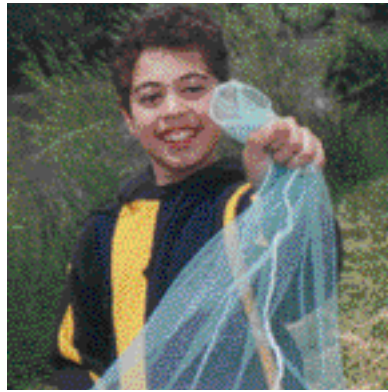


Guidelines for Environmental Educators in Utah



Utah Society for Environmental Education

The Utah Society for Environmental Education (USEE) is a 501(c)(3) non-profit organization that strives to develop an environmentally literate and active citizenry. USEE's mission is *to foster environmental knowledge, skills, attitudes and actions through statewide leadership that serves to expand the quality, scope and effectiveness of environmental education and to benefit society as a whole.*

USEE focuses on three areas of work: Capacity Building, Modeling Quality Environmental Education, and Pushing the Environmental Education Envelope.

Capacity Building: There are literally hundreds of groups providing environmental education (EE) to students, teachers and the general public of Utah. USEE works with these groups to improve the quality and effectiveness of their programs, as well as to improve the overall effectiveness of communication and coordination among those providing EE in Utah.

Examples of programs and projects USEE undertakes to build capacity include:

- Annual EE Conference
- *The Web*
- On-line EE Directory

Modeling Quality Environmental Education: To ensure USEE staff understand the dilemmas faced by those providing environmental education, we keep our hands dirty by working with students and teachers. In other words, we walk our talk by facilitating activities for students and teacher training workshops.

Examples of programs and projects USEE undertakes to get on the ground experience include:

- Young Naturalist
- Draper Wetlands EE Project
- WOW

Pushing the Environmental Education Envelope: Environmental education emphasizes a process that teaches people how to think. It develops critical-thinking skills and therefore is a needed element in our democracy. While the traditional focus of environmental education is on natural resources, USEE works with non-traditional audiences and on non-traditional subjects to further environmental literacy. USEE has worked with businesses, art groups and environmental justice communities.

Examples of programs and projects USEE undertakes to push the EE envelope include:

- SLC Green Building Codes
- Great Basin Earth Institute
- Interpretative projects

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Introduction

Guidelines for Environmental Education Providers in Utah is one of many efforts occurring at the state and national level to synthesize the best thinking about environmental education and to define quality environmental education. This Utah specific effort began in 1999 when more than 60 environmental education interests gathered for meetings of the Utah Environmental Education Council (later to be renamed the Utah Society for Environmental Education Program Advisory Committee or USEE PAC).

At the first meeting, and at several subsequent meetings, participants identified high priority needs for Utah's EE community. Consistently on this list was the need to develop guidelines for EE providers and to legitimize EE in Utah. Given that directive, Utah Society for Environmental Education (USEE) applied for and received a United States Environmental Protection Agency grant to develop such guidelines.

Guidelines for Environmental Education Providers in Utah was developed by a writing team consisting of Utah environmental educators representing higher education, formal education (K-12), and non-formal education. Supporting their efforts were three USEE staff members, and providing crucial facilitation and guidance was Dr. Bora Simmons, Chair of the National Project for Excellence in Environmental Education.

The writing team developed a draft version of the Utah specific guidelines, which was then disseminated to more than seventy Utah environmental educators. Feedback was provided by approximately thirty people representing teachers, staff from nature centers, environmental scientists, curriculum developers, staff from environmental education organizations, university faculty, and staff from natural resource agencies.

A second draft incorporating feedback was developed and disseminated. Once again, comments were received and incorporated into this, the final version of the *Guidelines for Environmental Education Providers in Utah*.

Borrowing from the National *Guidelines for the Initial Preparation of Environmental Educators*, from which this Utah specific efforts was based, “this document presents an ambitious overview of the abilities and knowledge of a well-prepared environmental educator; it does not seek to address more general education competencies. The guidelines provide a mechanism for gauging the quality of pre-service programs and the abilities of new environmental educators. Instead of offering fixed rules, these guidelines suggest a broad visions – a goal to work toward and a guide for professional and programmatic development.”

Theme #1 - Environmental Literacy

EE providers are able to effectively address the objectives of environmental literacy with learners. Environmental literacy refers to specific knowledge of environmental systems, an understanding of how this knowledge is obtained, skills to apply this knowledge to environmental issues as well as a sense of personal and civic responsibility. Additionally, environmental literacy is a life long pursuit. It is to be practiced rather than achieved. Therefore, EE providers should not only possess the competency to help their clients achieve these objectives but also embrace the spirit of Environmental Literacy by modeling it in their own endeavors.

1.1 Questioning and analysis

EE providers are able to facilitate effective questioning and analysis skills.

Developing environmental literacy depends on a willingness and ability to ask questions about the surrounding world, to speculate and hypothesize, to seek and evaluate information and to develop answers to questions. Environmental literacy requires a working knowledge of the process of science and science as a way of knowing, a mastery of fundamental skills for gathering and organizing information, and an ability to interpret and synthesize information and communicate explanations.

- *Observation* - Develop a fascination with the natural world and understand that curiosity and enthusiastic observation is the root of all environmental investigations.
- *Questioning* - Develop, modify, and explain questions that guide environmental investigations of various types; understand factors that influence questions they pose.
- *Designing investigations* - Design investigations to answer particular questions about the environment; develop approaches for investigating unfamiliar types of problems and phenomena.
- *Collecting information* - Locate and collect reliable information for environmental investigations of many types; know how to use sophisticated technology to collect information including computer programs that access, gather, store and display data.
- *Evaluating accuracy and reliability* - Apply basic logic skills to evaluate completeness and reliability to a variety of information sources.
- *Organizing information* - Organize and display information in ways appropriate to different types of environmental investigations and purposes.
- *Developing explanations* - Use evidence and logic in developing explanations that address questions and hypotheses.
- *Understanding science as a way of knowing* - Understand the scope and limitations of scientific inquiry and how it is used for making decisions about environmental problems; this includes an understanding that our current knowledge of environmental processes is incomplete and that science moves forward through an error-making and error-correcting process.

1.2 Knowledge of environmental processes and systems

EE providers are knowledgeable about various environmental processes and systems and are able to relate them to various subject areas.

Environmental literacy hinges on understanding of the processes and systems that comprise the environment, including human systems and their influences. That understanding is based on knowledge from different subject areas (especially the natural and social sciences) and includes knowledge about: the Earth as a physical system; the living environment (flora and fauna); humans and their societies and how society and the environment are linked. EE providers must gain a competency with the content and skills they will be teaching.

The Earth as a Physical System

- *Processes that shape the Earth* - Understand the major physical processes that shape the Earth and can relate these processes, especially those that are large-scale and long-term, to characteristics of the Earth.
- *Changes in matter* - Apply their understanding of chemical reactions to round out their explanations of environmental characteristics and everyday phenomena.
- *Energy* - Grasp formal concepts related to energy by focusing on energy transfer and transformations and are able to make connections among phenomena such as light, heat, magnetism, electricity and the motion of objects.

The Living Environment

- *Ecology and natural history* - Understand basic organismal, population, community and ecosystem ecology with special emphasis on local landscapes.
- *Biodiversity and biological integrity* - Understand the value of biodiversity to natural systems and human societies as well as the importance of maintaining natural conditions and processes in managed and unmanaged ecosystems.
- *Heredity and evolution* - Understand the basic theories and genetic mechanisms behind biological evolution.
- *Systems and connections* - Understand the living environment is comprised of interrelated, dynamic systems interconnected at multiple spatial and temporal scales.

Humans and Their Societies

- *Individuals and groups* - Understand the influence of individual and group actions on the environment and how groups can work to promote and balance interests.
- *Culture* - Understand how different cultures perceive and interpret the environment.
- *Political and economic systems* - Understand how different political and economic systems account for, manage and affect natural resources and environmental quality.
- *Change and conflict* - Understand the functioning of public processes for promoting and managing change and conflict and can analyze their effects on the environment.

Environment and Society

- *Human/environment interactions* - Understand that humans are able to alter the physical environment to meet their needs and that there are limits to the ability of the environment to absorb impacts or meet human needs.
- *Places* - Understand "place" as humans endowing a particular part of the Earth with meaning through their interactions with that environment.
- *Resources* - Understand that the importance and use of resources change over time and vary under different economic and technological systems.
- *Technology* - Examine the social and environmental impacts of various technological systems.
- *Environmental issues* - Be familiar with a range of environmental issues at scales that range from local to global; understand that these scales and issues are often linked.

1.3 Skills for understanding and addressing environmental issues

EE providers must have an understanding and be able to address current environmental issues.

Environmental literacy includes the abilities to learn about, evaluate and respond to environmental issues. The skills and knowledge outlined in the first two guidelines are applied and refined in the context of these issues -- the real-life dramas where differing viewpoints and interpretations of data about environmental problems and their potential solutions are played out.

Skills for Analyzing and Investigating Environmental Issues

- *Identifying and investigating issues* - Apply their research and analytical skills to investigate environmental issues ranging from local issues to those that are regional or global in scope.
- *Identifying and evaluating alternative solutions and courses of action* - Identify and propose action strategies that are likely to be effective in particular situations.
- *Working with flexibility, creativity and openness* - Engage in a spirit of open inquiry and respect despite potential differences in world view.

Decision making and Citizenship Skills

- *Forming and evaluating personal views* - Communicate, evaluate and justify personal views on environmental issues and ways to address these issues.
- *Evaluating the need for citizen action* - Ability to decide whether action is needed in particular situations and make an informed choice to be involved or not be involved.
- *Planning and taking action* - Ability to plan for action based on research and analysis of an environmental issue; if appropriate, take actions that are within the scope of their rights and consistent with their abilities and responsibilities as citizens.
- *Evaluating the results of actions* - Evaluate the effects of their own actions and actions taken by other individuals and groups.

1.4 Personal and civic responsibility

EE providers will foster personal and civic responsibility.

Environmental literacy is activated by individual commitment. Environmentally literate citizens are motivated and empowered to act on their own informed conclusions about what should be done to ensure environmental quality. In applying the skills and knowledge learned by taking action on current problems, people cultivate an understanding that what they do as individuals and in groups makes a difference.

- *Understanding societal values and principles* - Analyze the influence of shared and conflicting societal values.
- *Recognizing citizens' rights and responsibilities* - Understand the importance of exercising the rights and responsibilities of citizenship.
- *Recognizing efficacy* - Possess a realistic self-confidence in their effectiveness as citizens.
- *Accepting personal responsibility* - Understand that personal actions can have broad consequences and accept responsibility for recognizing those effects and changing their actions when necessary.

Theme #2 - Foundations of Environmental Education

Environmental educators must have a basic understanding of the goals, theory, practice and history of the field of environmental education. This knowledge provides a solid foundation on which new educators can build their own practice.

2.1 Fundamental characteristics and goals of environmental education

EE providers understand environmental education as a distinct field and know its defining characteristics and goals.

- Identify the goals and objectives of environmental education as laid out in founding documents of the field, such as the Belgrade Charter (UNESCO-UNEP, 1976) and Tbilisi Declaration (UNESCO, 1978), as well as in more recent documents such as Agenda 21 (UNCED, 1992).
- Describe the broad view that environmental education takes of "environment," incorporating concepts such as systems, interdependence and interactions among humans, other living organisms, the physical environment and the built or designed environment.
- Discuss environmental education as a field that has components of many subjects/fields and provide examples of ways in which it draws on and integrates knowledge and skills from across different subjects.
- Discuss the importance of empirical data in environmental education.
- Discuss how good environmental education is based upon sound science principles and not upon emotional appeals.
- Identify major components of Environmental Literacy (see Theme 1) and discuss influences that have contributed to the evolution of these concepts.
- Relate environmental education's focus on environmental literacy and citizenship with the need to provide opportunities for learners to enhance their capacity for independent thinking and effective, responsible action.

2.2 How environmental education is implemented

EE providers understand that environmental education takes place in a variety of settings and that sources of support, program requirements and other factors vary from context to context.

- Have familiarity with other individuals, organizations and agencies providing environmental education programs, including education K-12 and nonformal programs.
- Have knowledge about school policies, state or local mandates for environmental education and federal legislation influence environmental education efforts.
- Be familiar with a variety of national, regional, state and local environmental education programs and support services, including funding sources and resources.
- Identify efforts to link formal education and nonformal programs through partnerships and other collaborations.
- Be familiar with the ways that EE supports education reform through the use of various teaching methods.

2.3 The evolution of the field and goals of environmental education

EE providers are familiar with how the field of environmental education has changed over time and continues to change.

- Discuss how movements contributed to the development of environmental education and how they differ from environmental education. Examples of these movements include: education-based (nature study, outdoor education, conservation education, ecology education, challenge/adventure education and inquiry-based); social awareness (women's rights, environmental justice and equal rights) and environmental (sustainability).

- Discuss how the work of bodies such as the Brundtland Commission (Brundtland, 1987), the United Nations Conference on Environment and Development (UNCED, 1992), and the International Conference on Environment and Society (UNESCO 1997) has affected environmental education. Other works to discuss include Environmental Protection Agency's report on Environmental Justice, *Agenda 21*, Earth and Faith and work from the National Science Teacher Association (NSTA).
- Obtain knowledge about specific research findings from environmental education and discuss their effect on how environmental education might be perceived, defined or practiced.
- Identify current and emerging issues in the field of environmental education. For example, evaluate assertions that environmental education focuses more on advocacy rather than education and discuss how these assertions are affecting environmental educators and education programs. Other examples might include: reduction of content with field-based work, liability, and evaluation and assessment.

2.4 The evolution of the field in Utah

EE providers must possess a knowledge and appreciation of the historical events in EE in Utah. A historical perspective allows one to identify trends and cycles. The field of EE in Utah has a rich history. See Appendix A for the history of EE in Utah.

Theme #3 - Professional Responsibilities of the Environmental Educator

EE providers must understand and accept the responsibilities associated with practicing environmental education. In preparation, EE providers should maintain consistent and high standards for instruction and professional conduct.

3.1 Exemplary environmental education practice

EE providers understand their responsibility to provide environmental education that is appropriate, constructive and aligned with the standards of the field.

- Identify and practice ways in which environmental education can be used as a tool for meeting curricular standards and addressing education reform goals.
- Consider the role of existing or potential partnerships with community members and organizations, government agencies, businesses, the formal and nonformal education systems and others in providing environmental education that is appropriate and helpful to the community.
- Model responsible, respectful and reasoned behavior during instruction and personal life.
- Model various teaching techniques to reach all learners.
- Identify potential risks to students and take precautions to ensure safety when teaching in the field.

3.2 Emphasis on education, not advocacy

EE providers are committed to provide accurate, objective, scientific and effective instruction - not to promote a particular view about environmental conditions, issues or actions.

- Identify and implement instructional techniques for presenting differing viewpoints and theories in an objective manner and identify potential sources of biased information.
- Differentiate among instructional materials on the basis of their factual accuracy by selecting and using materials that together present a range of differing viewpoints and interpretations where there are differences of opinion or competing scientific explanations; weigh evidence regarding environmental problems based on validity of data (e.g. from scientific societies or reputable journals).
- Identify and implement instructional strategies and techniques that encourage learners to explore different perspectives, form or modify their own opinions and explain their own perspectives.

3.3 Ongoing learning and professional development

EE providers are aware of the need to be active learners in their professional lives.

- Practice ways of continually updating information about the environment and issues, current research, environmental education materials and instructional methods. For example, critically read scientific journals or actively participate in local, state, national and international organizations associated with environmental education.
- Develop relationships with mentors, advisors and others who challenge educators to expand and upgrade their knowledge and skills and expand their firsthand understanding of different points of view about environmental issues.
- Learn from personal practice as an environmental educator, both individually and with other professionals and colleagues; use tools such as peer coaching, portfolios and journals.
- Seek out opportunities to learn essential content and skills in real-world environmental settings or contexts, especially within the bioregion in which they live.
- Learn and use research and analytical skills to expand existing knowledge about the environment, related issues and environmental education.

Theme #4 - Planning and Implementing Environmental Education

EE providers must combine high-quality education with the unique features of environmental education to design and implement effective instruction. EE providers must enable learners to engage in open inquiry and investigation, especially when considering environmental issues that are controversial and require learners to seriously reflect on their own and others' perspectives. Proper preparation should enable EE providers to provide the interdisciplinary, hands-on, investigative learning opportunities that are central to environmental education. EE providers must foster an environment such that student interactions are conducive to learning.

4.1 Knowledge about learners and learning

EE providers know how to tailor instructional approaches to meet the needs of, yet challenge, the different and varied styles of learners. Additionally, these providers should make the necessary accommodations for students with disabilities.

- Model methods for presenting the environment or environmental issues in appropriate and engaging ways for learners of different ages, backgrounds, levels of knowledge and developmental abilities. (This range may include adults, especially for educators in nonformal settings.)
- Select environmental education materials and strategies that are developmentally appropriate for a designated grade level or level of knowledge and be able to adjust these in response to individual differences among learners.
- Demonstrate an understanding of different learning and cognitive styles and the idea of multiple intelligences. Learning style refers to a combination of affective, cognitive, environmental and physiological responses that characterize how each person learns.¹
- Organize environmental education instruction to accommodate the various modes of learning.
- Apply theories of cognitive and moral/social development in creating an environmental education instructional plan for a particular grade level, class or group.²
- Recognize and acknowledge varying cultural perspectives present in groups of learners and tailor instructional approaches to respond to these perspectives while using them as an educational resource.

4.2 Knowledge of various teaching methods

EE providers are familiar with and can employ a range of instructional methods that are particularly suited to environmental education.

- Select among relevant environmental topics and issues for study based on learners' interests and their ability to construct knowledge to gain conceptual understanding.
- Use a variety of teaching methods and strategies appropriate for the environmental education content and context, such as: hands-on, discovery, inquiry, cooperative learning, community-based, problem solving, service learning, simulations, models, role playing, case studies, problem-based learning.
- Select instructional methodologies based on learning objectives, learner characteristics, time requirements, involvement of community members, community dynamics and policies, available resources and the instructional setting.
- Establish a comfortable, failure-free, learning environment.

¹ Kolb proposes a theory of experiential learning that involves four principal stages: concrete experiences, reflective observation, abstract conceptualization and active experimentation. The 4MAT framework, based on the work of Bernice McCarthy, similarly suggests 4 learning modes (Analytic, Imaginative, Common Sense, and Dynamic) and has been widely applied in education. Cognitive styles refer to the preferred way an individual processes information and describe a person's typical mode of thinking, remembering or problem solving. The theory of multiple intelligences suggests that there are a number of distinct forms of intelligence that each individual possesses in varying degrees. Gardner proposes seven primary forms: linguistic, musical, logical-mathematical, spatial, body-kinesthetic, interpersonal (e.g., insight, metacognition) and intrapersonal (e.g., social skills).

² Maturation, social transmission and experience are three factors identified by Lawson as necessary parts of learning. Piaget describes four stages of intellectual growth (sensory motor, preoperational, concrete operational and formal operational).

4.3 A climate for learning about and exploring the environment

EE providers create a climate in which learners are intellectually stimulated and motivated to learn about their environment.

- Model lifelong learning throughout instructional practices.
- Be able to excite and engage their audience.
- Recognize and incorporate learners pre-existing knowledge and prior experience.
- Provide experiences that increase learners awareness of and appreciation for the natural, as well as human-designed, environment.
- Incorporate opportunities for learners to have first-hand experiences exploring the world around them.
- Use instructional techniques that encourage learners to ask questions and explore a variety of answers.

4.4 An inclusive and collaborative learning environment

EE providers foster openness and collaboration among participants and create a safe learning environment .

- Encourage flexibility, creativity and openness considering the assumptions and interpretations that influence the conclusions that learners and others draw about the environment, particularly on environmental issues.
- Understand the process by which people reach decisions about the environment.
- Relate learners' capacity for collaborative work to their ability to function as responsible and effective citizens by implementing management techniques that foster independent as well as productive group work.

4.5 Planning for instruction

EE providers are able to plan age-appropriate environmental education instruction and programs that meet specific instructional goals.

- Produce a plan for environmental education instruction and demonstrate how the overall plan with specific elements (such as plans of instructional or daily activities) enhance coordination or integration across disciplines and help to meet specific goals of environmental education.
- Have clear expectations of what objectives can be met in the time frame available.
- Demonstrate how plans for environmental education instruction help learners meet national and Utah standards in various subject areas.
- Include appropriate reflective and summative time at the end of each session.
- Design curriculum and instruction to make connections and empower the students, avoiding disempowerment and fear techniques.

4.6 Flexible and responsive instruction

EE providers augment proper planning with the flexibility that allows them to take advantage of new instructional opportunities.

- Modify instructional plans and approaches, when appropriate, to take advantage of unexpected opportunities (e.g. new developments in community issues, recent events or phenomena that are in the news or breakthroughs in scientific understanding), learner questions and learner interests.
- Work collaboratively with other instructors and discipline areas, adapting instructional approaches as needed to blend or complement instructional styles to meet shared environmental education goals.
- Use diverse backgrounds and perspectives as instructional resources.

4.7 Knowledge of environmental education materials and resources

EE providers are aware of a range of materials and resources for their environmental education efforts and understand how to access, evaluate and use these resources.

- Identify and evaluate materials and education resources using criteria such as those suggested in *Environmental Education Materials: Guidelines for Excellence*.
- Demonstrate ways in which the community can be a resource for environmental education by identifying local businesses, service organizations, government agencies, nonprofit organizations and others that may participate in and support instructional programs.
- Identify and use sources of information about instructional materials and other resources, including training offered by national, state and local environmental education programs and professional organizations.
- Use the internet to identify and access sources of information about the environment, particular issues and educational resources; critically evaluate the usefulness of resources found on the internet.

4.8 Technologies that assist learning

EE providers are familiar with a range of technologies available to assist in learning and should be conscience that the use of technology should not replace outdoor experiences.

- Use a variety of tools and technologies and be able to instruct learners in their safe and proper use.
- Demonstrate proficiency, if appropriate, with computer-based technologies used to display, analyze and communicate environmental information.
- Identify sources of expertise about unfamiliar learning technologies and learn from these sources or incorporate them into instruction.

4.9 Settings for instruction

EE providers understand the importance of a safe and conducive learning environment both indoors and outside.

- Understand that teaching outside requires different skills and strategies than teaching in a classroom.
- Demonstrate a concern for learner safety in designing, planning and implementing instruction, especially experiences that are hands-on or that take place outside the classroom and attend to the physical layout and maintenance of the learning facility or center so learners can use it safely and effectively.
- Identify, create and use diverse settings for environmental education appropriate to various subject matters and resources which may include the schoolyard, laboratory, field settings, community settings, museums, zoos, demonstration sites and/or other places.
- Identify or develop and implement responses to real or perceived barriers to using expanded settings (such as outdoor settings) in educational and safe ways.
- Plan and implement instruction that first links content to learners' immediate surroundings and experience then expands learners' horizons as appropriate to larger environmental issues and contexts.

4.10 Curriculum planning

EE providers are familiar with ways of including environmental education in the curriculum.

- Describe basic approaches to creating a developmentally appropriate scope and sequence for environmental education curricula.
- Develop an environmental education program designed to meet the educational goals of a program.
- Develop a plan for integrating environmental education into the formal school curriculum either across the curriculum, as a separate course, or within one or more areas of study.
- Demonstrate links between environmental education curricula (or plans for integrating environmental education into an existing curriculum) and national, state or local standards in disciplines such as science, mathematics, social studies, geography and language arts.
- Correlate environmental education curriculum with the Utah core in a particular discipline or grade level.

Theme #5 - Assessment and Evaluation

EE providers must possess the knowledge, abilities and commitment to make assessment and evaluation integral to instruction and programs. Proper preparation should give EE providers tools for assessing learner progress while evaluating the effectiveness of their instruction.

5.1 Assessment and evaluation defined

EE providers acknowledge the differences between the terms “assessment” and “evaluation.”

- **Assessment** is defined as the process of collecting, synthesizing and interpreting information to aid in the decision-making process.
- **Evaluation** is defined as the process of making a subjective judgment based upon collected information.

5.2 Learner outcomes

EE providers understand the importance of tying assessment to learning.

- State expected learner outcomes that are tied to the goals and objectives of environmental education.
- Identify standards at the national, state and local level that apply to learner outcomes and link assessment of environmental education to these standards.
- Develop and use a variety of strategies for assessing learner outcomes that reflect both standards and environmental education goals and objectives.
- Describe and use means for engaging learners in setting their own expectations for achievement and discuss the importance of this in light of environmental education's emphasis on participant-centered education and lifelong learning.

5.3 Assessment that is part of instruction

EE providers are familiar with ways of incorporating assessment into environmental education.

- Make objectives and other expectations clear to learners at the outset of instruction.
- Provide examples of and implement specific types of assessment appropriate to environmental education instruction, such as: portfolios, open-ended questioning, oral reports, group or independent research, task or skill demonstration, rubrics.
- Identify and use techniques that assess learners baseline understandings and skills at the beginning and end of environmental education programs, lessons, units and other segments of instruction.
- Develop formative and summative assessment tools appropriate to specific environmental education instructional segments or projects.
- Discuss the importance of and identify techniques for encouraging learners to assess their own and others' work and use these assessments as an ongoing part of their learning experiences.
- Develop a needs assessment to identify what instruction is needed and determine the appropriate instructional plan.

5.4 Improving instruction

EE providers know how to use instructional experiences and assessments to improve future instruction.

- Organize, interpret and use the results of differing kinds of assessment to help modify and improve future instruction.
- Demonstrate a willingness and ability to collect additional information from and about learners to help modify and improve future instruction.
- Seek out opportunities to reflect, individually and with peers, on their own instructional practices and the broader practice of environmental education within the field.

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Appendix

History of Environmental Education in Utah

- 1969 National Environmental Policy Act (NEPA), only a 4-page document, sets the cornerstone for environmental policy, planning (EIS's) and public participation. It establishes the Council on Environmental Quality and leads to creation of the Environmental Protection Agency (EPA).
- 1970 Environmental Education Act sets up U.S. Office of Education as coordinator for EE nationwide. Although the act authorizes \$13.5 million, only \$3.5 million per year is allocated, mostly for grants in states that develop a required state EE master plan.
- 1970 State EE Leadership in Utah participating at the state level includes:
- | | |
|---|--|
| R. LaMar Allred (State Office of Education) | Jim Lawrence (Granite School District) |
| Hal Mickelson (Forest Service) | Ray Remond (Wildlife Resources) |
| Rex Curtice (Granite School District) | Jack Reed (BLM) |
| Dick Peterson (State Office of Education) | Carl Johnson (USU) |
| Hugh Baird (BYU) | Paul Burgoyne (SUSC) |
| LaMont Jensen (Davis School District) | Garth Seastrand (Alpine School District) |
| Stanley Muliak (UT Nature Study Society) | Ed Dalton (USTA) |
- 1976 Project Learning Tree program comes to Utah with the State Office of Education as the sponsor. Ogden Nature Center becomes the first of its kind in Utah.
- 1980 Intermountain EE Leadership Conference in Salt Lake City brings together 94 leaders in EE for three days of strategic planning. Decisions reached led to the creation of the Idaho Society for Energy and EE and for the Utah Association for Energy and Environmental Ed (later to become USEE). Session is planned and sponsored by Utah Division of Environmental Health, Bureau of Land Management, Bureau of Reclamation and US Forest Service.
- 1983 Project WILD comes to Utah, housed by the Division of Wildlife Resource.
- 1985 National Energy Foundation (NEF) moves from New York City to Salt Lake City.
- 1991 Department of Environmental Quality is established. Director and Division heads within the Department see education about pollution prevention as an important part of their mission, specifically air quality, water quality and solid waste reduction.
- 1991 National Environmental Education Act becomes law, sets up EPA as national coordinator for EE. Act makes money available (through competitive grants) for environmental education projects and programs across the country. These EPA EE grants channel hundreds of thousands of dollars to Utah's EE community.
- 1993 Utah Environmental Education Summit brings together 120 delegates from 8 sectors of Utah's community to plan the future of EE in Utah. Sponsored and funded by the Junior League of Salt Lake and USEE, the delegates identify five areas for which goals and strategic plans will be developed. They are: stable funding, environmental values, a K-adult EE curriculum, sites and locations for EE and developing an EE network.
- 1994 Ag in the Classroom comes to Utah.
- 1996 Project Learning Tree loses some support at the state level and eventually becomes dormant for several years.
- 1997 Project WET comes to Utah.

- 1998 State Legislation is proposed that would result in the creation of a Governor appointed council to oversee EE in Utah. This council would identify good EE curriculum and recommend appropriate curriculum to be used in schools. Numerous members of the EE community are concerned and unite to lobby again the legislation. Ultimately it is never discussed by the Legislature.
- 1998 Rocky Mountain States Project to build state capacity to deliver EE is initiated by USEE and funded by US EPA and Bureau of Land Management. Utah hosts the national Project Learning Tree conference and Food, Land, and People comes to Utah.
- 1999 Utah Environmental Education Council (UEEC) is formed. The Utah Environmental Education Council (UEEC) was formed to provide a forum for all environmental education (EE) interests to come together to coordinate and encourage high quality environmental education statewide. The UEEC operates with an inclusive policy, inviting all EE interests to the table. UEEC identifies many priorities for environmental education in Utah including the development of Guidelines for EE Providers in Utah and the development of an on-line, searchable database.
- 2000 UEEC becomes the USEE PAC (Program Advisory Council) clarifying the relationship between USEE and the informal group of EE providers.
- 2001 RockEE Summit held in Salt Lake City with more than 75 people from the 8 state region gathering. Project WET is dropped by the State.

Glossary

Advocacy - Persuading or insisting for a particular cause or point of view.

Assessment - The process of collecting, synthesizing and interpreting information to aid in the decision-making process.

Concept - A general idea or understanding usually based on common or related characteristics.

EE Provider - Any individual, program or organization that provides environmental education.

Environmental Issue - The presence of differing perspectives on possible solutions to an environmental problem (related yet distinguishable from an environmental problem).

Environmental Literacy - The specific knowledge of environmental systems, an understanding of how this knowledge is obtained, skills to apply this knowledge to environmental issues, as well as a sense of personal and civic responsibility.

Environmental Problem - Results from an interaction between human activity and the environment (related yet distinguishable from an environmental issue).

Evaluation - The process of making a subjective judgment based upon collected information.

Goal - The preferred result from an activity, lesson, or course of study.

Interdisciplinary - Teaching method/strategy that uses more than one discipline to examine a theme or issue.

Learner Outcome - The intended cognitive result of an education program.

Learning Style - The belief that individuals favor particular methods of learning and can optimize their understanding when such methods are available to them within the learning environment.

Objective - A declaration of a specific measurable or observable outcome preferred from an activity or lesson.

Research - Investigation into a subject in order to discover facts, to establish or revise a theory, or to develop a plan of action based on the facts discovered.

Skill - The ability to identify and execute a resolution to a situation or problem.

Standard - A statement of what a learner should know or be able to accomplish.

Teaching Method/Strategy - A carefully devised plan of action to accomplish a goal or objective.