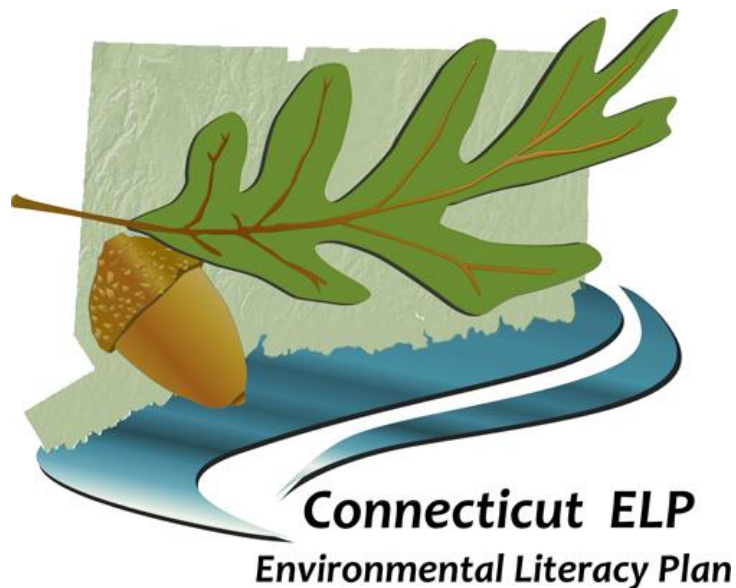


Connecticut's Environmental Literacy Plan



Working together to ensure that all CT's citizens are environmentally literate

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Background: The Need for Environmental Literacy

Within the United States and in the state of Connecticut, the need for comprehensive environmental education has never been greater. The health of Connecticut's future depends on its citizens being environmentally literate and able to make informed choices about environmental issues such as water use, air quality, and land development. Consumption of natural resources, air and water pollution, and the impacts of climate change are among the many complex challenges that threaten human health, economic development, and national security. Across the country, communities face the challenge of balancing the economy that provides our livelihoods and the natural resources on which we depend. Solving this critical challenge requires us to understand different points of view, analyze problems, balance competing needs, and take informed action.

Environmental education fosters learning that can transform how we think, make decisions, and lead our lives. The future depends on our collective ability to apply an integrated approach to teaching and helping students understand the interrelated elements of sustainable environmental systems. Students and all of our citizens need to make decisions that demonstrate an understanding of natural and human communities, the ecological, economic and social systems within them, and an awareness of how their personal and collective actions affect the sustainability of these interrelated systems. Environmental education prepares all citizens with 21st century essential skills that contribute to healthier, more prosperous and sustainable communities.

An Environmental Literacy Plan (ELP) for Connecticut is an important stepping-stone for our state's future. It is imperative that we act now to prepare today's students - tomorrow's citizens and policy makers - with the proper knowledge and skills to make critical decisions regarding our global and local resources and environmental health. The ultimate goal is for all citizens in Connecticut to use environmental literacy for individual and social purposes to create and maintain sustainable communities.

"As educators and parents, we have a responsibility to instill in the next generation an appreciation of the great natural resources we have in our state and nation and of the impact humans have on them. Of course, there is no better way to establish a connection with the environment than to be outdoors, observing and learning about how air, water and soil sustain an amazing diversity of life. It is also important to note that environmental science will play an important role in shaping careers in the green economy predicted in our future. Environmental education can be an inspiring and relevant context for assuring that today's students are prepared to respond to the environmental challenges of our times."

Mark McQuillan, Commissioner, Connecticut State Department of Education

What is Environmental Literacy?

Broadly defined, environmental literacy includes:

- a fundamental understanding of the systems of the natural world and the interactions between the living and non-living environments;
- the ability to make responsible decisions based on scientific, economic, cultural, and ethical considerations; and
- the confidence, motivation and skills to exercise rights and responsibilities as a member of a community.

Components of Environmental Literacy*

In order to be a fully environmentally literate citizen, all of the following must be developed.

Awareness

Awareness is holding a general impression, or consciousness, about something. For example, an individual may be aware that climate change is an issue or that human life depends on a healthy environment without knowing much more. Environmental awareness can arise from many activities - education being just one – and is a first step toward deeper understanding.

Knowledge

Developing knowledge requires more than acquisition of new information or data. It requires comprehension, application, analysis, synthesis, and evaluation of information as well as the intellectual framework within which new information can be placed and manipulated. Developing knowledge often requires a pedagogy (a formal methodology for constructing knowledge with the student) - something that is absent in simple information transfer.

Attitudes

Developing attitudes of appreciation and concern for the environment is a subtle process that is difficult to deliberately teach. Many educators believe that attitudes change primarily from a variety of life experiences which can take place outside as well as inside the classroom. Thus, experiences in the environment such as those provided by nature centers ("non-formal" education) are essential to gaining environmental literacy.

Skills

Skill development (e.g., observing, questioning, interpreting, analyzing, synthesizing, etc.) is an essential part of both formal and non-formal environmental education programs. Skills can be fostered by focusing on investigations involving local environmental systems, problems, and issues.

Action

The ultimate (and perhaps most difficult) goal of environmental literacy programs is developing the capacity for action and participation. In the final step of action, environmental literacy is the capacity to act responsibly in daily life with a broad understanding of how people and societies relate to each other and natural systems. Environmental education is the process of developing that capacity.

*Adapted from the *Campaign for Environmental Literacy* (www.fundee.org)

How is Environmental Literacy Achieved?

Environmental education is the learning process through which citizens attain environmental literacy. Environmental educators provide hands-on, place-based activities that weave real-world experiences into the classroom. Environmental education is neither an addition to, nor a replacement for, standard classroom curricula.

Connecticut citizens have ready access to diverse spaces that can serve as experiential learning environments including forests, beaches, marine and freshwater ecosystems, parks, zoos, aquariums, nature centers, and farms. Environmental education, however, can take place anywhere people are interested in observing and investigating the world around them. Ants marching along a city sidewalk, schoolyard gardens, and classroom science experiments are all excellent opportunities to learn more about natural systems and environmental issues.

Teachers, schools and parent organizations looking for creative ways to improve student learning while providing hands-on experience, need to take advantage of environmental education programs and resources. However, they often provide these experiences of their own accord and at their own expense since most primary and secondary schools have not yet integrated environmental education into their curricula. Connecticut has a broad network of community organizations and public agencies committed to providing high quality environmental education experiences for teachers and students.

Environmental education teaches children and adults how to learn about and investigate their environment, and to make intelligent, informed decisions about how they can take care of it. Environmental education is taught in traditional classrooms, in communities, and in settings like nature centers, museums, parks, and zoos. In these settings, learning about the environment involves integrating knowledge and skills from many subjects that are aligned with state curriculum standards.

Environmental Education “Done Right”

Educator's role: "Guide on the Side" rather than "Sage on the Stage."

Learners: Are actively involved in studying their environment, often deciding which questions to explore and, with an educator's guidance, how to find answers to their questions.

Learning experiences: Often involve complex real-world projects such as exploring how to attract wildlife to a stormwater management pond, building a nature trail or designing a sustainable community.

Learning Tools and Venues: Case studies, the Internet, community issues investigations, libraries, the outdoors, local community businesses and government offices, immersion experiences like residential camps, service learning projects.

Outcomes: Improved environmental literacy, higher academic achievement, and the skills to weigh different sides of an environmental issue to make responsible decisions about it.

Source: Environmental Education and Training Partnership (EETAP)

What are the Benefits of Environmental Education?

Educational mandates, including Connecticut’s statewide assessment programs (CMT and CAPT), require students to demonstrate proficiency in diverse subject areas. Environmental education unites subject areas and provides real-world contexts that gives deeper meaning to academic content as well as art and music. Through active, hands-on learning about the environment, students develop the knowledge and skills to address challenges in their communities.

Environmental education has been shown to contribute to overall academic achievement when it is integrated into the curriculum. Quantitative and qualitative studies highlight the immense benefits of an integrated environmental education framework. In a 1998 study of 39 schools (*Closing the Achievement Gap: Using the Environment as an Integrating Context for Learning* by Lieberman and Hood), 92% of the students who were taught using the environment as the integrating context “academically outperform their peers in traditional programs.” Evidence gathered from this study and others indicates that students learn more effectively within an environment-based context than within a traditional educational framework. Observed benefits include:

- better performance on standardized measures of academic achievement in reading, writing, math, science, and social studies;
- reduced discipline and classroom management problems;
- increased engagement and enthusiasm for learning; and
- greater pride and ownership in accomplishments.

Benefits of Environmental Education

Environmental Education can support all of these educational goals:

Constructivism: Building on what students know.

Cooperative Learning: Working in groups to solve problems, promote cooperation, build relationships among students, and get a taste of how the real world works.

Multidisciplinary and Interdisciplinary Teaching: Helping students to understand the interconnectedness of knowledge, and to use knowledge from several disciplines to examine individual and societal problems.

Problem-Solving and Critical Thinking: Exploring issues to give students experience investigating and defining problems, identifying solutions, implementing action plans, and designing ways to measure success.

Community Learning: Using the community to explore real issues that promote learning and, at the same time, benefit the community.

Values and Ethics: Examining and reflecting on the underlying values that influence individual and societal actions with regard to issues, and building a personal ethical framework that helps distinguish right from wrong.

Source: Powerful Pedagogy – Using EE to Achieve Your Education Goals by Judy Braus

The Role of the Connecticut Environmental Literacy Plan Steering Committee

The CT Environmental Literacy Plan Steering Committee was formed in 2009 and has coordinated the development of the ELP. The CT ELP Steering Committee will continue to oversee the implementation of the plan in the coming years including the development of:

- a communication strategy to raise awareness about the ELP and to coordinate efforts among various education, community and government partners in support of the ELP;
- professional development for in-service and pre-service educators to promote understanding of ELP applications for formal and informal settings;
- an online database of environmental education resources available in the state that is easily accessible to educators;
- tools and protocols for the evaluation of the quality and impact of environmental education programs;
- guidelines that support implementation of the ELP in educational and community settings;
- a plan to secure necessary funding to support the goals of the ELP; and
- a process to monitor the implementation of the ELP and publicly report the results.

The Connecticut Outdoor and Environmental Education Association (COEEA) will coordinate the ELP Steering Committee. The ELP Steering Committee will include representatives from various environmental and educational organizations throughout the state (e.g., CT Department of Environmental Protection, CT State Department of Education, CT Science Teachers' Association, CT Forest and Park Association, Southeastern New England Marine Educators, higher education institutions, etc.). See Appendix C for a list of the current ELP Steering Committee members.

The Development of the Connecticut Environmental Literacy Plan

The development of the CT ELP began in 2009 in response to the proposed federal *No Child Left Inside* (NCLI) legislation. The NCLI bill currently includes \$500 million for state educational agencies to distribute to equip teachers with the skills, knowledge, and confidence they need to integrate the environment into their curricula. If Congress adopts the NCLI proposals, a substantially strengthened Elementary and Secondary Education Act will include:

- funds to train teachers to deliver high quality environmental education and utilize the local environment as an extension of the classroom;
- incentives for states to develop Environmental Literacy Plans to ensure that every student is prepared to understand the environmental challenges of the future;
- encouragement for teachers, administrators, and school systems to make time and resources available for environmental education for all students; and
- integration of environmental education across core subject areas.

Only states with qualifying Environmental Literacy Plans will be eligible for a percentage of this funding. For further information, go to www.nclicoalition.org.

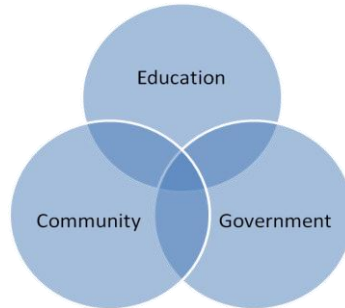
The CT ELP development work was coordinated by the ELP Steering Committee, which convened planning sessions throughout 2009 and 2010. A series of informational and input sessions took place in the spring of 2010 at various venues (e.g., state educator conferences and workshops, open forums, etc.). The ELP Steering Committee then developed logic models (see Appendix A) for the overall plan and for each sector (Education, Community and Government) to guide further development of the ELP. Two writing sessions were then held in July, 2010. In addition, members of the ELP Steering Committee have participated in meetings and conference calls with representative from fellow New England states that are also developing ELPs. Drafts of the ELPs have been shared among the states. A time for public comment on the CT ELP was available in the fall of 2010 prior to its completion.

Key Partners Working Together: Education, Community and Government

"A knowledgeable, skilled and active citizenry is a key to resolving the environmental issues that promise to become increasingly important into the next century. While our schools play a major role, cultivating environmental literacy is a task that neither begins nor ends with formal education. Many parts of our society shape attitudes toward and knowledge about the environment – family, peers, religion, community, interest groups, government, the media, etc."

From NAAEE *Environmental Education Materials: Guidelines for Excellence*

The CT ELP includes three key partners that must work collaboratively to achieve the goal of an environmentally literate citizenry. Education is at the center with support from community and government partners.



Education Partners

Formal and informal educators are central to achieving environmental literacy. Many opportunities exist within and outside of our schools for students to engage in meaningful learning that connects them to the environment.

Education partners include:

- Informal Env. Educators
- Pre-K through Higher Education Teachers
- Teacher Associations
- School Admin. and Staff
- Parent-Teacher Orgs.
- Boards of Education
- State Dept. of Education
- Regional Educational Service Centers
- Non-profit Educational Organizations

Community Partners

Our local communities play a vital role in educating children and adults. Communities can offer direct learning experiences as well as support efforts to promote environmental education. Community partners include:

- General Public
- Business Groups
- Civic Organizations
- Youth Groups
- Libraries
- Religious Organizations
- Neighborhood Assocs.
- Local and State Media
- Health Professionals
- Non-Government Organizations

Government Partners

Government entities must develop policies and laws that support environmental education efforts. Providing the necessary funding for these efforts is key to their success. Government partners include:

- Governor & State Reps.
- Mayors and Town Supervisors
- Town Councils
- Local Land Use Boards
- Municipal Leaders and Committee Members
- State and Local Agencies
- Advocacy & Policy Officials
- State Dept. of Env. Protection

Elements of Connecticut’s Environmental Literacy Plan

The following elements are addressed within the CT Environmental Literacy Plan for each of the three partners. Each of these elements plays an important role in ensuring environmental literacy for all citizens.

Learning Opportunities for All

The North American Association for Environmental Education (NAAEE) has developed *Excellence in Environmental Education: Guidelines for Learning* for Pre-K through grade 16 students. This document can guide the development of learning programs not only in schools but also for informal and community environmental education programs for life-long learning. The CT ELP includes an alignment between the state’s content standards and the NAAEE environmental education standards to help guide schools in their integration across the curriculum. The CT ELP also considers how environmental literacy might be incorporated into the state’s **graduation requirements** by addressing how environmental education standards can be included in specific high school programs of study and other experiences. The CT ELP suggests ways to identify **instructional opportunities** for using existing models and programs (e.g, STEM, outdoor learning, service learning, etc.) for teaching about the environment in pre-K-16 through multidisciplinary models or specific courses or units of instruction.

Environmental Leadership Development

NAAEE’s *Guidelines for the Preparation and Professional Development of Environmental Educators* provide a set of recommendations about the knowledge and abilities educators need to provide high-quality environmental education and become leaders in our communities. Both pre-service and in-service teachers need to be prepared to teach their students about the environment, in and out of the classroom. This requires high quality **professional development**. Partnerships between K-12 school systems and experienced environmental/outdoor educators are essential in achieving these goals.

Preservation and Use of School Grounds, Green Space and Natural Resources

Our local communities and schools grounds should provide easily accessible green spaces and natural resources to use as opportunities for students to learn about their environment. Outdoor spaces should serve as learning laboratories and be used for low impact recreational use. Many city, county, or state environmental management agencies are potential partners to develop strategies for new building construction and renovation projects to meet green design requirements. In addition, all learning environments should incorporate and model environmentally sustainable practices.

Awareness, Communication and Collaboration

All citizens must have an awareness of environmental issues and their local natural resources as the first step toward environmental literacy. Information must be readily shared among education, community and government partners and the public about ongoing environmental literacy efforts as effective communication is vital to their success. Working together, citizens have the ability to magnify their efforts and increase their impact.

Implementation and Funding

Our education and community partners need to develop workable plans to implement the CT ELP. Government policies and funds need to support environmental education efforts at the local, regional and state levels. To help with implementation, the CT ELP identifies model environmental education programs that might be replicated throughout the state. The CT ELP also addresses potential funding sources. This includes the use of existing programs and funds (e.g., Title II or Title V, Perkins grants, IDEA or STEM) that can be used to support the plan as well as areas where new policies and funding sources are needed.

Research and Assessment

Research on the effectiveness of environmental education programs is critical to their ongoing success. Established program evaluation methodologies and guidelines (e. g., NAAEE Guidelines for Excellence) should be used when appropriate. The CT ELP describes methods that can be used to measure and report on the status of environmental literacy in Connecticut. This includes traditional assessments, counts of student participation or performance, and other mechanisms.

EDUCATION PARTNERS

Learning Opportunities for All

Goal: Integrate environmental education into the PreK-16 curriculum and instructional programs to ensure that all CT students are environmentally literate upon graduation. Action items include:

- Align the national environmental education standards and CT content standards. Prepare a cross-walk document showing the connections between the state’s content standards and the North American Association for Environmental Education (NAAEE) *Excellence in Environmental Education: Guidelines for Learning*.
- Incorporate environmental education best practices and programs that are developmentally appropriate for all students across the PreK-16 curriculum. This includes Language Arts, Social Studies, the Arts, and Science, Technology, Engineering and Mathematics (STEM) programs. Encourage interdisciplinary study that incorporates 21st Century Skills where appropriate.
- Include meaningful outdoor learning experiences at all grade levels. The use of on-site or easily-accessible local outdoor learning opportunities should be utilized whenever possible and transportation to other outdoor learning venues should be supported when necessary.
- Include all students in environmental education learning experiences and have programs reflect the diversity of cultural backgrounds in our state.
- Encourage active Parent-Teacher Organization involvement in the support of outdoor and environmental learning programs. Actively involve parents from home, private, and parochial schools as well.
- Develop, promote and effectively use a comprehensive environmental education resource database that is readily available online to all CT educators.
- Identify and expand areas where environmental literacy connects with CT graduation requirements. This includes high school course requirements, statewide assessments, the Capstone experience (including service learning projects), and Student Success Plans that are part of the state’s secondary school reform effort. Form a task force to develop a plan to determine various ways that students’ can demonstrate environmental literacy prior to graduation.
- Support citizen science programs, environmental clubs, after-school programs and environmental education distance learning initiatives in schools with support from local community resource professionals.
- Encourage students and teachers in PreK-12 schools to engage in research of environmental issues by partnering with higher education institutions.
- Include natural resource management, environmental restoration and “green business” opportunities in school-to-work and other career programs.

Goal: Promote collaboration between informal environmental education centers and non-profit educational organizations with schools and provide direct learning experiences to improve the environmental literacy of learners of all ages. Action items include:

- Increase and broaden the diversity of environmental education providers, programs and audiences at informal learning centers and non-profit educational organizations throughout the state.
- Support resource professionals at informal centers to integrate environmental education learning programs in PreK-16 classrooms.

- Evaluate and enhance learning programs at environmental education centers using the NAAEE *Guidelines for Excellence*. Exemplary programs will be included in the online database of resources. The CT Outdoor and Environmental Education Association (COEEA) and partners will support this effort.

Environmental Leadership Development

Goal: Support high quality environmental education professional development for formal and informal educators, administrators and support staff. Action items include:

- Assess the environmental education professional development needs of educators utilizing existing surveys developed by partner New England states and other sources.
- Increase opportunities and incentives for educators to participate in national environmental education curriculum workshops and programs.
- Require coursework or professional development for all pre-service and in-service teachers and administrators to incorporate environmental education across the curriculum. Professional development should include meaningful outdoor and experiential learning experiences (e.g., use of field techniques and data collection to improve methods of science education).
- Utilize certification opportunities for environmental education providers based on the NAAEE *Guidelines for Excellence*.
- Form partnerships with higher education institutions to support professional/adult learning opportunities.
- Form partnerships with teacher education faculty at colleges and universities and encourage them to integrate principles of education for sustainability into teacher preparation.

Goal: Develop a body of environmental education leaders in all school districts, informal learning centers and non-profit educational organizations. Action items include:

- Promote environmental literacy leadership opportunities for students of all ages in schools and other settings.
- Develop and support Green Teams in all school districts to coordinate environmental education and sustainability efforts and to train other educators. Green Teams should include teachers and administrators from schools and informal educators from local environmental education learning centers.
- Hire full-time consultant(s) or educator-in-residence at the state department of education or other non-profit educational organization to promote the integration of environmental education across the curriculum in PreK-12 schools.
- Support and enhance the role of COEEA and its partners as leaders in environmental education including greater collaboration and networking between formal and informal educators.
- Increase the awareness and knowledge of environmental education among administrators, higher education and teacher educators throughout the state.

Preservation and Use of School Grounds, Green Spaces and Natural Resources

Goal: Utilize grounds and facilities in all educational settings as environmental education learning laboratories and to model environmentally sustainable practices. Action items include:

- Utilize on-site and/or nearby outdoor spaces for varied environmental education learning experiences in educational settings (e.g., school gardens, pond ecology, urban forestry, working lands, etc.). Outdoor learning environments should be safe and accessible to and useable by everyone regardless of physical abilities.

- Provide professional development to support the effective use of facilities and grounds for environmental education learning.
- Model environmentally sustainable practices (e.g., conservation of natural resources, recycling, healthy local foods, efficient use of renewable energy sources, etc.) at all educational settings, and provide opportunities for learning about environmental stewardship (e.g., monitoring of energy and water usage). Buildings used for educational purposes should reflect green design and sustainability principles (including new construction and renovations).

Goal: Promote collaboration between education groups and community partners to identify and utilize local environmental resources for outdoor learning opportunities. Action items include:

- Use and/or develop local resources (e.g., parks, forests, riverfronts, bodies of water, trails, etc.) as environmental education learning venues.
- Identify opportunities for participation in community-based service learning projects that enhance environmental literacy.

Implementation and Funding

Goal: Collaborate to ensure the implementation of the CT ELP among education partners. Action items include:

- Ensure the adoption of the CT ELP at the state level including various state agencies (i.e., DEP, CSDE) and educational organizations. Develop a process to promote, implement and monitor the goals of the ELP by working through their various organizations and networks. This work will be led by the ELP Steering Committee.
- Hire a part-time or full-time person (using secured funds) to coordinate the implementation of the ELP with the Steering Committee.
- Encourage educational organizations within the state to incorporate appropriate sections of the ELP into their mission, goals and /or strategic plans.

Goal: Coordinate a statewide effort, led by the CT ELP Steering Committee, to secure necessary funding for the success of the ELP. Action items include:

- Develop an online inventory of existing educational funding sources and initiatives that could support the goals of the ELP. These include Race to the Top, STEM initiatives, Secondary School Reform, Title II and V, Perkins grants, Math and Science Partnership grants, business and industry grants, etc.
- Assemble a grant writing advisory team to aid in securing necessary funds.
- Search for additional funding sources and the development of grant proposals to support the implementation of the ELP. This effort will be led by COEEA and partners.
- Identify local funding sources to support the implementation of the ELP into school learning programs and practices. This may include financial support for professional development, on-site green learning spaces, and substitute teachers if necessary.
- Work with education, community and government partners to seek out in-kind and financial support for educational implementation of the ELP.

Awareness, Communication and Collaboration

Goal: Increase awareness of the importance of environmental literacy among educators and develop effective communication and collaboration strategies to support the CT ELP. Action items include:

- Raise awareness about the ELP among formal and informal educators using various means (e.g., newsletters, conferences, listservs, etc.).
- Develop a communication strategy to coordinate efforts among various educational organizations in support of the goals of the ELP. The use of a comprehensive online resource database (e.g., replicable programs, best practices, town successes, etc.) will be utilized to communicate about available environmental education programs within the state.
- Develop partnerships between formal and informal educators to develop effective environmental education programs. COEEA and partners will assist informal educators in better understanding the needs of formal educators and local schools.
- Incorporate environmental literacy into state standards and existing programs through the Department of Education and partner organizations.
- Design an in-service and pre-service program to promote understanding of ELP applications for formal and informal settings.

Research and Assessment

Goal: Conduct research on and assessment of the effectiveness of environmental education programs and initiatives within the state and use this information to implement effective changes when needed. Action items include:

- Utilize the NAAEE *Guidelines for Excellence* as a basis to assess the effectiveness of environmental education programs and initiatives supported by the ELP.
- Develop a strategy to regularly assess the implementation of the ELP and environmental education efforts and outcomes and publicly report the results.
- Seek competent researchers to conduct valid and reliable research to inform environmental education best practices.
- Use the results of the research and assessments to inform improvements in environmental education programs and evaluate their impact among education partners.
- Utilize the assessments of successful existing environmental education programs to foster the model for replication.

Goal: Assess the environmental literacy of students and education partners in CT at the local and state levels.

- Develop an assessment of the environmental literacy to establish the baseline among education partners.
- Identify opportunities in existing local assessment practices in schools to monitor the environmental literacy of their students. The alignment between the CT standards and the NAAEE *Excellence in Environmental Education: Guidelines for Learning* will assist schools in identifying the connections between environmental literacy and learning across various content areas.
- Incorporate environmental literacy into the state's comprehensive assessment system. Identify areas on the statewide testing programs (CMT and CAPT), benchmark and performance assessments where environmental literacy is currently integrated. Work toward increasing the integration of environmental literacy into statewide assessment programs where gaps exist.

COMMUNITY PARTNERS

Learning Opportunities for All

Goal: Continuously provide environmental education opportunities in community settings for all citizens for lifelong learning. Action items include:

- Identify and/or develop easily accessible environmental education materials and resources (e.g., speaker bureaus, loaner kits, etc.) to support local community-based learning programs.
- Create master lists of community environmental education learning opportunities (e.g., seminars, topical forums, workshops, etc.) that are updated regularly and made accessible to the public online.
- Conduct environmental education seminars and topical forums in various community venues (e.g., libraries, local and state parks, historical sites, town festivals, etc).
- Support local historical, cultural, and other community events that promote environmental literacy.
- Encourage community members to engage in research of environmental issues and citizen science programs.

Goal: Connect schools with community resources to provide environmental education opportunities and to learn about and model sustainable practices. Action items include:

- Identify environmental education learning programs in local communities that can be utilized by schools.
- Provide resources and support for service learning projects, internships and green career paths for students.

Environmental Leadership Development

Goal: Develop a team of environmental leaders within each local community to coordinate environmental literacy opportunities. Action items include:

- Identify and more effectively utilize existing individuals and organizations in the community who promote environmental literacy by providing workshops, training and leadership (e.g., suggesting ways for community partners to support sustainable practices).
- Support and bolster coordination among existing environmental leaders and programs and develop new ones where needed.
- Provide training and mentorships for volunteers, health educators, city planners, directors of service learning programs, and other community leaders.
- Engage with key local officials and state legislators to create policies and legislation that supports the ELP.
- Encourage community partners to form environmental sustainability committees.

Preservation and Use of School Grounds, Green Space and Natural Resources

Goal: Preserve and use local community resources for environmental learning opportunities. Action items include:

- Connect global perspectives to local issues (e.g., carbon footprint reduction-van pools, water conservation, etc.) by encouraging the sustainable use of local resources.
- Provide spaces (e.g., community gardens, nature trails, etc.) for outdoor learning experiences.

Implementation and Funding

Goal: Develop effective ELP implementation strategies within each community. Action items include:

- Develop guidelines that support community implementation of the ELP.
- Use the guidelines to develop networks and partnerships to support the implementation of the ELP.
- Encourage town-wide and regional “green” activities that promote collaboration among community groups.

Goal: Identify and secure local sources of funding to support the goals of the ELP. Action items include:

- Work with education and government partners to seek out in-kind and financial support for community implementation of the ELP.
- Identify and replicate effective management and dissemination of funds through state agencies, non-profit organizations and/or foundations.
- Identify and engage business partners as financial supporters of environmental education initiatives within communities.
- Promote the use of public and private partnership to leverage funds, opportunities and resources.

Awareness, Communication and Collaboration

Goal: Increase awareness of the importance of environmental literacy among community leaders and the public and promote better communication and collaboration between community partners. Action items include:

- Develop a communication strategy to coordinate efforts among various community organizations and the media in support of the goals of the ELP.
- Increase awareness of environmental education events and learning opportunities through various media by disseminating information directly through various community organizations (e.g., youth organizations, civic organizations, museums, libraries, local businesses, environmental organizations, etc.)
- Promote collaboration among community groups to implement the goals of the ELP.

Research and Assessment

Goal: Utilize the results of research to encourage the use of effective environmental programs. Action items include:

- Promote knowledge and use of the NAAEE *Guidelines for Excellence* for program evaluation.
- Conduct periodic environmental reviews and evaluations of local natural resources available for environmental education learning programs. Members of the community should participate in reviews and evaluations and to make proposals conserve and enhance local resources.

Goal: Assess the environmental literacy of the general public. Action items include:

- Develop an assessment of environmental literacy to establish the baseline among community partners.
- Conduct a survey of the environmental literacy of the general population of CT every few years. The results should be publicly reported, progress monitored and gaps identified for further study with recommendations for environmental education learning program modifications.

GOVERNMENT PARTNERS

Learning Opportunities for All

Goal: Support and sustain environmental learning programs throughout the state. Action items include:

- Support ongoing opportunities for government officials to learn about key environment issues and the need for environmental literacy.
- Review existing policies and legislation (e.g., academic learning standards, teacher certification, commission certification programs, etc.) that support environmental education learning opportunities in schools and local communities. Modify or develop new policies and legislation as necessary to support environmental literacy.

Environmental Leadership Development

Goal: Develop a team of environment leaders within local and state agencies to promote and advocate for the CT ELP.

Action items include:

- Identify government resources to support professional development in schools and informal settings.
- Sponsor professional development for educators on civic action and policy development related to environmental issues.
- Initiate professional development opportunities based on sound science for volunteers to increase their knowledge of environmental issues.
- Engage key legislators to create state and local policy and legislation that supports the ELP.
- Encourage towns to participate in on-going certification programs at state and local levels (e.g., inland wetlands, culverts, etc.)

Preservation and Use of School Grounds, Green Space and Natural Resources

Goal: Preserve and use state and local community resources for environmental learning opportunities. Action items include:

- Provide grants and/or other incentives for outdoor classrooms, open space preservation, etc.
- Develop policies that promote green planning, including low-impact educational and recreational open spaces.
- Encourage environmental review teams to review and evaluate the educational value and selection criteria for acquisition of open space (e.g., issues such as accessibility, citizen science, corridor establishment)

Implementation and Funding

Goal: Provide support for the implementation of the CT ELP. Action items include:

- Develop policies and legislation that support the goals of the ELP.
- Support the development of a statewide database for environmental education resources, learning opportunities and replicable programs.
- Encourage sustainable living within schools and communities (e.g., green spaces, habitat preservation, recycling, composting, IPM school applications, etc.).
- Support and encourage partnering opportunities at federal, state and/or local levels between executive and education branches to implement the goals of the ELP.

Goal: Provide sustainable funding sources to support the goals of the CT ELP. Action items include:

- Work with education and community partners to seek in-kind and financial support for government implementation of the ELP.
- Develop effective strategies to leverage federal funds for environmental literacy programs.
- Target existing funds and grants to include environmental literacy initiatives for local and state groups that address environmental education learning programs and quality standards using NAAEE guidance and measurement tools.
- Develop incentives and new funding opportunities for formal and informal settings to support the implementation of the ELP.
- Support community efforts financially to promote environmental literacy at the local level.

Awareness, Communication and Collaboration

Goal: Promote awareness, communication and collaboration of the CT ELP and its goals among government partners.

Action items include:

- Develop a communication strategy to coordinate efforts among various government organizations in support of the goals of the ELP.
- Develop and market public education programs and materials (e.g., DEP's *No Child Left Inside* initiative, Culture and Tourism programs, etc.) that foster environmental literacy for the general public through various media outlets.
- Support efforts in local communities and at the state level to promote events that include environmental education learning opportunities through various media outlets.

Research and Assessment

Goal: Support efforts to research and assess the effectiveness of environmental education programs and environmental literacy of all citizens in CT. Action items include:

- Share the results of research and assessment with government partners to develop supportive legislation and funding.
- Engage government agencies and commissions in collecting and reporting data on environmental initiatives to serve as evidence of the effectiveness of the ELP.

Appendix A: CT Environmental Literacy Plan Logic Models

Overview of Logic Models

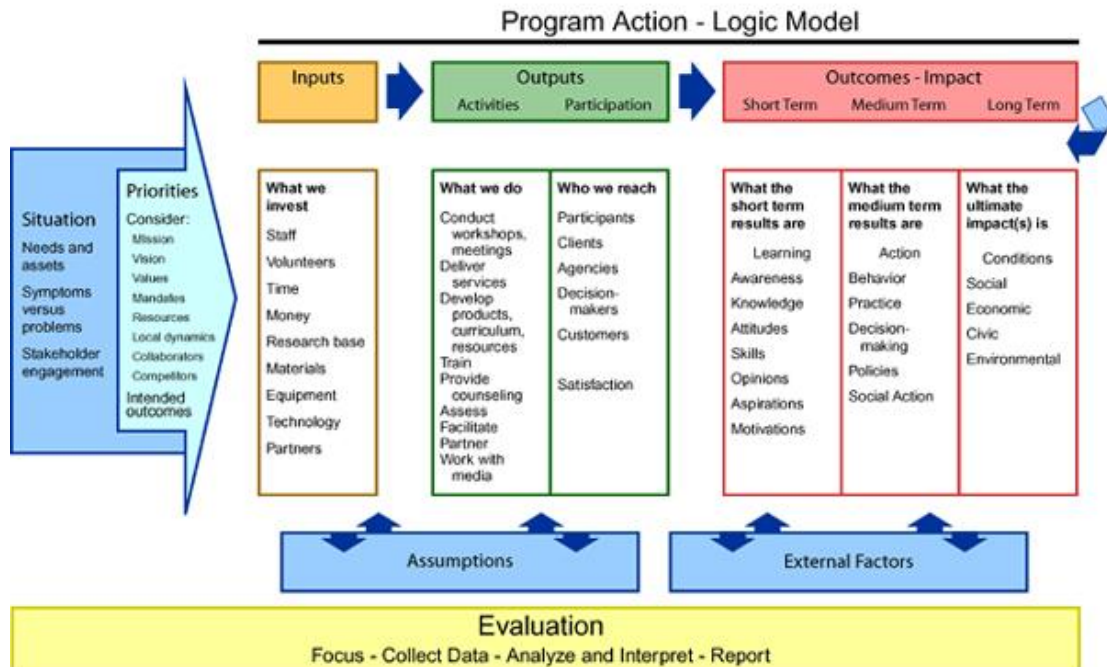
As part of the development process, the CT ELP Steering Committee developed logic models for the overall plan and for each of the three key partners: Education, Community and Government. The following description of the purpose and design of logic models is from the University of Wisconsin Program Development and Evaluation Unit (For further information go to www.uwex.edu/ces/pdande/evaluation/evallogicmodel.html).

The logic model displays the sequence of actions that describe what the program is and will do – how investments link to results. Logic models can be used in planning, implementation, evaluation and communication. A logic model is ...

- a description of a program showing what the program will do and what it is to accomplish;
- a series of “if-then” relationships that, if implemented as intended, lead to the desired outcomes; and
- the core of program planning and evaluation.

Included are five core components in this depiction of the program action:

1. Inputs: resources, contributions, investments that go into the program.
2. Outputs: activities, services, events and products that reach people who participate or who are targeted.
3. Outcomes: results or changes for individuals, groups, communities, organizations, communities, or systems.
4. Assumptions: the beliefs we have about the program, the people involved, and the context and the way we think the program will work.
5. External Factors: the environment in which the program exists includes a variety of external factors that interact with and influence the program action.



Logic Model for Connecticut's Environmental Literacy Plan

Situation: The health of Connecticut's future depends on its citizens being environmentally literate and able to make informed choices about environmental issues such as water use, air quality, and land development. Environmental literacy includes an understanding of the natural world, the ability to make responsible decisions and the confidence and motivation to exercise rights and responsibilities as a member of a community.

INPUTS	OUTPUTS		OUTCOMES - IMPACT		
	Activities	Participation	Short Term	Medium Term	Long Term
<p>Time, knowledge and skills from educators, community leaders, and volunteers to foster environmental literacy.</p> <p>Funds for EE programs in schools, informal learning centers and community settings.</p> <p>EE resources including curricular materials, outdoor learning environments, and green spaces.</p> <p>Collaboration among Education, Community and Government partners to provide environmental education to all citizens.</p>	<p>Provide EE professional development to all educators in CT.</p> <p>Form partnerships among formal and informal educators, community and government leaders to support EE.</p> <p>Make high quality EE resources readily available to all CT educators.</p> <p>Educate the public, through various media outlets, about environmental issues and provide useful information about ongoing EE efforts.</p> <p>Assess EE efforts and outcomes on a timely basis and publicly report the results.</p>	<p>Education Partners: Informal Environ. Educators Pre-K thru Higher Ed. Teachers Teacher Associations School Admin. & Staff Parent-Teacher Orgs. Boards of Educations DOE and RESCs Non-profit Ed. Organizations</p> <p>Community Partners: General Public Business Groups Civic & Religious Orgs. Youth Groups Neighborhood Associations Local and State Media Health Professionals Libraries Non-Governmental Orgs.</p> <p>Government Partners: State Representatives Governor Mayor and Town Supervisors Town Councils Local Land Use Boards Municipal Leaders & Com. Members State and Local Agencies/DEP Advocacy and Policy Officials</p>	<p>Make all education, community and government partners in CT aware of the ELP and their role in its implementation.</p> <p>Equip all educators with the knowledge and skills to foster environmental literacy in their schools and communities.</p> <p>Motivate education, community and government leaders to support environmental education efforts at the local, regional and state levels.</p>	<p>Education partners will work together to foster environmental literacy in formal and informal settings.</p> <p>Community partners will offer direct learning experiences as well as support efforts to promote environmental literacy among all of their citizens.</p> <p>Government partners will develop policies and laws that support environmental literacy efforts including providing necessary funds for these efforts.</p>	<p>All citizens in Connecticut use environmental literacy for individual and social purposes to create and maintain sustainable communities.</p>
<p>Assumptions: Connecticut education, community and government partners will take action as leaders to support the development and implementation of the ELP.</p>			<p>External Factors: Support from the public for EE efforts at the local, regional and state levels. Competition for time, money and resources.</p>		

Logic Model for Connecticut’s Environmental Literacy Plan: Education Partners

Situation: Education partners, including formal and informal educators, are central to achieving environmental literacy. Many opportunities exist within and outside of our schools for students to engage in meaningful learning experiences that connect them to the environment.

INPUTS	OUTPUTS		OUTCOMES - IMPACT			
	Activities	Participation	Short Term	Medium Term	Long Term	
Time and resources from education partners to develop the knowledge and skills needed to foster environmental literacy.	Align National EE standards and CT educational standards.	Education Partners include: Informal Environ. Educators Pre-K thru Higher Ed. Student & Teachers Teacher Associations School Admin. & Staff Parent-Teacher Orgs. Local and State Boards of Educations State Dept. of Education Regional Ed. Service Centers Non-profit Educational Orgs.	Create awareness of the ELP and the role education partners play in supporting it.	Integrate EE across the curriculum to ensure that all students are environmentally literate upon graduation.	All citizens in Connecticut use environmental literacy for individual and social purposes to create and maintain sustainable communities.	
Adequate funding of EE programs in K-12 schools and informal learning centers.	Identify areas where EL connects with CT graduation requirements.		Integrate EE best practices into educational programs through high quality professional development.	Include significant outdoor learning experiences at all grade levels.		
EE resources including curricular materials, outdoor learning environments, and green spaces.	Identify best practice system for EE that is developmentally appropriate.		Cooperate and communicate about resources, needs and opportunities to support EE.	Use grounds and facilities at educational settings as learning laboratories to model sustainable practices.		Support professional and adult learning opportunities.
Collaboration among formal and informal teachers, administrators and parents to provide EE opportunities to all students.	Make EE resources readily available online to all CT educators.		Form partnerships between formal and informal educators to support EE efforts.	Develop a body of EE leaders in all school districts and local communities.		Develop and effectively use a comprehensive EE resource base.
	Utilize the NAAEE Guidelines of Excellence to evaluate quality of programs.		Assess EE efforts and outcomes on a timely basis and publicly report the results.	Connect EE to civic responsibilities.		Develop an EE best practice system.
	Develop EE certification for professional development and training programs.	Provide high quality professional development to all environmental educators in CT.	K-12 administration understand and support EE through curriculum, staff development and school practices.	Link K-12 schools and community resources to provide life-long learning about sustainable living.		
Assumptions: Connecticut education partners will take action as leaders to support the development and implementation of the ELP.			External Factors: Support from the public for EE efforts at the local, regional and state levels. Competition for time, money and resources.			

Logic Model for Connecticut’s Environmental Literacy Plan: Community Partners

Situation: Our local communities play a vital role in educating children and adults about environmental issues. Communities need to preserve natural resources and develop sustainable practices to promote environmental literacy.

INPUTS	Outputs		OUTCOMES - IMPACT		
	Activities	Participation	Short Term	Medium Term	Long Term
Time commitments from community leaders and volunteers to coordinate EE efforts and implement the CT ELP.	Identify and develop environmental leaders within local communities.	Community Partners include: General Public Business Groups Civic Organizations Youth Groups Libraries Religious Organizations Neighborhood Associations Local and State Media Health Professionals Non-profit organizations	Create general awareness of environmental issues and connections to local and state resources.	Provide ongoing environmental education opportunities for lifelong learning.	All citizens in Connecticut use environmental literacy for individual and social purposes to create and maintain sustainable communities.
Sustainable funding sources to support EE efforts at the local, regional and states levels.	Identify and protect local resources and green spaces to bring global perspectives to local communities.		Develop EL knowledge and skills among community leaders and the general public.	Use the ELP to guide planning and decision making at the local level.	
Readily available resources for EE providers within communities.	Develop EE materials to support local learning programs and seminars.		Use green/open space and working lands to promote EL and fully integrate these areas into community life.	Provide EE service learning opportunities for students.	
Partnerships among community organizations to support the CT ELP.	Conduct topical forums in various community venues (e.g., libraries, town festivals, etc).		Support EE efforts in PreK-16 and informal settings at the local, regional, and state levels.	Cooperate and support each other in their EE efforts.	
	Support local historical, cultural, and other community events that promote EL.		Provide resources and counseling for green career paths.	Serve as models of sustainable practices.	
Assumptions: Connecticut community partners will take action as leaders to support the development and implementation of the ELP.			External Factors: Support from the public for EE efforts at the local, regional and state levels. Competition for time, money and resources.		

Logic Model for Connecticut’s Environmental Literacy Plan: Government Partners

Situation: Government entities must develop policies and laws that support environmental education efforts. Providing the necessary funding for these efforts is key to their success

INPUTS	OUTPUTS		OUTCOMES - IMPACT		
	Activities	Participation	Short Term	Medium Term	Long Term
<p>Time for local officials and government agencies to support and implement the ELP.</p> <p>Sustainable funding sources for EE efforts in schools and community settings.</p> <p>Resources to support environmental leadership development in schools and informal settings.</p> <p>Partnerships among government agencies and local towns to promote and support EL.</p>	<p>Conduct educational workshops and forums on EL for government officials.</p> <p>Support opportunities for students and citizens to learn about government in action.</p> <p>Sponsor professional development for teachers on civic action & policy development.</p> <p>Support outdoor recreational opportunities for all citizens.</p> <p>Work with media to promote environmental literacy.</p>	<p>Government Partners include: State Representatives Governor Mayors and Town Supervisors Town Councils Local Land Use Boards Municipal Leaders and Committee Members State and Local Agencies Advocacy and Policy Officials State Department of Environmental Protection</p> <p>Initiate PD opportunities for volunteers to increase their knowledge of environmental issues.</p>	<p>Be aware of environmental issues and the importance of all citizens being environmentally literate.</p> <p>Possess the knowledge and skills to develop sound policies to support EE efforts at the local and state levels.</p> <p>Support EE efforts in K-12 and informal settings through sustainable funding sources.</p> <p>Motivate the public to give high priority to EL and sustainability goals.</p>	<p>Develop policies to achieve and maintain sustainability goals (e.g., EL incorporated into schools, government environmental policies, green building operations).</p> <p>Provide financial support for local, regional and state EE efforts.</p> <p>Provide support for environmental action by municipal, local and grass root organizations.</p> <p>Create policies to protect the use of low impact recreational and educational green spaces throughout the state.</p> <p>Promote “green” planning in all town policies.</p>	<p>All citizens in Connecticut use environmental literacy for individual and social purposes to create and maintain sustainable communities.</p>
<p>Assumptions: Connecticut government partners will take action as leaders to support the development and implementation of the ELP.</p>			<p>External Factors: Support from the public for EE efforts at the local, regional and state levels. Competition for time, money and resources.</p>		

Appendix B: Alignment of NAAEE *Excellence in Environmental Education Guidelines for Learning* with CT Science and Social Studies Standards

Presented here is a summary of the alignment between the *Excellence in Environmental Education Guidelines for Learning* (Pre K-12) (revised 2004) and the CT Curriculum Standards for Science and Social Studies due to the high degree of overlap with these subjects. While the alignment with science and social studies is key, environmental literacy should be achieved through integration with all subject areas, including language arts and mathematics.

The *Excellence in Environmental Education Guidelines for Learning* (Pre K-12) (revised 2004) provide various audiences with a set of common, voluntary guidelines for environmental education. The guidelines set a standard for high-quality environmental education in schools 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. The guidelines are organized into four strands:

- Strand 1: Questioning, Analysis and Interpretation Skills
- Strand 2: Knowledge of Environmental Processes and Systems
- Strand 3: Skills for Understanding and Addressing Environmental Issues
- Strand 4: Personal and Civic Responsibility

The *Connecticut Core Science Curriculum Framework* articulates the main conceptual themes and content standards that all students are expected to learn in their elementary, middle and high school science classes. Being scientifically literate requires that a person have an essential understanding of key science ideas, along with a fluency in the language and terms used to describe them. Scientific literacy also requires the ability to apply critical thinking skills when dealing with science-related issues. The framework was designed to target the age-appropriate critical thinking – or inquiry – skills that should be infused in the learning of each of the content standards. The framework therefore is organized by:

- Core Scientific Inquiry, Literacy and Numeracy
- Core Themes, Content Standards and Expected Performances

The *Connecticut Social Studies Framework (Grade Pk-12)* is a comprehensive document that provides a roadmap for teachers to understand what students should know and be able to do from prekindergarten through high school. The framework assists teachers in teaching content from the variety of history and social studies disciplines at every grade level instead of teaching these disciplines in isolation. The Connecticut Social Studies Framework is organized around the following three interrelated themes:

- Standard 1: Content Knowledge - Knowledge of concepts and information from history and social studies is necessary to promote understanding of our nation and our world.
- Standard 2: History/Social Studies Literacy Skills - Competence in literacy, inquiry, and research skills is necessary to analyze, evaluate and present history and social studies information.
- Standard 3: Application - Civic competence in addressing historical issues and current problems requires the use of information, skills and empathic awareness.

Below is the “Alignment at a Glance” which presents a summary table of the standards from the CT Science and Social Studies Frameworks that align with the standards from the *Excellence in Environmental Education Guidelines for Learning*. The standards from each content area are color-coded for ease of use.

Alignment at a Glance: CT Science and Social Studies Frameworks and the NAAEE the *Excellence in Environmental Education Guidelines for Learning*.

National Environmental Literacy Standards (North American Association of Environmental Education (NAAEE) Guidelines for Learning)			Connecticut Science and Social Studies Content Standards		
			Elementary School (Grades 3-5)	Middle School (Grades 6-8)	High School (Grades 9-12)
Strand 1: Questioning, Analysis, and Interpretation Skills	(no sub-strands)	A. Questioning	BINQ.1	CINQ.1	DINQ.1
		B. Designing investigations	BINQ.3	CINQ.3, CINQ.4	DINQ.3, DINQ.4, DINQ.5
		C. Collecting information	BINQ.2, BINQ.4, BINQ8, BINQ9, 2.1	CINQ.5, 2.1	DINQ.6, 2.1
		D. Evaluating accuracy and reliability	BINQ.6, BINQ10, 2.2	CINQ.2, 2.2	DINQ.2, DINQ.7, 2.2
		E. Organizing information	BINQ.6, BINQ.10, 2.5	CINQ.6, CINQ.7, 2.5	DINQ.8, 2.5
		F. Working with models and simulations			
		G. Drawing conclusions & developing explanations	INQ.5	CINQ.8, CINQ.9	DINQ.9
Strand 2: Knowledge of Environmental Processes and Systems	Strand 2.1: The Earth as a Physical System	A. Processes that shape the Earth	4.3	6.3, 7.3	9.7
		B. Changes in matter	3.1	6.1	9.8
		C. Energy	5.1	7.1	9.1, 9.3
	Strand 2.2: The Living Environment	A. Organisms, populations, and communities	3.2, 4.2	6.2, 7.2	10.6
		B. Heredity and evolution		8.2	10.5
		C. Systems and connections		6.2	
		D. Flow of matter and energy	4.2	6.2	9.1
	Strand 2.3: Humans and Their Societies	A. Individuals and groups			
		B. Culture	1.13	1.13	1.13
		C. Political and economic systems	1.10, 1.11	1.10, 1.11	1.10, 1.11
		D. Global connections	1.12	1.12	1.12
		E. Change and conflict			
	Strand 2.4: Environment and Society	A. Human/environment interactions	1.5	6.4, 1.5	9.6, 9.9, 1.5
B. Places		1.4, 1.6	1.4, 1.6	1.4, 1.6	
C. Resources		3.4, 1.10	1.10	1.10	
D. Technology		5.4			
E. Environmental issues		1.5	1.5	1.5	
Strand 3: Skills for Understanding and Addressing Environmental Issues	Strand 3.1: Skills for Analyzing & Invest. Env. Issues	A. Identifying and investigating issues	3.2	3.2	3.2
		B. Sorting out the consequences of issues	3.2	3.2	3.2
		C. Id. & evaluating alt. solutions & courses of action	3.2	3.2	3.2
		D. Working with flexibility, creativity, and openness			
	Strand 3.2: Decision-Making and Citizenship Skills	A. Forming and evaluating personal views	3.3	3.3	3.3
		B. Evaluating the need for citizen action	3.3	3.3	3.3
		C. Planning and taking action	3.3	3.3	3.3
		D. Evaluating the results of action	3.3	3.3	3.3
Strand 4: Personal and Civic Responsibility	(no sub-strands)	A. Understanding societal values and principles			
		B. Recognizing citizens' rights and responsibilities	1.9	1.9	1.9
		C. Recognizing efficacy			
		D. Accepting personal responsibility			

Alignment with CT Science Standards Alignment with CT Social Studies Standard

Appendix C: CT Environmental Literacy Plan Steering Committee

Robin Bennett
CT Resources and Recovery Authority (CRRRA)

Lori Paradis Brant
CT Forest and Park Association (CFPA)

Elizabeth Buttner
CT State Department of Education (CSDE)

Ellen Castaldini
Member at large

Susan Casato, PhD
Southern CT State University

Mark Dale
Winding Trails Recreation Center

Scott Graves, PhD
Southern CT State University

Jeff Greig
CT State Department of Education (CSDE)

Laurel Kohl
Institute for Sustainable Energy at Eastern CT State University

David Lavalley
Norwalk Montessori Middle School

Becky Newman
COEEA President and EarthPlace

Diana Payne, PhD
CT Sea Grant at UCONN Avery Point and SENEME

Susan Quincy
CT Department of Environmental Protection (DEP)

Tedor Whitman
CT's Beardsley Zoo

Ralph Yulo
Eastern CT State University

Appendix D: Key Reports and Studies on Environmental Literacy

From the *Campaign for Environmental Literacy* (www.fundee.org)

All of A Place: Connecting Schools, Youth and Community

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Are We Building Environmental Literacy?

A Report by the Independent Commission on Environmental Education, 1997.

Blueprint for a Green Campus: The Campus Earth Summit Initiatives for Higher Education

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Gerald A. Lieberman and Linda L. Hoody, 1998. Science Wizards, Poway, California 92064.

Complex Environmental Systems: Synthesis for Earth, Life, and Society in the 21st Century

NSF Advisory Committee for Environmental Research and Education, National Science Foundation, 2003.

Creating a Community Specific Environmental Education Website, Chapter 3: Environmental Education on the Edge (draft)

Catherine Kavassalis, 2003.

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David W. Orr, State University of New York Press, 1992. ISBN:0-7914-0874-4.

Education for Sustainability: An Agenda for Action

President's Council on Sustainable Development, U.S. Government Printing Office, 1995. ISBN 0-16-048783-8

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The Biodiversity Project, 1998.

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National Environmental Education and Training Foundation, 2000.

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Joy A. Palmer, Routledge, 1998. ISBN: 0-415-13197-9.

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The Center for Instruction, Staff Development and Evaluation, 2001. Stipes Publishing, Champaign, Illinois, ISBN: 0-58874-070-6

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North American Association for Environmental Education, 1999.

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The National Report Card on Environmental Knowledge, Attitudes, and Behaviors

Roper Starch Worldwide, National Environmental Education and Training Foundation, 2001, 1999, 1998, 1997.

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Available at <http://usp.umfglobal.org/main/view archive/1>