

QUICK REFERENCE: 4TH GRADE ENVIRONMENTAL ED.

A. QUESTIONING AND ANALYSIS

Content Standard

Students in Wisconsin will use credible research methods to investigate environmental questions, revise their personal understanding to accommodate new knowledge and perspectives, and be able to communicate this understanding to others.

Rationale:

Developing an understanding of the environment and environmental sustainability depends on students' willingness and ability to ask questions about the world around them, speculate and hypothesize, seek information, and develop answers to their questions. Environmental literacy requires a familiarity with some basic modes of inquiry; a mastery of fundamental skills for gathering, organizing, interpreting, synthesizing, and evaluating information; developing explanations; and communicating these understandings to others.

PERFORMANCE STANDARDS

By the end of grade 4 students will:

- A.4.1 Make observations, ask questions and plan environmental investigations* (*see Science [SC] Inquiry; English/Language Arts [LA] Research*)
- A.4.2 Collect information, make predictions, and offer explanations about questions asked (*see: SC Inquiry*)
- A.4.3 Develop answers, draw conclusions, and revise their personal understanding as needed based on their investigations* (*see SC Inquiry*)
- A.4.4 Communicate their understanding to others in simple terms (*see LA Writing*)

B. KNOWLEDGE OF ENVIRONMENTAL PROCESSES AND SYSTEMS

Content Standard

Students in Wisconsin will demonstrate an understanding of the natural environment and the interrelationships among natural systems.

Rationale:

The foundation of environmental education is a basic understanding of the processes of the interacting systems that comprise the environment. Therefore, it is essential that students have knowledge of the earth as a dynamic, physical, and living system that has been affected over time by various human societies. This knowledge is a necessary prerequisite for problem-solving activities required for individual and community response to environmental issues.

PERFORMANCE STANDARDS

By the end of grade 4 students will:

Energy and Ecosystems

- B.4.1 Describe the flow of energy* in natural systems, citing the sun as the source of energy* on the earth; e.g., a food chain (*see SC Physical Science*)
- B.4.2 Illustrate how they use energy* in their daily lives
- B.4.3 List sources of energy,* distinguishing between renewable* and nonrenewable* sources
- B.4.4 List the components of an ecosystem,* including the qualities of a healthy habitat* (*see SC Life and Environmental Science*)
- B.4.5 Describe natural and human-built ecosystems* in Wisconsin
- B.4.6 Cite examples of how different organisms adapt to their habitat*
- B.4.7 Draw a simple hydrologic cycle*

Natural Resources and Environmental Quality

- B.4.8 Describe and give examples of natural resources;* e.g., water, minerals, soils, air (*see SC Nature of Science*)
- B.4.9 Distinguish between renewable* and nonrenewable* resources
- B.4.10 Describe how they use natural resources* in their daily lives
- B.4.11 List jobs in the community that result from or are influenced by processing and using natural resources*
- B.4.12 Determine the cause of different types of pollution*

C. ENVIRONMENTAL ISSUE INVESTIGATION SKILLS

Content Standard

Students in Wisconsin will be able to identify, investigate, and evaluate environmental problems and issues.

Rationale:

Solving environmental problems and issues requires skills in environmental investigations. These skills, in turn, provide students with opportunities to apply and improve their capacity for systems thinking and their understanding of a sustainable world and society. Focusing on environmental issues offers students a means of integrating their knowledge of human and environmental systems and a way of finding personal relevance in that knowledge.

PERFORMANCE STANDARDS

By the end of grade 4 students will:

- C.4.1 Identify environmental problems and issues (*see SS Political Science and Citizenship: Power, Authority, Governance, and Responsibility*)
- C.4.2 Apply ideas of past, present, and future to specific environmental issues (*see SC Connections*)
- C.4.3 Identify people and groups of people that are involved in the issue
- C.4.4 Identify some of the decisions and actions related to the issue
- C.4.5 Identify proposed solutions to the issue and discuss arguments for and against the issue

D. DECISION AND ACTION SKILLS

Content Standard

Students in Wisconsin will use findings from environmental issue investigations to develop decision-making skills, and to gain experience in citizen action skills.

Rationale:

Students need decision-making and action skills to contribute toward environmental sustainability. In addition, these skills enable them to analyze the effectiveness of individual versus group action, develop issue-resolution plans that incorporate one or more citizen participation skills, and consider these plans in terms of social, cultural, and ecological consequences and implications.

PERFORMANCE STANDARDS

By the end of grade 4 students will:

- D.4.1 Demonstrate knowledge of a decision-making process that includes selecting and using data, suggesting possible alternatives, predicting consequences, and being aware of available resources (see SC Inquiry; LA Inquiry)
- D.4.2 Identify and give examples of short-term and long-term solutions to a problem*
- D.4.3 Identify two or more ways to take positive environmental action; e.g., posters, letters, and speeches (see LA Oral Language)
- D.4.4 Communicate with local, state, or national officials regarding an environmental topic (see LA Writing)
- D.4.5 Explain how they can influence an environmental issue
- D.4.6 Develop a plan, either individually or in a group, to preserve the local environment

E. PERSONAL AND CIVIC RESPONSIBILITY

Content Standard

Students in Wisconsin will develop an understanding and commitment to environmental stewardship.

Rationale:

Environmentally literate students recognize how their individual behaviors affect the environment. They have the knowledge, skills, and confidence to act on their own about what should be done to maintain an economically and ecologically sustainable environment. They will recognize that their participation in activities can lead to resolution of environmental challenges.

PERFORMANCE STANDARDS

By the end of grade 4 students will:

- E.4.1 Identify and describe examples of their environmental civic responsibilities and the actions they take to meet them
- E.4.2 Understand how their personal actions impact their civic responsibilities toward the environment (see SS Political Science and Citizenship: Power, Authority, Governance, and Responsibility)

Glossary of Terms

Audience Appropriate. Materials, ideas, language, etc., being used or presented at a level of understanding.

Belief. Something accepted as true.

Citizen. A person entitled by birth or naturalization to the protection of a given state.

Culture. The totality of socially transmitted behavior patterns, arts, beliefs, institutions, and all other products of human work and thought characteristic of a community or population.

Diversity. Physical or biological complexity of a system. Usually a measure of the number of different species in an ecosystem. (Miller)*

Ecosystems. Self-regulating natural community of plants and animals interacting with one another and with their nonliving environment. (Miller)*

Energy. Ability to do work or produce a change by pushing or pulling some form of matter or to cause a heat transfer between two objects at different temperatures. (Miller)*

Ethic. A principle of right or good conduct; the moral quality of a course of action.

Evolution. The process by which a population of a species changes its characteristics over time in response to changes in environmental conditions. (Miller)*

Habitat. The area or type of environment in which an organism or biological population normally lives or occurs.

Hydrologic Cycle. Biogeochemical cycle that moves and recycles water in various forms through the biosphere. (Miller)*

Inquiry. A close examination of some matter in a quest for information or truth.

Investigation. A process of systematic inquiry.

Issue. A point of discussion, debate, or dispute.

Monitor. To scrutinize or check systematically with a view to collecting certain specified categories of data.

Natural Resource. Anything obtained from the physical environment to meet human needs. (Miller)*

Nonpoint Source. Source of pollution in which wastes are not released at one specific, identifiable point but from a number of points that are spread out and difficult to identify and control. (Miller)*

Nonrenewable. Resource that exists in a fixed amount (stock) in various places in the earth's crust and has the potential for renewal only by geological, physical, and chemical processes taking place over hundreds of millions to billions of years. (Miller)*

Point Source. Source of pollution that involves discharge of pollutants from an identifiable point such as a smokestack or sewage treatment plant. (Miller)*

Pollution. A change in the physical, chemical, or biological characteristics of the air, water, or soil that can affect the health, survival, or activities of human beings or other living organisms in a harmful way. (Miller)*

Problem. A question or situation that presents uncertainty, perplexity, or difficulty.

Renewable. Resource that theoretically can last indefinitely without reducing the available supply, either because it is replaced more rapidly through natural processes than are nonrenewable resources or because it is essentially inexhaustible. (Miller)*

Society. A group of human beings broadly distinguished from other groups by mutual interests, participation in characteristic relationships, shared institutions, and a common culture.

Succession. Process in which communities of plant and animal species are replaced in a particular area over time by a series of different and usually more complex communities. (Miller)*

Sustainability. Ability of a system to survive for some specified (finite) time.

Stewardship. The concept of responsible caretaking, based upon the premise that we do not own resources but are managers of resources, and are responsible to future generations for their condition.

Value. A principle, standard, or quality considered worthwhile or desirable.

Waste. Useless, unneeded, discarded, unused or excess material such as ashes, garbage, by-products.

**Environmental Science: Working with the Earth.* 7th edition. G. Tyler Miller, Jr. Wadsworth Publishing Co. c1999.