

**Appendix A: Environmental Education in the
Colorado Academic Standards**

This section provides users of this plan with an overview of the Colorado Academic Standards that may be applied to environmental education when developing curriculum. The following charts serve as the framework for developing standards-based environmental education curricula. The first chart outlines the prepared graduate competencies (the end in mind for postsecondary workforce readiness) in social studies, science, and comprehensive health and physical education, and reading, writing and communicating that directly connect to the goals of environmental education. The second chart breaks this down further into grade level expectations which serve as a developmental progression for learning environmental education based on the Colorado Academic Standards. For comprehensive health and physical education, only some of the grade level expectations are provided in the interest of space (Complete learning progressions can be found at: <http://www.cde.state.co.us/sitoolkit/DesignTools.htm>).

**Colorado Prepared Graduate Competencies that Support
Environmental Education**

Content Area	Standard	Prepared Graduate Competency
Social Studies	History	Analyze key historical periods and patterns of change over time within and across nations and cultures
	Geography	Develop spatial understanding, perspectives, and personal connections to the world
		Examine places and regions and the connections among them
	Economics	Understand the allocation of scarce resources in societies through analysis of individual choice, market interaction, and public policy
Civics	Analyze and practice rights, roles, and responsibilities of citizens	
Reading, Writing, and Communicating	Research and Reasoning	Articulate the position of self and others using experiential and material logic
	Research and Reasoning	Gather information from a variety of sources; analyze and evaluate the quality and relevance of the source; and use it to answer complex questions
	Research and Reasoning	Demonstrate the use of a range of strategies, research techniques, and persistence when engaging with difficult texts or examining complex problems or issues

Content Area	Standard	Prepared Graduate Competency
Science	Physical Science	Apply an understanding that energy exists in various forms, and its transformation and conservation occur in processes that are predictable and measurable
	Life Science	Analyze the relationship between structure and function in living systems at a variety of organizational levels, and recognize living systems dependence on natural selection
		Explain and illustrate with examples how living systems interact with the biotic and abiotic environment
	Earth Science	Evaluate evidence that Earth's geosphere, atmosphere, hydrosphere, and biosphere interact as a complex system
		Describe how humans are dependent on the diversity of resources provided by Earth and Sun
	Comprehensive Health and Physical Education	Movement Competence and Understanding
Demonstrate understanding of movement concepts, principles, strategies, and tactics as they apply to learning and performing physical activities		
Physical and Personal Wellness		Participate regularly in physical activity
		Achieve and maintain a health-enhancing level of physical fitness
		Apply knowledge and skills to engage in lifelong healthy eating
		Apply knowledge and skills related to health promotion, disease prevention, and health maintenance
Emotional and Social Wellness		Utilize knowledge and skills to enhance mental, emotional, and social well-being
		Exhibit responsible personal and social behavior that respects self and others in physical activity settings
Prevention and Risk Management		Apply personal safety knowledge and skills to prevent and treat intentional or unintentional injury

**Colorado Grade Level Expectations That Support
Environmental Education**

Grade	Content area and standard	CAS reference number	Grade Level Expectation
High School	Social Studies - Geography	SS09-GR.HS-S.2-GLE.1	Use different types of maps and geographic tools to analyze features on Earth to investigate and solve geographic questions
		SS09-GR.HS-S.2-GLE.2	Explain and interpret geographic variables that influence the interaction of people, places, and environments
		SS09-GR.HS-S.2-GLE.3	The interconnected nature of the world, its people and places.
	Social Studies - Economics	SS09-GR.HS-S.3-GLE.1	Productive resources-natural, human, capital-are scarce; therefore, choices are made about how individuals, businesses, governments, and societies allocate these resources
	Social Studies - Civics	SS09-GR.HS-S.4-GLE.1	Research, formulate positions, and engage in appropriate civic participation to address local, state, and national issues or policies
	Science - Physical Science	SC09-GR.HS-S.1-GLE.5	Energy exists in many forms such as mechanical, chemical, electrical, radiant, thermal, and nuclear, that can be quantified and experimentally determined
	Science - Life Science	SC09-GR.HS-S.2-GLE.1	Matter tends to be cycled within an ecosystem, while energy is transformed and eventually exits an ecosystem
		SC09-GR.HS-S.2-GLE.2	The size and persistence of populations depend on their interactions with each other and on the abiotic factors in an ecosystem
		SC09-GR.HS-S.2-GLE.9	Evolution occurs as the heritable characteristics of populations change across generations and can lead populations to become better adapted to their environment
	Science - Earth Systems Science	SC09-GR.HS-S.3-GLE.4	Climate is the result of energy transfer among interactions of the atmosphere, hydrosphere, geosphere, and biosphere
		SC09-GR.HS-S.3-GLE.5	There are costs, benefits, and consequences of exploration, development, and consumption of renewable and nonrenewable resources
		SC09-GR.HS-S.3-GLE.6	The interaction of Earth's surface with water, air, gravity, and biological activity causes physical and chemical changes

Grade	Content area and standard	CAS reference number	Grade Level Expectation
High School	Science – Earth Systems Science	SC09-GR.HS-S.3-GLE.7	Natural hazards have local, national and global impacts such as volcanoes, earthquakes, tsunamis, hurricanes, and thunderstorms
	PE – Movement Competence and Understanding	PE09-GR.HS-S.1-GLE.1	Participate at a competent level in a variety of lifelong physical activities
	PE – Movement Competence and Understanding	PE09-GR.HS-S.1-GLE.2	Understand the cognitive impact of movement
	Health and PE Physical and Personal Wellness	PE09-GR.HS-S.2-GLE.2	Identify community resources to maintain lifelong physical activity
		PE09-GR.HS-S.2-GLE.3	Participate regularly in health-enhancing and personally rewarding physical activity outside of physical education
		CH09-GR.HS-S.2-GLE.2	Analyze how family, peers, media, culture, and technology influence healthy eating choices
		CH09-GR.HS-S.2-GLE.6	Develop and maintain the ongoing evaluation of factors that impact health, and modify lifestyle accordingly
	Health and PE Emotional and Social Wellness	CH09-GR.HS-S.3-GLE.1	Analyze the interrelationship of physical, mental, emotional, and social health
		PE09-GR.HS-S.3-GLE.2	Demonstrate collaboration, cooperation, and leadership skills
	Health and PE Prevention and Risk Management	PE09-GR.HS-S.4-GLE.2	Demonstrate knowledge of safety and emergency response procedures
		CH09-GR.HS-S.4-GLE.1	Advocate for changes in the home, school, or community that would increase safety
	Reading, Writing, and Communicating	RWC09-GR.HS-S.4-GLE.2	Logical arguments distinguish facts from opinions; and evidence defines reasoned judgment
		RWC09-GR.HS.S.4-GLE.1	Informational materials, including electronic sources, need to be collected, evaluated, and analyzed for accuracy, relevance, and effectiveness for answering research questions

Grade	Content area and standard	CAS reference number	Grade Level Expectation
8th grade	Social Studies Geography	SS09-GR.8-S.2-GLE.1	Use geographic tools to analyze patterns in human and physical systems
		SS09-GR.8-S.2-GLE.2	Conflict and cooperation occur over space and resources
	Science Physical Science Science	SC09-GR.8-S.1-GLE.2	There are different forms of energy, and those forms of energy can be changed from one form to another – but total energy is conserved
	Science Life Science	SC09-GR.8-S.2-GLE.1	Human activities can deliberately or inadvertently alter ecosystems and their resiliency
	Science Earth Systems Science	SC09-GR.8-S.3-GLE.1	Weather is a result of complex interactions of Earth's atmosphere, land and water, that are driven by energy from the sun, and can be predicted and described through complex models
		SC09-GR.8-S.3-GLE.2	Earth has a variety of climates defined by average temperature, precipitation, humidity, air pressure, and wind that have changed over time in a particular location
	PE – Physical and Personal Wellness	PE09-GR.8-S.2-GLE.1	Identify the personal, physiological, and fitness benefits of participating in a variety of physical activities
		PE09-GR.8-S.2-GLE.2	Identify preferences for lifetime physical activity
		PE09-GR.8-S.2-GLE.3	Determine one's responsibility for developing skills, acquiring knowledge, and achieving fitness
	Health and PE Physical and Personal Wellness	CH09-GR.8-S.2-GLE.4	Promote and enhance health through disease prevention
	Health and PE Emotional and Social Wellness	CH09-GR.8-S.3-GLE.2	Internal and external factors influence mental and emotional health
	Reading, Writing, and Communicating	RWC09-GR.8-S.4-GLE.1	Individual research projects begin with information obtained from a variety of sources, and is organized, documented, and presented using logical procedures
		RWC09-GR.8-S.4-GLE.2	Common fallacies and errors occur in reasoning
		RWC09-GR.8-S.4-GLE.3	Quality reasoning relies on supporting evidence in media

Grade	Content area and standard	CAS reference number	Grade Level Expectation
7th grade	Social Studies Geography	SS09-GR.7-S.2-GLE.1	Use geographic tools to gather data and make geographic inferences and predictions
		SS09-GR.7-S.2-GLE.2	Regions have different issues and perspectives
	Science Life Science	SC09-GR.7-S.2-GLE.1	Individual organisms with certain traits are more likely than others to survive and have offspring in a specific environment
	Health and PE Physical and Personal Wellness	CH09-GR.7-S.2-GLE.1	Analyze factors that influence healthy eating behaviors
		CH09-GR.7-S.2-GLE.2	Demonstrate the ability to make healthy food choices in a variety of settings
	Health and PE Emotional and Social Wellness	PE09-GR.7-S.3-GLE.2	Demonstrate inclusiveness in and out of classroom settings
	Health and PE Prevention and Risk Management	PE09-GR.7-S.4-GLE.1	Implement safety procedures in the utilization of space and equipment
		CH09-GR.7-S.4-GLE.2	Demonstrate safety procedures for a variety of situations
Reading, Writing, and Communicating	RWC09-GR.7-S.4-GLE.1	Answering a research question logically begins with obtaining and analyzing information from a variety of sources	
6th grade	Social Studies Geography	SS09-GR.6-S.2-GLE.1	Use geographic tools to solve problems
		SS09-GR.6-S.2-GLE.2	Human and physical systems vary and interact
	Social Studies Civics	SS09-GR.6-S.4-GLE.1	Analyze the interconnectedness of the United States and other nations
	Science Life Science	SC09-GR.6-S.2-GLE.1	Changes in environmental conditions can affect the survival of individual organisms, populations, and entire species
	Science Life Science	SC09-GR.6-S.2-GLE.2	Organisms interact with each other and their environment in various ways that create a flow of energy and cycling of matter in an ecosystem
	Science Earth Systems	SC09-GR.6-S.3-GLE.1	Complex interrelationships exist between Earth's structure and natural processes that over time are both constructive and destructive
SC09-GR.6-S.3-GLE.2		Water on Earth is distributed and circulated through oceans, glaciers, rivers, ground water, and the atmosphere	

Grade	Content area and standard	CAS reference number	Grade Level Expectation
6th grade	PE – Movement Competence and Understanding	PE09-GR.6-S.1-GLE.2	Participate in activities that require problem-solving, cooperation, skill assessment, and teambuilding
	Health and PE Physical and Personal Wellness	CH09-GR.6-S.2-GLE.4	Analyze how positive health behaviors can benefit people throughout their life span
	Health and PE Prevention and Risk Management	CH09-GR.6-S.4-GLE.4	Demonstrate ways to advocate for safety, and prevent unintentional injuries
	Reading, Writing, and Communicating	RWC09-GR.6-S.4-GLE.1	Individual and group research projects require obtaining information on a topic from a variety of sources and organizing it for presentation
5th grade	Social Studies Geography	SS09-GR.5-S.2-GLE.1	Use various geographic tools and sources to answer questions about the geography of the United States
		SS09-GR.5-S.2-GLE.2	Causes and consequences of movement
	Science Earth Systems Science	SC09-GR.5-S.3-GLE.1	Earth and sun provide a diversity of renewable and nonrenewable resources
		SC09-GR.5-S.3-GLE.2	Earth’s surface changes constantly through a variety of processes and forces
	Science Earth Systems Science	SC09-GR.6-S.3-GLE.3	Weather conditions change because of the uneven heating of Earth’s surface by the Sun’s energy. Weather changes are measured by differences in temperature, air pressure, wind and water in the atmosphere and type of precipitation
	Health and PE Physical and Personal Wellness	PE09-GR.5-S.2-GLE.3	Connect the health-related fitness components to the body systems
	Health and PE Physical and Personal Wellness	CH09-GR.5-S.2-GLE.5	Comprehend concepts, and identify strategies to prevent the transmission of disease
	Health and PE Emotional and Social Wellness	PE09-GR.5-S.3-GLE.2	Choose to participate cooperatively and productively in group and individual physical activities
		PE09-GR.5-S.3-GLE.3	Identify personal activity interests and abilities
	Health and PE Prevention and Risk Management	CH09-GR.5-S.4-GLE.3	Demonstrate basic first aid and safety procedures

Grade	Content area and standard	CAS reference number	Grade Level Expectation
4th grade	Social Studies Geography	SS09-GR.4-S.2-GLE.1	Use several types of geographic tools to answer questions about the geography of Colorado
		SS09-GR.4-S.2-GLE.2	Connections within and across human and physical systems are developed
	Science Physical Science	SC09-GR.4-S.1-GLE.1	Energy comes in many forms such as light, heat, sound, magnetic, chemical, and electrical
	Science Life Science	SC09-GR.4-S.2-GLE.1	All living things share similar characteristics, but they also have differences that can be described and classified
		SC09-GR.4-S.2-GLE.3	There is interaction and interdependence between and among living and nonliving components of systems
	Health and PE Physical and Personal Wellness	PE09-GR.4-S.2-GLE.1	Explain how the health-related components of fitness affect performance when participating in physical activity
		PE09-GR.4-S.2-GLE.2	Recognize the relationship between healthy nutrition and exercise
		CH09-GR.4-S.2-GLE.3	Explain that the dimensions of wellness are interrelated and impact personal health
	Reading, Writing, and Communicating	RWC09-GR.4-S.4-GLE.1	Comprehending new information for research is a process undertaken with discipline both alone and within groups
	3rd grade	Social Studies Geography	SS09-GR.3-S.2-GLE.1
SS09-GR.3-S.2-GLE.2			The concept of regions is developed through an understanding of similarities and differences in places
Science Earth Systems Science		SC09-GR.3-S.3-GLE.1	Earth's materials can be broken down and/or combined into different materials such as rocks, minerals, rock cycle, formation of soil, and sand – some of which are usable resources for human activity
Health and PE Physical and Personal Wellness		PE09-GR.3-S.2-GLE.1	Identify the benefits of sustained physical activity that causes increased heart rate and heavy breathing
		PE09-GR.3-S.2-GLE.2	Understand that the body is composed of water, muscle, bones, organs, fat, and other tissues
		CH09-GR.3-S.3-GLE.1	Utilize knowledge and skills to treat self and others with care and respect
Reading, Writing, and Communicating		RWC09-GR.3-S.4-GLE.1	Researching a topic and sharing findings are often done with others

Grade	Content area and standard	CAS reference number	Grade Level Expectation
2nd Grade	Social Studies Geography	SS09-GR.2-S.2-GLE.1	Use geographic terms and tools to describe space and place
		SS09-GR.2-S.2-GLE.2	People in communities manage, modify, and depend on their environment
	Social Studies Economics	SS09-GR.2-S.3-GLE.1	The scarcity of resources affects the choices of individuals and communities
	Social Studies Civics	SS09-GR.2-S.4-GLE.1	Responsible community members advocate for their ideas
	Science Life Science	SC09-GR.2-S.2-GLE.1	Organisms depend on their habitat's nonliving parts to satisfy their needs
	Science Earth Systems Science	SC09-GR.2-S.3-GLE.1	Weather and the changing seasons impact the environment and organisms such as humans, plants, and other animals
	PE – Movement Competence and Understanding	PE09-GR.2-S.1-GLE.3	Use feedback to improve performance
	Health and PE Physical and Personal Wellness	PE09-GR.2-S.2-GLE.1	Recognize the importance of making the choice to participate in a wide variety of activities that involve locomotion, nonlocomotion, and manipulation of objects outside of physical education class
		PE09-GR.2-S.2-GLE.2	Identify good brain health habits
		CH09-GR.2-S.2-GLE.2	Recognize basic childhood chronic diseases
	Health and PE Emotional and Social Wellness	PE09-GR.2-S.3-GLE.1	Demonstrate positive and helpful behavior and words toward other students
	Health and PE Prevention and Risk Management	CH09-GR.2-S.4-GLE.5	Demonstrate interpersonal communication skills to prevent injury or to ask for help in an emergency or unsafe situation
	1st Grade	Social Studies Geography	SS09-GR.1-S.2-GLE.1
SS09-GR.1-S.2-GLE.2			People in different groups and communities interact with each other and the environment
Science Life Science		SC09-GR.1-S.2-GLE.1	An organism is a living thing that has physical characteristics to help it survive
Science Earth Systems Science		SC09-GR.1-S.3-GLE.1	Earth's materials can be compared and classified based on their properties
Health and PE Physical and Personal Wellness		CH09-GR.1-S.2-GLE.2	Demonstrate health enhancing behaviors to prevent unintentional injury or illness

Grade	Content area and standard	CAS reference number	Grade Level Expectation
1st Grade	Health and PE Emotional and Social Wellness	PE09-GR.1-S.3-GLE.1	Work independently and with others to complete work
	Reading, Writing, and Communicating	RWC09-GR.1-S.4-GLE.1	A variety of resources leads to locating information and answering questions of interest
Kindergarten	Social Studies Geography	SS09-GR.K-S.2-GLE.1	People belong to different groups and live in different settings around the world that can be found on a map or globe
	Science Life Science	SS09-GR.K-S.1-GLE.2	Organisms can be described and sorted by their physical characteristics
	Science Earth Systems Science	SC09-GR.K-S.3-GLE.1	The sun provides heat and light to Earth
	PE – Movement Competence and Understanding	PE09-GR.K-S.1-GLE.1	Demonstrate body and spatial awareness through movement
	Health and PE Emotional and Social Wellness	CH09-GR.K-S.3-GLE.1	Exhibit understanding that one's actions impact others
	Health and PE Physical and Personal Wellness	PE09-GR.K-S.3-GLE.1	Demonstrate respect for self, others, and equipment
	Reading, Writing, and Communicating	RWC09-GR.K-S.4-GLE.1	A variety of locations must be explored to find information that answers questions of interest
Preschool	Social Studies Geography	SS09-GR.P-S.2-GLE.1	Develop spatial understanding, perspectives, and connections to the world
	Science Life Science	SS09-GR.P-S.1-GLE.2	Living things have characteristics and basic needs
	Science Earth Systems Science	SC09-GR.P-S.3-GLE.1	Earth's materials have properties and characteristics that affect how we use those materials
	Health and PE Physical and Personal Wellness	PE09-GR.P-S.2-GLE.1	Recognize the positive feelings experienced during and after physical activity
	Health and PE Prevention and Risk Management	CH09-GR.P-S.4-GLE.1	Identify ways to be safe while at play
	Reading, Writing, and Communicating	RWC09-GR.P-S.4-GLE.2	Problems can be identified and possible solutions can be created