognized or unknown to the learner. Critical thinking requires an analysis or consideration based on careful examination of information or evidence. Critical thinking relies on thoughtful questioning and logical thinking skills such as inductive and deductive reasoning.

Teaching from the Guidelines

Excellence in Environmental Education—Guidelines for Learning (Pre K-12) is primarily focused on learner achievement. The instructional strategies necessary for implementing environmental education are taken up in more detail in three other documents in this series, *Environmental Education Materials: Guidelines for Excellence* (2004), the *Guidelines for the Preparation and Professional Development of Environmental Educators* (2004), and *Nonformal Environmental Education Programs: Guidelines for Excellence* (2004).

Learning and instruction are closely linked, however, so these environmental education guidelines for learning include examples that offer specific ideas for implementation in instructional settings. These examples are based on several general principles that help guide environmental education instruction:

The **learner is an active participant**. If learning is to become a natural, valued part of life beyond school, **instruction should be guided by the learner's interests and**

treated as a process of building knowledge and skills.

Using the guidelines and knowledge of individual learners and different classes, instructors can make environmental education relevant to specific learners at particular developmental levels.

Instruction provides opportunities for learners to enhance their capacity for **independent thinking and effective, responsible action**. Engaging in individual and group work helps learners develop these capacities independently and in collaborative situations that anticipate the ways in which problem-solving happens in the community, on the job, and in the family. A **strong emphasis on developing communication skills** means that learners will be able to both demonstrate and apply their knowledge.

Because environmental issues can prompt deep feelings and strong opinions, educators must take a **balanced approach to instruction**. Educators incorporate differing perspectives and points of view even-handedly and respectfully, and present information fairly and accurately.

Environmental literacy depends on a personal commitment to apply skills and knowledge to help ensure environmental quality and quality of life. For most learners, **personal commitment begins with an awareness of what immediately surrounds them**. Instructors foster learners' innate curiosity and enthusiasm, providing them with **early and continuing opportunities to explore their environment**. "Taking the show on the road"—or at least out of the classroom—is an important instructional strategy for engaging students in direct discovery of the world around them.

How the Guidelines are Organized

Excellence in Environmental Education—Guidelines for Learning (Pre K-12) offers a vision of environmental education that makes sense within the formal education system and promotes progress toward sustaining a healthy environment and quality of life. Guidelines are suggested for each of three grade levels—fourth, eighth, and twelfth. Each guideline focuses on one element of environmental literacy, describing a level of skill or knowledge appropriate to the grade level under which it appears. Sample performance measures illustrate how mastery of each guideline might be demonstrated.

The guidelines are organized into four strands, each of which represents a broad aspect of environmental education and its goal of environmental literacy. The strands are:

Strand 1: Questioning, Analysis and Interpretation Skills

Environmental literacy depends on learners' ability to ask questions, speculate, and hypothesize about the world around them, seek information, and develop answers to their questions. Learners must be familiar with inquiry, master fundamental skills for gathering and organizing information, and interpret and synthesize information to develop and communicate explanations.

Strand 2: Knowledge of Environmental Processes and Systems

An important component of environmental literacy is understanding the processes and systems that comprise the environment, including human social systems and influences. That understanding is based on knowledge synthesized from across traditional disciplines. The guidelines in this section are grouped in four sub-categories:

- 2.1—The Earth as a physical system;
- 2.2—The living environment;
- 2.3—Humans and their societies; and
- 2.4—Environment and society.

Strand 3: Skills for Understanding and Addressing Environmental Issues

Skills and knowledge are refined and applied in the context of environmental issues. These environmental issues are real-life dramas where differing viewpoints about environmental problems and their potential solutions are played out. Environmental literacy includes the abilities to define, learn about, evaluate, and act on environmental issues. In this section, the guidelines are grouped in two sub-categories:

- 3.1—Skills for analyzing and investigating environmental issues; and
- 3.2—Decision-making and citizenship skills.

Strand 4: Personal and Civic Responsibility

Environmentally literate citizens are willing and able to act on their own conclusions about what should be done to ensure environmental quality. As learners develop and apply concept-based learning and skills for inquiry, analysis, and action, they also understand that what they do individually and in groups can make a difference.

Taken together, these strands create a vision of environmental literacy. The sequence of the strands—and the individual guidelines themselves—may suggest that some skills or knowledge serve as a foundation for others. But the process of becoming environmentally literate is not linear, and the sequence of the guidelines is more a function of bringing an order and logic to this document than a reflection of a hierarchy of skills and knowledge.

The *Guidelines* at a Glance

Excellence in Environmental Education—Guidelines for Learning (K-12) sets appropriate expectations for learner performance and achievement at the end of fourth and eighth grades and by high school graduation. The diagram on page 8 will help the user understand how this *Guidelines* document is constructed, and what kinds of information it offers.

Sample classroom techniques for meeting the guidelines are included throughout the publication. These summaries also indicate correlations to specific guidelines and suggest additional performance measures.

Also included in this *Guidelines* document are:

- *Introductory materials* that place the guidelines in context, outlining a comprehensive vision of environmental education.
- An easy reference chart summarizing the strands and guidelines (see Appendix A).
- *Background for the Development of the Learner Guidelines Framework*, an appendix that relates key developments in the field of environmental education to the framework around which the guidelines are structured (see Appendix B).

Communication and expression are skills that are obviously critical to environmental literacy. Examples of how learners might communicate their understanding and express ideas and conclusions are scattered throughout this document. These are only a representation of the modes of artistic and linguistic expression that are both fundamental to, and fostered by, environmental education. The richness of the relationship between environmental education and the language and fine arts is not fully reflected by the few references made to their disciplinary standards. Learners should use many forms of communication in their pursuit of environmental literacy, ranging from oral and written communication to theater, and from dance and music to the visual arts.

Sample Page

Strand 1 Questioning, Analysis and Interpretation Skills

Guidelines:

A) **Questioning**—Learners are able to develop questions that help them learn about the environment and do simple investigations.

- Generate ideas and questions about objects, organisms, events, places, and relationships in the environment.
- Identify questions they are likely to be able to answer by combining their own observations and investigations of the environment with existing information.
- Pose questions based on experiences in their own community and local environment as well as from other sources, such as journalistic reports about the environment.

B) **Designing investigations**—Learners are able to design simple investigations.

- Speculate about possible answers to their own questions, developing and discussing simple alternative hypotheses.
- Design ways of answering questions based on systematic observations. For example, devise a way to learn about the life cycle of a caterpillar or the means of transportation that children take to and from their school.
- Design simple experiments to answer questions and test ideas they have about the environment.

Organizing Strands—Divide the guidelines into four broad, thematic areas.

Connections with Other Disciplinary Standards—Refer to particular pages in national standards set by professional organizations of several academic disciplines. Contain standards, performance objectives, and examples related to the environmental education guideline. The documents referenced are listed on page 9.

English Language Arts
38-39
Geography 42-43, 46
History 20-22
Mathematics 23-25
Science 121-123
Mathematics 23-25

Science 122

Guidelines—Suggest general goals for learner achievement.

Sample Indicators—
Illustrate some ways in
which learner achievement
might be demonstrated.

Connections with Other Disciplinary Standards

These are the national standards documents referenced and the short titles used to represent them.

Short Title	Standards Document Referenced
Arts	<i>National Standards for Arts Education: What Every Young American Should Know and Be Able to Do in the Arts</i> . Reston, VA: Music Educators National Conference, 1994.
Civics and Government	<i>National Standards for Civics and Government</i> . Calabasas, CA: Center for Civic Education, 1994.
Economics	<i>Voluntary National Content Standards in Economics</i> . New York: National Council on Economics Education, 1997.
English Language Arts	<i>Standards for the English Language Arts</i> . Urbana, IL: National Council of Teachers of English, 1996.
Geography	<i>Geography for Life: National Geography Standards</i> . Washington, DC: National Geographic Research and Exploration, 1994.
History	<i>National Standards for History</i> . Los Angeles, CA: National Center for History in the Schools, 1996.
Mathematics	<i>Principles and Standards for School Mathematics</i> . Reston, VA: National Council of Teachers of Mathematics, 2000.
Science	<i>National Science Education Standards</i> . Washington, DC: National Academy Press, 1996.
Science Benchmarks	Project 2061, American Association for the Advancement of Science. <i>Benchmarks for Science Literacy</i> . New York, NY: Oxford University Press, 1993.
Social Studies	<i>Expectations of Excellence: Curriculum Standards for Social Studies</i> . Washington, DC: National Council for the Social Studies, 1994.

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- United Nations (2003) *Report of the World Summit on Sustainable Development (Johannesburg, South Africa, 26 August—4 September 2002)* New York: United Nations