

Executive Summary

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Background and Purpose

Statement of Need

Colorado's natural environment is world-renowned. Our wildlife, mountains, plains, plateaus and big skies define our heritage and are a cornerstone of Colorado's economy. Colorado students need to be prepared to address present and future environmental challenges and innovations that impact our quality of life as Coloradans. Our environment, economy and communities depend on informed and active citizens who can make decisions about our air and water quality; the health of our farms, ranches, forests and wildlife; how to responsibly meet our energy needs; and how to provide opportunities for our residents to partake in the state's natural beauty while protecting it for future generations.

The development of an environmentally literate citizenry has the potential to dramatically impact the lives of all Coloradans. Not only does environmental literacy impact our schools and students, but it impacts our economy and health by engaging the populous in an inherently collaborative effort.

Environmental Literacy Impacts our Economy. Colorado is one of the nation's leaders in promoting the green job industry. The state now boasts nearly 20,000 renewable energy and research jobs, making it the fourth-highest concentration of green jobs in the U.S. While we lack Colorado-specific data, research shows only 12% of Americans can pass a basic quiz on awareness of energy topics (Environmental Literacy in America, Coyle, 2005). Recreation and tourism provide employment to many of our residents and represent a significant source of income to our state and cities. That said, and despite a statewide emphasis on tourism and outdoor recreation, from 1996–2006, the hunting and fishing industry in the state experienced a 15% decline and wildlife watching decreased by 23%.¹ These trends impact our public lands, natural areas and the future of our state.

Environmental Literacy Impacts our Health. The decisions that Coloradans make about the environment not only impact the economy and natural environment, but also our health. Our quality of life in Colorado depends on air, water and environmental quality. In addition, experiences in the outdoors impact our health, development and environmental sensitivity. The National Wildlife Federations' August 2010 report, *Whole Child: Developing Mind, Body and Spirit through Outdoor Play*, states that children nationwide are spending more than seven hours a day engaging with electronic media. According to the Colorado Kids Outdoors Coalition, if nothing is done to stop current trends, only 35% of Colorado residents will be at a healthy weight in 2017. Environmental education can help provide opportunities to combat these trends.

Environmental Literacy Impacts Education. Literature on children's development indicates that students engaged in environmental education also develop:

- Increased engagement and enthusiasm for learning

¹ Colorado Kids Outdoors Web site: <http://www.coloradokidsoutdoors.org/factsheet.htm>

- Greater pride and ownership in accomplishments
- Reduced discipline and classroom management problems
- Better performance on standardized measures of academic achievement in reading, writing, math, science and social studies (Closing the Achievement Gap, 1998).

Environmental education not only provides learners with the critical thinking and problem-solving skills to become informed decision-makers, but it provides rich and varied learning environments that make learning relevant and interactive. Studies confirm that access to nature in an educational setting has a positive impact on student focus and learning by improving attentiveness, test scores and performance.³

In Kevin Coyle's 2005 report, *Environmental Literacy in America: What Ten Years of NEETF/Roper Research and Related Studies Say About Environmental Literacy in the U.S.*, environment-based education was found to stimulate science interest in students and improve science outcomes among 100% of students.² The report goes on to describe findings in numerous states, pointing to the ways in which environment-based education improves child academic outcomes in science. While this is, perhaps, the most predictable learning outcome, Coyle also describes that involvement with environment-based education has shown to improve language arts and reading outcomes, as well as acquisition of overall thinking skills and motivation.

In addition to the learning outcomes directly associated with involvement with environment-based education, increasing environmental literacy is a proven way to expand the academic pipeline for science, technology, engineering and math (STEM) subjects, which are all increasingly important for students to master to be competitive in the industries that will employ workers of the future. **Despite the benefits of environment-based education, environmental literacy among Americans is limited.**

“While the simplest forms of environmental knowledge are widespread, public comprehension of more complex environmental subjects is very limited. The average American adult, regardless of age, income, or level of education, mostly fails to grasp essential aspects of environmental science, important cause/effect relationships, or even basic concepts such as runoff pollution, power generation and fuel use, or water flow patterns” (Environmental Literacy in America, Coyle, 2005)

Also according to Coyle (2000), “while there are no hard numbers on the subject, an estimate of 1% to 2% of adults in America” are environmentally literate. (Environmental Literacy in America, Coyle, 2005).

“Recent examinations of the state of environmental literacy find that a small percentage of the public is prepared for the complex environmental issues and decisions of the future. At least part of this shortfall is due to the status of environmental education in school. Although environmental education is a popular elective and supplemental effort in more than half of our schools, too little of it actually gets delivered and then it is poorly sequenced so that environmental learning does not effectively accumulate.” (Environmental Literacy in America, Coyle, 2005).

Colorado has rallied around promoting the New Energy Economy. There is widespread support for environmental education, and numerous agencies and nonprofit organizations have

² Coyle, Kevin. Environmental Literacy in America: What Ten Years of NEETF/Roper Research and Related Studies Say about Environmental Literacy in the U.S. 2005.

environmental education programs. These efforts would benefit from better coordination. A more coordinated approach would help maximize the access to, and impact and ability of, these programs, collectively ensuring that all Coloradans have access to quality programs that will help us craft a more sustainable future.

Achieving Environmental Literacy in Colorado is Inherently a Collaborative Effort.

Environmental education is woven through what we do as teachers, administrators, parents, community members, business owners and governmental leadership. In response, the Colorado Alliance for Environmental Education (CAEE) has helped to convene a task force of environmental educators, teachers, school administrators, staff from local, state and federal government agencies, parents, and nonprofit staff. The role of these stakeholders will be to unite their disparate efforts and work toward the shared goal of environmental literacy. As one cohesive task force, we ensure the greatest impact on the state of Colorado and its residents. The task force has been charged with creating an Environmental Literacy Plan, which seeks to increase opportunities for students to engage in environmental education throughout their pre-K–12 education.

Environmental Literacy and Environmental Education

The vision of the Colorado State Board of Education and the Colorado Department of Education is that all children in Colorado will become educated and productive citizens—**environmental literacy is an essential component of that vision**. To aid in the development of the plan, the task force adopted the following definition:

Environmental Literacy is an individual's understanding of how their actions and decisions affect the environment so they can act on that understanding in a responsible and effective manner.

Environmental Literacy is the primary and overarching goal of environmental education. Environmental education was defined in the Belgrade Charter in 1976 as the process of developing a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones.

Environmental education helps students achieve environmental literacy by helping to develop:

- Inquiry, investigative and analysis skills
- Knowledge of environmental processes and human systems
- Skills for understanding and addressing environmental issues
- Personal and civic responsibility for environmental decisions

Environmental education is a life-long learning process that increases awareness about the environment and its systems and results in a citizenry empowered to meet their future responsibilities regarding the environment. It focuses on developing critical thinking skills that enable informed decision-making and actions. Whether indoors or out, environmental education brings together many traditional subjects such as math, science, social studies, the arts and literacy. Environmental education is developed in accordance with best practices in education, is scientifically accurate, presents a range of perspectives in a balanced way, and encourages learners to form their own opinions. It “differs from environmental advocacy in empowering people with the knowledge, skills, and attitudes needed to make informed choices rather than advocating specific choices.” (Roth, 1996, p. 6)

Environmentally literate people have a sense of place. Environmental education fosters connections between people and their communities by motivating individuals to participate in

decisions that affect both the local and broader environment. Environmental education creates opportunities for people to develop personal connections with the natural and cultural landscape of their communities, and develop their own unique roles within that landscape. High-quality environmental education is essential to the development of an environmentally literate citizenry.

Why an environmental literacy plan?

The need for environmental literacy in the state of Colorado is clear. The decisions that Coloradans make about the environment impact the economy, the health of our communities and natural resources, and our quality of life. Students in Colorado need to be prepared with the critical thinking and problem-solving skills to make informed decisions about the environment now and beyond the walls of school classrooms.

Preparing students as critical thinkers and informed decision-makers about the environment must involve a collaborative effort. Environmental education is woven through what we do as teachers, administrators, parents, community members, business owners and governmental leadership. Colorado has a vast array of environmental education providers, resources and opportunities. Highly trained educators and award-winning programs work in every corner of our state. However, there is no coordinated strategy to ensure that all students can access these opportunities. Colorado's Environmental Literacy Plan will serve as a coordinated strategy to ensure that all stakeholders are working together to create access to the wealth of resources that already exist.

The Colorado Environmental Literacy Plan (ELP) emphasizes: (a) the integration of environmental education throughout a student's educational experience from pre-K to grade 12, and (b) school partnerships with a variety of community stakeholders. On a continuum of possibilities from simple partnerships to community projects, the ELP is written with the goal of integrating communities and schools.

For example, a community gardening group could work with parents and student to plan and create a small school butterfly garden that the teaching faculty can utilize for life science curriculum and poetry writing during the school day. Or students could engage with the local community by picking up litter at a local open space park. A small group of students could identify a place to adopt, clean up, turn over and maintain with the help of a local municipality, or a small business could support a classroom project to teach the community about the history of the schools land. Formal and informal educators will work together to create environmental education experiences that enhance the curriculum rather than become an

add-on. In places throughout Colorado, highly trained environmental educators work through nonprofit organizations to provide outreach and field study programs that are developed with our

Smith and Sobel's Common Elements, 2010, pg 57–59.

- a. Curriculum clearly grounded in local issues and possibilities*
- b. Willingness of teachers to step beyond the lessons presented in generic texts and workbooks and to design instructional plans on their own or with others*
- c. Invite students to become knowledge creators and exercise their own voices*
- d. Teachers provide opportunities for other adults to share in the education of their community's children*
- e. Partnerships with local agencies also provide young people with access to adults outside the school*
- f. Place and community-based educators design learning activities that could potentially engender a sense of appreciation or positive regard about students; home communities and regions*

state's Academic Standards in mind. These environmental educators work closely with the school district curriculum as well as the students.

The environmental education that will be emphasized as part of the ELP will make learning relevant and engaging, improve critical thinking, problem-solving and effective decision-making skills, foster an ethic of stewardship, and develop workforce readiness for Colorado's new energy economy.

The Local and Federal Landscape

Legislation supporting the ELP

On May 27, 2010, the Colorado legislature approved the Colorado Kids Outdoors Grant Program Act (HB10-1131), authorizing the creation of the ELP. The bill, sponsored by Representative Christine Scanlan and Senator Dan Gibbs, charges the Colorado Department of Education, in consultation with the Department of Natural Resources, to develop, and the State Board of Education to adopt, a state plan for environmental education.

“At a minimum, the state plan for environmental education shall address strengthening the reach and coordination of environmental education in public schools and providing to educators professional development in environmental education. The Department shall ensure that the state plan for environmental education complies with any requirements imposed by federal law or by regulations adopted by the Federal Department of Education.” (From the Colorado Legislation)

Funding for this program will be from public or private gifts, grants or donations.

The creation of the ELP is occurring at a time when many states are developing environmental literacy plans to comply with the pending federal No Child Left Inside Legislation. As described in the No Child Left Inside Act, a qualifying plan must include:

- Specific content standards, content areas and courses or subjects where instruction will take place
- A description of how state high school graduation requirements will ensure that graduates are environmentally literate
- A description of programs for professional development of teachers to improve their environmental content knowledge, skill in teaching about environmental issues and field-based pedagogical skills
- A description of how the state education agency will measure the environmental literacy of students
- A description of how the state education agency will implement the plan, including securing funding and other necessary support

This ELP was designed with these requirements in mind.

Colorado's Strategy

Building lifelong stewards for Colorado's wealth of natural resources, spaces and lifestyle is critically important. Coloradans will need both the benefits that come from personal, meaningful outdoor experiences, and the knowledge and skills to make informed decisions about the environment as voters, consumers and citizens.

Experiences in the outdoors impact our health, development, and environmental sensitivity. The National Wildlife Federation's August 2010 report, *Whole Child: Developing Mind, Body and Spirit through Outdoor Play*, states that children nationwide spend an average of four to seven minutes a day in unstructured play, "like climbing trees, drawing with chalk on the sidewalk, taking a nature walk or playing a game of catch."³ Contrasting this statistic, the report states that youth are spending more than seven hours a day engaging with electronic media. Colorado is undertaking a variety of efforts to reverse these trends. In 2010, through the Office of Lt. Governor, Barbara O'Brien, Colorado adopted a Colorado Kid's Outdoor Bill of Rights, which outlines the various opportunities that all Colorado children should have to experience the outdoors. There is also a Colorado Kid's Outdoors Coalition, a grassroots coalition of a variety of agencies and organizations working to create strategies to reverse these trends.

HB10-1131, the legislation that authorized the creation of the environmental literacy plan, also created the Colorado Kids Outdoors Grant Program, funding that will help youth experience the outdoors first-hand. Funding is directed towards both recreational and educational programs and experiences.

The ELP is intended to work in tandem with these efforts to increase the time Colorado youth spend outdoors by helping increase the time that youth spend outdoors *during the school day*.

While there is no explicit connection between the Grants Program and the ELP, the involved stakeholders hope that the ELP will be able to provide guidance to the Grants Program and will help ensure that any educational funds awarded are being used in the most effective and necessary ways.

Local control state

Colorado is a local control state. This means that many pre-kindergarten through 12th-grade public education decisions on issues such as curriculum, personnel, school calendars, graduation requirements, classroom policy and **environmental education** are made by each of the 176 Colorado school district administrations and their school boards.

The integration of environmental education into a student's education varies widely across the state. This plan contains **no new mandates** for districts and schools, but seeks to provide the resources and best practices needed to support the implementation of Colorado's Academic Standards adopted by the State Board of Education in 2009. The standards integrate environmental education content and skills throughout various content areas.

Ensuring environmental literacy for all students in Colorado will require time and resources. All teachers, schools and districts will be ready and able to implement different degrees of environmental education into the experiences of their learners. The Colorado Environmental Literacy Plan is designed to meet the individual needs of schools and districts across the state and implementation strategies will depend on each individual building. (Insert Sidebar citation: Sobel/Duffin Hierarchy for Schools)

Development of the Environmental Literacy Plan

In order to ensure an open and inclusive ELP development process that takes into account the myriad voices of the environmental education communities across the state, a collaborative and multifaceted process was developed and implemented. To provide this statewide collaboration with guidance, the ELP development effort was spearheaded by CAEE, a statewide nonprofit working to increase the effectiveness of environmental education by "facilitating communication,

³ National Wildlife Federation. *Whole Child: Developing Mind, Body and Spirit through Outdoor Play*. August 2010

coordination and professional development among the varied environmental education programs in the state.” CAEE has been in operation for 20 years and now includes more than 850 members and 150 active volunteers. It has also partnered with agencies to work on several projects. In August 2010, CAEE contracted with JVA Consulting, LLC (JVA) to facilitate and guide the ELP development process.

Beginning in September 2010, the creation of the ELP began, through the use of:

- **Task force meetings.** The Task Force was comprised of individuals from around the state who are engaged with, and dedicated to, environmental education. While the Task Force was created prior to the development of the ELP, the group began meeting twice a month, starting in September 2010, to work on the draft ELP. With participation ranging from five to 15 members, and a contact list of 86 individuals, the Task Force was comprised of formal and nonformal educators, government employees, parents, nonprofit staff, and district curriculum specialists, and included people from the Denver metro area, Boulder, Steamboat Springs, Fort Collins and Grand Junction. Through the use of facilitated dialogue and open conversation, the Task Force was an integral part of the development of the ELP.
- **Small group meetings.** While the Task Force meetings were the primary venue for sharing ELP progress and soliciting feedback, CAEE also convened a series of small group meetings, bringing targeted individuals together to develop ideas or help move the ELP forward. Specifically, small group meetings were utilized while determining the four strategies and while fleshing out what would be included in each. In addition, there were a few groups or agencies that were not represented in the Task Force and CAEE tried, whenever possible, to meet with these organizations and agencies separately. These agencies include: the Colorado Department of Public Health and Environment, representatives of institutes of higher education, and the Colorado Department of Transportation.
- **A multistakeholder survey.** A large, multistakeholder survey was designed and administered across the state to gather public opinion on the development of the ELP. A total of 301 individuals responded to the survey, and each were asked to self identify as: a parent/guardian of a pre-K–12 student, a pre-K–12 teacher/administrator/staff member, university faculty or staff member, a nonformal environmental education provider, or staff member at a local, state or federal government agency. The survey asked questions about: access and barriers to accessing environmental education, professional development needs, service coordination, connecting environmental education with academic standards or graduation guidelines, and how people would be most likely to access and utilize the plan once created.
- **Focus groups.** Because formal pre-K–12 teachers will likely be the group that is most directly affected by the ELP, JVA conducted three focus groups with educators around the state to introduce the ELP, discuss what effect it will have on the formal education system, and gather teacher feedback. Focus groups were conducted in Grand Junction, Greeley and Durango.
- **ELP leadership meetings.** Because implementation of the ELP will require close coordination among leading government agencies, nonprofits, corporations, schools and individuals, CAEE convened two leadership meetings, comprised primarily of staff members of government agencies (including the Department of Natural Resources, Division of Wildlife, Colorado State Parks, the office of the Lt. Governor, the Colorado

Department of Education, and the Colorado Department of Public Health and Environment). The purpose of these meetings was twofold. First, to inform the leadership team of the progress of the ELP and the direction it was headed; and second, to solicit feedback and ensure buy-in from representatives of the government agencies that will be asked to implement the ELP.

With access to the many voices of environmental education in the state, CAEE crafted language and developed the ELP to represent environmental education in Colorado. Readers will find quotes, stories and vignettes collected along this journey infused throughout the final draft of the ELP, all of which illustrate how vibrant and varied the environmental education community is in the state.

Finally, the development of the draft ELP relied quite heavily on a close partnership between the Colorado Department of Education and CAEE, and without this partnership, the development of the ELP would have been challenging.

Colorado ELP Mission, Vision and Goals

Vision:

A Colorado public education system that utilizes best and promising practices, and engages the broader community by preparing teachers to provide relevant environmental education experiences, build 21st century skills and develop environmentally literate graduates.

Mission:

To provide a road map for the preschool through 12th-grade education system (i.e., teachers, administrators, community leaders, nonprofits and parents) to create environmentally literate graduates.

Goals for the ELP

- 1. Students will understand how their actions and decisions affect the environment so they can act on that understanding in a responsible and effective manner*
- 2. Students will have standards-based, relevant learning experiences in environmental education every year that lead to achieving prepared graduate competencies for environmental literacy*
- 3. Educators will effectively and creatively utilize best practices and approaches to teach environmental literacy*
- 4. Schools will have access to a network of educators, volunteers and community partners to increase environmental literacy for pre-K–12 students*

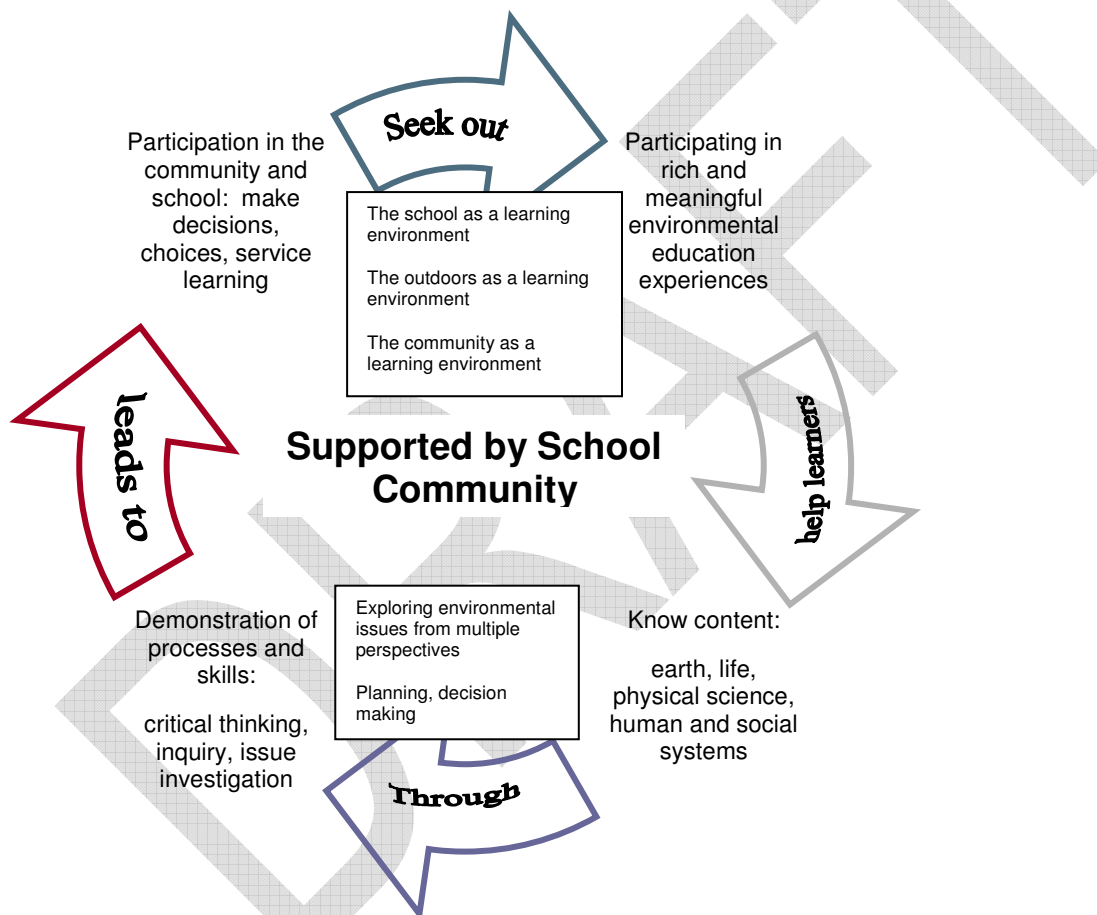
Our goals, above, are directed at achieving environmental literacy for students, educators and schools.

Students. Ultimately, this plan is designed to help all pre-K–12 learners become environmentally literate. Goal 1 describes the knowledge and skills that students need to become environmentally literate. They need to demonstrate understanding and knowledge across disciplines of environmental processes and human systems in Colorado, and globally. Students will understand the connections between people and places and the interrelationships between humans and the environment. This knowledge will help students develop and demonstrate process skills including critical thinking, inquiry and issue investigation. This means that learners will be able to think critically about choices and opportunity costs associated with

environmental issues and their possible solutions from multiple perspectives. Students will be able to ask questions, seek information and draw conclusions. Equipped with knowledge, critical thinking and problem-solving skills, students will participate in environmental decisions at a personal and policy level.

This will be achieved through standards-based, relevant learning experiences in environmental education every year, as outlined in Goal 2. Experiences should be rich and varied, occur both at school and in the community, and build upon each other to increase learning. Students can engage in opportunities to explore environmental literacy through local heritage, cultures, landscapes, opportunities and experiences. The neighborhood, park, or even local businesses can become learning laboratories for students. Both goals are reflected in the graphic below depicting the learning process.

A Student's Journey to Environmental Literacy



Educators. Educators, both in the classroom setting and out, have a tremendous impact on a student's environmental literacy. They can be *formal* educators who teach in a school as a student's classroom teacher, a "specials" or elective instructor, a resource teacher, or they can be *nonformal* educators—a naturalist, or a community or museum educator. They can help students make connections and provide the environment for learning concepts and skills. As described in Goal 3, educators *provide* high-quality environmental education experiences driven by best and promising practices in environmental education, *seek out* professional development and *assess* student learning to continuously improve.

Schools. Schools can be the setting for an environmental education experience, but they also can be the support system for environmental literacy. “Schools,” as described in Goal 4, refer to the school staff, administrators, operations management and district staff that are engaged in environmental literacy. Schools and districts provide students with meaningful opportunities to learn outside the classroom and foster mutually beneficial relationships among the school/district, students, families, community, nonformal educators and the environment. Colorado has a wealth of environmental education resources, programs and providers; by utilizing and partnering with this network, schools and districts can support teachers, administrators and other educators who effectively use creative approaches to teach environmental literacy. This network can also provide access to quality curriculum materials and professional development.

By working to achieve these goals, Colorado will move significantly closer to an environmentally literate state, with educated and productive citizens.

Key Strategies

This plan seeks to advance the environmental literacy of students, educators and schools with the full understanding that this process will not unfold overnight. CAEE and other developers of the ELP envision a five-year plan for the introduction, implementation and advancement of the ELP in Colorado. To do this, four key strategies have been identified as priorities in advancing environmental literacy by 2016.

These key strategies include:

1. *Help teachers, schools and districts design, implement and assess a standard-based curriculum that includes environmental education*
2. *Provide rich and meaningful environmental education experiences in the school building, the school grounds and community*
3. *Ensure the creation and availability of quality professional development, resources and programs that are grounded in national standards for environmental education*
4. *Guarantee that all educators have access to quality professional development, resources and programs through virtual and in-person EE Networks*

The Colorado Department of Education, the Colorado Department of Natural Resources and the Colorado Alliance for Environmental Education will play key roles in advancing the goals set forth in this plan. However, much of the implementation will take place voluntarily in the schools and districts across the state and will depend on the involvement of local community resources. Because these stakeholders play important roles in advancing environmental literacy in our state, the description of each strategy contains the following components:

Introduction: Background information explaining how the strategy will help us accomplish our goals for environmental literacy in Colorado. Readers will notice that only the goals most directly impacted by the strategy will be highlighted. Because the ELP is suggesting a collaborative and comprehensive process, no single strategy addresses all four goals and readers will notice that for each strategy, only certain goals are present.

State-Level Supports: Steps that the Colorado Department of Education, The Colorado Department of Natural Resources, and the Colorado Alliance for Environmental Education will

take to ensure that teachers, schools and districts have the tools and resources they need to advance environmental literacy in Colorado. These supports include:

- **Resource Supports:** The tools, materials and funding necessary to implement environmental education in the classroom or school. Examples of Resources may include, but are not limited to: equipment like dip nets and binoculars, funding for outdoor classrooms, field trips, environmental education providers, and/or templates for community asset maps.
- **Curricular and Instruction Supports:** The exemplars, lesson plans and curriculum to help teachers and schools integrate environmental education into daily teaching, and environmental education experiences into the curricula.
- **Professional Development Supports:** The opportunities for teachers, administrators, school staff and community educators to develop the knowledge and skills they need to advance environmental literacy in Colorado.

School and Community-Based Action Steps: Includes steps that community, agencies, districts, schools and educators can take to ensure the success of the environmental literacy plan and to help students master Colorado’s academic standards. These are tactics and opportunities to ensure that schools and districts are providing opportunities and removing barriers toward creating environmentally literate graduates.

Strategy 1: Curriculum and Instruction

Help teachers, schools and districts design, implement and assess a standards-based curriculum that includes environmental education.

Strategy 1 is designed to closely address curriculum, based on the understanding that curriculum is the foundation of student learning. If curricula are designed with environmental education in mind, and if teachers are provided with the tools and training required to implement these curricula, students will experience increased engagement with environmental education.

Strategy 1 addresses the following goals, as articulated in the background and purpose section above:

Goal 1: Students will understand how their actions and decisions affect the environment so they can act on that understanding in a responsible and effective manner

Environmental education, as defined in this plan, includes acquiring knowledge of environmental processes and human systems, developing skills for understanding and addressing environmental issues, and practicing personal and civic responsibility for environmental decisions. By designing and implementing curriculum that includes environmental education, students engaged in that curriculum will develop the inquiry and investigative skills needed to understand their decisions and how they affect the environment.

Goal 2: Students will have standards-based, relevant learning experiences in environmental education every year

In order to effectively integrate environmental education into the teaching and learning cycles, and allow for sequenced, relevant participation in environmental education every year, curricula must be designed in ways that allow students and teachers to meet learning and teaching goals. If schools and districts can design standards-based curriculum that includes environmental

education, educators will be better able to ensure access to relevant learning experiences in environmental education every year.

Goal 3: Educators will effectively and creatively utilize best practices and approaches to teach environmental education

The design, implementation and assessment of a standards-based curriculum that incorporates environmental education in the state should, whenever possible, be aligned with the North American Association for Environmental Education (NAAEE) Guidelines for Excellence in Environmental Education. This will ensure that schools and educators are effectively using best practices in the field. Through close alignment with the national standards, Colorado educators will be best able to design and implement relevant learning experiences for students in environmental education.

Design and Implement

In order to achieve environmental literacy in Colorado, environmental education needs to be integrated into all aspects of students' learning experience. Environmental literacy is a part of Colorado's Academic Standards, and a tool that can be used to teach concepts and skills across disciplines (not traditionally thought of as environmental education) within standards.

Prepared Graduate Competencies for Environmental Literacy

Colorado's Academic Standards identify prepared graduate competencies for each of the eleven content areas. These prepared graduate competencies are "the preschool through twelfth-grade concepts and skills that all students who complete the Colorado education system are expected to master to ensure their success in a postsecondary and workforce setting" (CDE Web site). While environmental literacy is represented in the prepared graduate competencies of several content areas, there are several cross content prepared graduate competencies specific to environmental literacy. Schools and districts that implement the ELP should design and implement curriculum, and should engage students in environmental education experiences, to ensure that upon graduation from 12th grade, environmentally literate students in Colorado are able to:

Connect content across disciplines related to natural and human systems

An important component of environmental literacy is understanding the processes and systems that comprise our Colorado and global environment, including human social systems and influences. That understanding is based on knowledge synthesized from across traditional disciplines. It is critical that learners understand: (a) the earth as both a living environment and physical system, (b) humans and their societies, and (c) the environment and society. Students who understand the earth as a physical system explore processes that shape the earth, changes in matter, and energy. Understanding organisms, populations, and communities, heredity and evolution, systems and connections, and the flow of matter and energy build knowledge of the living environment. By studying humans and their societies students build their knowledge of culture, political and economic systems, global connections, and change and conflict. Finally, understanding human and environment interactions, places, resources, technology, and environmental issues builds knowledge in the environment and society. These concepts will inform students' planning, decision-making, problem-solving and innovation, and are found throughout Colorado's Academic Standards.

Understand the connections between people and places and the interrelationships between humans and the environment

Environmental literacy depends on students understanding the relationship between their local environment and community heritage and how each shapes their lives. Developing these understandings immerses students in local heritage, cultures, landscapes, opportunities and experiences. Students need to demonstrate knowledge and history of local environment and how their community relies on its environment to meet its needs as well as understanding how community heritage (environmental, economic, social, political and technological) shapes their lives and impacts the future of the community and environment.

Demonstrate processes and skills including critical thinking, inquiry and issue investigation

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

These skills are refined and applied in the context of environmental issues. Environmental issues are real-life dramas where differing viewpoints about environmental problems and their potential solutions are played out. Environmental literacy includes the abilities to define, learn about, evaluate, and act on environmental issues both locally and globally.

Participate in proactive decision-making in their community and school

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

The above Prepared Graduate Competencies were informed by the *Project for Excellence in Environmental Education: Guidelines for Learning PreK-12*, which was created by the North American Association for Environmental Education. See appendix ?

The knowledge and skills that make up these prepared graduate competencies are already an integral part of what is happening in many schools across Colorado. They can be both integrated into existing courses or units of study or inserted as a new course or unit of study depending on school or district needs. (EE in the K-12 Curriculum: Finding a Niche, 1992).

State-Level Supports

Resource Supports

- Gather stakeholders to identify grade-level expectations and evidence outcomes in Colorado's Academic Standards that address these Prepared Graduate Competencies
- Create addendum document for Colorado's Academic Standards (similar to Addendum for Financial Literacy)

Curricular and Instructional Supports

- Compile prototype of example curricula⁴ that are available as resources to all Colorado Districts and that align to Colorado's Academic Standards for environmental literacy

Professional Development Supports

- Provide professional development opportunities to help curriculum coordinators and teachers integrate the Prepared Graduate Competencies into the curriculum
- Provide professional development opportunities to help educators move learners to participation/decision-making

School and Community-Based Action Steps

Implementation will happen at the local level at schools and districts across Colorado. Here are a few strategies that can be employed to ensure successful implementation.

Community members and agencies can...

- Ensure all available programming is standards-based and focused on the Colorado Academic Standards and 21st Century Skills
- Form ongoing partnerships with schools
- Engage in professional development to increase knowledge and skill in standards-based education and facilitate collaboration with formal educators
- Provide professional development opportunities for teachers, staff and administrators

Districts can...

- Identify existing or intentionally develop curriculum that includes units or courses of study that address environmental literacy
- Provide resources to schools and teachers so they can teach a standards-based curriculum that includes environmental education
- Examine district policies that might present barriers to utilizing the school building, school grounds or community as a learning tool to teach environmental literacy
- Provide access to professional development that will increase knowledge and skills in natural and human processes and systems
- Examine policies around the teaching of controversial issues to make sure that teachers feel comfortable teaching controversial issues
- Review curriculum to ensure that it emphasizes 21st Century Skills and provide time for, and highlights student investigation into, issues facing the environment

Schools can...

- Encourage joint planning sessions to identify connections across disciplines

⁴ Prototype of example curricula are: XXXX (include appropriate CDE definition and explanation here)

- Examine school policies that might present barriers to utilizing the school building, school grounds or community as a learning tool to teach about natural and human processes and systems

Educators can...

- Look for opportunities to integrate content across disciplines within the curriculum
- Provide opportunities for students to utilize project-based learning, service learning or other ways to participate in environmental decisions and problem-solving
- Ensure students have ample opportunities to develop content knowledge and skills, as well as environmental sensitivity or an empathetic view of the environment and its problems and issues
- Provide students with opportunities to analyze environmental issues on a local and global level beginning with the current curriculum and district or school resources
- Seek out professional development or professional learning communities to increase knowledge and skills in natural and human processes and systems

Higher education can...

- Ensure that entrance requirements reflect the mastery of environmental literacy knowledge and skills

Assess

To determine how successful we are in achieving the vision, we need to ensure that assessment of environmental literacy is a part of the teaching and learning process to measure changes in student environmental literacy over time, allowing us to strive toward continual improvement.

Currently, no baseline data of environmental literacy exists in Colorado. Our current level of environmental literacy is based on a national baseline study of environmental literacy conducted in 2008 for sixth- and eighth-grade students by The National Environmental Literacy Assessment Project. They developed and conducted a survey instrument called the Middle School Environmental Literacy Survey (MSELS) and included measures in each of four domains that are critical to environmental literacy: Knowledge, Affect, Cognitive Skills and Behavior.

The national baseline survey provides information, but not enough. Colorado will need to both understand the environmental literacy of learners in grades pre-K–12 and measure changes over time as a result of environmental education in schools. Assessment will need to fit into both state and district/school assessment systems and not add additional assessment requirements. Assessments should be based on the definition of environmental literacy in this plan and mastery of the prepared graduate competencies for environmental literacy, collectively including the following components:

Knowledge of natural and human systems and awareness of environmental problems and issues

Affect or appreciation and value of the environment, attitudes toward environmental issues, and motivation to actively participate in environmental decisions

Cognitive Skills to ask questions, seek information, think critically and to define, learn about, evaluate, and act on environmental issues both locally in Colorado and globally

Behavior to encourage participation in proactive decision-making in their community and school

State-Level Supports

Resource Supports

- Identify current assessments and accountability measures such as Colorado summative tests in science and social studies that can be used to measure environmental literacy (Knowledge, Affect, Cognitive Skills and Behavior)
- Identify gaps in each of the four domains that are critical to environmental literacy (Knowledge, Affect, Cognitive Skills and Behavior) that can not be measured through current assessment data, and develop a plan to assess
- Identify appropriate grade-level expectations and evidence outcomes and collect data from Colorado Summative Tests in science and social studies

Curricular and Instructional Support

- Create exemplars of formative and interim assessment tools that align with curricula in environmental literacy

School and Community-Based Action Steps

Much of the assessment in Colorado will happen at the local level at schools and districts across the state. Here are a few strategies that can be employed to ensure successful implementation:

Community members and agencies can...

- Nonformal environmental education providers can develop tools for teachers to use to formatively assess learners before, during and after programs and field trips (example?)
- Evaluate learning and impact of EE programs
- Participate in professional development related to assessment and evaluation of environmental literacy

Districts can...

- Collaborate to adapt the Middle School Environmental Literacy Survey (MSELS) for voluntary use to measure changes in environmental literacy over time
- Administer interim assessment and collect data to measure environmental literacy over time
- Use data to improve environmental education programs and services
- Create action plans to improve environmental literacy over time based on assessment results

Schools can...

- Create action plans to improve environmental literacy over time based on assessment results

Educators can...

- Use formative assessments in environmental literacy in the classroom

- Use assessment results to help improve learning experiences for students in environmental literacy
- Assist students and parents in utilizing the Individual Career and Academic Plan (ICAP) to track (a) documentation of efforts in exploring careers related to environmental science and environmental careers; (b) the student's academic progress; (c) a sequence of courses reflecting progress toward the student's environmental literacy objectives; (d) relevant assessment scores; (e) the student's plans for, and experiences in, contextual and service learning and grants; (i) other data reflecting student progress toward postsecondary and workforce readiness related to environmental literacy

Strategy 2: Foster Learning Environments for Environmental Literacy

Provide rich and meaningful environmental education experiences in the school building, the school grounds and community.

There are numerous learning environments that promote environmental literacy, from the school building to Colorado's rich and varied natural areas. Whether developing students' content knowledge in natural or human systems, developing skills in inquiry, problem-solving, issue investigation, or using proactive decision-making, the learning environment can have a profound impact on student learning and attitudes. The context for learning can serve as an important vehicle for making learning relevant, interactive and investigative.

The rich and varied learning environments available in Colorado include:

- The school building
- The school grounds
- The local community, including parks and natural areas, nature centers, museums business, organizations, Public Works and educators, etc.

Strategy 2 addresses the following goals, as articulated in the background and purpose section:

Goal 1: Students will understand how their actions and decisions affect the environment so they can act on that understanding in a responsible and effective manner

The learning environment can greatly impact the ability of students to learn. By engaging students in environmental education experiences, educators have the opportunity to explore, firsthand, how actions and decisions affect the environment. Whether through mapping energy outputs at the school, tracking soil erosion in a local stream or exploring human impact on community parks and green spaces, Strategy 2 allows for in-depth exploration of environmental cause and effect.

Goal 2: Students will have standards-based, relevant learning experiences in environmental education every year

Strategy 2 seeks to lay the foundation and provide educators with the information and resources they need in order to provide relevant learning experiences in environmental education to every student, every year. By introducing educators and school administrators to the opportunities for environmental education in the school building, on school grounds or in the surrounding community, students can experience increased access to environmental education.

Goal 4: Schools will have access to a network of educators, volunteers and community partners to increase environmental literacy for pre-K–12 students

Successful implementation of Strategy 2 requires close coordination between educators, schools and the communities surrounding the schools. With a strong network of volunteers and community partners, schools and educators can provide relevant environmental education experiences to their students.

Utilizing the School Building

One of the most effective ways to illustrate environmental literacy is through the daily practices of the school. By working to make their school sustainable, students will get hands-on experience with environmental education on a daily basis, whether you are using a “green” building, greening operations or integrating curriculum, you are advancing environmental literacy.

The school building itself is a valuable learning tool, as energy systems, water systems and waste systems can all be studied and used to teach important concepts and skills within the Colorado academic standards. Students, educators and staff can also explore purchasing, transportation, environmental health and safety, and fitness practices. These practices will not only provide effective models and examples for learning, they can engage students in planning and proactive decision-making, and potentially provide thousands of dollars of savings for schools and districts.

State-Level Supports

Resource Supports

- Recognize schools that are using the school building and operations to teach environmental literacy (see The Environmental Leadership Program box below)
- Create guidelines or exemplars for new school construction or school renovation
- Conduct needs assessments to identify gaps in resources for educators, schools and districts to utilize the school building for environmental literacy
- Develop a database/directory of resources for educators, schools and districts to access in relation to utilizing the school building to enhance environmental literacy
- CAEE/GBC/Leadership program will work with leaders in green and sustainable schools to create networking opportunities to connect district sustainability coordinators with program providers and curriculum resources
- Create a blueprint for teachers to initiate greening of school grounds projects with participation from students, parents and the community

Curricular and Instructional Support

- Provide curricular exemplars showcasing how schools can utilize the school building as a teaching tool to teach standards-based concepts and skills

Professional Development Support

- Provide professional development for educators in utilizing the school building as a teaching tool

Environmental Leadership Program

The Environmental Leadership Program is a voluntary program through the Colorado Department of Public Health and Environment (CDPHE) that encourages and rewards superior environmental performers that go beyond the requirements of environmental regulations and move toward the goal of sustainability. The program is open to all Colorado businesses, industries, offices, educational institutions, municipalities, government agencies, community nonprofits and other organizations.

Schools who participate in the program will be recognized by the state for their commitment to sustainability and benefit from access to a network of Gold, Silver and Bronze participants in the program from industry, government and community organizations. This network is available to provide potential resources to schools as well as help students make connections between future career opportunities and environmental literacy.

CDPHE will aid these efforts by providing the following:

- *Criteria for Schools—CDPHE will create a process and set of criteria for becoming a member of the Environmental Leadership Program specifically for schools that integrates both school operations and requires schools to create an Environmental Management System and make connections to the school curriculum.*
- *Annual Recognition—CDPHE will recognize schools that achieve memberships within the Environmental Leadership Program at their annual recognition event.*
- *Mentoring and Resources—The Environmental Leadership Program network will provide mentoring opportunities and resources for schools embarking on the process of becoming more sustainable. This will be available to schools that are looking to apply to the environmental leadership program as well as schools that are making smaller steps to become more sustainable. Access to these resources will be available through the online clearinghouse (see the online clearing house section below).*
- *ELP Program Network—The Environmental Leadership Program network will be available for schools requesting speakers, programs, etc. to connect postsecondary and workforce readiness and career opportunities to environmental literacy. Access to this network will be available through the online clearinghouse (see the online clearinghouse section below)*

School and Community-Based Action Steps

In Colorado, decisions about the school building happen at the local level. Here are a few strategies that can be employed to ensure successful implementation.

Community members and agencies can...

- Support schools and districts financially, with resources and time as they incorporate sustainable practices into their operations
- Provide professional development opportunities for educators and administrators
- Develop exemplars and resources to help schools and districts integrate the school building and building operations into teaching and learning

- Provide electronic resources, tools and opportunities on the online Environmental Education network to help schools become more sustainable (see Online Clearinghouse section below)

Districts can...

- Recognize schools with sustainable programs
- Plan for sustainability in new construction and renovation
- Incorporate sustainability into operations
- Provide opportunities to connect operations and sustainability coordinators with curriculum coordinators
- Highlight how sustainability is incorporated into the current curriculum
- Incorporate sustainability into the curriculum
- Review policies to allow the school building and school grounds to be actively used for student learning
- Develop curriculum that encourages the use of the school building and school grounds as learning environments

Schools can...

- Create teams comprised of students, teachers, parents, administrators and staff to involve the whole school in sustainability efforts
- Encourage administrators to actively promote sustainability as part of the school culture
- Incorporate sustainability into operations

Educators can...

- Work with kitchen, maintenance and other school staff to create learning opportunities
- Involve students in projects or service learning opportunities that enhance environmental literacy and involve the school building

Utilizing the School Grounds

“Almost every K–12 school has at least some outdoor space that faculty could use (or already uses) to breathe life into concepts learned in the classroom. Even within tight urban settings, many schools have had success using rooftops to install safe and secure play and garden areas. Research shows that students better absorb and retain math, science, language arts and other skills that incorporate their immediate environment and use all five senses (Lieberman and Hoody, 1998). A more recent study has linked outdoor play to stronger social skills and increased creative development (Miller, Tichota, and White, 2009). These positive educational impacts are especially strong when outdoor activities are an integral part of the structured curriculum (Learning through Landscapes, 2008; Wagner and Gordon, 2010, Planning School Grounds for Outdoor

(Side Bar: Guidelines for Using Outdoors as a classroom or school building as classroom from research? AFWA)

Learning). Because each school site has unique assets, a prescriptive plan for every building is not realistic. However, schools create asset maps that include people and spaces that will build meaningful outdoor experiences for students, teachers and schools.

State-Level Supports

Resource Support

- Develop a community-based mapping tool that teachers and school administrators can use to quickly assess the qualities of the schoolyard, building and local community that can be utilized for teaching and learning

Curricular and Instructional Support

- Create exemplars for using the school grounds, community learning environments or school building

Professional Development Support

- Provide professional development to help educators use the school grounds for environmental literacy

School and Community-Based Action Steps

The effective use of school grounds for environmental education may require close coordination with community members, and will also be helped if educators and school administrations have a good understanding of how to effectively use school grounds. Here are a few strategies that can be employed to ensure successful implementation.

Community members and agencies can...

- Provide funding, such as Colorado Division of Wildlife's Wild Colorado Schoolyard Habitat Grant program, for schools seeking to create outdoor learning environments
- Work with formal educators to model effective practices, team teach and empower the use of modeled strategies in the classrooms (I-we-you model)

Schools can...

- Assess policies that prohibit or discourage learning on school grounds

Educators can...

- Assess the qualities of the schoolyard, building and local community to identify the unique assets of each individual school that can be utilized for learning

Utilizing the Community

The environment is where we live. The environment is our community and our classroom. The people, animals, plants, parks, businesses and organizations that surround our schools are our environment. Learning about the environment around us is not only a relevant and authentic context for learning, but it is rich with resources to support teachers and learning. Whether you are building awareness of the environment we live in or investigating an environmental issue, these places, businesses and organizations have a role in supporting environmental literacy. By utilizing the vast learning opportunities available in our communities, we create schools without walls and allow learners to engage with the places they call home.

One of the most common ways to access the resources of the community is through field trips. Field trips and experiences at nature centers, wastewater treatment plants, local businesses,

natural areas and state parks, etc., can also be invaluable experiences that enhance student learning.

“A growing body of research documents the power of informal learning experiences to spark curiosity and engage interest in the sciences during school years and throughout a lifetime. Informal science education institutions have a long history of providing staff development for teachers, and enrichment experiences for students and the public. Informal science education accommodates different learning styles and effectively serves the complete spectrum of learners: gifted, challenged, non-traditional, and second language learners” (NSTA <http://www.nsta.org/about/positions/informal.aspx>).

These experiences can motivate learners and demonstrate the relevance of the content being taught.

State-Level Supports

Resource Supports

- Develop a community-based mapping tool that teachers and school administrators can use to quickly assess the qualities of the schoolyard, building and local community that can be utilized for teaching and learning
- Develop a network of environmental education coaches or mentors who can help schools utilize local community resources

Curricular and Instructional Support

- Create curricula exemplars for using community-learning environments

Professional Development Supports

- Provide professional development for educators in developing relationships and partnerships with community resources and using the community as a learning tool
- Offer professional development for administrators and leaders specific to: (a) the value and benefits of utilizing the community, and (b) policy changes needed to empower educators

School and Community-Based Action Steps

In Colorado, many partnerships and opportunities and policies for engaging with the community happen at the local level. Here are a few strategies that can be employed to ensure successful implementation.

Community members and agencies can...

- Serve as resources to help schools coordinate and develop school plans to ensure students have environmental education experiences every year (Division of Wildlife regional coordinators and state park staff)
- Provide local and regional transportation grants to help learners in their local areas visit state parks and other environmental education providers
- Engage in long-term partnerships with schools
- Work with formal educators to build environmental education experiences that extend learning experiences, meet state standards and integrate into the curriculum

- Create pre and post activities that directly align with classroom instruction to complement field trips

Districts can...

- Allow flexible class sizes to support outdoor experiences (provide exemplars)
- Work with **District Risk Managers** to minimize risk by create policies to promote the use of the outdoors and environmental education
- Help ensure that a learner’s environmental education experience includes at least one visit to the nearest state park (as outlined in the Outdoor Children’s Bill of Rights)
- Encourage **K–8 schools to work with the Colorado Department of Transportation** Safe Routes to School Program to develop safe and feasible ways to utilize local green spaces (parks, gardens, business parks) or community resources as learning spaces
- Examine district policies on field trips, making sure there is not a undue burden on teachers to take field trips and that the district encourages the taking of field trips

Schools can...

- Engage extended day providers and afterschool clubs in environmental education
- Implement before- and after-care programs that serve to increase students’ environmental literacy and engage in projects based on service learning activities

Educators can...

- Work with local transportation entities to use public transportation for field trips
- Engage in Professional Learning Communities to explore opportunities to utilize the community for learning

Strategy 3: Quality Professional Development, Resources and Programming

Ensure the creation and availability of quality professional development, resources and programs that are grounded in national standards for environmental education

Colorado is rich in environmental education resources, programs and supports, however not all align with national environmental education standards of quality. In addition, teachers using best practices in education are already engaging in many of the practices that will create high-quality environmental education instruction, like using inquiry. The Guidelines for Excellence listed in this section are a tool to help providers make high quality professional development resources and programming available, and to help educators evaluate those opportunities and resources. To most effectively improve environmental literacy in the state, it is essential that all educators have access to quality professional development, resources and programs. Strategy 3 is included in the plan to remind policymakers and educators that by ensuring access to quality resources and programs, Strategies 1 and 2 will be more achievable.

Strategy 3 addresses the following goals, as articulated in the background and purpose section:

Goal 1: Students will understand how their actions and decisions affect the environment so they can act on that understanding in a responsible and effective manner

Highlighting existing quality programs has the potential to help facilitate the integration of environmental education into the teaching and learning processes, will help educators understand how to measure and track progress toward environmental literacy and will help build the value of environmental education. Through the use of high-quality resources and programming, teachers will be able to help their students draw connections between human and environmental behavior.

Goal 3: Educators will effectively and creatively utilize best practices and approaches to teach environmental education

Outlining and ensuring the creation and availability of professional development programs that meet or exceed national Guidelines for Excellence in Environmental Education is an excellent way to support educators as they consider new possibilities in environmental education for their teaching practice and their classrooms.

Defining Quality

Quality environmental education professional development, resources and programming should help educators and students move toward participation and informed decision-making about the environment. (Cite UNESCO and other frameworks for EE) (Need more details)

Quality professional development, resources and programming is:

- Standards based
- Focused on 21st century, and postsecondary and workforce readiness skills
- Driven by Guidelines for Excellence in EE
- Provided by a diversity of providers (STEM, wellness, nutrition, higher ed pre-service and in-service, liberal arts/sciences) (bubbles with examples)
- Ongoing
- Available across a range of depth, breath and levels of experience
- Occurring as close to the school/classroom as possible
- Inclusive of planning for and applying new ideas and strategies at a classroom level, particularly that educators can start immediately
- Mindful of providing ongoing support (human and material resources)

Ensuring Quality

The National Project for Excellence is a collection of resources to help educators, administrators and EE providers evaluate the quality of materials and resources, or design professional development opportunities. Guidelines exist for EE materials, nonformal environmental education programming, early childhood environmental education and for the professional development of environmental educators.

Guidelines for Quality EE Materials

The following guidelines should be used when creating materials or program for use by pre-K–12 schools to ensure the highest quality. You can access the complete set of materials guidelines at <http://www.naaee.org/programs-and-initiatives/guidelines-for-excellence/materials-guidelines/materials-guidelines>.

- **Fairness and Accuracy.** EE materials should be fair and accurate in describing environmental problems, issues and conditions, and in reflecting the diversity of perspectives on them
- **Depth.** EE materials should foster awareness of the natural and built environment, an understanding of environmental concepts, conditions and issues, and an awareness of the feelings, values, attitudes and perceptions at the heart of environmental issues, as appropriate for different developmental levels
- **Emphasis on Skills Building.** EE materials should build lifelong skills that enable learners to address environmental issues
- **Action Orientation.** EE materials should promote civic responsibility, encouraging learners to use their knowledge, personal skills, and assessments of environmental problems and issues as a basis for environmental problem-solving and action
- **Instructional Soundness.** EE materials should rely on instructional techniques that create an effective learning environment
- **Usability.** EE materials should be well designed and easy to use

Guidelines for Quality Professional Development

These guidelines should be used when creating professional development experiences for pre-K–12 educators and nonformal educators. The complete set of Guidelines for Environmental Educators in Colorado is available at <http://www.caee.org/quality/guidelines-for-environmental-educators-in-colorado-1>.

Environmental Literacy. Educators must be competent in the knowledge and skills associated with environmental literacy. Environmental educators should not only possess the competency to help their learners achieve these objectives but also embrace the spirit of environmental literacy by modeling it in their own endeavors. This includes fostering:

- Questioning, analysis and interpretation skills
- Knowledge of environmental processes and systems
- Processes of addressing environmental issues
- Personal civic responsibility
- Environmental sensitivity

Foundations of Environmental Education. Educators must have a basic understanding of the goals, theory, practice and history of the field of environmental education. This includes:

- Fundamental characteristics and goals of environmental education
- How environmental education is implemented

- The evolution of the field

Professional Responsibilities of the Environmental Educator. Educators must understand and accept the responsibilities associated with practicing environmental education. This includes:

- Emphasis on education, not advocacy
- Ongoing learning and professional development

Planning and Implementing Environmental Education. Educators combine high-quality education with the unique features of environmental education to design and implement effective instruction. Environmental educators enable learners to engage in 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 environmental educators to provide the interdisciplinary, hands-on, investigative learning opportunities that are central to environmental education. Environmental educators foster an environment such that student interactions are conducive to learning. This includes:

- Knowledge about learners and learning
- Knowledge of various teaching methods
- A climate for learning about and exploring the environment
- An inclusive and collaborative learning environment
- Settings for instruction
- Planning for instruction
- Flexible and responsible instruction
- Knowledge of environmental education materials and resources
- Technologies that assist learning
- Curriculum planning

Assessment and Evaluation. Educators possess the knowledge, abilities and commitment to make assessment and evaluation integral to instruction and programs. Proper preparation should give environmental educators tools for assessing learner progress and evaluating the effectiveness of their instruction. This includes:

- Assessment and evaluation defined
- Learner outcomes
- Assessment that is part of instruction
- Improving instruction
- Evaluating programs

State-Level Supports

Resource Supports

- Align school programs provided to pre-K–12 students through EE providers with Colorado’s academic standards
- Conduct needs assessment every five years to identify gaps in availability or awareness of quality resources, programming and professional development opportunities
- Provide tools to help evaluate the quality of materials, resources and programs

Professional Development Supports

- Recognize certification in environmental education as meeting professional development needs
- Recognize professional development that is aligned to the Guidelines for Environmental Educators in Colorado for continuing education credits and teacher recertification through the Colorado Department of Education

School and Community-Based Action Steps

In Colorado, most of the resources, programming and professional development are available at a local level. Here are a few strategies that can be employed to ensure successful implementation.

Community members and agencies can...

- Provide educational programs to pre-K–12 learners that are standards-based from Colorado’s academic standards
- Develop materials and resources that meet the Guidelines for Excellence
- Provide professional development opportunities locally that reflect the Guidelines for Excellence
- Build knowledge and skills in environmental literacy by becoming a certified environmental educator through the Colorado Alliance for Environmental Education

Schools can...

- Provide and support professional development opportunities that meet Guidelines for Excellence
- Consider access to programming and opportunities in school planning

Educators can...

- Seek out professional development opportunities that meet the Guidelines for Excellence
- Consult Guidelines when selecting resources and programming for students
- Build knowledge and skills in environmental literacy by becoming a certified environmental educator

Higher education can....

- Work with teacher preparation programs to ensure that teachers are prepared with knowledge and skills to implement high-quality environmental education
- Work with higher education programs that offer credit for teacher recertification to ensure that teachers have in-service opportunities to build their knowledge and skills in environmental education
- Work with environmental education providers to evaluate environmental education programs and assess quality and effectiveness

Strategy 4: Access to a Quality, Statewide Environmental Education Network

Guarantee that all educators have access to quality professional development, resources and programs through virtual and in-person EE networks

Coupled with Strategy 3, Strategy 4 emphasizes *access* to the quality professional development, resources and programs that are defined and created through Strategy 3. While Colorado has a wealth of environmental education resources, expertise and programming, few educators and learners are aware of or have access to these support systems. Strategy 4 seeks to close the service gap and to connect providers of environmental education to those who require services.

Strategy 4 addresses the following goals, as articulated in the background and purpose section:

Goal 2: Students will have standards-based, relevant learning experiences in environmental education every year

Colorado has a wealth of environmental education providers, resources, and settings across the state. Because Strategy 2 articulates that not all environmental education experiences should or must occur on school grounds, the creation of a network of quality providers will help ensure that students have access to relevant learning experiences each year in rich and varied environments, both locally and across the state.

Goal 3: Educators will effectively and creatively utilize best practices and approaches to teach environmental education

In order to effectively utilize best practices, educators need high-quality professional development opportunities to learn and practice new skills and techniques. The creation of a network of providers of professional development grounded in best practice will assist educators as they build their students' environmental literacy.

Goal 4: Schools will have access to a network of educators, volunteers and community partners to increase environmental literacy for pre-K–12 students

With an understanding that a network of educators, volunteers and community partners is necessary to increase environmental literacy, Strategy 4 was designed to define and support the creation of such a network. Based on national frameworks and guidelines for excellence, Strategy 4 will help ensure that educators across the state have access to the quality services they require in order to increase environmental literacy among their students.

Online Clearinghouse

Many teachers use the Internet to find resources, materials and lessons for their classroom (**insert research?**). As such, a searchable online clearinghouse will provide both formal and nonformal educators with access to up-to-date environmental literacy resources. These resources will be constantly updated and expanded as needs in Colorado change.

Because of CAEE's deep and thorough connection to the EE community locally, regionally and nationally, they can host the clearinghouse. Organizations and environmental education providers across the state will provide information and the site will be accessible from both the Department of Natural Resources and the Department of Education's Web sites.

Resources Made Available

The clearinghouse will include information to help teachers and schools find EE resources, research, programs, providers, curricula and professional development. These resources will help educators justify EE in the classroom, integrate EE into the classroom, find community resources and outdoor spaces, and foster the development of sustainable schools. These resources will include:

- Models/exemplars/videos/podcasts/case studies
- Teacher-generated lesson plans and units
- Resources to integrate EE into tools already in use in districts (e.g., Foss Kits)
- Funding opportunities
- Research articles to augment teachers' lessons.
- A teacher's guide to environmental education in the standards
- Searchable professional development opportunities
- A rubric/asset map to evaluate and make a plan to develop a sustainable school or identify community assets
- Career connections within sustainable schools
- Model environmental education experiences
- Connections to organizations who have resources for schoolyard improvements

State-Level Supports

Resource Supports

- Complete online environmental education network with examples of mastery for all environmental education-based grade-level expectations and evidence outcomes
- Create searchable online standards document to help teachers identify opportunities to use environmental education to help learners master the standards

Professional Development Support

- Develop professional development and communication plan to build awareness of the online network

School and Community-Based Action Steps

In Colorado, there can often be a lack of awareness of available resources. Here are a few strategies that can be employed to ensure successful implementation of the online network:

Community members and agencies can...

- Upload materials, resources and information about programs to share with other educators

Schools can...

- Promote the online network among networks of schools and educators

Educators can...

- Access the online network when planning lessons or units of study
- Upload curricula, lesson plans, resources and information about programs to share with other educators
- Share ideas and resources

EE Network

Environmental education is an inherently collaborative endeavor. Opportunities for networking and sharing ideas exist within the school, within the district and within the community. Working with other teachers or community educators can help build confidence in teaching environmental education. Shadowing, modeling and mentoring with these expert teachers, nonformal providers or other community resources can provide teachers with the tools, techniques and confidence they need to implement environmental education in the classroom.

Concrete learning in authentic or natural settings helps students see interrelationships and makes learning relevant. As a result, it is critical that teachers work with other teachers, nonformal educators and partners to create environmental education experiences that enhance the school and classroom curriculum rather than merely supplement it.

State-Level Supports

Resource Supports

- Identify local leaders across the state who can serve as regional connectors
- Create a template for regional hub development with criteria to help regions organize themselves, and frameworks to support the development of mutually beneficial partnerships
- Support the creation of a statewide position to coordinate and support regional hubs
- Conduct inventory of all current efforts in Colorado by region, and map resources and support systems

School and Community-Based Action Steps

Needs across the various regions of Colorado are diverse. Here are a few strategies that can be employed to ensure successful implementation of statewide and regional networks.

Schools can...

- Combine planning sessions for teachers to collaborate and allow for multidisciplinary teaching

Educators can...

- Form professional learning communities or small study teams to answer questions like: “How can we integrate environmental education into the curriculum unit?” or “How can we use the school yard/local park/school building for learning?”

- Observe or shadow teachers who are already integrating environmental education into their classrooms

Evaluation

Through the generation and interpretation of empirical evidence, evaluation will help us answer the question, “are we achieving what we intended?” The answers to this question help us to tell the story of our work and make informed decisions about its future. While there is no universally accepted definition of evaluation, most definitions include the collection and use of empirical evidence to make judgments. According to Michael Quinn Patton, evaluation is defined as:

...the systematic collection of information about the activities, characteristics, and results of programs to make judgments about the program, improve or further develop program effectiveness, inform decisions about future programming, and/or increase understanding.⁵

This section lays the groundwork for how the ELP will be evaluated. Constructing an appropriate evaluation that efficiently garners useful information requires clearly defined activities to be evaluated and at least a general understanding of the resources available for their evaluation. Given the preliminary nature of the draft ELP, neither of these conditions holds true and as such, **this section should be viewed as being in draft form**. Once the ELP is revised by the CDE and the stakeholders who will be most involved with the evaluation process have been more closely consulted, **this section should be revisited and adjusted based on new information**.

While keeping in mind the draft nature of this section, it is important to note that this section was designed to lay the foundation for the evaluation of the ELP, *not* to assess levels of environmental literacy in the state. As the assessment of environmental literacy has been addressed in preceding sections of the ELP, this section will discuss the evaluation of the implementation of the ELP. To do this, we first identify the relevant stakeholders and discuss their potential roles in the evaluation of the ELP. Once roles are delineated, we are able to refine the focus of the evaluation by defining its purpose and use, and identifying indicators for each goal. Finally, we discuss how to move forward with evaluation activities including securing evaluators and completing the evaluation plan for the ELP.

Engaging Stakeholders in Evaluation

Successful evaluation requires engaged stakeholders who are willing and able to assist with evaluation activities. This section identifies the ELP’s major stakeholders, and which of the following seven roles necessary for successful evaluation they may take on:

- **Study coordination.** Involves coordinating all the pieces of the evaluation
- **Design and redesign.** This includes the initial evaluation design, as well as any redesigns that become necessary as the evaluation progresses
- **Data collection.** The collection of quantitative and/or qualitative data or the identification of existing data sources that meet the needs of the evaluation

⁵ Patton, Michael Quinn. (2008). *Utilization Focused Evaluation* (4th ed.). Thousand Oaks, California: SAGE Publications.

- **Data storage.** The proper storage of data for future use is essential
- **Data analysis.** Includes analysis of all qualitative and/or quantitative data
- **Report results.** This includes reporting on the results, in preparation for dissemination
- **Disseminate results.** Once reports are developed, disseminating results to relevant stakeholders is an important step
- **Utilize results.** This includes the use and implementation of evaluation results to improve practices or make programmatic changes

The tables below identify the ELP’s major stakeholder groups, as well as their potential roles in the evaluation of the ELP. The first table includes entities that this plan suggests should be created, but do not yet exist.

ELP-Specific Entities	
Entity	Potential Role
ELP coordinator(s)	<ul style="list-style-type: none"> • Study coordination • Design and redesign • Data collection • Disseminate results • Utilize results
Leadership council	<ul style="list-style-type: none"> • Study coordination • Design and redesign • Utilize results
ELP evaluator(s)	<ul style="list-style-type: none"> • Study coordination • Design and redesign • Data collection • Data analysis • Report results

If any of the above entities do not materialize as part of the ELP, one or more other entities may have to take on some of these roles. In the absence of ELP coordinators, study coordination may be difficult. Additionally, without specific ELP evaluators, data analysis and reporting results may be a challenge.

The table below identifies major stakeholders within the formal pre-K–12 education system, and their potential roles in the evaluation of the ELP.

Pre-K–12 Formal Education System	
Entity	Potential Role
CDE	<ul style="list-style-type: none"> • Design and redesign • Data collection • Data storage • Disseminate results • Utilize results
District administrators	<ul style="list-style-type: none"> • Data collection • Data storage • Disseminate results • Utilize results
School administrators	<ul style="list-style-type: none"> • Data collection • Disseminate results

	<ul style="list-style-type: none"> • Utilize results
Teachers	<ul style="list-style-type: none"> • Data collection • Utilize results

In addition to the entities listed above, students and parents may take on less formal roles in the evaluation of the ELP.

The table below identifies major stakeholders in the nonformal system, and their potential roles in evaluating the ELP.

Nonformal Education System	
Entity	Potential Role
CAEE	<ul style="list-style-type: none"> • Study coordination • Design and redesign • Disseminate results • Utilize results
Nonformal environmental education program providers	<ul style="list-style-type: none"> • Data collection • Utilize results

While the tables above identify the stakeholders that will likely play major roles in the evaluation of the ELP, several other groups of stakeholders may play smaller roles. These include:

Government agencies

- Department of Natural Resources
- Division of Wildlife
- Colorado Department of Public Health and the Environment
- Federal agencies
- Local Government

Higher education

- Faculty
- Student Groups
- Students

Interest groups

- STEM
- Wildlife Management Public Education Advisory Council (PEAC)

- Great Outdoors Colorado (GOCO)

Communities

- Sustainable education community
- Extension community
- Conservation community
- Agricultural community
- Recreational community
- Sportsman community
- Wellness community
- Nonprofit community
- Business community
- Communities of faith

Focusing the Evaluation

In this section we (1) define the **purpose** of this evaluation and identify how it will be **used**, and (2) present potential **indicators** for each goal.

Purpose and use

In general terms, this evaluation seeks to identify how effectively the state is making progress toward achieving the four goals established in the ELP, which are:

1. **Student understanding.** Students will understand how their actions and decisions affect the environment so they can act on that understanding in a responsible and effective manner.
2. **Student experiences.** Students will have standards-based, relevant (learning) experiences in environmental education every year that lead to achieving prepared graduate competencies for environmental literacy.
3. **Educator utilization of best practices.** Educators will effectively and creatively utilize best practices and approaches to teach environmental literacy.
4. **School access to EE networks.** Schools will have access to a network of educators, volunteers and community partners to increase environmental literacy for pre-K–12 students.

A more thorough understanding of Colorado's progress toward achieving the above goals will help to:

- **Understand impact.** Providing an empirical base from which to understand the impact the ELP has on Colorado's education system.
- **Demonstrate impact.** Beyond understanding the ELP's impact, evaluation will help us to demonstrate its impact to teachers, administrators, policy makers, potential funders and the community at-large. Such a demonstration will be imperative for public relations, morale, and attracting and retaining funding.
- **Improve design and implementation.** Improve the activities included in the ELP by identifying what's working and why. Lessons learned from this evaluation will thus improve the design and implementation of efforts contained within the plan and ultimately lead to greater impact.
- **Increase social return on investment.** In addition to leading to a greater overall impact, evaluation will help ensure a greater social return on investment of the time and money invested into the activities contained within this plan.
- **Cross-plan comparison.** Evaluation results will be used to compare the effectiveness of Colorado's ELP with other states' ELPs.
- **Selective duplication.** Using the findings of this evaluation, effective tactics can be replicated both within Colorado and throughout the country.
- **Meet accountability requirements.** Providing an empirical base to our understanding of the activities contained within the ELP will help all stakeholders meet the accountability requirements of funders and government.

Indicators

Indicators help determine the extent to which goals are being achieved. They provide waypoints to help guide the evaluation and help to determine what data should be collected to answer the research or evaluation questions. The tables below lists indicators for each of the goals of the ELP:

Goal 1: Student Understanding. *Students will understand how their actions and decisions affect the environment so they can act on that understanding in a responsible and effective manner*

Indicators:

- Students understand the connections between people and places
- Students understand the interrelationship between humans and the natural environment
- Across disciplines, students are able to understand the linkage between cause and effect in natural and human processes and systems
- Students are able to participate in environmental decisions at the personal level
- Students are able to participate in environmental decisions at the policy level
- Students think critically about their choices and the opportunity costs associated with them
- Students embrace multiple perspectives
- Students think critically about possible solutions to environmental problems
- Educators regularly assess environmental literacy
- Student evaluate their own learning to inform the learning progression

Goal 2: Student Experiences. *Students will have standards-based, relevant learning experiences in environmental education every year that lead to achievement of prepared graduate competencies for environmental literacy.*

Indicators:

- Students engage in opportunities to explore environmental education through **local** heritage, cultures, landscapes, opportunities and experiences
- District curriculum supports environmental education experiences related to standards set at every grade level
- District procedures, policy and curriculum support the use of community partnerships in education
- For each grade, educators create relevant, multidisciplinary experiences that address the standards identified as relevant to environmental education
- Educators use school grounds as a learning laboratory
- Educators use the community as a learning laboratory
- Environmental education experiences are informed by student evaluation of their experiences

Goal 3: Educator Utilization of Best Practice. *Educators will effectively and creatively utilize best practices and approaches to teach environmental literacy*

Indicators:

- Teaching in environmental education is driven by its assessment
- Best practices in environmental education are disseminated to educators
- Districts facilitate mentoring opportunities for assistance in incorporating best practices into indoor and outdoor environmental experiences
- Districts provide access to professional development in environmental education
- Educators participate in professional development related to environmental education
- Educators demonstrate a working knowledge of NAAEE guidelines for excellence

Goal 4: School Access to EE Network. Schools will have access to a network of educators, volunteers and community partners to increase environmental literacy for pre-K–12 students.

Indicators:

- Exemplars of asset maps at the school, district and regional levels are available
- Schools, districts and regions have asset maps tailored to their specific communities
- Asset maps are updated every two years
- Schools have identified at least one local partner who acts as a designated supporter
- Educators use school grounds as learning laboratories for students
- Educators use communities as learning laboratories for students

The indicators listed above represent the beginnings of an evaluation plan for the ELP. In addition to the goals and indicators listed above, the final evaluation plan should identify performance standards, measures, timing, staffing and necessary resources. This is discussed in more detail below.

Moving Forward

As described above, this section is not yet complete. As such, once the ELP has gone through the upcoming revision process it will be clearer which ELP program activities need to be evaluated, and what resources are necessary and/or available for the evaluation. Once these elements are clear, this section will need to be revisited and the **evaluation plan should be completed** in partnership with the **evaluators secured** to conduct the evaluation.

Securing evaluators

An evaluation of this size will likely require close coordination between multiple stakeholders and one or more professional evaluators to head up the design of the study, data collection, analysis and reporting. Depending on the final organizational structure, as well as the resources available for evaluation, these evaluation professionals might be CDE employees, or they might be contracted external evaluators. Close consideration should be paid to the decision to hire external evaluators or utilize internal expertise.

Completing the evaluation plan

Before any formal evaluation can begin, it would be beneficial for the evaluator to meet with the ELP Leadership Council to set **objectives** for each indicator, allowing the evaluator to quantify the evaluation process; determine what **measures** will be used to collect the necessary data; and decide the **timing** and **staffing** required to complete the evaluation. The completed evaluation plan could also include specific evaluation questions, devised by the Leadership Council and the evaluator.

As has been stated, if the ELP includes not only careful assessment of student, school and community-based outcomes, but also a comprehensive evaluation of the implementation of the plan, there is greater potential for the implementation to become a learning process that improves little by little each year.

Implementation

The Colorado Environmental Literacy Plan is designed to be implemented in conjunction with other education reform efforts being addressed in the state of Colorado. As the state, districts, schools and teachers begin to revise practices and curricula based on the implementation of Colorado's new Academic Standards and assessment systems, they can integrate components of the Environmental Literacy Plan. It may take years to fully implement all aspects of this environmental literacy plan, but ultimately we want to see:

- *Students who understand how their actions and decisions affect the environment so they can act on that understanding in a responsible and effective manner*
- *Students participating in standards-based, relevant (learning) experiences in environmental education every year that lead to achieving prepared graduate competencies for environmental literacy*
- *Educators effectively and creatively utilizing best practices and approaches to teach environmental literacy*
- *Schools accessing a network of educators, volunteers and community partners to increase environmental literacy for pre-K–12 students*

The next section explains how we will ensure the ELP is implemented over the next five years. Similar to the adoption process of Colorado's academic standards, we will go through a process of awareness and dissemination of the plan, transition, implementation, and finally, transformation. We begin by describing the three structural requirements for successful implementation—an active leadership council, funding and paid coordinators—and then we lay out a timeline for the implementation of the plan, which sequences the actions necessary to achieve each of our four strategies, the parties accountable for each action and the timeframe for the action.

Structural Requirements

There are three things that are absolutely essential to successfully implement this plan: (1) an **active leadership council**—a council comprised of leaders within the field, (2) **funding**—adequate funding for start-up and maintenance of the activities included in this plan, and (3) **paid coordinators**—paid coordinators who have the resources and authority necessary to coordinate the vast array of stakeholders involved.

Leadership Council

The Environmental Literacy Council should function to provide oversight, guidance and make recommendations on implementation of the plan. Specifically, the Council will be responsible for ensuring a communication plan for awareness and dissemination of the plan, and generating funding for implementation. The Council should be appointed by the State Board of Education and Director of the Department of Natural Resources, and be comprised of a diverse representation of Coloradans including classroom teachers, curriculum specialists, government agency representatives, businesses and environmental education providers.

The Council will be responsible for yearly reports to the State Board of Education and the Department of Natural Resources.

Funding

Funding will be required for both state and local implementation. The Council will be primarily responsible for generating potential funding sources for the implementation of the plan through grants, federal funds and other sources. Potential funding sources include:

- No Child Left Inside Act—if passed, will distribute \$100,000,000 to states that have a qualifying environmental literacy plan
- National Oceanic and Atmospheric Administration and Environmental Protection Agency both offer environmental education grants
- Local Community Foundations and Corporate Sponsorships
- Investigating opportunities for funding through Great Outdoors Colorado (GOCO), which currently provides funding for environmental education through Colorado State Parks and Colorado Division of Wildlife

Funds for implementation of the plan will be held in the Environmental Literacy Fund, established by HB10–1131, The Colorado Kids Outdoors Grant Program Act.

To ensure local implementation, the Council will identify and share grant sources for local schools, districts and EE providers. Currently, state-level grants for any type of activity that reconnects youth with nature are available through the Colorado Kids Outdoors Grant Program facilitated through the Department of Natural Resource. The Council should work with DNR to create an environmental education-specific fund as part of the Grants program.

Paid Coordinators

Successful implementation of the plan will depend on the hiring of a state ELP coordinator. The Council will be responsible for hiring and defining the responsibilities of this position, which will include, but should not be limited to: working with the Colorado Department of Education and Natural Resources on implementation of the plan and administering a state granting process. This position should be housed in the Department of Education and work in collaboration with other state content specialists. The coordinator is accountable to the Council, which is responsible for funding the position. The coordinator should also be responsible for coordinating at least five paid regional coordinators and/or local leadership around the state representing northwest Colorado, southwest Colorado, the mountains, northeast Colorado and southeast Colorado. Regional coordinators and/or local leadership would report to the state coordinator and assist local districts, schools and providers in the implementation of individualized environmental literacy plans.

Timeline

In order for successful implementation of the plan, individuals and agencies will need to be working toward goals of environmental literacy at a state and local level. There are strategies throughout the plan that can be taken by schools, districts and local entities—these strategies are not mandated and are best implemented on locally-driven timelines that meet the needs of the school, district or organization. Because these strategies are best implemented locally, and are explicitly explained throughout the draft, they have not been included in the timeline below.

Structural Requirements

What	Who	When
Appoint Environmental Literacy Council to provide oversight, guidance and make recommendations on implementation of the plan. Consider including diverse representation of Coloradans including classroom teachers, curriculum specialists, government agency representatives, businesses and environmental education providers.	State Board of Education and director of DNR	2011
Create a communication plan for awareness and dissemination of the plan.	Environmental Literacy Council	2011
Create annual work plan for implementation including actions necessary to achieve each of our four strategies, the parties accountable for each action, the timeframe for the action and the resources required.	Environmental Literacy Council	Annually
Identify and seek out sources of funding for hiring state coordinator and implementation of the plan.	Environmental Literacy Council	2011
Submit yearly reports to the State Board of Education and the Department of Natural Resources.	Environmental Literacy Council	Annually
Create position description and hire state environmental literacy coordinator.	Environmental Literacy Council	2012
Identify and disseminate grant sources for local school, district and EE provider local implementation.	State coordinator	2013
Work with DNR to draw connections between the Environmental Literacy Plan and the Colorado Kids Outdoors Grants program.	Environmental Literacy Council	2012
Establish a grant program focused on equitable, regional distribution of funds for local literacy plan implementation.	Environmental Literacy Council	2013
Coordinate at least five paid regional coordinators and/or local leadership around the state representing northwest Colorado, southwest Colorado, the mountains, northeast Colorado and southeast Colorado.	Environmental Literacy Coordinator	2014
Create local regional environmental literacy plans and regional hubs for resources and professional development for implementation of the plan.	Regional Coordinators or local leadership	2015
Revise and Update Plan	Environmental Literacy Council and Coordinator	2016 (and again every five years)
Strategy 1: Curriculum and Instruction		
What	Who	When
Create task force to: <ul style="list-style-type: none"> Identify Grade Level Expectations and evidence outcomes in Colorado's Academic Standards that address these prepared graduate competencies. Create tools and crosswalk document Compile exemplar curricula to be available to all Colorado Districts 	State Content Specialists and Task Force.	2011 2011 2012 2012

Consider including: Classroom teachers, nonformal environmental education providers, district curriculum specialists, business and government agency representatives.		
Inventory existing relevant professional development programs and resources in the state, and identify gaps. Including: <ul style="list-style-type: none"> • Opportunities to help curriculum coordinators and teachers integrate PGCs into the curriculum • Opportunities to increase knowledge and skill in environmental processes and human systems • Opportunities to help educators engage students in proactive decision-making and issue investigation in the community and school 	CAEE	2012
Provide professional development opportunities on issue investigation and proactive decision-making.	CAEE	2012
Identify current assessments and accountability measures such as Colorado Summative Tests in science and social studies, ICAP, etc. that can be used to measure environmental literacy and identify gaps.	CDE and CAEE	2013
Identify existing partnerships effectively operating between environmental education providers and schools/districts. <ul style="list-style-type: none"> • Provide support and resources to align with goals of the plan • Collect data to create case studies and exemplars 	State Coordinator	2013
Align programming to Colorado Academic Standards and 21st Century Skills.	DNR	2013
Identify or develop professional development opportunity for nonformal educators and professional development providers to understand the needs of the formal education community.	State Coordinator	2013
Create train-the-trainer Professional Development Program for educators, staff and administrators to fill any professional development gaps.	State Coordinator and CDE	2014
Compile/create assessment exemplars for environmental literacy including: <ul style="list-style-type: none"> • Formative and interim assessment exemplars that align with curricula exemplars • Summative tools aligned with curricula exemplars to fill gaps in current assessment tools 	State Coordinator and CDE	2014
Annually collect and report environmental literacy data from state summative tests in science and social studies based on identified GLEs.	CDE	2014
Identify five existing Environmental Literacy Programs as pilot programs to assess learning gains of students.	CAEE	2014
Re-address opportunities to include environmental literacy as part of local and/or state graduation guidelines.	Environmental Literacy Council	2015
Strategy 2: Foster Learning Environments for Environmental Literacy		
What	Who	When
Provide resources to develop safe and feasible ways to access local green spaces or community resources.	Colorado Department of Transportation Safe	2011

	Routes to School	
Create asset map template that teachers and school administrators can access to quickly assess and use the school, schoolyard and local community.	State Coordinator	2012
Develop database/directory of resources for educators, schools and districts to access in relation to utilizing the school building to enhance environmental literacy.	CAEE	2012
Provide resources to do comprehensive community maps showing access to programming and resources for environmental literacy.	GOCO	2012
Adopt CDPHE criteria for sustainable schools and recognize schools as part of the Environmental Leadership Program at annual recognition event.	CDPHE	2012
Compile and provide existing resources and funding for schoolyard habitat/utilization of schoolyard (examples include NWF Backyard Habitat, DOW Wild Colorado Schoolyard Habitat Grant Program).	State Coordinator and DNR	2012
Compile curricula exemplars showcasing how schools can utilize the school building, school ground and community learning environments as a teaching tool to teach standards-based concepts and skills.	State Coordinator and CAEE	2013
Provide transportation grants.	Colorado Kids Outdoors Grant Program, DNR	2013
Identify ways in which community partners (field trips to nature centers, museums, etc.) meet and address State standards and create exemplars.	State Coordinator with community partners	2014
Conduct needs assessments to identify gaps in resources for educators, schools and districts to utilize the school building for environmental literacy.	State Coordinator with support from CAEE	2014
Identify and provide professional development opportunities including: <ul style="list-style-type: none"> • How schools can utilize the school building, school grounds and local community as teaching tools to teach standards-based concepts and skills • Evaluation of risk management policies for administrators associated with utilizing school building, grounds and offsite locations • How to incorporate sustainability into school construction, renovation and operations • Creating school teams of students, teachers, parents, administrators and staff to involve the whole school in sustainability efforts • Service learning/school projects that incorporate environmental literacy in the school building • The value and benefit of utilizing the school, grounds and community • Developing partnerships and using the community as a learning tool • Environmental literacy for extended day providers and after school clubs 	State Coordinator and CAEE	2014

Develop a network of environmental education coaches or mentors who can help schools/teachers develop a plan for utilizing the school, grounds and community resources.		2014
Create guidelines or exemplars for new school construction or school renovation to enhance environmental literacy.	Contractors, architects, Colorado Environmental Leadership Program, LEED, Green Businesses	2015
Strategy 3: Quality Professional Development, Resources and Programming		
What	Who	When
Offer continuing education credits for certification as an environmental educator.	CAEE	2011
Offer professional development in the Guidelines for Excellence.	CAEE	2011
Align school programs provided to pre-K–12 students with Colorado's Academic Standards.	DNR	2012
Include certification as an environmental educator and other professional development opportunities that meet the Guidelines for Excellence as an excepted component in Colorado's teacher recertification process.	CDE	2012
Inventory existing relevant professional development programs and resources in the state and identify gaps. Including: <ul style="list-style-type: none"> • Opportunities to help curriculum coordinators and teachers integrate prepared graduate competencies into the curriculum. • Opportunities to increase knowledge and skill in environmental processes and human systems • Opportunities to help educators engage students in proactive decision-making and issue investigation in the community and school. 	CAEE	2012
Increase awareness of existing professional development opportunities (each of the following are strategies to increase awareness) <ul style="list-style-type: none"> • Teacher conferences • In-services at school and district levels • Online database of PD opportunities • Host EE teacher events (DMNS, TWE, CSU-ELC, etc.) 	State Coordinator, CAEE and CDE	2013
Connect environmental education professional development providers to opportunities to offer continuing education credits.	State Coordinator, CDE and CAEE	2013
Identify gaps in availability or awareness of quality resources, programming and professional development.	CAEE and CDE	2014
Review quality of existing resources against Guidelines for Excellence.	CAEE	2015
Current P.D. programs integrated into pre-service education programs and courses.	State Coordinator and Environmental Literacy Council	2015

Strategy 4: Access to Quality, Statewide Environmental Education Network

What	Who	When
Design and create online environmental education network with examples of mastery for all environmental education-based grade level expectations and evidence outcomes accessible from CAEE and CDE Web sites.	CAEE with support from CDE and DNR	2012
Create online searchable standards document to help teachers identify opportunities to use environmental education to help learners master the standards.	CAEE	2012
Provide resources to do comprehensive community maps showing access to programming and resources for environmental literacy.	GOCO	2012
Create searchable inventory of existing relevant professional development programs and resources in the state.	CAEE	2013
Develop a communication plan to build awareness and disseminate information about the network.	State Coordinator	2013
Create a template or toolbox for regional leaders with criteria to help regions organize themselves, and frameworks to support the development of mutually beneficial partnerships.		2013
Identify local leaders across the state who can serve as resources and regional connectors for teachers.	ELP Coordinator	2014
Compile funding resources and coordinate grants for professional development for teachers (including workshop costs, travel, substitute fees, etc.).	ELP Coordinator	2014
Compile funding resources and coordinate grants for environmental education experiences (including field trips, transportation, etc.).	ELP Coordinator	2014
Create networking opportunities to connect district sustainability coordinators with program providers and curriculum resources.	CAEE/Green Building Council	2015