

# **NAAEE-TEKS-CCRS CROSSWALK**

*Alignment of the Excellence in Environmental Education Guidelines for Learning (NAAEE), the Texas Essential Knowledge and Skills, & College & Career Readiness Science & Social Studies Standards for Grades K-12*

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## **PREFACE**

The NAAEE-TEKS-CCRS Crosswalk is an alignment of the North American Association for Environmental Education Guidelines (NAAEE), the Texas Essential Knowledge and Skills, & the Texas College & Career Readiness Science & Social Studies Standards for Grades K-12. The NAAEE Guidelines, that form the basis of the alignment, are national voluntary standards for environmental education rooted in the Belgrade Charter (UNESCO-UNEP, 1976) and the Tbilisi Declaration (UNESCO, 1978). They define a scientifically-balanced approach to environmental and sustainability education in a way that engages learners through real and tangible inquiry-based learning and stewardship. This approach is fundamentally based in the sciences as well as it is based in civic engagement and the social studies. For this reason, the NAAEE-TEKS-CCRS Crosswalk is aligned to both science and social studies TEKS. For grades K-8, all science and social studies TEKS are aligned side-by-side in order to make apparent cross-disciplinary approaches to units of instruction. Furthermore, in response to STAAR, all readiness, supporting and process standards have been color coded in grey scale for easy reference. This is particularly useful since many readiness standards cover topics that benefit from elaborative educational resources provided by a number of organizations in the community. Teachers and administrators can utilize the crosswalk in helping them identify relevant resources in the community. Likewise, community environmental educators now have a source to easily identify how their resources connect to a school's academic goals. Finally, we have included the Texas College and Career Readiness standards on the right-most column of each spreadsheet. The purpose of including the CCRS standards was to demonstrate the connection between grade-relevant topics in environmental/sustainability education and the related skillsets important for success in college.

## **ABOUT TSEP**

The Texas Sustainability in Education Project (TSEP) is a network that brings together a broad range of stakeholders from across the state of Texas to support STEM and sustainability education. By connecting schools and teachers with resources in the community our goal is to promote student achievement in STEM while demonstrating local and global relevance of STEM for the sustainable development of our communities. We provide teachers and schools with professional development, curriculum planning resources, and support to utilize community relevant educational resources in a way that aligns with Texas school's achievement goals.

## ACKNOWLEDGEMENTS

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San Antonio Water Systems  
Texas Parks and Wildlife  
Texas Wildlife Association  
San Antonio Natural Areas  
Harlandale Independent School District  
Education Service Center, Region 20

For more information on local and national resources in STEM-based sustainability education, please visit our website and resource repository; GreenSources @:

<http://texasenergy.utsa.edu/education/>

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For more information on the North American Association for Environmental Education Guidelines and to acquire copies of their resources and materials, please visit the NAAEE website @: <http://www.naaee.net/>



## EE-TEKS-CCRS CROSSWALK

*Alignment of the Excellence in Environmental Education: Guidelines for Learning (NAAEE) the Texas Essential Knowledge and Skills, & College & Career Readiness Science & Social Studies Standards*

EE Learner Guidelines	Kindergarten Science	Kindergarten Social Studies	CCRS Science	CCRS Social Studies
<b>Strand 1: Questioning, Analysis &amp; Interpretation Skills</b>				
<p><b>A) Questioning—Learners are able to develop questions that help them learn about the environment and do simple investigations.</b></p>	<p><b><u>K.2:</u> Scientific investigation and reasoning. The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to:</b></p> <p>(A) ask questions about organisms, objects, and events observed in the natural world;</p> <p>(B) plan and conduct simple descriptive investigations such as ways objects move;</p>		<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive skills in science</b>                      3. Formulate appropriate questions to test understanding of natural phenomena.</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>F. Problems solving</b>                      1. Use a variety of research and analytical tools to explore questions or issues thoroughly and fairly.</p>
<p><b>B) Designing investigations—Learners are able to design simple investigations.</b></p>	<p><b><u>K.2:</u> Scientific investigation and reasoning. The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to:</b></p> <p>(B) plan and conduct simple descriptive investigations such as ways objects move;</p>		<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>B. Scientific Inquiry</b>                      1. Design and conduct scientific investigations in which hypotheses are formulated and tested</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research and methods</b>                      1. Use established research methodologies</p>
<p><b>C) Collecting information—Learners are able to locate and collect information about the environment and environmental topics.</b></p>	<p><b><u>K.2:</u> Scientific investigation and reasoning. The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to:</b></p>	<p><b>K.14 Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b></p>	<p><b>I. Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive Skills in science</b>                      4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research and methods</b>                      3. Gather, organize and display the results of data and research                      4. Identify and collect sources</p>

EE Learner Guidelines	Kindergarten Science	Kindergarten Social Studies	CCRS Science	CCRS Social Studies
	<p>(C) collect data and make observations using simple equipment such as hand lenses, primary balances, and non-standard measurement tools;</p> <p><b>K.4: Scientific investigation and reasoning. The student uses age-appropriate tools and models to investigate the natural world. The student is expected to:</b></p> <p>(A) collect information using tools, including computers, hand lenses, primary balances, cups, bowls, magnets, collecting nets, and notebooks; timing devices, including clocks and timers; non-standard measuring items such as paper clips and clothespins; weather instruments such as demonstration thermometers and wind socks; and materials to support observations of habitats of organisms such as terrariums and aquariums; and</p> <p>(B) use senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment.</p>	<p>(A) obtain information about a topic using a variety of valid oral sources such as conversations, interviews, and music;</p> <p>(B) obtain information about a topic using a variety of valid visual sources such as pictures, symbols, electronic media, print material, and artifacts;</p>	<p><b>D. Current Scientific Technology</b> 3. Demonstrate appropriate use of a wide variety of apparatuses, equipment, techniques, and procedures for collecting quantitative and qualitative data</p> <p><b>III. Foundation Skills: Scientific Applications of Communication</b> <b>A. Research Skills/Information Literacy</b> 1. Use search engines, databases, and other digital electronic tools effectively to locate information.</p>	

EE Learner Guidelines	Kindergarten Science	Kindergarten Social Studies	CCRS Science	CCRS Social Studies
<p><b>D) Evaluating accuracy and reliability—Learners understand the need to use reliable information to answer their questions. They are familiar with some basic factors to consider in judging the merits of information.</b></p>			<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive Skills in Science</b>            1. Utilize skepticism, logic, and professional ethics in science            4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p> <p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>            2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>A. Critical examinations of texts, images, and other sources of information</b>            1. Identify and analyze the main idea(s) and point(s)-of-view in sources.            2. Situate an informational source in its appropriate contexts (contemporary, historical, cultural)            3. Evaluate sources from multiple perspectives            4. Understand the difference between a primary and secondary source and use each appropriately to conduct research and construct arguments            5. Read narrative texts critically            6. Read research data critically</p>
<p><b>E) Organizing information—Learners are able to describe data and organize information to search for relationships and patterns concerning the environment and environmental topics.</b></p>	<p><b>K.2: Scientific investigation and reasoning. The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to:</b></p> <p>(D) record and organize data and observations using pictures, numbers, and words;</p>	<p><b>K.3: History. The student understands the concept of chronology. The student is expected to:</b></p> <p>(A) place events in chronological order; and</p> <p><b>K.14: Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b></p> <p>(C) sequence and categorize information.</p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b>  <b>A. Cognitive Skills in Science</b>            2. Use creativity and insight to recognize and describe patterns in natural phenomena.</p> <p><b>E. Effective communication of scientific information</b>            1. Use several modes of expression to describe or characterize natural phenomena. These modes of expression include narrative, and numerical, graphical, pictorial, symbolic, and kinesthetic.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research methods</b>            3. Gather, organize, and display the results of data and research</p>

EE Learner Guidelines	Kindergarten Science	Kindergarten Social Studies	CCRS Science	CCRS Social Studies
<p><b>F) Working with models and simulations—Learners understand that relationships, patterns, and processes can be represented by models.</b></p>	<p><b><u>K.4:</u> Scientific investigation and reasoning. The student uses age-appropriate tools and models to investigate the natural world. The student is expected to:</b></p> <p>(A) collect information using tools, including computers, hand lenses, primary balances, cups, bowls, magnets, collecting nets, and notebooks; timing devices, including clocks and timers; non-standard measuring items such as paper clips and clothespins; weather instruments such as demonstration thermometers and wind socks; and materials to support observations of habitats of organisms such as terrariums and aquariums; and</p> <p>(B) use senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment.</p>	<p><b>K.5: Geography. The student understands the concept of location. The student is expected to:</b></p> <p>(C) identify tools that aid in determining location, including maps and globes.</p> <p><b>K.15: Social studies skills. The student communicates in oral and visual forms. The student is expected to:</b></p> <p>(B) create and interpret visuals, including pictures and maps.</p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>D. Current Scientific Technology:</b>  2. Use computer models, applications, and simulations  <b>II. Foundations Skills: Scientific Application of Mathematics</b>  <b>B. Mathematics as symbolic language</b></p> <p>2. Represent natural events, processes, and relationships with algebraic expressions and algorithms  <b>V. Cross Disciplinary Themes</b>  <b>E. Measurements and Models</b>  1. Use models to make predictions  2. Use scale to relate models and structures</p>	
<p><b>G) Drawing conclusions and developing explanations—Learners can develop simple explanations that address their questions about the environment.</b></p>		<p><b><u>K.2:</u> Scientific investigation and reasoning. The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b>  <b>A. Cognitive Skills in Science</b>  4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>D. Reaching Conclusions</b>  1. Construct a thesis that is supported by evidence</p>

EE Learner Guidelines	Kindergarten Science	Kindergarten Social Studies	CCRS Science	CCRS Social Studies
		<p>(E) communicate observations with others about simple descriptive investigations.</p> <p><b>K.3: Scientific investigation and reasoning. The student knows that information and critical thinking are used in scientific problem solving. The student is expected to:</b></p> <p>(A) identify and explain a problem such as the impact of littering on the playground and propose a solution in his/her own words;</p> <p>(B) make predictions based on observable patterns in nature such as the shapes of leaves;</p>		
<b>Strand 2.1: Knowledge of Environmental Processes and Systems</b>				
<p><b>A) Processes that shape the Earth—Learners have a basic understanding of most of the physical processes that shape the Earth. They are able to explore the origin of differences in physical patterns.</b></p>	<p><b>K.8: Earth and space. The student knows that there are recognizable patterns in the natural world and among objects in the sky. The student is expected to:</b></p> <p>(A) observe and describe weather changes from day to day and over seasons;</p> <p>(B) identify events that have repeating patterns, including seasons of the year and day and night;</p>	<p><b>K.5 Geography. The student understands physical and human characteristics of place. The student is expected to:</b></p> <p>(A) identify the physical characteristics of place such as landforms, bodies of water, natural resources, and weather;</p>	<p><b>IX. Earth and Space Sciences</b></p> <p><b>A. Earth Systems</b></p> <p>3. Possess a scientific understanding of the history of the Earth's systems.</p> <p><b>E. Plate Tectonics</b></p> <p>1. Describe evidence that supports the current theory of plate tectonics</p> <p>2. Identify major tectonic plates</p> <p>3. Describe the motion and interaction of tectonic plates</p> <p>4. Describe the rock cycle and its products</p>	
<p><b>B) Changes in matter—Learners understand the properties of the substances that make up objects or materials found in the environment.</b></p>	<p><b>K.5: Matter and energy. The student knows that objects have properties and patterns. The student is expected to:</b></p>		<p><b>V. Cross-Disiplinary Themes</b></p> <p><b>A. Matter/states of matter</b></p> <p>2. Understanding typical states of matter (solid, liquid, gas) and phase changes among these.</p>	

EE Learner Guidelines	Kindergarten Science	Kindergarten Social Studies	CCRS Science	CCRS Social Studies
	<p>(A) observe and record properties of objects, including relative size and mass, such as bigger or smaller and heavier or lighter, shape, color, and texture</p> <p><b>K.7: Earth and space. The student knows that the natural world includes earth materials. The student is expected to:</b></p> <p>(A) observe, describe, compare, and sort rocks by size, shape, color, and texture;</p>		<p><b>VII. Chemistry</b>  <b>A. Matter and its properties</b>  1. Know that physical and chemical properties can be used to describe and classify matter. Recognize and classify pure substances (elements and compounds) and mixtures.</p> <p><b>IX. Earth and Space Systems</b>  <b>F. Energy transfer within and among systems</b>  1. Describe matter and energy transfer in the Earth's systems.  2. Give examples of effects of energy transfer within and among systems.</p>	
<p><b>C) Energy—Learners begin to grasp formal concepts related to energy by focusing on energy transfer and transformations. They are able to make connections among the phenomena such as light, heat, magnetism, electricity, and the motion of objects.</b></p>	<p><b>K.5: Matter and energy. The student knows that objects have properties and patterns. The student is expected to:</b></p> <p>(B) observe, record, and discuss how materials can be changed by heating or cooling.</p> <p><b>K.6: Force, motion, and energy. The student knows that energy, force, and motion are related and are a part of their everyday life. The student is expected to:</b></p>		<p><b>V. Cross-Disciplinary Themes</b>  <b>B. Energy (thermodynamics, kinetic, potential, energy transfers)</b>  1. Understand the Laws of Thermodynamics  2. Know the processes of energy transfer</p> <p><b>VI. Biology</b>  <b>G. Ecology</b>  2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p> <p><b>VII. Chemistry</b>  <b>H. Thermochemistry</b>  1. Understand the Law of Conservation of Energy and processes of heat transfer.  2. Understand energy changes and chemical reactions</p>	

EE Learner Guidelines	Kindergarten Science	Kindergarten Social Studies	CCRS Science	CCRS Social Studies
	<p>(A) use the five senses to explore different forms of energy such as light, heat, and sound;</p> <p>(B) explore interactions between magnets and various materials;</p> <p>(C) observe and describe the location of an object in relation to another such as above, below, behind, in front of, and beside; and</p> <p>(D) observe and describe the ways that objects can move such as in a straight line, zigzag, up and down, back and forth, round and round, and fast and slow.</p>		<p><b>VIII. Physics</b>  <b>C. Force and Motion</b>  1. Understand the fundamental concepts of kinematics  2. Understand forces and Newton's Law.  3. Understand the concept of momentum.  <b>D. Mechanical Energy</b>  1. Understand potential and kinetic energy.  2. Understand conservation of energy  3. Understand relationship of work and mechanical energy  <b>X. Environmental Science</b>  <b>B. Energy</b>  1. Understand energy transformations  2. Know various sources of energy for humans and other biological systems</p>	
<b>Strand 2.2: The Living Environment</b>				
<p><b>A) Organisms, populations, and communities—Learners understand that biotic communities are made up of plants and animals that are adapted to live in particular environments.</b></p>	<p><b><u>K.9:</u> Organisms and environments. The student knows that plants and animals have basic needs and depend on the living and nonliving things around them for survival. The student is expected to:</b></p> <p>(A) differentiate between living and nonliving things based upon whether they have basic needs and produce offspring; and</p> <p>(B) examine evidence that living organisms have basic needs such as food, water, and shelter for animals and air, water, nutrients, sunlight, and space for plants.</p>		<p><b>VI. Biology</b>  <b>G. Ecology</b>  1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.    2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p>	

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<p><b>B) Heredity and evolution—Learners have a basic understanding of the importance of genetic heritage.</b></p>	<p><b><u>K.10:</u> Organisms and environments. The student knows that organisms resemble their parents and have structures and processes that help them survive within their environments. The student is expected to:</b></p> <p>(A) sort plants and animals into groups based on physical characteristics such as color, size, body covering, or leaf shape;</p> <p>(B) identify parts of plants such as roots, stem, and leaves and parts of animals such as head, eyes, and limbs;</p> <p>(C) identify ways that young plants resemble the parent plant; and</p> <p>(D) observe changes that are part of a simple life cycle of a plant: seed, seedling, plant, flower, and fruit.</p>		<p><b>VI. Biology</b>  <b>C. Evolution and populations</b>  1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.  2. Recognize variations in population sizes, including extinction, and describe mechanisms and conditions that produce these variations.  <b>D. Molecular genetics and heredity</b>  1. Understand Mendel's Law of inheritance,  2. Know modifications of Mendel's Law,  3. Understand the molecular structure and functions of nucleic acids  4. Understand simple principles of population genetics and describe characteristics of Hardy-Weinberg population.  5. Describe the major features of meiosis and relate this process to Mendel's law of inheritance.</p>	
<p><b>C) Systems and connections—Learners understand major kinds of interactions among organisms or populations of organisms.</b></p>	<p><b><u>K.9:</u> Organisms and environments. The student knows that plants and animals have basic needs and depend on the living and nonliving things around them for survival. The student is expected to:</b></p>		<p><b>IV. Biology</b>  <b>C. Evolution and populations</b>  1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.</p>	

EE Learner Guidelines	Kindergarten Science	Kindergarten Social Studies	CCRS Science	CCRS Social Studies
	<p>(A) differentiate between living and nonliving things based upon whether they have basic needs and produce offspring; and</p> <p>(B) examine evidence that living organisms have basic needs such as food, water, and shelter for animals and air, water, nutrients, sunlight, and space for plants.</p>		<p><b>G. Ecology</b></p> <ol style="list-style-type: none"> <li>1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.</li> <li>2. Know patterns of energy flow and material cycling in Earth's ecosystems.</li> <li>3. Understand typical forms of organismal behavior</li> <li>4. Know the process of succession</li> </ol> <p>X. Environmental Science A. Earth Systems</p> <ol style="list-style-type: none"> <li>5. Be familiar with the Earth's major biomes</li> </ol>	
<p><b>D) Flow of matter and energy—Learners understand how energy and matter flow among the abiotic and biotic components of the environment.</b></p>	<p><b><u>K.9:</u> Organisms and environments. The student knows that plants and animals have basic needs and depend on the living and nonliving things around them for survival. The student is expected to:</b></p> <p>(A) differentiate between living and nonliving things based upon whether they have basic needs and produce offspring; and</p> <p>(B) examine evidence that living organisms have basic needs such as food, water, and shelter for animals and air, water, nutrients, sunlight, and space for plant</p>		<p><b>V. Biology</b></p> <p><b>B. Biochemistry</b></p> <ol style="list-style-type: none"> <li>3. Describe the major features and chemical events of photosynthesis</li> <li>4. Describe the major features and chemical events of cellular respiration</li> <li>5. Know how organisms respond to the presence or absence of oxygen, including mechanisms of fermentation</li> </ol> <p><b>G. Ecology</b></p> <ol style="list-style-type: none"> <li>2. Know the patterns of energy flow and material cycling in Earth's ecosystems.</li> </ol> <p><b>X. Environmental Science</b></p> <p><b>B. Energy</b></p> <ol style="list-style-type: none"> <li>1. Understanding energy transformations</li> <li>2. Know the various sources of energy for humans and other biological systems</li> </ol>	

EE Learner Guidelines	Kindergarten Science	Kindergarten Social Studies	CCRS Science	CCRS Social Studies
<b>Strand 2.3: Humans and Their Societies</b>				
<p><b>A) Individuals and groups—Learners understand that how individuals perceive the environment is influenced in part by individual traits and group membership or affiliations.</b></p>				<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b>  2. Analyze the interaction between human communities and the environment.  <b>II. Diverse Human Perspectives</b>  <b>B. Factors that influence personal and group identities (e.g. race, ethnicity, gender, nationalist, institutional affiliations, socioeconomic status)</b>  6. Analyze how individual and group identities are established and changes over time.</p>
<p><b>B) Culture—As they become familiar with a wider range of cultures and subcultures, learners gain an understanding of cultural perspectives on the environment and how the environment may, in turn, influence culture.</b></p>		<p><b>K.5 Geography. The student understands physical and human characteristics of place. The student is expected to:</b></p> <p>(B) identify how the human characteristics of place such as ways of earning a living, shelter, clothing, food, and activities are based upon geographic location.</p>		<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical processes that shape the human experience.</b>  2. Analyze the interaction between human communities and the environment.  3. Analyze how physical and cultural processes have shaped human communities over time.  5. Analyze how various cultural regions of changed over time.  6. Analyze the relationship between geography and the development of human communities.</p>

EE Learner Guidelines	Kindergarten Science	Kindergarten Social Studies	CCRS Science	CCRS Social Studies
		<p><b>K.11 Culture. The student understands similarities and differences among people. The student is expected to:</b></p> <p>(A) identify similarities and differences among people such as kinship, laws, and religion; and</p> <p>(B) identify similarities and differences among people such as music, clothing, and food</p> <p><b>K.12 Culture. The student understands the importance of family customs and traditions. The student is expected to:</b></p> <p>(A) describe and explain the importance of family customs and traditions; and</p> <p>(B) compare family customs and traditions.</p>		
<p><b>C) Political and economic systems—Learners become more familiar with political and economic systems and how these systems take the environment into consideration.</b></p>		<p><b>K.6 Economics. The student understands that basic human needs and wants are met in many ways. The student is expected to:</b></p> <p>(A) identify basic human needs of food, clothing, and shelter;</p> <p>(B) explain the difference between needs and wants; and</p> <p>(C) explain how basic human needs can be met such as through self-producing, purchasing, and trading.</p>	<p><b>X. Environmental Science</b>  <b>D. Economics and politics</b></p> <p>1. name and describe major environmental policies and legislation</p> <p>2. Understand the types, uses, and regulations of various natural resources</p>	<p><b>I. Interrelated Disciplines and Skills</b></p> <p><b>C. Change and continuity of political ideologies, constitutions and political behaviour.</b></p> <p>1. Evaluate different governmental systems and functions</p> <p><b>D. Change and continuity of economic systems and processes.</b></p> <p>1. Identify and evaluate the strengths and weaknesses of different economic systems.</p>

EE Learner Guidelines	Kindergarten Science	Kindergarten Social Studies	CCRS Science	CCRS Social Studies
		<p><b>K.8 Government. The student understands the purpose of rules. The student is expected to:</b></p> <p>(A) identify purposes for having rules; and</p> <p>(B) identify rules that provide order, security, and safety in the home and school.</p>		
<p><b>D) Global connections—Learners become familiar with ways in which the world's environmental, social, economic, cultural and political systems are linked.</b></p>				<p><b>III. Interdependence of Global Communities</b></p> <p><b>A. Spatial understanding of global, regional, national, and local communities.</b></p> <ol style="list-style-type: none"> <li>1. Distinguish spatial patterns of human communities that exist between or within contemporary political boundaries.</li> <li>2. Connect regional or local developments to global ones.</li> <li>3. Analyze how and why diverse communities interact and become dependent on each other.</li> </ol>
<p><b>E) Change and conflict—Learners understand the humans social systems change over time and that conflicts sometimes arise over differing and changing viewpoints about the environment.</b></p>				<p><b>I. Interrelated disciplines and Skills</b></p> <p><b>E. Change and continuity of social groups, civic organizations, institutions, and their interaction.</b></p> <ol style="list-style-type: none"> <li>4. Identify and evaluate the sources and consequences of social conflict.</li> </ol>

EE Learner Guidelines	Kindergarten Science	Kindergarten Social Studies	CCRS Science	CCRS Social Studies
<b>Strand 2.4: Environment and Society</b>				
<p><b>A) Human/environment interactions—Learners understand that human-caused change have consequences for the immediate environment as well as for other places and future times.</b></p>	<p><b><u>K.3</u>: Scientific investigation and reasoning. The student knows that information and critical thinking are used in scientific problem solving. The student is expected to:</b></p> <p>(A) identify and explain a problem such as the impact of littering on the playground and propose a solution in his/her own words;</p>		<p><b>X. Environmental Science</b> <b>E. Human practices and their impacts</b></p> <ol style="list-style-type: none"> <li>Describe the different uses for land (land management)</li> <li>Understand the use and consequences of pest management</li> <li>Know the different methods used to increase food production</li> <li>Understand land and water usage and management practices</li> <li>Understand how human practices affect air, water, and soil quality</li> </ol>	<p><b>I. Interrelated Disciplines and Skills</b> <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b></p> <ol style="list-style-type: none"> <li>Analyze the interaction between human communities and the environment.</li> <li>Evaluate the causes and effects of human migration patterns over time</li> <li>Analyze the relationship between geography and the development of human communities.</li> </ol>
<p><b>B) Places—Learners begin to explore the meaning of place both close to home and around the world.</b></p>		<p><b><u>K.5</u> Geography. The student understands physical and human characteristics of place. The student is expected to:</b></p> <p>(A) identify the physical characteristics of place such as landforms, bodies of water, natural resources, and weather; and</p> <p>(B) identify how the human characteristics of place such as ways of earning a living, shelter, clothing, food, and activities are based upon geographic location.</p>		<p><b>I. Interrelated Disciplines and Skills</b> <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b></p> <ol style="list-style-type: none"> <li>Analyze the interaction between human communities and the environment.</li> </ol> <p><b>III. Interdependence of Global Communities</b> <b>A. Spatial understanding of global, regional, national, and local communities.</b></p> <ol style="list-style-type: none"> <li>Distinguish spatial patterns of human communities that exist between or within contemporary boundaries.</li> <li>Connect regional or local development to global ones.</li> <li>Analyze how and why diverse communities interact and become dependent on each other.</li> </ol>

EE Learner Guidelines	Kindergarten Science	Kindergarten Social Studies	CCRS Science	CCRS Social Studies
<p><b>C) Resources—Learners understand uneven distribution of resources influences their use and perceived value.</b></p>	<p><b><u>K.1</u>: Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures and uses environmentally appropriate and responsible practices. The student is expected to:</b></p> <p>(C) demonstrate how to use, conserve, and dispose of natural resources and materials such as conserving water and reusing or recycling paper, plastic, and metal.</p>	<p><b>K.5 Geography. The student understands physical and human characteristics of place. The student is expected to:</b></p> <p>(A) identify the physical characteristics of place such as landforms, bodies of water, natural resources, and weather; and</p> <p>(B) identify how the human characteristics of place such as ways of earning a living, shelter, clothing, food, and activities are based upon geographic location.</p>		
<p><b>D) Technology—Learners understand the human ability to shape and control the environment as a function of the capacities for creating knowledge and developing new technologies.</b></p>		<p><b><u>K.13</u> Science, technology, and society. The student understands ways technology is used in the home and school and how technology affects people's lives. The student is expected to:</b></p> <p>(A) identify examples of technology used in the home and school;</p> <p>(B) describe how technology helps accomplish specific tasks and meet people's needs; and</p> <p>(C) describe how his or her life might be different without modern technology.</p>		

EE Learner Guidelines	Kindergarten Science	Kindergarten Social Studies	CCRS Science	CCRS Social Studies
<p><b>E) Environmental issues</b>—Learners are familiar with a range of environmental issues at scales that range from local to national to global. They understand that people in other places around the world experience environmental issues similar to the ones they are concerned about locally.</p>			<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive skills in science</b>            2. Use creativity and insight to recognize and describe patterns in natural phenomena  <b>X. Environmental Science</b>  <b>E. Human practices and their impacts</b>            1. Describe the different uses for land (land management)            2. Understand the use and consequence of pest management            3. Know the different methods used to increase food production            4. Understand land and water usage and management practices            5. Understand how human practices affect air, water, and soil quality</p>	

**Strand 3: Skills for Understanding and Addressing Environmental Issues**

**Strand 3.1: Skills for Analyzing and Investigating Environmental Issues**

<p><b>A) Identifying and investigating issues</b>—Learners are able to use primary and secondary sources of information, and apply growing research and analytical skills, to investigate environmental issues, beginning in their own community.</p>	<p><b><u>K.3:</u></b> Scientific investigation and reasoning. The student knows that information and critical thinking are used in scientific problem solving. The student is expected to:</p> <p>(A) identify and explain a problem such as the impact of littering on the playground and propose a solution in his/her own words;</p>	<p><b><u>K.14:</u></b> Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</p> <p>(A) obtain information about a topic using a variety of valid oral sources such as conversations, interviews, and music;</p>	<p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>            2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	
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EE Learner Guidelines	Kindergarten Science	Kindergarten Social Studies	CCRS Science	CCRS Social Studies
		<p>(B) obtain information about a topic using a variety of valid visual sources such as pictures, symbols, electronic media, print material, and artifacts;</p> <p><b>K.16. Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p> <p>(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution; and</p> <p>(B) use a decision-making process to identify a situation that requires a decision, gather information, generate options, predict outcomes, take action to implement a decision, and reflect on the effectiveness of the decision.</p>		
<p><b>B) Sorting out the consequences of issues—Learners are able to apply their knowledge of ecological and human processes and systems to identify the consequences of specific environmental issues.</b></p>	<p><b><u>K3:</u> Scientific investigation and reasoning. The student knows that information and critical thinking are used in scientific problem solving. The student is expected to:</b></p>	<p><b>K.16 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p>	<p><b>IV. Science, Technology, and Society</b>  <b>B. Social ethics</b>  1. Understand how scientific research and technology have an impact on ethical and legal practices</p>	

EE Learner Guidelines	Kindergarten Science	Kindergarten Social Studies	CCRS Science	CCRS Social Studies
	(A) identify and explain a problem such as the impact of littering on the playground and propose a solution in his/her own words;	(B) use a decision-making process to identify a situation that requires a decision, gather information, generate options, predict outcomes, take action to implement a decision, and reflect on the effectiveness of the decision.		
<b>C) Identifying and evaluating alternative solutions and courses of action—Learners are able to identify and develop action strategies for addressing particular issues.</b>		<b>K.16 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b>  (A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution;	<b>IV. Science, Technology, and Society</b> <b>B. Social ethics</b> 1. Understand how scientific research and technology have an impact on ethical and legal practices  2. Understand how commonly held ethical beliefs impact scientific research	
<b>D) Working with flexibility, creativity, and openness—Learners are able to consider the assumptions and interpretations that influence the conclusions they and others draw about environmental issues.</b>			<b>III. Foundation Skills: Scientific Applications of Communication</b> <b>D. Research skills/information literacy</b> 2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.	

EE Learner Guidelines	Kindergarten Science	Kindergarten Social Studies	CCRS Science	CCRS Social Studies
<b>Strand 3.2: Decision Making and Citizenship Skills</b>				
<p><b>A) Forming and evaluating personal views—Learners are able to identify, justify, and clarify their views on environmental issues and alternative ways to address them.</b></p>	<p><b><u>K.3:</u> Scientific investigation and reasoning. The student knows that information and critical thinking are used in scientific problem solving. The student is expected to:</b></p> <p>(A) identify and explain a problem such as the impact of littering on the playground and propose a solution in his/her own words;</p>	<p><b><u>K.15:</u> Social studies skills. The student communicates in oral and visual forms. The student is expected to:</b></p> <p>(A) express ideas orally based on knowledge and experiences;</p>		
<p><b>B) Evaluating the need for citizen action—Learners are able to evaluate whether they believe action is needed in particular situations, and decide whether they should be involved.</b></p>		<p><b><u>K.16</u> Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p> <p>(B) use a decision-making process to identify a situation that requires a decision, gather information, generate options, predict outcomes, take action to implement a decision, and reflect on the effectiveness of the decision</p>		
<p><b>C) Planning and taking action—As learners begin to see themselves as citizens taking active roles in their communities, they are able to plan for and engage in citizen action at levels appropriate to their maturity and preparation.</b></p>		<p><b><u>K.16</u> Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p>		

EE Learner Guidelines	Kindergarten Science	Kindergarten Social Studies	CCRS Science	CCRS Social Studies
		(B) use a decision-making process to identify a situation that requires a decision, gather information, generate options, predict outcomes, take action to implement a decision, and reflect on the effectiveness of the decision.		
<p><b>D) Evaluating the results of actions—Learners are able to analyze the effects of their own actions and actions taken by other individuals and groups.</b></p>		<p><b>K.16 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p> <p>(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution;</p>		
<b>Strand 4: Personal and Civic Responsibility</b>				
<p><b>A) Understanding societal values and principles—Learners understand that societal values can be both a unifying and a divisive force</b></p>		<p><b>K.8 Government. The student understands the purpose of rules. The student is expected to:</b></p> <p>(A) identify purposes for having rules; and</p> <p>(B) identify rules that provide order, security, and safety in the home and school.</p>	<p><b>IV. Science, Technology, and Society</b></p> <p><b>B. Social Ethics</b></p> <p>1. Understand how scientific research and technology have an impact on ethical and legal practices.</p> <p>2. Understand how commonly held ethical beliefs impact scientific research.</p>	

EE Learner Guidelines	Kindergarten Science	Kindergarten Social Studies	CCRS Science	CCRS Social Studies
<p><b>B) Recognizing citizens' rights and responsibilities—Learners understand the rights and responsibilities of citizenship and their importance in promoting the resolution of environmental issues.</b></p>	<p><b>K3: Scientific investigation and reasoning. The student knows that information and critical thinking are used in scientific problem solving. The student is expected to:</b></p> <p>(A) identify and explain a problem such as the impact of littering on the playground and propose a solution in his/her own words;</p>	<p><b>K.9 Government. The student understands the role of authority figures. The student is expected to:</b></p> <p>(A) identify authority figures in the home, school, and community; and</p> <p>(B) explain how authority figures make and enforce rules</p>		
<p><b>C) Recognizing efficacy—Learners possess a realistic self-confidence in their effectiveness as citizens.</b></p>		<p><b>K.10 Citizenship. The student understands important symbols, customs, and responsibilities that represent American beliefs and principles and contribute to our national identity. The student is expected to:</b></p> <p>(A) identify the flags of the United States and Texas;</p> <p>(B) recite the Pledge of Allegiance to the United States Flag and the Pledge to the Texas Flag;</p> <p>(C) identify Constitution Day as a celebration of American freedom; and</p> <p>(D) use voting as a method for group decision making.</p>		
<p><b>D) Accepting personal responsibility—Learners understand that their actions can have broad consequences and they are responsible for those consequences.</b></p>				

## EE-TEKS-CCRS CROSSWALK

*Alignment of the Excellence in Environmental Education: Guidelines for Learning (NAAEE) the Texas Essential Knowledge and Skills, & College & Career Readiness Science & Social Studies Standards*

EE Learner Guidelines	1st Grade Science	1st Grade Social Studies	CCRS Science	CCRS Social Studies
<b>Strand 1: Questioning, Analysis &amp; Interpretation Skills</b>				
<b>A) Questioning—Learners are able to develop questions that help them learn about the environment and do simple investigations.</b>	<b>1.2: Scientific investigation and reasoning. The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to:</b> (A) ask questions about organisms, objects, and events observed in the natural world;  (B) plan and conduct simple descriptive investigations such as ways objects move;		<b>I. Nature of Science: Scientific Ways of Learning and Thinking</b> <b>A. Cognitive skills in science</b> 3. Formulate appropriate questions to test understanding of natural phenomena.	<b>I. Interrelated Disciplines and Skills</b> <b>F. Problems solving</b> 1. Use a variety of research and analytical tools to explore questions or issues thoroughly and fairly.
<b>B) Designing investigations—Learners are able to design simple investigations.</b>	<b>1.2: Scientific investigation and reasoning. The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to:</b> (B) plan and conduct simple descriptive investigations such as ways objects move;		<b>I. Nature of Science: Scientific Ways of Learning and Thinking</b> <b>B. Scientific Inquiry</b> 1. Design and conduct scientific investigations in which hypotheses are formulated and tested	<b>IV. Analysis, Synthesis, and Evaluation of Information</b> <b>B. Research and methods</b> 1. Use established research methodologies
<b>C) Collecting information—Learners are able to locate and collect information about the environment and environmental topics.</b>	<b>1.2: Scientific investigation and reasoning. The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to:</b> (C) collect data and make observations using simple equipment such as hand lenses, primary balances, and non-standard measurement tools	<b>(17) Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b>  (A) obtain information about a topic using a variety of valid oral sources such as conversations, interviews, and music;	<b>I. Scientific Ways of Learning and Thinking</b> <b>A. Cognitive Skills in science</b> 4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.	<b>IV. Analysis, Synthesis, and Evaluation of Information</b> <b>B. Research and methods</b> 3. Gather, organize and display the results of data and research 4. Identify and collect sources

EE Learner Guidelines	1st Grade Science	1st Grade Social Studies	CCRS Science	CCRS Social Studies
	<p><b>1.4: Scientific investigation and reasoning. The student uses age-appropriate tools and models to investigate the natural world. The student is expected to:</b></p> <p>(A) collect, record, and compare information using tools, including computers, hand lenses, primary balances, cups, bowls, magnets, collecting nets, notebooks, and safety goggles; timing devices, including clocks and timers; non-standard measuring items such as paper clips and clothespins; weather instruments such as classroom demonstration thermometers and wind socks; and materials to support observations of habitats of organisms such as aquariums and terrariums;</p>	<p>(B) obtain information about a topic using a variety of valid visual sources such as pictures, symbols, electronic media, maps, literature, and artifacts; and</p>	<p><b>D. Current Scientific Technology</b></p> <p>3. Demonstrate appropriate use of a wide variety of apparatuses, equipment, techniques, and procedures for collecting quantitative and qualitative data</p> <p><b>III. Foundation Skills: Scientific Applications of Communication</b></p> <p><b>A. Research Skills/Information Literacy</b></p> <p>1. Use search engines, databases, and other digital electronic tools effectively to locate information.</p>	
<p><b>D) Evaluating accuracy and reliability—Learners understand the need to use reliable information to answer their questions. They are familiar with some basic factors to consider in judging the merits of information.</b></p>			<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b></p> <p><b>A. Cognitive Skills in Science</b></p> <p>1. Utilize skepticism, logic, and professional ethics in science</p> <p>4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p> <p><b>III. Foundation Skills: Scientific Applications of Communication</b></p> <p><b>D. Research skills/information literacy</b></p> <p>2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b></p> <p><b>A. Critical examinations of texts, images, and other sources of information</b></p> <p>1. Identify and analyze the main idea(s) and point(s)-of-view in sources.</p> <p>2. Situate an informational source in its appropriate contexts (contemporary, historical, cultural)</p> <p>3. Evaluate sources from multiple perspectives</p> <p>4. Understand the difference between a primary and secondary source and use each appropriately to conduct research and construct arguments</p> <p>5. Read narrative texts critically</p> <p>6. Read research data critically</p>

EE Learner Guidelines	1st Grade Science	1st Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>E) Organizing information</b>—Learners are able to describe data and organize information to search for relationships and patterns concerning the environment and environmental topics.</p>	<p><b>1.2:</b> Scientific investigation and reasoning. The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to:</p> <p>(D) record and organize data using pictures, numbers, and words</p>	<p><b>1.17:</b> Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</p> <p>(C) sequence and categorize information.</p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b>  <b>A. Cognitive Skills in Science</b>  2. Use creativity and insight to recognize and describe patterns in natural phenomena.</p> <p><b>E. Effective communication of scientific information</b>  1. Use several modes of expression to describe or characterize natural phenomena. These modes of expression include narrative, and numerical, graphical, pictorial, symbolic, and kinesthetic.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research methods</b>  3. Gather, organize, and display the results of data and research</p>
<p><b>F) Working with models and simulations</b>—Learners understand that relationships, patterns, and processes can be represented by models.</p>	<p><b>1.4:</b> Scientific investigation and reasoning. The student uses age-appropriate tools and models to investigate the natural world. The student is expected to:</p> <p>(A) collect, record, and compare information using tools, including computers, hand lenses, primary balances, cups, bowls, magnets, collecting nets, notebooks, and safety goggles; timing devices, including clocks and timers; non-standard measuring items such as paper clips and clothespins; weather instruments such as classroom demonstration thermometers and wind socks; and materials to support observations of habitats of organisms such as aquariums and terrariums; and</p> <p>(B) measure and compare organisms and objects using non-standard units.</p>	<p><b>1.5:</b> Geography. The student understands the purpose of maps and globes. The student is expected to:</p> <p>(A) create and use simple maps such as maps of the home, classroom, school, and community; and</p> <p>(B) locate the community, Texas, and the United States on maps and globes.</p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>D. Current Scientific Technology:</b>  2. Use computer models, applications, and simulations</p> <p><b>II. Foundations Skills: Scientific Application of Mathematics</b>  <b>B. Mathematics as symbolic language</b>  2. Represent natural events, processes, and relationships with algebraic expressions and algorithms</p> <p>2. Represent natural events, processes, and relationships with algebraic expressions and algorithms</p> <p><b>V. Cross Disciplinary Themes</b>  <b>E. Measurements and Models</b>  1. Use models to make predictions  2. Use scale to relate models and structures</p>	

EE Learner Guidelines	1st Grade Science	1st Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>G) Drawing conclusions and developing explanations—Learners can develop simple explanations that address their questions about the environment.</b></p>	<p><b>1.2: Scientific investigation and reasoning. The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to:</b> (E) communicate observations and provide reasons for explanations using student-generated data from simple descriptive investigations.</p> <p><b>1.3: Scientific investigation and reasoning. The student knows that information and critical thinking are used in scientific problem solving. The student is expected to:</b> (A) identify and explain a problem such as finding a home for a classroom pet and propose a solution in his/her own words;</p>		<p><b>I. Nature of Science: Scientific Ways of Thinking</b> <b>A. Cognitive Skills in Science</b> 4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b> <b>D. Reaching Conclusions</b> 1. Construct a thesis that is supported by evidence</p>
<p><b>Strand 2.1: Knowledge of Environmental Processes and Systems</b></p>				
<p><b>A) Processes that shape the Earth—Learners have a basic understanding of most of the physical processes that shape the Earth. They are able to explore the origin of differences in physical patterns.</b></p>	<p><b>1.8: Earth and space. The student knows that the natural world includes the air around us and objects in the sky. The student is expected to:</b> (A) record weather information, including relative temperature, such as hot or cold, clear or cloudy, calm or windy, and rainy or icy; (B) observe and record changes in the appearance of objects in the sky such as clouds, the Moon, and stars, including the Sun;</p> <p>(C) identify characteristics of the seasons of the year and day and night; and (D) demonstrate that air is all around us and observe that wind is moving air.</p>	<p><b>1.6 Geography. The student understands various physical and human characteristics. The student is expected to:</b> (A) identify and describe the physical characteristics of place such as landforms, bodies of water, natural resources, and weather;</p>	<p><b>IX. Earth and Space Sciences</b> <b>A. Earth Systems</b> 3. Possess a scientific understanding of the history of the Earth's systems. <b>E. Plate Tectonics</b> 1. Describe evidence that supports the current theory of plate tectonics 2. Identify major tectonic plates 3. Describe the motion and interaction of tectonic plates 4. Describe the rock cycle and its products</p>	

EE Learner Guidelines	1st Grade Science	1st Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>B) Changes in matter—Learners understand the properties of the substances that make up objects or materials found in the environment.</b></p>	<p><b>1.5: Matter and energy. The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to:</b>            (A) measure, compare, and contrast physical properties of matter, including size, mass, volume, states (solid, liquid, gas), temperature, magnetism, and the ability to sink or float;</p> <p><b>1.7: Earth and space. The student knows that the natural world includes rocks, soil, and water that can be observed in cycles, patterns, and systems. The student is expected to:</b>            (A) observe, compare, describe, and sort components of soil by size, texture, and color;</p>		<p><b>V. Cross-Disiplinary Themes</b>  <b>A. Matter/states of matter</b>            2. Understanding typical states of matter (solid, liquid, gas) and phase changes among these.  <b>VII. Chemistry</b>  <b>A. Matter and its properties</b>            1. Know that physical and chemical properties can be used to describe and classify matter. Recognize and classify pure substances (elements and compounds) and mixtures.</p> <p><b>IX. Earth and Space Systems</b>  <b>F. Energy transfer within and among systems</b>            1. Describe matter and energy transfer in the Earth's systems.            2. Give examples of effects of energy transfer within and among systems.</p>	
<p><b>C) Energy—Learners begin to grasp formal concepts related to energy by focusing on energy transfer and transformations. They are able to make connctions among the phenomena such as light, heat, magentism, electricity, and the motion of objects.</b></p>	<p><b>1.5: Matter and energy. The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to:</b>            (B) predict the changes caused by heating and cooling such as ice becoming liquid water and condensation forming on the outside of a glass of ice water; and            (C) compare and contrast a variety of mixtures and solutions such as rocks in sand, sand in water, or sugar in water.</p>		<p><b>V. Cross-Disciplinary Themes</b>  <b>B. Energy (thermodynamics, kinetic, potential, energy transfers)</b>            1. Unerstand the Laws of Thermodynamics            2. Know the processes of energy transfer  <b>VI. Biology</b>  <b>G. Ecology</b>            2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p>	

EE Learner Guidelines	1st Grade Science	1st Grade Social Studies	CCRS Science	CCRS Social Studies
	<p><b>1.6: Force, motion, and energy. The student knows that energy exists in many forms and can be observed in cycles, patterns, and systems. The student is expected to:</b></p> <p>(A) differentiate among forms of energy, including mechanical, sound, electrical, light, and heat/thermal;</p> <p>(B) differentiate between conductors and insulators;</p> <p>(C) demonstrate that electricity travels in a closed path, creating an electrical circuit, and explore an electromagnetic field; and</p> <p>(D) design an experiment to test the effect of force on an object such as a push or a pull, gravity, friction, or magnetism.</p>		<p><b>VII. Chemistry</b></p> <p><b>H. Thermochemistry</b></p> <ol style="list-style-type: none"> <li>Understand the Law of Conservation of Energy and processes of heat transfer.</li> <li>Understand energy changes and chemical reactions</li> </ol> <p><b>VIII. Physics</b></p> <p><b>C. Force and Motion</b></p> <ol style="list-style-type: none"> <li>Understand the fundamental concepts of kinematics</li> <li>Understand forces and Newton's Law,</li> <li>Understand the concept of momentum.</li> </ol> <p><b>D. Mechanical Energy</b></p> <ol style="list-style-type: none"> <li>Understand potential and kinetic energy.</li> <li>Understand conservation of energy</li> <li>Understand relationship of work and mechanical energy</li> </ol> <p><b>X. Environmental Science</b></p> <p><b>B. Energy</b></p> <ol style="list-style-type: none"> <li>Understand energy transformations</li> <li>Know various sources of energy for humans and other biological systems</li> </ol>	
<b>Strand 2.2: The Living Environment</b>				
<p><b>A) Organisms, populations, and communities—Learners understand that biotic communities are made up of plants and animals that are adapted to live in particular environments.</b></p>	<p><b>1.9: Organisms and environments. The student knows that the living environment is composed of relationships between organisms and the life cycles that occur. The student is expected to:</b></p>		<p><b>VI. Biology</b></p> <p><b>G. Ecology</b></p> <ol style="list-style-type: none"> <li>Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.</li> </ol>	

EE Learner Guidelines	1st Grade Science	1st Grade Social Studies	CCRS Science	CCRS Social Studies
	<p>(A) sort and classify living and nonliving things based upon whether or not they have basic needs and produce offspring;(B) analyze and record examples of interdependence found in various situations such as terrariums and aquariums or pet and caregiver; and (C) gather evidence of interdependence among living organisms such as energy transfer through food chains and animals using plants for shelter.</p> <p><b>1.10: Organisms and environments. The student knows that organisms resemble their parents and have structures and processes that help them survive within their environments. The student is expected to:</b> (A) investigate how the external characteristics of an animal are related to where it lives, how it moves, and what it eats;</p>		<p>2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p>	
<p><b>B) Heredity and evolution—Learners have a basic understanding of the importance of genetic heritage.</b></p>	<p><b>1.10: Organisms and environments. The student knows that organisms resemble their parents and have structures and processes that help them survive within their environments. The student is expected to:</b> (C) compare ways that young animals resemble their parents; and (D) observe and record life cycles of animals such as a chicken, frog, or fish.</p>		<p><b>VI. Biology</b> <b>C. Evolution and populations</b> 1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms. 2. Recognize variations in population sizes, including extinction, and describe mechanisms and conditions that produce these variations.</p>	

EE Learner Guidelines	1st Grade Science	1st Grade Social Studies	CCRS Science	CCRS Social Studies
			<p><b><i>D. Molecular genetics and heredity</i></b></p> <ol style="list-style-type: none"> <li>1. Understand Mendel's Law of inheritance,</li> <li>2. Know modifications of Mendel's Law,</li> <li>3. Understand the molecular structure and functions of nucleic acids</li> <li>4. Understand simple principles of population genetics and describe characteristics of Hardy-Weinberg population.</li> <li>5. Describe the major features of meiosis and relate this process to Mendel's law of inheritance.</li> </ol>	
<p><b>C) Systems and connections—Learners understand major kinds of interactions among organisms or populations of organisms.</b></p>	<p><b>1.9: Organisms and environments. The student knows that the living environment is composed of relationships between organisms and the life cycles that occur. The student is expected to:</b></p> <p>(B) analyze and record examples of interdependence found in various situations such as terrariums and aquariums or pet and caregiver; and</p> <p>(C) gather evidence of interdependence among living organisms such as energy transfer through food chains and animals using plants for shelter.</p> <p><b>1.10: Organisms and environments. The student knows that organisms resemble their parents and have structures and processes that help them survive within their environments. The student is expected to:</b></p>		<p><b>IV. Biology</b></p> <p><b><i>C. Evolution and populations</i></b></p> <ol style="list-style-type: none"> <li>1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.</li> </ol> <p><b><i>G. Ecology</i></b></p> <ol style="list-style-type: none"> <li>1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.</li> <li>2. Know patterns of energy flow and material cycling in Earth's ecosystems.</li> </ol>	

EE Learner Guidelines	1st Grade Science	1st Grade Social Studies	CCRS Science	CCRS Social Studies
	<p>(A) investigate how the external characteristics of an animal are related to where it lives, how it moves, and what it eats;</p> <p>(B) identify and compare the parts of plants;</p>		<p>3. Understand typical forms of organismal behavior</p> <p>4. Know the process of succession</p> <p><b>X. Environmental Science</b></p> <p><b>A. Earth Systems</b></p> <p>5. Be familiar with the Earth's major biomes</p>	
<p><b>D) Flow of matter and energy—Learners understand how energy and matter flow among the abiotic and biotic components of the environment.</b></p>	<p><b>1.9: Organisms and environments. The student knows that the living environment is composed of relationships between organisms and the life cycles that occur. The student is expected to:</b></p> <p>(A) sort and classify living and nonliving things based upon whether or not they have basic needs and produce offspring;</p> <p>(B) analyze and record examples of interdependence found in various situations such as terrariums and aquariums or pet and caregiver; and</p> <p>(C) gather evidence of interdependence among living organisms such as energy transfer through food chains and animals using plants for shelter.</p>		<p><b>V. Biology</b></p> <p><b>B. Biochemistry</b></p> <p>3. Describe the major features and chemical events of photosynthesis</p> <p>4. Describe the major features and chemical events of cellular respiration</p> <p>5. Know how organisms respond to the presence or absence of oxygen, including mechanisms of fermentation</p> <p><b>G. Ecology</b></p> <p>2. Know the patterns of energy flow and material cycling in Earth's ecosystems.</p> <p><b>X. Environmental Science</b></p> <p><b>B. Energy</b></p> <p>1. Understanding energy transformations</p> <p>2. Know the various sources of energy for humans and other biological systems</p>	
<b>Strand 2.3: Humans and Their Societies</b>				
<p><b>A) Individuals and groups—Learners understand that how individuals perceive the environment is influenced in part by individual traits and group membership or affiliations.</b></p>				<p><b>I. Interrelated Disciplines and Skills</b></p> <p><b>A. Spatial analysis of physical and cultural processes that shape the human experience</b></p> <p>2. Analyze the interaction between human communities and the environment.</p>

EE Learner Guidelines	1st Grade Science	1st Grade Social Studies	CCRS Science	CCRS Social Studies
				<p><b>II. Diverse Human Perspectives</b>  <b>B. Factors that influence personal and group identities (e.g. race, ethnicity, gender, nationalist, institutional affiliations, socioeconomic status)</b></p> <p>6. Analyze how individual and group identities are established and changes over time.</p>
<p><b>B) Culture—As they become familiar with a wider range of cultures and subcultures, learners gain an understanding of cultural perspectives on the environment and how the environment may, in turn, influence culture.</b></p>		<p><b>1.6. Geography. The student understands various physical and human characteristics. The student is expected to:</b>  (C) identify and describe how the human characteristics of place such as shelter, clothing, food, and activities are based upon geographic location.</p> <p><b>1.15. Culture. The student understands the importance of family and community beliefs, customs, language, and traditions. The student is expected to:</b>  (A) describe and explain the importance of various beliefs, customs, language, and traditions of families and communities; and  (B) explain the way folktales and legends such as Aesop's fables reflect beliefs, customs, language, and traditions of communities.</p>		<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical processes that shape the human experience.</b></p> <p>2. Analyze the interaction between human communities and the environment.</p> <p>3. Analyze how physical and cultural processes have shaped human communities over time.</p> <p>5. Analyze how various cultural regions of changed over time.</p> <p>6. Analyze the relationship between geography and the development of human communities.</p>
<p><b>C) Political and economic systems—Learners become more familiar with political and economic systems and how these systems take the environment into consideration.</b></p>		<p><b>1.7: Economics. The student understands how families meet basic human needs. The student is expected to:</b>  (A) describe ways that families meet basic human needs; and</p>	<p><b>X. Environmental Science</b>  <b>D. Economics and politics</b></p> <p>1. name and describe major environmental policies and legislation</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>C. Change and continuity of political ideologies, constitutions and political behaviour.</b></p>

EE Learner Guidelines	1st Grade Science	1st Grade Social Studies	CCRS Science	CCRS Social Studies
		(B) describe similarities and differences in ways families meet basic human needs.	2. Understand the types, uses, and regulations of various natural resources	1. Evaluate different governmental systems and functions <b><i>D. Change and continuity of economic systems and processes.</i></b> 1. Identify and evaluate the strengths and weaknesses of different economic systems.
<b>D) Global connections—Learners become familiar with ways in which the world's environmental, social, economic, cultural and political systems are linked.</b>				<b>III. Interdependence of Global Communities</b> <b><i>A. Spatial understanding of global, regional, national, and local communities.</i></b> 1. Distinguish spatial patterns of human communities that exist between or within contemporary political boundaries. 2. Connect regional or local developments to global ones. 3. Analyze how and why diverse communities interact and become dependent on each other.
<b>E) Change and conflict—Learners understand the human social systems change over time and that conflicts sometimes arise over differing and changing viewpoints about the environment.</b>				<b>I. Interrelated disciplines and Skills</b> <b><i>E. Change and continuity of social groups, civic organizations, institutions, and their interaction.</i></b> 4. Identify and evaluate the sources and consequences of social conflict.
<b>Strand 2.4: Environment and Society</b>				
<b>A) Human/environment interactions—Learners understand that human-caused change have consequences for the immediate environment as well as for other places and future times.</b>			<b>X. Environmental Science</b> <b><i>E. Human practices and their impacts</i></b> 1. Describe the different uses for land (land management) 2. Understand the use and consequences of pest management	<b>I. Interrelated Disciplines and Skills</b> <b><i>A. Spatial analysis of physical and cultural processes that shape the human experience</i></b> 2. Analyze the interaction between human communities and the environment.

EE Learner Guidelines	1st Grade Science	1st Grade Social Studies	CCRS Science	CCRS Social Studies
			3. Know the different methods used to increase food production 4. Understand land and water usage and management practices 5. Understand how human practices affect air, water, and soil quality	4. Evaluate the causes and effects of human migration patterns over time 6. Analyze the relationship between geography and the development of human communities.
<b>B) Places—Learners begin to explore the meaning of place both close to home and around the world.</b>		<b>1.5 Geography. The student understands the purpose of maps and globes. The student is expected to:</b> (A) create and use simple maps such as maps of the home, classroom, school, and community; and (B) locate the community, Texas, and the United States on maps and globes.  <b>1.6 Geography. The student understands various physical and human characteristics. The student is expected to:</b> (A) identify and describe the physical characteristics of place such as landforms, bodies of water, natural resources, and weather;  (B) identify examples of and uses for natural resources in the community, state, and nation; and (C) identify and describe how the human characteristics of place such as shelter, clothing, food, and activities are based upon geographic location.		<b>I. Interrelated Disciplines and Skills</b> <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b> 2. Analyze the interaction between human communities and the environment.  <b>III. Interdependence of Global Communities</b> <b>A. Spatial understanding of global, regional, national, and local communities.</b> 1. Distinguish spatial patterns of human communities that exist between or within contemporary boundaries. 2. Connect regional or local development to global ones. 3. Analyze how and why diverse communities interact and become dependent on each other.

EE Learner Guidelines	1st Grade Science	1st Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>C) Resources—Learners understand uneven distribution of resources influences their use and perceived value.</b></p>	<p><b>1.1: Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures and uses environmentally appropriate and responsible practices. The student is expected to:</b></p> <p>(C) identify and learn how to use natural resources and materials, including conservation and reuse or recycling of paper, plastic, and metals.</p> <p><b>1.7: Earth and space. The student knows that the natural world includes rocks, soil, and water that can be observed in cycles, patterns, and systems. The student is expected to:</b></p> <p>(B) identify and describe a variety of natural sources of water, including streams, lakes, and oceans; and (C) gather evidence of how rocks, soil, and water help to make useful products.</p>	<p><b>1.6 Geography. The student understands various physical and human characteristics. The student is expected to:</b></p> <p>(A) identify and describe the physical characteristics of place such as landforms, bodies of water, natural resources, and weather;</p> <p>(B) identify examples of and uses for natural resources in the community, state, and nation; and</p> <p>(C) identify and describe how the human characteristics of place such as shelter, clothing, food, and activities are based upon geographic location.</p>		
<p><b>D) Technology—Learners understand the human ability to shape and control the environment as a function of the capacities for creating knowledge and developing new technologies.</b></p>		<p><b>1.13. Science, technology, and society. The student understands ways technology is used in the home and school and how technology affects people's lives. The student is expected to:</b></p> <p>(A) identify examples of technology used in the home and school; (B) describe how technology helps accomplish specific tasks and meet people's needs; and</p>		

EE Learner Guidelines	1st Grade Science	1st Grade Social Studies	CCRS Science	CCRS Social Studies
		(C) describe how his or her life might be different without modern technology.		
<p><b>E) Environmental issues</b>—Learners are familiar with a range of environmental issues at scales that range from local to national to global. They understand that people in other places around the world experience environmental issues similar to the ones they are concerned about locally.</p>	<p><b>1.1:</b> Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures and uses environmentally appropriate and responsible practices. The student is expected to:</p>	<p><b>1.19 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive skills in science</b>  2. Use creativity and insight to recognize and describe patterns in natural phenomena  2. Understand the usa and consequence of pest management</p>	
	<p>(C) identify and learn how to use natural resources and materials, including conservation and reuse or recycling of paper, plastic, and metals.</p>	<p>(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution; and</p> <p>(B) use a decision-making process to identify a situation that requires a decision, gather information, generate options, predict outcomes, take action to implement a decision, and reflect on the effectiveness of that decision.</p>	<p><b>X. Environmental Science</b>  <b>E. Human practices and their impacts</b>  1. Describe the different uses for land (land management)  2. Understand the usa and consequence of pest management  3. Know the different method used to increase food production  4. Understand land and water usage and management practices  5. Understand how human practices affect air, water, and soil quality</p>	
<p><b>Strand 3: Skills for Understanding and Addressing Environmental Issues</b></p>				
<p><b>Strand 3.1: Skills for Analyzing and Investigating Environmental Issues</b></p>				
<p><b>A) Identifying and investigating issues</b>—Learners are able to use primary and secondary sources of information, and apply growing research and analytical skills, to investigate environmental issues, beginning in their own community.</p>	<p><b>1.3:</b> Scientific investigation and reasoning. The student knows that information and critical thinking are used in scientific problem solving. The student is expected to:</p>	<p><b>1.17: Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b></p>	<p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>  2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	

EE Learner Guidelines	1st Grade Science	1st Grade Social Studies	CCRS Science	CCRS Social Studies
	(A) identify and explain a problem such as finding a home for a classroom pet and propose a solution in his/her own words;	(A) obtain information about a topic using a variety of valid oral sources such as conversations, interviews, and music; (B) obtain information about a topic using a variety of valid visual sources such as pictures, symbols, electronic media, maps, literature, and artifacts; and		
<b>B) Sorting out the consequences of issues—Learners are able to apply their knowledge of ecological and human processes and systems to identify the consequences of specific environmental issues.</b>	<b>1.3: Scientific investigation and reasoning. The student knows that information and critical thinking are used in scientific problem solving. The student is expected to:</b>	<b>1.19 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b>	<b>IV. Science, Technology, and Society</b> <b>B. Social ethics</b> 1. Understand how scientific research and technology have an impact on ethical and legal practices	
	(A) identify and explain a problem such as finding a home for a classroom pet and propose a solution in his/her own words; (B) make predictions based on observable patterns;	(B) use a decision-making process to identify a situation that requires a decision, gather information, generate options, <i>predict outcomes</i> , take action to implement a decision, and reflect on the effectiveness of that decision.		
<b>C) Identifying and evaluating alternative solutions and courses of action—Learners are able to identify and develop action strategies for addressing particular issues.</b>		<b>1.19 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b>	<b>IV. Science, Technology, and Society</b> <b>B. Social ethics</b> 1. Understand how scientific research and technology have an impact on ethical and legal practices 2. Understand how commonly held ethical beliefs impact scientific research	

EE Learner Guidelines	1st Grade Science	1st Grade Social Studies	CCRS Science	CCRS Social Studies
		(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution;		
<b>D) Working with flexibility, creativity, and openness—Learners are able to consider the assumptions and interpretations that influence the conclusions they and others draw about environmental issues.</b>			<b>III. Foundation Skills: Scientific Applications of Communication</b> <b>D. Research skills/information literacy</b> 2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.	
<b>Strand 3.2: Decision Making and Citizenship Skills</b>				
<b>A) Forming and evaluating personal views—Learners are able to identify, justify, and clarify their views on environmental issues and alternative ways to address them.</b>	<b>1.3: Scientific investigation and reasoning. The student knows that information and critical thinking are used in scientific problem solving. The student is expected to:</b> (A) identify and explain a problem such as finding a home for a classroom pet and propose a solution in his/her own words; (B) make predictions based on	<b>1.18 Social studies skills. The student communicates in oral, visual, and written forms. The student is expected to:</b> (A) express ideas orally based on knowledge and experiences;		
<b>B) Evaluating the need for citizen action—Learners are able to evaluate whether they believe action is needed in particular situations, and decide whether they should be involved.</b>		<b>1.19 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b> (B) use a decision-making process to identify a situation that requires a decision, gather information, generate options, predict outcomes, take action to implement a decision, and reflect on the effectiveness of that decision.		

EE Learner Guidelines	1st Grade Science	1st Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>C) Planning and taking action—As learners begin to see themselves as citizens taking active roles in their communities, they are able to plan for and engage in citizen action at levels appropriate to their maturity and preparation.</b></p>		<p><b>1.19 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b>            (B) use a decision-making process to identify a situation that requires a decision, gather information, generate options, predict outcomes, take action to implement a decision, and reflect on the effectiveness of that decision.</p>		
<p><b>D) Evaluating the results of actions—Learners are able to analyze the effects of their own actions and actions taken by other individuals and groups.</b></p>		<p><b>1.19 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b>            (A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution;</p>		
<b>Strand 4: Personal and Civic Responsibility</b>				
<p><b>A) Understanding societal values and principles—Learners understand that societal values can be both a unifying and a divisive force</b></p>		<p><b>K.11 Government. The student understands the purpose of rules and laws. The student is expected to:</b>            (A) explain the purpose for rules and laws in the home, school, and community; and            (B) identify rules and laws that establish order, provide security, and manage conflict.</p>	<p><b>IV. Science, Technology, and Society</b>  <b>B. Social Ethics</b>            1. Understand how scientific research and technology have an impact on ethical and legal practices.            2. Understand how commonly held ethical beliefs impact scientific research.</p>	

EE Learner Guidelines	1st Grade Science	1st Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>B) Recognizing citizens' rights and responsibilities—Learners understand the rights and responsibilities of citizenship and their importance in promoting the resolution of environmental issues.</b></p>	<p><b>1.1: Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures and uses environmentally appropriate and responsible practices. The student is expected to:</b>            (C) identify and learn how to use natural resources and materials, including conservation and reuse or recycling of paper, plastic, and metals.</p>	<p><b>K.12 Government. The student understands the role of authority figures, public officials, and citizens. The student is expected to:</b>            (A) identify the responsibilities of authority figures in the home, school, and community;            (B) identify and describe the roles of public officials in the community, state, and nation; and            (C) identify and describe the role of a good citizen in maintaining a constitutional republic.</p>		
<p><b>C) Recognizing efficacy—Learners possess a realistic self-confidence in their effectiveness as citizens.</b></p>		<p><b>K.14 Citizenship. The student understands important symbols, customs, and celebrations that represent American beliefs and principles and contribute to our national identity. The student is expected to:</b>            (A) explain state and national patriotic symbols, including the United States and Texas flags, the Liberty Bell, the Statue of Liberty, and the Alamo;            (B) recite and explain the meaning of the Pledge of Allegiance to the United States Flag and the Pledge to the Texas Flag;            (C) identify anthems and mottoes of Texas and the United States;            (D) explain and practice voting as a way of making choices and decisions;</p>		

EE Learner Guidelines	1st Grade Science	1st Grade Social Studies	CCRS Science	CCRS Social Studies
		(E) explain how patriotic customs and celebrations reflect American individualism and freedom; and (F) identify Constitution Day as a celebration of American freedom.		
<b>D) Accepting personal responsibility—Learners understand that their actions can have broad consequences and they they are responsible for those consequences.</b>				

## EE-TEKS-CCRS CROSSWALK

*Alignment of the Excellence in Environmental Education: Guidelines for Learning (NAAEE) the Texas Essential Knowledge and Skills, & College & Career Readiness Science & Social Studies Standards*

EE Learner Guidelines	2nd Grade Science	2nd Grade Social Studies	CCRS Science	CCRS Social Studies
<b>Strand 1: Questioning, Analysis &amp; Interpretation Skills</b>				
<b>A) Questioning—Learners are able to develop questions that help them learn about the environment and do simple investigations.</b>	<b>2.2: Scientific investigation and reasoning. The student develops abilities necessary to do scientific inquiry in classroom and outdoor investigations. The student is expected to:</b> (A) ask questions about organisms, objects, and events during observations and investigations; (B) plan and conduct descriptive investigations such as how organisms grow;		<b>I. Nature of Science: Scientific Ways of Learning and Thinking</b> <b>A. Cognitive skills in science</b> 3. Formulate appropriate questions to test understanding of natural phenomena.	<b>I. Interrelated Disciplines and Skills</b> <b>F. Problems solving</b> 1. Use a variety of research and analytical tools to explore questions or issues thoroughly and fairly.
<b>B) Designing investigations—Learners are able to design simple investigations.</b>	<b>2.2: Scientific investigation and reasoning. The student develops abilities necessary to do scientific inquiry in classroom and outdoor investigations. The student is expected to:</b> (B) plan and conduct descriptive investigations such as how organisms grow;		<b>I. Nature of Science: Scientific Ways of Learning and Thinking</b> <b>B. Scientific Inquiry</b> 1. Design and conduct scientific investigations in which hypotheses are formulated and tested	<b>IV. Analysis, Synthesis, and Evaluation of Information</b> <b>B. Research and methods</b> 1. Use established research methodologies
<b>C) Collecting information—Learners are able to locate and collect information about the environment and environmental topics.</b>	<b>2.2: Scientific investigation and reasoning. The student develops abilities necessary to do scientific inquiry in classroom and outdoor investigations. The student is expected to:</b> (C) collect data and make observations using simple equipment such as hand lenses, primary balances, and non-standard measurement tools;	<b>2.18 Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b>	<b>I. Scientific Ways of Learning and Thinking</b> <b>A. Cognitive Skills in science</b> 4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.	<b>IV. Analysis, Synthesis, and Evaluation of Information</b> <b>B. Research and methods</b> 3. Gather, organize and display the results of data and research 4. Identify and collect sources

EE Learner Guidelines	2nd Grade Science	2nd Grade Social Studies	CCRS Science	CCRS Social Studies
	<p><b>2.4: Scientific investigation and reasoning. The student uses age-appropriate tools and models to investigate the natural world. The student is expected to:</b></p> <p>(A) collect, record, and compare information using tools, including computers, hand lenses, rulers, primary balances, plastic beakers, magnets, collecting nets, notebooks, and safety goggles; timing devices, including clocks and stopwatches; weather instruments such as thermometers, wind vanes, and rain gauges; and materials to support observations of habitats of organisms such as terrariums and aquariums;</p>	<p>(A) obtain information about a topic using a variety of valid oral sources such as conversations, interviews, and music;</p> <p>(B) obtain information about a topic using a variety of valid visual sources such as pictures, maps, electronic sources, literature, reference sources, and artifacts;</p>	<p><b>D. Current Scientific Technology</b></p> <p>3. Demonstrate appropriate use of a wide variety of apparatuses, equipment, techniques, and procedures for collecting quantitative and qualitative data</p> <p><b>III. Foundation Skills: Scientific Applications of Communication</b></p> <p><b>A. Research Skills/Information Literacy</b></p> <p>1. Use search engines, databases, and other digital electronic tools effectively to locate information.</p>	
<p><b>D) Evaluating accuracy and reliability—Learners understand the need to use reliable information to answer their questions. They are familiar with some basic factors to consider in judging the merits of information.</b></p>	<p><b>2.2: Scientific investigation and reasoning. The student develops abilities necessary to do scientific inquiry in classroom and outdoor investigations. The student is expected to:</b></p> <p>(E) communicate observations and justify explanations using student-generated data from simple descriptive investigations; and</p> <p>(F) compare results of investigations with what students and scientists know about the world.</p> <p><b>2.2: Scientific investigation and reasoning. The student develops abilities necessary to do scientific inquiry in classroom and outdoor investigations. The student is expected to:</b></p>	<p><b>2.18: Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b></p> <p>(B) obtain information about a topic using a variety of valid visual sources such as pictures, maps, electronic sources, literature, reference sources, and artifacts;</p> <p>(E) interpret oral, visual, and print material by identifying the main idea, predicting, and comparing and contrasting.</p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b></p> <p><b>A. Cognitive Skills in Science</b></p> <p>1. Utilize skepticism, logic, and professional ethics in science</p> <p>4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p> <p><b>III. Foundation Skills: Scientific Applications of Communication</b></p> <p><b>D. Research skills/information literacy</b></p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b></p> <p><b>A. Critical examinations of texts, images, and other sources of information</b></p> <p>1. Identify and analyze the main idea(s) and point(s)-of-view in sources.</p> <p>2. Situate an informational source in its appropriate contexts (contemporary, historical, cultural)</p> <p>3. Evaluate sources from multiple perspectives</p> <p>4. Understand the difference between a primary and secondary source and use each appropriately to conduct research and construct arguments</p>

EE Learner Guidelines	2nd Grade Science	2nd Grade Social Studies	CCRS Science	CCRS Social Studies
	(E) communicate observations and justify explanations using student-generated data from simple descriptive investigations; and (F) compare results of investigations with what students and scientists know about the world.		2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.	5. Read narrative texts critically 6. Read research data critically
<p><b>E) Organizing information—Learners are able to describe data and organize information to search for relationships and patterns concerning the environment and environmental topics.</b></p>	<p><b>2.2: Scientific investigation and reasoning. The student develops abilities necessary to do scientific inquiry in classroom and outdoor investigations. The student is expected to:</b> (D) record and organize data using pictures, numbers, and words; (F) compare results of investigations with what students and scientists know about the world.</p> <p><b>2.3: Scientific investigation and reasoning. The student knows that information and critical thinking, scientific problem solving, and the contributions of scientists are used in making decisions. The student is expected to:</b> (A) identify and explain a problem in his/her own words and propose a task and solution for the problem such as lack of water in a habitat;</p> <p><b>2.8: Earth and space. The student knows that there are recognizable patterns in the natural world and among objects in the sky. The student is expected to:</b></p>	<p><b>2.18: Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b> (D) sequence and categorize information; and</p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b> <b>A. Cognitive Skills in Science</b> 2. Use creativity and insight to recognize and describe patterns in natural phenomena.</p> <p><b>E. Effective communication of scientific information</b> 1. Use several modes of expression to describe or characterize natural phenomena. These modes of expression include narrative, and numerical, graphical, pictorial, symbolic, and kinesthetic.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b> <b>B. Research methods</b> 3. Gather, organize, and display the results of data and research</p>

EE Learner Guidelines	2nd Grade Science	2nd Grade Social Studies	CCRS Science	CCRS Social Studies
	(A) measure, record, and graph weather information, including temperature, wind conditions, precipitation, and cloud coverage, in order to identify patterns in the data;			
<p><b>F) Working with models and simulations—Learners understand that relationships, patterns, and processes can be represented by models.</b></p>	<p><b>2.4: Scientific investigation and reasoning. The student uses age-appropriate tools and models to investigate the natural world. The student is expected to:</b></p> <p>(A) collect, record, and compare information using tools, including computers, hand lenses, rulers, primary balances, plastic beakers, magnets, collecting nets, notebooks, and safety goggles; timing devices, including clocks and stopwatches; weather instruments such as thermometers, wind vanes, and rain gauges; and materials to support observations of habitats of organisms such as terrariums and aquariums; and</p> <p>(B) measure and compare organisms and objects using non-standard units that approximate metric units.</p>	<p><b>2.5: Geography. The student uses simple geographic tools such as maps and globes. The student is expected to:</b></p> <p>(A) interpret information on maps and globes using basic map elements such as title, orientation (north, south, east, west), and legend/map keys; and</p> <p>(B) create maps to show places and routes within the home, school, and community.</p> <p><b>2.6: Geography. The student understands the locations and characteristics of places and regions in the community, state, and nation. The student is expected to:</b></p> <p>(A) identify major landforms and bodies of water, including each of the continents and each of the oceans, on maps and globes;</p> <p>(B) locate places of significance, including the local community, Texas, the state capital, the U.S. capital, major cities in Texas, the coast of Texas, Canada, Mexico, and the United States on maps and globes;</p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>D. Current Scientific Technology:</b>  2. Use computer models, applications, and simulations</p> <p><b>II. Foundations Skills: Scientific Application of Mathematics</b>  <b>B. Mathematics as symbolic language</b>  2. Represent natural events, processes, and relationships with algebraic expressions and algorithms</p> <p><b>V. Cross Disciplinary Themes</b>  <b>E. Measurements and Models</b>  1. Use models to make predictions  2. Use scale to relate models and structures</p>	

EE Learner Guidelines	2nd Grade Science	2nd Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>G) Drawing conclusions and developing explanations—Learners can develop simple explanations that address their questions about the environment.</b></p>	<p><b>2.3: Scientific investigation and reasoning. The student knows that information and critical thinking, scientific problem solving, and the contributions of scientists are used in making decisions. The student is expected to:</b></p> <p>(A) identify and explain a problem in his/her own words and propose a task and solution for the problem such as lack of water in a habitat;            (B) make predictions based on observable patterns;</p>		<p><b>I. Nature of Science: Scientific Ways of Thinking</b>  <b>A. Cognitive Skills in Science</b>            4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>D. Reaching Conclusions</b>            1. Construct a thesis that is supported by evidence</p>

**Strand 2.1: Knowledge of Environmental Processes and Systems**

<p><b>A) Processes that shape the Earth—Learners have a basic understanding of most of the physical processes that shape the Earth. They are able to explore the origin of differences in physical patterns.</b></p>	<p><b>2.8: Earth and space. The student knows that there are recognizable patterns in the natural world and among objects in the sky. The student is expected to:</b></p> <p>(A) measure, record, and graph weather information, including temperature, wind conditions, precipitation, and cloud coverage, in order to identify patterns in the data;            (B) identify the importance of weather and seasonal information to make choices in clothing, activities, and transportation;</p> <p>(C) explore the processes in the water cycle, including evaporation, condensation, and precipitation, as connected to weather conditions; and            (D) observe, describe, and record patterns of objects in the sky, including the appearance of the Moon.</p>	<p><b>2.6 Geography. The student understands the locations and characteristics of places and regions in the community, state, and nation. The student is expected to:</b></p> <p>(A) identify major landforms and bodies of water, including each of the continents and each of the oceans, on maps and globes;</p>	<p><b>IX. Earth and Space Sciences</b>  <b>A. Earth Systems</b>            3. Possess a scientific understanding of the history of the Earth's systems.  <b>E. Plate Tectonics</b>            1. Describe evidence that supports the current theory of plate tectonics            2. Identify major tectonic plates            3. Describe the motion and interaction of tectonic plates            4. Describe the rock cycle and its products</p>	
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EE Learner Guidelines	2nd Grade Science	2nd Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>B) Changes in matter—Learners understand the properties of the substances that make up objects or materials found in the environment.</b></p>	<p><b>2.5: Matter and energy. The student knows that matter has physical properties and those properties determine how it is described, classified, changed, and used. The student is expected to:</b>            (A) classify matter by physical properties, including shape, relative mass, relative temperature, texture, flexibility, and whether material is a solid or liquid;</p> <p><b>2.7: Earth and space. The student knows that the natural world includes earth materials. The student is expected to:</b>            (A) observe and describe rocks by size, texture, and color;            (B) identify and compare the properties of natural sources of freshwater and saltwater; and            (C) distinguish between natural and manmade resources.</p>		<p><b>V. Cross-Disiplinary Themes</b>  <b>A. Matter/states of matter</b>            2. Understanding typical states of matter (solid, liquid, gas) and phase changes among these.</p> <p><b>VII. Chemistry</b>  <b>A. Matter and its properties</b>            1. Know that physical and chemical properties can be used to describe and classify matter. Recognize and classify pure substances (elements and compounds) and mixtures.</p> <p><b>IX. Earth and Space Systems</b>  <b>F. Energy transfer within and among systems</b>            1. Describe matter and energy transfer in the Earth's systems.            2. Give examples of effects of energy transfer within and among systems.</p>	
<p><b>C) Energy—Learners begin to grasp formal concepts related to energy by focusing on energy transfer and transformations. They are able to make conncections among the phenomena such as light, heat, magentism, electricity, and the motion of objects.</b></p>	<p><b>2.5: Matter and energy. The student knows that matter has physical properties and those properties determine how it is described, classified, changed, and used. The student is expected to:</b>            (B) compare changes in materials caused by heating and cooling;            (C) demonstrate that things can be done to materials to change their physical properties such as cutting, folding, sanding, and melting; and</p>		<p><b>V. Cross-Disciplinary Themes</b>  <b>B. Energy (thermodynamics, kinetic, potential, energy transfers )</b>            1. Unerstand the Laws of Thermodynamics            2. Know the processes of energy transfer</p>	

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	<p>(D) combine materials that when put together can do things that they cannot do by themselves such as building a tower or a bridge and justify the selection of those materials based on their physical properties.</p> <p><b>2.6: Force, motion, and energy. The student knows that forces cause change and energy exists in many forms. The student is expected to:</b></p> <p>(A) investigate the effects on an object by increasing or decreasing amounts of light, heat, and sound energy such as how the color of an object appears different in dimmer light or how heat melts butter;</p> <p>(B) observe and identify how magnets are used in everyday life;</p> <p>(C) trace the changes in the position of an object over time such as a cup rolling on the floor and a car rolling down a ramp; and</p> <p>(D) compare patterns of movement of objects such as sliding, rolling, and spinning.</p>		<p><b>VI. Biology</b>  <b>G. Ecology</b>  2. Know patterns of energy flow and material cycling in Earth's ecosystems.  <b>VII. Chemistry</b>  <b>H. Thermochemistry</b>  1. Understand the Law of Conservation of Energy and processes of heat transfer.  2. Understand energy changes and chemical reactions</p> <p><b>VIII. Physics</b>  <b>C. Force and Motion</b>  1. Understand the fundamental concepts of kinematics  2. Understand forces and Newton's Law,  3. Understand the concept of momentum.</p> <p><b>D. Mechanical Energy</b>  1. Understand potential and kinetic energy.  2. Understand conservation of energy  3. Understand relationship of work and mechanical energy</p> <p><b>X. Environmental Science</b>  <b>B. Energy</b>  1. Understand energy transformations  2. Know various sources of energy for humans and other biological systems</p>	

EE Learner Guidelines	2nd Grade Science	2nd Grade Social Studies	CCRS Science	CCRS Social Studies
<b>Strand 2.2: The Living Environment</b>				
<p><b>A) Organisms, populations, and communities—Learners understand that biotic communities are made up of plants and animals that are adapted to live in particular environments.</b></p>	<p><b>2.9: Organisms and environments. The student knows that living organisms have basic needs that must be met for them to survive within their environment. The student is expected to:</b>            (A) identify the basic needs of plants and animals;             (B) identify factors in the environment, including temperature and precipitation, that affect growth and behavior such as migration, hibernation, and dormancy of living things; and            (C) compare and give examples of the ways living organisms depend on each other and on their environments such as food chains within a garden, park, beach, lake, and wooded area.</p> <p><b>2.10: Organisms and environments. The student knows that organisms resemble their parents and have structures and processes that help them survive within their environments. The student is expected to:</b>            (A) observe, record, and compare how the physical characteristics and behaviors of animals help them meet their basic needs such as fins help fish move and balance in the water;             (B) observe, record, and compare how the physical characteristics of plants help them meet their basic needs such as stems carry water throughout the plant;</p>		<p><b>VI. Biology</b>  <b>G. Ecology</b>            1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.            2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p>	

EE Learner Guidelines	2nd Grade Science	2nd Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>B) Heredity and evolution—Learners have a basic understanding of the importance of genetic heritage.</b></p>			<p><b>VI. Biology</b>  <b>C. Evolution and populations</b>            1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.            2. Recognize variations in population sizes, including extinction, and describe mechanisms and conditions that produce these variations.</p> <p><b>D. Molecular genetics and heredity</b>            1. Understand Mendel's Law of inheritance,            2. Know modifications of Mendel's Law,            3. Understand the molecular structure and functions of nucleic acids            4. Understand simple principles of population genetics and describe characteristics of Hardy-Weinberg population.            5. Describe the major features of meiosis and relate this process to Mendel's law of inheritance.</p>	
<p><b>C) Systems and connections—Learners understand major kinds of interactions among organisms or populations of organisms.</b></p>	<p><b>2.9: Organisms and environments. The student knows that living organisms have basic needs that must be met for them to survive within their environment. The student is expected to:</b>            (C) compare and give examples of the ways living organisms depend on each other and on their environments such as food chains within a garden, park, beach, lake, and wooded area.</p>		<p><b>IV. Biology</b>  <b>C. Evolution and populations</b>            1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.  <b>G. Ecology</b>            1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.</p>	

EE Learner Guidelines	2nd Grade Science	2nd Grade Social Studies	CCRS Science	CCRS Social Studies
			2. Know patterns of energy flow and material cycling in Earth's ecosystems. 3. Understand typical forms of organismal behavior 4. Know the process of succession X. Environmental Science A. Earth Systems 5. Be familiar with the Earth's major biomes	
<b>D) Flow of matter and energy—Learners understand how energy and matter flow among the abiotic and biotic components of the environment.</b>	<b>2.9: Organisms and environments. The student knows that living organisms have basic needs that must be met for them to survive within their environment. The student is expected to:</b> (A) identify the basic needs of plants and animals; (B) identify factors in the environment, including temperature and precipitation, that affect growth and behavior such as migration, hibernation, and dormancy of living things; and  (C) compare and give examples of the ways living organisms depend on each other and on their environments such as food chains within a garden, park, beach, lake, and wooded area.		<b>V. Biology</b> <b>B. Biochemistry</b> 3. Describe the major features and chemical events of photosynthesis 4. Describe the major features and chemical events of cellular respiration 5. Know how organisms respond to the presence or absence of oxygen, including mechanisms of fermentation <b>G. Ecology</b> 2. Know the patterns of energy flow and material cycling in Earth's ecosystems.  <b>X. Environmental Science</b> <b>B. Energy</b> 1. Understanding energy transformations 2. Know the various sources of energy for humans and other biological systems	
<b>Strand 2.3: Humans and Their Societies</b>				
<b>A) Individuals and groups—Learners understand that how individuals perceive the environment is influenced in part by individual traits and group membership or affiliations.</b>				<b>I. Interrelated Disciplines and Skills</b> <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b> 2. Analyze the interaction between human communities and the environment.

EE Learner Guidelines	2nd Grade Science	2nd Grade Social Studies	CCRS Science	CCRS Social Studies
				<p><b>II. Diverse Human Perspectives</b>  <b>B. Factors that influence personal and group identities (e.g. race, ethnicity, gender, nationalist, institutional affiliations, socioeconomic status)</b>  6. Analyze how individual and group identities are established and changes over time.</p>
<p><b>B) Culture—As they become familiar with a wider range of cultures and subcultures, learners gain an understanding of cultural perspectives on the environment and how the environment may, in turn, influence culture.</b></p>		<p><b>2.7 Geography. The student understands how physical characteristics of places and regions affect people's activities and settlement patterns. The student is expected to:</b>  (D) identify the characteristics of different communities, including urban, suburban, and rural, and how they affect activities and settlement patterns.</p> <p><b>2.15 Culture. The student understands the significance of works of art in the local community. The student is expected to:</b>  (A) identify selected stories, poems, statues, paintings, and other examples of the local cultural heritage; and  (B) explain the significance of selected stories, poems, statues, paintings, and other examples of the local cultural heritage.</p>		<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical processes that shape the human experience.</b>  2. Analyze the interaction between human communities and the environment.  3. Analyze how physical and cultural processes have shaped human communities over time.</p> <p>5. Analyze how various cultural regions of changed over time.  6. Analyze the relationship between geography and the development of human communities.</p>

EE Learner Guidelines	2nd Grade Science	2nd Grade Social Studies	CCRS Science	CCRS Social Studies
		<p><b>2.16 Culture. The student understands ethnic and/or cultural celebrations. The student is expected to:</b>            (A) identify the significance of various ethnic and/or cultural celebrations; and            (B) compare ethnic and/or cultural celebrations.</p>		
<p><b>C) Political and economic systems—Learners become more familiar with political and economic systems and how these systems take the environment into consideration.</b></p>		<p><b>2.10: Economics. The student understands the roles of producers and consumers in the production of goods and services. The student is expected to:</b>            (B) identify ways in which people are both producers and consumers;             (C) examine the development of a product from a natural resource to a finished product.</p>	<p><b>X. Environmental Science</b>  <b>D. Economics and politics</b>            1. name and describe major environmental policies and legislation            2. Understand the types, uses, and regulations of various natural resources</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>C. Change and continuity of political ideologies, constitutions and political behaviour.</b>            1. Evaluate different governmental systems and functions   <b>D. Change and continuity of economic systems and processes.</b>            1. Identify and evaluate the strengths and weaknesses of different economic systems.</p>
<p><b>D) Global connections—Learners become familiar with ways in which the world's environmental, social, economic, cultural and political systems are linked.</b></p>				<p><b>III. Interdependence of Global Communities</b>  <b>A. Spatial understanding of global, regional, national, and local communities.</b>            1. Distinguish spatial patterns of human communities that exist between or within contemporary political boundaries.            2. Connect regional or local developments to global ones.            3. Analyze how and why diverse communities interact and become dependent on each other.</p>

EE Learner Guidelines	2nd Grade Science	2nd Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>E) Change and conflict—Learners understand the humans social systems change over time and that conflicts sometimes arise over differing and changing viewpoints about the environment.</b></p> <p><b>A) Human/environment interactions—Learners understand that human-caused change have consequences for the immediate environment as well as for other places and future times.</b></p>		<p><b>2.8: Geography. The student understands how humans use and modify the physical environment. The student is expected to:</b></p> <p>(A) identify ways in which people have modified the physical environment such as building roads, clearing land for urban development and agricultural use, and drilling for oil;</p> <p>(B) identify positive and negative consequences of human modification of the physical environment such as the use of irrigation to improve crop yields; and</p> <p>(C) identify ways people can conserve and replenish natural resources.</p>	<p><b>X. Environmental Science</b> <b>E. Human practices and their impacts</b></p> <ol style="list-style-type: none"> <li>Describe the different uses for land (land management)</li> <li>Understand the use and consequences of pest management</li> <li>Know the different methods used to increase food production</li> <li>Understand land and water usage and management practices</li> <li>Understand how human practices affect air, water, and soil quality</li> </ol>	<p><b>I. Interrelated disciplines and Skills</b> <b>E. Change and continuity of social groups, civic organizations, institutions, and their interaction.</b></p> <p>4. Identify and evaluate the sources and consequences of social conflict.</p> <p><b>I. Interrelated Disciplines and Skills</b> <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b></p> <ol style="list-style-type: none"> <li>Analyze the interaction between human communities and the environment.</li> <li>Evaluate the causes and effects of human migration patterns over time</li> <li>Analyze the relationship between geography and the development of human communities.</li> </ol>
<p><b>B) Places—Learners begin to explore the meaning of place both close to home and around the world.</b></p>		<p><b>2.5 Geography. The student uses simple geographic tools such as maps and globes. The student is expected to:</b></p> <p>(B) create maps to show places and routes within the home, school, and community.</p> <p><b>2.6 Geography. The student understands the locations and characteristics of places and regions in the community, state, and nation. The student is expected to:</b></p>		<p><b>I. Interrelated Disciplines and Skills</b> <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b></p> <ol style="list-style-type: none"> <li>Analyze the interaction between human communities and the environment.</li> </ol> <p>III. Interdependence of Global Communities</p> <p>A. Spatial understanding of global, regional, national, and local communities.</p>

EE Learner Guidelines	2nd Grade Science	2nd Grade Social Studies	CCRS Science	CCRS Social Studies
		<p>(A) identify major landforms and bodies of water, including each of the continents and each of the oceans, on maps and globes;            (B) locate places of significance, including the local community, Texas, the state capital, the U.S. capital, major cities in Texas, the coast of Texas, Canada, Mexico, and the United States on maps and globes;            (C) examine information from various sources about places and regions.</p> <p><b>2.7 Geography. The student understands how physical characteristics of places and regions affect people's activities and settlement patterns. The student is expected to:</b>            (D) identify the characteristics of different communities, including urban, suburban, and rural, and how they affect activities and settlement patterns</p>		<p>1. Distinguish spatial patterns of human communities that exist between or within contemporary boundaries.            2. Connect regional or local development to global ones.            3. Analyze how and why diverse communities interact and become dependent on each other.</p>
<p><b>C) Resources—Learners understand uneven distribution of resources influences their use and perceived value.</b></p>	<p><b>2.1: Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures. The student is expected to:</b>            (C) identify and demonstrate how to use, conserve, and dispose of natural resources and materials such as conserving water and reuse or recycling of paper, plastic, and metal.</p>	<p><b>2.7. Geography. The student understands how physical characteristics of places and regions affect people's activities and settlement patterns. The student is expected to:</b>            (B) describe how natural resources and natural hazards affect activities and settlement patterns;            (C) explain how people depend on the physical environment and natural resources to meet basic needs;</p>		

EE Learner Guidelines	2nd Grade Science	2nd Grade Social Studies	CCRS Science	CCRS Social Studies
		<p><b>2.8. Geography. The student understands how humans use and modify the physical environment. The student is expected to:</b>            (C) identify ways people can conserve and replenish natural resources.</p>		
<p><b>D) Technology—Learners understand the human ability to shape and control the environment as a function of the capacities for creating knowledge and developing new technologies.</b></p>		<p><b>2.17: Science, technology, and society. The student understands how science and technology have affected life, past and present. The student is expected to:</b>            (A) describe how science and technology change communication, transportation, and recreation; and            (B) explain how science and technology change the ways in which people meet basic needs.</p>		
<p><b>E) Environmental issues—Learners are familiar with a range of environmental issues at scales that range from local to national to global. They understand that people in other places around the world experience environmental issues similar to the ones they are concerned about locally.</b></p>			<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive skills in science</b>            2. Use creativity and insight to recognize and describe patterns in natural phenomena</p> <p><b>X. Environmental Science</b>  <b>E. Human practices and their impacts</b>            1. Describe the different uses for land (land management)            2. Understand the use and consequence of pest management            3. Know the different methods used to increase food production            4. Understand land and water usage and management practices</p>	

EE Learner Guidelines	2nd Grade Science	2nd Grade Social Studies	CCRS Science	CCRS Social Studies
			5. Understand how human practices affect air, water, and soil quality	
<b>Strand 3: Skills for Understanding and Addressing Environmental Issues</b>				
<b>Strand 3.1: Skills for Analyzing and Investigating Environmental Issues</b>				
<p><b>A) Identifying and investigating issues—Learners are able to use primary and secondary sources of information, and apply growing research and analytical skills, to investigate environmental issues, beginning in their own community.</b></p>	<p><b>2.1: Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures. The student is expected to:</b>            (C) identify and demonstrate how to use, conserve, and dispose of natural resources and materials such as conserving water and reuse or recycling of paper, plastic, and metal.</p>	<p><b>2.3: History. The student understands how various sources provide information about the past and present. The student is expected to:</b>            (A) identify several sources of information about a given period or event such as reference materials, biographies, newspapers, and electronic sources; and            (B) describe various evidence of the same time period using primary sources such as photographs, journals, and interviews.</p> <p><b>2.18: Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b>            (A) obtain information about a topic using a variety of valid oral sources such as conversations, interviews, and music;            (B) obtain information about a topic using a variety of valid visual sources such as pictures, maps, electronic sources, literature, reference sources, and artifacts;</p> <p><b>2.20 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p>	<p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>            2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	

EE Learner Guidelines	2nd Grade Science	2nd Grade Social Studies	CCRS Science	CCRS Social Studies
		<p>(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution; and</p> <p>(B) use a decision-making process to identify a situation that requires a decision, gather information, generate options, predict outcomes, take action to implement a decision, and reflect on the effectiveness of that decision.</p>		
<p><b>B) Sorting out the consequences of issues—Learners are able to apply their knowledge of ecological and human processes and systems to identify the consequences of specific environmental issues.</b></p>	<p><b>2.3: Scientific investigation and reasoning. The student knows that information and critical thinking, scientific problem solving, and the contributions of scientists are used in making decisions. The student is expected to:</b></p> <p>(A) identify and explain a problem in his/her own words and propose a task and solution for the problem such as lack of water in a habitat;</p> <p>(B) make predictions based on observable patterns;</p>	<p><b>2.20 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p> <p>(B) use a decision-making process to identify a situation that requires a decision, gather information, generate options, <i>predict outcomes</i>, take action to implement a decision, and reflect on the effectiveness of that decision.</p>	<p><b>IV. Science, Technology, and Society</b>  <b>B. Social ethics</b>  1. Understand how scientific research and technology have and impact on ethical and legal practices</p>	
<p><b>C) Identifying and evaluating alternative solutions and courses of action—Learners are able to identify and develop action strategies for addressing particular issues.</b></p>		<p><b>2.20 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p>	<p><b>IV. Science, Technology, and Society</b>  <b>B. Social ethics</b>  1. Understand how scientific research and technology have and impact on ethical and legal practices  2. Understand how commonly held ethical beliefs impact scientific research</p>	

EE Learner Guidelines	2nd Grade Science	2nd Grade Social Studies	CCRS Science	CCRS Social Studies
		(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution;		
<p><b>D) Working with flexibility, creativity, and openness—Learners are able to consider the assumptions and interpretations that influence the conclusions they and others draw about environmental issues.</b></p>			<p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>  2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	
<p><b>Strand 3.2: Decision Making and Citizenship Skills</b></p>				
<p><b>A) Forming and evaluating personal views—Learners are able to identify, justify, and clarify their views on environmental issues and alternative ways to address them.</b></p>	<p><b>2.3: Scientific investigation and reasoning. The student knows that information and critical thinking, scientific problem solving, and the contributions of scientists are used in making decisions. The student is expected to:</b></p> <p>(A) identify and explain a problem in <i>his/her own words</i> and propose a task and solution for the problem such as lack of water in a habitat;</p>	<p><b>2.19 Social studies skills. The student communicates in written, oral, and visual forms. The student is expected to:</b></p> <p>(A) express ideas orally based on knowledge and experiences;</p>		
<p><b>B) Evaluating the need for citizen action—Learners are able to evaluate whether they believe action is needed in particular situations, and decide whether they should be involved.</b></p>		<p><b>2.20 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p>		

EE Learner Guidelines	2nd Grade Science	2nd Grade Social Studies	CCRS Science	CCRS Social Studies
		(B) use a decision-making process to identify a situation that requires a decision, gather information, generate options, predict outcomes, take action to implement a decision, and reflect on the effectiveness of that decision.		
<p><b>C) Planning and taking action—As learners begin to see themselves as citizens taking active roles in their communities, they are able to plan for and engage in citizen action at levels appropriate to their maturity and preparation.</b></p>		<p><b>2.20 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b>            (A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution</p>		
<p><b>D) Evaluating the results of actions—Learners are able to analyze the effects of their own actions and actions taken by other individuals and groups.</b></p>		<p><b>2.20 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b>            (B) use a decision-making process to identify a situation that requires a decision, gather information, generate options, predict outcomes, take action to implement a decision, and reflect on the effectiveness of that decision.</p>		

EE Learner Guidelines	2nd Grade Science	2nd Grade Social Studies	CCRS Science	CCRS Social Studies
<b>Strand 4: Personal and Civic Responsibility</b>				
<p><b>A) Understanding societal values and principles—Learners understand that societal values can be both a unifying and a divisive force</b></p>		<p><b>2.13 Citizenship. The student understands characteristics of good citizenship as exemplified by historical figures and other individuals. The student is expected to:</b>            (A) identify characteristics of good citizenship, including truthfulness, justice, equality, respect for oneself and others, responsibility in daily life, and participation in government by educating oneself about the issues, respectfully holding public officials to their word, and voting;</p> <p><b>2.14 Citizenship. The student identifies customs, symbols, and celebrations that represent American beliefs and principles that contribute to our national identity. The student is expected to:</b>            (D) identify how selected customs, symbols, and celebrations reflect an American love of individualism, inventiveness, and freedom.</p>	<p><b>IV. Science, Technology, and Society</b>  <b>B. Social Ethics</b>            1. Understand how scientific research and technology have an impact on ethical and legal practices.            2. Understand how commonly held ethical beliefs impact scientific research.</p>	
<p><b>B) Recognizing citizens' rights and responsibilities—Learners understand the rights and responsibilities of citizenship and their importance in promoting the resolution of environmental issues.</b></p>	<p><b>2.1: Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures. The student is expected to:</b></p>	<p><b>2.11 Government. The student understands the purpose of governments. The student is expected to:</b>            (C) describe how governments tax citizens to pay for services.</p>		

EE Learner Guidelines	2nd Grade Science	2nd Grade Social Studies	CCRS Science	CCRS Social Studies
	<p>(C) identify and demonstrate how to use, conserve, and dispose of natural resources and materials such as conserving water and reuse or recycling of paper, plastic, and metal.</p>	<p><b>2.12 Government. The student understands the role of public officials. The student is expected to:</b>            (D) identify how citizens participate in their own governance through staying informed of what public officials are doing, providing input to them, and volunteering to participate in government functions.</p> <p><b>2.13 Citizenship. The student understands characteristics of good citizenship as exemplified by historical figures and other individuals. The student is expected to:</b>            (A) identify characteristics of good citizenship, including truthfulness, justice, equality, respect for oneself and others, responsibility in daily life, and participation in government by educating oneself about the issues, respectfully holding public officials to their word, and voting;</p>		
<p><b>C) Recognizing efficacy—Learners possess a realistic self-confidence in their effectiveness as citizens.</b></p>		<p><b>2.13 Citizenship. The student understands characteristics of good citizenship as exemplified by historical figures and other individuals. The student is expected to:</b>            (D) identify ways to actively practice good citizenship, including involvement in community service.</p>		

EE Learner Guidelines	2nd Grade Science	2nd Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>D) Accepting personal responsibility—Learners understand that their actions can have broad consequences and they are responsible for those consequences.</b></p>		<p><b>2.12 Government. The student understands the role of public officials. The student is expected to:</b>            (D) identify how citizens participate in their own governance through staying informed of what public officials are doing, providing input to them, and volunteering to participate in government functions.</p> <p><b>2.13 Citizenship. The student understands characteristics of good citizenship as exemplified by historical figures and other individuals. The student is expected to:</b>            (D) identify ways to actively practice good citizenship, including involvement in community service.</p>		

## EE-TEKS-CCRS CROSSWALK

*Alignment of the Excellence in Environmental Education: Guidelines for Learning (NAAEE) the Texas Essential Knowledge and Skills, & College & Career Readiness Science & Social Studies Standards*

EE Learner Guidelines	3rd Grade Science	3rd Grade Social Studies	CCRS Science	CCRS Social Studies
<b>Strand 1: Questioning, Analysis &amp; Interpretation Skills</b>				
<p><b>A) Questioning—Learners are able to develop questions that help them learn about the environment and do simple investigations.</b></p>	<p><b>3.2: Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and outdoor investigations. The student is expected to:</b>                      (A) plan and implement descriptive investigations, including asking and answering questions, making inferences, and selecting and using equipment or technology needed, to solve a specific problem in the natural world;</p>		<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive skills in science</b>                      3. Formulate appropriate questions to test understanding of natural phenomena.</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>F. Problems solving</b>                      1. Use a variety of research and analytical tools to explore questions or issues thoroughly and fairly.</p>
<p><b>B) Designing investigations—Learners are able to design simple investigations.</b></p>	<p><b>3.2: Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and outdoor investigations. The student is expected to:</b>                      (A) plan and implement descriptive investigations, including asking and answering questions, making inferences, and selecting and using equipment or technology needed, to solve a specific problem in the natural world;</p>		<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>B. Scientific Inquiry</b>                      1. Design and conduct scientific investigations in which hypotheses are formulated and tested</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research and methods</b>                      1. Use established research methodologies</p>

EE Learner Guidelines	3rd Grade Science	3rd Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>C) Collecting information—Learners are able to locate and collect information about the environment and environmental topics.</b></p>	<p><b>3.2. Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and outdoor investigations. The student is expected to:</b>            (B) collect data by observing and measuring using the metric system and recognize differences between observed and measured data;</p> <p><b>3.4. Scientific investigation and reasoning. The student knows how to use a variety of tools and methods to conduct science inquiry. The student is expected to:</b>            (A) collect, record, and analyze information using tools, including microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, wind vanes, rain gauges, pan balances, graduated cylinders, beakers, spring scales, hot plates, meter sticks, compasses, magnets, collecting nets, notebooks, sound recorders, and Sun, Earth, and Moon system models; timing devices, including clocks and stopwatches; and materials to support observation of habitats of organisms such as terrariums and aquariums; and</p>	<p><b>3.17: Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b></p> <p>(A) research information, including historical and current events, and geographic data, about the community and world, using a variety of valid print, oral, visual, and Internet resources;            (D) use various parts of a source, including the table of contents, glossary, and index as well as keyword Internet searches, to locate information;</p>	<p><b>I. Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive Skills in science</b>            4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p> <p><b>D. Current Scientific Technology</b>            3. Demonstrate appropriate use of a wide variety of apparatuses, equipment, techniques, and procedures for collecting quantitative and qualitative data</p> <p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>A. Research Skills/Information Literacy</b>            1. Use search engines, databases, and other digital electronic tools effectively to locate information.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research and methods</b>            3. Gather, organize and display the results of data and research            4. Identify and collect sources</p>

EE Learner Guidelines	3rd Grade Science	3rd Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>D) Evaluating accuracy and reliability—Learners understand the need to use reliable information to answer their questions. They are familiar with some basic factors to consider in judging the merits of information.</b></p>	<p><b>3.2. Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and outdoor investigations. The student is expected to:</b>            (D) analyze and interpret patterns in data to construct <i>reasonable</i> explanations <i>based on evidence</i> from investigations;            (E) demonstrate that repeated investigations may increase the <i>reliability</i> of results; and</p> <p><b>3.3. Scientific investigation and reasoning. The student knows that information, critical thinking, scientific problem solving, and the contributions of scientists are used in making decisions. The student is expected to:</b></p> <p>(A) in all fields of science, analyze, <i>evaluate</i>, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;            (B) draw inferences and <i>evaluate accuracy</i> of product claims found in advertisements and labels such as for toys and food;</p>	<p><b>3.17: Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b></p> <p>(C) interpret oral, visual, and print material by identifying the main idea, distinguishing between fact and opinion*, identifying cause and effect, and comparing and contrasting;</p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive Skills in Science</b>            1. Utilize skepticism, logic, and professional ethics in science            4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p> <p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>            2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>A. Critical examinations of texts, images, and other sources of information</b>            1. Identify and analyze the main idea(s) and point(s)-of-view in sources.            2. Situate an informational source in its appropriate contexts (contemporary, historical, cultural)            3. Evaluate sources from multiple perspectives            4. Understand the difference between a primary and secondary source and use each appropriately to conduct research and construct arguments            5. Read narrative texts critically            6. Read research data critically</p>

EE Learner Guidelines	3rd Grade Science	3rd Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>E) Organizing information</b>—Learners are able to describe data and organize information to search for relationships and patterns concerning the environment and environmental topics.</p>	<p><b>3.2. Scientific investigation and reasoning.</b> The student uses scientific inquiry methods during laboratory and outdoor investigations. The student is expected to:</p> <p>(B) collect data by observing and measuring using the metric system and recognize differences between observed and measured data;</p> <p>(C) construct maps, graphic organizers, simple tables, charts, and bar graphs using tools and current technology to organize, examine, and evaluate measured data;</p> <p>(D) analyze and interpret patterns in data to construct reasonable explanations based on evidence from investigations;</p>	<p><b>3.17: Social studies skills.</b> The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</p> <p>(B) sequence and categorize information;</p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b></p> <p><b>A. Cognitive Skills in Science</b></p> <p>2. Use creativity and insight to recognize and describe patterns in natural phenomena.</p> <p><b>E. Effective communication of scientific information</b></p> <p>1. Use several modes of expression to describe or characterize natural phenomena. These modes of expression include narrative, and numerical, graphical, pictorial, symbolic, and kinesthetic.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b></p> <p><b>B. Research methods</b></p> <p>3. Gather, organize, and display the results of data and research</p>
<p><b>F) Working with models and simulations</b>—Learners understand that relationships, patterns, and processes can be represented by models.</p>	<p><b>3.2. Scientific investigation and reasoning.</b> The student uses scientific inquiry methods during laboratory and outdoor investigations. The student is expected to:</p> <p>(C) construct maps, graphic organizers, simple tables, charts, and bar graphs using tools and current technology to organize, examine, and evaluate measured data;</p> <p>(F) communicate valid conclusions supported by data in writing, by drawing pictures, and through verbal discussion.</p>	<p><b>3.5: Geography.</b> The student understands the concepts of location, distance, and direction on maps and globes. The student is expected to:</p> <p>(A) use cardinal and intermediate directions to locate places on maps and globes such as the Rocky Mountains, the Mississippi River, and Austin, Texas, in relation to the local community;</p> <p>(B) use a scale to determine the distance between places on maps and globes;</p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b></p> <p><b>D. Current Scientific Technology:</b></p> <p>2. Use computer models, applications, and simulations</p>	

EE Learner Guidelines	3rd Grade Science	3rd Grade Social Studies	CCRS Science	CCRS Social Studies
	<p><b>3.3. Scientific investigation and reasoning. The student knows that information, critical thinking, scientific problem solving, and the contributions of scientists are used in making decisions. The student is expected to:</b></p> <p>(C) represent the natural world using <i>models</i> such as volcanoes or Sun, Earth, and Moon system and identify their limitations, including size, properties, and materials; and</p>	<p>(C) identify and use the compass rose, grid system, and symbols to locate places on maps and globes; and (D) create and interpret maps of places and regions that contain map elements, including a title, compass rose, legend, scale, and grid system.</p> <p><b>3.17: Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b></p> <p>(E) interpret and create visuals, including graphs, charts, tables, timelines, illustrations, and maps; and (F) use appropriate mathematical skills to interpret social studies information such as maps and graphs.</p>	<p><b>II. Foundations Skills: Scientific Application of Mathematics</b> <b>B. Mathematics as symbolic language</b> 2. Represent natural events, processes, and relationships with algebraic expressions and algorithms</p> <p><b>V. Cross Disciplinary Themes</b> <b>E. Measurements and Models</b> 1. Use models to make predictions 2. Use scale to relate models and structures</p>	
<p><b>G) Drawing conclusions and developing explanations—Learners can develop simple explanations that address their questions about the environment.</b></p>	<p><b>3.2: Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and outdoor investigations. The student is expected to:</b></p> <p>(D) analyze and interpret patterns in data to construct reasonable <i>explanations</i> based on evidence from investigations; (F) communicate valid <i>conclusions</i> supported by data in writing, by drawing pictures, and through verbal discussion.</p>		<p><b>I. Nature of Science: Scientific Ways of Thinking</b> <b>A. Cognitive Skills in Science</b> 4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b> <b>D. Reaching Conclusions</b> 1. Construct a thesis that is supported by evidence</p>

EE Learner Guidelines	3rd Grade Science	3rd Grade Social Studies	CCRS Science	CCRS Social Studies
<b>Strand 2.1: Knowledge of Environmental Processes and Systems</b>				
<p><b>A) Processes that shape the Earth—Learners have a basic understanding of most of the physical processes that shape the Earth. They are able to explore the origin of differences in physical patterns.</b></p>	<p><b>3.7: Earth and space. The student knows that Earth consists of natural resources and its surface is constantly changing. The student is expected to:</b>            (A) explore and record how soils are formed by weathering of rock and the decomposition of plant and animal remains;            (B) investigate rapid changes in Earth's surface such as volcanic eruptions, earthquakes, and landslides;            (C) identify and compare different landforms, including mountains, hills, valleys, and plains; and</p> <p><b>3.8: Earth and space. The student knows there are recognizable patterns in the natural world and among objects in the sky. The student is expected to:</b>            (A) observe, measure, record, and compare day-to-day weather changes in different locations at the same time that include air temperature, wind direction, and precipitation;            (B) describe and illustrate the Sun as a star composed of gases that provides light and heat energy for the water cycle;</p>	<p><b>K.4: Geography. The student understands how humans adapt to variations in the physical environment. The student is expected to:</b>            (A) describe and explain variations in the physical environment, including climate, landforms, natural resources, and natural hazards;            (C) describe the effects of physical processes such as volcanoes, hurricanes, and earthquakes in shaping the landscape;</p>	<p><b>IX. Earth and Space Sciences</b>  <b>A. Earth Systems</b>            3. Possess a scientific understanding of the history of the Earth's systems.</p> <p><b>E. Plate Tectonics</b>            1. Describe evidence that supports the current theory of plate tectonics            2. Identify major tectonic plates            3. Describe the motion and interaction of tectonic plates            4. Describe the rock cycle and its products</p>	

EE Learner Guidelines	3rd Grade Science	3rd Grade Social Studies	CCRS Science	CCRS Social Studies
	<p>(C) construct models that demonstrate the relationship of the Sun, Earth, and Moon, including orbits and positions; and</p> <p>(D) identify the planets in Earth's solar system and their position in relation to the Sun.</p>			
<p><b>B) Changes in matter—Learners understand the properties of the substances that make up objects or materials found in the environment.</b></p>	<p><b>3.5: Matter and energy. The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to:</b></p> <p>(A) measure, test, and record physical properties of matter, including temperature, mass, magnetism, and the ability to sink or float;</p> <p>(B) describe and classify samples of matter as solids, liquids, and gases and demonstrate that solids have a definite shape and that liquids and gases take the shape of their container;</p> <p>(C) predict, observe, and record changes in the state of matter caused by heating or cooling; and</p> <p>(D) explore and recognize that a mixture is created when two materials are combined such as gravel and sand and metal and plastic paper clips.</p>		<p><b>V. Cross-Disiplinary Themes</b></p> <p><b>A. Matter/states of matter</b></p> <p>2. Understanding typical states of matter (solid, liquid, gas) and phase changes among these.</p> <p><b>VII. Chemistry</b></p> <p><b>A. Matter and its properties</b></p> <p>1. Know that physical and chemical properties can be used to describe and classify matter. Recognize and classify pure substances (elements and compounds) and mixtures.</p> <p><b>IX. Earth and Space Systems</b></p> <p><b>F. Energy transfer within and among systems</b></p> <p>1. Describe matter and energy transfer in the Earth's systems.</p> <p>2. Give examples of effects of energy transfer within and among systems.</p>	

EE Learner Guidelines	3rd Grade Science	3rd Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>C) Energy—Learners begin to grasp formal concepts related to energy by focusing on energy transfer and transformations. They are able to make connections among the phenomena such as light, heat, magnetism, electricity, and the motion of objects.</b></p>	<p><b>3.5: Matter and energy. The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to:</b></p>		<p><b>V. Cross-Disciplinary Themes</b>  <b>B. Energy (thermodynamics, kinetic, potential, energy transfers)</b>            1. Understand the Laws of Thermodynamics            2. Know the processes of energy transfer</p>	
	<p>(A) measure, test, and record physical properties of matter, including <i>temperature, mass, magnetism</i>, and the ability to sink or float;            (B) describe and classify samples of matter as solids, liquids, and gases and demonstrate that solids have a definite shape and that liquids and gases take the shape of their container;            (C) predict, observe, and record changes in the state of matter caused by heating or cooling;</p> <p><b>3.6: Force, motion, and energy. The student knows that forces cause change and that energy exists in many forms. The student is expected to:</b></p> <p>(A) explore different forms of <i>energy</i>, including <i>mechanical, light, sound, and heat/thermal</i> in everyday life;</p> <p>(B) demonstrate and observe how position and <i>motion</i> can be changed by pushing and pulling objects to show work being done such as swings, balls, pulleys, and wagons; and</p>		<p><b>VI. Biology</b>  <b>G. Ecology</b>            2. Know patterns of energy flow and material cycling in Earth's ecosystems.  <b>VII. Chemistry</b>  <b>H. Thermochemistry</b>            1. Understand the Law of Conservation of Energy and processes of heat transfer.            2. Understand energy changes and</p> <p><b>VIII. Physics</b>  <b>C. Force and Motion</b>            1. Understand the fundamental concepts of kinematics            2. Understand forces and Newton's Law,            3. Understand the concept of momentum.  <b>D. Mechanical Energy</b>            1. Understand potential and kinetic energy.            2. Understand conservation of energy            3. Understand relationship of work and mechanical energy  <b>X. Environmental Science</b>  <b>B. Energy</b>            1. Understand energy transformations</p>	

EE Learner Guidelines	3rd Grade Science	3rd Grade Social Studies	CCRS Science	CCRS Social Studies
	(C) observe forces such as <i>magnetism</i> and gravity acting on objects.		2. Know various sources of energy for humans and other biological systems	
<b>Strand 2.2: The Living Environment</b>				
<p><b>A) Organisms, populations, and communities—Learners understand that biotic communities are made up of plants and animals that are adapted to live in particular environments.</b></p>	<p><b>3.9. Organisms and environments. The student knows that organisms have characteristics that help them survive and can describe patterns, cycles, systems, and relationships within the environments. The student is expected to:</b>            (A) observe and describe the physical characteristics of environments and how they support populations and communities within an ecosystem;</p> <p><b>3.10. Organisms and environments. The student knows that organisms undergo similar life processes and have structures that help them survive within their environments. The student is expected to:</b>            (A) explore how structures and functions of plants and animals allow them to survive in a particular environment;            (B) explore that some characteristics of organisms are inherited such as the number of limbs on an animal or flower color and recognize that some behaviors are learned in response to living in a certain environment such as animals using tools to get food;</p>		<p><b>VI. Biology</b>  <b>G. Ecology</b>            1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.            2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p>	

EE Learner Guidelines	3rd Grade Science	3rd Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>B) Heredity and evolution—Learners have a basic understanding of the importance of genetic heritage.</b></p>	<p><b>3.10: Organisms and environments. The student knows that organisms undergo similar life processes and have structures that help them survive within their environments. The student is expected to:</b></p> <p>(B) explore that some characteristics of organisms are inherited such as the number of limbs on an animal or flower color and recognize that some behaviors are learned in response to living in a certain environment such as animals using tools to get food; and</p>		<p><b>VI. Biology</b>  <b>C. Evolution and populations</b>  1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.  2. Recognize variations in population sizes, including extinction, and describe mechanisms and conditions that produce these variations.  <b>D. Molecular genetics and heredity</b>  1. Understand Mendel's Law of inheritance,  2. Know modifications of Mendel's Law,  3. Understand the molecular structure and functions of nucleic acids  4. Understand simple principles of population genetics and describe characteristics of Hardy-Weinberg population.  5. Describe the major features of meiosis and relate this process to</p>	
<p><b>C) Systems and connections—Learners understand major kinds of interactions among organisms or populations of organisms.</b></p>	<p><b>3.9: Organisms and environments. The student knows that organisms have characteristics that help them survive and can describe patterns, cycles, systems, and relationships within the environments. The student is expected to:</b></p> <p>(A) observe and describe the physical characteristics of environments and how they support populations and communities within an ecosystem;</p>		<p><b>IV. Biology</b>  <b>C. Evolution and populations</b>  1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.    <b>G. Ecology</b>  1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.  2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p>	

EE Learner Guidelines	3rd Grade Science	3rd Grade Social Studies	CCRS Science	CCRS Social Studies
	(B) identify and describe the flow of energy in a food chain and predict how changes in a food chain affect the ecosystem such as removal of frogs from a pond or bees from a field; and		3. Understand typical forms of organismal behavior 4. Know the process of succession X. Environmental Science A. Earth Systems 5. Be familiar with the Earth's major biomes	
<p><b>D) Flow of matter and energy—Learners understand how energy and matter flow among the abiotic and biotic components of the environment.</b></p>	<p><b>3.7: Earth and space. The student knows that Earth consists of natural resources and its surface is constantly changing. The student is expected to:</b>            (A) explore and record how soils are formed by weathering of rock and the <i>decomposition</i> of plant and animal remains;            (D) explore the characteristics of <i>natural resources</i> that make them <i>useful in products</i> and materials such as clothing and furniture and how resources may be conserved.</p> <p><b>3.9: Organisms and environments. The student knows that organisms have characteristics that help them survive and can describe patterns, cycles, systems, and relationships within the environments. The student is expected to:</b>            (A) observe and describe the physical characteristics of environments and how they support populations and communities within an ecosystem;</p>		<p><b>V. Biology</b>  <b>B. Biochemistry</b>            3. Describe the major features and chemical events of photosynthesis            4. Describe the major features and chemical events of cellular respiration            5. Know how organisms respond to the presence or absence of oxygen, including mechanisms of fermentation</p> <p><b>G. Ecology</b>            2. Know the patterns of energy flow and material cycling in Earth's ecosystems.</p> <p><b>X. Environmental Science</b>  <b>B. Energy</b>            1. Understanding energy transformations            2. Know the various sources of energy for humans and other biological systems</p>	

EE Learner Guidelines	3rd Grade Science	3rd Grade Social Studies	CCRS Science	CCRS Social Studies
	(B) identify and describe the <i>flow of energy</i> in a food chain and predict how changes in a food chain affect the ecosystem such as removal of frogs from a pond or bees from a field; and			
<b>Strand 2.3: Humans and Their Societies</b>				
<p><b>A) Individuals and groups—Learners understand that how individuals perception of the environment is influenced in part by individual traits and group membership or affiliations.</b></p>		<p><b>§113.14.c.4: Geography. The student understands how humans adapt to variations in the physical environment. The student is expected to:</b>            (B) identify and compare how people in different communities adapt to or modify the physical environment in which they live such as deserts, mountains, wetlands, and plains;            (E) identify and compare the human characteristics of various regions.</p>		<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b>            2. Analyze the interaction between human communities and the environment.</p> <p><b>II. Diverse Human Perspectives</b>  <b>B. Factors that influence personal and group identities (e.g. race, ethnicity, gender, nationalist, institutional affiliations, socioeconomic status)</b>            6. Analyze how individual and group identities are established and changes over time.</p>

EE Learner Guidelines	3rd Grade Science	3rd Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>B) Culture—As they become familiar with a wider range of cultures and subcultures, learners gain an understanding of cultural perspectives on the environment and how the environment may, in turn, influence culture.</b></p>		<p><b>3.4: Geography. The student understands how humans adapt to variations in the physical environment. The student is expected to:</b> (E) identify and compare the human characteristics of various regions.</p> <p><b>(13) Culture. The student understands ethnic and/or cultural celebrations of the local community and other communities. The student is expected to:</b> (A) explain the significance of various ethnic and/or cultural celebrations in the local community and other communities; and (B) compare ethnic and/or cultural celebrations in the local community with other communities.</p>		<p><b>I. Interrelated Disciplines and Skills</b> <b>A. Spatial analysis of physical processes that shape the human experience.</b> 2. Analyze the interaction between human communities and the environment. 3. Analyze how physical and cultural processes have shaped human communities over time. 5. Analyze how various cultural regions of changed over time. 6. Analyze the relationship between geography and the development of human communities.</p>
<p><b>C) Political and economic systems—Learners become more familiar with political and economic systems and how these systems take the environment into consideration.</b></p>		<p><b>3.7. Economics. The student understands the concept of the free enterprise system. The student is expected to:</b> (A) define and identify examples of scarcity; (B) explain the impact of scarcity on the production, distribution, and consumption of goods and services; and (C) explain the concept of a free market as it relates to the U.S. free enterprise system.</p>	<p><b>X. Environmental Science</b> <b>D. Economics and politics</b> 1. name and describe major environmental policies and legislation 2. Understand the types, uses, and regulations of various natural resources</p>	<p><b>I. Interrelated Disciplines and Skills</b> <b>C. Change and continuity of political ideologies, constitutions and political behaviour.</b> 1. Evaluate different governmental systems and functions</p>

EE Learner Guidelines	3rd Grade Science	3rd Grade Social Studies	CCRS Science	CCRS Social Studies
		<p><b>3.8. Economics. The student understands how businesses operate in the U.S. free enterprise system. The student is expected to:</b>            (B) explain how supply and demand affect the price of a good or service;            (C) explain how the cost of production and selling price affect profits;            (D) explain how government regulations and taxes impact consumer costs;</p> <p><b>3.9. Government. The student understands the basic structure and functions of various levels of government. The student is expected to:</b>            (C) identify services commonly provided by local, state, and national governments; and            (D) explain how local, state, and national government services are financed.</p>		<p><b><i>D. Change and continuity of economic systems and processes.</i></b>            1. Identify and evaluate the strengths and weaknesses of different economic systems.</p>
<p><b>D) Global connections—Learners become familiar with ways in which the world's environmental, social, economic, cultural and political systems are linked.</b></p>				<p><b>III. Interdependence of Global Communities</b>  <b><i>A. Spatial understanding of global, regional, national, and local communities.</i></b>            1. Distinguish spatial patterns of human communities that exist between or within contemporary political boundaries.            2. Connect regional or local developments to global ones.            3. Analyze how and why diverse communities interact and become dependent on each other.</p>

EE Learner Guidelines	3rd Grade Science	3rd Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>E) Change and conflict</b>—Learners understand the humans social systems change over time and that conflicts sometimes arise over differing and changing viewpoints about the environment.</p>		<p><b>D.1. History.</b> The student understands how individuals, events, and ideas have influenced the history of various communities. The student is expected to: (A) describe how individuals, events, and ideas have changed communities, past and present;</p>		<p><b>I. Interrelated disciplines and Skills</b> <i>E. hange and continuity of social groups, civic organizations, institutions, and their interaction.</i> 4. Identify and evaluate the sources and consequences of social conflict.</p>
<b>Strand 2.4: Environment and Society</b>				
<p><b>A) Human/environment interactions</b>—Learners understand that human-caused change have consequences for the immediate environment as well as for other places and future times.</p>		<p><b>3.4: Geography.</b> The student understands how humans adapt to variations in the physical environment. The student is expected to: (D) describe the effects of human processes such as building new homes, conservation, and pollution in shaping the landscape; and</p>	<p><b>X. Environmental Science</b> <i>E. Human practices and their impacts</i> 1. Describe the different uses for land (land management) 2. Understand the use and consequences of pest management  3. Know the different methods used to increase food production 4. Understand land and water usage and management practices 5. Understand how human practices affect air, water, and soil quality</p>	<p><b>I. Interrelated Disciplines and Skills</b> <i>A. Spatial analysis of physical and cultural processes that shape the human experience</i> 2. Analyze the interaction between human communities and the environment.  4. Evaluate the causes and effects of human migration patterns over time 6. Analyze the relationship between geography and the development of human communities.</p>
<p><b>B) Places</b>—Learners begin to explore the meaning of place both close to home and around the world.</p>		<p><b>(4) Geography.</b> The student understands how humans adapt to variations in the physical environment. The student is expected to: (E) identify and compare the human characteristics of various regions.  <b>(5) Geography.</b> The student understands the concepts of location, distance, and direction on maps and globes. The student is expected to:</p>		<p><b>I. Interrelated Disciplines and Skills</b> <i>A. Spatial analysis of physical and cultural processes that shape the human experience</i> 2. Analyze the interaction between human communities and the environment.</p>

EE Learner Guidelines	3rd Grade Science	3rd Grade Social Studies	CCRS Science	CCRS Social Studies
		<p>(A) use cardinal and intermediate directions to locate places on maps and globes such as the Rocky Mountains, the Mississippi River, and Austin, Texas, in relation to the local community;</p> <p>(B) use a scale to determine the distance between places on maps and globes;</p> <p>(C) identify and use the compass rose, grid system, and symbols to locate places on maps and globes; and</p> <p>(D) create and interpret maps of places and regions that contain map elements, including a title, compass rose, legend, scale, and grid system.</p>		<p><b>III. Interdependence of Global Communities</b>  <b>A. Spatial understanding of global, regional, national, and local communities.</b></p> <p>1. Distinguish spatial patterns of human communities that exist between or within contemporary boundaries.</p> <p>2. Connect regional or local development to global ones.</p> <p>3. Analyze how and why diverse communities interact and become interact and become dependent on each other.</p>
<p><b>C) Resources—Learners understand uneven distribution of resources influences their use and perceived value.</b></p>	<p><b>3.7: Earth and space. The student knows that Earth consists of natural resources and its surface is constantly changing. The student is expected to:</b></p> <p>(D) explore the characteristics of natural <i>resources</i> that make them <i>useful</i> in products and materials such as clothing and furniture and how resources may be conserved.</p>	<p><b>(4) Geography. The student understands how humans adapt to variations in the physical environment. The student is expected to:</b></p> <p>(A) describe and explain variations in the physical environment, including climate, landforms, natural resources, and natural hazards;</p>		

EE Learner Guidelines	3rd Grade Science	3rd Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>D) Technology—Learners understand the human ability to shape and control the environment as a function of the capacities for creating knowledge and developing new technologies.</b></p>		<p><b>3.16: Science, technology, and society. The student understands how individuals have created or invented new technology and affected life in various communities, past and present. The student is expected to:</b></p> <p>(B) identify the impact of scientific breakthroughs and new technology in computers, pasteurization, and medical vaccines on various communities.</p>		
<p><b>E) Environmental issues—Learners are familiar with a range of environmental issues and scales that range from local to national to global. They understand that people in other places around the world experience environmental issues similar to the ones they are concerned about locally.</b></p>	<p><b>3.1: Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following school and home safety procedures and environmentally appropriate practices. The student is expected to:</b></p> <p>(B) make informed choices in the use and conservation of natural resources by recycling or reusing materials such as paper, aluminum cans, and plastics.</p>	<p><b>(4) Geography. The student understands how humans adapt to variations in the physical environment. The student is expected to:</b></p> <p>(D) describe the effects of human processes such as building new homes, conservation, and pollution in shaping the landscape; and</p> <p>(E) identify and compare the human characteristics of various regions.</p>		
<p><b>Strand 3: Skills for Understanding and Addressing Environmental Issues</b></p>				
<p><b>Strand 3.1: Skills for Analyzing and Investigating Environmental Issues</b></p>				
<p><b>A) Identifying and investigating issues—Learners are able to use primary and secondary sources of information, and apply growing research and analytical skills, to investigate environmental issues, beginning in their own community.</b></p>		<p><b>3.19. Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p>	<p><b>III. Foundation Skills: Scientific Applications of Communication</b></p> <p><b>D. Research skills/information literacy</b></p> <p>2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	

EE Learner Guidelines	3rd Grade Science	3rd Grade Social Studies	CCRS Science	CCRS Social Studies
		<p>(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution; and</p> <p>(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.</p>		
<p><b>B) Sorting out the consequences of issues—Learners are able to apply their knowledge of ecological and human processes and systems to identify the consequences of specific environmental issues.</b></p>		<p><b>2.19 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p> <p>(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, <i>predict consequences</i>, and take action to implement a decision.</p>	<p><b>IV. Science, Technology, and Society</b>  <b>B. Social ethics</b>  1. Understand how scientific research and technology have and impact on ethical and legal practices</p>	
<p><b>C) Identifying and evaluating alternative solutions and courses of action—Learners are able to identify and develop action strategies for addressing particular issues.</b></p>		<p><b>2.19 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p>	<p><b>IV. Science, Technology, and Society</b>  <b>B. Social ethics</b>  1. Understand how scientific research and technology have and impact on ethical and legal practices</p>	

EE Learner Guidelines	3rd Grade Science	3rd Grade Social Studies	CCRS Science	CCRS Social Studies
		(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution;	2. Understand how commonly held ethical beliefs impact scientific research	
<p><b>D) Working with flexibility, creativity, and openness—Learners are able to consider the assumptions and interpretations that influence the conclusions they and others draw about environmental issues.</b></p>		<p><b>1.17 Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b>            (C) interpret oral, visual, and print material by identifying the main idea, distinguishing between fact and opinion, identifying cause and effect, and comparing and contrasting;</p>	<p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>            2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	
<p><b>Strand 3.2: Decision Making and Citizenship Skills</b></p>				
<p><b>A) Forming and evaluating personal views—Learners are able to identify, justify, and clarify their views on environmental issues and alternative ways to address them.</b></p>		<p><b>3.18 Social studies skills. The student communicates in written, oral, and visual forms. The student is expected to:</b>            (A) express ideas orally based on knowledge and experiences;</p>		

EE Learner Guidelines	3rd Grade Science	3rd Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>B) Evaluating the need for citizen action—Learners are able to evaluate whether they believe action is needed in particular situations, and decide whether they should be involved.</b></p>		<p><b>3.19 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b>            (B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.</p>		
<p><b>C) Planning and taking action—As learners begin to see themselves as citizens taking active roles in their communities, they are able to plan for and engage in citizen action at levels appropriate to their maturity and preparation.</b></p>		<p><b>3.19 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b>            (B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.</p>		
<p><b>D) Evaluating the results of actions—Learners are able to analyze the effects of their own actions and actions taken by other individuals and groups.</b></p>	<p><b>3.3: Scientific investigation and reasoning. The student knows that information, critical thinking, scientific problem solving, and the contributions of scientists are used in making decisions. The student is expected to:</b></p>	<p><b>3.19 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p>	<p><b>§113.14.c.12: Citizenship. The student understands the impact of individual and group decisions on communities in a constitutional republic. The student is expected to:</b></p>	

EE Learner Guidelines	3rd Grade Science	3rd Grade Social Studies	CCRS Science	CCRS Social Studies
	<p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p> <p>(B) draw inferences and evaluate accuracy of product claims found in advertisements and labels such as for toys and food;</p>	<p>(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution</p>	<p>(A) give examples of community changes that result from individual or group decisions;</p> <p>(B) identify examples of actions individuals and groups can take to improve the community; and</p> <p>(C) identify examples of nonprofit and/or civic organizations such as the Red Cross and explain how they serve the common good.</p>	
<b>Strand 4: Personal and Civic Responsibility</b>				
<p><b>A) Understanding societal values and principles—Learners understand that societal values can be both a unifying and a divisive force</b></p>		<p><b>3.10 Government. The student understands important ideas in historical documents at various levels of government. The student is expected to:</b></p> <p>(A) identify the purposes of the Declaration of Independence and the U.S. Constitution, including the Bill of Rights; and</p> <p>(B) describe and explain the importance of the concept of "consent of the governed" as it relates to the functions of local, state, and national government.</p> <p><b>3.11 Citizenship. The student understands characteristics of good citizenship as exemplified by historical and contemporary figures. The student is expected to:</b></p>	<p><b>IV. Science, Technology, and Society</b></p> <p><b>B. Social Ethics</b></p> <p>1. Understand how scientific research and technology have an impact on ethical and legal practices.</p> <p>2. Understand how commonly held ethical beliefs impact scientific research.</p>	

EE Learner Guidelines	3rd Grade Science	3rd Grade Social Studies	CCRS Science	CCRS Social Studies
		(A) identify characteristics of good citizenship, including truthfulness, justice, equality, respect for oneself and others, responsibility in daily life, and participation in government by educating oneself about the issues, respectfully holding public officials to their word, and voting;		
<p><b>B) Recognizing citizens' rights and responsibilities—Learners understand the rights and responsibilities of citizenship and their importance in promoting the resolution of environmental issues.</b></p>	<p><b>3.1: Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following school and home safety procedures and environmentally appropriate practices. The student is expected to:</b>            (B) make informed choices in the use and conservation of natural resources by recycling or reusing materials such as paper, aluminum cans, and plastics.</p>	<p><b>3.10 Government. The student understands important ideas in historical documents at various levels of government. The student is expected to:</b>            (B) describe and explain the importance of the concept of "consent of the governed" as it relates to the functions of local, state, and national government.</p> <p><b>3.11 Citizenship. The student understands characteristics of good citizenship as exemplified by historical and contemporary figures. The student is expected to:</b>            (A) identify characteristics of good citizenship, including truthfulness, justice, equality, respect for oneself and others, responsibility in daily life, and participation in government by educating oneself about the issues, respectfully holding public officials to their word, and voting;</p>		

EE Learner Guidelines	3rd Grade Science	3rd Grade Social Studies	CCRS Science	CCRS Social Studies
		<p>(B) identify historical figures such as Helen Keller and Clara Barton and contemporary figures such as Ruby Bridges and military and first responders who exemplify good citizenship; and</p> <p>(C) identify and explain the importance of individual acts of civic responsibility, including obeying laws, serving the community, serving on a jury, and voting.</p>		
<p><b>C) Recognizing efficacy—Learners possess a realistic self-confidence in their effectiveness as citizens.</b></p>		<p><b>3.12: Citizenship. The student understands the impact of individual and group decisions on communities in a constitutional republic. The student is expected to:</b></p> <p>(A) give examples of community changes that result from individual or group decisions;</p> <p>(B) identify examples of actions individuals and groups can take to improve the community; and</p> <p>(C) identify examples of nonprofit and/or civic organizations such as the Red Cross and explain how they</p>		
<p><b>D) Accepting personal responsibility—Learners understand that their actions can have broad consequences and they they are responsible for those consequences.</b></p>		<p><b>3.12: Citizenship. The student understands the impact of individual and group decisions on communities in a constitutional republic. The student is expected to:</b></p> <p>(A) give examples of community changes that result from individual or group decisions;</p> <p>(B) identify examples of actions individuals and groups can take to improve the community; and</p> <p>(C) identify examples of nonprofit and/or civic organizations such as the Red Cross and explain how they serve the common good.</p>		

## EE-TEKS-CCRS CROSSWALK

*Alignment of the Excellence in Environmental Education: Guidelines for Learning (NAAEE) the Texas Essential Knowledge and Skills, & College & Career Readiness Science & Social Studies Standards*

EE Learner Guidelines	4th Grade Science	4th Grade Social Studies	CCRS Science	CCRS Social Studies
<b>Strand 1: Questioning, Analysis &amp; Interpretation Skills</b>				
<p><b>A) Questioning—Learners are able to develop questions that help them learn about the environment and do simple investigations.</b></p>	<p><b>4.2. Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and outdoor investigations. The student is expected to:</b></p> <p>(A) plan and implement descriptive investigations, including asking well-defined questions, making inferences, and selecting and using appropriate equipment or technology to answer his/her questions;</p>		<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive skills in science</b>                      3. Formulate appropriate questions to test understanding of natural phenomena.</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>F. Problems solving</b>                      1. Use a variety of research and analytical tools to explore questions or issues thoroughly and fairly.</p>
<p><b>B) Designing investigations—Learners are able to design simple investigations.</b></p>	<p><b>4.2. Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and outdoor investigations. The student is expected to:</b></p> <p>(A) plan and implement descriptive investigations, including asking well-defined questions, making inferences, and selecting and using appropriate equipment or technology to answer his/her questions;</p> <p>(C) construct simple tables, charts, bar graphs, and maps using tools and current technology to organize, examine, and evaluate data;</p>		<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>B. Scientific Inquiry</b>                      1. Design and conduct scientific investigations in which hypotheses are formulated and tested</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research and methods</b>                      1. Use established research methodologies</p>

EE Learner Guidelines	4th Grade Science	4th Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>C) Collecting information</b>—Learners are able to locate and collect information about the environment and environmental topics.</p>	<p><b>4.2. Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and outdoor investigations. The student is expected to:</b>            (B) collect and record data by observing and measuring, using the metric system, and using descriptive words and numerals such as labeled drawings, writing, and concept maps.</p> <p><b>4.4. Scientific investigation and reasoning. The student knows how to use a variety of tools, materials, equipment, and models to conduct science inquiry. The student is expected to:</b>            (A) collect, record, and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, mirrors, spring scales, pan balances, triple beam balances, graduated cylinders, beakers, hot plates, meter sticks, compasses, magnets, collecting nets, and notebooks; timing devices, including clocks and stopwatches; and materials to support observation of habitats of organisms such as terrariums and aquariums; and</p> <p><b>4.8. Earth and space. The student knows that there are recognizable patterns in the natural world and among the Sun, Earth, and Moon system. The student is expected to:</b></p>	<p><b>4.21: Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b></p> <p>(A) differentiate between, locate, and use valid primary and secondary sources such as computer software; interviews; biographies; oral, print, and visual material; documents; and artifacts to acquire information about the United States and Texas;            (D) identify different points of view about an issue, topic, historical event, or current event</p>	<p><b>I. Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive Skills in science</b>            4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p> <p><b>D. Current Scientific Technology</b>            3. Demonstrate appropriate use of a wide variety of apparatuses, equipment, techniques, and procedures for collecting quantitative and qualitative data</p> <p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>A. Research Skills/Information Literacy</b>            1. Use search engines, databases, and other digital electronic tools effectively to locate information.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research and methods</b>            3. Gather, organize and display the results of data and research            4. Identify and collect sources</p>

EE Learner Guidelines	4th Grade Science	4th Grade Social Studies	CCRS Science	CCRS Social Studies
	(C) collect and analyze data to identify sequences and predict patterns of change in shadows, tides, seasons, and the observable appearance of the Moon over time.			
<p><b>D) Evaluating accuracy and reliability—Learners understand the need to use reliable information to answer their questions. They are familiar with some basic factors to consider in judging the merits of information.</b></p>	<p><b>4.3. Scientific investigation and reasoning. The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:</b></p> <p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p> <p>(B) draw inferences and evaluate accuracy of services and product claims found in advertisements and labels such as for toys, food, and sunscreen;</p> <p><b>4.2. Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and outdoor investigations. The student is expected to:</b></p> <p>(E) perform repeated investigations to increase the reliability of results;</p>		<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b></p> <p><b>A. Cognitive Skills in Science</b></p> <ol style="list-style-type: none"> <li>Utilize skepticism, logic, and professional ethics in science</li> <li>Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</li> </ol> <p><b>III. Foundation Skills: Scientific Applications of Communication</b></p> <p><b>D. Research skills/information literacy</b></p> <ol style="list-style-type: none"> <li>Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</li> </ol>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b></p> <p><b>A. Critical examinations of texts, images, and other sources of information</b></p> <ol style="list-style-type: none"> <li>Identify and analyze the main idea(s) and point(s)-of-view in sources.</li> <li>Situate an informational source in its appropriate contexts (contemporary, historical, cultural)</li> <li>Evaluate sources from multiple perspectives</li> <li>Understand the difference between a primary and secondary source and use each appropriately to conduct research and construct arguments</li> <li>Read narrative texts critically</li> <li>Read research data critically</li> </ol>

EE Learner Guidelines	4th Grade Science	4th Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>E) Organizing information</b>—Learners are able to describe data and organize information to search for relationships and patterns concerning the environment and environmental topics.</p>	<p><b>4.2. Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and outdoor investigations. The student is expected to:</b> (C) construct simple tables, charts, bar graphs, and maps using tools and current technology to organize, examine, and evaluate data;</p> <p><b>4.3. Scientific investigation and reasoning. The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:</b> (D) connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.</p>	<p><b>4.2.1: Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b></p> <p>(B) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions;</p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b> <b>A. Cognitive Skills in Science</b> 2. Use creativity and insight to recognize and describe patterns in natural phenomena.</p> <p><b>E. Effective communication of scientific information</b> 1. Use several modes of expression to describe or characterize natural phenomena. These modes of expression include narrative, and numerical, graphical, pictorial, symbolic, and kinesthetic.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b> <b>B. Research methods</b> 3. Gather, organize, and display the results of data and research</p>
<p><b>F) Working with models and simulations</b>—Learners understand that relationships, patterns, and processes can be represented by models.</p>	<p><b>4.3. Scientific investigation and reasoning. The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:</b> (C) represent the natural world using models such as rivers, stream tables, or fossils and identify their limitations, including accuracy and size;</p>	<p><b>4.6: Geography. The student uses geographic tools to collect, analyze, and interpret data. The student is expected to:</b> <b>(A)</b> apply geographic tools, including grid systems, legends, symbols, scales, and compass roses, to construct and interpret maps; and <b>(B)</b> translate geographic data, population distribution, and natural resources into a variety of formats such as graphs and maps.</p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b> <b>D. Current Scientific Technology:</b> 2. Use computer models, applications, and simulations</p>	

EE Learner Guidelines	4th Grade Science	4th Grade Social Studies	CCRS Science	CCRS Social Studies
	<p><b>4.4:</b> Scientific investigation and reasoning. The student knows how to use a variety of tools, materials, equipment, and models to conduct science inquiry. The student is expected to:</p> <p>(A) collect, record, and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, mirrors, spring scales, pan balances, triple beam balances, graduated cylinders, beakers, hot plates, meter sticks, compasses, magnets, collecting nets, and notebooks; timing devices, including clocks and stopwatches; and materials to support observation of habitats of organisms such as terrariums and aquariums</p>	<p><b>4.21:</b> Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to: (E) use appropriate mathematical skills to interpret social studies information such as maps and graphs.</p>	<p><b>II. Foundations Skills: Scientific Application of Mathematics</b>  <b>B. Mathematics as symbolic language</b>  2. Represent natural events, processes, and relationships with algebraic expressions and algorithms</p> <p><b>V. Cross Disciplinary Themes</b>  <b>E. Measurements and Models</b>  1. Use models to make predictions  2. Use scale to relate models and structures</p>	
<p><b>G) Drawing conclusions and developing explanations—Learners can develop simple explanations that address their questions about the environment.</b></p>	<p><b>4.2.</b> Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and outdoor investigations. The student is expected to:</p> <p>(D) analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured;</p>		<p><b>I. Nature of Science: Scientific Ways of Thinking</b>  <b>A. Cognitive Skills in Science</b>  4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>D. Reaching Conclusions</b>  1. Construct a thesis that is supported by evidence</p>

EE Learner Guidelines	4th Grade Science	4th Grade Social Studies	CCRS Science	CCRS Social Studies
<b>Strand 2.1: Knowledge of Environmental Processes and Systems</b>				
<p><b>A) Processes that shape the Earth—Learners have a basic understanding of most of the physical processes that shape the Earth. They are able to explore the origin of differences in physical patterns.</b></p>	<p><b>4.7. Earth and space. The students know that Earth consists of useful resources and its surface is constantly changing. The student is expected to:</b>            (B) observe and identify slow changes to Earth's surface caused by weathering, erosion, and deposition from water, wind, and ice;</p> <p><b>4.8: Earth and space. The student knows that there are recognizable patterns in the natural world and among the Sun, Earth, and Moon system. The student is expected to:</b>            (A) measure and record changes in weather and make predictions using weather maps, weather symbols, and a map key;            (B) describe and illustrate the continuous movement of water above and on the surface of Earth through the water cycle and explain the role of the Sun as a major source of energy in this process; and            (C) collect and analyze data to identify sequences and predict patterns of change in shadows, tides, seasons, and the observable appearance of the Moon over time.</p>	<p><b>4.7 Geography. The student understands the concept of regions. The student is expected to:</b>            (B) identify, locate, and compare the geographic regions of Texas (Mountains and Basins, Great Plains, North Central Plains, Coastal Plains), including their landforms, climate, and vegetation;</p>	<p><b>IX. Earth and Space Sciences</b>  <b>A. Earth Systems</b>            3. Possess a scientific understanding of the history of the Earth's systems.  <b>E. Plate Tectonics</b>            1. Describe evidence that supports the current theory of plate tectonics            2. Identify major tectonic plates            3. Describe the motion and interaction of tectonic plates            4. Describe the rock cycle and its products</p>	
<p><b>B) Changes in matter—Learners understand the properties of the substances that make up objects or materials found in the environment.</b></p>	<p><b>4.5: Matter and energy. The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to:</b></p>		<p><b>V. Cross-Disiplinary Themes</b>  <b>A. Matter/states of matter</b>            2. Understanding typical states of matter (solid, liquid, gas) and phase changes among these.</p>	

EE Learner Guidelines	4th Grade Science	4th Grade Social Studies	CCRS Science	CCRS Social Studies
	<p>(A) measure, compare, and contrast physical properties of matter, including size, mass, volume, states (solid, liquid, gas), temperature, magnetism, and the ability to sink or float;</p> <p><b>4.7: Earth and space. The students know that Earth consists of useful resources and its surface is constantly changing. The student is expected to:</b></p> <p>(A) examine properties of soils, including color and texture, capacity to retain water, and ability to support the growth of plants;</p> <p>(B) observe and identify slow changes to Earth's surface caused by weathering, erosion, and deposition from water, wind, and ice; and</p>		<p><b>VII. Chemistry</b>  <b>A. Matter and its properties</b>  1. Know that physical and chemical properties can be used to describe and classify matter. Recognize and classify pure substances (elements and compounds) and mixtures.</p> <p><b>IX. Earth and Space Systems</b>  <b>F. Energy transfer within and among systems</b>  1. Describe matter and energy transfer in the Earth's systems.  2. Give examples of effects of energy transfer within and among systems.</p>	
	<p>(C) identify and classify Earth's renewable resources, including air, plants, water, and animals; and nonrenewable resources, including coal, oil, and natural gas; and the importance of conservation.</p>			
<p><b>C) Energy—Learners begin to grasp formal concepts related to energy by focusing on energy transfer and transformations. They are able to make connections among the phenomena such as light, heat, magnetism, electricity, and the motion of objects.</b></p>	<p><b>4.5: Matter and energy. The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used.</b></p>		<p><b>V. Cross-Disciplinary Themes</b>  <b>B. Energy (thermodynamics, kinetic, potential, energy transfers)</b>  1. Understand the Laws of Thermodynamics  2. Know the processes of energy transfer</p>	

EE Learner Guidelines	4th Grade Science	4th Grade Social Studies	CCRS Science	CCRS Social Studies
	<p>(B) predict the changes caused by heating and cooling such as ice becoming liquid water and condensation forming on the outside of a glass of ice water; and</p> <p>(C) compare and contrast a variety of mixtures and solutions such as rocks in sand, sand in water, or sugar in water.</p> <p><b>4.6: Force, motion, and energy. The student knows that energy exists in many forms and can be observed in cycles, patterns, and systems. The student is expected to:</b></p> <p>(A) differentiate among forms of energy, including mechanical, sound, electrical, light, and heat/thermal;</p> <p>(B) differentiate between conductors and insulators;</p> <p>(C) demonstrate that electricity travels in a closed path, creating an electrical circuit, and explore an electromagnetic field; and</p> <p>(D) design an experiment to test the effect of force on an object such as a push or a pull, gravity, friction, or magnetism.</p>		<p><b>VI. Biology</b>  <b>G. Ecology</b>  2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p> <p><b>VII. Chemistry</b>  <b>H. Thermochemistry</b>  1. Understand the Law of Conservation of Energy and processes of heat transfer.  2. Understand energy changes and chemical reactions</p> <p><b>VIII. Physics</b>  <b>C. Force and Motion</b>  1. Understand the fundamental concepts of kinematics  2. Understand forces and Newton's Law,  3. Understand the concept of momentum.</p> <p><b>D. Mechanical Energy</b>  1. Understand potential and kinetic energy.  2. Understand conservation of energy  3. Understand relationship of work and mechanical energy</p> <p><b>X. Environmental Science</b>  <b>B. Energy</b>  1. Understand energy transformations  2. Know various sources of energy for humans and other biological systems</p>	

EE Learner Guidelines	4th Grade Science	4th Grade Social Studies	CCRS Science	CCRS Social Studies
<b>Strand 2.2: The Living Environment</b>				
<p><b>A) Organisms, populations, and communities—Learners understand that biotic communities are made up of plants and animals that are adapted to live in particular environments.</b></p>	<p><b>4.10. Organisms and environments. The student knows that organisms undergo similar life processes and have structures that help them survive within their environment. The student is expected to:</b></p> <p>(A) explore how adaptations enable organisms to survive in their environment such as comparing birds' beaks and leaves on plants;</p>		<p><b>VI. Biology</b>  <b>G. Ecology</b>  1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.  2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p>	
<p><b>B) Heredity and evolution—Learners have a basic understanding of the importance of genetic heritage.</b></p>	<p><b>4.10. Organisms and environments. The student knows that organisms undergo similar life processes and have structures that help them survive within their environment. The student is expected to:</b></p> <p>(B) demonstrate that some likenesses between parents and offspring are inherited, passed from generation to generation such as eye color in humans or shapes of leaves in plants. Other likenesses are learned such as table manners or reading a book and seals balancing balls on their noses;</p>		<p><b>VI. Biology</b>  <b>C. Evolution and populations</b>  1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.  2. Recognize variations in population sizes, including extinction, and describe mechanisms and conditions that produce these variations.</p> <p><b>D. Molecular genetics and heredity</b>  1. Understand Mendel's Law of inheritance,  2. Know modifications of Mendel's Law,  3. Understand the molecular structure and functions of nucleic acids  4. Understand simple principles of population genetics and describe characteristics of Hardy-Weinberg population.  5. Describe the major features of meiosis and relate this process to Mendel's law of inheritance.</p>	

EE Learner Guidelines	4th Grade Science	4th Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>C) Systems and connections—Learners understand major kinds of interactions among organisms or populations of organisms.</b></p>	<p><b>4.9. Organisms and environments. The student knows and understands that living organisms within an ecosystem interact with one another and with their environment. The student is expected to:</b></p> <p>(A) investigate that most producers need sunlight, water, and carbon dioxide to make their own food, while consumers are dependent on other organisms for food; and</p> <p>(B) describe the flow of energy through food webs, beginning with the Sun, and predict how changes in the ecosystem affect the food web such as a fire in a forest.</p>		<p><b>IV. Biology</b>  <b>C. Evolution and populations</b>  1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.</p> <p><b>G. Ecology</b>  1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.  2. Know patterns of energy flow and material cycling in Earth's ecosystems.  3. Understand typical forms of organismal behavior.  4. Know the process of succession</p> <p><b>X. Environmental Science</b>  <b>A. Earth Systems</b>  5. Be familiar with the Earth's major biomes</p>	
<p><b>D) Flow of matter and energy—Learners understand how energy and matter flow among the abiotic and biotic components of the environment.</b></p>	<p><b>4.9: Organisms and environments. The student knows and understands that living organisms within an ecosystem interact with one another and with their environment. The student is expected to:</b></p> <p>(A) investigate that most producers need sunlight, water, and carbon dioxide to make their own food, while consumers are dependent on other organisms for food; and</p>		<p><b>V. Biology</b>  <b>B. Biochemistry</b>  3. Describe the major features and chemical events of photosynthesis  4. Describe the major features and chemical events of cellular respiration  5. Know how organisms respond to the presence or absence of oxygen, including mechanisms of fermentation</p> <p><b>G. Ecology</b>  2. Know the patterns of energy flow and material cycling in Earth's ecosystems.</p>	

EE Learner Guidelines	4th Grade Science	4th Grade Social Studies	CCRS Science	CCRS Social Studies
	(B) describe the flow of energy through food webs, beginning with the Sun, and predict how changes in the ecosystem affect the food web such as a fire in a forest.		<b>X. Environmental Science</b> <b>B. Energy</b> 1. Understanding energy transformations 2. Know the various sources of energy for humans and other biological systems	
<b>Strand 2.3: Humans and Their Societies</b>				
<b>A) Individuals and groups—Learners understand that how individuals perceive the environment is influenced in part by individual traits and group membership or affiliations.</b>				<b>I. Interrelated Disciplines and Skills</b> <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b> 2. Analyze the interaction between human communities and the environment. <b>II. Diverse Human Perspectives</b> <b>B. Factors that influence personal and group identities (e.g. race, ethnicity, gender, nationalist, institutional affiliations, socioeconomic status)</b> 6. Analyze how individual and group identities are established and changes over time.
<b>B) Culture—As they become familiar with a wider range of cultures and subcultures, learners gain an understanding of cultural perspectives on the environment and how the environment may, in turn, influence culture.</b>		<b>4.8: Geography. The student understands the location and patterns of settlement and the geographic factors that influence where people live. The student is expected to:</b> (C) explain the geographic factors such as landforms and climate that influence patterns of settlement and the distribution of population in Texas, past and present.		<b>I. Interrelated Disciplines and Skills</b> <b>A. Spatial analysis of physical processes that shape the human experience.</b> 2. Analyze the interaction between human communities and the environment. 3. Analyze how physical and cultural processes have shaped human communities over time.

EE Learner Guidelines	4th Grade Science	4th Grade Social Studies	CCRS Science	CCRS Social Studies
		<p><b>4.19: Culture. The student understands the contributions of people of various racial, ethnic, and religious groups to Texas. The student is expected to:</b></p> <p>(A) identify the similarities and differences among various racial, ethnic, and religious groups in Texas;</p> <p>(B) identify customs, celebrations, and traditions of various cultural, regional, and local groups in Texas such as Cinco de Mayo, Oktoberfest, the Strawberry Festival, and Fiesta San Antonio;</p>		<p>5. Analyze how various cultural regions of changed over time.</p> <p>6. Analyze the relationship between geography and the development of human communities.</p>
<p><b>C) Political and economic systems—Learners become more familiar with political and economic systems and how these systems take the environment into consideration.</b></p>		<p><b>4.10: Economics. The student understands the basic economic activities of early societies in Texas and North America. The student is expected to:</b></p> <p>(A) explain the economic activities various early American Indian groups in Texas and North America used to meet their needs and wants such as farming, trading, and hunting; and</p> <p>(B) explain the economic activities early immigrants to Texas used to meet their needs and wants.</p>	<p><b>X. Environmental Science</b>  <b>D. Economics and politics</b></p> <p>1. name and describe major environmental policies and legislation</p> <p>2. Understand the types, uses, and regulations of various natural resources</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>C. Change and continuity of political ideologies, constitutions and political behaviour.</b></p> <p>1. Evaluate different governmental systems and functions</p>

EE Learner Guidelines	4th Grade Science	4th Grade Social Studies	CCRS Science	CCRS Social Studies
		<p><b>4.12: Economics. The student understands patterns of work and economic activities in Texas. The student is expected to:</b></p> <p>(A) explain how people in different regions of Texas earn their living, past and present, through a subsistence economy and providing goods and services;</p> <p>(B) explain how geographic factors such as climate, transportation, and natural resources have influenced the location of economic activities in Texas;</p> <p>(C) analyze the effects of exploration, immigration, migration, and limited resources on the economic development and growth of Texas;</p> <p><b>4.14: Government. The student understands how people organized governments in different ways during the early development of Texas. The student is expected to:</b></p> <p>(A) compare how various American Indian groups such as the Caddo and the Comanche governed themselves; and</p> <p>(B) identify and compare characteristics of the Spanish colonial government and the early Mexican governments and their influence on inhabitants of Texas.</p>		<p><b><i>D. Change and continuity of economic systems and processes.</i></b></p> <p>1. Identify and evaluate the strengths and weaknesses of different economic systems.</p>

EE Learner Guidelines	4th Grade Science	4th Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>D) Global connections—Learners become familiar with ways in which the world's environmental, social, economic, cultural and political systems are linked.</b></p>		<p><b>4.13: Economics. The student understands how Texas, the United States, and other parts of the world are economically interdependent. The student is expected to:</b></p> <p>(A) identify ways in which technological changes in areas such as transportation and communication have resulted in increased interdependence among Texas, the United States, and the world;</p> <p>(B) identify oil and gas, agricultural, and technological products of Texas that are purchased to meet needs in the United States and around the world; and</p> <p>(C) explain how Texans meet some of their needs through the purchase of products from the United States and the rest of the world.</p>		<p><b>III. Interdependence of Global Communities</b></p> <p><b>A. Spatial understanding of global, regional, national, and local communities.</b></p> <p>1. Distinguish spatial patterns of human communities that exist between or within contemporary political boundaries.</p> <p>2. Connect regional or local developments to global ones.</p> <p>3. Analyze how and why diverse communities interact and become dependent on each other.</p>
<p><b>E) Change and conflict—Learners understand the humans social systems change over time and that conflicts sometimes arise over differing and changing viewpoints about the environment.</b></p>				<p><b>I. Interrelated disciplines and Skills</b></p> <p><b>E. Change and continuity of social groups, civic organizations, institutions, and their interaction.</b></p> <p>4. Identify and evaluate the sources and consequences of social conflict.</p>

EE Learner Guidelines	4th Grade Science	4th Grade Social Studies	CCRS Science	CCRS Social Studies
<b>Strand 2.4: Environment and Society</b>				
<p><b>A) Human/environment interactions—Learners understand that human-caused change have consequences for the immediate environment as well as for other places and future times.</b></p>		<p><b>4.5: History. The student understands important issues, events, and individuals of the 20th century in Texas. The student is expected to:</b></p> <p><b>(A)</b> identify the impact of various issues and events on life in Texas such as urbanization, increased use of oil and gas, the Great Depression, the Dust Bowl, and World War II;  <b>(B)</b> explain the development and impact of the oil and gas industry upon industrialization and urbanization in Texas, including important places and people such as Spindletop and Pattillo Higgins;</p> <p><b>4.9: Geography. The student understands how people adapt to and modify their environment. The student is expected to:</b></p> <p><b>(A)</b> describe ways people have adapted to and modified their environment in Texas, past and present, such as timber clearing, agricultural production, wetlands drainage, energy production, and construction of dams;</p>	<p><b>X. Environmental Science</b>  <b>E. Human practices and their impacts</b></p> <ol style="list-style-type: none"> <li>Describe the different uses for land (land management)</li> <li>Understand the use and consequences of pest management</li> <li>Know the different methods used to increase food production</li> <li>Understand land and water usage and management practices</li> <li>Understand how human practices affect air, water, and soil quality</li> </ol>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b></p> <ol style="list-style-type: none"> <li>Analyze the interaction between human communities and the environment.</li> <li>Evaluate the causes and effects of human migration patterns over time</li> <li>Analyze the relationship between geography and the development of human communities.</li> </ol>

EE Learner Guidelines	4th Grade Science	4th Grade Social Studies	CCRS Science	CCRS Social Studies
		<p><b>(B)</b> identify reasons why people have adapted to and modified their environment in Texas, past and present, such as the use of natural resources to meet basic needs, facilitate transportation, and enhance recreational activities; and</p> <p><b>(C)</b> compare the positive and negative consequences of human modification of the environment in Texas, past and present, both governmental and private, such as economic development and the impact on habitats and wildlife as well as air and water quality.</p>		
<p><b>B) Places—Learners begin to explore the meaning of place both close to home and around the world.</b></p>		<p><b>4.7: Geography. The student understands the concept of regions. The student is expected to:</b></p> <p><b>(A)</b> describe a variety of regions in Texas and the United States such as political, population, and economic regions that result from patterns of human activities;</p> <p><b>(B)</b> identify, locate, and compare the geographic regions of Texas (Mountains and Basins, Great Plains, North Central Plains, Coastal Plains), including their landforms, climate, and vegetation; and</p>		<p><b>I. Interrelated Disciplines and Skills</b></p> <p><b>A. Spatial analysis of physical and cultural processes that shape the human experience</b></p> <p>2. Analyze the interaction between human communities and the environment.</p> <p><b>III. Interdependence of Global Communities</b></p> <p><b>A. Spatial understanding of global, regional, national, and local communities.</b></p> <p>1. Distinguish spatial patterns of human communities that exist between or within contemporary boundaries.</p> <p>2. Connect regional or local development to global ones.</p> <p>3. Analyze how and why diverse communities interact and become dependent on each other.</p>

EE Learner Guidelines	4th Grade Science	4th Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>C) Resources—Learners understand uneven distribution of resources influences their use and perceived value.</b></p>	<p><b>4.7: Earth and space. The students know that Earth consists of useful resources and its surface is constantly changing. The student is expected to:</b>            (C) identify and classify Earth's renewable resources, including air, plants, water, and animals; and nonrenewable resources, including coal, oil, and natural gas; and the importance of conservation.</p>	<p><b>4.12: Economics. The student understands patterns of work and economic activities in Texas. The student is expected to:</b>            (B) explain how geographic factors such as climate, transportation, and natural resources have influenced the location of economic activities in Texas;             (C) analyze the effects of exploration, immigration, migration, and limited resources on the economic development and growth of Texas;</p>		
<p><b>D) Technology—Learners understand the human ability to shape and control the environment as a function of the capacities for creating knowledge and developing new technologies.</b></p>		<p><b>4.20: Science, technology, and society. The student understands the impact of science and technology on life in Texas. The student is expected to:</b>             (B) describe how scientific discoveries and innovations such as in aerospace, agriculture, energy, and technology have benefited individuals, businesses, and society in Texas; and            (C) predict how future scientific discoveries and technological innovations might affect life in Texas.</p>		

EE Learner Guidelines	4th Grade Science	4th Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>E) Environmental issues</b>—Learners are familiar with a range of environmental issues at scales that range from local to national to global. They understand that people in other places around the world experience environmental issues similar to the ones they are concerned about locally.</p>	<p><b>4.1:</b> Scientific investigation and reasoning. The student conducts classroom and outdoor investigations, following home and school safety procedures and environmentally appropriate and ethical practices. The student is expected to:</p> <p>(B) make informed choices in the use and conservation of natural resources and reusing and recycling of materials such as paper, aluminum, glass, cans, and plastic.</p>	<p><b>§113.15c.9:</b> Geography. The student understands how people adapt to and modify their environment. The student is expected to:</p> <p>(C) compare the positive and negative consequences of human modification of the environment in Texas, past and present, both governmental and private, such as economic development and the impact on habitats and wildlife as well as air and water quality.</p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b></p> <p><b>A. Cognitive skills in science</b></p> <p>2. Use creativity and insight to recognize and describe patterns in natural phenomena</p> <p><b>X. Environmental Science</b></p> <p><b>E. Human practices and their impacts</b></p> <p>1. Describe the different uses for land (land management)</p> <p>2. Understand the use and consequence of pest management</p> <p>3. Know the different methods used to increase food production</p> <p>4. Understand land and water usage and management practices</p> <p>5. Understand how human practices affect air, water, and soil quality</p>	

**Strand 3: Skills for Understanding and Addressing Environmental Issues**  
**Strand 3.1: Skills for Analyzing and Investigating Environmental Issues**

<p><b>A) Identifying and investigating issues</b>—Learners are able to use primary and secondary sources of information, and apply growing research and analytical skills, to investigate environmental issues, beginning in their own community.</p>		<p><b>4.21. Social studies skills.</b> The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</p> <p>(A) differentiate between, locate, and use valid primary and secondary sources such as computer software; interviews; biographies; oral, print, and visual material; documents; and artifacts to acquire information about the United States and Texas;</p>	<p><b>III. Foundation Skills: Scientific Applications of Communication</b></p> <p><b>D. Research skills/information literacy</b></p> <p>2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	
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EE Learner Guidelines	4th Grade Science	4th Grade Social Studies	CCRS Science	CCRS Social Studies
		<p>(B) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions;</p> <p><b>(23) Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p> <p>(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution; and</p> <p>(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.</p>		
<p><b>B) Sorting out the consequences of issues—Learners are able to apply their knowledge of ecological and human processes and systems to identify the consequences of specific environmental issues.</b></p>		<p><b>4.21 Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b></p>	<p><b>IV. Science, Technology, and Society</b>  <b>B. Social ethics</b>  1. Understand how scientific research and technology have and impact on ethical and legal practices</p>	

EE Learner Guidelines	4th Grade Science	4th Grade Social Studies	CCRS Science	CCRS Social Studies
		<p>(B) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions;</p> <p><b>4.23 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p> <p>(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, <i>predict consequences</i>, and take action to implement a decision.</p>		
<p><b>C) Identifying and evaluating alternative solutions and courses of action—Learners are able to identify and develop action strategies for addressing particular issues.</b></p>		<p><b>4.21 Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b></p> <p>(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution;</p>	<p><b>IV. Science, Technology, and Society</b>  <b>B. Social ethics</b>  1. Understand how scientific research and technology have and impact on ethical and legal practices</p>	

EE Learner Guidelines	4th Grade Science	4th Grade Social Studies	CCRS Science	CCRS Social Studies
		(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution;	2. Understand how commonly held ethical beliefs impact scientific research	
<p><b>D) Working with flexibility, creativity, and openness—Learners are able to consider the assumptions and interpretations that influence the conclusions they and others draw about environmental issues.</b></p>		<p><b>4.21: Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b>  <b>(D)</b> identify different points of view about an issue, topic, historical event, or current event;</p>	<p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>  2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	
<b>Strand 3.2: Decision Making and Citizenship Skills</b>				
<p><b>A) Forming and evaluating personal views—Learners are able to identify, justify, and clarify their views on environmental issues and alternative ways to address them.</b></p>		<p><b>4.22 Social studies skills. The student communicates in written, oral, and visual forms. The student is expected to:</b>  <b>(C)</b> express ideas orally based on research and experiences;</p>		
<p><b>B) Evaluating the need for citizen action—Learners are able to evaluate whether they believe action is needed in particular situations, and decide whether they should be involved.</b></p>		<p><b>4.23 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p>		

EE Learner Guidelines	4th Grade Science	4th Grade Social Studies	CCRS Science	CCRS Social Studies
		(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.		
<p><b>C) Planning and taking action—As learners begin to see themselves as citizens taking active roles in their communities, they are able to plan for and engage in citizen action at levels appropriate to their maturity and preparation.</b></p>		<p><b>4.23 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p> <p>(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.</p>		
<p><b>D) Evaluating the results of actions—Learners are able to analyze the effects of their own actions and actions taken by other individuals and groups.</b></p>		<p><b>4.23 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p> <p>(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution;</p>		

EE Learner Guidelines	4th Grade Science	4th Grade Social Studies	CCRS Science	CCRS Social Studies
<b>Strand 4: Personal and Civic Responsibility</b>				
<p><b>A) Understanding societal values and principles—Learners understand that societal values can be both a unifying and a divisive force</b></p>		<p><b>4.15 Government. The student understands important ideas in historical documents of Texas and the United States. The student is expected to:</b>            (A) identify the purposes and explain the importance of the Texas Declaration of Independence, the Texas Constitution, and other documents such as the Meusebach-Comanche Treaty;</p> <p>(C) identify the intent, meaning, and importance of the Declaration of Independence, the U.S. Constitution, and the Bill of Rights (Celebrate Freedom Week).</p> <p><b>4.18 Citizenship. The student understands the importance of effective leadership in a constitutional republic. The student is expected to:</b>            (B) identify leadership qualities of state and local leaders, past and present.</p>	<p><b>IV. Science, Technology, and Society</b>  <b>B. Social Ethics</b>            1. Understand how scientific research and technology have an impact on ethical and legal practices.            2. Understand how commonly held ethical beliefs impact scientific research.</p>	
<p><b>B) Recognizing citizens' rights and responsibilities—Learners understand the rights and responsibilities of citizenship and their importance in promoting the resolution of environmental issues.</b></p>		<p><b>(17) Citizenship. The student understands the importance of active individual participation in the democratic process. The student is expected to:</b>            (A) identify important individuals who have participated voluntarily in civic affairs at state and local levels such as Adina de Zavala and Clara Driscoll;</p>		

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		<p>(B) explain how individuals can participate voluntarily in civic affairs at state and local levels through activities such as holding public officials to their word, writing letters, and participating in historic preservation and service projects;</p> <p>(C) explain the duty of the individual in state and local elections such as being informed and voting;</p> <p>(D) identify the importance of historical figures and important individuals who modeled active participation in the democratic process such as Sam Houston, Barbara Jordan, Lorenzo de Zavala, Ann Richards, Sam Rayburn, Henry B. González, James A. Baker III, Wallace Jefferson, and other local individuals; and</p> <p>(E) explain how to contact elected and appointed leaders in state and local governments.</p>		
<p><b>C) Recognizing efficacy—Learners possess a realistic self-confidence in their effectiveness as citizens.</b></p>		<p><b>4.17 Citizenship. The student understands the importance of active individual participation in the democratic process. The student is expected to:</b></p> <p>(A) identify important individuals who have participated voluntarily in civic affairs at state and local levels such as Adina de Zavala and Clara Driscoll;</p>		

EE Learner Guidelines	4th Grade Science	4th Grade Social Studies	CCRS Science	CCRS Social Studies
		(D) identify the importance of historical figures and important individuals who modeled active participation in the democratic process such as Sam Houston, Barbara Jordan, Lorenzo de Zavala, Ann Richards, Sam Rayburn, Henry B. González, James A. Baker III, Wallace Jefferson, and other local individuals		
<p><b>D) Accepting personal responsibility—Learners understand that their actions can have broad consequences and they are responsible for those consequences.</b></p>	<p><b>4.1: Scientific investigation and reasoning. The student conducts classroom and outdoor investigations, following home and school safety procedures and environmentally appropriate and ethical practices. The student is expected to:</b></p> <p>(B) make informed choices in the use and conservation of natural resources and reusing and recycling of materials such as paper, aluminum, glass, cans, and plastic.</p>			

## EE-TEKS-CCRS CROSSWALK

### *Alignment of the Excellence in Environmental Education: Guidelines for Learning (NAAEE) the Texas Essential Knowledge and Skills, & College & Career Readiness Science & Social Studies Standards*

EE Learner Guidelines	5th Grade Science	5th Grade Social Studies	CCRS Science	CCRS Social Studies
<b>Strand 1: Questioning, Analysis &amp; Interpretation Skills</b>				
<b>A) Questioning—Learners are able to develop questions that help them learn about the environment and do simple investigations.</b>	<b>5.2 Scientific investigation and reasoning. The student uses scientific methods during laboratory and outdoor investigations. The student is expected to:</b> (A) describe, plan, and implement simple experimental investigations testing one variable;  (B) ask well-defined questions, formulate testable hypotheses, and select and use appropriate equipment and technology;		<b>I. Nature of Science: Scientific Ways of Learning and Thinking</b> <b>A. Cognitive skills in science</b> 3. Formulate appropriate questions to test understanding of natural phenomena.	<b>I. Interrelated Disciplines and Skills</b> <b>F. Problems solving</b> 1. Use a variety of research and analytical tools to explore questions or issues thoroughly and fairly.
<b>B) Designing investigations—Learners are able to design simple investigations.</b>	<b>5.2 Scientific investigation and reasoning. The student uses scientific methods during laboratory and outdoor investigations. The student is expected to:</b> (A) describe, plan, and implement simple experimental investigations testing one variable;		<b>I. Nature of Science: Scientific Ways of Learning and Thinking</b> <b>B. Scientific Inquiry</b> 1. Design and conduct scientific investigations in which hypotheses are formulated and tested	<b>IV. Analysis, Synthesis, and Evaluation of Information</b> <b>B. Research and methods</b> 1. Use established research methodologies
<b>C) Collecting information—Learners are able to locate and collect information about the environment and environmental topics.</b>	<b>5.2 Scientific investigation and reasoning. The student uses scientific methods during laboratory and outdoor investigations. The student is expected to:</b> (C) collect information by detailed observations and accurate measuring;	<b>5.24: Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b>	<b>I. Scientific Ways of Learning and Thinking</b> <b>A. Cognitive Skills in science</b> 4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.	<b>IV. Analysis, Synthesis, and Evaluation of Information</b> <b>B. Research and methods</b> 3. Gather, organize and display the results of data and research 4. Identify and collect sources

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	<p><b>5.4 Scientific investigation and reasoning. The student knows how to use a variety of tools and methods to conduct science inquiry. The student is expected to:</b></p> <p>(A) collect, record, and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, prisms, mirrors, pan balances, triple beam balances, spring scales, graduated cylinders, beakers, hot plates, meter sticks, magnets, collecting nets, and notebooks; timing devices, including clocks and stopwatches; and materials to support observations of habitats or organisms such as terrariums and aquariums;</p>	<p>(A) differentiate between, locate, and use valid primary and secondary sources such as computer software; interviews; biographies; oral, print, and visual material; documents; and artifacts to acquire information about the United States;</p> <p>(D) identify different points of view about an issue, topic, or current event;</p>	<p><b>D. Current Scientific Technology</b></p> <p>3. Demonstrate appropriate use of a wide variety of apparatuses, equipment, techniques, and procedures for collecting quantitative and qualitative data</p> <p><b>III. Foundation Skills: Scientific Applications of Communication</b></p> <p><b>A. Research Skills/Information Literacy</b></p> <p>1. Use search engines, databases, and other digital electronic tools effectively to locate information.</p>	
<p><b>D) Evaluating accuracy and reliability—Learners understand the need to use reliable information to answer their questions. They are familiar with some basic factors to consider in judging the merits of information.</b></p>	<p><b>5.3 Scientific investigation and reasoning. The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:</b></p> <p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p>		<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b></p> <p><b>A. Cognitive Skills in Science</b></p> <p>1. Utilize skepticism, logic, and professional ethics in science</p> <p>4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b></p> <p><b>A. Critical examinations of texts, images, and other sources of information</b></p> <p>1. Identify and analyze the main idea(s) and point(s)-of-view in sources.</p> <p>2. Situate an informational source in its appropriate contexts (contemporary, historical, cultural)</p> <p>3. Evaluate sources from multiple perspectives</p>

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	(B) evaluate the accuracy of the information related to promotional materials for products and services such as nutritional labels;		<b>III. Foundation Skills: Scientific Applications of Communication</b> <b>D. Research skills/information literacy</b> 2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.	4. Understand the difference between a primary and secondary source and use each appropriately to conduct research and construct arguments 5. Read narrative texts critically 6. Read research data critically
<b>E) Organizing information—Learners are able to describe data and organize information to search for relationships and patterns concerning the environment and environmental topics.</b>	<b>5.2 Scientific investigation and reasoning. The student uses scientific methods during laboratory and outdoor investigations. The student is expected to:</b>  (A) describe, plan, and implement simple experimental investigations testing one variable; (G) construct appropriate simple graphs, tables, maps, and charts using technology, including computers, to organize, examine, and evaluate information.	<b>5.24: Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b>  (C) organize and interpret information in outlines, reports, databases, and visuals, including graphs, charts, timelines, and maps;	<b>I. Nature of Science: Scientific Ways of Thinking</b> <b>A. Cognitive Skills in Science</b> 2. Use creativity and insight to recognize and describe patterns in natural phenomena.  <b>E. Effective communication of scientific information</b> 1. Use several modes of expression to describe or characterize natural phenomena. These modes of expression include narrative, and numerical, graphical, pictorial, symbolic, and kinesthetic.	<b>IV. Analysis, Synthesis, and Evaluation of Information</b> <b>B. Research methods</b> 3. Gather, organize, and display the results of data and research
<b>F) Working with models and simulations—Learners understand that relationships, patterns, and processes can be represented by models.</b>	<b>5.2 Scientific investigation and reasoning. The student uses scientific methods during laboratory and outdoor investigations. The student is expected to:</b> (G) construct appropriate simple graphs, tables, maps, and charts using technology, including computers, to organize, examine, and evaluate information.	<b>5.6: Geography. The student uses geographic tools to collect, analyze, and interpret data. The student is expected to:</b> (A) apply geographic tools, including grid systems, legends, symbols, scales, and compass roses, to construct and interpret maps; and (B) translate geographic data into a variety of formats such as raw data to graphs and maps.	<b>I. Nature of Science: Scientific Ways of Learning and Thinking</b> <b>D. Current Scientific Technology:</b> 2. Use computer models, applications, and simulations	

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	<p><b>5.3 Scientific investigation and reasoning. The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:</b>            (C) draw or develop a model that represents how something works or looks that cannot be seen such as how a soda dispensing machine works;</p>	<p><b>5.7: Geography. The student understands the concept of regions in the United States. The student is expected to:</b>            (C) locate on a map important political features such as the ten largest urban areas in the United States, the 50 states and their capitals, and regions such as the Northeast, the Midwest, and the Southwest; and            (D) locate on a map important physical features such as the Rocky Mountains, Mississippi River, and Great Plains.</p>	<p><b>II. Foundations Skills: Scientific Application of Mathematics</b>  <b>B. Mathematics as symbolic language</b>            2. Represent natural events, processes, and relationships with algebraic expressions and algorithms  <b>V. Cross Disciplinary Themes</b>  <b>E. Measurements and Models</b>            1. Use models to make predictions            2. Use scale to relate models and structures</p>	
<p><b>G) Drawing conclusions and developing explanations—Learners can develop simple explanations that address their questions about the environment.</b></p>	<p><b>5.2 Scientific investigation and reasoning. The student uses scientific methods during laboratory and outdoor investigations. The student is expected to:</b>            (F) communicate valid conclusions in both written and verbal forms;</p>		<p><b>I. Nature of Science: Scientific Ways of Thinking</b>  <b>A. Cognitive Skills in Science</b>            4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>D. Reaching Conclusions</b>            1. Construct a thesis that is supported by evidence</p>
<b>Strand 2.1: Knowledge of Environmental Processes and Systems</b>				
<p><b>A) Processes that shape the Earth—Learners have a basic understanding of most of the physical processes that shape the Earth. They are able to explore the origin of differences in physical patterns.</b></p>	<p><b>5.7 Earth and space. The student knows Earth's surface is constantly changing and consists of useful resources. The student is expected to:</b>            (A) explore the processes that led to the formation of sedimentary rocks and fossil fuels;            (B) recognize how landforms such as deltas, canyons, and sand dunes are the result of changes to Earth's surface by wind, water, and ice;</p>	<p><b>5.7 Geography. The student understands the concept of regions in the United States. The student is expected to:</b>            (B) describe a variety of regions in the United States such as landform, climate, and vegetation regions that result from physical characteristics such as the Great Plains, Rocky Mountains, and Coastal Plains;</p>	<p><b>IX. Earth and Space Sciences</b>  <b>A. Earth Systems</b>            3. Possess a scientific understanding of the history of the Earth's systems.  <b>E. Plate Tectonics</b>            1. Describe evidence that supports the current theory of plate tectonics            2. Identify major tectonic plates            3. Describe the motion and interaction of tectonic plates            4. Describe the rock cycle and its products</p>	

EE Learner Guidelines	5th Grade Science	5th Grade Social Studies	CCRS Science	CCRS Social Studies
	<p><b>5.8 Earth and space. The student knows that there are recognizable patterns in the natural world and among the Sun, Earth, and Moon system. The student is expected to:</b></p> <p>(A) differentiate between weather and climate;            (B) explain how the Sun and the ocean interact in the water cycle;</p> <p>(C) demonstrate that Earth rotates on its axis once approximately every 24 hours causing the day/night cycle and the apparent movement of the Sun across the sky; and</p>			
	<p>(D) identify and compare the physical characteristics of the Sun, Earth, and Moon.</p>			
<p><b>B) Changes in matter—Learners understand the properties of the substances that make up objects or materials found in the environment.</b></p>	<p><b>5.5 Matter and energy. The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to:</b></p> <p>(A) classify matter based on physical properties, including mass, magnetism, physical state (solid, liquid, and gas), relative density (sinking and floating), solubility in water, and the ability to conduct or insulate thermal energy or electric energy;</p>		<p><b>V. Cross-Disiplinary Themes</b>  <b>A. Matter/states of matter</b>            2. Understanding typical states of matter (solid, liquid, gas) and phase changes among these.</p>	

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	<p>(B) identify the boiling and freezing/melting points of water on the Celsius scale;</p> <p>(C) demonstrate that some mixtures maintain physical properties of their ingredients such as iron filings and sand; and</p> <p>(D) identify changes that can occur in the physical properties of the ingredients of solutions such as dissolving salt in water or adding lemon juice to water.</p>		<p><b>VII. Chemistry</b>  <b>A. Matter and its properties</b>  1. Know that physical and chemical properties can be used to describe and classify matter. Recognize and classify pure substances (elements and compounds) and mixtures.  <b>IX. Earth and Space Systems</b>  <b>F. Energy transfer within and among systems</b>  1. Describe matter and energy transfer in the Earth's systems.  2. Give examples of effects of energy transfer within and among systems.</p>	
<p><b>C) Energy—Learners begin to grasp formal concepts related to energy by focusing on energy transfer and transformations. They are able to make connections among the phenomena such as light, heat, magnetism, electricity, and the motion of objects.</b></p>	<p><b>5.5 Matter and energy. The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to:</b>  (B) identify the boiling and freezing/melting points of water on the Celsius scale;  (D) identify changes that can occur in the physical properties of the ingredients of solutions such as dissolving salt in water or adding lemon juice to water.</p> <p><b>5.6 Force, motion, and energy. The student knows that energy occurs in many forms and can be observed in cycles, patterns, and systems. The student is expected to:</b>  (A) explore the uses of energy, including mechanical, light, thermal, electrical, and sound energy;</p>		<p><b>V. Cross-Disciplinary Themes</b>  <b>B. Energy (thermodynamics, kinetic, potential, energy transfers)</b>  1. Understand the Laws of Thermodynamics  2. Know the processes of energy transfer</p> <p><b>VI. Biology</b>  <b>G. Ecology</b>  2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p>	

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	<p>(B) demonstrate that the flow of electricity in circuits requires a complete path through which an electric current can pass and can produce light, heat, and sound;</p> <p>(C) demonstrate that light travels in a straight line until it strikes an object or travels through one medium to another and demonstrate that light can be reflected such as the use of mirrors or other shiny surfaces and refracted such as the appearance of an object when observed through water; and</p> <p>(D) design an experiment that tests the effect of force on an object.</p>		<p><b>VII. Chemistry</b>  <b>H. Thermochemistry</b>  1. Understand the Law of Conservation of Energy and processes of heat transfer.  2. Understand energy changes and chemical reactions</p> <p><b>VIII. Physics</b>  <b>C. Force and Motion</b>  1. Understand the fundamental concepts of kinematics  2. Understand forces and Newton's Law,  3. Understand the concept of momentum.</p> <p><b>D. Mechanical Energy</b>  1. Understand potential and kinetic energy.  2. Understand conservation of energy  3. Understand relationship of work and mechanical energy</p> <p><b>X. Environmental Science</b>  <b>B. Energy</b>  1. Understand energy transformations  2. Know various sources of energy for humans and other biological systems</p>	
<b>Strand 2.2: The Living Environment</b>				
<p><b>A) Organisms, populations, and communities—Learners understand that biotic communities are made up of plants and animals that are adapted to live in particular environments.</b></p>	<p><b>5.9 Organisms and environments. The student knows that there are relationships, systems, and cycles within environments. The student is expected to:</b>  (A) observe the way organisms live and survive in their ecosystem by interacting with the living and non-living elements;</p>		<p><b>VI. Biology</b>  <b>G. Ecology</b>  1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.  2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p>	

EE Learner Guidelines	5th Grade Science	5th Grade Social Studies	CCRS Science	CCRS Social Studies
	<p><b>5.10 Organisms and environments. The student knows that organisms undergo similar life processes and have structures that help them survive within their environments. The student is expected to:</b></p> <p>(A) compare the structures and functions of different species that help them live and survive such as hooves on prairie animals or webbed feet in aquatic animals;</p>			
	<p>(C) describe the differences between complete and incomplete metamorphosis of insects.</p>			
<p><b>B) Heredity and evolution—Learners have a basic understanding of the importance of genetic heritage.</b></p>	<p><b>5.10 Organisms and environments. The student knows that organisms undergo similar life processes and have structures that help them survive within their environments. The student is expected to:</b></p> <p>(B) differentiate between inherited traits of plants and animals such as spines on a cactus or shape of a beak and learned behaviors such as an animal learning tricks or a child riding a bicycle;</p>		<p><b>VI. Biology</b>  <b>C. Evolution and populations</b>  1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.  2. Recognize variations in population sizes, including extinction, and describe mechanisms and conditions that produce these variations.</p> <p><b>D. Molecular genetics and heredity</b>  1. Understand Mendel's Law of inheritance,  2. Know modifications of Mendel's Law,  3. Understand the molecular structure and functions of nucleic acids</p>	

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			<p>4. Understand simple principles of population genetics and describe characteristics of Hardy-Weinberg population.</p> <p>5. Describe the major features of meiosis and relate this process to Mendel's law of inheritance.</p>	
<p><b>C) Systems and connections—Learners understand major kinds of interactions among organisms or populations of organisms.</b></p>	<p><b>5.9 Organisms and environments. The student knows that there are relationships, systems, and cycles within environments. The student is expected to:</b></p> <p>(A) observe the way organisms live and survive in their ecosystem by interacting with the living and non-living elements;</p> <p>(B) describe how the flow of energy derived from the Sun, used by producers to create their own food, is transferred through a food chain and food web to consumers and decomposers;</p> <p>(C) predict the effects of changes in ecosystems caused by living organisms, including humans, such as the overpopulation of grazers or the building of highways; and</p> <p>(D) identify the significance of the carbon dioxide-oxygen cycle to the survival of plants and animals.</p>		<p><b>IV. Biology</b></p> <p><b>C. Evolution and populations</b></p> <p>1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.</p> <p><b>G. Ecology</b></p> <p>1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.</p> <p>2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p> <p>3. Understand typical forms of organismal behavior</p> <p>4. Know the process of succession</p> <p>X. Environmental Science</p> <p>A. Earth Systems</p> <p>5. Be familiar with the Earth's major biomes</p>	

EE Learner Guidelines	5th Grade Science	5th Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>D) Flow of matter and energy—Learners understand how energy and matter flow among the abiotic and biotic components of the environment.</b></p>	<p><b>5.9 Organisms and environments. The student knows that there are relationships, systems, and cycles within environments. The student is expected to:</b></p> <p>(A) observe the way organisms live and survive in their ecosystem by interacting with the living and non-living elements;</p> <p>(B) describe how the flow of energy derived from the Sun, used by producers to create their own food, is transferred through a food chain and food web to consumers and decomposers;</p> <p>(D) identify the significance of the carbon dioxide-oxygen cycle to the survival of plants and animals.</p>		<p><b>V. Biology</b>  <b>B. Biochemistry</b>  3. Describe the major features and chemical events of photosynthesis  4. Describe the major features and chemical events of cellular respiration  5. Know how organisms respond to the presence or absence of oxygen, including mechanisms of fermentation</p> <p><b>G. Ecology</b>  2. Know the patterns of energy flow and material cycling in Earth's ecosystems.</p> <p><b>X. Environmental Science</b>  <b>B. Energy</b>  1. Understanding energy</p>	
<b>Strand 2.3: Humans and Their Societies</b>				
<p><b>A) Individuals and groups—Learners understand that how individuals perceive the environment is influenced in part by individual traits and group membership or affiliations.</b></p>				<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b>  2. Analyze the interaction between human communities and the environment.</p> <p><b>II. Diverse Human Perspectives</b>  <b>B. Factors that influence personal and group identities (e.g. race, ethnicity, gender, nationalist, institutional affiliations, socioeconomic status)</b>  6. Analyze how individual and group identities are established and changes over time.</p>

EE Learner Guidelines	5th Grade Science	5th Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>B) Culture—As they become familiar with a wider range of cultures and subcultures, learners gain an understanding of cultural perspectives on the environment and how the environment may, in turn, influence culture.</b></p>		<p><b>5.8. Geography. The student understands the location and patterns of settlement and the geographic factors that influence where people live. The student is expected to:</b></p> <p>(A) identify and describe the types of settlement and patterns of land use in the United States;</p> <p>(B) explain the geographic factors that influence patterns of settlement and the distribution of population in the United States, past and present; and</p> <p>(C) analyze the reasons for the location of cities in the United States, including capital cities, and explain their distribution, past and present.</p> <p><b>5.22. Culture. The student understands the contributions of people of various racial, ethnic, and religious groups to the United States. The student is expected to:</b></p> <p>(A) identify the similarities and differences within and among various racial, ethnic, and religious groups in the United States;</p> <p>(B) describe customs and traditions of various racial, ethnic, and religious groups in the United States; and</p> <p>(C) summarize the contributions of people of various racial, ethnic, and religious groups to our national identity.</p>		<p><b>I. Interrelated Disciplines and Skills</b></p> <p><b>A. Spatial analysis of physical processes that shape the human experience.</b></p> <p>2. Analyze the interaction between human communities and the environment.</p> <p>3. Analyze how physical and cultural processes have shaped human communities over time.</p> <p>5. Analyze how various cultural regions of changed over time.</p> <p>6. Analyze the relationship between geography and the development of human communities.</p>

EE Learner Guidelines	5th Grade Science	5th Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>C) Political and economic systems—Learners become more familiar with political and economic systems and how these systems take the environment into consideration.</b></p>		<p><b>5.10. Economics. The student understands the basic economic patterns of early societies in the United States. The student is expected to:</b>            (A) explain the economic patterns of early European colonists;            (B) identify major industries of colonial America.</p> <p><b>5.12. Economics. The student understands the impact of supply and demand on consumers and producers in a free enterprise system. The student is expected to:</b>            (A) explain how supply and demand affects consumers in the United States; and            (B) evaluate the effects of supply and demand on business, industry, and agriculture, including the plantation system, in the United States.</p> <p><b>5.13. Economics. The student understands patterns of work and economic activities in the United States. The student is expected to:</b>            (A) compare how people in different parts of the United States earn a living, past and present;            (B) identify and explain how geographic factors have influenced the location of economic activities in the United States;</p>	<p><b>X. Environmental Science</b>  <b>D. Economics and politics</b>            1. name and describe major environmental policies and legislation            2. Understand the types, uses, and regulations of various natural resources</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>C. Change and continuity of political ideologies, constitutions and political behaviour.</b>            1. Evaluate different governmental systems and functions</p> <p><b>D. Change and continuity of economic systems and processes.</b>            1. Identify and evaluate the strengths and weaknesses of different economic systems.</p>

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		<p>(D) describe the impact of mass production, specialization, and division of labor on the economic growth of the United States;            (E) explain the impact of American ideas about progress and equality of opportunity on the economic development and growth of the United States.</p>		
<p><b>D) Global connections—Learners become familiar with ways in which the world's environmental, social, economic, cultural and political systems are linked.</b></p>				<p><b>III. Interdependence of Global Communities</b>  <b>A. Spatial understanding of global, regional, national, and local communities.</b>            1. Distinguish spatial patterns of human communities that exist between or within contemporary political boundaries.            2. Connect regional or local developments to global ones.            3. Analyze how and why diverse communities interact and become dependent on each other.</p>
<p><b>E) Change and conflict—Learners understand the humans social systems change over time and that conflicts sometimes arise over differing and changing viewpoints about the environment.</b></p>				<p><b>I. Interrelated disciplines and Skills</b>  <b>E. Change and continuity of social groups, civic organizations, institutions, and their interaction.</b>            4. Identify and evaluate the sources and consequences of social conflict.</p>

EE Learner Guidelines	5th Grade Science	5th Grade Social Studies	CCRS Science	CCRS Social Studies
<b>Strand 2.4: Environment and Society</b>				
<p><b>A) Human/environment interactions—Learners understand that human-caused change have consequences for the immediate environment as well as for other places and future times.</b></p>	<p><b>5.9 Organisms and environments.</b> The student knows that there are relationships, systems, and cycles within environments. The student is expected to:</p> <p>(C) predict the effects of changes in ecosystems caused by living organisms, including humans, such as the overpopulation of grazers or the building of highways;</p>	<p><b>5.9 Geography. The student understands how people adapt to and modify their environment. The student is expected to:</b></p> <p>(A) describe how and why people have adapted to and modified their environment in the United States, past and present, such as the use of human resources to meet basic needs; and</p> <p>(B) analyze the positive and negative consequences of human modification of the environment in the United States, past and present.</p>	<p><b>X. Environmental Science</b> <b>E. Human practices and their impacts</b></p> <ol style="list-style-type: none"> <li>1. Describe the different uses for land (land management)</li> <li>2. Understand the use and consequences of pest management</li> <li>3. Know the different methods used to increase food production</li> <li>4. Understand land and water usage and management practices</li> <li>5. Understand how human practices affect air, water, and soil quality</li> </ol>	<p><b>I. Interrelated Disciplines and Skills</b> <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b></p> <ol style="list-style-type: none"> <li>2. Analyze the interaction between human communities and the environment.</li> <li>4. Evaluate the causes and effects of human migration patterns over time</li> <li>6. Analyze the relationship between geography and the development of human communities.</li> </ol>
<p><b>B) Places—Learners begin to explore the meaning of place both close to home and around the world.</b></p>		<p><b>5.7 Geography. The student understands the concept of regions in the United States. The student is expected to:</b></p> <p>(A) describe a variety of regions in the United States such as political, population, and economic regions that result from patterns of human activity;</p> <p>(B) describe a variety of regions in the United States such as landform, climate, and vegetation regions that result from physical characteristics such as the Great Plains, Rocky Mountains, and Coastal Plains;</p>		<p><b>I. Interrelated Disciplines and Skills</b> <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b></p> <ol style="list-style-type: none"> <li>2. Analyze the interaction between human communities and the environment.</li> </ol> <p><b>III. Interdependence of Global Communities</b> <b>A. Spatial understanding of global, regional, national, and local communities.</b></p>

EE Learner Guidelines	5th Grade Science	5th Grade Social Studies	CCRS Science	CCRS Social Studies
		<p>(C) locate on a map important political features such as the ten largest urban areas in the United States, the 50 states and their capitals, and regions such as the Northeast, the Midwest, and the Southwest; and</p> <p>(D) locate on a map important physical features such as the Rocky Mountains, Mississippi River, and Great Plains.</p>		<p>1. Distinguish spatial patterns of human communities that exist between or within contemporary boundaries.</p> <p>2. Connect regional or local development to global ones.</p> <p>3. Analyze how and why diverse communities interact and become dependent on each other.</p>
<p><b>C) Resources—Learners understand uneven distribution of resources influences their use and perceived value.</b></p>	<p><b>5.7 Earth and space. The student knows Earth's surface is constantly changing and consists of useful resources. The student is expected to:</b></p> <p>(A) explore the processes that led to the formation of sedimentary rocks and fossil fuels;</p> <p>(C) identify alternative energy resources such as wind, solar, hydroelectric, geothermal, and biofuels;</p>			
<p><b>D) Technology—Learners understand the human ability to shape and control the environment as a function of the capacities for creating knowledge and developing new technologies.</b></p>		<p><b>5.23. Science, technology, and society. The student understands the impact of science and technology on society in the United States. The student is expected to:</b></p> <p>(B) identify how scientific discoveries, technological innovations, and the rapid growth of technology industries have advanced the economic development of the United States, including the transcontinental railroad and the space program;</p>		

EE Learner Guidelines	5th Grade Science	5th Grade Social Studies	CCRS Science	CCRS Social Studies
		<p>(C) explain how scientific discoveries and technological innovations in the fields of medicine, communication, and transportation have benefited individuals and society in the United States; and</p> <p>(D) predict how future scientific discoveries and technological innovations could affect society in the United States.</p>		
<p><b>E) Environmental issues—Learners are familiar with a range of environmental issues at scales that range from local to national to global. They understand that people in other places around the world experience environmental issues similar to the ones they are concerned about locally.</b></p>		<p><b>5.9 Geography. The student understands how people adapt to and modify their environment. The student is expected to:</b></p> <p>(B) analyze the positive and negative consequences of human modification of the environment in the United States, past and present.</p>		
<b>Strand 3: Skills for Understanding and Addressing Environmental Issues</b>				
<b>Strand 3.1: Skills for Analyzing and Investigating Environmental Issues</b>				
<p><b>A) Identifying and investigating issues—Learners are able to use primary and secondary sources of information, and apply growing research and analytical skills, to investigate environmental issues, beginning in their own community.</b></p>	<p><b>5.2 Scientific investigation and reasoning. The student uses scientific methods during laboratory and outdoor investigations. The student is expected to:</b></p> <p>(D) analyze and interpret information to construct reasonable explanations from direct (observable) and indirect (inferred) evidence;</p> <p>(E) demonstrate that repeated investigations may increase the reliability of results;</p>	<p><b>5.24 Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b></p> <p>(A) differentiate between, locate, and use valid primary and secondary sources such as computer software; interviews; biographies; oral, print, and visual material; documents; and artifacts to acquire information about the United States;</p>	<p><b>III. Foundation Skills: Scientific Applications of Communication</b></p> <p><b>D. Research skills/information literacy</b></p> <p>2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	

EE Learner Guidelines	5th Grade Science	5th Grade Social Studies	CCRS Science	CCRS Social Studies
		<p><b>5.26 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p> <p>(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution; and</p> <p>(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.</p>		
<p><b>B) Sorting out the consequences of issues—Learners are able to apply their knowledge of ecological and human processes and systems to identify the consequences of specific environmental issues.</b></p>		<p><b>5.24 Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b></p> <p>(B) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions;</p>	<p><b>IV. Science, Technology, and Society</b>  <b>B. Social ethics</b>  1. Understand how scientific research and technology have and impact on ethical and legal practices</p>	

EE Learner Guidelines	5th Grade Science	5th Grade Social Studies	CCRS Science	CCRS Social Studies
		<p><b>5.26 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b>            (B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, <i>predict consequences</i>, and take action to implement a decision.</p>		
<p><b>C) Identifying and evaluating alternative solutions and courses of action—Learners are able to identify and develop action strategies for addressing particular issues.</b></p>		<p><b>5.26 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b>             (A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution;</p>	<p><b>IV. Science, Technology, and Society</b>  <b>B. Social ethics</b>            1. Understand how scientific research and technology have and impact on ethical and legal practices             2. Understand how commonly held ethical beliefs impact scientific research</p>	
<p><b>D) Working with flexibility, creativity, and openness—Learners are able to consider the assumptions and interpretations that influence the conclusions they and others draw about environmental issues.</b></p>		<p><b>5.24 Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b>            (D) identify different points of view about an issue, topic, or current event</p>	<p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>            2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	

EE Learner Guidelines	5th Grade Science	5th Grade Social Studies	CCRS Science	CCRS Social Studies
<b>Strand 3.2: Decision Making and Citizenship Skills</b>				
<p><b>A) Forming and evaluating personal views—Learners are able to identify, justify, and clarify their views on environmental issues and alternative ways to address them.</b></p>		<p><b>5.25 Social studies skills. The student communicates in written, oral, and visual forms. The student is expected to:</b> (C) express ideas orally based on research and experiences;</p>		
<p><b>B) Evaluating the need for citizen action—Learners are able to evaluate whether they believe action is needed in particular situations, and decide whether they should be involved.</b></p>		<p><b>5.26 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b> (B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.</p>		
<p><b>C) Planning and taking action—As learners begin to see themselves as citizens taking active roles in their communities, they are able to plan for and engage in citizen action at levels appropriate to their maturity and preparation.</b></p>		<p><b>5.26 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b> (B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.</p>		

EE Learner Guidelines	5th Grade Science	5th Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>D) Evaluating the results of actions—Learners are able to analyze the effects of their own actions and actions taken by other individuals and groups.</b></p>		<p><b>5.26 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b>            (A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution;</p>		
<p><b>Strand 4: Personal and Civic Responsibility</b></p>				
<p><b>A) Understanding societal values and principles—Learners understand that societal values can be both a unifying and a divisive force</b></p>		<p><b>5.15 Government. The student understands important ideas in the Declaration of Independence, the U.S. Constitution, and the Bill of Rights. The student is expected to:</b>            (A) identify the key elements and the purposes and explain the importance of the Declaration of Independence;             (B) explain the purposes of the U.S. Constitution as identified in the Preamble; and            (C) explain the reasons for the creation of the Bill of Rights and its importance.</p> <p><b>5.20 Citizenship. The student understands the fundamental rights of American citizens guaranteed in the Bill of Rights and other amendments to the U.S. Constitution. The student is expected to:</b></p>	<p><b>IV. Science, Technology, and Society</b>  <b>B. Social Ethics</b>            1. Understand how scientific research and technology have an impact on ethical and legal practices.            2. Understand how commonly held ethical beliefs impact scientific research.</p>	

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		<p>(A) describe the fundamental rights guaranteed by each amendment in the Bill of Rights, including freedom of religion, speech, and press; the right to assemble and petition the government; the right to keep and bear arms; the right to trial by jury; and the right to an attorney; and</p> <p>(B) describe various amendments to the U.S. Constitution such as those that extended voting rights of U.S. citizens.</p>		
<p><b>B) Recognizing citizens' rights and responsibilities—Learners understand the rights and responsibilities of citizenship and their importance in promoting the resolution of environmental issues.</b></p>		<p><b>5.18 Citizenship. The student understands the importance of individual participation in the democratic process at the local, state, and national levels. The student is expected to:</b></p> <p>(A) explain the duty individuals have to participate in civic affairs at the local, state, and national levels; and</p> <p>(B) explain how to contact elected and appointed leaders in local, state, and national governments.</p>		
<p><b>C) Recognizing efficacy—Learners possess a realistic self-confidence in their effectiveness as citizens.</b></p>		<p><b>5.18 Citizenship. The student understands the importance of individual participation in the democratic process at the local, state, and national levels. The student is expected to:</b></p> <p>(B) explain how to contact elected and appointed leaders in local, state, and national governments.</p>		

EE Learner Guidelines	5th Grade Science	5th Grade Social Studies	CCRS Science	CCRS Social Studies
<p><b>D) Accepting personal responsibility—Learners understand that their actions can have broad consequences and they are responsible for those consequences.</b></p>				

## EE-TEKS-CCRS CROSSWALK

### *Alignment of the North American Excellence in Environmental Education: Guidelines for Learning (NAAEE) and the College and Career Readiness Standards (CCRS) with the Texas Essential Knowledge and Skills (TEKS) for 6th Grade Science & Social Studies*

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
<b>Strand 1: Questioning, Analysis &amp; Interpretation Skills</b>				
<b>A) Questioning—Learners are able to develop questions that help them learn about investigations.</b>	<b>6.2: Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to:</b>	<b>6.3: Geography. The student uses geographic tools to answer geographic questions. The student is expected to:</b>	<b>I. Nature of Science: Scientific Ways of Learning and Thinking</b> <b>A. Cognitive skills in science</b> 3. Formulate appropriate questions to test understanding of natural phenomena.	<b>I. Interrelated Disciplines and Skills</b> <b>F. Problems solving</b> 1. Use a variety of research and analytical tools to explore questions or issues thoroughly and fairly.
	(A) plan and implement comparative and descriptive investigations by making observations, asking well-defined questions, and using appropriate equipment and technology;	(A) pose and answer geographic questions, including: Where is it located? Why is it there? What is significant about its location? How is its location related to the location of other people, places, and environments?;		
	(B) design and implement experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology;	(B) pose and answer questions about geographic distributions and patterns for various world regions and countries shown on maps, graphs, charts, models, and databases;		
	<b>6.3: Scientific investigation and reasoning. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists. The student is expected to:</b>			

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;			
<b>B) Designing investigations—Learners are able to design simple investigations.</b>	<b>6.2. Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to:</b>	<b>6.21: Social studies skills. The student applies critical-thinking skills to organize and use information acquired through established research methodologies from a variety of valid sources, including electronic technology. The student is expected to:</b>	<b>I. Nature of Science: Scientific Ways of Learning and Thinking</b> <b>B. Scientific Inquiry</b> 1. Design and conduct scientific investigations in which hypotheses are formulated and tested	<b>IV. Analysis, Synthesis, and Evaluation of Information</b> <b>B. Research and methods</b> 1. Use established research methodologies
	(A) plan and implement comparative and descriptive investigations by making observations, asking well-defined questions, and using appropriate equipment and technology;	(B) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions;		
	(B) design and implement experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology;	<b>6.23: Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b>		

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	<p>(E) analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends.</p> <p><b>6.4. Scientific investigation and reasoning. The student knows how to use a variety of tools and safety equipment to conduct science inquiry. The student is expected to:</b></p> <p>(A) use appropriate tools to collect, record, and analyze information, including journals/notebooks, beakers, Petri dishes, meter sticks, graduated cylinders, hot plates, test tubes, triple beam balances, microscopes, thermometers, calculators, computers, timing devices, and other equipment as needed to teach the curriculum; and</p>	<p>(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution;</p>		
<p><b>C) Collecting information—Learners are able to locate and collect information about the environment and environmental topics.</b></p>	<p><b>6.2. Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to:</b></p>	<p><b>6.21: Social studies skills. The student applies critical-thinking skills to organize and use information acquired through established research methodologies from a variety of valid sources, including electronic technology. The student is expected to:</b></p>	<p><b>I. Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive Skills in science</b>  4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.  <b>D. Current Scientific Technology</b>  3. Demonstrate appropriate use of a wide variety of apparatuses, equipment, techniques, and procedures for collecting quantitative and qualitative data</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research and methods</b>  3. Gather, organize and display the results of data and research  4. Identify and collect sources</p>

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	<p>(C) collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers;</p> <p><b>6.4. Scientific investigation and reasoning. The student knows how to use a variety of tools and safety equipment to conduct science inquiry. The student is expected to:</b></p> <p>(A) use appropriate tools to collect, record, and analyze information, including journals/notebooks, beakers, Petri dishes, meter sticks, graduated cylinders, hot plates, test tubes, triple beam balances, microscopes, thermometers, calculators, computers, timing devices, and other equipment as needed to teach the curriculum;</p>	<p>(A) differentiate between, locate, and use valid primary and secondary sources such as computer software; interviews; biographies; oral, print, and visual material; and artifacts to acquire information about various world cultures;</p>	<p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>A. Research Skills/Information Literacy</b>  1. Use search engines, databases, and other digital electronic tools effectively to locate information.</p>	

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
<p><b>D) Evaluating accuracy and reliability—Learners understand the need to use reliable information to answer their questions. They are familiar with some basic factors to consider in judging the merits of information.</b></p>	<p><b>6.2. Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to:</b></p>	<p><b>6.2.1: Social studies skills. The student applies critical-thinking skills to organize and use information acquired through established research methodologies from a variety of valid sources, including electronic technology. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive Skills in Science</b>            1. Utilize skepticism, logic, and professional ethics in science            4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p> <p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>            2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>A. Critical examinations of texts, images, and other sources of information</b>            1. Identify and analyze the main idea(s) and point(s)-of-view in sources.            2. Situate an informational source in its appropriate contexts (contemporary, historical, cultural)            3. Evaluate sources from multiple perspectives            4. Understand the difference between a primary and secondary source and use each appropriately to conduct research and construct arguments            5. Read narrative texts critically            6. Read research data critically</p>
	<p>(D) construct tables and graphs, using repeated trials and means, to organize data and identify patterns; and</p>	<p>(E) identify the elements of frame of reference that influenced participants in an event;</p>		
	<p><b>6.3. Scientific investigation and reasoning. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists. The student is expected to:</b></p> <p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p>			

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
<p><b>E) Organizing information—Learners are able to describe data and organize information to search for relationships and patterns concerning the environment and environmental topics.</b></p>	<p><b>6.2. Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to:</b></p>	<p><b>6.2.1: Social studies skills. The student applies critical-thinking skills to organize and use information acquired through established research methodologies from a variety of valid sources, including electronic technology. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b>  <b>A. Cognitive Skills in Science</b>            2. Use creativity and insight to recognize and describe patterns in natural phenomena.  <b>E. Effective communication of scientific information</b>            1. Use several modes of expression to describe or characterize natural phenomena. These modes of expression include narrative, and numerical, graphical, pictorial, symbolic, and kinesthetic.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research methods</b>            3. Gather, organize, and display the results of data and research</p>
	<p>(E) analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends.</p>	<p>(B) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions;</p>		
		<p>(C) organize and interpret information from outlines, reports, databases, and visuals, including graphs, charts, timelines, and maps;</p>		
<p><b>F) Working with models and simulations—Learners understand that relationships, patterns, and processes can be represented by models.</b></p>	<p><b>6.2. Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to:</b></p>	<p><b>6.3 Geography. The student uses geographic tools to answer geographic questions. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>            D. Current Scientific Technology:            2. Use computer models, applications, and simulations</p>	
	<p>(D) construct tables and graphs, using repeated trials and means, to organize data and identify <b>patterns</b>;</p>	<p>(B) pose and answer questions about geographic distributions and <b>patterns</b> for various world regions and countries shown on maps, graphs, charts, <b>models</b>, and databases;</p>	<p><b>II. Foundations Skills: Scientific Application of Mathematics</b>  <b>B. Mathematics as symbolic language</b>            2. Represent natural events, processes, and relationships with algebraic expressions and algorithms</p>	

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	<p><b>6.3. Scientific investigation and reasoning. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists. The student is expected to:</b></p>	<p>(C) compare various world regions and countries using data from geographic tools, including maps, graphs, charts, databases, and models;</p>	<p><b>V. Cross Disciplinary Themes</b>  <b>E. Measurements and Models</b>            1. Use models to make predictions            2. Use scale to relate models and structures</p>	
<p>(B) use <b>models</b> to represent aspects of the natural world such as a model of Earth's layers;</p>	<p>(D) create thematic maps, graphs, charts, <b>models</b>, and databases depicting aspects such as population, disease, and economic activities of various world regions and countries.</p>			
<p>(C) identify advantages and limitations of <b>models</b> such as size, scale, properties, and materials;</p>	<p><b>6.11: Geography. The student uses geographic tools to answer geographic questions. The student is expected to:</b></p>			
	<p>(C) compare various world regions and countries using data from geographic tools, including maps, graphs, charts, databases, and <b>models</b>;</p> <p>(D) create thematic maps, graphs, charts, <b>models</b>, and databases depicting aspects such as population, disease, and economic activities of various world regions and countries.</p>			
	<p><b>6.21: Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of sources including electronic technology. The student is expected to:</b></p> <p>(C) organize and interpret information from outlines, reports, databases, and visuals including graphs, charts, timelines, and maps;</p>			

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		<p>(F) use appropriate mathematical skills to interpret social studies information such as maps and graphs.</p> <p><b>6.22: Social studies skills. The student communicates in written, oral, and visual forms. The student is expected to:</b></p> <p>(C) transfer information from one medium to another, including written to visual and statistical to written or visual, using computer software as appropriate;</p>		
<p><b>G) Drawing conclusions and developing explanations—Learners can develop simple explanations that address their questions about the environment.</b></p>	<p><b>6.2. Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to:</b></p> <p>(E) analyze data to formulate reasonable <b>explanations</b>, communicate valid conclusions supported by the data, and predict trends.</p>	<p><b>6.21: Social studies skills. The student applies critical-thinking skills to organize and use information acquired through established research methodologies from a variety of valid sources, including electronic technology. The student is expected to:</b></p> <p>(B) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and <b>drawing</b> inferences and <b>conclusions</b></p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b>  <b>A. Cognitive Skills in Science</b>  4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>D. Reaching Conclusions</b>  1. Construct a thesis that is supported by evidence</p>

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	<p><b>6.3. Scientific investigation and reasoning. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists. The student is expected to:</b></p>	<p><b>6.22: Social studies skills. The student communicates in written, oral, and visual forms. The student is expected to:</b></p>		
	<p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student</p>	<p>(B) incorporate main and supporting ideas in verbal and written communication based on research;</p>		
		<p>(C) express ideas orally based on research and experiences;</p>		
<b>Strand 2.1: Knowledge of Environmental Processes and Systems</b>				
<p><b>A) Processes that shape the Earth—Learners have a basic understanding of most of the physical processes that shape the Earth. They are able to explore the origin of differences in physical patterns.</b></p>	<p><b>6.10: Earth and space. The student understands the structure of Earth, the rock cycle, and plate tectonics. The student is expected to:</b></p> <p>(B) classify rocks as metamorphic, igneous, or sedimentary by the processes of their formation;</p>	<p><b>6.6: Geography. The student understands that geographical patterns result from physical environmental processes. The student is expected to:</b></p> <p>(A) describe and explain the effects of physical environmental processes such as erosion, ocean currents, and earthquakes on Earth's surface;</p>	<p><b>IX. Earth and Space Sciences</b></p> <p><b>A. Earth Systems</b></p> <p>3. Possess a scientific understanding of the history of the Earth's systems.</p> <p><b>E. Plate Tectonics</b></p> <ol style="list-style-type: none"> <li>1. Describe evidence that supports the current theory of plate tectonics</li> <li>2. Identify major tectonic plates</li> <li>3. Describe the motion and interaction of tectonic plates</li> <li>4. Describe the rock cycle and its products</li> </ol>	

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	<p>(C) identify the major tectonic plates, including Eurasian, African, Indo-Australian, Pacific, North American, and South American;</p> <p>(D) describe how plate tectonics causes major geological events such as ocean basins, earthquakes, volcanic eruptions, and mountain building.</p>			
<p><b>B) Changes in matter—Learners understand the <u>properties</u> of the substances that make up objects or materials found in the environment.</b></p>	<p><b>6.5: Matter and energy. The student knows the differences between elements and compounds. The student is expected to:</b></p> <p>(A) know that an element is a pure substance represented by chemical symbols;</p> <p>(B) recognize that a limited number of the many known elements comprise the largest portion of solid Earth, living matter, oceans, and the atmosphere;</p> <p><b>(C) differentiate between elements and compounds on the most basic level;</b></p> <p>(D) identify the formation of a new substance by using the evidence of a possible chemical change such as production of a gas, change in temperature, production of a precipitate, or color change.</p>		<p><b>V. Cross-Disiplinary Themes</b>  <b>A. Matter/states of matter</b>  2. Understanding typical states of matter (solid, liquid, gas) and phase changes among these.</p> <p><b>VII. Chemistry</b>  <b>A. Matter and its properties</b>  1. Know that physical and chemical properties can be used to describe and classify matter. Recognize and classify pure substances (elements and compounds) and mixtures.</p> <p><b>IX. Earth and Space Systems</b>  <b>F. Energy transfer within and among systems</b>  1. Describe matter and energy transfer in the Earth's systems.  2. Give examples of effects of energy transfer within and among systems.</p>	

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	<p><b>6.6: Matter and energy. The student knows matter has physical properties that can be used for classification. The student is expected to:</b></p> <p><b>(A) compare metals, nonmetals, and metalloids using physical properties such as luster, conductivity, or malleability;</b></p> <p>(B) calculate density to identify an unknown substance; and</p> <p>(C) test the physical properties of minerals, including hardness, color, luster, and streak.</p> <p><b>6.10: Earth and space. The student understands the structure of Earth, the rock cycle, and plate tectonics. The student is expected to:</b></p> <p>(B) classify rocks as metamorphic, igneous, or sedimentary by the processes of their formation</p>			
<p><b>C) Energy—Learners begin to grasp formal concepts related to energy by focusing on energy transfer and transformations. They are able to make connections among the phenomena such as light, heat, magnetism, electricity, and the motion of objects.</b></p>	<p><b>6.8. Force, motion, and energy. The student knows force and motion are related to potential and kinetic energy. The student is expected to:</b></p>		<p><b>V. Cross-Disciplinary Themes</b>  <b>B. Energy (thermodynamics, kinetic, potential, energy transfers)</b>  1. Understand the Laws of Thermodynamics  2. Know the processes of energy transfer  <b>VI. Biology</b>  <b>G. Ecology</b>  2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p>	

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	<p><b>(A) compare and contrast potential and kinetic energy;</b></p> <p>(B) identify and describe the changes in position, direction, and speed of an object when acted upon by unbalanced forces;</p> <p><b>(C) calculate average speed using distance and time measurements;</b></p> <p><b>(D) measure and graph changes in motion;</b></p> <p>(E) investigate how inclined planes and pulleys can be used to change the amount of force to move an object.</p> <p><b>6.9. Force, motion, and energy. The student knows that the Law of Conservation of Energy states that energy can neither be created nor destroyed, it just changes form. The student is expected to:</b></p>		<p><b>VII. Chemistry</b>  <b>H. Thermochemistry</b>  1. Understand the Law of Conservation of Energy and processes of heat transfer.  2. Understand energy changes and chemical reactions</p> <p><b>VIII. Physics</b>  <b>C. Force and Motion</b>  1. Understand the fundamental concepts of kinematics  2. Understand forces and Newton's Law,  3. Understand the concept of momentum.</p> <p><b>D. Mechanical Energy</b>  1. Understand potential and kinetic energy.  2. Understand conservation of energy  3. Understand relationship of work and mechanical energy</p> <p><b>X. Environmental Science</b>  <b>B. Energy</b>  1. Understand energy transformations  2. Know various sources of energy for humans and other biological systems</p>	

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	<p>(A) investigate methods of thermal energy transfer, including conduction, convection, and radiation;</p> <p>(B) verify through investigations that thermal energy moves in a predictable pattern from warmer to cooler until all the substances attain the same temperature such as an ice cube melting;</p> <p><b><i>(C) demonstrate energy transformations such as energy in a flashlight battery changes from chemical energy to electrical energy to light energy.</i></b></p> <p><b>6.11: Earth and space. The student understands the organization of our solar system and the relationships among the various bodies that comprise it. The student is expected to:</b></p> <p>(B) understand that gravity is the force that governs the motion of our solar system</p>			
<b>Strand 2.2: The Living Environment</b>				
<p><b>A) Organisms, populations, and communities—Learners understand that biotic communities are made up of plants and animals that are adapted to live in particular environments.</b></p>	<p><b>6.12: Organisms and environments. The student knows all organisms are classified into Domains and Kingdoms. Organisms within these taxonomic groups share similar characteristics which allow them to interact with the living and nonliving parts of their ecosystem. The student is expected to:</b></p>		<p><b>VI. Biology</b>  <b>G. Ecology</b>  1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.  2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p>	

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	<p><i>(D) identify the basic characteristics of organisms, including prokaryotic or eukaryotic, unicellular or multicellular, autotrophic or heterotrophic, and mode of reproduction, that further classify them in the currently recognized Kingdoms;</i></p> <p>(E) describe biotic and abiotic parts of an ecosystem in which organisms interact;</p> <p>(F) diagram the levels of organization within an ecosystem, including organism, population, community, and ecosystem.</p>			
<p><b>B) Heredity and evolution—Learners have a basic understanding of the importance of genetic heritage.</b></p>	<p><b>6.12. Organisms and environments. The student knows all organisms are classified into Domains and Kingdoms. Organisms within these taxonomic groups share similar characteristics which allow them to interact with the living and nonliving parts of their ecosystem. The student is expected to:</b></p>		<p><b>VI. Biology</b>  <b>C. Evolution and populations</b>  1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.  2. Recognize variations in population sizes, including extinction, and describe mechanisms and conditions that produce these variations.</p>	

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	<p>(A) understand that all organisms are composed of one or more cells;</p> <p>(B) recognize that the presence of a nucleus determines whether a cell is prokaryotic or eukaryotic;</p> <p>(C) recognize that the broadest taxonomic classification of living organisms is divided into currently recognized Domains</p> <p><b>(D) identify the basic characteristics of organisms, including prokaryotic or eukaryotic, unicellular or multicellular, autotrophic or heterotrophic, and mode of reproduction, that further classify them in the currently recognized Kingdoms;</b></p>		<p><b>D. Molecular genetics and heredity</b></p> <ol style="list-style-type: none"> <li>1. Understand Mendel's Law of inheritance,</li> <li>2. Know modifications of Mendel's Law,</li> <li>3. Understand the molecular structure and functions of nucleic acids</li> <li>4. Understand simple principles of population genetics and describe characteristics of Hardy-Weinberg population.</li> <li>5. Describe the major features of meiosis and relate this process to Mendel's law of inheritance.</li> </ol>	
<p><b>C) Systems and connections—Learners understand major kinds of interactions among organisms or populations of organisms.</b></p>	<p><b>6.12. Organisms and environments. The student knows all organisms are classified into Domains and Kingdoms. Organisms within these taxonomic groups share similar characteristics which allow them to interact with the living and nonliving parts of their ecosystem. The student is expected to:</b></p> <p>(E) describe biotic and abiotic parts of an ecosystem in which organisms interact;</p>		<p><b>IV. Biology</b></p> <p><b>C. Evolution and populations</b></p> <ol style="list-style-type: none"> <li>1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.</li> </ol> <p><b>G. Ecology</b></p> <ol style="list-style-type: none"> <li>1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.</li> <li>2. Know patterns of energy flow and material cycling in Earth's ecosystems.</li> <li>3. Understand typical forms of organismal behavior</li> <li>4. Know the process of succession</li> </ol>	

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	(F) diagram the levels of organization within an ecosystem, including organism, population, community, and ecosystem.		<b>X. Environmental Science</b> <b>A. Earth Systems</b> 5. Be familiar with the Earth's major biomes	
<b>D) Flow of matter and</b>	<p><b>6.7 Matter and energy. The student knows that some of Earth's energy resources are available on a nearly perpetual basis, while others can be renewed over a relatively short period of time. Some energy resources, once depleted, are essentially nonrenewable. The student is expected to:</b></p> <p>(A) research and debate the advantages and disadvantages of using coal, oil, natural gas, nuclear power, biomass, wind, hydropower, geothermal, and solar resources;</p> <p>(B) design a logical plan to manage energy resources in the home, school, or community.</p> <p><b>6.12: organisms and environments. The student knows all organisms are classified into Domains and Kingdoms. Organisms within these taxonomic groups share similar characteristics which allow them to interact with the living and nonliving parts of their ecosystem. The student is expected to:</b></p>		<p><b>V. Biology</b> <b>B. Biochemistry</b> 3. Describe the major features and chemical events of photosynthesis 4. Describe the major features and chemical events of cellular respiration 5. Know how organisms respond to the presence or absence of oxygen, including mechanisms of fermentation</p> <p><b>G. Ecology</b> 2. Know the patterns of energy flow and material cycling in Earth's ecosystems.</p> <p><b>X. Environmental Science</b> <b>B. Energy</b> 1. Understanding energy transformations 2. Know the various sources of energy</p>	<p><b>V. Biology</b> <b>B. Biochemistry</b> 3. Describe the major features and chemical events of photosynthesis 4. Describe the major features and chemical events of cellular respiration 5. Know how organisms respond to the presence or absence of oxygen, including mechanisms of fermentation</p>

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	<p>(A) understand that all organisms are composed of one or more cells;</p> <p>(B) recognize that the presence of a nucleus determines whether a cell is prokaryotic or eukaryotic;</p> <p>(C) recognize that the broadest taxonomic classification of living organisms is divided into currently recognized Domains;</p> <p><b><i>(D) identify the basic characteristics of organisms, including prokaryotic or eukaryotic, unicellular or multicellular, autotrophic or heterotrophic, and mode of reproduction, that further classify them in the currently recognized Kingdoms;</i></b></p> <p>(E) describe biotic and abiotic parts of an ecosystem in which organisms interact; and</p>			
<b>Strand 2.3: Humans and Their Societies</b>				
<p><b>A) Individuals and groups—Learners understand that how individuals perceive the environment is influenced in part by individual traits and group membership or affiliations.</b></p>				<p><b>I. Interrelated Disciplines and Skills</b></p> <p><b><i>A. Spatial analysis of physical and cultural processes that shape the human experience</i></b></p> <p>2. Analyze the interaction between human communities and the environment.</p>

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
				<p><b>II. Diverse Human Perspectives</b>  <b>B. Factors that influence personal and group identities (e.g. race, ethnicity, gender, nationalist, institutional affiliations, socioeconomic status)</b>  6. Analyze how individual and group identities are established and changes over time.</p>
<p><b>B) Culture—As they become familiar with a wider range of cultures and subcultures, learners gain an understanding of cultural perspectives on the environment and how the environment may, in turn, influence culture.</b></p>		<p><b>(15) Culture. The student understands the similarities and differences within and among cultures in various world societies. The student is expected to:</b></p> <p>(A) define culture and the common traits that unify a culture region;</p> <p>(E) analyze the similarities and differences among various world societies;</p>		<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical processes that shape the human experience.</b>  2. Analyze the interaction between human communities and the environment.  3. Analyze how physical and cultural processes have shaped human communities over time.  5. Analyze how various cultural regions of changed over time.  6. Analyze the relationship between geography and the development of human communities.</p>
<p><b>C) Political and economic systems—Learners become more familiar with political and economic systems and how these systems take the environment into consideration.</b></p>		<p><b>6.5: Geography. The student understands how geographic factors influence the economic development, political relationships, and policies of societies. The student is expected to:</b></p>	<p><b>X. Environmental Science</b>  <b>D. Economics and politics</b>  1. name and describe major environmental policies and legislation  2. Understand the types, uses, and regulations of various natural resources</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>C. Change and continuity of political ideologies, constitutions and political behaviour.</b>  1. Evaluate different governmental systems and functions</p>

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
		<p>(A) identify and explain the geographic factors responsible for the location of economic activities in places and regions;</p> <p>(C) explain the impact of geographic factors on economic development and the domestic and foreign policies of societies.</p> <p><b>6.8: Economics. The student understands the factors of production in a society's economy. The student is expected to;</b></p> <p>(A) describe ways in which the factors of production (natural resources, labor, capital, and entrepreneurs) influence the economies of various contemporary societies;</p> <p>(B) identify problems and issues that may arise when one or more of the factors of production is in relatively short supply;</p> <p>(C) explain the impact of relative scarcity of resources on international trade and economic interdependence among and within societies.</p>		<p><b>D. Change and continuity of economic systems and processes.</b></p> <p>1. Identify and evaluate the strengths and weaknesses of different economic systems.</p>
<p><b>D) Global connections—Learners become familiar with ways in which the world's environmental, social, economic, cultural and political systems are linked.</b></p>		<p><b>6.5: Geography. The student understands how geographic factors influence the economic development, political relationships, and policies of societies. The student is expected to:</b></p>		<p><b>III. Interdependence of Global Communities</b></p> <p><b>A. Spatial understanding of global, regional, national, and local communities.</b></p> <p>1. Distinguish spatial patterns of human communities that exist between or within contemporary political boundaries.</p>

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
		<p>(A) identify and explain the geographic factors responsible for the location of economic activities in places and regions;</p> <p>(C) explain the impact of geographic factors on economic development and the domestic and foreign policies of societies</p> <p><b>6.8: Economics. The student understands the factors of production in a society's economy. The student is expected to:</b></p> <p>(C) explain the impact of relative scarcity of resources on international trade and economic interdependence among and within societies.</p> <p><b>6.17: Culture. The student understands relationships that exist among world cultures. The student is expected to:</b></p> <p>(D) identify and define the impact of cultural diffusion on individuals and world societies;</p>		<p>2. Connect regional or local developments to global ones.</p> <p>3. Analyze how and why diverse communities interact and become dependent on each other.</p>
<p><b>E) Change and conflict—Learners understand the human social systems change over time and that conflicts sometimes arise over differing and changing viewpoints about the environment.</b></p>		<p><b>6.15: Culture. The student understands the similarities and differences within and among cultures in various world societies. The student is expected to:</b></p> <p>(F) identify and explain examples of conflict and cooperation between and among cultures.</p>		<p><b>I. Interrelated disciplines and Skills</b></p> <p><b><i>E. Change and continuity of social groups, civic organizations, institutions, and their interaction.</i></b></p> <p>4. Identify and evaluate the sources and consequences of social conflict.</p>

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
<b>Strand 2.4: Environment and Society</b>				
<p><b>A) Human/environment interactions—Learners understand that human-caused change have consequences for the immediate environment as well as for other places and future times.</b></p>		<p><b>6.4: Geography. The student understands the factors that influence the locations and characteristics of locations of various contemporary societies on maps and globes and uses latitude and longitude to determine absolute locations. The student is expected to:</b></p> <p>(B) identify and explain the geographic factors responsible for patterns of population in places and regions;</p> <p>(C) explain ways in which human migration influences the character of places and regions;</p> <p><b>6.6: Geography. The student understands that geographical patterns result from physical environmental processes. The student is expected to:</b></p> <p>(C) analyze the effects of the interaction of physical processes and the environment on humans.</p>	<p><b>X. Environmental Science</b> <b>E. Human practices and their impacts</b></p> <p>1. Describe the different uses for land (land management)</p> <p>2. Understand the use and consequences of pest management</p> <p>3. Know the different methods used to increase food production</p> <p>4. Understand land and water usage and management practices</p> <p>5. Understand how human practices affect air, water, and soil quality</p>	<p><b>I. Interrelated Disciplines and Skills</b> <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b></p> <p>2. Analyze the interaction between human communities and the environment.</p> <p>4. Evaluate the causes and effects of human migration patterns over time</p> <p>6. Analyze the relationship between geography and the development of human communities.</p>
		<p><b>6.7: Geography. The student understands the impact of interactions between people and the physical environment on the development and conditions of places and regions. The student is expected to:</b></p> <p>(A) identify and analyze ways people have adapted to the physical environment in various places and regions;</p>		

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
		<p>(B) identify and analyze ways people have modified the physical environment such as mining, irrigation, and transportation infrastructure;</p> <p>(C) describe ways in which technology influences human interactions with the environment such as humans building dams for flood control.</p> <p><b>6.20: Science, technology, and society. The student understands the influences of science and technology on contemporary societies. The student is expected to</b></p> <p>(A) give examples of scientific discoveries and technological innovations, including the roles of scientists and inventors, that have transcended the boundaries of societies and have shaped the world;</p> <p>(C) make predictions about future social, political, economic, cultural, and environmental impacts that may result from future scientific discoveries and technological innovations.</p>		
<p><b>B) Places—Learners begin to explore the meaning of places both close to home and around the world.</b></p>		<p><b>6.3: Geography. The student uses geographic tools to answer geographic questions. The student is expected to:</b></p>		<p><b>I. Interrelated Disciplines and Skills</b></p> <p><b>A. Spatial analysis of physical and cultural processes that shape the human experience</b></p> <p>2. Analyze the interaction between human communities and the environment.</p>

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
		<p>(A) pose and answer geographic questions, including: Where is it located? Why is it there? What is significant about its location? How is its location related to the location of other people, places, and environments?;</p> <p><b>6.4: Geography. The student understands the factors that influence the locations and characteristics of locations of various contemporary societies on maps and globes and uses latitude and longitude to determine absolute locations. The student is expected to:</b></p> <p>(A) locate various contemporary societies on maps and globes using latitude and longitude to determine absolute location;</p> <p>(B) identify and explain the geographic factors responsible for patterns of population in places and regions;</p> <p>(C) explain ways in which human migration influences the character of places and regions;</p> <p>(D) identify and locate major physical and human geographic features such as landforms, water bodies, and urban centers of various places and regions;</p>		<p><b>III. Interdependence of Global Communities</b>  <b>A. Spatial understanding of global, regional, national, and local communities.</b>  1. Distinguish spatial patterns of human communities that exist between or within contemporary boundaries.  2. Connect regional or local development to global ones.  3. Analyze how and why diverse communities interact and become interact and become dependent on each other.</p>

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
		<p>(E) draw sketch maps that illustrate various places and regions;</p> <p>(F) identify the location of major world countries such as Canada, Mexico, France, Germany, the United Kingdom, Italy, Spain, Norway, Sweden, Russia, South Africa, Nigeria, Iraq, Afghanistan, Israel, Iran, India, Pakistan, the People's Republic of China, the Republic of China (Taiwan), Japan, North and South Korea, Indonesia, and Australia.</p>		
<p><b>C) Resources—Learners understand uneven distribution of resources influences their use and perceived value.</b></p>	<p><b>6.7. Matter and energy. The student knows that some of Earth's energy resources are available on a nearly perpetual basis, while others can be renewed over a relatively short period of time. Some energy resources, once depleted, are essentially nonrenewable. The student is expected to:</b></p> <p>(A) research and debate the advantages and disadvantages of using coal, oil, natural gas, nuclear power, biomass, wind, hydropower, geothermal, and solar resources; and</p> <p>(B) design a logical plan to manage energy resources in the home, school, or community.</p>	<p><b>6.5: Geography. The student understands how geographic factors influence the economic development, political relationships, and policies of societies. The student is expected to:</b></p> <p>(B) identify geographic factors such as location, physical features, transportation corridors and barriers, and distribution of natural resources that influence a society's ability to control territory; and</p> <p><b>6.8: Economics. The student understands the factors of production in a society's economy. The student is expected to:</b></p>		

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
		<p>(A) describe ways in which the factors of production (natural resources, labor, capital, and entrepreneurs) influence the economies of various contemporary societies;</p> <p>(B) identify problems and issues that may arise when one or more of the factors of production is in relatively short supply; and</p> <p>(C) explain the impact of relative scarcity of resources on international trade and economic interdependence among and within societies.</p>		
<p><b>D) Technology—Learners understand the human ability to shape and control the environment as a function of the capacities for creating knowledge and developing new technologies.</b></p>		<p><b>8.20: Science, technology, and society. The student understands the influences of science and technology on contemporary societies. The student is expected to:</b></p> <p>(A) give examples of scientific discoveries and technological innovations, including the roles of scientists and inventors, that have transcended the boundaries of societies and have shaped the world;</p> <p>(B) explain how resources, belief systems, economic factors, and political decisions have affected the use of technology; and</p> <p>(C) make predictions about future social, political, economic, cultural, and environmental impacts that may result from future scientific discoveries and technological innovations.</p>		

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
<p><b>E) Environmental issues</b>—Learners are familiar with a range of environmental issues at scales that range from local to national to global. They understand that people in other places around the world experience environmental issues similar to the ones they are concerned about locally.</p>	<p><b>6.7. Matter and energy.</b> The student knows that some of Earth's energy resources are available on a nearly perpetual basis, while others can be renewed over a relatively short period of time. Some energy resources, once depleted, are essentially nonrenewable. The student is expected to:</p>	<p><b>8.11: Geography.</b> The student understands the physical characteristics of North America and how humans adapted to and modified the environment through the mid-19th century. The student is expected to:</p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive skills in science</b>  2. Use creativity and insight to recognize and describe patterns in natural phenomena  <b>X. Environmental Science</b>  <b>E. Human practices and their impacts</b>  1. Describe the different uses for land (land management)  2. Understand the use and consequence of pest management  3. Know the different method used to increase food production  4. Understand land and water usage and management practices  5. Understand how human practices affect air, water, and soil quality</p>	
	<p>(A) research and debate the advantages and disadvantages of using coal, oil, natural gas, nuclear power, biomass, wind, hydropower, geothermal, and solar resources; and</p>	<p>(B) describe the positive and negative consequences of human modification of the physical environment of the United States;</p>		
	<p>(B) design a logical plan to manage energy resources in the home, school, or community.</p>			
	<p><b>6.12: Organisms and environments.</b> The student knows all organisms are classified into Domains and Kingdoms. Organisms within these taxonomic groups share similar characteristics which allow them to interact with the living and nonliving parts of their ecosystem. The student is expected to:</p>			
<p>(E) describe biotic and abiotic parts of an ecosystem in which organisms interact; and</p>				

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	(F) diagram the levels of organization within an ecosystem, including organism, population, community, and ecosystem.			
<b>Strand 3: Skills for Understanding and Addressing Environmental Issues</b>				
<b>Strand 3.1: Skills for Analyzing and Investigating Environmental Issues</b>				
<b>A) Identifying and investigating issues—Learners are able to use primary and secondary sources of information, and apply growing research and analytical skills, to investigate environmental issues, beginning in their own community.</b>	<b>6.2. Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to:</b>	<b>6.21: Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of sources including electronic technology. The student is expected to:</b>	<b>III. Foundation Skills: Scientific Applications of Communication</b> <b>D. Research skills/information literacy</b> 2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.	
	(A) plan and implement comparative and descriptive investigations by making observations, asking well-defined questions, and using appropriate equipment and technology;	(A) differentiate between, locate, and use primary and secondary sources such as computer software, databases, media and news services, biographies, interviews, and artifacts to acquire information about Texas;		
	(B) design and implement experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology;			
	(C) collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers;			
(D) construct tables and graphs, using repeated trials and means, to organize data and identify patterns; and				

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	<p><b>6.3. Scientific investigation and reasoning. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists. The student is expected to:</b></p> <p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p> <p>(B) use models to represent aspects of the natural world such as a model of Earth's layers;</p> <p>(D) relate the impact of research on scientific thought and society, including the history of science and contributions of scientists as related to the content.</p>			
<p><b>B) Sorting out the consequences of issues—Learners are able to identify and develop action strategies for addressing particular issues.</b></p>	<p><b>6.7. Matter and energy. The student knows that some of Earth's energy resources are available on a nearly perpetual basis, while others can be renewed over a relatively short period of time. Some energy resources, once depleted, are essentially nonrenewable. The student is expected to:</b></p>	<p><b>6.23: Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p>	<p><b>IV. Science, Technology, and Society</b>  <b>B. Social ethics</b>  1. Understand how scientific research and technology have and impact on ethical and legal practices</p>	

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	(A) research and debate the advantages and disadvantages of using coal, oil, natural gas, nuclear power, biomass, wind, hydropower, geothermal, and solar resources; and	(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution; and		
	(B) design a logical plan to manage energy resources in the home, school, or community.	(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.		
<p><b>C) Identifying and evaluating alternative solutions and courses of action—Learners are able to identify and develop action strategies for addressing particular issues.</b></p>	<p><b>6.1: Scientific investigation and reasoning. The student, for at least 40% of instructional time, conducts laboratory and field investigations following safety procedures and environmentally appropriate and ethical practices. The student is expected to:</b></p>	<p><b>6.23: Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p>	<p><b>IV. Science, Technology, and Society</b>  <b>B. Social ethics</b>  1. Understand how scientific research and technology have and impact on ethical and legal practices  2. Understand how commonly held ethical beliefs impact scientific research</p>	
	(B) practice appropriate use and conservation of resources, including disposal, reuse, or recycling of materials.	(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution;		

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	<p><b>6.7. Matter and energy. The student knows that some of Earth's energy resources are available on a nearly perpetual basis, while others can be renewed over a relatively short period of time. Some energy resources, once depleted, are essentially nonrenewable. The student is expected to:</b></p> <p>(A) research and debate the advantages and disadvantages of using coal, oil, natural gas, nuclear power, biomass, wind, hydropower, geothermal, and solar resources;</p> <p>(B) design a logical plan to manage energy resources in the home, school, or community.</p>	<p>(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.</p>		
<p><b>D) Working with flexibility, creativity, and openness—Learners are able to consider the assumptions and interpretations that influence the conclusions they and others draw about environmental issues.</b></p>			<p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>  2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	
<b>Strand 3.2: Decision Making and Citizenship Skills</b>				
<p><b>A) Forming and evaluating personal views—Learners are able to identify, justify, and clarify their views on environmental issues and alternative ways to address them.</b></p>		<p><b>6.23: Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p>		

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
		(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution;		
		(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.		
<b>B) Evaluating the need for citizen action—Learners are able to evaluate whether they believe action is needed in particular situations, and decide whether they should be involved.</b>				
<b>C) Planning and taking action—As learners begin to see themselves as citizens taking active roles in their communities, they are able to plan for and engage in citizen action at levels appropriate to their maturity and preparation.</b>				
<b>D) Evaluating the results of actions—Learners are able to analyze the effects of their own actions and actions taken by other individuals and groups.</b>				

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
<b>Strand 4: Personal and Civic Responsibility</b>				
<b>A) Understanding societal values and principles—Learners understand that societal values can be both a unifying and a divisive force.</b>		<b>7.15: Culture. The student understands the similarities and differences within and among cultures in various world societies. The student is expected to:</b>	<b>IV. Science, Technology, and Society</b> <b>B. Social Ethics</b> 1. Understand how scientific research and technology have an impact on ethical and legal practices. 2. Understand how commonly held ethical beliefs impact scientific research.	
		(A) define culture and the common traits that unify a culture region;		
		(B) identify and describe common traits that define cultures;		
		(F) identify and explain examples of conflict and cooperation between and among cultures.		
<b>B) Recognizing citizens' rights and responsibilities—Learners understand the rights and responsibilities of citizenship and their importance in promoting the resolution of environmental issues.</b>	<b>6.1: Scientific investigation and reasoning. The student, for at least 40% of instructional time, conducts laboratory and field investigations following safety procedures and environmentally appropriate and ethical practices. The student is expected to:</b>	<b>7.13: Citizenship. The student understands that the nature of citizenship varies among societies. The student is expected to:</b>		
	(B) practice appropriate use and conservation of resources, including disposal, reuse, or recycling of materials.	(A) describe roles and responsibilities of citizens in various contemporary societies, including the United States;  (B) explain how opportunities for citizens to participate in and influence the political process vary among various contemporary societies;  (C) compare the role of citizens in the United States with the role of citizens from various contemporary societies with representative nonrepresentative governments.		

EE Learner Guidelines	6th Grade Science	6th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
		<p><b>6.14: Citizenship. The student understands the relationship among individual rights, responsibilities, duties, and freedoms in societies with representative governments. The student is expected to:</b></p> <p>(A) identify and explain the duty of civic participation in societies with representative governments;</p> <p>(B) explain relationships among rights, responsibilities, and duties in societies with representative governments.</p>		
<p><b>C) Recognizing efficacy—Learners possess a realistic self-confidence in their effectiveness as citizens.</b></p>				
<p><b>D) Accepting personal responsibility—Learners understand that their actions can have broad consequences and that they are responsible for those consequences.</b></p>				

## EE-TEKS-CCRS CROSSWALK

*Alignment of the North American Excellence in Environmental Education: Guidelines for Learning (NAAEE) and the College and Career Readiness Standards (CCRS) with the Texas Essential Knowledge and Skills (TEKS) for 7th Grade Science & Social Studies*

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
<b>Strand 1: Questioning, Analysis &amp; Interpretation Skills</b>				
<p><b>A) Questioning—Learners are able to develop questions that help them learn about the environment and do simple investigations.</b></p>	<p><b>7.2. Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to:</b></p>		<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive skills in science</b>                      3. Formulate appropriate questions to test understanding of natural phenomena.</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>F. Problems solving</b>                      1. Use a variety of research and analytical tools to explore questions or issues thoroughly and fairly.</p>
	<p>(A) plan and implement comparative and descriptive investigations by making observations, asking well-defined questions, and using appropriate equipment and technology;</p>			
	<p>(B) design and implement experimental investigations by making observations, asking well-defined questions, formulating testable</p>			
	<p><b>7.3. Scientific investigation and reasoning. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists. The student is expected to:</b></p>			
	<p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p>			

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
<p><b>B) Designing investigations—Learners are able to design simple investigations.</b></p>	<p><b>7.2. Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to:</b></p>		<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>B. Scientific Inquiry</b>            1. Design and conduct scientific investigations in which hypotheses are formulated and tested</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research and methods</b>            1. Use established research methodologies</p>
	<p>(A) plan and implement comparative and descriptive investigations by making observations, asking well-defined questions, and using appropriate equipment and technology;</p>			
	<p>(B) design and implement experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology;</p>			
	<p>(E) analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends.</p>			
	<p><b>7.4. Science investigation and reasoning. The student knows how to use a variety of tools and safety equipment to conduct science inquiry. The student is expected to:</b></p>			
<p>(A) use appropriate tools to collect, record, and analyze information, including life science models, hand lens, stereoscopes, microscopes, beakers, Petri dishes, microscope slides, graduated cylinders, test tubes, meter sticks, metric rulers, metric tape measures, timing devices, hot</p>				

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	plates, balances, thermometers, calculators, water test kits, computers, temperature and pH probes, collecting nets, insect traps, globes, digital cameras, journals/notebooks, and other equipment as needed to teach the curriculum;			
<p><b>C) Collecting information—Learners are able to locate and collect information about the environment and environmental topics.</b></p>	<p><b>7.2. Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to:</b></p> <p>(B) design and implement experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology;</p> <p>(C) collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers;</p> <p><b>7.4. Science investigation and reasoning. The student knows how to use a variety of tools and safety equipment to conduct science inquiry. The student is expected to:</b></p>	<p><b>7.21: Social studies skills. The student applies critical-thinking skills to organize and use information acquired through established research methodologies from a variety of valid sources, including electronic technology. The student is expected to:</b></p> <p>(A) differentiate between, locate, and use valid primary and secondary sources such as computer software, databases, media and news services, biographies, interviews, and artifacts to acquire information about Texas;</p>	<p><b>I. Scientific Ways of Learning and Thinking</b></p> <p><b>A. Cognitive Skills in science</b></p> <p>4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p> <p><b>D. Current Scientific Technology</b></p> <p>3. Demonstrate appropriate use of a wide variety of apparatuses, equipment, techniques, and procedures for collecting quantitative and qualitative data</p> <p><b>III. Foundation Skills: Scientific Applications of Communication</b></p> <p><b>A. Research Skills/Information Literacy</b></p> <p>1. Use search engines, databases, and other digital electronic tools effectively to locate information.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b></p> <p><b>B. Research and methods</b></p> <p>3. Gather, organize and display the results of data and research</p> <p>4. Identify and collect sources</p>

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	(A) use appropriate tools to collect, record, and analyze information, including life science models, hand lens, stereoscopes, microscopes, beakers, Petri dishes, microscope slides, graduated cylinders, test tubes, meter sticks, metric rulers, metric tape measures, timing devices, hot plates, balances, thermometers, calculators, water test kits, computers, temperature and pH probes, collecting nets, insect traps, globes, digital cameras, journals/notebooks, and other equipment as needed to teach the curriculum; and			
	(C) collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers;			
<p><b>D) Evaluating accuracy and reliability—Learners understand the need to use reliable information to answer their questions. They are familiar with some basic factors to consider in judging the merits of information.</b></p>	<p><b>7.2. Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to:</b></p> <p>(D) construct tables and graphs, using repeated trials and means, to organize data and identify patterns; and</p>	<p><b>7.21: Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of sources including electronic technology. The student is expected to:</b></p> <p>(F) identify bias in written, oral, and visual material;</p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive Skills in Science</b>  1. Utilize skepticism, logic, and professional ethics in science  4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p> <p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>  2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>A. Critical examinations of texts, images, and other sources of information</b>  1. Identify and analyze the main idea(s) and point(s)-of-view in sources.  2. Situate an informational source in its appropriate contexts (contemporary, historical, cultural)  3. Evaluate sources from multiple perspectives  4. Understand the difference between a primary and secondary source and use each appropriately to conduct research and construct arguments  5. Read narrative texts critically  6. Read research data critically</p>

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	<p><b>7.3. Scientific investigation and reasoning. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists. The student is expected to:</b></p>	<p>(G) evaluate the validity of a source based on language, corroboration with other sources, and information about the author; and</p>		
	<p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p>			
<p><b>E) Organizing information—Learners are able to describe data and organize information to search for relationships and patterns concerning the environment and environmental topics.</b></p>	<p><b>7.2. Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to:</b></p> <p>(E) analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends.</p>	<p><b>7.21: Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of sources including electronic technology. The student is expected to:</b></p> <p>(B) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions;</p> <p>(C) organize and interpret information from outlines, reports, databases, and visuals including graphs, charts, timelines, and maps;</p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b>  <b>A. Cognitive Skills in Science</b>  2. Use creativity and insight to recognize and describe patterns in natural phenomena.</p> <p><b>E. Effective communication of scientific information</b>  1. Use several modes of expression to describe or characterize natural phenomena. These modes of expression include narrative, and numerical, graphical, pictorial, symbolic, and kinesthetic.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research methods</b>  3. Gather, organize, and display the results of data and research</p>

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
<p><b>F) Working with models and simulations—Learners understand that relationships, patterns, and processes can be represented by models.</b></p>	<p><b>7.2: Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to:</b></p>	<p><b>7.8: Geography. The student uses geographic tools to collect, analyze, and interpret data. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>D. Current Scientific Technology:</b>  2. Use computer models, applications, and simulations</p>	
	<p>(C) collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers;</p> <p><b>7.3. Scientific investigation and reasoning. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists. The student is expected to:</b></p> <p>(B) use models to represent aspects of the natural world such as human body systems and plant and animal cells;</p> <p>(C) identify advantages and limitations of models such as size, scale, properties, and materials; and(3) Scientific investigation and reasoning. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists. The student is expected to:</p>	<p>(A) create thematic maps, graphs, charts, models, and databases representing various aspects of Texas during the 19th and 20th centuries;</p> <p>(B) analyze and interpret geographic distributions and patterns in Texas during the 19th, 20th, and 21st centuries.</p> <p><b>7.21: Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of sources including electronic technology. The student is expected to:</b></p> <p>(C) organize and interpret information from outlines, reports, databases, and visuals including graphs, charts, timelines, and maps;</p>	<p><b>II. Foundations Skills: Scientific Application of Mathematics</b>  <b>B. Mathematics as symbolic language</b> 2.  Represent natural events, processes, and relationships with algebraic expressions and algorithms.</p> <p><b>V. Cross Disciplinary Themes</b>  <b>E. Measurements and Models</b>  1. Use models to make predictions  2. Use scale to relate models and structures</p>	

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
		<p>(H) use appropriate mathematical skills to interpret social studies information such as maps and graphs.</p> <p><b>7.22: Social studies skills. The student communicates in written, oral, and visual forms. The student is expected to:</b></p> <p>(C) transfer information from one medium to another, including written to visual and statistical to written or visual, using computer software as appropriate; and</p>		
<p><b>G) Drawing conclusions and developing explanations—Learners can develop simple explanations that address their questions about the environment.</b></p>	<p><b>7.2. Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to:</b></p> <p>(E) analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends.</p> <p><b>7.3. Scientific investigation and reasoning. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists. The student is expected to:</b></p>	<p><b>7.21: Social studies skills. The student applies critical-thinking skills to organize and use information acquired through established research methodologies from a variety of valid sources, including electronic technology. The student is expected to:</b></p> <p>(B) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions;</p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b>  <b>A. Cognitive Skills in Science</b>  4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>D. Reaching Conclusions</b>  1. Construct a thesis that is supported by evidence</p>

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;			
<b>Strand 2.1: Knowledge of Environmental Processes and Systems</b>				
<p><b>A) Processes that shape the Earth—Learners have a basic understanding of most of the physical processes that shape the Earth. They are able to explore the origin of differences in physical patterns.</b></p>	<p><b>7.5. Matter and energy. The student knows that interactions occur between matter and energy. The student is expected to:</b></p> <p>(A) recognize that radiant energy from the Sun is transformed into chemical energy through the process of photosynthesis;</p>		<p><b>IX. Earth and Space Sciences</b></p> <p><b>A. Earth Systems</b></p> <p>3. Possess a scientific understanding of the history of the Earth's systems.</p> <p><b>E. Plate Tectonics</b></p> <p>1. Describe evidence that supports the current theory of plate tectonics</p> <p>2. Identify major tectonic plates</p> <p>3. Describe the motion and interaction of tectonic plates</p> <p>4. Describe the rock cycle and its products</p>	
	<p><b>7.8. Earth and space. The student knows that natural events and human activity can impact Earth systems. The student is expected to:</b></p> <p>(A) predict and describe how different types of catastrophic events impact ecosystems such as floods, hurricanes, or tornadoes;</p> <p>(B) analyze the effects of weathering, erosion, and deposition on the environment in ecoregions of Texas; and</p> <p>(C) model the effects of human activity on groundwater and surface water in a watershed.</p>			

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
<p><b>B) Changes in matter—Learners understand the properties of the substances that make up objects or materials found in the environment.</b></p>	<p><b>7.5: Matter and energy. The student knows that interactions occur between matter and energy. The student is expected to:</b></p> <p>(A) recognize that radiant energy from the Sun is transformed into chemical energy through the process of photosynthesis;</p> <p>(B) demonstrate and explain the cycling of matter within living systems such as in the decay of biomass in a compost bin; and</p> <p>(C) diagram the flow of energy through living systems, including food chains, food webs, and energy pyramids</p> <p><b>7.6: Matter and energy. The student knows that matter has physical and chemical properties and can undergo physical and chemical changes. The student is expected to:</b></p> <p>(A) identify that organic compounds contain carbon and other elements such as hydrogen, oxygen, phosphorus, nitrogen, or sulfur;</p> <p>(B) distinguish between physical and chemical changes in matter in the digestive system; and</p> <p>(C) recognize how large molecules are broken down into smaller molecules such as carbohydrates can be broken down into sugars.</p>		<p><b>V. Cross-Disiplinary Themes</b>  <b>A. Matter/states of matter</b>  2. Understanding typical states of matter (solid, liquid, gas) and phase changes among these.</p> <p><b>VII. Chemistry</b>  <b>A. Matter and its properties</b>  1. Know that physical and chemical properties can be used to describe and classify matter. Recognize and classify pure substances (elements and compounds) and mixtures.</p> <p><b>IX. Earth and Space Systems</b>  <b>F. Energy transfer within and among systems</b>  1. Describe matter and energy transfer in the Earth's systems.  2. Give examples of effects of energy transfer within and among systems.</p>	

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	<p><b>7.7. Force, motion, and energy. The student knows that there is a relationship among force, motion, and energy. The student is expected to:</b></p> <p>(B) illustrate the transformation of energy within an organism such as the transfer from chemical energy to heat and thermal energy in digestion; and</p> <p>(C) demonstrate and illustrate forces that affect motion in everyday life such as emergence of seedlings, turgor pressure, and geotropism.</p>			
<p><b>C) Energy—Learners begin to grasp formal concepts related to energy by focusing on energy transfer and transformations. They are able to make connections among the phenomena such as light, heat, magnetism, electricity, and the motion of objects.</b></p>	<p><b>7.5: Matter and energy. The student knows that interactions occur between matter and energy. The student is expected to:</b></p> <p>(A) recognize that radiant energy from the Sun is transformed into chemical energy through the process of photosynthesis;</p> <p>(B) demonstrate and explain the cycling of matter within living systems such as in the decay of biomass in a compost bin; and</p> <p>(C) diagram the flow of energy through living systems, including food chains, food webs, and energy pyramids.</p>		<p><b>V. Cross-Disciplinary Themes</b>  <b>B. Energy (thermodynamics, kinetic, potential, energy transfers)</b>  1. Understand the Laws of Thermodynamics  2. Know the processes of energy transfer</p> <p><b>VI. Biology</b>  <b>G. Ecology</b>  2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p> <p><b>VII. Chemistry</b>  <b>H. Thermochemistry</b>  1. Understand the Law of Conservation of Energy and processes of heat transfer.  2. Understand energy changes and chemical reactions</p> <p><b>VIII. Physics</b>  <b>C. Force and Motion</b>  1. Understand the fundamental concepts of kinematics  2. Understand forces and Newton's Law,  3. Understand the concept of momentum.</p>	

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	<p><b>7.6: Matter and energy. The student knows that matter has physical and chemical properties and can undergo physical and chemical changes. The student is expected to:</b></p> <p>(A) identify that organic compounds contain carbon and other elements such as hydrogen, oxygen, phosphorus, nitrogen, or sulfur;</p> <p>(B) distinguish between physical and chemical changes in matter in the digestive system; and</p> <p>(C) recognize how large molecules are broken down into smaller molecules such as carbohydrates can be broken down into sugars.</p> <p><b>7.7: Force, motion, and energy. The student knows that there is a relationship among force, motion, and energy. The student is expected to:</b></p> <p>(A) contrast situations where work is done with different amounts of force to situations where no work is done such as moving a box with a ramp and without a ramp, or standing still;</p> <p>(B) illustrate the transformation of energy within an organism such as the transfer from chemical energy to heat and thermal energy in digestion; and</p> <p>(C) demonstrate and illustrate forces that affect motion in everyday life such as emergence of seedlings, turgor pressure, and geotropism.</p>		<p><b>D. Mechanical Energy</b></p> <ol style="list-style-type: none"> <li>1. Understand potential and kinetic energy.</li> <li>2. Understand conservation of energy</li> <li>3. Understand relationship of work and mechanical energy</li> </ol> <p><b>X. Environmental Science</b></p> <p><b>B. Energy</b></p> <ol style="list-style-type: none"> <li>1. Understand energy transformations</li> <li>2. Know various sources of energy for humans and other biological systems.</li> </ol>	

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
<b>Strand 2.2: The Living Environment</b>				
<p><b>A) Organisms, populations, and communities—Learners understand that biotic communities are made up of plants and animals that are adapted to live in particular environments.</b></p>	<p><b>7.10. Organisms and environments. The student knows that there is a relationship between organisms and the environment. The student is expected to:</b></p> <p>(A) observe and describe how different environments, including microhabitats in schoolyards and biomes, support different varieties of organisms;</p> <p>(B) describe how biodiversity contributes to the sustainability of an ecosystem; and</p> <p>(C) observe, record, and describe the role of ecological succession such as in a microhabitat of a garden with weeds.</p> <p><b>7.11. Organisms and environments. The student knows that populations and species demonstrate variation and inherit many of their unique traits through gradual processes over many generations. The student is expected to:</b></p> <p>(A) examine organisms or their structures such as insects or leaves and use dichotomous keys for identification;</p> <p>(B) explain variation within a population or species by comparing external features, behaviors, or physiology of organisms that enhance their survival such as migration, hibernation, or storage of food in a bulb; and</p>		<p><b>VI. Biology</b>  <b>G. Ecology</b>  1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.  2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p>	

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	<p><b>7.12. Organisms and environments. The student knows that living systems at all levels of organization demonstrate the complementary nature of structure and function. The student is expected to:</b></p> <p>(A) investigate and explain how internal structures of organisms have adaptations that allow specific functions such as gills in fish, hollow bones in birds, or xylem in plants;</p> <p>(B) identify the main functions of the systems of the human organism, including the circulatory, respiratory, skeletal, muscular, digestive, excretory, reproductive, integumentary, nervous, and endocrine systems;</p> <p>(C) recognize levels of organization in plants and animals, including cells, tissues, organs, organ systems, and organisms;</p>			
	<p>(D) differentiate between structure and function in plant and animal cell organelles, including cell membrane, cell wall, nucleus, cytoplasm, mitochondrion, chloroplast, and vacuole;</p> <p><b>7.13: Organisms and environments. The student knows that a living organism must be able to maintain balance in stable internal conditions in response to external and internal stimuli. The student is expected to:</b></p> <p>(A) investigate how organisms respond to external stimuli found in the environment such as phototropism and fight or flight; and</p>			

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	(B) describe and relate responses in organisms that may result from internal stimuli such as wilting in plants and fever or vomiting in animals that allow them to maintain balance.			
<b>B) Heredity and evolution—Learners have a basic understanding of the importance of genetic heritage.</b>	<b>7.14: Organisms and environments. The student knows that reproduction is a characteristic of living organisms and that the instructions for traits are governed in the genetic material. The student is expected to:</b>		<b>VI. Biology</b> <b>C. Evolution and populations</b> 1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms. 2. Recognize variations in population sizes, including extinction, and describe mechanisms and conditions that produce these variations.	
	(A) define heredity as the passage of genetic instructions from one generation to the next generation;  (B) compare the results of uniform or diverse offspring from sexual reproduction or asexual reproduction; and (C) recognize that inherited traits of individuals are governed in the genetic material found in the genes within chromosomes in the nucleus.  <b>7.11: Organisms and environments. The student knows that populations and species demonstrate variation and inherit many of their unique traits through gradual processes over many generations. The student is expected to:</b>  (A) examine organisms or their structures such as insects or leaves and use dichotomous keys for identification;		<b>D. Molecular genetics and heredity</b> 1. Understand Mendel's Law of inheritance, 2. Know modifications of Mendel's Law 3. Understand the molecular structure and functions of nucleic acids  4. Understand simple principles of population genetics and describe characteristics of Hardy-Weinberg population.  5. Describe the major features of meiosis and relate this process to Mendel's law of inheritance.	

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	<p>(B) explain variation within a population or species by comparing external features, behaviors, or physiology of organisms that enhance their survival such as migration, hibernation, or storage of food in a bulb; and</p> <p>(C) identify some changes in genetic traits that have occurred over several generations through natural selection and selective breeding such as the Galapagos Medium Ground Finch (<i>Geospiza fortis</i>) or domestic animals.</p>			
<p><b>C) Systems and connections—Learners understand major kinds of interactions among organisms or populations of organisms.</b></p>	<p><b>7.10. Organisms and environments. The student knows that there is a relationship between organisms and the environment. The student is expected to:</b></p> <p>(A) observe and describe how different environments, including microhabitats in schoolyards and biomes, support different varieties of organisms;</p> <p>(B) describe how biodiversity contributes to the sustainability of an ecosystem; and</p> <p>(C) observe, record, and describe the role of ecological succession such as in a microhabitat of a garden with weeds.</p>		<p><b>IV. Biology</b></p> <p><b>C. Evolution and populations</b></p> <p>1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.</p> <p><b>G. Ecology</b></p> <p>1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.</p> <p>2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p> <p>3. Understand typical forms of organismal behavior</p> <p>4. Know the process of succession</p> <p><b>X. Environmental Science</b></p> <p><b>A. Earth Systems</b></p> <p>5. Be familiar with the Earth's major biomes</p>	

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	<p><b>7.11. Organisms and environments. The student knows that populations and species demonstrate variation and inherit many of their unique traits through gradual processes over many generations. The student is expected to:</b></p> <p>(A) examine organisms or their structures such as insects or leaves and use dichotomous keys for identification;</p> <p>(B) explain variation within a population or species by comparing external features, behaviors, or physiology of organisms that enhance their survival such as migration, hibernation, or storage of food in a bulb; and</p> <p><b>7.12. Organisms and environments. The student knows that living systems at all levels of organization demonstrate the complementary nature of structure and function. The student is expected to:</b></p> <p>(C) recognize levels of organization in plants and animals, including cells, tissues, organs, organ systems, and organisms;</p> <p><b>7.13: Organisms and environments. The student knows that a living organism must be able to maintain balance in stable internal conditions in response to external and internal stimuli. The student is expected to:</b></p> <p>(A) investigate how organisms respond to external stimuli found in the environment such as phototropism and fight or flight; and</p>			

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	(B) describe and relate responses in organisms that may result from internal stimuli such as wilting in plants and fever or vomiting in animals that allow them to maintain balance.			
<b>D) Flow of matter and energy—Learners understand how energy and matter flow among the abiotic and biotic components of the environment.</b>	<b>7.10. Organisms and environments. The student knows that there is a relationship between organisms and the environment. The student is expected to:</b>		<b>V. Biology</b> <b>B. Biochemistry</b> 3. Describe the major features and chemical events of photosynthesis 4. Describe the major features and chemical events of cellular respiration 5. Know how organisms respond to the presence or absence of oxygen, including mechanisms of fermentation	
	(A) observe and describe how different environments, including microhabitats in schoolyards and biomes, support different varieties of organisms;		<b>G. Ecology</b> 2. Know the patterns of energy flow and material cycling in Earth's ecosystems.	
	(B) describe how biodiversity contributes to the sustainability of an ecosystem; and		<b>X. Environmental Science</b> <b>B. Energy</b> 1. Understanding energy transformations 2. Know the various sources of energy for humans and other biological systems	
	<b>7.12. Organisms and environments. The student knows that living systems at all levels of organization demonstrate the complementary nature of structure and function. The student is expected to:</b>			
(A) investigate and explain how internal structures of organisms have adaptations that allow specific functions such as gills in fish, hollow bones in birds, or xylem in plants;				

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	<p>(B) identify the main functions of the systems of the human organism, including the circulatory, respiratory, skeletal, muscular, digestive, excretory, reproductive, integumentary, nervous, and endocrine systems;</p> <p>(C) recognize levels of organization in plants and animals, including cells, tissues, organs, organ systems, and organisms;</p> <p>(D) differentiate between structure and function in plant and animal cell organelles, including cell membrane, cell wall, nucleus, cytoplasm, mitochondrion, chloroplast, and vacuole;</p>			
<b>Strand 2.3: Humans and Their Societies</b>				
<p><b>A) Individuals and groups—Learners understand that how individuals perceive the environment is influenced in part by individual traits and group membership or affiliations.</b></p>				<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b>  2. Analyze the interaction between human communities and the environment.</p> <p><b>II. Diverse Human Perspectives</b>  <b>B. Factors that influence personal and group identities (e.g. race, ethnicity, gender, nationalist, institutional affiliations, socioeconomic status)</b>  6. Analyze how individual and group identities are established and changes over time.</p>

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
<p><b>B) Culture—As they become familiar with a wider range of cultures and subcultures, learners gain an understanding of cultural perspectives on the environment and how the environment may, in turn, influence culture.</b></p>		<p><b>7.9: Geography. The student understands the location and characteristics of places and regions of Texas. The student is expected to:</b></p> <p>(B) compare places and regions of Texas in terms of physical and human characteristics;</p>		<p><b>I. Interrelated Disciplines and Skills</b></p> <p><b>A. Spatial analysis of physical processes that shape the human experience.</b></p> <p>2. Analyze the interaction between human communities and the environment.</p> <p>3. Analyze how physical and cultural processes have shaped human communities over time.</p> <p>5. Analyze how various cultural regions of changed over time.</p> <p>6. Analyze the relationship between geography and the development of human communities.</p>
<p><b>C) Political and economic systems—Learners become more familiar with political and economic systems and how these systems take the environment into consideration.</b></p>		<p><b>8.10: Geography. The student understands the effects of the interaction between humans and the environment in Texas during the 19th, 20th, and 21st centuries. The student is expected to:</b></p> <p>(B) explain ways in which geographic factors such as the Galveston Hurricane of 1900, the Dust Bowl, limited water resources, and alternative energy sources have affected the political, economic, and social development of Texas.</p>	<p><b>X. Environmental Science</b></p> <p><b>D. Economics and politics</b></p> <p>1. name and describe major environmental policies and legislation</p> <p>2. Understand the types, uses, and regulations of various natural resources</p>	<p><b>I. Interrelated Disciplines and Skills</b></p> <p><b>C. Change and continuity of political ideologies, constitutions and political behaviour.</b></p> <p>1. Evaluate different governmental systems and functions</p> <p><b>D. Change and continuity of economic systems and processes.</b></p> <p>1. Identify and evaluate the strengths and weaknesses of different economic systems.</p>

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
<p><b>D) Global connections—Learners become familiar with ways in which the world's environmental, social, economic, cultural and political systems are linked.</b></p>		<p><b>8.10: Geography. The student understands the effects of the interaction between humans and the environment in Texas during the 19th, 20th, and 21st centuries. The student is expected to:</b></p> <p>(B) explain ways in which geographic factors such as the Galveston Hurricane of 1900, the Dust Bowl, limited water resources, and alternative energy sources have affected the political, economic, and social development of Texas.</p> <p><b>7.20: Science, technology, and society. The student understands the impact of scientific discoveries and technological innovations on the political, economic, and social development of Texas. The student is expected to:</b></p> <p>(E) analyze how scientific discoveries and technological innovations have resulted in an interdependence among Texas, the United States, and the world; and</p>		<p><b>III. Interdependence of Global Communities</b>  <b>A. Spatial understanding of global, regional, national, and local communities.</b>  1. Distinguish spatial patterns of human communities that exist between or within contemporary political boundaries.  2. Connect regional or local developments to global ones.  3. Analyze how and why diverse communities interact and become dependent on each other.</p>
<p><b>E) Change and conflict—Learners understand the humans social systems change over time and that conflicts sometimes arise over differing and changing viewpoints about the environment.</b></p>				<p><b>I. Interrelated disciplines and Skills</b>  <b>E. Change and continuity of social groups, civic organizations, institutions, and their interaction.</b>  4. Identify and evaluate the sources and consequences of social conflict.</p>

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
<b>Strand 2.4: Environment and Society</b>				
<p><b>A) Human/environment interactions—Learners understand that human-caused change have consequences for the immediate environment as well as for other places and future times.</b></p>	<p><b>7.8: Earth and space. The student knows that natural events and human activity can impact Earth systems. The student is expected to:</b></p>	<p><b>7.9: Geography. The student understands the location and characteristics of places and regions of Texas. The student is expected to:</b></p> <p>(C) analyze the effects of physical and human factors such as climate, weather, landforms, irrigation, transportation, and communication on major events in Texas.</p>	<p><b>X. Environmental Science</b> <b>E. Human practices and their impacts</b></p> <ol style="list-style-type: none"> <li>1. Describe the different uses for land (land management)</li> <li>2. Understand the use and consequences of pest management</li> <li>3. Know the different methods used to increase food production</li> <li>4. Understand land and water usage and management practices</li> <li>5. Understand how human practices affect air, water, and soil quality</li> </ol>	<p><b>I. Interrelated Disciplines and Skills</b> <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b></p> <ol style="list-style-type: none"> <li>2. Analyze the interaction between human communities and the environment.</li> <li>4. Evaluate the causes and effects of human migration patterns over time</li> <li>6. Analyze the relationship between geography and the development of human communities.</li> </ol>
	<p>(C) model the effects of human activity on groundwater and surface water in a watershed.</p>	<p><b>7.10: Geography. The student understands the effects of the interaction between humans and the environment in Texas during the 19th and 20th centuries. The student is expected to:</b></p>		
		<p>(A) identify ways in which Texans have adapted to and modified the environment and analyze the consequences of the modifications; and</p>		
		<p>(B) explain ways in which geographic factors have affected the political, economic, and social development of Texas.</p>		

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
		<p><b>8.20: Science, technology, and society. The student understands the impact of scientific discoveries and technological innovations on the political, economic, and social development of Texas. The student is expected to:</b></p> <p>(D) evaluate the effects of scientific discoveries and technological innovations on the use of resources such as fossil fuels, water, and land;</p>		
<p><b>B) Places—Learners begin to explore the meaning of place both close to home and around the world.</b></p>		<p><b>7.9: Geography. The student understands the location and characteristics of places and regions of Texas. The student is expected to:</b></p> <p>(A) locate places and regions of importance in Texas during the 19th and 20th centuries;</p> <p>(B) compare places and regions of Texas in terms of physical and human characteristics; and</p>		<p><b>I. Interrelated Disciplines and Skills</b></p> <p><b>A. Spatial analysis of physical and cultural processes that shape the human experience</b></p> <p>2. Analyze the interaction between human communities and the environment.</p> <p><b>III. Interdependence of Global Communities</b></p> <p><b>A. Spatial understanding of global, regional, national, and local communities.</b></p> <p>1. Distinguish spatial patterns of human communities that exist between or within contemporary boundaries.</p> <p>2. Connect regional or local development to global ones.</p> <p>3. Analyze how and why diverse communities interact and become dependent on each other.</p>

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
		<p><b>8.11: Geography. The student understands the characteristics, distribution, and migration of population in Texas in the 19th, 20th, and 21st centuries. The student is expected to:</b></p> <p>(A) analyze why immigrant groups came to Texas and where they settled;</p>		
<p><b>C) Resources—Learners understand uneven distribution of resources influences their use and perceived value.</b></p>		<p><b>8.20: Science, technology, and society. The student understands the impact of scientific discoveries and technological innovations on the political, economic, and social development of Texas. The student is expected to:</b></p> <p>(D) evaluate the effects of scientific discoveries and technological innovations on the use of resources such as fossil fuels, water, and land;</p>		
<p><b>D) Technology—Learners understand the human ability to shape and control the environment as a function of the capacities for creating knowledge and developing new technologies.</b></p>		<p><b>7.20: Science, technology, and society. The student understands the impact of scientific discoveries and technological innovations on the political, economic, and social development of Texas. The student is expected to:</b></p> <p>(D) evaluate the effects of scientific discoveries and technological innovations on the use of resources such as fossil fuels, water, and land;</p>		

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
<p><b>E) Environmental issues</b>—Learners are familiar with a range of environmental issues at scales that range from local to national to global. They understand that people in other places around the world experience environmental issues similar to the ones they are concerned about locally.</p>		<p><b>8.10:</b> Geography. The student understands the effects of the interaction between humans and the environment in Texas during the 19th, 20th, and 21st centuries. The student is expected to:</p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive skills in science</b>            2. Use creativity and insight to recognize and describe patterns in natural phenomena</p>	
		<p>(A) identify ways in which Texans have adapted to and modified the environment and analyze the positive and negative consequences of the modifications;</p>	<p><b>X. Environmental Science</b>  <b>E. Human practices and their impacts</b>            1. Describe the different uses for land (land management)            2. Understand the use and consequence of pest management            3. Know the different method used to increase food production             4. Understand land and water usage and management practices            5. Understand how human practices affect air, water, and soil quality</p>	
<p><b>Strand 3: Skills for Understanding and Addressing Environmental Issues</b></p>				
<p><b>Strand 3.1: Skills for Analyzing and Investigating Environmental Issues</b></p>				
<p><b>A) Identifying and investigating issues</b>—Learners are able to use primary and secondary sources of information, and apply growing research and analytical skills, to investigate environmental issues, beginning in their own community.</p>	<p><b>7.3.</b> Scientific investigation and reasoning. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists. The student is expected to:</p>	<p><b>7.21:</b> Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of sources including electronic technology. The student is expected to:</p>	<p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>            2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(A) differentiate between, locate, and use primary and secondary sources such as computer software, databases, media and news services, biographies, interviews, and artifacts to acquire information about Texas;		
<b>B) Sorting out the consequences of issues—Learners are able to identify and develop action strategies for addressing particular issues.</b>		<b>7.23: Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b>	<b>IV. Science, Technology, and Society</b> <b>B. Social ethics</b> 1. Understand how scientific research and technology have and impact on ethical and legal practices	
		(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution; and  (B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.		
<b>C) Identifying and evaluating alternative solutions and courses of action—Learners are able to identify and develop action strategies for addressing particular issues.</b>		<b>7.23: Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b>	<b>IV. Science, Technology, and Society</b> <b>B. Social ethics</b> 1. Understand how scientific research and technology have and impact on ethical and legal practices 2. Understand how commonly held ethical beliefs impact scientific research	

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
		(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution; and		
		(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.		
<b>D) Working with flexibility, creativity, and openness—Learners are able to consider the assumptions and interpretations that influence the conclusions they and others draw about environmental issues.</b>			<b>III. Foundation Skills: Scientific Applications of Communication</b> <b>D. Research skills/information literacy</b> 2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.	
<b>Strand 3.2: Decision Making and Citizenship Skills</b>				
<b>A) Forming and evaluating personal views—Learners are able to identify, justify, and clarify their views on environmental issues and alternative ways to address them.</b>		<b>7.17: Citizenship. The student understands the importance of the expression of different points of view in a democratic society. The student is expected to:</b>		
		<b>(C) express and defend a point of view on an issue of historical or contemporary interest in Texas.</b>		

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
<p><b>B) Evaluating the need for citizen action—Learners are able to evaluate whether they believe action is needed in particular situations, and decide whether they should be involved.</b></p>				
<p><b>C) Planning and taking action—As learners begin to see themselves as citizens taking active roles in their communities, they are able to plan for and engage in citizen action at levels appropriate to their maturity and preparation.</b></p>		<p><b>7.23: Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p> <p>(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution; and</p> <p>(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.</p>		
<p><b>D) Evaluating the results of actions—Learners are able to analyze the effects of their own actions and actions taken by other individuals and groups.</b></p>				

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
<b>Strand 4: Personal and Civic Responsibility</b>				
<p><b>A) Understanding societal values and principles—Learners understand that societal values can be both a unifying and a divisive force.</b></p>			<p><b>IV. Science, Technology, and Society</b>  <b>B. Social Ethics</b>            1. Understand how scientific research and technology have an impact on ethical and legal practices.            2. Understand how commonly held ethical beliefs impact scientific research.</p>	
<p><b>B) Recognizing citizens' rights and responsibilities—Learners understand the rights and responsibilities of citizenship and their importance in promoting the resolution of environmental issues.</b></p>		<p><b>7.16: Citizenship. The student understands the rights and responsibilities of Texas citizens. The student is expected to:</b></p> <p>(A) summarize the rights guaranteed in the Texas Bill of Rights; and</p> <p>(B) identify civic responsibilities of Texas citizens.</p> <p><b>7.17: Citizenship. The student understands the importance of the expression of different points of view in a democratic society. The student is expected to:</b></p> <p>(A) identify different points of view of political parties and interest groups on important Texas issues, past and present;</p> <p>(B) describe the importance of free speech and press in a democratic society; and</p>		

EE Learner Guidelines	7th Grade Science	7th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
<p>C) Recognizing efficacy—Learners possess a realistic self-confidence in their effectiveness as citizens.</p>		<p><b>7.17: Citizenship. The student understands the importance of the expression of different points of view in a democratic society. The student is expected to:</b></p> <p>(C) express and defend a point of view on an issue of historical or contemporary interest in Texas.</p> <p><b>7.21: Social studies skills. The student applies critical-thinking skills to organize and use information acquired through established research methodologies from a variety of valid sources, including electronic technology. The student is expected to:</b></p> <p>(E) support a point of view on a social studies issue or event</p>		
<p><b>D) Accepting personal responsibility—Learners understand that their actions can have broad consequences and they they are responsible for those consequences.</b></p>				

## EE-TEKS-CCRS CROSSWALK

*Alignment of the North American Excellence in Environmental Education: Guidelines for Learning (NAAEE) and the College and Career Readiness Standards (CCRS) with the Texas Essential Knowledge and Skills (TEKS) for  
8th Grade Science & Social Studies*

EE Learner Guidelines	8th Grade Science	8th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
<b>Strand 1: Questioning, Analysis &amp; Interpretation Skills</b>				
<b>A) Questioning—Learners are able to develop questions that help them learn about the environment and do simple investigations.</b>	<b>8.2. Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to:</b>	<b>8.29: Social studies skills. The student applies critical-thinking skills to organize and use information acquired through established research methodologies from a variety of valid sources, including</b>	<b>I. Nature of Science: Scientific Ways of Learning and Thinking</b> <b>A. Cognitive skills in science</b> 3. Formulate appropriate questions to test understanding of natural phenomena.	<b>I. Interrelated Disciplines and Skills</b> <b>F. Problems solving</b> 1. Use a variety of research and analytical tools to explore questions or issues thoroughly and fairly.
	(A) plan and implement comparative and descriptive investigations by making observations, asking well-defined questions, and using appropriate equipment and technology;	(J) pose and answer questions about geographic distributions and patterns shown on maps, graphs, charts, models, and databases.		
	(B) design and implement comparative and experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology;			
	<b>8.3: Scientific investigation and reasoning. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists. The student is expected to:</b>			

EE Learner Guidelines	8th Grade Science	8th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;			
<p><b>B) Designing investigations—Learners are able to design simple investigations.</b></p>	<p><b>8.2. Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to:</b></p> <p>(A) plan and implement comparative and descriptive investigations by making observations, asking well-defined questions, and using appropriate equipment and technology;</p> <p>(B) design and implement comparative and experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology;</p> <p>(E) analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends.</p> <p><b>8.4: Scientific investigation and reasoning. The student knows how to use a variety of tools and safety equipment to conduct science inquiry. The student is expected to:</b></p>		<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b></p> <p><b>B. Scientific Inquiry</b></p> <p>1. Design and conduct scientific investigations in which hypotheses are formulated and tested</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b></p> <p><b>B. Research and methods</b></p> <p>1. Use established research methodologies</p>

EE Learner Guidelines	8th Grade Science	8th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	(A) use appropriate tools to collect, record, and analyze information, including lab journals/notebooks, beakers, meter sticks, graduated cylinders, anemometers, psychrometers, hot plates, test tubes, spring scales, balances, microscopes, thermometers, calculators, computers, spectrosopes, timing devices, and other equipment as needed to teach the curriculum;			
<b>C) Collecting information—Learners are able to locate and collect information about the environment and environmental topics.</b>	<b>8.2: Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to:</b>	<b>(29) Social studies skills. The student applies critical-thinking skills to organize and use information acquired through established research methodologies from a variety of valid sources, including electronic technology. The student is expected to:</b>	<b>I. Scientific Ways of Learning and Thinking</b> <b>A. Cognitive Skills in science</b> 4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.  <b>D. Current Scientific Technology</b> 3. Demonstrate appropriate use of a wide variety of apparatuses, equipment, techniques, and procedures for collecting quantitative and qualitative data	<b>IV. Analysis, Synthesis, and Evaluation of Information</b> <b>B. Research and methods</b> 3. Gather, organize and display the results of data and research 4. Identify and collect sources
	(B) design and implement comparative and experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology;	(A) differentiate between, locate, and use valid primary and secondary sources such as computer software, databases, media and news services, biographies, interviews, and artifacts to acquire information about the United States;		
	(C) collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers;		<b>III. Foundation Skills: Scientific Applications of Communication</b> <b>A. Research Skills/Information Literacy</b> 1. Use search engines, databases, and other digital electronic tools effectively to locate information.	
	<b>8.4. Scientific investigation and reasoning. The student knows how to use a variety of tools and safety equipment to conduct science inquiry. The student is expected to:</b>			

EE Learner Guidelines	8th Grade Science	8th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	(A) use appropriate tools to collect, record, and analyze information, including lab journals/notebooks, beakers, meter sticks, graduated cylinders, anemometers, psychrometers, hot plates, test tubes, spring scales, balances, microscopes, thermometers, calculators, computers, spectrosopes, timing devices, and other equipment as needed to teach the curriculum			
<b>D) Evaluating accuracy and reliability—Learners understand the need to use reliable information to answer their questions. They are familiar with some basic factors to consider in judging the merits of information.</b>	<b>8.2. Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to:</b>	<b>8.29. Social studies skills. The student applies critical-thinking skills to organize and use information acquired through established research methodologies from a variety of valid sources, including electronic technology. The student is expected to:</b>	<b>I. Nature of Science: Scientific Ways of Learning and Thinking</b> <b>A. Cognitive Skills in Science</b> 1. Utilize skepticism, logic, and professional ethics in science 4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.	<b>IV. Analysis, Synthesis, and Evaluation of Information</b> <b>A. Critical examinations of texts, images, and other sources of information</b> 1. Identify and analyze the main idea(s) and point(s)-of-view in sources. 2. Situate an informational source in its appropriate contexts (contemporary, historical, cultural)
	(B) design and implement comparative and experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology;  (C) collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers;	(F) identify bias in written, oral, and visual material;  (G) evaluate the validity of a source based on language, corroboration with other sources, and information about the author;	<b>III. Foundation Skills: Scientific Applications of Communication</b> <b>D. Research skills/information literacy</b> 2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.	3. Evaluate sources from multiple perspectives 4. Understand the difference between a primary and secondary source and use each appropriately to conduct research and construct arguments 5. Read narrative texts critically 6. Read research data critically

EE Learner Guidelines	8th Grade Science	8th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	<p><b>8.3. Scientific investigation and reasoning. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists. The student is expected to:</b></p> <p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p>			
<p><b>E) Organizing information—Learners are able to describe data and organize information to search for relationships and patterns concerning the environment and environmental topics.</b></p>	<p><b>8.2. Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to:</b></p> <p>(C) collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers;</p> <p>(D) construct tables and graphs, using repeated trials and means, to organize data and identify patterns;</p>	<p><b>8.29: Social studies skills. The student applies critical-thinking skills to organize and use information acquired through established research methodologies from a variety of valid sources, including electronic technology. The student is expected to:</b></p> <p>(B) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions;</p> <p>(C) organize and interpret information from outlines, reports, databases, and visuals, including graphs, charts, timelines, and maps;</p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b>  <b>A. Cognitive Skills in Science</b>  2. Use creativity and insight to recognize and describe patterns in natural phenomena.</p> <p><b>E. Effective communication of scientific information</b>  1. Use several modes of expression to describe or characterize natural phenomena. These modes of expression include narrative, and numerical, graphical, pictorial, symbolic, and kinesthetic.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research methods</b>  3. Gather, organize, and display the results of data and research</p>

EE Learner Guidelines	8th Grade Science	8th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	(E) analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends.			
<b>F) Working with models and simulations—Learners understand that relationships, patterns, and processes can be represented by models.</b>	<b>8.3. Scientific investigation and reasoning. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists. The student is expected to:</b>	<b>8.29: Social studies skills. The student applies critical-thinking skills to organize and use information acquired through established research methodologies from a variety of valid sources, including electronic technology. The student is expected to:</b>	<b>I. Nature of Science: Scientific Ways of Learning and Thinking</b> <b>D. Current Scientific Technology:</b> 2. Use computer models, applications, and simulations	
	(B) use models to represent aspects of the natural world such as an atom, a molecule, space, or a geologic feature;	(C) organize and interpret information from outlines, reports, databases, and visuals, including graphs, charts, timelines, and maps;	<b>II. Foundations Skills: Scientific Application of Mathematics</b> <b>B. Mathematics as symbolic language</b> 2. Represent natural events, processes, and relationships with algebraic expressions and algorithms.	
	(C) identify advantages and limitations of models such as size, scale, properties, and materials; and	(H) use appropriate mathematical skills to interpret social studies information such as maps and graphs;	<b>V. Cross Disciplinary Themes</b> <b>E. Measurements and Models</b> 1. Use models to make predictions 2. Use scale to relate models and structures	
	<b>8.9. Earth and space. The student knows that natural events can impact Earth systems. The student is expected to:</b>	(I) create thematic maps, graphs, charts, models, and databases representing various aspects of the United States; and		
	(C) interpret topographic maps and satellite views to identify land and erosional features and predict how these features may be reshaped by weathering.	(J) pose and answer questions about geographic distributions and patterns shown on maps, graphs, charts, models, and databases		

EE Learner Guidelines	8th Grade Science	8th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
		<p><b>8.31: Social studies skills. The student communicates in written, oral, and visual forms. The student is expected to:</b></p> <p>(C) transfer information from one medium to another, including written to visual and statistical to written or visual, using computer software as appropriate</p>		
<p><b>G) Drawing conclusions and developing explanations—Learners can develop simple explanations that address their questions about the environment.</b></p>	<p><b>8.2. Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to:</b></p> <p>(E) analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends.</p> <p><b>8.3: Scientific investigation and reasoning. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists. The student is expected to:</b></p>	<p><b>8.29: Social studies skills. The student applies critical-thinking skills to organize and use information acquired through established research methodologies from a variety of valid sources, including electronic technology. The student is expected to:</b></p> <p>(B) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions;</p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b>  <b>A. Cognitive Skills in Science</b>  4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>D. Reaching Conclusions</b>  1. Construct a thesis that is supported by evidence</p>

EE Learner Guidelines	8th Grade Science	8th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;			
<b>Strand 2.1: Knowledge of Environmental Processes and Systems</b>				
<p><b>A) Processes that shape the Earth—Learners have a basic understanding of most of the physical processes that shape the Earth. They are able to explore the origin of differences in physical patterns.</b></p>	<p><b>8.7. Earth and space. The student knows the effects resulting from cyclical movements of the Sun, Earth, and Moon. The student is expected to:</b></p> <p>(A) model and illustrate how the tilted Earth rotates on its axis, causing day and night, and revolves around the Sun causing changes in seasons;</p> <p>(B) demonstrate and predict the sequence of events in the lunar cycle; and</p> <p>(C) relate the position of the Moon and Sun to their effect on ocean tides.</p> <p><b>8.9: Earth and space. The student knows that natural events can impact Earth systems. The student is expected to:</b></p> <p>(A) describe the historical development of evidence that supports plate tectonic theory;</p>		<p><b>IX. Earth and Space Sciences</b></p> <p><b>A. Earth Systems</b></p> <p>3. Possess a scientific understanding of the history of the Earth's systems.</p> <p>E. Plate Tectonics</p> <ol style="list-style-type: none"> <li>1. Describe evidence that supports the current theory of plate tectonics</li> <li>2. Identify major tectonic plates</li> <li>3. Describe the motion and interaction of tectonic plates</li> <li>4. Describe the rock cycle and its products</li> </ol>	

EE Learner Guidelines	8th Grade Science	8th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	<p>(B) relate plate tectonics to the formation of crustal features; and</p> <p>(C) interpret topographic maps and satellite views to identify land and erosional features and predict how these features may be reshaped by weathering.</p> <p><b>8.10. Earth and space. The student knows that climatic interactions exist among Earth, ocean, and weather systems. The student is expected to:</b></p> <p>(B) identify how global patterns of atmospheric movement influence local weather using weather maps that show high and low pressures and fronts;</p>			
<p><b>B) Changes in matter—Learners understand the properties of the substances that make up objects or materials found in the environment.</b></p>	<p><b>8.8. Earth and space. The student knows characteristics of the universe. The student is expected to:</b></p> <p>(A) describe components of the universe, including stars, nebulae, and galaxies, and use models such as the Hertzsprung-Russell diagram for classification;</p>		<p><b>V. Cross-Disiplinary Themes</b>  <b>A. Matter/states of matter</b>  2. Understanding typical states of matter (solid, liquid, gas) and phase changes among these.</p> <p><b>VII. Chemistry</b>  <b>A. Matter and its properties</b>  1. Know that physical and chemical properties can be used to describe</p>	
	<p><b>8.5: Matter and energy. The student knows that matter is composed of atoms and has chemical and physical properties. The student is expected to:</b></p> <p>(A) describe the structure of atoms, including the masses, electrical charges, and locations, of protons and neutrons in the nucleus and electrons in the electron cloud;</p>		<p>and classify matter. Recognize and classify pure substances (elements and compounds) and mixtures.</p> <p><b>IX. Earth and Space Systems</b>  <b>F. Energy transfer within and among systems</b>  1. Describe matter and energy transfer in the Earth's systems.</p>	

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	<p>(B) identify that protons determine an element's identity and valence electrons determine its chemical properties, including reactivity;</p> <p>(C) interpret the arrangement of the Periodic Table, including groups and periods, to explain how properties are used to classify elements;</p> <p>(D) recognize that chemical formulas are used to identify substances and determine the number of atoms of each element in chemical formulas containing subscripts;</p> <p>(E) investigate how evidence of chemical reactions indicate that new substances with different properties are formed; and</p> <p>(F) recognize whether a chemical equation containing coefficients is balanced or not and how that relates to the law of conservation of mass.</p>		<p>2. Give examples of effects of energy transfer within and among systems.</p>	
<p><b>C) Energy—Learners begin to grasp formal concepts related to energy by focusing on energy transfer and transformations. They are able to make connections among the phenomena such as light, heat, magnetism, electricity, and the motion of objects.</b></p>	<p><b>8.6: Force, motion, and energy. The student knows that there is a relationship between force, motion, and energy. The student is expected to:</b></p> <p>(A) demonstrate and calculate how unbalanced forces change the speed or direction of an object's motion;</p>		<p><b>V. Cross-Disciplinary Themes</b>  <b>B. Energy (thermodynamics, kinetic, potential, energy transfers)</b></p> <ol style="list-style-type: none"> <li>1. Understand the Laws of Thermodynamics</li> <li>2. Know the processes of energy transfer</li> </ol> <p><b>VI. Biology</b>  <b>G. Ecology</b></p> <ol style="list-style-type: none"> <li>2. Know patterns of energy flow and material cycling in Earth's ecosystems.</li> </ol>	

EE Learner Guidelines	8th Grade Science	8th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	<p>(B) differentiate between speed, velocity, and acceleration; and</p> <p>(C) investigate and describe applications of Newton's law of inertia, law of force and acceleration, and law of action-reaction such as in vehicle restraints, sports activities, amusement park rides, Earth's tectonic activities, and rocket launches.</p> <p><b>8.10: Earth and space. The student knows that climatic interactions exist among Earth, ocean, and weather systems. The student is expected to:</b></p>		<p><b>VII. Chemistry</b>  <b>H. Thermochemistry</b>  1. Understand the Law of Conservation of Energy and processes of heat transfer.  2. Understand energy changes and chemical reactions</p> <p><b>VIII. Physics</b>  <b>C. Force and Motion</b>  1. Understand the fundamental concepts of kinematics  2. Understand forces and Newton's Law,  3. Understand the concept of momentum.</p> <p><b>D. Mechanical Energy</b>  1. Understand potential and kinetic energy.  2. Understand conservation of energy  3. Understand relationship of work and mechanical energy</p>	
	<p>(A) recognize that the Sun provides the energy that drives convection within the atmosphere and oceans, producing winds and ocean currents;</p>		<p><b>X. Environmental Science</b>  <b>B. Energy</b>  1. Understand energy transformations  2. Know various sources of energy for humans and other biological systems.</p>	
<b>Strand 2.2: The Living Environment</b>				
<p><b>A) Organisms, populations, and communities—Learners understand that biotic communities are made up of plants and animals that are adapted to live in particular environments.</b></p>	<p><b>8.11. Organisms and environments. The student knows that interdependence occurs among living systems and the environment and that human activities can affect these systems. The student is expected to:</b></p> <p>(A) describe producer/consumer, predator/prey, and parasite/host relationships as they occur in food webs within marine, freshwater, and terrestrial ecosystems;</p>		<p><b>VI. Biology</b>  <b>G. Ecology</b>  1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.  2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p>	

EE Learner Guidelines	8th Grade Science	8th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	<p>(B) investigate how organisms and populations in an ecosystem depend on and may compete for biotic and abiotic factors such as quantity of light, water, range of temperatures, or soil composition;</p> <p>(C) explore how short- and long-term environmental changes affect organisms and traits in subsequent populations;</p>			
<p><b>B) Heredity and evolution—Learners have a basic understanding of the importance of genetic heritage.</b></p>	<p><b>8.11. Organisms and environments. The student knows that interdependence occurs among living systems and the environment and that human activities can affect these systems. The student is expected to:</b></p>			
	<p>(C) explore how short- and long-term environmental changes affect organisms and traits in subsequent populations</p>			
<p><b>C) Systems and connections—Learners understand major kinds of interactions among organisms or populations of organisms.</b></p>	<p><b>8.11: Organisms and environments. The student knows that interdependence occurs among living systems and the environment and that human activities can affect these systems. The student is expected to:</b></p> <p>(A) describe producer/consumer, predator/prey, and parasite/host relationships as they occur in food webs within marine, freshwater, and terrestrial ecosystems;</p>		<p><b>VI. Biology</b></p> <p><b>C. Evolution and populations</b></p> <ol style="list-style-type: none"> <li>1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.</li> <li>2. Recognize variations in population sizes, including extinction, and describe mechanisms and conditions that produce these variations.</li> </ol> <p><b>D. Molecular genetics and heredity</b></p> <ol style="list-style-type: none"> <li>1. Understand Mendel's Law of inheritance,</li> <li>2. Know modifications of Mendel's Law,</li> </ol>	

EE Learner Guidelines	8th Grade Science	8th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	<p>(B) investigate how organisms and populations in an ecosystem depend on and may compete for biotic and abiotic factors such as quantity of light, water, range of temperatures, or soil composition;</p> <p>(C) explore how short- and long-term environmental changes affect organisms and traits in subsequent populations; and</p>		<p>3. Understand the molecular structure and functions of nucleic acids</p> <p>4. Understand simple principles of population genetics and describe characteristics of Hardy-Weinberg population.</p>	
	<p>(D) recognize human dependence on ocean systems and explain how human activities such as runoff, artificial reefs, or use of resources have modified these systems.</p>		<p>5. Describe the major features of meiosis and relate this process to Mendel's law of inheritance.</p>	
<p><b>D) Flow of matter and energy—Learners understand how energy and matter flow among the abiotic and biotic components of the environment.</b></p>	<p><b>8.10. Earth and space. The student knows that climatic interactions exist among Earth, ocean, and weather systems. The student is expected to:</b></p> <p>(A) recognize that the Sun provides the energy that drives convection within the atmosphere and oceans, producing winds and ocean currents;</p> <p>(B) identify how global patterns of atmospheric movement influence local weather using weather maps that show high and low pressures and fronts; and</p> <p>(C) identify the role of the oceans in the formation of weather systems such as hurricanes.</p>		<p><b>IV. Biology</b></p> <p><b>C. Evolution and populations</b></p> <p>1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.</p> <p><b>G. Ecology</b></p> <p>1. Identify Earth's major biomes.</p> <p>2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p> <p>3. Understand typical forms of organismal behavior</p> <p>4. Know the process of succession</p> <p><b>X. Environmental Science</b></p> <p><b>A. Earth Systems</b></p> <p>5. Be familiar with the Earth's major biomes</p>	

EE Learner Guidelines	8th Grade Science	8th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
<b>Strand 2.3: Humans and Their Societies</b>				
<p><b>A) Individuals and groups—Learners understand that how individuals perceive the environment is influenced in part by individual traits and group membership or affiliations.</b></p>			<p><b>V. Biology</b>  <b>B. Biochemistry</b>            3. Describe the major features and chemical events of photosynthesis            4. Describe the major features and chemical events of cellular respiration            5. Know how organisms respond to the presence or absence of oxygen, including mechanisms of fermentation</p>	
			<p><b>G. Ecology</b>            2. Know the patterns of energy flow and material cycling in Earth's ecosystems.  <b>X. Environmental Science</b>  <b>B. Energy</b>            1. Understanding energy transformations            2. Know the various sources of energy for humans and other biological systems</p>	
<p><b>B) Culture—As they become familiar with a wider range of cultures and subcultures, learners gain an understanding of cultural perspectives on the environment and how the environment may, in turn, influence culture.</b></p>		<p><b>8.10: Geography.</b> The student understands the location and characteristics of places and regions of the United States, past and present. The student is expected to:</p>		<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b>            2. Analyze the interaction between human communities and the environment.</p>
		<p><b>(B) compare places and regions of the United States in terms of physical and human characteristics;</b></p>		<p><b>II. Diverse Human Perspectives</b>  <b>B. Factors that influence personal and group identities (e.g. race, ethnicity, gender, national, institutional affiliations, socioeconomic status)</b>            6. Analyze how individual and group identities are established and changes over time.</p>

EE Learner Guidelines	8th Grade Science	8th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
<p><b>C) Political and economic systems—Learners become more familiar with political and economic systems and how these systems take the environment into consideration.</b></p>		<p><b>8.11 Geography. The student understands the physical characteristics of North America and how humans adapted to and modified the environment through the mid-19th century. The student is expected to:</b></p> <p>(A) analyze how physical characteristics of the environment influenced population distribution, settlement patterns, and economic activities in the United States during the 17th, 18th, and 19th centuries;</p> <p><b>8.12: Economics. The student understands why various sections of the United States developed different patterns of economic activity. The student is expected to:</b></p>		<p><b>I. Interrelated Disciplines and Skills</b></p> <p><b>A. Spatial analysis of physical processes that shape the human experience.</b></p> <p>2. Analyze the interaction between human communities and the environment.</p> <p>3. Analyze how physical and cultural processes have shaped human communities over time.</p> <p><del>5. Analyze how various cultural</del></p> <p><b>II. Diverse Human Perspectives</b></p> <p><b>B. Factors that influence personal and group identities (e.g. race, ethnicity, gender, nationalist, institutional affiliations, socioeconomic status)</b></p> <p>6. Analyze how individual and group identities are established and changes over time.</p>
		<p>(D) analyze the causes and effects of economic differences among different regions of the United States at selected times in U.S. history.</p>		
<p><b>D) Global connections—Learners become familiar with ways in which the world's environmental, social, economic, cultural and political systems are linked.</b></p>			<p><b>X. Environmental Science</b></p> <p><b>D. Economics and politics</b></p> <p>1. name and describe major environmental policies and legislation</p> <p>2. Understand the types, uses, and regulations of various natural resources</p>	<p><b>I. Interrelated Disciplines and Skills</b></p> <p><b>C. Change and continuity of political ideologies, constitutions and political behaviour.</b></p> <p>1. Evaluate different governmental systems and functions</p>

EE Learner Guidelines	8th Grade Science	8th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
				<p><b>D. Change and continuity of economic systems and processes.</b>            1. Identify and evaluate the strengths and weaknesses of different economic systems.</p>
<p><b>E) Change and conflict—Learners understand the humans social systems change over time and that conflicts sometimes arise over differing and changing viewpoints about the environment.</b></p>		<p><b>8.23: Culture.</b> The student understands the relationships between and among people from various groups, including racial, ethnic, and religious groups, during the 17th, 18th, and 19th centuries. The student is expected to:</p> <p>(B) explain the relationship between urbanization and conflicts resulting from differences in religion, social class, and political beliefs;</p> <p>(C) identify ways conflicts between people from various racial, ethnic, and religious groups were resolved;</p>		<p><b>III. Interdependence of Global Communities</b>  <b>A. Spatial understanding of global, regional, national, and local communities.</b>            1. Distinguish spatial patterns of human communities that exist between or within contemporary political boundaries.            2. Connect regional or local developments to global ones.            3. Analyze how and why diverse communities interact and become dependent on each other.</p>
<b>Strand 2.4: Environment and Society</b>				
<p><b>A) Human/environment interactions—Learners understand that human-caused changes have consequences for the immediate environment as well as for other places and future times.</b></p>	<p><b>8.11: Organisms and environments.</b> The student knows that interdependence occurs among living systems and the environment and that human activities can affect these systems. The student is expected to:</p>	<p><b>8.10: Geography.</b> The student understands the location and characteristics of places and regions of the United States, past and present. The student is expected to:</p>		<p><b>I. Interrelated disciplines and Skills</b>  <b>E. Change and continuity of social groups, civic organizations, institutions, and their interaction.</b>            4. Identify and evaluate the sources and consequences of social conflict.</p>

EE Learner Guidelines	8th Grade Science	8th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	<p>(B) investigate how organisms and populations in an ecosystem depend on and may compete for biotic and abiotic factors such as quantity of light, water, range of temperatures, or soil composition;</p> <p>(C) explore how short- and long-term environmental changes affect organisms and traits in subsequent populations; and</p> <p>(D) recognize human dependence on ocean systems and explain how human activities such as runoff, artificial reefs, or use of resources have modified these systems.</p>	<p>(C) analyze the effects of physical and human geographic factors on major historical and contemporary events in the United States.</p> <p><b>8.11: Geography. The student understands the physical characteristics of North America and how humans adapted to and modified the environment through the mid-19th century. The student is expected to:</b></p> <p>(A) analyze how physical characteristics of the environment influenced population distribution, settlement patterns, and economic activities in the United States during the 17th, 18th, and 19th centuries;</p> <p>(B) describe the positive and negative consequences of human modification of the physical environment of the United States; and</p> <p>(C) describe how different immigrant groups interacted with the environment in the United States during the 17th, 18th, and 19th centuries.</p> <p><b>8.27: Science, technology, and society. The student understands the impact of science and technology on the economic development of the United States. The student is expected to:</b></p> <p>(A) explain the effects of technological and scientific innovations such as the steamboat, the cotton gin, and interchangeable parts;</p>		

EE Learner Guidelines	8th Grade Science	8th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
		(B) analyze the impact of transportation and communication systems on the growth, development, and urbanization of the United States;		
<p><b>B) Places—Learners begin to explore the meaning of place both close to home and around the world.</b></p>		<p><b>8.10: Geography. The student understands the location and characteristics of places and regions of the United States, past and present. The student is expected to:</b></p> <p><b>(A) locate places and regions of importance in the United States during the 17th, 18th, and 19th centuries;</b></p> <p><b>(B) compare places and regions of the United States in terms of physical and human characteristics;</b></p>	<p><b>X. Environmental Science</b>  <b>E. Human practices and their impacts</b>  1. Describe the different uses for land (land management)</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b>  2. Analyze the interaction between human communities and the environment.   4. Evaluate the causes and effects of human migration patterns over time  6. Analyze the relationship between geography and the development of human communities.</p>
		<p><b>(C) analyze the effects of physical and human geographic factors on major historical and contemporary events in the United States.</b></p>		
<p><b>C) Resources—Learners understand uneven distribution of resources influences their use and perceived value.</b></p>			<p><b>X. Environmental Science</b>  <b>C. Populations</b>  1. Recognize variations in population sizes, including human population and extinction, and describe mechanism and conditions that produce these variations.</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b>  2. Analyze the interaction between human communities and the environment.</p>

EE Learner Guidelines	8th Grade Science	8th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
				<p><b>III. Interdependence of Global Communities</b>  <b>A. Spatial understanding of global, regional, national, and local communities.</b>  1. Distinguish spatial patterns of human communities that exist between or within contemporary boundaries.  2. Connect regional or local development to global ones.  3. Analyze how and why diverse communities interact and become dependent on each other.</p>
<p><b>D) Technology—Learners understand the human ability to shape and control the environment as a function of the capacities for creating knowledge and developing new technologies.</b></p>		<p><b>8.27: Science, technology, and society. The student understands the impact of science and technology on the economic development of the United States. The student is expected to:</b></p>		
		<p>(A) explain the effects of technological and scientific innovations such as the steamboat, the cotton gin, and interchangeable parts;</p> <p>(B) analyze the impact of transportation and communication systems on the growth, development, and urbanization of the United States;</p>		

EE Learner Guidelines	8th Grade Science	8th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
		<p>(C) analyze how technological innovations changed the way goods were manufactured and marketed, nationally and internationally; and</p> <p>(D) explain how technological innovations brought about economic growth such as how the factory system contributed to rapid industrialization and the Transcontinental Railroad led to the opening of the west.</p> <p><b>8.28: Science, technology, and society. The student understands the impact of scientific discoveries and technological innovations on daily life in the United States. The student is expected to:</b></p> <p>(A) compare the effects of scientific discoveries and technological innovations that have influenced daily life in different periods in U.S. history; and</p> <p>(B) identify examples of how industrialization changed life in the United States.</p>		
<p><b>E) Environmental issues—Learners are familiar with a range of environmental issues at scales that range from local to national to global. They understand that people in other places around the world experience environmental issues similar to the ones they are concerned about locally.</b></p>	<p><b>8.1: Scientific investigation and reasoning. The student, for at least 40% of instructional time, conducts laboratory and field investigations following safety procedures and environmentally appropriate and ethical practices. The student is expected to:</b></p>	<p><b>8.11: Geography. The student understands the physical characteristics of North America and how humans adapted to and modified the environment through the mid-19th century. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive skills in science</b>  2. Use creativity and insight to recognize and describe patterns in natural phenomena</p>	

EE Learner Guidelines	8th Grade Science	8th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
	(B) practice appropriate use and conservation of resources, including disposal, reuse, or recycling of materials.	(B) describe the positive and negative consequences of human modification of the physical environment of the United States;	<b>X. Environmental Science</b> <b>E. Human practices and their impacts</b> 1. Describe the different uses for land (land management) 2. Understand the use and consequence of pest management 3. Know the different methods used to increase food production	
			4. Understand land and water usage and management practices 5. Understand how human practices affect air, water, and soil quality	
<b>Strand 3: Skills for Understanding and Addressing Environmental Issues</b>				
<b>Strand 3.1: Skills for Analyzing and Investigating Environmental Issues</b>				
<b>A) Identifying and investigating issues—Learners are able to use primary and secondary sources of information, and apply growing research and analytical skills, to investigate environmental issues, beginning in their own community.</b>	<b>8.3 Scientific investigation and reasoning. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists. The student is expected to:</b>	<b>8.29: Social studies skills. The student applies critical-thinking skills to organize and use information acquired through established research methodologies from a variety of valid sources, including electronic technology. The student is expected to:</b>	<b>III. Foundation Skills: Scientific Applications of Communication</b> <b>D. Research skills/information literacy</b> 2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.	
	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;	(A) differentiate between, locate, and use valid primary and secondary sources such as computer software, databases, media and news services, biographies, interviews, and artifacts to acquire information about the United States;		

EE Learner Guidelines	8th Grade Science	8th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
<p><b>B) Sorting out the consequences of issues—Learners are able to identify and develop action strategies for addressing particular issues.</b></p>		<p><b>8.32: Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p>	<p><b>IV. Science, Technology, and Society</b>  <b>B. Social ethics</b>            1. Understand how scientific research and technology have an impact on ethical and legal practices</p>	
		<p>(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.</p>		
<p><b>C) Identifying and evaluating alternative solutions and courses of action—Learners are able to identify and develop action strategies for addressing particular issues.</b></p>		<p><b>8.32: Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p>	<p><b>IV. Science, Technology, and Society</b>  <b>B. Social ethics</b>            1. Understand how scientific research and technology have an impact on ethical and legal practices            2. Understand how commonly held ethical beliefs impact scientific research</p>	
		<p>(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution; and</p>		
		<p>(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.</p>		

EE Learner Guidelines	8th Grade Science	8th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
<p><b>D) Working with flexibility, creativity, and openness—Learners are able to consider the assumptions and interpretations that influence the conclusions they and others draw about environmental issues.</b></p>			<p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>            2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	
<b>Strand 3.2: Decision Making and Citizenship Skills</b>				
<p><b>A) Forming and evaluating personal views—Learners are able to identify, justify, and clarify their views on environmental issues and alternative ways to address them.</b></p>				
<p><b>B) Evaluating the need for citizen action—Learners are able to evaluate whether they believe action is needed in particular situations, and decide whether they should be involved.</b></p>				
<p><b>C) Planning and taking action—As learners begin to see themselves as citizens taking active roles in their communities, they are able to plan for and engage in citizen action at levels appropriate to their maturity and preparation.</b></p>		<p><b>8.32: Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p>		

EE Learner Guidelines	8th Grade Science	8th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
		<p>(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution; and</p> <p>(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.</p>		
<p><b>D) Evaluating the results of actions—Learners are able to analyze the effects of their own actions and actions taken by other individuals and groups.</b></p>		<p><b>8.21: Citizenship. The student understands the importance of the expression of different points of view in a constitutional republic. The student is expected to:</b></p> <p>(C) summarize a historical event in which compromise resulted in a peaceful resolution.</p>		
<b>Strand 4: Personal and Civic Responsibility</b>				
<p><b>A) Understanding societal values and principles—Learners understand that societal values can be both a unifying and a divisive force.</b></p>			<p><b>IV. Science, Technology, and Society</b>  <b>B. Social Ethics</b>  1. Understand how scientific research and technology have an impact on ethical and legal practices.  2. Understand how commonly held ethical beliefs impact scientific research.</p>	

EE Learner Guidelines	8th Grade Science	8th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
<p><b>B) Recognizing citizens' rights and responsibilities—Learners understand the rights and responsibilities of citizenship and their importance in promoting the resolution of environmental issues.</b></p>		<p><b>8.15: Government. The student understands the American beliefs and principles reflected in the Declaration of Independence, the U.S. Constitution, and other important historic documents. The student is expected to:</b></p> <p>(D) analyze how the U.S. Constitution reflects the principles of limited government, republicanism, checks and balances, federalism, separation of powers, popular sovereignty, and individual rights.</p> <p><b>8.19: Citizenship. The student understands the rights and responsibilities of citizens of the United States. The student is expected to:</b></p> <p>(A) define and give examples of unalienable rights;</p> <p>(B) summarize rights guaranteed in the Bill of Rights</p> <p>(C) explain the importance of personal responsibilities, including accepting responsibility for one's behavior and supporting one's family;</p> <p>(D) identify examples of responsible citizenship, including obeying rules and laws, staying informed on public issues, voting, and serving on juries;</p> <p>(F) explain how the rights and responsibilities of U.S. citizens reflect our national identity.</p>		

EE Learner Guidelines	8th Grade Science	8th Grade Social Studies	CCRS Science Standards	CCRS Social Studies Standards
		<p><b>8.20: Citizenship. The student understands the importance of voluntary individual participation in the democratic process. The student is expected to:</b></p> <p>(C) analyze reasons for and the impact of selected examples of civil disobedience in U.S. history such as the Boston Tea Party and Henry David Thoreau's refusal to pay a tax.</p>		
<p><b>C) Recognizing efficacy—Learners possess a realistic self-confidence in their effectiveness as citizens.</b></p>		<p><b>8.19: Citizenship. The student understands the rights and responsibilities of citizens of the United States. The student is expected to:</b></p> <p>(C) explain the importance of personal responsibilities, including accepting responsibility for one's behavior and supporting one's family;</p>		
<p><b>D) Accepting personal responsibility—Learners understand that their actions can have broad consequences and they are responsible for those consequences.</b></p>				

## EE-TEKS-CCRS CROSSWALK

### *Alignment of the North American Excellence in Environmental Education: Guidelines for Learning (NAAEE) and the College and Career Readiness Standards (CCRS) with the Texas Essential Knowledge and Skills (TEKS) for High School Biology*

EE Learner Guidelines	High School Biology	CCRS Science	CCRS Social Studies
<b>Strand 1: Questioning, Analysis &amp; Interpretation Skills</b>			
<p><b>A) Questioning</b>— Learners are able to develop, modify, clarify, and explain questions that guide environmental investigations of various types. They understand factors that influence the questions they pose.</p>	<p><b>BIO.2: Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive skills in science</b>                      3. Formulate appropriate questions to test understanding of natural phenomena.</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>F. Problems solving</b>                      1. Use a variety of research and analytical tools to explore questions or issues thoroughly and fairly.</p>
	<p>(B) know that hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories;</p>		
	<p>(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology;</p>		
<p><b>B) Designing investigations</b>— Learners know how to design investigations to answer particular questions about the environment. They are able to develop approaches for investigating unfamiliar types of problems and phenomena.</p>	<p><b>BIO.2: Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>B. Scientific Inquiry</b>                      1. Design and conduct scientific investigations in which hypotheses are formulated and tested</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research and methods</b>                      1. Use established research methodologies</p>

EE Learner Guidelines	High School Biology	CCRS Science	CCRS Social Studies
	(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology;		
<p><b>C) Collecting information</b>— Learners are able to locate and collect reliable information for environmental investigations of many types. They know how to use sophisticated technology to collect information, including computer programs that access, gather, store, and display data.</p>	<p><b>BIO.2: Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</b></p> <p>(F) collect and organize qualitative and quantitative data and make measurements with accuracy and precision using tools such as calculators, spreadsheet software, datacollecting probes, computers, standard laboratory glassware, microscopes, various prepared slides, stereoscopes, metric rulers, electronic balances, gel electrophoresis apparatuses, micropipettors, hand lenses, Celsius thermometers, hot plates, lab notebooks or journals, timing devices, cameras, Petri dishes, lab incubators, dissection equipment, meter sticks, and models, diagrams, or samples of biological specimens or structures;</p>	<p><b>I. Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive Skills in science</b>  4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.  <b>D. Current Scientific Technology</b>  3. Demonstrate appropriate use of a wide variety of apparatuses, equipment, techniques, and procedures for collecting quantitative and qualitative data  <b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>A. Research Skills/Information Literacy</b>  1. Use search engines, databases, and other digital electronic tools effectively to locate information.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research and methods</b>  3. Gather, organize and display the results of data and research  4. Identify and collect sources</p>

EE Learner Guidelines	High School Biology	CCRS Science	CCRS Social Studies
<p><b>D) Evaluating accuracy and reliability—</b> Learners can apply basic logic and reasoning skills to evaluate completeness and reliability in a variety of information sources.</p>	<p><b>BIO.2: Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive Skills in Science</b>            1. Utilize skepticism, logic, and professional ethics in science            4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.  <b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>            2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>A. Critical examinations of texts, images, and other sources of information</b>            1. Identify and analyze the main idea(s) and point(s)-of-view in sources.            2. Situate an informational source in its appropriate contexts (contemporary, historical, cultural)            3. Evaluate sources from multiple perspectives            4. Understand the difference between a primary and secondary source and use each appropriately to conduct research and construct arguments            5. Read narrative texts critically            6. Read research data critically</p>
	<p>(G) analyze, evaluate, make inferences, and predict trends from data; and</p>		
	<p>(H) communicate valid conclusions supported by the data through methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports.</p>		
	<p><b>BIO.3: Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</b></p>		
<p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p>			

EE Learner Guidelines	High School Biology	CCRS Science	CCRS Social Studies
<p><b>E) Organizing information</b>— Learners are able to organize and display information in ways appropriate to different types of environmental investigations and purposes.</p>	<p><b>BIO.2: Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</b></p> <p>(H) communicate valid conclusions supported by the data through methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports.</p> <p><b>BIO.3: Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</b></p> <p>(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials;</p>	<p>I. Nature of Science: Scientific Ways of Thinking</p> <p>A. Cognitive Skills in Science</p> <p>2. Use creativity and insight to recognize and describe patterns in natural phenomena.</p> <p>E. Effective communication of scientific information</p> <p>1. Use several modes of expression to describe or characterize natural phenomena. These modes of expression include narrative, and numerical, graphical, pictorial, symbolic, and kinesthetic.</p>	<p>IV. Analysis, Synthesis, and Evaluation of Information</p> <p>B. Research methods</p> <p>3. Gather, organize, and display the results of data and research</p>
<p><b>F) Working with models and simulations</b>— Learners are able to create, use, and evaluate models to understand environmental phenomena.</p>	<p><b>BIO.3: Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b></p> <p><b>D. Current Scientific Technology:</b></p> <p>2. Use computer models, applications, and simulations</p> <p>3. Demonstrate appropriate use of a wide variety of apparatuses, equipment, techniques, and procedures for collecting quantitative and qualitative data.</p> <p><b>E. Effective communication of scientific information</b></p> <p>1. Use several modes of expression to describe or characterize natural patterns and phenomena. These modes of expression include narrative, numerical, graphical, pictorial, symbolic, and kinesthetic.</p>	

EE Learner Guidelines	High School Biology	CCRS Science	CCRS Social Studies
	(E) evaluate models according to their limitations in representing biological objects or events; and	<b>II. Foundations Skills: Scientific Application of Mathematics</b> <b>B. Mathematics as symbolic language</b> 2. Represent natural events, processes, and relationships with algebraic expressions and algorithms <b>V. Cross Disciplinary Themes</b> <b>E. Measurements and Models</b> 1. Use models to make predictions 2. Use scale to relate models and structures	
<b>G) Drawing conclusions and developing explanations</b> — Learners are able to use evidence and logic in developing proposed explanations that address their initial questions and hypotheses.	<b>BIO.2: Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</b>  (G) analyze, evaluate, make inferences, and predict trends from data; and  <b>BIO.3: Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</b>  (C) draw inferences based on data related to promotional materials for products and services;	<b>I. Nature of Science: Scientific Ways of Thinking</b> <b>A. Cognitive Skills in Science</b> 4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.	<b>IV. Analysis, Synthesis, and Evaluation of Information</b> <b>D. Reaching Conclusions</b> 1. Construct a thesis that is supported by evidence
<b>Strand 2.1: Knowledge of Environmental Processes and Systems</b>			
<b>A) Processes that shape the Earth</b> — Learners understand the major physical processes that shape the Earth. They can relate these processes, especially those that are large-scale and long-term, to characteristics of the Earth.		<b>I. Nature of Science: Scientific Ways of Thinking</b> <b>A. Cognitive skills in science</b> 2. Use creativity and insight to recognize and describe patterns in natural phenomena.	

EE Learner Guidelines	High School Biology	CCRS Science	CCRS Social Studies
		<p><b>IX. Earth and Space Sciences</b>  <b>A. Earth systems</b>            1. Know the major features and characteristics of atmosphere, geosphere, hydrosphere, and biosphere.            2. Understand relationships and interactions among atmosphere, geosphere, hydrosphere, and biosphere.            3. Posses a scientific understanding of the history of Earth’s systems.</p> <p><b>IX. Earth and Space Sciences</b>  <b>E. Plate tectonics</b>            3. Describe the motions and interactions of tectonic plates.            4. Describe the rock cycle and its products.</p> <p><b>X. Environmental Science</b>  <b>A. Earth systems</b>            1. Recognize the Earth’s systems.            6. Describe the Earth's major biogeochemical cycles.</p>	
<p><b>B) Changes in matter</b>— Learners apply their understanding of chemical reactions to round out their explanations of environmental characteristics and everyday phenomena.</p>		<p><b>V. Cross-Disiplinary Themes</b>  <b>A. Matter/states of matter</b>            2. Understanding typical states of matter (solid, liquid, gas) and phase changes among these. <b>VII.</b></p> <p><b>Chemistry</b>  <b>A. Matter and its properties</b>            1. Know that physical and chemical properties can be used to describe and classify matter. Recognize and classify pure substances (elements and compounds) and mixtures.</p>	

EE Learner Guidelines	High School Biology	CCRS Science	CCRS Social Studies
<p><b>C) Energy</b>— Learners apply their knowledge of energy and matter to understand phenomena in the world around them.</p>		<p><b>V. Cross-Disciplinary Themes</b>  <b>B. Energy (thermodynamics, kinetic, potential, energy transfers)</b>  1. Understand the Laws of Thermodynamics  2. Know the processes of energy transfer</p> <p><b>VI. Biology</b>  <b>G. Ecology</b>  2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p> <p><b>VII. Chemistry</b>  <b>H. Thermochemistry</b>  1. Understand the Law of Conservation of Energy and processes of heat transfer.  2. Understand energy changes and chemical reactions</p> <p><b>VIII. Physics</b>  <b>C. Force and Motion</b>  1. Understand the fundamental concepts of kinematics  2. Understand forces and Newton's Law,  3. Understand the concept of momentum.</p> <p><b>D. Mechanical Energy</b>  1. Understand potential and kinetic energy.  2. Understand conservation of energy  3. Understand relationship of work and mechanical energy</p> <p><b>X. Environmental Science</b>  <b>B. Energy</b>  1. Understand energy transformations  2. Know various sources of energy for humans and other biological systems</p>	

EE Learner Guidelines	High School Biology	CCRS Science	CCRS Social Studies
<b>Strand 2.2: The Living Environment</b>			
<p><b>A) Organisms, populations, and communities</b>— Learners understand basic population dynamics and the importance of diversity in living systems.</p>	<p><b>BIO.7: Science concepts. The student knows evolutionary theory is a scientific explanation for the unity and diversity of life. The student is expected to:</b></p> <p>(A) analyze and evaluate how evidence of common ancestry among groups is provided by the fossil record, biogeography, and homologies, including anatomical, molecular, and developmental;</p> <p>(B) analyze and evaluate scientific explanations concerning any data of sudden appearance, stasis, and sequential nature of groups in the fossil record;</p> <p>(C) analyze and evaluate how natural selection produces change in populations, not individuals;</p> <p>(D) analyze and evaluate how the elements of natural selection, including inherited variation, the potential of a population to produce more offspring than can survive, and a finite supply of environmental resources, result in differential reproductive success;</p> <p>(E) analyze and evaluate the relationship of natural selection to adaptation and to the development of diversity in and among species;</p> <p>(F) analyze and evaluate the effects of other evolutionary mechanisms, including genetic drift, gene flow, mutation, and recombination; and</p> <p>(G) analyze and evaluate scientific explanations concerning the complexity of the cell.</p>	<p><b>VI. Biology</b> <b>G. Ecology</b></p> <ol style="list-style-type: none"> <li>1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.</li> <li>2. Know patterns of energy flow and material cycling in Earth's ecosystems.</li> </ol>	

EE Learner Guidelines	High School Biology	CCRS Science	CCRS Social Studies
	<p><b>BIO.11: Science concepts. The student knows that biological systems work to achieve and maintain balance. The student is expected to:</b></p> <p>(B) investigate and analyze how organisms, populations, and communities respond to external factors;</p> <p>(D) describe how events and processes that occur during ecological succession can change populations and species diversity.</p>		
<p><b>B) Heredity and evolution—</b> Learners understand the basic ideas and genetic mechanisms behind biological evolution.</p>	<p><b>BIO.6: Science concepts. The student knows the mechanisms of genetics, including the role of nucleic acids and the principles of Mendelian Genetics. The student is expected to:</b></p> <p>(A) identify components of DNA, and describe how information for specifying the traits of an organism is carried in the DNA;</p> <p>(B) recognize that components that make up the genetic code are common to all organisms;</p> <p>(C) explain the purpose and process of transcription and translation using models of DNA and RNA;</p> <p>(D) recognize that gene expression is a regulated process;</p>	<p><b>VI. Biology</b>  <b>C. Evolution and populations</b>  1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.  2. Recognize variations in population sizes, including extinction, and describe mechanisms and conditions that produce these variations.  <b>D. Molecular genetics and heredity</b>  1. Understand Mendel's Law of inheritance,  2. Know modifications of Mendel's Law,  3. Understand the molecular structure and functions of nucleic acids  4. Understand simple principles of population genetics and describe characteristics of Hardy-Weinberg population.  5. Describe the major features of meiosis and relate this process to Mendel's law of inheritance.</p>	

EE Learner Guidelines	High School Biology	CCRS Science	CCRS Social Studies
	<p>(E) identify and illustrate changes in DNA and evaluate the significance of these changes;</p> <p>(F) predict possible outcomes of various genetic combinations such as monohybrid crosses, dihybrid crosses and non-Mendelian inheritance;</p> <p>(G) recognize the significance of meiosis to sexual reproduction; and</p> <p>(H) describe how techniques such as DNA fingerprinting, genetic modifications, and chromosomal analysis are used to study the genomes of organisms.</p> <p><b>BIO.7: Science concepts. The student knows evolutionary theory is a scientific explanation for the unity and diversity of life. The student is expected to:</b></p> <p>(A) analyze and evaluate how evidence of common ancestry among groups is provided by the fossil record, biogeography, and homologies, including anatomical, molecular, and developmental;</p> <p>(B) analyze and evaluate scientific explanations concerning any data of sudden appearance, stasis, and sequential nature of groups in the fossil record;</p> <p>(C) analyze and evaluate how natural selection produces change in populations, not individuals;</p>		

EE Learner Guidelines	High School Biology	CCRS Science	CCRS Social Studies
	<p>(D) analyze and evaluate how the elements of natural selection, including inherited variation, the potential of a population to produce more offspring than can survive, and a finite supply of environmental resources, result in differential reproductive success;</p> <p>(E) analyze and evaluate the relationship of natural selection to adaptation and to the development of diversity in and among species;</p> <p>(F) analyze and evaluate the effects of other evolutionary mechanisms, including genetic drift, gene flow, mutation, and recombination; and</p> <p>(G) analyze and evaluate scientific explanations concerning the complexity of the cell.</p>		
<p><b>C) Systems and connections</b>— Learners understand the living environment to be comprised of interrelated, dynamic systems.</p>	<p><b>BIO.10: Science concepts. The student knows that biological systems are composed of multiple levels. The student is expected to:</b></p> <p>(A) describe the interactions that occur among systems that perform the functions of regulation, nutrient absorption, reproduction, and defense from injury or illness in animals;</p> <p>(B) describe the interactions that occur among systems that perform the functions of transport, reproduction, and response in plants; and</p> <p>(C) analyze the levels of organization in biological systems and relate the levels to each other and to the whole system.</p>	<p><b>IV. Biology</b>  <b>C. Evolution and populations</b>  1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.  <b>G. Ecology</b>  1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.  2. Know patterns of energy flow and material cycling in Earth's ecosystems.  3. Understand typical forms of organismal behavior  4. Know the process of succession  <b>X. Environmental Science</b>  <b>A. Earth Systems</b>  5. Be familiar with the Earth's major biomes</p>	

EE Learner Guidelines	High School Biology	CCRS Science	CCRS Social Studies
	<p><b>BIO.12: Science concepts. The student knows that interdependence and interactions occur within an environmental system. The student is expected to:</b></p> <p>(A) interpret relationships, including predation, parasitism, commensalism, mutualism, and competition among organisms;</p> <p>(B) compare variations and adaptations of organisms in different ecosystems;</p> <p>(C) analyze the flow of matter and energy through trophic levels using various models, including food chains, food webs, and ecological pyramids;</p> <p>(D) recognize that long-term survival of species is dependent on changing resource bases that are limited;</p> <p>(E) describe the flow of matter through the carbon and nitrogen cycles and explain the consequences of disrupting these cycles; and</p> <p>(F) describe how environmental change can impact ecosystem stability.</p>		

EE Learner Guidelines	High School Biology	CCRS Science	CCRS Social Studies
<p><b>D) Flow of matter and energy</b>— Learners are able to account for environmental characteristics based on their knowledge of how matter and energy interact in living systems.</p>	<p><b>BIO.12: Science concepts. The student knows that interdependence and interactions occur within an environmental system. The student is expected to:</b></p> <p>(C) analyze the flow of matter and energy through trophic levels using various models, including food chains, food webs, and ecological pyramids;</p> <p>(D) recognize that long-term survival of species is dependent on changing resource bases that are limited;</p> <p>(E) describe the flow of matter through the carbon and nitrogen cycles and explain the consequences of disrupting these cycles; and</p> <p>(F) describe how environmental change can impact ecosystem stability.</p>	<p><b>V. Biology</b>  <b>B. Biochemistry</b>  3. Describe the major features and chemical events of photosynthesis  4. Describe the major features and chemical events of cellular respiration  5. Know how organisms respond to the presence or absence of oxygen, including mechanisms of fermentation  <b>G. Ecology</b>  2. Know the patterns of energy flow and material cycling in Earth's ecosystems.  <b>X. Environmental Science</b>  <b>B. Energy</b>  1. Understanding energy transformations  2. Know the various sources of energy for humans and other biological systems</p>	
<b>Strand 2.3: Humans and Their Societies</b>			
<p><b>A) Individuals and groups</b>— Learners understand the influence of individual and group actions on the environment, and how groups can work to promote and balance interests.</p>	<p><b>BIO.11: Science concepts. The student knows that biological systems work to achieve and maintain balance. The student is expected to:</b></p> <p>(B) investigate and analyze how organisms, populations, and communities respond to external factors;</p>		<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b>  2. Analyze the interaction between human communities and the environment.</p>

EE Learner Guidelines	High School Biology	CCRS Science	CCRS Social Studies
	<p><b>BIO.12: Science concepts. The student knows that interdependence and interactions occur within an environmental system. The student is expected to:</b></p> <p>(D) recognize that long-term survival of species is dependent on changing resource bases that are limited;</p> <p>(F) describe how environmental change can impact ecosystem stability.</p>		<p><b>II. Diverse Human Perspectives</b>  <b>B. Factors that influence personal and group identities (e.g. race, ethnicity, gender, nationalist, institutional affiliations, socioeconomic status)</b>          6. Analyze how individual and group identities are established and changes over time.</p>
<p><b>B) Culture—</b> Learners understand cultural perspectives and dynamics and apply their understanding in context.</p>			<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical processes that shape the human experience.</b>          2. Analyze the interaction between human communities and the environment.          3. Analyze how physical and cultural processes have shaped human communities over time.          5. Analyze how various cultural regions of changed over time. 6.          Analyze the relationship between geography and the development of human communities.</p>
<p><b>C) Political and economic systems—</b> Learners understand how different political and economic systems account for, manage, and affect natural resources and environmental quality.</p>		<p><b>X. Environmental Science</b>  <b>D. Economics and politics</b>          1. name and describe major environmental policies and legislation          2. Understand the types, uses, and regulations of various natural resources</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>C. Change and continuity of political ideologies, constitutions and political behaviour.</b>          1. Evaluate different governmental systems and functions  <b>D. Change and continuity of economic systems and processes.</b>          1. Identify and evaluate the strengths and weaknesses of different economic systems.</p>

EE Learner Guidelines	High School Biology	CCRS Science	CCRS Social Studies
<p><b>D) Global connections—</b> Learners are able to analyze global social, cultural, political, economic, and environmental linkages.</p>			<p><b>III. Interdependence of Global Communities</b>  <b>A. Spatial understanding of global, regional, national, and local communities.</b>  1. Distinguish spatial patterns of human communities that exist between or within contemporary political boundaries.  2. Connect regional or local developments to global ones.  3. Analyze how and why diverse communities interact and become dependent on each other.</p>
<p><b>E) Change and conflict—</b>Learners understand the functioning of public processes for promoting and managing change and conflict, and can analyze their effects on the environment.</p>			<p><b>I. Interrelated disciplines and Skills</b>  <b>E. Change and continuity of social groups, civic organizations, institutions, and their interaction.</b>  4. Identify and evaluate the sources and consequences of social conflict.</p>
<b>Strand 2.4: Environment and Society</b>			
<p><b>A) Human/environment interactions—</b> Learners understand that humans are able to alter the physical environment to meet their needs and that there are limits to the ability of the environment to absorb impacts or meet human needs.</p>		<p><b>X. Environmental Science</b>  <b>E. Human practices and their impacts</b>  1. Describe the different uses for land (land management)  2. Understand the use and consequences of pest management  3. Know the different methods used to increase food production  4. Understand land and water usage and management practices  5. Understand how human practices affect air, water, and soil quality</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b>  2. Analyze the interaction between human communities and the environment.  4. Evaluate the causes and effects of human migration patterns over time  6. Analyze the relationship between geography and the development of human communities.</p>

EE Learner Guidelines	High School Biology	CCRS Science	CCRS Social Studies
<p><b>B) Places</b>— Learners understand "place" as humans endowing a particular part of the Earth with meaning through their interactions with that environment.</p>		<p><b>X. Environmental Science</b>  <b>C. Populations</b>            1. Recognize variations in population sizes, including human population and extinction, and describe mechanism and conditions that produce these variations.</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b>            2. Analyze the interaction between human communities and the environment.  <b>III. Interdependence of Global Communities</b>  <b>A. Spatial understanding of global, regional, national, and local communities.</b>            1. Distinguish spatial patterns of human communities that exist between or within contemporary boundaries.            2. Connect regional or local development to global ones.            3. Analyze how and why diverse communities interact and become dependent on each other.</p>
<p><b>C) Resources</b>— Learners understand that the importance and use of resources change over time and vary under different economic and technological systems.</p>	<p><b>BIO.12: Science concepts. The student knows that interdependence and interactions occur within an environmental system. The student is expected to:</b></p> <p>(F) describe how environmental change can impact ecosystem stability.</p>		
<p><b>D) Technology</b>— Learners are able to examine the social and environmental impacts of various technologies and technological systems.</p>			

EE Learner Guidelines	High School Biology	CCRS Science	CCRS Social Studies
<p><b>E) Environmental issues</b>— Learners are familiar with a range of environmental issues at scales that range from local to national to global. They understand that these scales and issues are often linked.</p>			
<p><b>Strand 3: Skills for Understanding and Addressing Environmental Issues</b></p>			
<p><b>Strand 3.1: Skills for Analyzing and Investigating Environmental Issues</b></p>			
<p><b>A) Identifying and investigating issues</b>— Learners apply their research and analytical skills to investigate environmental issues ranging from local issues to those that are regional or global in scope.</p>	<p><b>BIO.2: Scientific processes. The student uses scientific methods and equipment during laboratory and field investigations. The student is expected to:</b></p> <p>(F) collect and organize qualitative and quantitative data and make measurements with accuracy and precision using tools such as calculators, spreadsheet software, data-collecting probes, computers, standard laboratory glassware, microscopes, various prepared slides, stereoscopes, metric rulers, electronic balances, gel electrophoresis apparatuses, micropipettors, hand lenses, Celsius thermometers, hot plates, lab notebooks or journals, timing devices, cameras, Petri dishes, lab incubators, dissection equipment, meter sticks, and models, diagrams, or samples of biological specimens or structures;</p> <p>(G) analyze, evaluate, make inferences, and predict trends from data; and</p> <p>(H) communicate valid conclusions supported by the data through methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports.</p>	<p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>  2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	

EE Learner Guidelines	High School Biology	CCRS Science	CCRS Social Studies
	<p><b>BIO.3: Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</b></p> <p>(D) evaluate the impact of scientific research on society and the environment;</p>		
<p><b>B) Sorting out the consequences of issues—</b> Learners are able to evaluate the consequences of specific environmental changes, conditions, and issues for human and ecological systems.</p>	<p><b>BIO.12: Science concepts. The student knows that interdependence and interactions occur within an environmental system. The student is expected to:</b></p> <p>(F) describe how environmental change can impact ecosystem stability.</p>	<p><b>IV. Science, Technology, and Society</b>  <b>B. Social ethics</b>  1. Understand how scientific research and technology have and impact on ethical and legal practices</p>	
<p><b>C) Identifying and evaluating alternative solutions and courses of action—</b> Learners are able to identify and propose action strategies that are likely to be effective in particular situations and for particular purposes.</p>		<p><b>IV. Science, Technology, and Society</b>  <b>B. Social ethics</b>  1. Understand how scientific research and technology have and impact on ethical and legal practices  2. Understand how commonly held ethical beliefs impact scientific research</p>	
<p><b>D) Working with flexibility, creativity, and openness—</b> While environmental issues investigations can bring to the surface deeply held views, learners are able to engage each other in peer review conducted in the spirit of open inquiry.</p>		<p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>  2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	

EE Learner Guidelines	High School Biology	CCRS Science	CCRS Social Studies
<b>Strand 3.2: Decision Making and Citizenship Skills</b>			
<b>A) Forming and evaluating personal views</b> — Learners are able to communicate, evaluate, and justify their own views on environmental issues and alternative ways to address them.			
<b>B) Evaluating the need for citizen action</b> — Learners are able to decide whether action is needed in particular situations and whether they should be involved.			
<b>C) Planning and taking action</b> — Learners know how to plan for action based on their research and analysis of an environmental issue. If appropriate, they take actions that are within the scope of their rights and consistent with their abilities and responsibilities as citizens.			
<b>D) Evaluating the results of actions</b> — Learners are able to evaluate the effects of their own actions and actions taken by other individuals and groups, including possible intended and unintended consequences of actions.			
<b>Strand 4: Personal and Civic Responsibility</b>			
<b>A) Understanding societal values and principles</b> — Learners know how to analyze the influence of shared and conflicting societal values.		<b>IV. Science, Technology, and Society</b> <b>B. Social Ethics</b> 1. Understand how scientific research and technology have an impact on ethical and legal practices. 2. Understand how commonly held ethical beliefs impact scientific research.	
<b>B) Recognizing citizens' rights and responsibilities</b> — Learners understand the importance of exercising the rights and responsibilities of citizenship.			

EE Learner Guidelines	High School Biology	CCRS Science	CCRS Social Studies
<p><b>C) Recognizing efficacy</b>— Learners possess a realistic self-confidence in their effectiveness as citizens.</p>			
<p><b>D) Accepting personal responsibility</b>— Learners understand that their actions can have broad consequences and accept responsibility for recognizing those effects and changing their actions when necessary.</p>			

## EE-TEKS-CCRS CROSSWALK

### *Alignment of the North American Excellence in Environmental Education: Guidelines for Learning (NAAEE) and the College and Career Readiness Standards (CCRS) with the Texas Essential Knowledge and Skills (TEKS) for High School Chemistry*

EE Learner Guidelines	High School Chemistry	CCRS Science	CCRS Social Studies
<b>Strand 1: Questioning, Analysis &amp; Interpretation Skills</b>			
<p>A) Questioning—Learners are able to develop, modify, clarify, and explain questions that guide environmental investigations of various types. They understand factors that influence the questions they pose.</p>	<p><b>CHE.2: Scientific processes. The student uses scientific methods to solve investigative questions. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive skills in science</b>                      3. Formulate appropriate questions to test understanding of natural phenomena.</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>F. Problems solving</b>                      1. Use a variety of research and analytical tools to explore questions or issues thoroughly and fairly.</p>
	<p>(B) know that scientific hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories;</p>		
	<p>(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but may be subject to change as new areas of science and new technologies are developed;</p>		
	<p>(D) distinguish between scientific hypotheses and scientific theories;</p>		

EE Learner Guidelines	High School Chemistry	CCRS Science	CCRS Social Studies
	(E) plan and implement investigative procedures, including asking questions, formulating testable hypotheses, and selecting equipment and technology, including graphing calculators, computers and probes, sufficient scientific glassware such as beakers, Erlenmeyer flasks, pipettes, graduated cylinders, volumetric flasks, safety goggles, and burettes, electronic balances, and an adequate supply of consumable chemicals;		
B) Designing investigations—Learners know how to design investigations to answer particular questions about the environment. They are able to develop approaches for investigating unfamiliar types of problems and phenomena.	<p><b>CHE.2: Scientific processes. The student uses scientific methods to solve investigative questions. The student is expected to:</b></p> <p>(E) plan and implement investigative procedures, including asking questions, formulating testable hypotheses, and selecting equipment and technology, including graphing calculators, computers and probes, sufficient scientific glassware such as beakers, Erlenmeyer flasks, pipettes, graduated cylinders, volumetric flasks, safety goggles, and burettes, electronic balances, and an adequate supply of consumable chemicals;</p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b></p> <p><b>B. Scientific Inquiry</b></p> <p>1. Design and conduct scientific investigations in which hypotheses are formulated and tested</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b></p> <p><b>B. Research and methods</b></p> <p>1. Use established research methodologies</p>
C) Collecting information—Learners are able to locate and collect reliable information for environmental investigations of many types. They know how to use sophisticated technology to collect information, including computer programs that access, gather, store, and display data.	<p><b>CHE.2: Scientific processes. The student uses scientific methods to solve investigative questions. The student is expected to:</b></p> <p>(F) collect data and make measurements with accuracy and precision;</p>	<p><b>I. Scientific Ways of Learning and Thinking</b></p> <p><b>A. Cognitive Skills in science</b></p> <p>4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p> <p><b>D. Current Scientific Technology</b></p> <p>3. Demonstrate appropriate use of a wide variety of apparatuses, equipment, techniques, and procedures for collecting quantitative and qualitative data</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b></p> <p><b>B. Research and methods</b></p> <p>3. Gather, organize and display the results of data and research</p> <p>4. Identify and collect sources</p>

EE Learner Guidelines	High School Chemistry	CCRS Science	CCRS Social Studies
	(G) express and manipulate chemical quantities using scientific conventions and mathematical procedures, including dimensional analysis, scientific notation, and significant figures;	<b>III. Foundation Skills: Scientific Applications of Communication</b> <b>A. Research Skills/Information Literacy</b> 1. Use search engines, databases, and other digital electronic tools effectively to locate information.	
D) Evaluating accuracy and reliability—Learners can apply basic logic and reasoning skills to evaluate completeness and reliability in a variety of information sources.	<p><b>CHE.2: Scientific processes. The student uses scientific methods to solve investigative questions. The student is expected to:</b></p> <p>(H) organize, analyze, evaluate, make inferences, and predict trends from data; and</p> <p>(I) communicate valid conclusions supported by the data through methods such as lab reports, labeled drawings, graphs, journals, summaries, oral reports, and technology-based reports.</p> <p><b>CHE.3: Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</b></p> <p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b></p> <p><b>A. Cognitive Skills in Science</b></p> <p>1. Utilize skepticism, logic, and professional ethics in science</p> <p>4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p> <p><b>III. Foundation Skills: Scientific Applications of Communication</b></p> <p><b>D. Research skills/information literacy</b></p> <p>2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b></p> <p><b>A. Critical examinations of texts, images, and other sources of information</b></p> <p>1. Identify and analyze the main idea(s) and point(s)-of-view in sources.</p> <p>2. Situate an informational source in its appropriate contexts (contemporary, historical, cultural)</p> <p>3. Evaluate sources from multiple perspectives</p> <p>4. Understand the difference between a primary and secondary source and use each appropriately to conduct research and construct arguments</p> <p>5. Read narrative texts critically</p> <p>6. Read research data critically</p>

EE Learner Guidelines	High School Chemistry	CCRS Science	CCRS Social Studies
<p>E) Organizing information—Learners are able to organize and display information in ways appropriate to different types of environmental investigations and purposes.</p>	<p><b>CHE.2: Scientific processes. The student uses scientific methods to solve investigative questions. The student is expected to:</b></p> <p>(I) communicate valid conclusions supported by the data through methods such as lab reports, labeled drawings, graphs, journals, summaries, oral reports, and technology-based reports.</p> <p><b>CHE.3: Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</b></p> <p>(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials;</p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b></p> <p><b>A. Cognitive Skills in Science</b></p> <p>2. Use creativity and insight to recognize and describe patterns in natural phenomena.</p> <p><b>E. Effective communication of scientific information</b></p> <p>1. Use several modes of expression to describe or characterize natural phenomena. These modes of expression include narrative, and numerical, graphical, pictorial, symbolic, and kinesthetic.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b></p> <p><b>B. Research methods</b></p> <p>3. Gather, organize, and display the results of data and research</p>
<p>F) Working with models and simulations—Learners are able to create, use, and evaluate models to understand environmental phenomena.</p>		<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b></p> <p><b>D. Current Scientific Technology:</b></p> <p>2. Use computer models, applications, and simulations</p> <p>3. Demonstrate appropriate use of a wide variety of apparatuses, equipment, techniques, and procedures for collecting quantitative and qualitative data.</p>	

EE Learner Guidelines	High School Chemistry	CCRS Science	CCRS Social Studies
		<p><b>E. Effective communication of scientific information</b></p> <p>1. Use several modes of expression to describe or characterize natural patterns and phenomena. These modes of expression include narrative, numerical, graphical, pictorial, symbolic, and kinesthetic.</p> <p><b>II. Foundations Skills: Scientific Application of Mathematics</b></p> <p><b>B. Mathematics as symbolic language</b></p> <p>2. Represent natural events, processes, and relationships with algebraic expressions and algorithms</p> <p><b>V. Cross Disciplinary Themes</b></p> <p><b>E. Measurements and Models</b></p> <p>1. Use models to make predictions</p> <p>2. Use scale to relate models and structures</p>	
<p>G) Drawing conclusions and developing explanations—Learners are able to use evidence and logic in developing proposed explanations that address their initial questions and hypotheses.</p>	<p><b>CHE.2: Scientific processes. The student uses scientific methods to solve investigative questions. The student is expected to:</b></p> <p>(H) organize, analyze, evaluate, make inferences, and predict trends from data; and</p> <p><b>CHE.3: Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</b></p> <p>(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials;</p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b></p> <p><b>A. Cognitive Skills in Science</b></p> <p>4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b></p> <p><b>D. Reaching Conclusions</b></p> <p>1. Construct a thesis that is supported by evidence</p>

EE Learner Guidelines	High School Chemistry	CCRS Science	CCRS Social Studies
	(C) draw inferences based on data related to promotional materials for products and services;		
<b>Strand 2.1: Knowledge of Environmental Processes and Systems</b>			
<p>A) Processes that shape the Earth—Learners understand the major physical processes that shape the Earth. They can relate these processes, especially those that are large-scale and long-term, to characteristics of the Earth.</p>	<p><b>CHE.4: Science concepts. The student knows the characteristics of matter and can analyze the relationships between chemical and physical changes and properties. The student is expected to:</b></p> <p>(A) differentiate between physical and chemical changes and properties;</p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b></p> <p><b>A. Cognitive skills in science</b></p> <p>2. Use creativity and insight to recognize and describe patterns in natural phenomena.</p> <p><b>IX. Earth and Space Sciences</b></p> <p><b>A. Earth systems</b></p> <p>1. Know the major features and characteristics of atmosphere, geosphere, hydrosphere, and biosphere.</p> <p>2. Understand relationships and interactions among atmosphere, geosphere, hydrosphere, and biosphere.</p> <p>3. Posses a scientific understanding of the history of Earth’s systems.</p> <p><b>IX. Earth and Space Sciences</b></p> <p><b>E. Plate tectonics</b></p> <p>3. Describe the motions and interactions of tectonic plates.</p> <p>4. Describe the rock cycle and its products.</p> <p><b>X. Environmental Science</b></p> <p><b>A. Earth systems</b></p> <p>1. Recognize the Earth’s systems.</p> <p>6. Describe the Earth's major biogeochemical cycles.</p>	

EE Learner Guidelines	High School Chemistry	CCRS Science	CCRS Social Studies
<p>B) Changes in matter—Learners apply their understanding of chemical reactions to round out their explanations of environmental characteristics and everyday phenomena.</p>	<p><b>CHE.4: Science concepts. The student knows the characteristics of matter and can analyze the relationships between chemical and physical changes and properties. The student is expected to:</b></p> <p>(A) differentiate between physical and chemical changes and properties;</p> <p>(B) identify extensive and intensive properties;</p> <p>(C) compare solids, liquids, and gases in terms of compressibility, structure, shape, and volume; and</p> <p>(D) classify matter as pure substances or mixtures through investigation of their properties.</p>	<p><b>V. Cross-Disiplinary Themes</b>  <b>A. Matter/states of matter</b>            2. Understanding typical states of matter (solid, liquid, gas) and phase changes among these. <b>VII.</b>  <b>Chemistry</b>  <b>A. Matter and its properties</b>            1. Know that physical and chemical properties can be used to describe and classify matter. Recognize and classify pure substances (elements and compounds) and mixtures.</p>	
<p>C) Energy—Learners apply their knowledge of energy and matter to understand phenomena in the world around them.</p>	<p><b>CHE.11: Science concepts. The student understands the energy changes that occur in chemical reactions. The student is expected to:</b></p> <p>(A) understand energy and its forms, including kinetic, potential, chemical, and thermal energies;</p> <p>(B) understand the law of conservation of energy and the processes of heat transfer;</p>	<p><b>V. Cross-Disciplinary Themes</b>  <b>B. Energy (thermodynamics, kinetic, potential, energy transfers)</b>            1. Unerstand the Laws of Thermodynamics            2. Know the processes of energy transfer  <b>VI. Biology</b>  <b>G. Ecology</b>            2. Know patterns of energy flow and material cycling in Earth's ecosystems.  <b>VII. Chemistry</b>  <b>H. Thermochemistry</b>            1. Understand the Law of Conservation of Energy and processes of heat transfer.            2. Understand energy changes and chemical reactions</p>	

EE Learner Guidelines	High School Chemistry	CCRS Science	CCRS Social Studies
	<p>(C) use thermochemical equations to calculate energy changes that occur in chemical reactions and classify reactions as exothermic or endothermic;</p> <p>(D) perform calculations involving heat, mass, temperature change, and specific heat; and</p>	<p><b>VIII. Physics</b>  <b>C. Force and Motion</b>  1. Understand the fundamental concepts of kinematics  2. Understand forces and Newton's Law,  3. Understand the concept of momentum.  <b>D. Mechanical Energy</b>  1. Understand potential and kinetic energy.  2. Understand conservation of energy  3. Understand relationship of work and mechanical energy  <b>X. Environmental Science</b>  <b>B. Energy</b>  1. Understand energy transformations  2. Know various sources of energy for humans and other biological systems</p>	
<b>Strand 2.2: The Living Environment</b>			
<p>A) Organisms, populations, and communities—Learners understand basic population dynamics and the importance of diversity in living systems.</p>		<p><b>VI. Biology</b>  <b>G. Ecology</b>  1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.  2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p>	

EE Learner Guidelines	High School Chemistry	CCRS Science	CCRS Social Studies
<p>B) Heredity and evolution—Learners understand the basic ideas and genetic mechanisms behind biological evolution.</p>		<p><b>VI. Biology</b>  <b>C. Evolution and populations</b>            1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.            2. Recognize variations in population sizes, including extinction, and describe mechanisms and conditions that produce these variations.  <b>D. Molecular genetics and heredity</b>            1. Understand Mendel's Law of inheritance,            2. Know modifications of Mendel's Law,            3. Understand the molecular structure and functions of nucleic acids            4. Understand simple principles of population genetics and describe characteristics of Hardy-Weinberg population.            5. Describe the major features of meiosis and relate this process to Mendel's law of inheritance.</p>	
<p>C) Systems and connections—Learners understand the living environment to be comprised of interrelated, dynamic systems.</p>		<p><b>IV. Biology</b>  <b>C. Evolution and populations</b>            1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.  <b>G. Ecology</b>            1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.            2. Know patterns of energy flow and material cycling in Earth's ecosystems.            3. Understand typical forms of organismal behavior            4. Know the process of succession</p>	

EE Learner Guidelines	High School Chemistry	CCRS Science	CCRS Social Studies
		<b>X. Environmental Science</b> <b>A. Earth Systems</b> 5. Be familiar with the Earth's major biomes	
D) Flow of matter and energy—Learners are able to account for environmental characteristics based on their knowledge of how matter and energy interact in living systems.	<p><b>CHE.10: Science concepts. The student understands and can apply the factors that influence the behavior of solutions. The student is expected to:</b></p> <p>(E) distinguish between types of solutions such as electrolytes and nonelectrolytes and unsaturated, saturated, and supersaturated solutions;</p> <p>(F) investigate factors that influence solubilities and rates of dissolution such as temperature, agitation, and surface area;</p> <p>(G) define acids and bases and distinguish between Arrhenius and Bronsted-Lowry definitions and predict products in acid base reactions that form water;</p> <p>(H) understand and differentiate among acid-base reactions, precipitation reactions, and oxidation-reduction reactions;</p> <p><b>CHE.11: Science concepts. The student understands the energy changes that occur in chemical reactions. The student is expected to:</b></p> <p>(A) understand energy and its forms, including kinetic, potential, chemical, and thermal energies;</p> <p>(B) understand the law of conservation of energy and the processes of heat transfer;</p>	<p><b>V. Biology</b></p> <p><b>B. Biochemistry</b></p> <p>3. Describe the major features and chemical events of photosynthesis</p> <p>4. Describe the major features and chemical events of cellular respiration</p> <p>5. Know how organisms respond to the presence or absence of oxygen, including mechanisms of fermentation</p> <p><b>G. Ecology</b></p> <p>2. Know the patterns of energy flow and material cycling in Earth's ecosystems.</p> <p><b>X. Environmental Science</b></p> <p><b>B. Energy</b></p> <p>1. Understanding energy transformations</p> <p>2. Know the various sources of energy for humans and other biological systems</p>	

EE Learner Guidelines	High School Chemistry	CCRS Science	CCRS Social Studies
	(C) use thermochemical equations to calculate energy changes that occur in chemical reactions and classify reactions as exothermic or endothermic;		
<b>Strand 2.3: Humans and Their Societies</b>			
A) Individuals and groups—Learners understand the influence of individual and group actions on the environment, and how groups can work to promote and balance interests.			<b>I. Interrelated Disciplines and Skills</b> <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b> 2. Analyze the interaction between human communities and the environment. <b>II. Diverse Human Perspectives</b> <b>B. Factors that influence personal and group identities (e.g. race, ethnicity, gender, nationalist, institutional affiliations, socioeconomic status)</b> 6. Analyze how individual and group identities are established and changes over time.
B) Culture—Learners understand cultural perspectives and dynamics and apply their understanding in context.			<b>I. Interrelated Disciplines and Skills</b> <b>A. Spatial analysis of physical processes that shape the human experience.</b> 2. Analyze the interaction between human communities and the environment. 3. Analyze how physical and cultural processes have shaped human communities over time. 5. Analyze how various cultural regions of changed over time. 6. Analyze the relationship between geography and the development of human communities.

EE Learner Guidelines	High School Chemistry	CCRS Science	CCRS Social Studies
<p>C) Political and economic systems—Learners understand how different political and economic systems account for, manage, and affect natural resources and environmental quality.</p>		<p><b>X. Environmental Science</b>  <b>D. Economics and politics</b>            1. name and describe major environmental policies and legislation            2. Understand the types, uses, and regulations of various natural resources</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>C. Change and continuity of political ideologies, constitutions and political behaviour.</b>            1. Evaluate different governmental systems and functions  <b>D. Change and continuity of economic systems and processes.</b>            1. Identify and evaluate the strengths and weaknesses of different economic systems.</p>
<p>D) Global connections—Learners are able to analyze global social, cultural, political, economic, and environmental linkages.</p>			<p><b>III. Interdependence of Global Communities</b>  <b>A. Spatial understanding of global, regional, national, and local communities.</b>            1. Distinguish spatial patterns of human communities that exist between or within contemporary political boundaries.            2. Connect regional or local developments to global ones.            3. Analyze how and why diverse communities interact and become dependent on each other.</p>
<p>E) Change and conflict—Learners understand the functioning of public processes for promoting and managing change and conflict, and can analyze their effects on the environment.</p>			<p><b>I. Interrelated disciplines and Skills</b>  <b>E. Change and continuity of social groups, civic organizations, institutions, and their interaction .</b>            4. Identify and evaluate the sources and consequences of social conflict.</p>

EE Learner Guidelines	High School Chemistry	CCRS Science	CCRS Social Studies
<b>Strand 2.4: Environment and Society</b>			
<p>A) Human/environment interactions—Learners understand that humans are able to alter the physical environment to meet their needs and that there are limits to the ability of the environment to absorb impacts or meet human needs.</p>		<p><b>X. Environmental Science</b>  <b>E. Human practices and their impacts</b>  1. Describe the different uses for land (land management)  2. Understand the use and consequences of pest management  3. Know the different methods used to increase food production  4. Understand land and water usage and management practices  5. Understand how human practices affect air, water, and soil quality</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b>  2. Analyze the interaction between human communities and the environment.  4. Evaluate the causes and effects of human migration patterns over time  6. Analyze the relationship between geography and the development of human communities.</p>
<p>B) Places—Learners understand "place" as humans endowing a particular part of the Earth with meaning through their interactions with that environment.</p>		<p><b>X. Environmental Science</b>  <b>C. Populations</b>  1. Recognize variations in population sizes, including human population and extinction, and describe mechanism and conditions that produce these variations.</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b>  2. Analyze the interaction between human communities and the environment.  <b>III. Interdependence of Global Communities</b>  <b>A. Spatial understanding of global, regional, national, and local communities.</b>  1. Distinguish spatial patterns of human communities that exist between or within contemporary boundaries.  2. Connect regional or local development to global ones.  3. Analyze how and why diverse communities interact and become interdependent on each other.</p>

EE Learner Guidelines	High School Chemistry	CCRS Science	CCRS Social Studies
C) Resources—Learners understand that the importance and use of resources change over time and vary under different economic and technological systems.			
D) Technology—Learners are able to examine the social and environmental impacts of various technologies and technological			
E) Environmental issues—Learners are familiar with a range of environmental issues at scales that range from local to national to global. They understand that these scales and issues are often linked.			
<b>Strand 3: Skills for Understanding and Addressing Environmental Issues</b>			
<b>Strand 3.1: Skills for Analyzing and Investigating Environmental Issues</b>			
A) Identifying and investigating issues—Learners apply their research and analytical skills to investigate environmental issues ranging from local issues to those that are regional or global in scope.		<b>III. Foundation Skills: Scientific Applications of Communication</b> <b>D. Research skills/information literacy</b> 2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.	
B) Sorting out the consequences of issues—Learners are able to evaluate the consequences of specific environmental changes, conditions, and issues for human and ecological systems.		<b>IV. Science, Technology, and Society</b> <b>B. Social ethics</b> 1. Understand how scientific research and technology have and impact on ethical and legal practices	

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C) Identifying and evaluating alternative solutions and courses of action—Learners are able to identify and propose action strategies that are likely to be effective in particular situations and for particular purposes.		<b>IV. Science, Technology, and Society</b> <b>B. Social ethics</b> 1. Understand how scientific research and technology have and impact on ethical and legal practices 2. Understand how commonly held ethical beliefs impact scientific research	
D) Working with flexibility, creativity, and openness—While environmental issues investigations can bring to the surface deeply held views, learners are able to engage each other in peer review conducted in the spirit of open inquiry.		<b>III. Foundation Skills: Scientific Applications of Communication</b> <b>D. Research skills/information literacy</b> 2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.	
<b>Strand 3.2: Decision Making and Citizenship Skills</b>			
A) Forming and evaluating personal views—Learners are able to communicate, evaluate, and justify their own views on environmental issues and alternative ways to address them.			
B) Evaluating the need for citizen action—Learners are able to decide whether action is needed in particular situations and whether they should be involved.			
C) Planning and taking action—Learners know how to plan for action based on their research and analysis of an environmental issue. If appropriate, they take actions that are within the scope of their rights and consistent with their abilities and responsibilities as citizens.			

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D) Evaluating the results of actions—Learners are able to evaluate the effects of their own actions and actions taken by other individuals and groups, including possible intended and unintended consequences of actions.			
<b>Strand 4: Personal and Civic Responsibility</b>			
A) Understanding societal values and principles—Learners know how to analyze the influence of shared and conflicting societal values.		<b>IV. Science, Technology, and Society</b> <b>B. Social Ethics</b> 1. Understand how scientific research and technology have an impact on ethical and legal practices. 2. Understand how commonly held ethical beliefs impact scientific research.	
B) Recognizing citizens' rights and responsibilities—Learners understand the importance of exercising the rights and responsibilities of citizenship.			
C) Recognizing efficacy—Learners possess a realistic self-confidence in their effectiveness as citizens.			
D) Accepting personal responsibility—Learners understand that their actions can have broad consequences and accept responsibility for recognizing those effects and changing their actions when necessary.			

## EE-TEKS-CCRS CROSSWALK

### *Alignment of the North American Excellence in Environmental Education: Guidelines for Learning (NAAEE) and the College and Career Readiness Standards (CCRS) with the Texas Essential Knowledge and Skills (TEKS) for High School Physics*

EE Learner Guidelines	High School Physics	CCRS Science	CCRS Social Studies
<b>Strand 1: Questioning, Analysis &amp; Interpretation Skills</b>			
<p><b>A) Questioning</b>—Learners are able to develop, modify, clarify, and explain questions that guide environmental investigations of various types. They understand factors that influence the questions they pose.</p>	<p><b>PHY.2: Scientific processes. The student uses a systematic approach to answer scientific laboratory and field investigative questions. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive skills in science</b>                      3. Formulate appropriate questions to test understanding of natural phenomena.</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>F. Problems solving</b>                      1. Use a variety of research and analytical tools to explore questions or issues thoroughly and fairly.</p>
	<p>(B) know that scientific hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories;</p>		
	<p>(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but may be subject to change as new areas of science and new technologies are developed;</p>		
	<p>(D) distinguish between scientific hypotheses and scientific theories;</p>		

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	(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness;		
<p><b>B) Designing investigations</b>— Learners know how to design investigations to answer particular questions about the environment. They are able to develop approaches for investigating unfamiliar types of problems and phenomena.</p>	<p><b>PHY.2: Scientific processes. The student uses a systematic approach to answer scientific laboratory and field investigative questions. The student is expected to:</b></p> <p>(E) design and implement investigative procedures, including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness;</p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>B. Scientific Inquiry</b>  1. Design and conduct scientific investigations in which hypotheses are formulated and tested</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research and methods</b>  1. Use established research methodologies</p>
<p><b>C) Collecting information</b>— Learners are able to locate and collect reliable information for environmental investigations of many types. They know how to use sophisticated technology to collect information, including computer programs that access, gather, store, and display data.</p>	<p><b>PHY.2: Scientific processes. The student uses a systematic approach to answer scientific laboratory and field investigative questions. The student is expected to:</b></p>	<p><b>I. Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive Skills in science</b>  4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research and methods</b>  3. Gather, organize and display the results of data and research  4. Identify and collect sources</p>

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	<p>(F) demonstrate the use of course apparatus, equipment, techniques, and procedures, including multimeters (current, voltage, resistance), triple beam balances, batteries, clamps, dynamics demonstration equipment, collision apparatus, data acquisition probes, discharge tubes with power supply (H, He, Ne, Ar), hand-held visual spectrosopes, hot plates, slotted and hooked lab masses, bar magnets, horseshoe magnets, plane mirrors, convex lenses, pendulum support, power supply, ring clamps, ring stands, stopwatches, trajectory apparatus, tuning forks, carbon paper, graph paper, magnetic compasses, polarized film, prisms, protractors, resistors, friction blocks, mini lamps (bulbs) and sockets, electrostatics kits, 90-degree rod clamps, metric rulers, spring scales, knife blade switches, Celsius thermometers, meter sticks, scientific calculators, graphing technology, computers, cathode ray tubes with horseshoe magnets, ballistic carts or equivalent, resonance tubes, spools of nylon thread or string, containers of iron filings, rolls of white craft paper, copper wire, Periodic Table, electromagnetic spectrum charts, slinky springs, wave motion ropes, and laser pointers;</p> <p>(G) use a wide variety of additional course apparatus, equipment, techniques, materials, and procedures as appropriate such as ripple tank with wave generator, wave motion rope, micrometer, caliper, radiation monitor, computer, ballistic pendulum, electroscope, inclined plane, optics bench, optics kit, pulley with table clamp, resonance tube, ring stand screen, four inch ring, stroboscope, graduated cylinders, and ticker timer;</p> <p>(H) make measurements with accuracy and precision and record data using scientific notation and International System (SI) units;</p>	<p><b>D. Current Scientific Technology</b>  3. Demonstrate appropriate use of a wide variety of apparatuses, equipment, techniques, and procedures for collecting quantitative and qualitative data</p> <p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>A. Research Skills/Information Literacy</b>  1. Use search engines, databases, and other digital electronic tools effectively to locate information.</p>	

EE Learner Guidelines	High School Physics	CCRS Science	CCRS Social Studies
<p><b>D) Evaluating accuracy and reliability—</b> Learners can apply basic logic and reasoning skills to evaluate completeness and reliability in a variety of information sources.</p>	<p><b>PHY.2: Scientific processes. The student uses a systematic approach to answer scientific laboratory and field investigative questions. The student is expected to:</b></p> <p>(I) identify and quantify causes and effects of uncertainties in measured data;</p> <p><b>PHY.3: Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</b></p> <p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b></p> <p><b>A. Cognitive Skills in Science</b></p> <p>1. Utilize skepticism, logic, and professional ethics in science</p> <p>4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p> <p><b>III. Foundation Skills: Scientific Applications of Communication</b></p> <p><b>D. Research skills/information literacy</b></p> <p>2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b></p> <p><b>A. Critical examinations of texts, images, and other sources of information</b></p> <p>1. Identify and analyze the main idea(s) and point(s)-of-view in sources.</p> <p>2. Situate an informational source in its appropriate contexts (contemporary, historical, cultural)</p> <p>3. Evaluate sources from multiple perspectives</p> <p>4. Understand the difference between a primary and secondary source and use each appropriately to conduct research and construct arguments</p> <p>5. Read narrative texts critically</p> <p>6. Read research data critically</p>
<p><b>E) Organizing information—</b> Learners are able to organize and display information in ways appropriate to different types of environmental investigations and purposes.</p>	<p><b>PHY.2: Scientific processes. The student uses a systematic approach to answer scientific laboratory and field investigative questions. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b></p> <p><b>A. Cognitive Skills in Science</b></p> <p>2. Use creativity and insight to recognize and describe patterns in natural phenomena.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b></p> <p><b>B. Research methods</b></p> <p>3. Gather, organize, and display the results of data and research</p>

EE Learner Guidelines	High School Physics	CCRS Science	CCRS Social Studies
	<p>(K) communicate valid conclusions supported by the data through various methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports; and</p> <p>(L) express and manipulate relationships among physical variables quantitatively, including the use of graphs, charts, and equations.</p> <p><b>PHY.3: Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</b></p> <p>(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials;</p>	<p><b><i>E. Effective communication of scientific information</i></b></p> <p>1. Use several modes of expression to describe or characterize natural phenomena. These modes of expression include narrative, and numerical, graphical, pictorial, symbolic, and kinesthetic.</p>	
<p><b>F) Working with models and simulations</b>— Learners are able to create, use, and evaluate models to understand environmental phenomena.</p>	<p><b>PHY.2: Scientific processes. The student uses a systematic approach to answer scientific laboratory and field investigative questions. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b></p> <p><b><i>D. Current Scientific Technology:</i></b></p> <p>2. Use computer models, applications, and simulations</p> <p>3. Demonstrate appropriate use of a wide variety of apparatuses, equipment, techniques, and procedures for collecting quantitative and qualitative data.</p>	

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	<p>(F) demonstrate the use of course apparatus, equipment, techniques, and procedures, including multimeters (current, voltage, resistance), triple beam balances, batteries, clamps, dynamics demonstration equipment, collision apparatus, data acquisition probes, discharge tubes with power supply (H, He, Ne, Ar), hand-held visual spectrosopes, hot plates, slotted and hooked lab masses, bar magnets, horseshoe magnets, plane mirrors, convex lenses, pendulum support, power supply, ring clamps, ring stands, stopwatches, trajectory apparatus, tuning forks, carbon paper, graph paper, magnetic compasses, polarized film, prisms, protractors, resistors, friction blocks, mini lamps (bulbs) and sockets, electrostatics kits, 90-degree rod clamps, metric rulers, spring scales, knife blade switches, Celsius thermometers, meter sticks, scientific calculators, graphing technology, computers, cathode ray tubes with horseshoe magnets, ballistic carts or equivalent, resonance tubes, spools of nylon thread or string, containers of iron filings, rolls of white craft paper, copper wire, Periodic Table, electromagnetic spectrum charts, slinky springs, wave motion ropes, and laser pointers;</p> <p>(G) use a wide variety of additional course apparatus, equipment, techniques, materials, and procedures as appropriate such as ripple tank with wave generator, wave motion rope, micrometer, caliper, radiation monitor, computer, ballistic pendulum, electroscope, inclined plane, optics bench, optics kit, pulley with table clamp, resonance tube, ring stand screen, four inch ring, stroboscope, graduated cylinders, and ticker timer;</p>	<p><b><i>E. Effective communication of scientific information</i></b></p> <p>1. Use several modes of expression to describe or characterize natural patterns and phenomena. These modes of expression include narrative, numerical, graphical, pictorial, symbolic, and kinesthetic.</p> <p><b>II. Foundations Skills: Scientific Application of Mathematics</b></p> <p><b><i>B. Mathematics as symbolic language</i></b></p> <p>2. Represent natural events, processes, and relationships with algebraic expressions and algorithms</p> <p><b>V. Cross Disciplinary Themes</b></p> <p><b><i>E. Measurements and Models</i></b></p> <p>1. Use models to make predictions</p> <p>2. Use scale to relate models and structures</p>	

EE Learner Guidelines	High School Physics	CCRS Science	CCRS Social Studies
<p><b>G) Drawing conclusions and developing explanations</b>— Learners are able to use evidence and logic in developing proposed explanations that address their initial questions and hypotheses.</p>	<p><b>PHY.2: Scientific processes. The student uses a systematic approach to answer scientific laboratory and field investigative questions. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b>  <b>A. Cognitive Skills in Science</b>            4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>D. Reaching Conclusions</b>            1. Construct a thesis that is supported by evidence</p>
	<p>(J) organize and evaluate data and make inferences from data, including the use of tables, charts, and graphs;</p>		
	<p><b>PHY.3: Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</b></p>		
	<p>(C) draw inferences based on data related to promotional materials for products and services;</p>		
<p>(F) express and interpret relationships symbolically in accordance with accepted theories to make predictions and solve problems mathematically, including problems requiring proportional reasoning and graphical vector addition.</p>			
<p><b>Strand 2.1: Knowledge of Environmental Processes and Systems</b></p>			
<p><b>A) Processes that shape the Earth</b>— Learners understand the major physical processes that shape the Earth. They can relate these processes, especially those that are large-scale and long-term, to characteristics of the Earth.</p>	<p><b>PHY.5: Science concepts. The student knows the nature of forces in the physical world. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b>  <b>A. Cognitive skills in science</b>            2. Use creativity and insight to recognize and describe patterns in natural phenomena.</p>	

EE Learner Guidelines	High School Physics	CCRS Science	CCRS Social Studies
	<p>(A) research and describe the historical development of the concepts of gravitational, electromagnetic, weak nuclear, and strong nuclear forces;</p> <p>(B) describe and calculate how the magnitude of the gravitational force between two objects depends on their masses and the distance between their centers;</p> <p>(C) describe and calculate how the magnitude of the electrical force between two objects depends on their charges and the distance between them;</p> <p>(D) identify examples of electric and magnetic forces in everyday life;</p> <p>(H) describe evidence for and effects of the strong and weak nuclear forces in nature.</p> <p><b>PHY.6: Science concepts. The student knows that changes occur within a physical system and applies the laws of conservation of energy and momentum. The student is expected to:</b></p> <p>(G) analyze and explain everyday examples that illustrate the laws of thermodynamics, including the law of conservation of energy and the law of entropy.</p> <p><b>PHY.8: Science concepts. The student knows simple examples of atomic, nuclear, and quantum phenomena. The student is expected to:</b></p>	<p><b>IX. Earth and Space Sciences</b>  <b>A. Earth systems</b>  1. Know the major features and characteristics of atmosphere, geosphere, hydrosphere, and biosphere.  2. Understand relationships and interactions among atmosphere, geosphere, hydrosphere, and biosphere.  3. Posses a scientific understanding of the history of Earth's systems.</p> <p><b>IX. Earth and Space Sciences</b>  <b>E. Plate tectonics</b>  3. Describe the motions and interactions of tectonic plates.  4. Describe the rock cycle and its products.</p> <p><b>X. Environmental Science</b>  <b>A. Earth systems</b>  1. Recognize the Earth's systems.  6. Describe the Earth's major biogeochemical cycles.</p>	

EE Learner Guidelines	High School Physics	CCRS Science	CCRS Social Studies
	<p>(A) describe the photoelectric effect and the dual nature of light;</p> <p>(B) compare and explain the emission spectra produced by various atoms;</p> <p>(C) describe the significance of mass-energy equivalence and apply it in explanations of phenomena such as nuclear stability, fission, and fusion; and</p> <p>(D) give examples of applications of atomic and nuclear phenomena such as radiation therapy, diagnostic imaging, and nuclear power and examples of applications of quantum phenomena such as digital cameras.</p>		
<p><b>B) Changes in matter</b>— Learners apply their understanding of chemical reactions to round out their explanations of environmental characteristics and everyday phenomena.</p>	<p><b>PHY.8: Science concepts. The student knows simple examples of atomic, nuclear, and quantum phenomena. The student is expected to:</b></p> <p>(C) describe the significance of mass-energy equivalence and apply it in explanations of phenomena such as nuclear stability, fission, and fusion; and</p> <p>(D) give examples of applications of atomic and nuclear phenomena such as radiation therapy, diagnostic imaging, and nuclear power and examples of applications of quantum phenomena such as digital cameras.</p>	<p><b>V. Cross-Disiplinary Themes</b></p> <p><b>A. Matter/states of matter</b></p> <p>2. Understanding typical states of matter (solid, liquid, gas) and phase changes among these. <b>VII.</b></p> <p><b>Chemistry</b></p> <p><b>A. Matter and its properties</b></p> <p>1. Know that physical and chemical properties can be used to describe and classify matter. Recognize and classify pure substances (elements and compounds) and mixtures.</p>	

EE Learner Guidelines	High School Physics	CCRS Science	CCRS Social Studies
<p><b>C) Energy</b>— Learners apply their knowledge of energy and matter to understand phenomena in the world around them.</p>	<p><b>PHY.4: Science concepts. The student knows and applies the laws governing motion in a variety of situations. The student is expected to:</b></p> <p>(A) generate and interpret graphs and charts describing different types of motion, including the use of real-time technology such as motion detectors or photogates;</p> <p>(B) describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration;</p> <p>(C) analyze and describe accelerated motion in two dimensions using equations, including projectile and circular examples;</p> <p>(D) calculate the effect of forces on objects, including the law of inertia, the relationship between force and acceleration, and the nature of force pairs between objects;</p> <p>(E) develop and interpret free-body force diagrams; and</p> <p>(F) identify and describe motion relative to different frames of reference.</p> <p><b>PHY.5: Science concepts. The student knows the nature of forces in the physical world. The student is expected to:</b></p>	<p><b>V. Cross-Disciplinary Themes</b>  <b>B. Energy (thermodynamics, kinetic, potential, energy transfers)</b>  1. Understand the Laws of Thermodynamics  2. Know the processes of energy transfer</p> <p><b>VI. Biology</b>  <b>G. Ecology</b>  2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p> <p><b>VII. Chemistry</b>  <b>H. Thermochemistry</b>  1. Understand the Law of Conservation of Energy and processes of heat transfer.  2. Understand energy changes and chemical reactions</p> <p><b>VIII. Physics</b>  <b>C. Force and Motion</b>  1. Understand the fundamental concepts of kinematics  2. Understand forces and Newton's Law,  3. Understand the concept of momentum.</p> <p><b>D. Mechanical Energy</b>  1. Understand potential and kinetic energy.  2. Understand conservation of energy  3. Understand relationship of work and mechanical energy</p> <p><b>X. Environmental Science</b>  <b>B. Energy</b>  1. Understand energy transformations  2. Know various sources of energy for humans and other biological systems</p>	

EE Learner Guidelines	High School Physics	CCRS Science	CCRS Social Studies
	<p>(B) describe and calculate how the magnitude of the gravitational force between two objects depends on their masses and the distance between their centers;</p> <p>(C) describe and calculate how the magnitude of the electrical force between two objects depends on their charges and the distance between them;</p> <p>(D) identify examples of electric and magnetic forces in everyday life;</p> <p>(E) characterize materials as conductors or insulators based on their electrical properties;</p> <p>(F) design, construct, and calculate in terms of current through, potential difference across, resistance of, and power used by electric circuit elements connected in both series and parallel combinations;</p> <p>(G) investigate and describe the relationship between electric and magnetic fields in applications such as generators, motors, and transformers; and</p> <p>(H) describe evidence for and effects of the strong and weak nuclear forces in nature.</p> <p><b>PHY.6: Science concepts. The student knows that changes occur within a physical system and applies the laws of conservation of energy and momentum. The student is expected to:</b></p> <p>(A) investigate and calculate quantities using the work-energy theorem in various situations;</p> <p>(B) investigate examples of kinetic and potential energy and their transformations;</p>		

EE Learner Guidelines	High School Physics	CCRS Science	CCRS Social Studies
	<p>(C) calculate the mechanical energy of, power generated within, impulse applied to, and momentum of a physical system;</p> <p>(D) demonstrate and apply the laws of conservation of energy and conservation of momentum in one dimension;</p> <p>(E) describe how the macroscopic properties of a thermodynamic system such as temperature, specific heat, and pressure are related to the molecular level of matter, including kinetic or potential energy of atoms;</p> <p>(F) contrast and give examples of different processes of thermal energy transfer, including conduction, convection, and radiation; and</p> <p>(G) analyze and explain everyday examples that illustrate the laws of thermodynamics, including the law of conservation of energy and the law of entropy.</p> <p><b>PHY.8: Science concepts. The student knows simple examples of atomic, nuclear, and quantum phenomena. The student is expected to:</b></p> <p>(C) describe the significance of mass-energy equivalence and apply it in explanations of phenomena such as nuclear stability, fission, and fusion; and</p> <p>(D) give examples of applications of atomic and nuclear phenomena such as radiation therapy, diagnostic imaging, and nuclear power and examples of applications of quantum phenomena such as digital cameras.</p>		

EE Learner Guidelines	High School Physics	CCRS Science	CCRS Social Studies
<b>Strand 2.2: The Living Environment</b>			
<p><b>A) Organisms, populations, and communities—</b> Learners understand basic population dynamics and the importance of diversity in living systems.</p>		<p><b>VI. Biology</b>  <b>G. Ecology</b>  1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.  2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p>	
<p><b>B) Heredity and evolution—</b> Learners understand the basic ideas and genetic mechanisms behind biological evolution.</p>		<p><b>VI. Biology</b>  <b>C. Evolution and populations</b>  1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.  2. Recognize variations in population sizes, including extinction, and describe mechanisms and conditions that produce these variations.  <b>D. Molecular genetics and heredity</b>  1. Understand Mendel's Law of inheritance,  2. Know modifications of Mendel's Law,  3. Understand the molecular structure and functions of nucleic acids  4. Understand simple principles of population genetics and describe characteristics of Hardy-Weinberg population.</p>	
<p><b>C) Systems and connections—</b> Learners understand the living environment to be comprised of interrelated, dynamic systems.</p>		<p><b>IV. Biology</b>  <b>C. Evolution and populations</b>  1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.  <b>G. Ecology</b>  1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.  2. Know patterns of energy flow and material cycling in Earth's ecosystems.  3. Understand typical forms of organismal behavior  4. Know the process of succession</p>	

EE Learner Guidelines	High School Physics	CCRS Science	CCRS Social Studies
<p><b>D) Flow of matter and energy</b>— Learners are able to account for environmental characteristics based on their knowledge of how matter and energy interact in living systems.</p>	<p><b>PHY.5: Science concepts. The student knows the nature of forces in the physical world. The student is expected to:</b></p> <p>(A) research and describe the historical development of the concepts of gravitational, electromagnetic, weak nuclear, and strong nuclear forces;</p> <p>(B) describe and calculate how the magnitude of the gravitational force between two objects depends on their masses and the distance between their centers;</p> <p>(C) describe and calculate how the magnitude of the electrical force between two objects depends on their charges and the distance between them;</p> <p>(D) identify examples of electric and magnetic forces in everyday life;</p> <p>(E) characterize materials as conductors or insulators based on their electrical properties;</p> <p>(F) design, construct, and calculate in terms of current through, potential difference across, resistance of, and power used by electric circuit elements connected in both series and parallel combinations;</p> <p>(G) investigate and describe the relationship between electric and magnetic fields in applications such as generators, motors, and transformers; and</p> <p>(H) describe evidence for and effects of the strong and weak nuclear forces in nature.</p>	<p><b>V. Biology</b></p> <p><b>B. Biochemistry</b></p> <p>3. Describe the major features and chemical events of photosynthesis</p> <p>4. Describe the major features and chemical events of cellular respiration</p> <p>5. Know how organisms respond to the presence or absence of oxygen, including mechanisms of fermentation</p> <p><b>G. Ecology</b></p> <p>2. Know the patterns of energy flow and material cycling in Earth's ecosystems.</p> <p><b>X. Environmental Science</b></p> <p><b>B. Energy</b></p> <p>1. Understanding energy transformations</p> <p>2. Know the various sources of energy for humans and other biological systems</p>	

EE Learner Guidelines	High School Physics	CCRS Science	CCRS Social Studies
	<p><b>PHY.6: Science concepts. The student knows that changes occur within a physical system and applies the laws of conservation of energy and momentum. The student is expected to:</b></p> <p>(A) investigate and calculate quantities using the work-energy theorem in various situations;</p> <p>(B) investigate examples of kinetic and potential energy and their transformations;</p> <p>(C) calculate the mechanical energy of, power generated within, impulse applied to, and momentum of a physical system;</p> <p>(D) demonstrate and apply the laws of conservation of energy and conservation of momentum in one dimension;</p> <p>(E) describe how the macroscopic properties of a thermodynamic system such as temperature, specific heat, and pressure are related to the molecular level of matter, including kinetic or potential energy of atoms;</p> <p>(F) contrast and give examples of different processes of thermal energy transfer, including conduction, convection, and radiation; and</p> <p>(G) analyze and explain everyday examples that illustrate the laws of thermodynamics, including the law of conservation of energy and the law of entropy.</p>		

EE Learner Guidelines	High School Physics	CCRS Science	CCRS Social Studies
<b>Strand 2.3: Humans and Their Societies</b>			
<p><b>A) Individuals and groups</b>— Learners understand the influence of individual and group actions on the environment, and how groups can work to promote and balance interests.</p>			<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b>  2. Analyze the interaction between human communities and the environment.  <b>II. Diverse Human Perspectives</b>  <b>B. Factors that influence personal and group identities (e.g. race, ethnicity, gender, nationalist, institutional affiliations, socioeconomic status)</b>  6. Analyze how individual and group identities are established and changes over time.</p>
<p><b>B) Culture</b>— Learners understand cultural perspectives and dynamics and apply their understanding in context.</p>			<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical processes that shape the human experience.</b>  2. Analyze the interaction between human communities and the environment.  3. Analyze how physical and cultural processes have shaped human communities over time.  5. Analyze how various cultural regions of changed over time. 6.  Analyze the relationship between geography and the development of human communities.</p>

EE Learner Guidelines	High School Physics	CCRS Science	CCRS Social Studies
<p><b>C) Political and economic systems—</b> Learners understand how different political and economic systems account for, manage, and affect natural resources and environmental quality.</p>		<p><b>X. Environmental Science</b> <b>D. Economics and politics</b> 1. name and describe major environmental policies and legislation 2. Understand the types, uses, and regulations of various natural resources</p>	<p><b>I. Interrelated Disciplines and Skills</b> <b>C. Change and continuity of political ideologies, constitutions and political behaviour.</b> 1. Evaluate different governmental systems and functions <b>D. Change and continuity of economic systems and processes.</b> 1. Identify and evaluate the strengths and weaknesses of different economic systems.</p>
<p><b>D) Global connections—</b> Learners are able to analyze global social, cultural, political, economic, and environmental linkages.</p>			<p><b>III. Interdependence of Global Communities</b> <b>A. Spatial understanding of global, regional, national, and local communities.</b> 1. Distinguish spatial patterns of human communities that exist between or within contemporary political boundaries. 2. Connect regional or local developments to global ones. 3. Analyze how and why diverse communities interact and become dependent on each other.</p>
<p><b>E) Change and conflict—</b> Learners understand the functioning of public processes for promoting and managing change and conflict, and can analyze their effects on the environment.</p>			<p><b>I. Interrelated disciplines and Skills</b> <b>E. Change and continuity of social groups, civic organizations, institutions, and their interaction .</b> 4. Identify and evaluate the sources and consequences of social conflict.</p>

EE Learner Guidelines	High School Physics	CCRS Science	CCRS Social Studies
<b>Strand 2.4: Environment and Society</b>			
<p><b>A) Human/environment interactions—</b> Learners understand that humans are able to alter the physical environment to meet their needs and that there are limits to the ability of the environment to absorb impacts or meet human needs.</p>		<p><b>X. Environmental Science</b> <b>E. Human practices and their impacts</b></p> <ol style="list-style-type: none"> <li>1. Describe the different uses for land (land management)</li> <li>2. Understand the use and consequences of pest management</li> <li>3. Know the different methods used to increase food production</li> <li>4. Understand land and water usage and management practices</li> <li>5. Understand how human practices affect air, water, and soil quality</li> </ol>	<p><b>I. Interrelated Disciplines and Skills</b> <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b></p> <ol style="list-style-type: none"> <li>2. Analyze the interaction between human communities and the environment.</li> <li>4. Evaluate the causes and effects of human migration patterns over time</li> <li>6. Analyze the relationship between geography and the development of human communities.</li> </ol>
<p><b>B) Places—</b> Learners understand "place" as humans endowing a particular part of the Earth with meaning through their interactions with that environment.</p>		<p><b>X. Environmental Science</b> <b>C. Populations</b></p> <ol style="list-style-type: none"> <li>1. Recognize variations in population sizes, including human population and extinction, and describe mechanism and conditions that produce these variations.</li> </ol>	<p><b>I. Interrelated Disciplines and Skills</b> <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b></p> <ol style="list-style-type: none"> <li>2. Analyze the interaction between human communities and the environment.</li> </ol> <p><b>III. Interdependence of Global Communities</b> <b>A. Spatial understanding of global, regional, national, and local communities.</b></p> <ol style="list-style-type: none"> <li>1. Distinguish spatial patterns of human communities that exist between or within contemporary boundaries.</li> <li>2. Connect regional or local development to global ones.</li> <li>3. Analyze how and why diverse communities interact and become dependent on each other.</li> </ol>
<p><b>C) Resources—</b> Learners understand that the importance and use of resources change over time and vary under different economic and technological systems.</p>			

EE Learner Guidelines	High School Physics	CCRS Science	CCRS Social Studies
<p><b>D) Technology</b>— Learners are able to examine the social and environmental impacts of various technologies and technological systems.</p>			
<p><b>E) Environmental issues</b>— Learners are familiar with a range of environmental issues at scales that range from local to national to global. They understand that these scales and issues are often linked.</p>			
<p><b>Strand 3: Skills for Understanding and Addressing Environmental Issues</b></p>			
<p><b>Strand 3.1: Skills for Analyzing and Investigating Environmental Issues</b></p>			
<p><b>A) Identifying and investigating issues</b>— Learners apply their research and analytical skills to investigate environmental issues ranging from local issues to those that are regional or global in scope.</p>		<p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>            2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	
<p><b>B) Sorting out the consequences of issues</b>— Learners are able to evaluate the consequences of specific environmental changes, conditions, and issues for human and ecological systems.</p>		<p><b>IV. Science, Technology, and Society</b>  <b>B. Social ethics</b>            1. Understand how scientific research and technology haveand impact on ethical and legal practices</p>	
<p><b>C) Identifying and evaluating alternative solutions and courses of action</b>— Learners are able to identify and propose action strategies that are likely to be effective in particular situations and for particular purposes.</p>	<p><b>PHY.8: Science concepts. The student knows simple examples of atomic, nuclear, and quantum phenomena. The student is expected to:</b></p>	<p><b>IV. Science, Technology, and Society</b>  <b>B. Social ethics</b>            1. Understand how scientific research and technology haveand impact on ethical and legal practices            2. Understand how commonly held ethical beliefs impact scientific research</p>	

EE Learner Guidelines	High School Physics	CCRS Science	CCRS Social Studies
	(D) give examples of applications of atomic and nuclear phenomena such as radiation therapy, diagnostic imaging, and nuclear power and examples of applications of quantum phenomena such as digital cameras.		
<p><b>D) Working with flexibility, creativity, and openness</b>— While environmental issues investigations can bring to the surface deeply held views, learners are able to engage each other in peer review conducted in the spirit of open inquiry.</p>		<p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>  2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	
<b>Strand 3.2: Decision Making and Citizenship Skills</b>			
<p><b>A) Forming and evaluating personal views</b>— Learners are able to communicate, evaluate, and justify their own views on environmental issues and alternative ways to address them.</p>			
<p><b>B) Evaluating the need for citizen action</b>— Learners are able to decide whether action is needed in particular situations and whether they should be involved.</p>			
<p><b>C) Planning and taking action</b>— Learners know how to plan for action based on their research and analysis of an environmental issue. If appropriate, they take actions that are within the scope of their rights and consistent with their abilities and responsibilities as citizens.</p>			

EE Learner Guidelines	High School Physics	CCRS Science	CCRS Social Studies
<p><b>D) Evaluating the results of actions—</b> Learners are able to evaluate the effects of their own actions and actions taken by other individuals and groups, including possible intended and unintended consequences of actions.</p>			
<b>Strand 4: Personal and Civic Responsibility</b>			
<p><b>A) Understanding societal values and principles—</b> Learners know how to analyze the influence of shared and conflicting societal values.</p>		<p><b>IV. Science, Technology, and Society</b>  <b>B. Social Ethics</b>            1. Understand how scientific research and technology have an impact on ethical and legal practices.            2. Understand how commonly held ethical beliefs impact scientific research.</p>	
<p><b>B) Recognizing citizens' rights and responsibilities—</b> Learners understand the importance of exercising the rights and responsibilities of citizenship.</p>			
<p><b>C) Recognizing efficacy—</b> Learners possess a realistic self-confidence in their effectiveness as citizens.</p>			
<p><b>D) Accepting personal responsibility—</b> Learners understand that their actions can have broad consequences and accept responsibility for recognizing those effects and changing their actions when necessary.</p>			

## EE-TEKS-CCRS CROSSWALK

### *Alignment of the North American Excellence in Environmental Education: Guidelines for Learning (NAAEE) and the College and Career Readiness Standards (CCRS) with the Texas Essential Knowledge and Skills (TEKS) for High School Earth Science*

EE Learner Guidelines	High School Earth & Space Science	CCRS Science	CCRS Social Studies
<b>Strand 1: Questioning, Analysis &amp; Interpretation Skills</b>			
<p>A) Questioning—Learners are able to develop, modify, clarify, and explain questions that guide environmental investigations of various types. They understand factors that influence the questions they pose.</p>	<p><b>ESS.2: Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive skills in science</b>                      3. Formulate appropriate questions to test understanding of natural phenomena.</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>F. Problems solving</b>                      1. Use a variety of research and analytical tools to explore questions or issues thoroughly and fairly.</p>
	<p>(B) know that scientific hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories;</p>		
	<p>(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but may be subject to change as new areas of science and new technologies are developed;</p>		

EE Learner Guidelines	High School Earth & Space Science	CCRS Science	CCRS Social Studies
<p>B) Designing investigations—Learners know how to design investigations to answer particular questions about the environment. They are able to develop approaches for investigating unfamiliar types of problems and phenomena.</p>	<p><b>ESS.2: Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</b></p> <p>(G) organize, analyze, evaluate, make inferences, and predict trends from data; including making new revised hypotheses when appropriate</p> <p><b>ESS.3: Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</b></p> <p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b></p> <p><b>B. Scientific Inquiry</b></p> <p>1. Design and conduct scientific investigations in which hypotheses are formulated and tested</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b></p> <p><b>B. Research and methods</b></p> <p>1. Use established research methodologies</p>
<p>C) Collecting information—Learners are able to locate and collect reliable information for environmental investigations of many types. They know how to use sophisticated technology to collect information, including computer programs that access, gather, store, and display data.</p>	<p><b>ESS.2: Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</b></p> <p>(E) demonstrate the use of course equipment, techniques, and procedures, including computers and web-based computer applications;</p>	<p><b>I. Scientific Ways of Learning and Thinking</b></p> <p><b>A. Cognitive Skills in science</b></p> <p>4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p> <p><b>D. Current Scientific Technology</b></p> <p>3. Demonstrate appropriate use of a wide variety of apparatuses, equipment, techniques, and procedures for collecting quantitative and qualitative data</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b></p> <p><b>B. Research and methods</b></p> <p>3. Gather, organize and display the results of data and research</p> <p>4. Identify and collect sources</p>

EE Learner Guidelines	High School Earth & Space Science	CCRS Science	CCRS Social Studies
	<p>(F) use a wide variety of additional course apparatuses, equipment, techniques, and procedures as appropriate such as satellite imagery and other remote sensing data, Geographic Information Systems (GIS), Global Positioning System (GPS), scientific probes, microscopes, telescopes, modern video and image libraries, weather stations, fossil and rock kits, bar magnets, coiled springs, wave simulators, tectonic plate models, and planetary globes;</p> <p><b>ESS.3: Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</b></p> <p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p>	<p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>A. Research Skills/Information Literacy</b>  1. Use search engines, databases, and other digital electronic tools effectively to locate information.</p>	
<p>D) Evaluating accuracy and reliability—Learners can apply basic logic and reasoning skills to evaluate completeness and reliability in a variety of information sources.</p>	<p><b>ESS.2: Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</b></p> <p>(G) organize, analyze, evaluate, make inferences, and predict trends from data; including making new revised hypotheses when appropriate</p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive Skills in Science</b>  1. Utilize skepticism, logic, and professional ethics in science  4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>A. Critical examinations of texts, images, and other sources of information</b>  1. Identify and analyze the main idea(s) and</p>

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	<p>(I) communicate valid conclusions supported by data using several formats such as technical reports, lab reports, labeled drawings, graphic organizers, journals, presentations, and technical posters.</p> <hr/> <p><b>ESS.3: Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</b></p> <p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p>	<p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>  2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	
<p>E) Organizing information—Learners are able to organize and display information in ways appropriate to different types of environmental investigations and purposes.</p>	<p><b>ESS.2: Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</b></p> <hr/> <p>(G) organize, analyze, evaluate, make inferences, and predict trends from data;</p> <hr/> <p>(I) communicate valid conclusions supported by data using several formats such as technical reports, lab reports, labeled drawings, graphic organizers, journals, presentations, and technical posters.</p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b>  <b>A. Cognitive Skills in Science</b>  2. Use creativity and insight to recognize and describe patterns in natural phenomena.  <b>E. Effective communication of scientific information</b>  1. Use several modes of expression to describe or characterize natural phenomena. These modes of expression include narrative, and numerical, graphical, pictorial, symbolic, and kinesthetic.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research methods</b>  3. Gather, organize, and display the results of data and research</p>

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	<p><b>ESS.3: Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</b></p> <p>(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials;</p>		
<p>F) Working with models and simulations—Learners are able to create, use, and evaluate models to understand environmental phenomena.</p>	<p><b>ESS.2: Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</b></p> <p>(E) demonstrate the use of course equipment, techniques, and procedures, including computers and web-based computer applications;</p> <p>(F) use a wide variety of additional course apparatuses, equipment, techniques, and procedures as appropriate such as satellite imagery and other remote sensing data, Geographic Information Systems (GIS), Global Positioning System (GPS), scientific probes, microscopes, telescopes, modern video and image libraries, weather stations, fossil and rock kits, bar magnets, coiled springs, wave simulators, tectonic plate models, and planetary globes;</p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b></p> <p><b>D. Current Scientific Technology:</b></p> <p>2. Use computer models, applications, and simulations</p> <p>3. Demonstrate appropriate use of a wide variety of apparatuses, equipment, techniques, and procedures for collecting quantitative and qualitative data.</p> <p><b>E. Effective communication of scientific information</b></p> <p>1. Use several modes of expression to describe or characterize natural patterns and phenomena. These modes of expression include narrative, numerical, graphical, pictorial, symbolic, and kinesthetic.</p> <p><b>II. Foundations Skills: Scientific Application of Mathematics</b></p> <p><b>B. Mathematics as symbolic language</b></p> <p>2. Represent natural events, processes, and relationships with algebraic expressions and algorithms</p> <p><b>V. Cross Disciplinary Themes</b></p> <p><b>E. Measurements and Models</b></p> <p>1. Use models to make predictions</p> <p>2. Use scale to relate models and structures</p>	

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	(I) communicate valid conclusions supported by data using several formats such as technical reports, lab reports, labeled drawings, graphic organizers, journals, presentations, and technical posters.		
G) Drawing conclusions and developing explanations—Learners are able to use evidence and logic in developing proposed explanations that address their initial questions and hypotheses.	<b>ESS.2: Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</b>	<b>I. Nature of Science: Scientific Ways of Thinking</b> <b>A. Cognitive Skills in Science</b> 4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.	<b>IV. Analysis, Synthesis, and Evaluation of Information</b> <b>D. Reaching Conclusions</b> 1. Construct a thesis that is supported by evidence
	<p>(G) organize, analyze, evaluate, make inferences, and predict trends from data;</p> <p>(H) use mathematical procedures such as algebra, statistics, scientific notation, and significant figures to analyze data using the International System (SI) units; and</p> <p>(I) communicate valid conclusions supported by data using several formats such as technical reports, lab reports, labeled drawings, graphic organizers, journals, presentations, and technical posters.</p> <p><b>ESS.3: Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</b></p> <p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p> <p>(C) draw inferences based on data related to promotional materials for products and services;</p>		

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	(D) evaluate the impact of research on scientific thought, society, and public policy;		
<b>Strand 2.1: Knowledge of Environmental Processes and Systems</b>			
<p>A) Processes that shape the Earth—Learners understand the major physical processes that shape the Earth. They can relate these processes, especially those that are large-scale and long-term, to characteristics of the Earth.</p>	<p><b>ESS.9: Solid Earth. The student knows Earth's interior is differentiated chemically, physically, and thermally. The student is expected to:</b></p> <p>(A) evaluate heat transfer through Earth's subsystems by radiation, convection, and conduction and include its role in plate tectonics, volcanism, ocean circulation, weather, and climate;</p> <p>(B) examine the chemical, physical, and thermal structure of Earth's crust, mantle, and core, including the lithosphere and asthenosphere;</p> <p>(C) explain how scientists use geophysical methods such as seismic wave analysis, gravity, and magnetism to interpret Earth's structure; and</p> <p><b>ESS.10: Solid Earth. The student knows that plate tectonics is the global mechanism for major geologic processes and that heat transfer, governed by the principles of thermodynamics, is the driving force. The student is expected to:</b></p> <p>(A) investigate how new conceptual interpretations of data and innovative geophysical technologies led to the current theory of plate tectonics;</p> <p>(B) describe how heat and rock composition affect density within Earth's interior and how density influences the development and motion of Earth's tectonic plates;</p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b></p> <p><b>A. Cognitive skills in science</b></p> <p>2. Use creativity and insight to recognize and describe patterns in natural phenomena.</p> <p><b>IX. Earth and Space Sciences</b></p> <p><b>A. Earth systems</b></p> <p>1. Know the major features and characteristics of atmosphere, geosphere, hydrosphere, and biosphere.</p> <p>2. Understand relationships and interactions among atmosphere, geosphere, hydrosphere, and biosphere.</p> <p>3. Posses a scientific understanding of the history of Earth's systems.</p> <p><b>IX. Earth and Space Sciences</b></p> <p><b>E. Plate tectonics</b></p> <p>3. Describe the motions and interactions of tectonic plates.</p> <p>4. Describe the rock cycle and its products.</p> <p><b>X. Environmental Science</b></p> <p><b>A. Earth systems</b></p> <p>1. Recognize the Earth's systems.</p> <p>6. Describe the Earth's major biogeochemical cycles.</p>	

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	<p>(C) explain how plate tectonics accounts for geologic processes and features, including sea floor spreading, ocean ridges and rift valleys, subduction zones, earthquakes, volcanoes, mountain ranges, hot spots, and hydrothermal vents;</p> <p>(D) calculate the motion history of tectonic plates using equations relating rate, time, and distance to predict future motions, locations, and resulting geologic features;</p> <p>(E) distinguish the location, type, and relative motion of convergent, divergent, and transform plate boundaries using evidence from the distribution of earthquakes and volcanoes; and</p> <p>(F) evaluate the role of plate tectonics with respect to long-term global changes in Earth's subsystems such as continental buildup, glaciation, sea level fluctuations, mass extinctions, and climate change.</p> <p><b>ESS.11: Solid Earth. The student knows that the geosphere continuously changes over a range of time scales involving dynamic and complex interactions among Earth's subsystems. The student is expected to:</b></p>		

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	<p>(A) compare the roles of erosion and deposition through the actions of water, wind, ice, gravity, and igneous activity by lava in constantly reshaping Earth's surface;</p> <p>(B) explain how plate tectonics accounts for geologic surface processes and features, including folds, faults, sedimentary basin formation, mountain building, and continental accretion;</p> <p>(C) analyze changes in continental plate configurations such as Pangaea and their impact on the biosphere, atmosphere, and hydrosphere through time;</p> <p>(D) interpret Earth surface features using a variety of methods such as satellite imagery, aerial photography, and topographic and geologic maps using appropriate technologies; and</p> <p>(E) evaluate the impact of changes in Earth's subsystems on humans such as earthquakes, tsunamis, volcanic eruptions, hurricanes, flooding, and storm surges and the impact of humans on Earth's subsystems such as population growth, fossil fuel burning, and use of fresh water.</p> <p><b>ESS.13: Fluid Earth. The student knows that the fluid Earth is composed of the hydrosphere, cryosphere, and atmosphere subsystems that interact on various time scales with the biosphere and geosphere. The student is expected to:</b></p>		

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	<p>(A) quantify the components and fluxes within the hydrosphere such as changes in polar ice caps and glaciers, salt water incursions, and groundwater levels in response to precipitation events or excessive pumping;</p> <p>(B) analyze how global ocean circulation is the result of wind, tides, the Coriolis effect, water density differences, and the shape of the ocean basins;</p> <p>(C) analyze the empirical relationship between the emissions of carbon dioxide, atmospheric carbon dioxide levels, and the average global temperature trends over the past 150 years;</p> <p>(D) discuss mechanisms and causes such as selective absorbers, major volcanic eruptions, solar luminance, giant meteorite impacts, and human activities that result in significant changes in Earth's climate;</p> <p>(E) investigate the causes and history of eustatic sea-level changes that result in transgressive and regressive sedimentary sequences; and</p> <p>(F) discuss scientific hypotheses for the origin of life by abiotic chemical processes in an aqueous environment through complex geochemical cycles given the complexity of living systems.</p> <p><b>ESS.15: Fluid Earth. The student knows that interactions among Earth's five subsystems influence climate and resource availability, which affect Earth's habitability. The student is expected to:</b></p>		

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	<p>(A) describe how changing surface-ocean conditions, including El Niño-Southern Oscillation, affect global weather and climate patterns;</p> <p>(B) investigate evidence such as ice cores, glacial striations, and fossils for climate variability and its use in developing computer models to explain present and predict future climates;</p> <p>(C) quantify the dynamics of surface and groundwater movement such as recharge, discharge, evapotranspiration, storage, residence time, and sustainability;</p> <p>(D) explain the global carbon cycle, including how carbon exists in different forms within the five subsystems and how these forms affect life;</p> <p>(E) analyze recent global ocean temperature data to predict the consequences of changing ocean temperature on evaporation, sea level, algal growth, coral bleaching, hurricane intensity, and biodiversity.</p>		
<p>B) Changes in matter—Learners apply their understanding of chemical reactions to round out their explanations of environmental characteristics and everyday phenomena.</p>	<p><b>ESS.9: Solid Earth. The student knows Earth's interior is differentiated chemically, physically, and thermally. The student is expected to:</b></p> <p>(A) evaluate heat transfer through Earth's subsystems by radiation, convection, and conduction and include its role in plate tectonics, volcanism, ocean circulation, weather, and climate;</p>	<p><b>V. Cross-Disiplinary Themes</b>  <b>A. Matter/states of matter</b>  2. Understanding typical states of matter (solid, liquid, gas) and phase changes among these.  <b>VII. Chemistry</b>  <b>A. Matter and its properties</b>  1. Know that physical and chemical properties can be used to describe and classify matter. Recognize and classify pure substances (elements and compounds) and mixtures.</p>	

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	<p>(B) examine the chemical, physical, and thermal structure of Earth's crust, mantle, and core, including the lithosphere and asthenosphere;</p> <p>(C) explain how scientists use geophysical methods such as seismic wave analysis, gravity, and magnetism to interpret Earth's structure; and</p> <p><b>ESS.10: Solid Earth. The student knows that plate tectonics is the global mechanism for major geologic processes and that heat transfer, governed by the principles of thermodynamics, is the driving force. The student is expected to:</b></p> <p>(A) investigate how new conceptual interpretations of data and innovative geophysical technologies led to the current theory of plate tectonics;</p> <p>(B) describe how heat and rock composition affect density within Earth's interior and how density influences the development and motion of Earth's tectonic plates;</p> <p>(C) explain how plate tectonics accounts for geologic processes and features, including sea floor spreading, ocean ridges and rift valleys, subduction zones, earthquakes, volcanoes, mountain ranges, hot spots, and hydrothermal vents;</p> <p>(E) distinguish the location, type, and relative motion of convergent, divergent, and transform plate boundaries using evidence from the distribution of earthquakes and volcanoes; and</p>		

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	<p>(F) evaluate the role of plate tectonics with respect to long-term global changes in Earth's subsystems such as continental buildup, glaciation, sea level fluctuations, mass extinctions, and climate change.</p> <p><b>ESS.11: Solid Earth. The student knows that the geosphere continuously changes over a range of time scales involving dynamic and complex interactions among Earth's subsystems. The student is expected to:</b></p> <p>(A) compare the roles of erosion and deposition through the actions of water, wind, ice, gravity, and igneous activity by lava in constantly reshaping Earth's surface;</p> <p>(B) explain how plate tectonics accounts for geologic surface processes and features, including folds, faults, sedimentary basin formation, mountain building, and continental accretion;</p> <p>(C) analyze changes in continental plate configurations such as Pangaea and their impact on the biosphere, atmosphere, and hydrosphere through time;</p> <p>(D) interpret Earth surface features using a variety of methods such as satellite imagery, aerial photography, and topographic and geologic maps using appropriate technologies; and</p>		

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	<p>(E) evaluate the impact of changes in Earth's subsystems on humans such as earthquakes, tsunamis, volcanic eruptions, hurricanes, flooding, and storm surges and the impact of humans on Earth's subsystems such as population growth, fossil fuel burning, and use of fresh water.</p> <hr/> <p><b>ESS.13: Fluid Earth. The student knows that the fluid Earth is composed of the hydrosphere, cryosphere, and atmosphere subsystems that interact on various time scales with the biosphere and geosphere. The student is expected to:</b></p> <p>(A) quantify the components and fluxes within the hydrosphere such as changes in polar ice caps and glaciers, salt water incursions, and groundwater levels in response to precipitation events or excessive pumping;</p> <p>(B) analyze how global ocean circulation is the result of wind, tides, the Coriolis effect, water density differences, and the shape of the ocean basins;</p> <p>(C) analyze the empirical relationship between the emissions of carbon dioxide, atmospheric carbon dioxide levels, and the average global temperature trends over the past 150 years;</p> <p>(D) discuss mechanisms and causes such as selective absorbers, major volcanic eruptions, solar luminance, giant meteorite impacts, and human activities that result in significant changes in Earth's climate;</p> <p>(E) investigate the causes and history of eustatic sea-level changes that result in transgressive and regressive sedimentary sequences; and</p>		

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	<p>(F) discuss scientific hypotheses for the origin of life by abiotic chemical processes in an aqueous environment through complex geochemical cycles given the complexity of living systems.</p> <p><b>ESS.15: Fluid Earth. The student knows that interactions among Earth's five subsystems influence climate and resource availability, which affect Earth's habitability. The student is expected to:</b></p> <p>(A) describe how changing surface-ocean conditions, including El Niño-Southern Oscillation, affect global weather and climate patterns;</p> <p>(B) investigate evidence such as ice cores, glacial striations, and fossils for climate variability and its use in developing computer models to explain present and predict future climates;</p> <p>(C) quantify the dynamics of surface and groundwater movement such as recharge, discharge, evapotranspiration, storage, residence time, and sustainability;</p> <p>(D) explain the global carbon cycle, including how carbon exists in different forms within the five subsystems and how these forms affect life; and</p> <p>(E) analyze recent global ocean temperature data to predict the consequences of changing ocean temperature on evaporation, sea level, algal growth, coral bleaching, hurricane intensity, and biodiversity.</p>		

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<p>C) Energy—Learners apply their knowledge of energy and matter to understand phenomena in the world around them.</p>	<p><b>ESS.5: Earth in space and time. The student understands the solar nebular accretionary disk model. The student is expected to:</b></p>	<p><b>V. Cross-Disciplinary Themes</b>  <b>B. Energy (thermodynamics, kinetic, potential, energy transfers)</b>            1. Understand the Laws of Thermodynamics            2. Know the processes of energy transfer</p> <p><b>VI. Biology</b>  <b>G. Ecology</b>            2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p> <p><b>VII. Chemistry</b>  <b>H. Thermochemistry</b>            1. Understand the Law of Conservation of Energy and processes of heat transfer.            2. Understand energy changes and chemical reactions</p> <p><b>VIII. Physics</b>  <b>C. Force and Motion</b>            1. Understand the fundamental concepts of kinematics            2. Understand forces and Newton's Law,            3. Understand the concept of momentum.</p> <p><b>D. Mechanical Energy</b>            1. Understand potential and kinetic energy.            2. Understand conservation of energy            3. Understand relationship of work and mechanical energy</p> <p><b>X. Environmental Science</b>  <b>B. Energy</b>            1. Understand energy transformations            2. Know various sources of energy for humans and other biological systems</p>	
	<p>(B) investigate thermal energy sources, including kinetic heat of impact accretion, gravitational compression, and radioactive decay, which are thought to allow protoplanet differentiation into layers;</p>		
	<p><b>ESS.9: Solid Earth. The student knows Earth's interior is differentiated chemically, physically, and thermally. The student is expected to:</b></p>		
	<p>(A) evaluate heat transfer through Earth's subsystems by radiation, convection, and conduction and include its role in plate tectonics, volcanism, ocean circulation, weather, and climate;</p>		
	<p>(B) examine the chemical, physical, and thermal structure of Earth's crust, mantle, and core, including the lithosphere and asthenosphere;</p>		
	<p>(C) explain how scientists use geophysical methods such as seismic wave analysis, gravity, and magnetism to interpret Earth's structure; and</p>		
	<p>(D) describe the formation and structure of Earth's magnetic field, including its interaction with charged solar particles to form the Van Allen belts and auroras.</p>		
	<p><b>ESS.12: Solid Earth. The student knows that Earth contains energy, water, mineral, and rock resources and that use of these resources impacts Earth's subsystems. The student is expected to:</b></p>		

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	<p>(A) evaluate how the use of energy, water, mineral, and rock resources affects Earth's subsystems;</p> <p>(B) describe the formation of fossil fuels, including petroleum and coal;</p> <p>(C) discriminate between renewable and nonrenewable resources based upon rate of formation and use;</p> <p>(D) analyze the economics of resources from discovery to disposal, including technological advances, resource type, concentration and location, waste disposal and recycling, and environmental costs; and</p> <p>(E) explore careers that involve the exploration, extraction, production, use, and disposal of Earth's resources</p> <p><b>ESS.14: Fluid Earth. The student knows that Earth's global ocean stores solar energy and is a major driving force for weather and climate through complex atmospheric interactions. The student is expected to:</b></p> <p>(A) analyze the uneven distribution of solar energy on Earth's surface, including differences in atmospheric transparency, surface albedo, Earth's tilt, duration of insolation, and differences in atmospheric and surface absorption of energy;</p> <p>(B) investigate how the atmosphere is heated from Earth's surface due to absorption of solar energy, which is re-radiated as thermal energy and trapped by selective absorbers; and</p>		

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	(C) explain how thermal energy transfer between the ocean and atmosphere drives surface currents, thermohaline currents, and evaporation that influence climate.		
<b>Strand 2.2: The Living Environment</b>			
A) Organisms, populations, and communities—Learners understand basic population dynamics and the importance of diversity in living systems.		<b>VI. Biology</b> <b>G. Ecology</b> 1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms. 2. Know patterns of energy flow and material cycling in Earth's ecosystems.	
B) Heredity and evolution—Learners understand the basic ideas and genetic mechanisms behind biological evolution.	<p><b>ESS.8: Earth in space and time. The student knows that fossils provide evidence for geological and biological evolution. Students are expected to:</b></p> <p>(A) analyze and evaluate a variety of fossil types such as transitional fossils, proposed transitional fossils, fossil lineages, and significant fossil deposits with regard to their appearance, completeness, and alignment with scientific explanations in light of this fossil data;</p> <p>(B) explain how sedimentation, fossilization, and speciation affect the degree of completeness of the fossil record; and</p> <p>(C) evaluate the significance of the terminal Permian and Cretaceous mass extinction events, including adaptive radiations of organisms after the events.</p>	<b>VI. Biology</b> <b>C. Evolution and populations</b> 1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms. 2. Recognize variations in population sizes, including extinction, and describe mechanisms and conditions that produce these variations. <b>D. Molecular genetics and heredity</b> 1. Understand Mendel's Law of inheritance, 2. Know modifications of Mendel's Law, 3. Understand the molecular structure and functions of nucleic acids 4. Understand simple principles of population genetics and describe characteristics of Hardy-Weinberg population. 5. Describe the major features of meiosis and relate this process to Mendel's law of inheritance.	

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C) Systems and connections—Learners understand the living environment to be comprised of interrelated, dynamic systems.	<p><b>ESS.9: Solid Earth. The student knows Earth's interior is differentiated chemically, physically, and thermally. The student is expected to:</b></p>	<p><b>IV. Biology</b>  <b>C. Evolution and populations</b>            1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.</p>	
	<p>(A) evaluate heat transfer through Earth's subsystems by radiation, convection, and conduction and include its role in plate tectonics, volcanism, ocean circulation, weather, and climate;</p>	<p><b>G. Ecology</b>            1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.            2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p>	
	<p>(B) examine the chemical, physical, and thermal structure of Earth's crust, mantle, and core, including the lithosphere and asthenosphere;</p>	<p>3. Understand typical forms of organismal behavior            4. Know the process of succession  <b>X. Environmental Science</b>  <b>A. Earth Systems</b></p>	
	<p>(C) explain how scientists use geophysical methods such as seismic wave analysis, gravity, and magnetism to interpret Earth's structure; and</p>	<p>5. Be familiar with the Earth's major biomes</p>	
	<p>(D) describe the formation and structure of Earth's magnetic field, including its interaction with charged solar particles to form the Van Allen belts and auroras.</p>		
	<p><b>ESS.10: Solid Earth. The student knows that plate tectonics is the global mechanism for major geologic processes and that heat transfer, governed by the principles of thermodynamics, is the driving force. The student is expected to:</b></p>		
	<p>(A) investigate how new conceptual interpretations of data and innovative geophysical technologies led to the current theory of plate tectonics;</p>		
	<p>(B) describe how heat and rock composition affect density within Earth's interior and how density influences the development and motion of Earth's tectonic plates;</p>		

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	<p>(C) explain how plate tectonics accounts for geologic processes and features, including sea floor spreading, ocean ridges and rift valleys, subduction zones, earthquakes, volcanoes, mountain ranges, hot spots, and hydrothermal vents;</p> <p>(D) calculate the motion history of tectonic plates using equations relating rate, time, and distance to predict future motions, locations, and resulting geologic features;</p> <p>(E) distinguish the location, type, and relative motion of convergent, divergent, and transform plate boundaries using evidence from the distribution of earthquakes and volcanoes; and</p> <p>(F) evaluate the role of plate tectonics with respect to long-term global changes in Earth's subsystems such as continental buildup, glaciation, sea level fluctuations, mass extinctions, and climate change.</p> <p><b>ESS.11: Solid Earth. The student knows that the geosphere continuously changes over a range of time scales involving dynamic and complex interactions among Earth's subsystems. The student is expected to:</b></p> <p>(A) compare the roles of erosion and deposition through the actions of water, wind, ice, gravity, and igneous activity by lava in constantly reshaping Earth's surface;</p> <p>(B) explain how plate tectonics accounts for geologic surface processes and features, including folds, faults, sedimentary basin formation, mountain building, and continental accretion;</p>		

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	<p>(C) analyze changes in continental plate configurations such as Pangaea and their impact on the biosphere, atmosphere, and hydrosphere through time;</p> <p>(D) interpret Earth surface features using a variety of methods such as satellite imagery, aerial photography, and topographic and geologic maps using appropriate technologies; and</p> <p>(E) evaluate the impact of changes in Earth's subsystems on humans such as earthquakes, tsunamis, volcanic eruptions, hurricanes, flooding, and storm surges and the impact of humans on Earth's subsystems such as population growth, fossil fuel burning, and use of fresh water.</p> <p><b>ESS.13: Fluid Earth. The student knows that the fluid Earth is composed of the hydrosphere, cryosphere, and atmosphere subsystems that interact on various time scales with the biosphere and geosphere. The student is expected to:</b></p> <p>(A) quantify the components and fluxes within the hydrosphere such as changes in polar ice caps and glaciers, salt water incursions, and groundwater levels in response to precipitation events or excessive pumping;</p> <p>(B) analyze how global ocean circulation is the result of wind, tides, the Coriolis effect, water density differences, and the shape of the ocean basins;</p> <p>(C) analyze the empirical relationship between the emissions of carbon dioxide, atmospheric carbon dioxide levels, and the average global temperature trends over the past 150 years;</p>		

EE Learner Guidelines	High School Earth & Space Science	CCRS Science	CCRS Social Studies
	<p>(D) discuss mechanisms and causes such as selective absorbers, major volcanic eruptions, solar luminance, giant meteorite impacts, and human activities that result in significant changes in Earth's climate;</p> <p>(E) investigate the causes and history of eustatic sea-level changes that result in transgressive and regressive sedimentary sequences; and</p> <p>(F) discuss scientific hypotheses for the origin of life by abiotic chemical processes in an aqueous environment through complex geochemical cycles given the complexity of living systems.</p> <p><u>ESS.15</u>: Fluid Earth. The student knows that interactions among Earth's five subsystems influence climate and resource availability, which affect Earth's habitability. The student is expected to:</p> <p>(A) describe how changing surface-ocean conditions, including El Niño-Southern Oscillation, affect global weather and climate patterns;</p> <p>(B) investigate evidence such as ice cores, glacial striations, and fossils for climate variability and its use in developing computer models to explain present and predict future climates;</p> <p>(C) quantify the dynamics of surface and groundwater movement such as recharge, discharge, evapotranspiration, storage, residence time, and sustainability;</p> <p>(D) explain the global carbon cycle, including how carbon exists in different forms within the five subsystems and how these forms affect life; and</p>		

EE Learner Guidelines	High School Earth & Space Science	CCRS Science	CCRS Social Studies
	(E) analyze recent global ocean temperature data to predict the consequences of changing ocean temperature on evaporation, sea level, algal growth, coral bleaching, hurricane intensity, and biodiversity.		
D) Flow of matter and energy—Learners are able to account for environmental characteristics based on their knowledge of how matter and energy interact in living systems.	<p><b>ESS.5: Earth in space and time. The student understands the solar nebular accretionary disk model. The student is expected to:</b></p> <p>(B) investigate thermal energy sources, including kinetic heat of impact accretion, gravitational compression, and radioactive decay, which are thought to allow protoplanet differentiation into layers;</p> <p><b>ESS.9: Solid Earth. The student knows Earth's interior is differentiated chemically, physically, and thermally. The student is expected to:</b></p> <p>(A) evaluate heat transfer through Earth's subsystems by radiation, convection, and conduction and include its role in plate tectonics, volcanism, ocean circulation, weather, and climate;</p> <p>(B) examine the chemical, physical, and thermal structure of Earth's crust, mantle, and core, including the lithosphere and asthenosphere;</p> <p>(C) explain how scientists use geophysical methods such as seismic wave analysis, gravity, and magnetism to interpret Earth's structure; and</p>	<p><b>V. Biology</b></p> <p><b>B. Biochemistry</b></p> <p>3. Describe the major features and chemical events of photosynthesis</p> <p>4. Describe the major features and chemical events of cellular respiration</p> <p>5. Know how organisms respond to the presence or absence of oxygen, including mechanisms of fermentation</p> <p><b>G. Ecology</b></p> <p>2. Know the patterns of energy flow and material cycling in Earth's ecosystems.</p> <p><b>X. Environmental Science</b></p> <p><b>B. Energy</b></p> <p>1. Understanding energy transformations</p> <p>2. Know the various sources of energy for humans and other biological systems</p>	

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	<p>(D) describe the formation and structure of Earth's magnetic field, including its interaction with charged solar particles to form the Van Allen belts and auroras.</p> <p><b>ESS.12: Solid Earth. The student knows that Earth contains energy, water, mineral, and rock resources and that use of these resources impacts Earth's subsystems. The student is expected to:</b></p> <p>(A) evaluate how the use of energy, water, mineral, and rock resources affects Earth's subsystems;</p> <p>(B) describe the formation of fossil fuels, including petroleum and coal;</p> <p>(C) discriminate between renewable and nonrenewable resources based upon rate of formation and use;</p> <p>(D) analyze the economics of resources from discovery to disposal, including technological advances, resource type, concentration and location, waste disposal and recycling, and environmental costs; and</p> <p>(E) explore careers that involve the exploration, extraction, production, use, and disposal of Earth's resources.</p> <p><b>ESS.14: Fluid Earth. The student knows that Earth's global ocean stores solar energy and is a major driving force for weather and climate through complex atmospheric interactions. The student is expected to:</b></p> <p>(A) analyze the uneven distribution of solar energy on Earth's surface, including differences in atmospheric transparency, surface albedo, Earth's tilt, duration of insolation, and differences in atmospheric and surface absorption of energy;</p>		

EE Learner Guidelines	High School Earth & Space Science	CCRS Science	CCRS Social Studies
	(B) investigate how the atmosphere is heated from Earth's surface due to absorption of solar energy, which is re-radiated as thermal energy and trapped by selective absorbers; and		
	(C) explain how thermal energy transfer between the ocean and atmosphere drives surface currents, thermohaline currents, and evaporation that influence climate.		
<b>Strand 2.3: Humans and Their Societies</b>			
A) Individuals and groups—Learners understand the influence of individual and group actions on the environment, and how groups can work to promote and balance interests.			<b>I. Interrelated Disciplines and Skills</b> <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b> 2. Analyze the interaction between human communities and the environment. <b>II. Diverse Human Perspectives</b> <b>B. Factors that influence personal and group identities (e.g. race, ethnicity, gender, nationalist, institutional affiliations, socioeconomic status)</b> 6. Analyze how individual and group identities are established and changes over time.
B) Culture—Learners understand cultural perspectives and dynamics and apply their understanding in context.			<b>I. Interrelated Disciplines and Skills</b> <b>A. Spatial analysis of physical processes that shape the human experience.</b> 2. Analyze the interaction between human communities and the environment. 3. Analyze how physical and cultural processes have shaped human communities over time. 5. Analyze how various cultural regions of changed over time. 6. Analyze the relationship between geography and the development of human communities.

EE Learner Guidelines	High School Earth & Space Science	CCRS Science	CCRS Social Studies
<p>C) Political and economic systems—Learners understand how different political and economic systems account for, manage, and affect natural resources and environmental quality.</p>		<p><b>X. Environmental Science</b>  <b>D. Economics and politics</b>            1. name and describe major environmental policies and legislation            2. Understand the types, uses, and regulations of various natural resources</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>C. Change and continuity of political ideologies, constitutions and political behaviour.</b>            1. Evaluate different governmental systems and functions  <b>D. Change and continuity of economic systems and processes.</b>            1. Identify and evaluate the strengths and weaknesses of different economic systems.</p>
<p>D) Global connections—Learners are able to analyze global social, cultural, political, economic, and environmental linkages.</p>			<p><b>III. Interdependence of Global Communities</b>  <b>A. Spatial understanding of global, regional, national, and local communities.</b>            1. Distinguish spatial patterns of human communities that exist between or within contemporary political boundaries.            2. Connect regional or local developments to global ones.            3. Analyze how and why diverse communities interact and become dependent on each other.</p>
<p>E) Change and conflict—Learners understand the functioning of public processes for promoting and managing change and conflict, and can analyze their effects on the environment.</p>			<p><b>I. Interrelated disciplines and Skills</b>  <b>E. Change and continuity of social groups, civic organizations, institutions, and their interaction.</b>            4. Identify and evaluate the sources and consequences of social conflict.</p>
<b>Strand 2.4: Environment and Society</b>			
<p>A) Human/environment interactions—Learners understand that humans are able to alter the physical environment to meet their needs and that there are limits to the ability of the environment to absorb impacts or meet human needs.</p>		<p><b>X. Environmental Science</b>  <b>E. Human practices and their impacts</b>            1. Describe the different uses for land (land management)            2. Understand the use and consequences of pest management            3. Know the different methods used to increase food production            4. Understand land and water usage and management practices            5. Understand how human practices affect air, water, and soil quality</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b>            2. Analyze the interaction between human communities and the environment.            4. Evaluate the causes and effects of human migration patterns over time            6. Analyze the relationship between geography and the development of human communities.</p>

EE Learner Guidelines	High School Earth & Space Science	CCRS Science	CCRS Social Studies
<p>B) Places—Learners understand "place" as humans endowing a particular part of the Earth with meaning through their interactions with that environment.</p>		<p><b>X. Environmental Science</b>  <b>C. Populations</b>            1. Recognize variations in population sizes, including human population and extinction, and describe mechanism and conditions that produce these variations.</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b>            2. Analyze the interaction between human communities and the environment.  <b>III. Interdependence of Global Communities</b>  <b>A. Spatial understanding of global, regional, national, and local communities.</b>            1. Distinguish spatial patterns of human communities that exist between or within contemporary boundaries.            2. Connect regional or local development to global ones.            3. Analyze how and why diverse communities interact and become interdependent on each other.</p>
<p>C) Resources—Learners understand that the importance and use of resources change over time and vary under different economic and technological systems.</p>	<p><b>ESS.12: Solid Earth. The student knows that Earth contains energy, water, mineral, and rock resources and that use of these resources impacts Earth's subsystems. The student is expected to:</b></p> <p>(A) evaluate how the use of energy, water, mineral, and rock resources affects Earth's subsystems;</p> <p>(B) describe the formation of fossil fuels, including petroleum and coal;</p>		

EE Learner Guidelines	High School Earth & Space Science	CCRS Science	CCRS Social Studies
	<p>(C) discriminate between renewable and nonrenewable resources based upon rate of formation and use;</p> <p>(D) analyze the economics of resources from discovery to disposal, including technological advances, resource type, concentration and location, waste disposal and recycling, and environmental costs; and</p> <p>(E) explore careers that involve the exploration, extraction, production, use, and disposal of Earth's resources.</p>		
D) Technology—Learners are able to examine the social and environmental impacts of various technologies and technological systems.			
E) Environmental issues—Learners are familiar with a range of environmental issues at scales that range from local to national to global. They understand that these scales and issues are often linked.			
<b>Strand 3: Skills for Understanding and Addressing Environmental Issues</b>			
<b>Strand 3.1: Skills for Analyzing and Investigating Environmental Issues</b>			
A) Identifying and investigating issues—Learners apply their research and analytical skills to investigate environmental issues ranging from local issues to those that are regional or global in scope.		<b>III. Foundation Skills: Scientific Applications of Communication</b> <b>D. Research skills/information literacy</b> 2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.	
B) Sorting out the consequences of issues—Learners are able to evaluate the consequences of specific environmental changes, conditions, and issues for human and ecological systems.		<b>IV. Science, Technology, and Society</b> <b>B. Social ethics</b> 1. Understand how scientific research and technology have and impact on ethical and legal practices	

EE Learner Guidelines	High School Earth & Space Science	CCRS Science	CCRS Social Studies
C) Identifying and evaluating alternative solutions and courses of action—Learners are able to identify and propose action strategies that are likely to be effective in particular situations and for particular purposes.		<b>IV. Science, Technology, and Society</b> <b>B. Social ethics</b> 1. Understand how scientific research and technology haveand impact on ethical and legal practices 2. Understand how commonly held ethical beliefs impact scientific research	
D) Working with flexibility, creativity, and openness—While environmental issues investigations can bring to the surface deeply held views, learners are able to engage each other in peer review conducted in the spirit of open inquiry.		<b>III. Foundation Skills: Scientific Applications of Communication</b> <b>D. Research skills/information literacy</b> 2. Evaluate quality, accuracy, completeness, reliabailty, and currency of information from any source.	
<b>Strand 3.2: Decision Making and Citizenship Skills</b>			
A) Forming and evaluating personal views—Learners are able to communicate, evaluate, and justify their own views on environmental issues and alternative ways to address them.			
B) Evaluating the need for citizen action—Learners are able to decide whether action is needed in particular situations and whether they should be involved.			
C) Planning and taking action—Learners know how to plan for action based on their research and analysis of an environmental issue. If appropriate, they take actions that are within the scope of their rights and consistent with their abilities and responsibilities as citizens.			

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D) Evaluating the results of actions—Learners are able to evaluate the effects of their own actions and actions taken by other individuals and groups, including possible intended and unintended consequences of actions.			
<b>Strand 4: Personal and Civic Responsibility</b>			
A) Understanding societal values and principles—Learners know how to analyze the influence of shared and conflicting societal values.		<b>IV. Science, Technology, and Society</b> <b>B. Social Ethics</b> 1. Understand how scientific research and technology have an impact on ethical and legal practices. 2. Understand how commonly held ethical beliefs impact scientific research.	
B) Recognizing citizens' rights and responsibilities—Learners understand the importance of exercising the rights and responsibilities of citizenship.			
C) Recognizing efficacy—Learners possess a realistic self-confidence in their effectiveness as citizens.			
D) Accepting personal responsibility—Learners understand that their actions can have broad consequences and accept responsibility for recognizing those effects and changing their actions when necessary.			

## EE-TEKS-CCRS CROSSWALK

*Alignment of the North American Excellence in Environmental Education: Guidelines for Learning (NAAEE) and the College and Career Readiness Standards (CCRS) with the Texas Essential Knowledge and Skills (TEKS) for High School Environmental Systems*

EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
<b>Strand 1: Questioning, Analysis &amp; Interpretation Skills</b>			
<p><b>A) Questioning—</b> Learners are able to develop, modify, clarify, and explain questions that guide environmental investigations of various types. They understand factors that influence the questions they pose.</p>	<p><b>ES2:Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive skills in science</b>                      3. Formulate appropriate questions to test understanding of natural phenomena.</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>F. Problems solving</b>                      1. Use a variety of research and analytical tools to explore questions or issues thoroughly and fairly.</p>
	<p>(B) know that scientific hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories;</p>		
	<p>(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but may be subject to change as new areas of science and new technologies are developed;</p>		

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<p><b>B) Designing investigations— Learners know how to design investigations to answer particular questions about the environment. They are able to develop approaches for investigating unfamiliar types of problems and phenomena.</b></p>	<p><b>ES2: Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>B. Scientific Inquiry</b>            1. Design and conduct scientific investigations in which hypotheses are formulated and tested</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research and methods</b>            1. Use established research methodologies</p>
	<p>(B) know that scientific hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories;</p>		
	<p>(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but may be subject to change as new areas of science and new technologies are developed;</p>		
	<p><b>ES3: Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</b></p>		
<p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p>			

EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
<p><b>C) Collecting information— Learners are able to locate and collect reliable information for environmental investigations of many types. They know how to use sophisticated technology to collect information, including computer programs that access, gather, store, and display data.</b></p>	<p><b>ES2: Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</b></p> <p>(E) follow or plan and implement investigative procedures, including making observations, asking questions, formulating testable hypotheses, and selecting equipment and technology;</p> <p>(F) collect data individually or collaboratively, make measurements with precision and accuracy, record values using appropriate units, and calculate statistically relevant quantities to describe data, including mean, median, and range;</p> <p>(H) use a wide variety of additional course apparatuses, equipment, techniques, materials, and procedures as appropriate such as air quality testing devices, cameras, flow meters, Global Positioning System (GPS) units, Geographic Information System (GIS) software, computer models, densimeters, clinometers, and field journals;</p>	<p><b>I. Scientific Ways of Learning and Thinking</b></p> <p><b>A. Cognitive Skills in science</b></p> <p>4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p> <p>D. Current Scientific Technology</p> <p>3. Demonstrate appropriate use of a wide variety of apparatuses, equipment, techniques, and procedures for collecting quantitative and qualitative data</p> <p><b>III. Foundation Skills: Scientific Applications of Communication</b></p> <p><b>A. Research Skills/Information Literacy</b></p> <p>1. Use search engines, databases, and other digital electronic tools effectively to locate information.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b></p> <p><b>B. Research and methods</b></p> <p>3. Gather, organize and display the results of data and research</p> <p>4. Identify and collect sources</p>
<p><b>D) Evaluating accuracy and reliability— Learners can apply basic logic and reasoning skills to evaluate completeness and reliability in a variety of information sources.</b></p>	<p><b>ES2: Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b></p> <p><b>A. Cognitive Skills in Science</b></p> <p>1. Utilize skepticism, logic, and professional ethics in science</p> <p>4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b></p> <p><b>A. Critical examinations of texts, images, and other sources of information</b></p> <p>1. Identify and analyze the main idea(s) and point(s)-of-view in sources.</p> <p>2. Situate an informational source in its appropriate contexts (contemporary, historical, cultural)</p>

EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
	<p>(H) use a wide variety of additional course apparatuses, equipment, techniques, materials, and procedures as appropriate such as air quality testing devices, cameras, flow meters, Global Positioning System (GPS) units, Geographic Information System (GIS) software, computer models, densimeters, clinometers, and field journals;</p> <p>(K) communicate valid conclusions supported by the data through methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports.</p> <p><b>ES3: Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</b></p> <p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p>	<p><b>III. Foundation Skills: Scientific Applications of Communication</b></p> <p><b>D. Research skills/information literacy</b></p> <p>2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	<p>3. Evaluate sources from multiple perspectives</p> <p>4. Understand the difference between a primary and secondary source and use each appropriately to conduct research and construct arguments</p> <p>5. Read narrative texts critically</p> <p>6. Read research data critically</p>
<p><b>E) Organizing information— Learners are able to organize and display information in ways appropriate to different types of environmental investigations and purposes.</b></p>	<p><b>ES2: Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b></p> <p><b>A. Cognitive Skills in Science</b></p> <p>2. Use creativity and insight to recognize and describe patterns in natural phenomena.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b></p> <p><b>B. Research methods</b></p> <p>3. Gather, organize, and display the results of data and research</p>

EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
	<p>(I) organize, analyze, evaluate, build models, make inferences, and predict trends from data;</p> <p><b>ES3: Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</b></p> <p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p> <p>(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials;</p>	<p><b><i>E. Effective communication of scientific information</i></b></p> <p>1. Use several modes of expression to describe or characterize natural phenomena. These modes of expression include narrative, and numerical, graphical, pictorial, symbolic, and kinesthetic.</p>	
<p><b>F) Working with models and simulations—Learners are able to create, use, and evaluate models to understand environmental phenomena.</b></p>	<p><b>ES.2: Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b></p> <p><b><i>D. Current Scientific Technology:</i></b></p> <p>2. Use computer models, applications, and simulations</p> <p>3. Demonstrate appropriate use of a wide variety of apparatuses, equipment, techniques, and procedures for collecting quantitative and qualitative data.</p> <p><b><i>E. Effective communication of scientific information</i></b></p> <p>1. Use several modes of expression to describe or characterize natural patterns and phenomena. These modes of expression include narrative, numerical, graphical, pictorial, symbolic, and kinesthetic.</p>	

EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
	<p>(G) demonstrate the use of course apparatuses, equipment, techniques, and procedures, including meter sticks, rulers, pipettes, graduated cylinders, triple beam balances, timing devices, pH meters or probes, thermometers, calculators, computers, Internet access, turbidity testing devices, hand magnifiers, work and disposable gloves, compasses, first aid kits, binoculars, field guides, water quality test kits or probes, soil test kits or probes, 100-foot appraiser's tapes, tarps, shovels, trowels, screens, buckets, and rock and mineral samples;</p> <p>(H) use a wide variety of additional course apparatuses, equipment, techniques, materials, and procedures as appropriate such as air quality testing devices, cameras, flow meters, Global Positioning System (GPS) units, Geographic Information System (GIS) software, computer models, densimeters, clinometers, and field journals;</p> <p>(I) organize, analyze, evaluate, build models, make inferences, and predict trends from data;</p> <p>(K) communicate valid conclusions supported by the data through methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports.</p>	<p><b>II. Foundations Skills: Scientific Application of Mathematics</b>  <b>B. Mathematics as symbolic language</b>  2. Represent natural events, processes, and relationships with algebraic expressions and algorithms  <b>V. Cross Disciplinary Themes</b>  <b>E. Measurements and Models</b>  1. Use models to make predictions  2. Use scale to relate models and structures</p>	

EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
<p><b>G) Drawing conclusions and developing explanations—Learners are able to use evidence and logic in developing proposed explanations that address their initial questions and hypotheses.</b></p>	<p><b>ES2: Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:</b></p> <p>(I) organize, analyze, evaluate, build models, make inferences, and predict trends from data;</p> <p>(J) perform calculations using dimensional analysis, significant digits, and scientific notation; and</p> <p>(K) communicate valid conclusions supported by the data through methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports.</p> <p><b>ES3:Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</b></p> <p>(C) draw inferences based on data related to promotional materials for products and services;</p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b></p> <p><b>A. Cognitive Skills in Science</b></p> <p>4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b></p> <p><b>D. Reaching Conclusions</b></p> <p>1. Construct a thesis that is supported by evidence</p>

EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
<b>Strand 2.1: Knowledge of Environmental Processes and Systems</b>			
<p><b>A) Processes that shape the Earth—Learners understand the major physical processes that shape the Earth. They can relate these processes, especially those that are large-scale and long-term, to characteristics of the Earth.</b></p>	<p><b>ES6:Science concepts. The student knows the sources and flow of energy through an environmental system. The student is expected to:</b></p> <p>(A) define and identify the components of the geosphere, hydrosphere, cryosphere, atmosphere, and biosphere and the interactions among them;</p> <p><b>ES8:Science concepts. The student knows that environments change naturally. The student is expected to:</b></p> <p>(A) analyze and describe the effects on areas impacted by natural events such as tectonic movement, volcanic events, fires, tornadoes, hurricanes, flooding, tsunamis, and population growth;</p> <p>(B) explain how regional changes in the environment may have a global effect;</p> <p>(C) examine how natural processes such as succession and feedback loops restore habitats and ecosystems;</p> <p>(D) describe how temperature inversions impact weather conditions, including El Niño and La Niña oscillations; and</p> <p>(E) analyze the impact of temperature inversions on global warming, ice cap and glacial melting, and changes in ocean currents and surface temperatures.</p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b></p> <p><b>A. Cognitive skills in science</b></p> <p>2. Use creativity and insight to recognize and describe patterns in natural phenomena.</p> <p><b>IX. Earth and Space Sciences</b></p> <p><b>A. Earth systems</b></p> <p>1. Know the major features and characteristics of atmosphere, geosphere, hydrosphere, and biosphere.</p> <p>2. Understand relationships and interactions among atmosphere, geosphere, hydrosphere, and biosphere.</p> <p>3. Posses a scientific understanding of the history of Earth’s systems.</p> <p><b>IX. Earth and Space Sciences</b></p> <p><b>E. Plate tectonics</b></p> <p>3. Describe the motions and interactions of tectonic plates.</p> <p>4. Describe the rock cycle and its products.</p> <p><b>X. Environmental Science</b></p> <p><b>A. Earth systems</b></p> <p>1. Recognize the Earth’s systems.</p> <p>6. Describe the Earth's major biogeochemical cycles.</p>	

EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
<p><b>B) Changes in matter—Learners apply their understanding of chemical reactions to round out their explanations of environmental characteristics and everyday phenomena.</b></p>	<p><b>ES6 Science concepts. The student knows the sources and flow of energy through an environmental system. The student is expected to:</b></p> <p>(D) investigate and explain the effects of energy transformations in terms of the laws of thermodynamics within an ecosystem;</p> <p>(E) investigate and identify energy interactions in an ecosystem.</p>	<p><b>V. Cross-Disiplinary Themes</b>  <b>A. Matter/states of matter</b>  2. Understanding typical states of matter (solid, liquid, gas) and phase changes among these. <b>VII.</b>  <b>Chemistry</b>  <b>A. Matter and its properties</b>  1. Know that physical and chemical properties can be used to describe and classify matter. Recognize and classify pure substances (elements and compounds) and mixtures.</p>	
<p><b>C) Energy—Learners apply their knowledge of energy and matter to understand phenomena in the world around them.</b></p>	<p><b>ES.6:Science concepts. The student knows the sources and flow of energy through an environmental system. The student is expected to:</b></p> <p>(A) define and identify the components of the geosphere, hydrosphere, cryosphere, atmosphere, and biosphere and the interactions among them;</p> <p>(B) describe and compare renewable and non-renewable energy derived from natural and alternative sources such as oil, natural gas, coal, nuclear, solar, geothermal, hydroelectric, and wind;</p>	<p><b>V. Cross-Disciplinary Themes</b>  <b>B. Energy (thermodynamics, kinetic, potential, energy transfers)</b>  1. Unerstand the Laws of Thermodynamics  2. Know the processes of energy transfer  <b>VI. Biology</b>  <b>G. Ecology</b>  2. Know patterns of energy flow and material cycling in Earth's ecosystems.  <b>VII. Chemistry</b>  <b>H. Thermochemistry</b>  1. Understand the Law of Conservation of Energy and processes of heat transfer.  2. Understand energy changes and chemical reactions</p>	

EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
	<p>(C) explain the flow of energy in an ecosystem, including conduction, convection, and radiation;</p> <p>(D) investigate and explain the effects of energy transformations in terms of the laws of thermodynamics within an ecosystem; and</p> <p>(E) investigate and identify energy interactions in an ecosystem.</p>	<p><b>VIII. Physics</b>  <b>C. Force and Motion</b>  1. Understand the fundamental concepts of kinematics  2. Understand forces and Newton's Law,  3. Understand the concept of momentum.  <b>D. Mechanical Energy</b>  1. Understand potential and kinetic energy.  2. Understand conservation of energy  3. Understand relationship of work and mechanical energy  <b>X. Environmental Science</b>  <b>B. Energy</b>  1. Understand energy transformations  2. Know various sources of energy for humans and other biological systems</p>	

**Strand 2.2: The Living Environment**

<p><b>A) Organisms, populations, and communities— Learners understand basic population dynamics and the importance of diversity in living systems.</b></p>	<p><b>ES.7: Science concepts. The student knows the relationship between carrying capacity and changes in populations and ecosystems. The student is expected to:</b></p> <p>(A) relate carrying capacity to population dynamics;</p> <p>(B) calculate birth rates and exponential growth of populations;</p> <p>(C) analyze and predict the effects of non-renewable resource depletion; and</p> <p>(D) analyze and make predictions about the impact on populations of geographic locales due to diseases, birth and death rates, urbanization, and natural events such as migration and seasonal changes.</p>	<p><b>VI. Biology</b>  <b>C. Evolution and populations</b>  2. Recognize variations in population sizes, including extinction, and describe mechanisms and conditions that produce these variations.  <b>G. Ecology</b>  1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.  2. Know patterns of energy flow and material cycling in Earth's ecosystems.  4. Know the process of succession.</p>	
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EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
<p><b>B) Heredity and evolution—Learners understand the basic ideas and genetic mechanisms behind biological evolution.</b></p>		<p><b>VI. Biology</b>  <b>C. Evolution and populations</b>            1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.            2. Recognize variations in population sizes, including extinction, and describe mechanisms and conditions that produce these variations.  <b>D. Molecular genetics and heredity</b>            1. Understand Mendel's Law of inheritance,            2. Know modifications of Mendel's Law,            3. Understand the molecular structure and functions of nucleic acids            4. Understand simple principles of population genetics and describe characteristics of Hardy-Weinberg population.            5. Describe the major features of meiosis and relate this process to Mendel's law of inheritance.</p>	
<p><b>C) Systems and connections—Learners understand the living environment to be comprised of interrelated, dynamic systems.</b></p>	<p><b>ES.4: Science concepts. The student knows the relationships of biotic and abiotic factors within habitats, ecosystems, and biomes. The student is expected to:</b></p> <p>(A) identify native plants and animals using a dichotomous key;</p> <p>(B) assess the role of native plants and animals within a local ecosystem and compare them to plants and animals in ecosystems within four other biomes;</p> <p>(C) diagram abiotic cycles, including the rock, hydrologic, carbon, and nitrogen cycles;</p>	<p><b>IV. Biology</b>  <b>C. Evolution and populations</b>            1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.  <b>G. Ecology</b>            1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.            2. Know patterns of energy flow and material cycling in Earth's ecosystems.            3. Understand typical forms of organismal behavior            4. Know the process of succession  <b>X. Environmental Science</b>  <b>A. Earth Systems</b>            5. Be familiar with the Earth's major biomes</p>	

EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
	<p>(D) make observations and compile data about fluctuations in abiotic cycles and evaluate the effects of abiotic factors on local ecosystems and local biomes;</p> <p><b>ES.5: Science concepts. The student knows the interrelationships among the resources within the local environmental system. The student is expected to:</b></p> <p>(A) summarize methods of land use and management and describe its effects on land fertility;</p> <p>(B) identify source, use, quality, management, and conservation of water;</p> <p>(C) document the use and conservation of both renewable and non-renewable resources as they pertain to sustainability;</p> <p>(D) identify renewable and non-renewable resources that must come from outside an ecosystem such as food, water, lumber, and energy;</p> <p>(E) analyze and evaluate the economic significance and interdependence of resources within the environmental system;</p>		
<p><b>D) Flow of matter and energy—Learners are able to account for environmental characteristics based on their knowledge of how matter and energy interact in living systems.</b></p>	<p><b>ES.6: Science concepts. The student knows the sources and flow of energy through an environmental system. The student is expected to:</b></p> <p>(C) explain the flow of energy in an ecosystem, including conduction, convection, and radiation;</p>	<p><b>V. Biology</b>  <b>B. Biochemistry</b>  3. Describe the major features and chemical events of photosynthesis  4. Describe the major features and chemical events of cellular respiration  5. Know how organisms respond to the presence or absence of oxygen, including mechanisms of fermentation</p>	

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	(D) investigate and explain the effects of energy transformations in terms of the laws of thermodynamics within an ecosystem; and	<b>G. Ecology</b> 2. Know the patterns of energy flow and material cycling in Earth's ecosystems.	
	(E) investigate and identify energy interactions in an ecosystem.	<b>X. Environmental Science</b> <b>B. Energy</b> 1. Understanding energy transformations 2. Know the various sources of energy for humans and other biological systems	

**Strand 2.3: Humans and Their Societies**

<b>A) Individuals and groups—Learners understand the influence of individual and group actions on the environment, and how groups can work to promote and balance interests.</b>	<b>ES.9: Science concepts. The student knows the impact of human activities on the environment. The student is expected to:</b>	<b>X. Environmental Science D. Economics and politics</b> <b>and politics policies and legislation.</b> 2. Understand the types, uses, and regulations of the various natural resources.	<b>I. Interrelated Disciplines and Skills</b> <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b> 2. Analyze the interaction between human communities and the environment.
	(A) identify causes of air, soil, and water pollution, including point and nonpoint sources;	<b>E. Human practices and their impacts</b> 1. Describe the different uses for land (land management). 2. Understand the use and consequences of pest management.	<b>II. Diverse Human Perspectives</b> <b>B. Factors that influence personal and group identities (e.g. race, ethnicity, gender, nationalist, institutional affiliation and socioeconomic status)</b> 6. Analyze how individual and group identities are established and changes over time.
	(B) investigate the types of air, soil, and water pollution such as chlorofluorocarbons, carbon dioxide, pH, pesticide runoff, thermal variations, metallic ions, heavy metals, and nuclear waste;	3. Know the different methods used to increase food production. 4. Understand land and water usage and management practices.	
	(C) examine the concentrations of air, soil, and water pollutants using appropriate units;	5. Understand how human practices affect air, water, and soil quality.	
	(D) describe the effect of pollution on global warming, glacial and ice cap melting, greenhouse effect, ozone layer, and aquatic viability;		

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	(E) evaluate the effect of human activities, including habitat restoration projects, species preservation efforts, nature conservancy groups, hunting, fishing, ecotourism, all terrain vehicles, and small personal watercraft, on the environment;		
	(F) evaluate cost-benefit trade-offs of commercial activities such as municipal development, farming, deforestation, over-harvesting, and mining;		
	(G) analyze how ethical beliefs can be used to influence scientific practices such as methods for increasing food production;		
	(H) analyze and evaluate different views on the existence of global warming;		
	(I) discuss the impact of research and technology on social ethics and legal practices in situations such as the design of new buildings, recycling, or emission standards;		
	(J) research the advantages and disadvantages of "going green" such as organic gardening and farming, natural methods of pest control, hydroponics, xeriscaping, energy-efficient homes and appliances, and hybrid cars;		



EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
	<p>(F) evaluate cost-benefit trade-offs of commercial activities such as municipal development, farming, deforestation, over-harvesting, and mining;</p> <p>(H) analyze and evaluate different views on the existence of global warming;</p> <p>(K) analyze past and present local, state, and national legislation, including Texas automobile emissions regulations, the National Park Service Act, the Clean Air Act, the Clean Water Act, the Soil and Water Resources Conservation Act, and the Endangered Species Act; and</p> <p>(L) analyze past and present international treaties and protocols such as the environmental Antarctic Treaty System, Montreal Protocol, and Kyoto Protocol.</p>		<p><b><i>D. Change and continuity of economic systems and processes.</i></b></p> <p>1. Identify and evaluate the strengths and weaknesses of different economic systems.</p>
<p><b>D) Global connections—Learners are able to analyze global social, cultural, political, economic, and environmental linkages.</b></p>	<p><b>ES.7: Science concepts. The student knows the relationship between carrying capacity and changes in populations and ecosystems. The student is expected to:</b></p> <p>(D) analyze and make predictions about the impact on populations of geographic locales due to diseases, birth and death rates, urbanization, and natural events such as migration and seasonal changes.</p>		<p><b>III. Interdependence of Global Communities</b></p> <p><b><i>A. Spatial understanding of global, regional, national, and local communities.</i></b></p> <p>1. Distinguish spatial patterns of human communities that exist between or within contemporary political boundaries.</p> <p>2. Connect regional or local developments to global ones.</p> <p>3. Analyze how and why diverse communities interact and become dependent on each other.</p>

EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
	<p><b>ES.9: Science concepts. The student knows the impact of human activities on the environment. The student is expected to:</b></p> <p>(F) evaluate cost-benefit trade-offs of commercial activities such as municipal development, farming, deforestation, over-harvesting, and mining;</p> <p>(G) analyze how ethical beliefs can be used to influence scientific practices such as methods for increasing food production;</p> <p>(H) analyze and evaluate different views on the existence of global warming;</p> <p>(I) discuss the impact of research and technology on social ethics and legal practices in situations such as the design of new buildings, recycling, or emission standards;</p> <p>(J) research the advantages and disadvantages of "going green" such as organic gardening and farming, natural methods of pest control, hydroponics, xeriscaping, energy-efficient homes and appliances, and hybrid cars;</p> <p>(K) analyze past and present local, state, and national legislation, including Texas automobile emissions regulations, the National Park Service Act, the Clean Air Act, the Clean Water Act, the Soil and Water Resources Conservation Act, and the Endangered Species Act; and</p> <p>(L) analyze past and present international treaties and protocols such as the environmental Antarctic Treaty System, Montreal Protocol, and Kyoto Protocol.</p>		

EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
<p><b>E) Change and conflict—Learners understand the functioning of public processes for promoting and managing change and conflict, and can analyze their effects on the environment.</b></p>			<p><b>I. Interrelated disciplines and Skills</b>  <b>E. hange and continuity of social groups, civic organizatrions, institutions, and their interaction.</b>            4. Identify and evaluate the sources and consequences of social conflict.</p>
<p><b>Strand 2.4: Environment and Society</b></p>			
<p><b>A) Human/environment interactions—Learners understand that humans are able to alter the physical environment to meet their needs and that there are limits to the ability of the environment to absorb impacts or meet human needs.</b></p>	<p><b>ES.7: Science concepts. The student knows the relationship between carrying capacity and changes in populations and ecosystems. The student is expected to:</b></p> <p>(C) analyze and predict the effects of non-renewable resource depletion; and</p> <p>(D) analyze and make predictions about the impact on populations of geographic locales due to diseases, birth and death rates, urbanization, and natural events such as migration and seasonal changes.</p> <p><b>ES.9: Science concepts. The student knows the impact of human activities on the environment. The student is expected to:</b></p> <p>(A) identify causes of air, soil, and water pollution, including point and nonpoint sources;</p>	<p><b>X. Environmental Science</b>  <b>E. Human practices and their impacts</b>            1. Describe the different u ses for land (land management)            2. Understand the use and consequences of pest management            3. Know the different methods used to increase food production            4. Understand land and water usage and management practices            5. Understand how human practices afect air, water, and soil quality</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b>            2. Analyze the interaction between human communities and the environment.            4. Evaluate the causes and effects of human migration patterns over time            6. Analyze the relationship between geography and the development of human communities.</p>

EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
	(B) investigate the types of air, soil, and water pollution such as chlorofluorocarbons, carbon dioxide, pH, pesticide runoff, thermal variations, metallic ions, heavy metals, and nuclear waste		
	(C) examine the concentrations of air, soil, and water pollutants using appropriate units;		
	(D) describe the effect of pollution on global warming, glacial and ice cap melting, greenhouse effect, ozone layer, and aquatic viability;		
	(E) evaluate the effect of human activities, including habitat restoration projects, species preservation efforts, nature conservancy groups, hunting, fishing, ecotourism, all terrain vehicles, and small personal watercraft, on the environment;		
	(F) evaluate cost-benefit trade-offs of commercial activities such as municipal development, farming, deforestation, over-harvesting, and mining;		
	(G) analyze how ethical beliefs can be used to influence scientific practices such as methods for increasing food production;		
	(H) analyze and evaluate different views on the existence of global warming;		

EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
	<p>(I) discuss the impact of research and technology on social ethics and legal practices in situations such as the design of new buildings, recycling, or emission standards;</p> <p>(J) research the advantages and disadvantages of "going green" such as organic gardening and farming, natural methods of pest control, hydroponics, xeriscaping, energy-efficient homes and appliances, and hybrid cars;</p> <p>(K) analyze past and present local, state, and national legislation, including Texas automobile emissions regulations, the National Park Service Act, the Clean Air Act, the Clean Water Act, the Soil and Water Resources Conservation Act, and the Endangered Species Act; and</p> <p>(L) analyze past and present international treaties and protocols such as the environmental Antarctic Treaty System, Montreal Protocol, and Kyoto Protocol.</p>		
<p><b>B) Places—Learners understand "place" as humans endowing a particular part of the Earth with meaning through their interactions with that environment.</b></p>	<p><b>ES.9: Science concepts. The student knows the impact of human activities on the environment. The student is expected to:</b></p> <p>(E) evaluate the effect of human activities, including habitat restoration projects, species preservation efforts, nature conservancy groups, hunting, fishing, ecotourism, all terrain vehicles, and small personal watercraft, on the environment;</p>	<p><b>X. Environmental Science</b>  <b>C. Populations</b>  1. Recognize variations in population sizes, including human population and extinction, and describe mechanism and conditions that produce these variations.</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b>  2. Analyze the interaction between human communities and the environment.</p>

EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
	<p>(F) evaluate cost-benefit trade-offs of commercial activities such as municipal development, farming, deforestation, over-harvesting, and mining;</p> <p>(G) analyze how ethical beliefs can be used to influence scientific practices such as methods for increasing food production;</p> <p>(H) analyze and evaluate different views on the existence of global warming;</p> <p>(I) discuss the impact of research and technology on social ethics and legal practices in situations such as the design of new buildings, recycling, or emission standards;</p>		<p><b>III. Interdependence of Global Communities</b></p> <p><b>A. Spatial understanding of global, regional, national, and local communities.</b></p> <p>1. Distinguish spatial patterns of human communities that exist between or within contemporary boundaries.</p> <p>2. Connect regional or local development to global ones.</p> <p>3. Analyze how and why diverse communities interact and become interdependent on each other.</p>
<p><b>C) Resources—Learners understand that the importance and use of resources change over time and vary under different economic and technological systems.</b></p>	<p><b>ES.5: Science concepts. The student knows the interrelationships among the resources within the local environmental system. The student is expected to:</b></p> <p>(A) summarize methods of land use and management and describe its effects on land fertility;</p> <p>(B) identify source, use, quality, management, and conservation of water;</p> <p>(C) document the use and conservation of both renewable and non-renewable resources as they pertain to sustainability;</p>		

EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
	<p>(D) identify renewable and non-renewable resources that must come from outside an ecosystem such as food, water, lumber, and energy;</p> <p>(E) analyze and evaluate the economic significance and interdependence of resources within the environmental system; and</p> <p>(F) evaluate the impact of waste management methods such as reduction, reuse, recycling, and composting on resource availability.</p> <p><b>ES.7: Science concepts. The student knows the relationship between carrying capacity and changes in populations and ecosystems. The student is expected to:</b></p> <p>(C) analyze and predict the effects of non-renewable resource depletion; and</p> <p><b>ES.9: Science concepts. The student knows the impact of human activities on the environment. The student is expected to:</b></p> <p>(J) research the advantages and disadvantages of "going green" such as organic gardening and farming, natural methods of pest control, hydroponics, xeriscaping, energy-efficient homes and appliances, and hybrid cars;</p>		

EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
<p><b>D) Technology—Learners are able to examine the social and environmental impacts of various technologies and technological systems.</b></p>	<p><b>ES.9: Science concepts. The student knows the impact of human activities on the environment. The student is expected to:</b></p> <p>(I) discuss the impact of research and technology on social ethics and legal practices in situations such as the design of new buildings, recycling, or emission standards;</p>		
<p><b>E) Environmental issues—Learners are familiar with a range of environmental issues at scales that range from local to national to global. They understand that these scales and issues are often linked.</b></p>	<p><b>ES.7: Science concepts. The student knows the relationship between carrying capacity and changes in populations and ecosystems. The student is expected to:</b></p> <p>(D) analyze and make predictions about the impact on populations of geographic locales due to diseases, birth and death rates, urbanization, and natural events such as migration and seasonal changes.</p> <p><b>ES.9: Science concepts. The student knows the impact of human activities on the environment. The student is expected to:</b></p> <p>(A) identify causes of air, soil, and water pollution, including point and nonpoint sources;</p> <p>(B) investigate the types of air, soil, and water pollution such as chlorofluorocarbons, carbon dioxide, pH, pesticide runoff, thermal variations, metallic ions, heavy metals, and nuclear waste;</p>		

EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
	<p>(C) examine the concentrations of air, soil, and water pollutants using appropriate units;</p> <p>(D) describe the effect of pollution on global warming, glacial and ice cap melting, greenhouse effect, ozone layer, and aquatic viability;</p> <p>(E) evaluate the effect of human activities, including habitat restoration projects, species preservation efforts, nature conservancy groups, hunting, fishing, ecotourism, all terrain vehicles, and small personal watercraft, on the environment;</p> <p>(F) evaluate cost-benefit trade-offs of commercial activities such as municipal development, farming, deforestation, over-harvesting, and mining;</p> <p>(G) analyze how ethical beliefs can be used to influence scientific practices such as methods for increasing food production;</p> <p>(H) analyze and evaluate different views on the existence of global warming</p> <p>(I) discuss the impact of research and technology on social ethics and legal practices in situations such as the design of new buildings, recycling, or emission standards;</p>		

EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
	<p>(J) research the advantages and disadvantages of "going green" such as organic gardening and farming, natural methods of pest control, hydroponics, xeriscaping, energy-efficient homes and appliances, and hybrid cars;</p> <p>(K) analyze past and present local, state, and national legislation, including Texas automobile emissions regulations, the National Park Service Act, the Clean Air Act, the Clean Water Act, the Soil and Water Resources Conservation Act, and the Endangered Species Act; and</p>		
<b>Strand 3: Skills for Understanding and Addressing Environmental Issues</b>			
<b>Strand 3.1: Skills for Analyzing and Investigating Environmental Issues</b>			
<p><b>A) Identifying and investigating issues—Learners apply their research and analytical skills to investigate environmental issues ranging from local issues to those that are regional or global in scope.</b></p>	<p><b>ES.4: Science concepts. The student knows the relationships of biotic and abiotic factors within habitats, ecosystems, and biomes. The student is expected to:</b></p> <p>(H) research and explain the causes of species diversity and predict changes that may occur in an ecosystem if species and genetic diversity is increased or reduced.</p> <p><b>ES.5: Science concepts. The student knows the interrelationships among the resources within the local environmental system. The student is expected to:</b></p> <p>(E) analyze and evaluate the economic significance and interdependence of resources within the environmental system; and</p>	<p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>  2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	

EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
	(F) evaluate the impact of waste management methods such as reduction, reuse, recycling, and composting on resource availability.		
	<b>ES.6: Science concepts. The student knows the sources and flow of energy through an environmental system. The student is expected to</b>		
	(E) investigate and identify energy interactions in an ecosystem.		
	<b>ES.7: Science concepts. The student knows the relationship between carrying capacity and changes in populations and ecosystems. The student is expected to:</b>		
	(C) analyze and predict the effects of non-renewable resource depletion; and		
	(D) analyze and make predictions about the impact on populations of geographic locales due to diseases, birth and death rates, urbanization, and natural events such as migration and seasonal changes.		
	<b>ES.8: Science concepts. The student knows that environments change naturally. The student is expected to:</b>		

EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
	<p>(E) analyze the impact of temperature inversions on global warming, ice cap and glacial melting, and changes in ocean currents and surface temperatures.</p>		
	<p><b>ES.9: Science concepts. The student knows the impact of human activities on the environment. The student is expected to:</b></p>		
	<p>(G) analyze how ethical beliefs can be used to influence scientific practices such as methods for increasing food production;</p>		
	<p>(H) analyze and evaluate different views on the existence of global warming;</p>		
	<p>(J) research the advantages and disadvantages of "going green" such as organic gardening and farming, natural methods of pest control, hydroponics, xeriscaping, energy-efficient homes and appliances, and hybrid cars;</p>		
	<p>(K) analyze past and present local, state, and national legislation, including Texas automobile emissions regulations, the National Park Service Act, the Clean Air Act, the Clean Water Act, the Soil and Water Resources Conservation Act, and the Endangered Species Act; and</p>		

EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
	(L) analyze past and present international treaties and protocols such as the environmental Antarctic Treaty System, Montreal Protocol, and Kyoto Protocol.		
<p><b>B) Sorting out the consequences of issues—Learners are able to evaluate the consequences of specific environmental changes, conditions, and issues for human and ecological systems.</b></p>	<p><b>ES.7: Science concepts. The student knows the relationship between carrying capacity and changes in populations and ecosystems. The student is expected to:</b></p> <p>(A) relate carrying capacity to population dynamics;</p> <p>(C) analyze and predict the effects of non-renewable resource depletion; and</p> <p>(D) analyze and make predictions about the impact on populations of geographic locales due to diseases, birth and death rates, urbanization, and natural events such as migration and seasonal changes.</p> <p><b>ES.9: Science concepts. The student knows the impact of human activities on the environment. The student is expected to:</b></p> <p>(A) identify causes of air, soil, and water pollution, including point and nonpoint sources;</p>	<p><b>IV. Science, Technology, and Society</b></p> <p><b>B. Social ethics</b></p> <p>1. Understand how scientific research and technology have and impact on ethical and legal practices</p>	

EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
	<p>(B) investigate the types of air, soil, and water pollution such as chlorofluorocarbons, carbon dioxide, pH, pesticide runoff, thermal variations, metallic ions, heavy metals, and nuclear waste;</p>		
	<p>(C) examine the concentrations of air, soil, and water pollutants using appropriate units;</p>		
	<p>(D) describe the effect of pollution on global warming, glacial and ice cap melting, greenhouse effect, ozone layer, and aquatic viability;</p>		
	<p>(E) evaluate the effect of human activities, including habitat restoration projects, species preservation efforts, nature conservancy groups, hunting, fishing, ecotourism, all terrain vehicles, and small personal watercraft, on the environment;</p>		
	<p>(F) evaluate cost-benefit trade-offs of commercial activities such as municipal development, farming, deforestation, over-harvesting, and mining;</p>		
	<p>(G) analyze how ethical beliefs can be used to influence scientific practices such as methods for increasing food production;</p>		
	<p>(H) analyze and evaluate different views on the existence of global warming;</p>		
	<p>(I) discuss the impact of research and technology on social ethics and legal practices in situations such as the design of new buildings, recycling, or emission standards;</p>		

EE Learner Guidelines	High School Environmental Systems	CCRS Science	CCRS Social Studies
	<p>(J) research the advantages and disadvantages of "going green" such as organic gardening and farming, natural methods of pest control, hydroponics, xeriscaping, energy-efficient homes and appliances, and hybrid cars;</p> <p>(K) analyze past and present local, state, and national legislation, including Texas automobile emissions regulations, the National Park Service Act, the Clean Air Act, the Clean Water Act, the Soil and Water Resources Conservation Act, and the Endangered Species Act; and</p> <p>(L) analyze past and present international treaties and protocols such as the environmental Antarctic Treaty System, Montreal Protocol, and Kyoto Protocol.</p>		
<p><b>C) Identifying and evaluating alternative solutions and courses of action—Learners are able to identify and propose action strategies that are likely to be effective in particular situations and for particular purposes.</b></p>	<p><b>ES.9: Science concepts. The student knows the impact of human activities on the environment. The student is expected to:</b></p> <p>(G) analyze how ethical beliefs can be used to influence scientific practices such as methods for increasing food production;</p> <p>(H) analyze and evaluate different views on the existence of global warming</p> <p>(J) research the advantages and disadvantages of "going green" such as organic gardening and farming, natural methods of pest control, hydroponics, xeriscaping, energy-efficient homes and appliances, and hybrid cars;</p>	<p><b>IV. Science, Technology, and Society</b>  <b>B. Social ethics</b></p> <p>1. Understand how scientific research and technology have and impact on ethical and legal practices</p> <p>2. Understand how commonly held ethical beliefs impact scientific research</p>	

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<p><b>D) Working with flexibility, creativity, and openness—While environmental issues investigations can bring to the surface deeply held views, learners are able to engage each other in peer review conducted in the spirit of open inquiry.</b></p>		<p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>            2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	
<p><b>Strand 3.2: Decision Making and Citizenship Skills</b></p>			
<p><b>A) Forming and evaluating personal views—Learners are able to communicate, evaluate, and justify their own views on environmental issues and alternative ways to address them.</b></p>	<p><b>ES.9: Science concepts. The student knows the impact of human activities on the environment. The student is expected to:</b></p> <p>(G) analyze how ethical beliefs can be used to influence scientific practices such as methods for increasing food production;</p> <p>(H) analyze and evaluate different views on the existence of global warming;</p> <p>(I) discuss the impact of research and technology on social ethics and legal practices in situations such as the design of new buildings, recycling, or emission standards;</p>		
<p><b>B) Evaluating the need for citizen action—Learners are able to decide whether action is needed in particular situations and whether they should be involved.</b></p>	<p><b>ES.9: Science concepts. The student knows the impact of human activities on the environment. The student is expected to:</b></p> <p>(I) discuss the impact of research and technology on social ethics and legal practices in situations such as the design of new buildings, recycling, or emission standards;</p>		

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	(J) research the advantages and disadvantages of "going green" such as organic gardening and farming, natural methods of pest control, hydroponics, xeriscaping, energy-efficient homes and appliances, and hybrid cars;		
<b>C) Planning and taking action—Learners know how to plan for action based on their research and analysis of an environmental issue. If appropriate, they take actions that are within the scope of their rights and consistent with their abilities and responsibilities as citizens.</b>			
<b>D) Evaluating the results of actions—Learners are able to evaluate the effects of their own actions and actions taken by other individuals and groups, including possible intended and unintended consequences of actions.</b>			
<b>Strand 4: Personal and Civic Responsibility</b>			
<b>A) Understanding societal values and principles—Learners know how to analyze the influence of shared and conflicting societal values.</b>	<p><b>ES.9: Science concepts. The student knows the impact of human activities on the environment. The student is expected to:</b></p> <p>(E) evaluate the effect of human activities, including habitat restoration projects, species preservation efforts, nature conservancy groups, hunting, fishing, ecotourism, all terrain vehicles, and small personal watercraft, on the environment;</p>	<p><b>IV. Science, Technology, and Society</b></p> <p><b>B. Social Ethics</b></p> <p>1. Understand how scientific research and technology have an impact on ethical and legal practices.</p> <p>2. Understand how commonly held ethical beliefs impact scientific research.</p>	

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	<p>(F) evaluate cost-benefit trade-offs of commercial activities such as municipal development, farming, deforestation, over-harvesting, and mining;</p> <p>(G) analyze how ethical beliefs can be used to influence scientific practices such as methods for increasing food production;</p> <p>(H) analyze and evaluate different views on the existence of global warming;</p>		
<p><b>B) Recognizing citizens' rights and responsibilities—Learners understand the importance of exercising the rights and responsibilities of citizenship.</b></p>			
<p><b>C) Recognizing efficacy—Learners possess a realistic self-confidence in their effectiveness as citizens.</b></p>			
<p><b>D) Accepting personal responsibility—Learners understand that their actions can have broad consequences and accept responsibility for recognizing those effects and changing their actions when necessary.</b></p>			

## EE-TEKS-CCRS CROSSWALK

### *Alignment of the North American Excellence in Environmental Education: Guidelines for Learning (NAAEE) and the College and Career Readiness Standards (CCRS) with the Texas Essential Knowledge and Skills (TEKS) for High School World Geography*

EE Learner Guidelines	High School World Geography	CCRS Science	CCRS Social Studies
<b>Strand 1: Questioning, Analysis &amp; Interpretation Skills</b>			
<p><b>A) Questioning—</b> Learners are able to develop, modify, clarify, and explain questions that guide environmental investigations of various types. They understand factors that influence the questions they pose.</p>	<p><b>WG23 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive skills in science</b>                      3. Formulate appropriate questions to test understanding of natural phenomena.</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>F. Problems solving</b>                      1. Use a variety of research and analytical tools to explore questions or issues thoroughly and fairly.</p>
	<p>(C) use problem-solving and decision-making processes to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution.</p>		
<p><b>B) Designing investigations—</b> Learners know how to design investigations to answer particular questions about the environment. They are able to develop approaches for investigating unfamiliar types of problems and phenomena.</p>		<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>B. Scientific Inquiry</b>                      1. Design and conduct scientific investigations in which hypotheses are formulated and tested</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research and methods</b>                      1. Use established research methodologies</p>

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<p><b>C) Collecting information—</b> Learners are able to locate and collect reliable information for environmental investigations of many types. They know how to use sophisticated technology to collect information, including computer programs that access, gather, store, and display data.</p>	<p><b>WG21 Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b></p> <p>(B) locate places of contemporary geopolitical significance on a map</p> <p><b>WG23 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p> <p>(B) use case studies and GIS to identify contemporary challenges and to answer real-world questions; and</p>	<p><b>I. Scientific Ways of Learning and Thinking</b></p> <p><b>A. Cognitive Skills in science</b></p> <p>4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p> <p><b>D. Current Scientific Technology</b></p> <p>3. Demonstrate appropriate use of a wide variety of apparatuses, equipment, techniques, and procedures for collecting quantitative and qualitative data</p> <p><b>III. Foundation Skills: Scientific Applications of Communication</b></p> <p><b>A. Research Skills/Information Literacy</b></p> <p>1. Use search engines, databases, and other digital electronic tools effectively to locate information.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b></p> <p><b>B. Research and methods</b></p> <p>3. Gather, organize and display the results of data and research</p> <p>4. Identify and collect sources</p>
<p><b>D) Evaluating accuracy and reliability—</b> Learners can apply basic logic and reasoning skills to evaluate completeness and reliability in a variety of information sources.</p>	<p><b>WG21 Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b></p> <p>(A) analyze and evaluate the validity and utility of multiple sources of geographic information such as primary and secondary sources, aerial photographs, and maps;</p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b></p> <p><b>A. Cognitive Skills in Science</b></p> <p>1. Utilize skepticism, logic, and professional ethics in science</p> <p>4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p> <p><b>III. Foundation Skills: Scientific Applications of Communication</b></p> <p><b>D. Research skills/information literacy</b></p> <p>2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b></p> <p><b>A. Critical examinations of texts, images, and other sources of information</b></p> <p>1. Identify and analyze the main idea(s) and point(s)-of-view in sources.</p> <p>2. Situate an informational source in its appropriate contexts (contemporary, historical, cultural)</p> <p>3. Evaluate sources from multiple perspectives</p> <p>4. Understand the difference between a primary and secondary source and use each appropriately to conduct research and construct arguments</p> <p>5. Read narrative texts critically</p> <p>6. Read research data critically</p>

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<p><b>E) Organizing information— Learners are able to organize and display information in ways appropriate to different types of environmental investigations and purposes.</b></p>		<p><b>I. Nature of Science: Scientific Ways of Thinking</b>  <b>A. Cognitive Skills in Science</b>            2. Use creativity and insight to recognize and describe patterns in natural phenomena.  <b>E. Effective communication of scientific information</b>            1. Use several modes of expression to describe or characterize natural phenomena. These modes of expression include narrative, and numerical, graphical, pictorial, symbolic, and kinesthetic.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research methods</b>            3. Gather, organize, and display the results of data and research</p>
<p><b>F) Working with models and simulations— Learners are able to create, use, and evaluate models to understand environmental phenomena.</b></p>	<p><b>WG5 Geography. The student understands how political, economic, and social processes shape cultural patterns and characteristics in various places and regions. The student is expected to:</b></p> <p>(B) interpret political, economic, social, and demographic indicators (gross domestic product per capita, life expectancy, literacy, and infant mortality) to determine the level of development and standard of living in nations using the terms Human Development Index, less developed, newly industrialized, and more developed.</p> <p><b>WG.7 Geography. The student understands the growth, distribution, movement, and characteristics of world population. The student is expected to:</b></p> <p>(A) construct and analyze population pyramids and use other data, graphics, and maps to describe the population characteristics of different societies and to predict future population trends;</p>		<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>D. Current Scientific Technology:</b>            2. Use computer models, applications, and simulations  <b>II. Foundations Skills: Scientific Application of Mathematics</b>  <b>B. Mathematics as symbolic language</b>            2. Represent natural events, processes, and relationships with algebraic expressions and algorithms  <b>V. Cross Disciplinary Themes</b>  <b>E. Measurements and Models</b>            1. Use models to make predictions            2. Use scale to relate models and structures</p>

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<p><b>G) Drawing conclusions and developing explanations—</b> Learners are able to use evidence and logic in developing proposed explanations that address their initial questions and hypotheses.</p>	<p><b>WG23 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p> <p>(C) use problem-solving and decision-making processes to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution.</p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b></p> <p><b>A. Cognitive Skills in Science</b></p> <p>4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b></p> <p><b>D. Reaching Conclusions</b></p> <p>1. Construct a thesis that is supported by evidence</p>
<p><b>Strand 2.1: Knowledge of Environmental Processes and Systems</b></p>			
<p><b>A) Processes that shape the Earth—</b> Learners understand the major physical processes that shape the Earth. They can relate these processes, especially those that are large-scale and long-term, to characteristics of the Earth.</p>	<p><b>WG3 Geography. The student understands how physical processes shape patterns in the physical environment. The student is expected to:</b></p> <p>(B) describe the physical processes that affect the environments of regions, including weather, tectonic forces, erosion, and soil-building processes; and</p> <p>(C) examine the physical processes that affect the lithosphere, atmosphere, hydrosphere, and biosphere.</p> <p><b>WG4 Geography. The student understands the patterns and characteristics of major landforms, climates, and ecosystems of Earth and the interrelated processes that produce them. The student is expected to:</b></p> <p>(B) describe different landforms and the physical processes that cause their development;</p>	<p><b>IX. Earth and Space Sciences</b></p> <p><b>A. Earth Systems</b></p> <p>3. Possess a scientific understanding of the history of the Earth's systems.</p> <p><b>E. Plate Tectonics</b></p> <p>1. Describe evidence that supports the current theory of plate tectonics</p> <p>2. Identify major tectonic plates</p> <p>3. Describe the motion and interaction of tectonic plates</p> <p>4. Describe the rock cycle and its products</p>	

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<p><b>B) Changes in matter—Learners apply their understanding of chemical reactions to round out their explanations of environmental characteristics and everyday phenomena.</b></p>		<p><b>V. Cross-Disiplinary Themes</b>  <b>A. Matter/states of matter</b>            2. Understanding typical states of matter (solid, liquid, gas) and phase changes among these.</p> <p><b>VII. Chemistry</b>  <b>A. Matter and its properties</b>            1. Know that physical and chemical properties can be used to describe and classify matter. Recognize and classify pure substances (elements and compounds) and mixtures.</p>	
<p><b>C) Energy—Learners apply their knowledge of energy and matter to understand phenomena in the world around them.</b></p>		<p><b>V. Cross-Disciplinary Themes</b>  <b>B. Energy (thermodynamics, kinetic, potential, energy transfers)</b>            1. Unerstand the Laws of Thermodynamics            2. Know the processes of energy transfer</p> <p><b>VI. Biology</b>  <b>G. Ecology</b>            2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p> <p><b>VII. Chemistry</b>  <b>H. Thermochemistry</b>            1. Understand the Law of Conservation of Energy and processes of heat transfer.            2. Understand energy changes and chemical reactions</p> <p><b>VIII. Physics</b>  <b>C. Force and Motion</b>            1. Understand the fundamental concepts of kinematics            2. Understand forces and Newton's Law,            3. Understand the concept of momentum.</p> <p><b>D. Mechanical Energy</b>            1. Understand potential and kinetic energy.            2. Understand conservation of energy            3. Understand relationship of work and mechanical energy</p>	

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		<b>X. Environmental Science</b> <b>B. Energy</b> 1. Understand energy transformations 2. Know various sources of energy for humans and other biological systems	
<b>Strand 2.2: The Living Environment</b>			
<b>A) Organisms, populations, and communities—Learners understand basic population dynamics and the importance of diversity in living systems.</b>	<b>WG.4 Geography. The student understands the patterns and characteristics of major landforms, climates, and ecosystems of Earth and the interrelated processes that produce them. The student is expected to:</b>  (A) explain how elevation, latitude, wind systems, ocean currents, position on a continent, and mountain barriers influence temperature, precipitation, and distribution of climate regions;  (B) describe different landforms and the physical processes that cause their development; and  (C) explain the influence of climate on the distribution of biomes in different regions. (for 19-C)	<b>VI. Biology</b> <b>G. Ecology</b> 1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms. 2. Know patterns of energy flow and material cycling in Earth's ecosystems.	
<b>B) Heredity and evolution—Learners understand the basic ideas and genetic mechanisms behind biological evolution.</b>		<b>VI. Biology</b> <b>C. Evolution and populations</b> 1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms. 2. Recognize variations in population sizes, including extinction, and describe mechanisms and conditions that produce these variations. <b>D. Molecular genetics and heredity</b> 1. Understand Mendel's Law of inheritance, 2. Know modifications of Mendel's Law,	

EE Learner Guidelines	High School World Geography	CCRS Science	CCRS Social Studies
		3. Understand the molecular structure and functions of nucleic acids 4. Understand simple principles of population genetics and describe characteristics of Hardy-Weinberg population. 5. Describe the major features of meiosis and relate this process to Mendel's law of inheritance.	
<b>C) Systems and connections—Learners understand the living environment to be comprised of interrelated, dynamic systems.</b>	<b>WG 4 Geography. The student understands the patterns and characteristics of major landforms, climates, and ecosystems of Earth and the interrelated processes that produce them. The student is expected to:</b>  (C) explain the influence of climate on the distribution of biomes in different regions.	<b>IV. Biology</b> <b>C. Evolution and populations</b> 1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms. <b>G. Ecology</b> 1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms. 2. Know patterns of energy flow and material cycling in Earth's ecosystems. 3. Understand typical forms of organismal behavior 4. Know the process of succession <b>X. Environmental Science</b> <b>A. Earth Systems</b> 5. Be familiar with the Earth's major biomes	
<b>D) Flow of matter and energy—Learners are able to account for environmental characteristics based on their knowledge of how matter and energy interact in living systems.</b>		<b>V. Biology</b> <b>B. Biochemistry</b> 3. Describe the major features and chemical events of photosynthesis 4. Describe the major features and chemical events of cellular respiration 5. Know how organisms respond to the presence or absence of oxygen, including mechanisms of fermentation	

EE Learner Guidelines	High School World Geography	CCRS Science	CCRS Social Studies
		<p><b>G. Ecology</b> 2. Know the patterns of energy flow and material cycling in Earth's ecosystems.</p> <p><b>X. Environmental Science</b> <b>B. Energy</b> 1. Understanding energy transformations 2. Know the various sources of energy for humans and other biological systems</p>	
<b>Strand 2.3: Humans and Their Societies</b>			
<p><b>A) Individuals and groups—Learners understand the influence of individual and group actions on the environment, and how groups can work to promote and balance interests.</b></p>	<p><b>WG1 History. The student understands how geography and processes of spatial exchange (diffusion) influenced events in the past and helped to shape the present. The student is expected to:</b></p> <p>(A) analyze the effects of physical and human geographic patterns and processes on the past and describe their impact on the present, including significant physical features and environmental conditions that influenced migration patterns and shaped the distribution of culture groups today;</p> <p><b>WG2 History. The student understands how people, places, and environments have changed over time and the effects of these changes. The student is expected to:</b></p> <p>(B) explain how changes in societies have led to diverse uses of physical features. (for 24-C)</p> <p><b>WG7 Geography. The student understands the growth, distribution, movement, and characteristics of world population. The student is expected to: (25-D)</b></p>		<p><b>I. Interrelated Disciplines and Skills</b> <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b> 2. Analyze the interaction between human communities and the environment.</p> <p><b>II. Diverse Human Perspectives</b> <b>B. Factors that influence personal and group identities (e.g. race, ethnicity, gender, nationalist, institutional affiliations, socioeconomic status)</b> 6. Analyze how individual and group identities are established and changes over time.</p>

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	<p>(A) construct and analyze population pyramids and use other data, graphics, and maps to describe the population characteristics of different societies and to predict future population trends;</p> <p>(B) explain how political, economic, social, and environmental push and pull factors and physical geography affect the routes and flows of human migration;</p> <p>(C) describe trends in world population growth and distribution; and</p> <p>(D) examine benefits and challenges of globalization, including connectivity, standard of living, pandemics, and loss of local culture.</p>		
<p><b>B) Culture—Learners understand cultural perspectives and dynamics and apply their understanding in context.</b></p>	<p><b>WG16 Culture. The student understands how the components of culture affect the way people live and shape the characteristics of regions. The student is expected to:</b></p> <p>(A) describe distinctive cultural patterns and landscapes associated with different places in Texas, the United States, and other regions of the world and how these patterns influenced the processes of innovation and diffusion;</p> <p>(B) describe elements of culture, including language, religion, beliefs and customs, institutions, and technologies;</p> <p>(C) explain ways various groups of people perceive the characteristics of their own and other cultures, places, and regions differently; and</p> <p>(D) compare life in a variety of urban and rural areas in the world to evaluate political, economic, social, and environmental changes.</p>		<p><b>I. Interrelated Disciplines and Skills</b></p> <p><b>A. Spatial analysis of physical processes that shape the human experience.</b></p> <p>2. Analyze the interaction between human communities and the environment.</p> <p>3. Analyze how physical and cultural processes have shaped human communities over time.</p> <p>5. Analyze how various cultural regions of changed over time.</p> <p>6. Analyze the relationship between geography and the development of human communities.</p>

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<p><b>C) Political and economic systems—Learners understand how different political and economic systems account for, manage, and affect natural resources and environmental quality.</b></p>	<p><b>WG.12 Economics. The student understands the economic importance of, and issues related to, the location and management of resources. The student is expected to:</b></p> <p>(A) analyze how the creation, distribution, and management of key natural resources affects the location and patterns of movement of products, money, and people; and</p> <p>(B) evaluate the geographic and economic impact of policies related to the development, use, and scarcity of natural resources such as regulations of water.</p>	<p><b>X. Environmental Science</b>  <b>D. Economics and politics</b>  1. name and describe major environmental policies and legislation  2. Understand the types, uses, and regulations of various natural resources</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>C. Change and continuity of political ideologies, constitutions and political behaviour.</b>  1. Evaluate different governmental systems and functions  <b>D. Change and continuity of economic systems and processes.</b>  1. Identify and evaluate the strengths and weaknesses of different economic systems.</p>
<p><b>D) Global connections—Learners are able to analyze global social, cultural, political, economic, and environmental linkages.</b></p>	<p><b>WG.8 Geography. The student understands how people, places, and environments are connected and interdependent. The student is expected to:</b></p> <p>(A) compare ways that humans depend on, adapt to, and modify the physical environment, including the influences of culture and technology;</p> <p>(B) describe the interaction between humans and the physical environment and analyze the consequences of extreme weather and other natural disasters such as El Niño, floods, tsunamis, and volcanoes; and</p> <p>(C) evaluate the economic and political relationships between settlements and the environment, including sustainable development and renewable/non-renewable resources.</p>		<p><b>III. Interdependence of Global Communities</b>  <b>A. Spatial understanding of global, regional, national, and local communities.</b>  1. Distinguish spatial patterns of human communities that exist between or within contemporary political boundaries.  2. Connect regional or local developments to global ones.  3. Analyze how and why diverse communities interact and become dependent on each other.</p>

EE Learner Guidelines	High School World Geography	CCRS Science	CCRS Social Studies
<p><b>E) Change and conflict—Learners understand the functioning of public processes for promoting and managing change and conflict, and can analyze their effects on the environment.</b></p>	<p><b>WG14 Government. The student understands the processes that influence political divisions, relationships, and policies. The student is expected to:</b></p> <p>(C) analyze the human and physical factors that influence the power to control territory and resources, create conflict/war, and impact international political relations of sovereign nations such as China, the United States, Japan, and Russia and organized nation groups such as the United Nations (UN) and the European Union (EU).</p>		<p><b>I. Interrelated disciplines and Skills</b>  <b>E. Change and continuity of social groups, civic organizations, institutions, and their interaction.</b>  4. Identify and evaluate the sources and consequences of social conflict.</p>
<p><b>Strand 2.4: Environment and Society</b></p>			
<p><b>A) Human/environment interactions—Learners understand that humans are able to alter the physical environment to meet their needs and that there are limits to the ability of the environment to absorb impacts or meet human needs.</b></p>	<p><b>WG.8: Geography. The student understands how people, places, and environments are connected and interdependent. The student is expected to:</b></p> <p>(A) compare ways that humans depend on, adapt to, and modify the physical environment, including the influences of culture and technology;</p> <p>(B) describe the interaction between humans and the physical environment and analyze the consequences of extreme weather and other natural disasters such as El Niño, floods, tsunamis, and volcanoes; and</p> <p>(C) evaluate the economic and political relationships between settlements and the environment, including sustainable development and renewable/non-renewable resources</p>	<p><b>X. Environmental Science</b>  <b>E. Human practices and their impacts</b></p> <ol style="list-style-type: none"> <li>1. Describe the different uses for land (land management)</li> <li>2. Understand the use and consequences of pest management</li> <li>3. Know the different methods used to increase food production</li> <li>4. Understand land and water usage and management practices</li> <li>5. Understand how human practices affect air, water, and soil quality</li> </ol>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b></p> <ol style="list-style-type: none"> <li>2. Analyze the interaction between human communities and the environment.</li> <li>4. Evaluate the causes and effects of human migration patterns over time</li> <li>6. Analyze the relationship between geography and the development of human communities.</li> </ol>

EE Learner Guidelines	High School World Geography	CCRS Science	CCRS Social Studies
<p><b>B) Places—Learners understand "place" as humans endowing a particular part of the Earth with meaning through their interactions with that environment.</b></p>	<p><b>WG5 Geography. The student understands how political, economic, and social processes shape cultural patterns and characteristics in various places and regions. The student is expected to:</b></p> <p>(A) analyze how the character of a place is related to its political, economic, social, and cultural elements; and</p> <p><b>WG9 Geography. The student understands the concept of region as an area of Earth's surface with related geographic characteristics. The student is expected to:</b></p> <p>(A) identify physical and/or human factors such as climate, vegetation, language, trade networks, political units, river systems, and religion that constitute a region; and</p> <p>(B) describe different types of regions, including formal, functional, and perceptual regions.</p>		<p><b>I. Interrelated Disciplines and Skills</b></p> <p><b>A. Spatial analysis of physical and cultural processes that shape the human experience</b></p> <p>2. Analyze the interaction between human communities and the environment.</p> <p><b>III. Interdependence of Global Communities</b></p> <p>A. Spatial understanding of global, regional, national, and local communities.</p> <p>1. Distinguish spatial patterns of human communities that exist between or within contemporary boundaries.</p> <p>2. Connect regional or local development to global ones.</p> <p>3. Analyze how and why diverse communities interact and become interact and become dependent on each other.</p>
<p><b>C) Resources—Learners understand that the importance and use of resources change over time and vary under different economic and technological systems.</b></p>	<p><b>WG11 Economics. The student understands how geography influences economic activities. The student is expected to:</b></p> <p>(A) understand the connections between levels of development and economic activities (primary, secondary, tertiary, and quaternary);</p> <p>(B) identify the factors affecting the location of different types of economic activities, including subsistence and commercial agriculture, manufacturing, and service industries; and</p> <p>(C) assess how changes in climate, resources, and infrastructure (technology, transportation, and communication) affect the location and patterns of economic activities.</p>		

EE Learner Guidelines	High School World Geography	CCRS Science	CCRS Social Studies
	<p><b>WG12 Economics. The student understands the economic importance of, and issues related to, the location and management of resources. The student is expected to:</b></p> <p>(A) analyze how the creation, distribution, and management of key natural resources affects the location and patterns of movement of products, money, and people; and</p> <p>(B) evaluate the geographic and economic impact of policies related to the development, use, and scarcity of natural resources such as regulations of water.</p>		
<p><b>D) Technology—Learners are able to examine the social and environmental impacts of various technologies and technological systems.</b></p>	<p><b>WG19: Science, technology, and society. The student understands the impact of technology and human modifications on the physical environment. The student is expected to:</b></p> <p>(A) evaluate the significance of major technological innovations in the areas of transportation and energy that have been used to modify the physical environment;</p> <p>(B) analyze ways technological innovations such as air conditioning and desalinization have allowed humans to adapt to places; and</p> <p>(C) examine the environmental, economic, and social impacts of advances in technology on agriculture and natural resources.</p> <p><b>WG20 Science, technology, and society. The student understands how current technology affects human interaction. The student is expected to:</b></p>		

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	<p>(A) describe the impact of new information technologies such as the Internet, Global Positioning System (GPS), or Geographic Information Systems (GIS); and</p> <p>(B) examine the economic, environmental, and social effects of technology such as medical advancements or changing trade patterns on societies at different levels of development.</p>		
<p><b>E) Environmental issues—Learners are familiar with a range of environmental issues at scales that range from local to national to global. They understand that these scales and issues are often linked.</b></p>	<p><b>WG8 Geography. The student understands how people, places, and environments are connected and interdependent. The student is expected to:</b></p> <p>(A) compare ways that humans depend on, adapt to, and modify the physical environment, including the influences of culture and technology;</p> <p>(B) describe the interaction between humans and the physical environment and analyze the consequences of extreme weather and other natural disasters such as El Niño, floods, tsunamis, and volcanoes; and</p> <p>(C) evaluate the economic and political relationships between settlements and the environment, including sustainable development and renewable/non-renewable resources</p>		

EE Learner Guidelines	High School World Geography	CCRS Science	CCRS Social Studies
<b>Strand 3: Skills for Understanding and Addressing Environmental Issues</b>			
<b>Strand 3.1: Skills for Analyzing and Investigating Environmental Issues</b>			
<p><b>A) Identifying and investigating issues—Learners apply their research and analytical skills to investigate environmental issues ranging from local issues to those that are regional or global in scope.</b></p>	<p><b>WG23 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p> <p>(A) plan, organize, and complete a research project that involves asking geographic questions; acquiring, organizing, and analyzing information; answering questions; and communicating results;</p> <p>(C) use problem-solving and decision-making processes to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution.</p>	<p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>  2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	
<p><b>B) Sorting out the consequences of issues—Learners are able to evaluate the consequences of specific environmental changes, conditions, and issues for human and ecological systems.</b></p>		<p><b>IV. Science, Technology, and Society</b>  <b>B. Social ethics</b>  1. Understand how scientific research and technology haveand impact on ethical and legal practices</p>	
<p><b>C) Identifying and evaluating alternative solutions and courses of action—Learners are able to identify and propose action strategies that are likely to be effective in particular situations and for particular purposes.</b></p>		<p><b>IV. Science, Technology, and Society</b>  <b>B. Social ethics</b>  1. Understand how scientific research and technology haveand impact on ethical and legal practices  2. Understand how commonly held ethical beliefs impact scientific research</p>	

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<p><b>D) Working with flexibility, creativity, and openness—While environmental issues investigations can bring to the surface deeply held views, learners are able to engage each other in peer review conducted in the spirit of open inquiry.</b></p>		<p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>            2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	
<p><b>Strand 3.2: Decision Making and Citizenship Skills</b></p>			
<p><b>A) Forming and evaluating personal views—Learners are able to communicate, evaluate, and justify their own views on environmental issues and alternative ways to address them.</b></p>			
<p><b>B) Evaluating the need for citizen action—Learners are able to decide whether action is needed in particular situations and whether they should be involved.</b></p>			
<p><b>C) Planning and taking action—Learners know how to plan for action based on their research and analysis of an environmental issue. If appropriate, they take actions that are within the scope of their rights and consistent with their abilities and responsibilities as citizens.</b></p>			
<p><b>D) Evaluating the results of actions—Learners are able to evaluate the effects of their own actions and actions taken by other individuals and groups, including possible intended and unintended consequences of actions.</b></p>			

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<b>Strand 4: Personal and Civic Responsibility</b>			
<p><b>A) Understanding societal values and principles—Learners know how to analyze the influence of shared and conflicting societal values.</b></p>	<p><b>WG15 Citizenship. The student understands how different points of view influence the development of public policies and decision-making processes on local, state, national, and international levels. The student is expected to:</b></p> <p>(A) identify and give examples of different points of view that influence the development of public policies and decision-making processes on local, state, national, and international levels; and</p> <p>(B) explain how citizenship practices, public policies, and decision making may be influenced by cultural beliefs, including nationalism and patriotism.</p>	<p><b>IV. Science, Technology, and Society</b>  <b>B. Social Ethics</b></p> <p>1. Understand how scientific research and technology have an impact on ethical and legal practices.  2. Understand how commonly held ethical beliefs impact scientific research.</p>	
<p><b>B) Recognizing citizens' rights and responsibilities—Learners understand the importance of exercising the rights and responsibilities of citizenship.</b></p>			
<p><b>C) Recognizing efficacy—Learners possess a realistic self-confidence in their effectiveness as citizens.</b></p>			
<p><b>D) Accepting personal responsibility—Learners understand that their actions can have broad consequences and accept responsibility for recognizing those effects and changing their actions when necessary.</b></p>			

## EE-TEKS-CCRS CROSSWALK

### *Alignment of the North American Excellence in Environmental Education: Guidelines for Learning (NAAEE) and the College and Career Readiness Standards (CCRS) with the Texas Essential Knowledge and Skills (TEKS) for High School World History*

EE Learner Guidelines	High School World History	CCRS Science	CCRS Social Studies
<b>Strand 1: Questioning, Analysis &amp; Interpretation Skills</b>			
<p><b>A) Questioning</b>—Learners are able to develop, modify, clarify, and explain questions that guide environmental investigations of various types. They understand factors that influence the questions they pose.</p>	<p><b>WH31 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p> <p>(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution; and</p> <p>(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.</p> <p><b>WH29 Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b></p> <p>(B) explain how historians, when examining sources, analyze frame of reference, historical context, and point of view to interpret historical events;</p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b></p> <p><b>A. Cognitive skills in science</b></p> <p>3. Formulate appropriate questions to test understanding of natural phenomena.</p>	<p><b>I. Interrelated Disciplines and Skills</b></p> <p><b>F. Problems solving</b></p> <p>1. Use a variety of research and analytical tools to explore questions or issues thoroughly and fairly.</p>

EE Learner Guidelines	High School World History	CCRS Science	CCRS Social Studies
<p><b>B) Designing investigations—Learners know how to design investigations to answer particular questions about the environment. They are able to develop approaches for investigating unfamiliar types of problems and phenomena.</b></p>	<p><b>WH31 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p> <p>(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution; and</p> <p>(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision</p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>B. Scientific Inquiry</b>  1. Design and conduct scientific investigations in which hypotheses are formulated and tested</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research and methods</b>  1. Use established research methodologies</p>
<p><b>C) Collecting information—Learners are able to locate and collect reliable information for environmental investigations of many types. They know how to use sophisticated technology to collect information, including computer programs that access, gather, store, and display data.</b></p>		<p><b>I. Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive Skills in science</b>  4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.  <b>D. Current Scientific Technology</b>  3. Demonstrate appropriate use of a wide variety of apparatuses, equipment, techniques, and procedures for collecting quantitative and qualitative data  <b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>A. Research Skills/Information Literacy</b>  1. Use search engines, databases, and other digital electronic tools effectively to locate information.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research and methods</b>  3. Gather, organize and display the results of data and research  4. Identify and collect sources</p>

EE Learner Guidelines	High School World History	CCRS Science	CCRS Social Studies
<p><b>D) Evaluating accuracy and reliability—Learners can apply basic logic and reasoning skills to evaluate completeness and reliability in a variety of information sources.</b></p>	<p><b>WH29 Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to</b></p> <p>(D) evaluate the validity of a source based on language, corroboration with other sources, and information about the author</p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive Skills in Science</b>  1. Utilize skepticism, logic, and professional ethics in science  4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.  <b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>  2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>A. Critical examinations of texts, images, and other sources of information</b>  1. Identify and analyze the main idea(s) and point(s)-of-view in sources.  2. Situate an informational source in its appropriate contexts (contemporary, historical, cultural)  3. Evaluate sources from multiple perspectives  4. Understand the difference between a primary and secondary source and use each appropriately to conduct research and construct arguments  5. Read narrative texts critically  6. Read research data critically</p>
<p><b>E) Organizing information—Learners are able to organize and display information in ways appropriate to different types of environmental investigations and purposes.</b></p>	<p><b>WH15 Geography. The student uses geographic skills and tools to collect, analyze, and interpret data. The student is expected to:</b></p> <p>(A) create and interpret thematic maps, graphs, and charts to demonstrate the relationship between geography and the historical development of a region or nation; and</p> <p>(B) analyze and compare geographic distributions and patterns in world history shown on maps, graphs, charts, and models.</p> <p><b>WH29 Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b>  <b>A. Cognitive Skills in Science</b>  2. Use creativity and insight to recognize and describe patterns in natural phenomena.  <b>E. Effective communication of scientific information</b>  1. Use several modes of expression to describe or characterize natural phenomena. These modes of expression include narrative, and numerical, graphical, pictorial, symbolic, and kinesthetic.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research methods</b>  3. Gather, organize, and display the results of data and research</p>

EE Learner Guidelines	High School World History	CCRS Science	CCRS Social Studies
	(B) explain how historians, when examining sources, analyze frame of reference, historical context, and point of view to interpret historical events;		
	(C) explain the differences between primary and secondary sources and examine those sources to analyze frame of reference, historical context, and point of view;		
	(D) evaluate the validity of a source based on language, corroboration with other sources, and information about the author;		
	(E) identify bias in written, oral, and visual material;		
	(F) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, drawing inferences and conclusions, and developing connections between historical events over time;		
	(G) construct a thesis on a social studies issue or event supported by evidence; and		
	(H) use appropriate reading and mathematical skills to interpret social studies information such as maps and graphs.		

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<p><b>F) Working with models and simulations—Learners are able to create, use, and evaluate models to understand environmental phenomena.</b></p>			<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>D. Current Scientific Technology:</b>  2. Use computer models, applications, and simulations  <b>II. Foundations Skills: Scientific Application of Mathematics</b>  <b>B. Mathematics as symbolic language</b>  2. Represent natural events, processes, and relationships with algebraic expressions and algorithms  <b>V. Cross Disciplinary Themes</b>  <b>E. Measurements and Models</b>  1. Use models to make predictions  2. Use scale to relate models and structures</p>
<p><b>G) Drawing conclusions and developing explanations—Learners are able to use evidence and logic in developing proposed explanations that address their initial questions and hypotheses.</b></p>		<p><b>I. Nature of Science: Scientific Ways of Thinking</b>  <b>A. Cognitive Skills in Science</b>  4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>D. Reaching Conclusions</b>  1. Construct a thesis that is supported by evidence</p>
<p><b>Strand 2.1: Knowledge of Environmental Processes and Systems</b></p>			
<p><b>A) Processes that shape the Earth—Learners understand the major physical processes that shape the Earth. They can relate these processes, especially those that are large-scale and long-term, to characteristics of the Earth.</b></p>		<p><b>IX. Earth and Space Sciences</b>  <b>A. Earth Systems</b>  3. Possess a scientific understanding of the history of the Earth's systems.  <b>E. Plate Tectonics</b>  1. Describe evidence that supports the current theory of plate tectonics  2. Identify major tectonic plates  3. Describe the motion and interaction of tectonic plates  4. Describe the rock cycle and its products</p>	

EE Learner Guidelines	High School World History	CCRS Science	CCRS Social Studies
<p><b>B) Changes in matter—Learners apply their understanding of chemical reactions to round out their explanations of environmental characteristics and everyday phenomena.</b></p>		<p><b>V. Cross-Disciplinary Themes</b>  <b>A. Matter/states of matter</b>            2. Understanding typical states of matter (solid, liquid, gas) and phase changes among these.  <b>VII. Chemistry</b>  <b>A. Matter and its properties</b>            1. Know that physical and chemical properties can be used to describe and classify matter. Recognize and classify pure substances (elements and compounds) and mixtures.</p>	
<p><b>C) Energy—Learners apply their knowledge of energy and matter to understand phenomena in the world around them.</b></p>		<p><b>V. Cross-Disciplinary Themes</b>  <b>B. Energy (thermodynamics, kinetic, potential, energy transfers)</b>            1. Understand the Laws of Thermodynamics            2. Know the processes of energy transfer  <b>VI. Biology</b>  <b>G. Ecology</b>            2. Know patterns of energy flow and material cycling in Earth's ecosystems.  <b>VII. Chemistry</b>  <b>H. Thermochemistry</b>            1. Understand the Law of Conservation of Energy and processes of heat transfer.            2. Understand energy changes and chemical reactions  <b>VIII. Physics</b>  <b>C. Force and Motion</b>            1. Understand the fundamental concepts of kinematics            2. Understand forces and Newton's Law,            3. Understand the concept of momentum.  <b>D. Mechanical Energy</b>            1. Understand potential and kinetic energy.            2. Understand conservation of energy            3. Understand relationship of work and mechanical energy</p>	

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		<p><b>X. Environmental Science</b>  <b>B. Energy</b>            1. Understand energy transformations            2. Know various sources of energy for humans and other biological systems</p>	
<b>Strand 2.2: The Living Environment</b>			
<p><b>A) Organisms, populations, and communities—Learners understand basic population dynamics and the importance of diversity in living systems.</b></p>		<p><b>VI. Biology</b>  <b>G. Ecology</b>            1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.            2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p>	
<p><b>B) Heredity and evolution—Learners understand the basic ideas and genetic mechanisms behind biological evolution.</b></p>		<p><b>VI. Biology</b>  <b>C. Evolution and populations</b>            1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.            2. Recognize variations in population sizes, including extinction, and describe mechanisms and conditions that produce these variations.  <b>D. Molecular genetics and heredity</b>            1. Understand Mendel's Law of inheritance,            2. Know modifications of Mendel's Law,            3. Understand the molecular structure and functions of nucleic acids            4. Understand simple principles of population genetics and describe characteristics of Hardy-Weinberg population.            5. Describe the major features of meiosis and relate this process to Mendel's law of inheritance.</p>	

EE Learner Guidelines	High School World History	CCRS Science	CCRS Social Studies
<p><b>C) Systems and connections—Learners understand the living environment to be comprised of interrelated, dynamic systems.</b></p>		<p><b>IV. Biology</b>  <b>C. Evolution and populations</b>            1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.  <b>G. Ecology</b>            1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.            2. Know patterns of energy flow and material cycling in Earth's ecosystems.            3. Understand typical forms of organismal behavior            4. Know the process of succession  <b>X. Environmental Science</b>  <b>A. Earth Systems</b>            5. Be familiar with the Earth's major biomes</p>	
<p><b>D) Flow of matter and energy—Learners are able to account for environmental characteristics based on their knowledge of how matter and energy interact in living systems.</b></p>		<p><b>V. Biology</b>  <b>B. Biochemistry</b>            3. Describe the major features and chemical events of photosynthesis            4. Describe the major features and chemical events of cellular respiration            5. Know how organisms respond to the presence or absence of oxygen, including mechanisms of fermentation  <b>G. Ecology</b>            2. Know the patterns of energy flow and material cycling in Earth's ecosystems.  <b>X. Environmental Science</b>  <b>B. Energy</b>            1. Understanding energy transformations            2. Know the various sources of energy for humans and other biological systems</p>	

EE Learner Guidelines	High School World History	CCRS Science	CCRS Social Studies
<b>Strand 2.3: Humans and Their Societies</b>			
<p><b>A) Individuals and groups—Learners understand the influence of individual and group actions on the environment, and how groups can work to promote and balance interests.</b></p>			<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b>  2. Analyze the interaction between human communities and the environment.  <b>II. Diverse Human Perspectives</b>  <b>B. Factors that influence personal and group identities (e.g. race, ethnicity, gender, nationalist, institutional affiliations, socioeconomic status)</b>  6. Analyze how individual and group identities are established and changes over time.</p>
<p><b>B) Culture—Learners understand cultural perspectives and dynamics and apply their understanding in context.</b></p>			<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical processes that shape the human experience.</b>  2. Analyze the interaction between human communities and the environment.  3. Analyze how physical and cultural processes have shaped human communities over time.  5. Analyze how various cultural regions of changed over time.  6. Analyze the relationship between geography and the development of human communities.</p>

EE Learner Guidelines	High School World History	CCRS Science	CCRS Social Studies
<p><b>C) Political and economic systems—Learners understand how different political and economic systems account for, manage, and affect natural resources and environmental quality.</b></p>		<p><b>X. Environmental Science</b>  <b>D. Economics and politics</b>            1. name and describe major environmental policies and legislation            2. Understand the types, uses, and regulations of various natural resources</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>C. Change and continuity of political ideologies, constitutions and political behaviour.</b>            1. Evaluate different governmental systems and functions  <b>D. Change and continuity of economic systems and processes.</b>            1. Identify and evaluate the strengths and weaknesses of different economic systems.</p>
<p><b>D) Global connections—Learners are able to analyze global social, cultural, political, economic, and environmental linkages.</b></p>			<p><b>III. Interdependence of Global Communities</b>  <b>A. Spatial understanding of global, regional, national, and local communities.</b>            1. Distinguish spatial patterns of human communities that exist between or within contemporary political boundaries.            2. Connect regional or local developments to global ones.            3. Analyze how and why diverse communities interact and become dependent on each other.</p>
<p><b>E) Change and conflict— Learners understand the functioning of public processes for promoting and managing change and conflict, and can analyze their effects on the environment.</b></p>			<p><b>I. Interrelated disciplines and Skills</b>  <b>E. Change and continuity of social groups, civic organizations, institutions, and their interaction.</b>            4. Identify and evaluate the sources and consequences of social conflict.</p>

EE Learner Guidelines	High School World History	CCRS Science	CCRS Social Studies
<b>Strand 2.4: Environment and Society</b>			
<p><b>A) Human/environment interactions—Learners understand that humans are able to alter the physical environment to meet their needs and that there are limits to the ability of the environment to absorb impacts or meet human needs.</b></p>	<p><b>WH16 Geography. The student understands the impact of geographic factors on major historic events and processes. The student is expected to:</b></p> <p>(B) analyze the influence of human and physical geographic factors on major events in world history, including the development of river valley civilizations, trade in the Indian Ocean, and the opening of the Panama and Suez canals; and</p> <p>(C) interpret maps, charts, and graphs to explain how geography has influenced people and events in the past.</p>	<p><b>X. Environmental Science</b>  <b>E. Human practices and their impacts</b></p> <ol style="list-style-type: none"> <li>1. Describe the different uses for land (land management)</li> <li>2. Understand the use and consequences of pest management</li> <li>3. Know the different methods used to increase food production</li> <li>4. Understand land and water usage and management practices</li> <li>5. Understand how human practices affect air, water, and soil quality</li> </ol>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b></p> <ol style="list-style-type: none"> <li>2. Analyze the interaction between human communities and the environment.</li> <li>4. Evaluate the causes and effects of human migration patterns over time</li> <li>6. Analyze the relationship between geography and the development of human communities.</li> </ol>
<p><b>B) Places—Learners understand "place" as humans endowing a particular part of the Earth with meaning through their interactions with that environment.</b></p>			<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b></p> <ol style="list-style-type: none"> <li>2. Analyze the interaction between human communities and the environment.</li> </ol> <p><b>III. Interdependence of Global Communities</b>  <b>A. Spatial understanding of global, regional, national, and local communities.</b></p> <ol style="list-style-type: none"> <li>1. Distinguish spatial patterns of human communities that exist between or within contemporary boundaries.</li> <li>2. Connect regional or local development to global ones.</li> <li>3. Analyze how and why diverse communities interact and become interdependent and become dependent on each other.</li> </ol>

EE Learner Guidelines	High School World History	CCRS Science	CCRS Social Studies
<p><b>C) Resources—Learners understand that the importance and use of resources change over time and vary under different economic and technological systems.</b></p>			
<p><b>D) Technology—Learners are able to examine the social and environmental impacts of various technologies and technological systems.</b></p>	<p><b>WH28 Science, technology, and society. The student understands how major scientific and mathematical discoveries and technological innovations have affected societies from 1750 to the present. The student is expected to:</b></p> <p>(A) explain the role of textile manufacturing and steam technology in initiating the Industrial Revolution and the role of the factory system and transportation technology in advancing the Industrial Revolution;</p>		
<p><b>E) Environmental issues—Learners are familiar with a range of environmental issues at scales that range from local to national to global. They understand that these scales and issues are often linked.</b></p>			
<p><b>Strand 3: Skills for Understanding and Addressing Environmental Issues</b></p>			
<p><b>Strand 3.1: Skills for Analyzing and Investigating Environmental Issues</b></p>			
<p><b>A) Identifying and investigating issues—Learners apply their research and analytical skills to investigate environmental issues ranging from local issues to those that are regional or global in scope.</b></p>	<p><b>WH31 Social Studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to;</b></p>	<p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>  2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	

EE Learner Guidelines	High School World History	CCRS Science	CCRS Social Studies
	<p>(A) use a problem-solving process to identify a problem, gather informatin, list and consider optins, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution; and</p> <p>(B) use a decision-making process to identify a situation that requires a decions, gather information, indentify options, predict consequences, and take action to implement a decision.</p>		
<p><b>B) Sorting out the consequences of issues—Learners are able to evaluate the consequences of specific environmental changes, conditions, and issues for human and ecological systems.</b></p>	<p><b>WH29 Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, inlcuding electronic technology. The student is expected to</b></p> <p>(F) analyze information by sequencing, categorizin, identifying cause-and-effect, relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predicitons, drawing inferences and conclusions, and developing connections between historical events over time</p>	<p><b>IV. Science, Technology, and Society</b>  <b>B. Social ethics</b>  1. Understand how scientific research and technology haveand impact on ethical and legal practices</p>	
<p><b>C) Identifying and evaluating alternative solutions and courses of action—Learners are able to identify and propose action strategies that are likely to be effective in particular situations and for particular purposes.</b></p>	<p><b>WH31 Social Studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The studetn is expected to;</b></p>	<p><b>IV. Science, Technology, and Society</b>  <b>B. Social ethics</b>  1. Understand how scientific research and technology haveand impact on ethical and legal practices  2. Understand how commonly held ethical beliefs impact scientific research</p>	

EE Learner Guidelines	High School World History	CCRS Science	CCRS Social Studies
	<p>(A) use a problem-solving process to identify a problem, gather informatin, list and consider optins, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution; and</p> <p>(B) use a decision-making process to identify a situation that requires a decions, gather information, indentify options, predict consequences, and take action to implement a decision.</p>		
<p><b>D) Working with flexibility, creativity, and openness—While environmental issues investigations can bring to the surface deeply held views, learners are able to engage each other in peer review conducted in the spirit of open inquiry.</b></p>		<p><b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>  2. Evaluate quality, accuracy, completeness, reliabailty, and currency of information from any source.</p>	
<p><b>Strand 3.2: Decision Making and Citizenship Skills</b></p>			
<p><b>A) Forming and evaluating personal views—Learners are able to communicate, evaluate, and justify their own views on environmental issues and alternative ways to address them.</b></p>	<p><b>WH23 Citizenship. The student understands efforts to expand the democratic process. The student is expected to:</b></p> <p>(A) identify and analyze methods of expanding the right to participate in the democratic process, including lobbying, non-violent protesting, litigation, and amendments to the U.S. Constitution;</p>		

EE Learner Guidelines	High School World History	CCRS Science	CCRS Social Studies
<p><b>B) Evaluating the need for citizen action—Learners are able to decide whether action is needed in particular situations and whether they should be involved.</b></p>			
<p><b>C) Planning and taking action—Learners know how to plan for action based on their research and analysis of an environmental issue. If appropriate, they take actions that are within the scope of their rights and consistent with their abilities and responsibilities as citizens.</b></p>	<p><b>WH23 Citizenship. The student understands efforts to expand the democratic process. The student is expected to:</b></p>		
	<p>(B) evaluate various means of achieving equality of political rights, including the 19th, 24th, and 26th amendments and congressional acts such as the American Indian Citizenship Act of 1924; and</p>		
<p><b>D) Evaluating the results of actions—Learners are able to evaluate the effects of their own actions and actions taken by other individuals and groups, including possible intended and unintended consequences of actions.</b></p>			
<p><b>Strand 4: Personal and Civic Responsibility</b></p>			
<p><b>A) Understanding societal values and principles—Learners know how to analyze the influence of shared and conflicting societal values.</b></p>		<p><b>IV. Science, Technology, and Society</b>  <b>B. Social Ethics</b>  1. Understand how scientific research and technology have an impact on ethical and legal practices.  2. Understand how commonly held ethical beliefs impact scientific research.</p>	
<p><b>B) Recognizing citizens' rights and responsibilities—Learners understand the importance of exercising the rights and responsibilities of citizenship.</b></p>	<p><b>WH21 Citizenship. The student understands the significance of political choices and decisions made by individuals, groups, and nations throughout history. The student is expected to:</b></p>		

EE Learner Guidelines	High School World History	CCRS Science	CCRS Social Studies
	<p>(A) describe how people have participated in supporting or changing their governments;</p> <p>(B) describe the rights and responsibilities of citizens and noncitizens in civic participation throughout history; and</p> <p>(C) identify examples of key persons who were successful in shifting political thought, including William Wilberforce.</p>		
<p><b>C) Recognizing efficacy—Learners possess a realistic self-confidence in their effectiveness as citizens.</b></p>	<p><b>WH23 Citizenship. The student understands efforts to expand the democratic process. The student is expected to:</b></p> <p>(C) explain how participation in the democratic process reflects our national ethos, patriotism, and civic responsibility as well as our progress to build a "more perfect union."</p>		
<p><b>D) Accepting personal responsibility—Learners understand that their actions can have broad consequences and accept responsibility for recognizing those effects and changing their actions when necessary.</b></p>	<p><b>WH31 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:</b></p> <p>(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.</p>		

## EE-TEKS-CCRS CROSSWALK

### *Alignment of the North American Excellence in Environmental Education: Guidelines for Learning (NAAEE) and the College and Career Readiness Standards (CCRS) with the Texas Essential Knowledge and Skills (TEKS) for High School U.S. History*

EE Learner Guidelines	High School US History	CCRS Science	CCRS Social Studies
<b>Strand 1: Questioning, Analysis &amp; Interpretation Skills</b>			
<p>A) Questioning—Learners are able to develop, modify, clarify, and explain questions that guide environmental investigations of various types. They understand factors that influence the questions they pose.</p>	<p><b>US.31 Social studies skills. The student uses geographic tools to collect, analyze, and interpret data. The student is expected to:</b></p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive skills in science</b>                      3. Formulate appropriate questions to test understanding of natural phenomena.</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>F. Problems solving</b>                      1. Use a variety of research and analytical tools to explore questions or issues thoroughly and fairly.</p>
	<p>(B) pose and answer questions about geographic distributions and patterns shown on maps, graphs, charts, and available databases.</p>		
	<p><b>US32 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to</b></p>		
	<p>(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution; and</p>		
	<p>(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.</p>		

EE Learner Guidelines	High School US History	CCRS Science	CCRS Social Studies
<p>B) Designing investigations—Learners know how to design investigations to answer particular questions about the environment. They are able to develop approaches for investigating unfamiliar types of problems and phenomena.</p>	<p><b>US.29 Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b></p> <p>(B) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing and contrasting, finding the main idea, summarizing, making generalizations, making predictions, drawing inferences, and drawing conclusions;</p> <p>(D) use the process of historical inquiry to research, interpret, and use multiple types of sources of evidence;</p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>B. Scientific Inquiry</b>  1. Design and conduct scientific investigations in which hypotheses are formulated and tested</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research and methods</b>  1. Use established research methodologies</p>
<p>C) Collecting information—Learners are able to locate and collect reliable information for environmental investigations of many types. They know how to use sophisticated technology to collect information, including computer programs that access, gather, store, and display data.</p>	<p><b>US.29 Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b></p> <p>(A) use a variety of both primary and secondary valid sources to acquire information and to analyze and answer historical questions;</p> <p>(D) use the process of historical inquiry to research, interpret, and use multiple types of sources of evidence;</p>	<p><b>I. Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive Skills in science</b>  4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.  <b>D. Current Scientific Technology</b>  3. Demonstrate appropriate use of a wide variety of apparatuses, equipment, techniques, and procedures for collecting quantitative and qualitative data  <b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>A. Research Skills/Information Literacy</b>  1. Use search engines, databases, and other digital electronic tools effectively to locate information.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research and methods</b>  3. Gather, organize and display the results of data and research  4. Identify and collect sources</p>

EE Learner Guidelines	High School US History	CCRS Science	CCRS Social Studies
<p>D) Evaluating accuracy and reliability—Learners can apply basic logic and reasoning skills to evaluate completeness and reliability in a variety of information sources.</p>	<p><b>US.29 Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b></p> <p>(E) evaluate the validity of a source based on language, corroboration with other sources, and information about the author, including points of view, frames of reference, and historical context;</p> <p>(F) identify bias in written, oral, and visual material;</p>	<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b></p> <p><b>A. Cognitive Skills in Science</b></p> <p>1. Utilize skepticism, logic, and professional ethics in science</p> <p>4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p> <p><b>III. Foundation Skills: Scientific Applications of Communication</b></p> <p><b>D. Research skills/information literacy</b></p> <p>2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b></p> <p><b>A. Critical examinations of texts, images, and other sources of information</b></p> <p>1. Identify and analyze the main idea(s) and point(s)-of-view in sources.</p> <p>2. Situate an informational source in its appropriate contexts (contemporary, historical, cultural)</p> <p>3. Evaluate sources from multiple perspectives</p> <p>4. Understand the difference between a primary and secondary source and use each appropriately to conduct research and construct arguments</p> <p>5. Read narrative texts critically</p> <p>6. Read research data critically</p>
<p>E) Organizing information—Learners are able to organize and display information in ways appropriate to different types of environmental investigations and purposes.</p>	<p><b>US31 Social studies skills. The student uses geographic tools to collect, analyze, and interpret data. The student is expected to:</b></p> <p>(A) create thematic maps, graphs, and charts representing various aspects of the United States; and</p> <p>(B) pose and answer questions about geographic distributions and patterns shown on maps, graphs, charts, and available databases.</p>	<p><b>I. Nature of Science: Scientific Ways of Thinking</b></p> <p><b>A. Cognitive Skills in Science</b></p> <p>2. Use creativity and insight to recognize and describe patterns in natural phenomena.</p> <p><b>E. Effective communication of scientific information</b></p> <p>1. Use several modes of expression to describe or characterize natural phenomena. These modes of expression include narrative, and numerical, graphical, pictorial, symbolic, and kinesthetic.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b></p> <p><b>B. Research methods</b></p> <p>3. Gather, organize, and display the results of data and research</p>
<p>F) Working with models and simulations—Learners are able to create, use, and evaluate models to understand environmental phenomena.</p>	<p><b>US30: Social studies skills. The student communicated in written, oral, and visual forms. The student is expected to:</b></p>		<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b></p> <p><b>D. Current Scientific Technology:</b></p> <p>2. Use computer models, applications, and simulations</p>

EE Learner Guidelines	High School US History	CCRS Science	CCRS Social Studies
	(C) use different forms of media to convey information, including written to visual and statistical to written or visual, using available computer software as appropriate		<b>II. Foundations Skills: Scientific Application of Mathematics</b> <b>B. Mathematics as symbolic language</b> 2. Represent natural events, processes, and relationships with algebraic expressions and algorithms <b>V. Cross Disciplinary Themes</b> <b>E. Measurements and Models</b> 1. Use models to make predictions 2. Use scale to relate models and structures
G) Drawing conclusions and developing explanations—Learners are able to use evidence and logic in developing proposed explanations that address their initial questions and hypotheses.	<b>US29: Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b>	<b>I. Nature of Science: Scientific Ways of Thinking</b> <b>A. Cognitive Skills in Science</b> 4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.	<b>IV. Analysis, Synthesis, and Evaluation of Information</b> <b>D. Reaching Conclusions</b> 1. Construct a thesis that is supported by evidence
	(B) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing and contrasting, finding the main idea, summarizing, making generalizations, making predictions, drawing inferences, and drawing conclusions;		
<b>Strand 2.1: Knowledge of Environmental Processes and Systems</b>			
A) Processes that shape the Earth—Learners understand the major physical processes that shape the Earth. They can relate these processes, especially those that are large-scale and long-term, to characteristics of the Earth.		<b>IX. Earth and Space Sciences</b> <b>A. Earth Systems</b> 3. Possess a scientific understanding of the history of the Earth's systems. <b>E. Plate Tectonics</b> 1. Describe evidence that supports the current theory of plate tectonics 2. Identify major tectonic plates 3. Describe the motion and interaction of tectonic plates 4. Describe the rock cycle and its products	

EE Learner Guidelines	High School US History	CCRS Science	CCRS Social Studies
<p>B) Changes in matter—Learners apply their understanding of chemical reactions to round out their explanations of environmental characteristics and everyday phenomena.</p>		<p><b>V. Cross-Disciplinary Themes</b>  <b>A. Matter/states of matter</b>            2. Understanding typical states of matter (solid, liquid, gas) and phase changes among these.  <b>VII. Chemistry</b>  <b>A. Matter and its properties</b>            1. Know that physical and chemical properties can be used to describe and classify matter. Recognize and classify pure substances (elements and compounds) and mixtures.</p>	
<p>C) Energy—Learners apply their knowledge of energy and matter to understand phenomena in the world around them.</p>		<p><b>V. Cross-Disciplinary Themes</b>  <b>B. Energy (thermodynamics, kinetic, potential, energy transfers)</b>            1. Understand the Laws of Thermodynamics            2. Know the processes of energy transfer  <b>VI. Biology</b>  <b>G. Ecology</b>            2. Know patterns of energy flow and material cycling in Earth's ecosystems.  <b>VII. Chemistry</b>  <b>H. Thermochemistry</b>            1. Understand the Law of Conservation of Energy and processes of heat transfer.            2. Understand energy changes and chemical reactions   <b>VIII. Physics</b>  <b>C. Force and Motion</b>            1. Understand the fundamental concepts of kinematics            2. Understand forces and Newton's Law,            3. Understand the concept of momentum.  <b>D. Mechanical Energy</b>            1. Understand potential and kinetic energy.            2. Understand conservation of energy            3. Understand relationship of work and mechanical energy</p>	

EE Learner Guidelines	High School US History	CCRS Science	CCRS Social Studies
		<p><b>X. Environmental Science</b>  <b>B. Energy</b>            1. Understand energy transformations            2. Know various sources of energy for humans and other biological systems</p>	
<b>Strand 2.2: The Living Environment</b>			
<p>A) Organisms, populations, and communities—Learners understand basic population dynamics and the importance of diversity in living systems.</p>		<p><b>VI. Biology</b>  <b>G. Ecology</b>            1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.            2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p>	
<p>B) Heredity and evolution—Learners understand the basic ideas and genetic mechanisms behind biological evolution.</p>		<p><b>VI. Biology</b>  <b>C. Evolution and populations</b>            1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.            2. Recognize variations in population sizes, including extinction, and describe mechanisms and conditions that produce these variations.</p> <p><b>D. Molecular genetics and heredity</b>            1. Understand Mendel's Law of inheritance,            2. Know modifications of Mendel's Law,            3. Understand the molecular structure and functions of nucleic acids            4. Understand simple principles of population genetics and describe characteristics of Hardy-Weinberg population.            5. Describe the major features of meiosis and relate this process to Mendel's law of inheritance.</p>	

EE Learner Guidelines	High School US History	CCRS Science	CCRS Social Studies
<p>C) Systems and connections—Learners understand the living environment to be comprised of interrelated, dynamic systems.</p>		<p><b>IV. Biology</b>  <b>C. Evolution and populations</b>            1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.  <b>G. Ecology</b>            1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.            2. Know patterns of energy flow and material cycling in Earth's ecosystems.            3. Understand typical forms of organismal behavior            4. Know the process of succession  <b>X. Environmental Science</b>  <b>A. Earth Systems</b>            5. Be familiar with the Earth's major biomes</p>	
<p>D) Flow of matter and energy—Learners are able to account for environmental characteristics based on their knowledge of how matter and energy interact in living systems.</p>		<p><b>V. Biology</b>  <b>B. Biochemistry</b>            3. Describe the major features and chemical events of photosynthesis            4. Describe the major features and chemical events of cellular respiration            5. Know how organisms respond to the presence or absence of oxygen, including mechanisms of fermentation  <b>G. Ecology</b>            2. Know the patterns of energy flow and material cycling in Earth's ecosystems.  <b>X. Environmental Science</b>  <b>B. Energy</b>            1. Understanding energy transformations            2. Know the various sources of energy for humans and other biological systems</p>	

EE Learner Guidelines	High School US History	CCRS Science	CCRS Social Studies
<b>Strand 2.3: Humans and Their Societies</b>			
<p>A) Individuals and groups—Learners understand the influence of individual and group actions on the environment, and how groups can work to promote and balance interests.</p>			<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b>  2. Analyze the interaction between human communities and the environment.  <b>II. Diverse Human Perspectives</b>  <b>B. Factors that influence personal and group identities (e.g. race, ethnicity, gender, nationalist, institutional affiliations, socioeconomic status)</b>  6. Analyze how individual and group identities are established and changes over time.</p>
<p>B) Culture—Learners understand cultural perspectives and dynamics and apply their understanding in context.</p>			<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical processes that shape the human experience.</b>  2. Analyze the interaction between human communities and the environment.  3. Analyze how physical and cultural processes have shaped human communities over time.  5. Analyze how various cultural regions of changed over time.  6. Analyze the relationship between geography and the development of human communities.</p>
<p>C) Political and economic systems—Learners understand how different political and economic systems account for, manage, and affect natural resources and environmental quality.</p>		<p><b>X. Environmental Science</b>  <b>D. Economics and politics</b>  1. name and describe major environmental policies and legislation  2. Understand the types, uses, and regulations of various natural resources</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>C. Change and continuity of political ideologies, constitutions and political behaviour.</b>  1. Evaluate different governmental systems and functions  <b>D. Change and continuity of economic systems and processes.</b>  1. Identify and evaluate the strengths and weaknesses of different economic systems.</p>

EE Learner Guidelines	High School US History	CCRS Science	CCRS Social Studies
D) Global connections—Learners are able to analyze global social, cultural, political, economic, and environmental linkages.			<p><b>III. Interdependence of Global Communities</b></p> <p><b>A. Spatial understanding of global, regional, national, and local communities.</b></p> <ol style="list-style-type: none"> <li>1. Distinguish spatial patterns of human communities that exist between or within contemporary political boundaries.</li> <li>2. Connect regional or local developments to global ones.</li> <li>3. Analyze how and why diverse communities interact and become dependent on each other.</li> </ol>
E) Change and conflict—Learners understand the functioning of public processes for promoting and managing change and conflict, and can analyze their effects on the environment.			<p><b>I. Interrelated disciplines and Skills</b></p> <p><b>E. Change and continuity of social groups, civic organizations, institutions, and their interaction.</b></p> <ol style="list-style-type: none"> <li>4. Identify and evaluate the sources and consequences of social conflict.</li> </ol>
<b>Strand 2.4: Environment and Society</b>			
A) Human/environment interactions—Learners understand that humans are able to alter the physical environment to meet their needs and that there are limits to the ability of the environment to absorb impacts or meet human needs.	<p><b>US14 Geography. The student understands the relationship between population growth and modernization on the physical environment. The student is expected to:</b></p>	<p><b>X. Environmental Science</b></p> <p><b>E. Human practices and their impacts</b></p> <ol style="list-style-type: none"> <li>1. Describe the different uses for land (land management)</li> <li>2. Understand the use and consequences of pest management</li> <li>3. Know the different methods used to increase food production</li> <li>4. Understand land and water usage and management practices</li> <li>5. Understand how human practices affect air, water, and soil quality</li> </ol>	<p><b>I. Interrelated Disciplines and Skills</b></p> <p><b>A. Spatial analysis of physical and cultural processes that shape the human experience</b></p> <ol style="list-style-type: none"> <li>2. Analyze the interaction between human communities and the environment.</li> <li>4. Evaluate the causes and effects of human migration patterns over time</li> <li>6. Analyze the relationship between geography and the development of human communities.</li> </ol>

EE Learner Guidelines	High School US History	CCRS Science	CCRS Social Studies
	(A) identify the effects of population growth and distribution on the physical environment;		
B) Places—Learners understand "place" as humans endowing a particular part of the Earth with meaning through their interactions with that environment.	<p><b>US14 Geography. The student understands the relationship between population growth and modernization on the physical environment. The student is expected to:</b></p> <p>(B) identify the roles of governmental entities and private citizens in managing the environment such as the establishment of the National Park System, the Environmental Protection Agency (EPA), and the Endangered Species Act; and</p> <p>(C) understand the effects of governmental actions on individuals, industries, and communities, including the impact on Fifth Amendment property rights.</p>		<p><b>I. Interrelated Disciplines and Skills</b></p> <p><b>A. Spatial analysis of physical and cultural processes that shape the human experience</b></p> <p>2. Analyze the interaction between human communities and the environment.</p> <p><b>III. Interdependence of Global Communities</b></p> <p><b>A. Spatial understanding of global, regional, national, and local communities.</b></p> <p>1. Distinguish spatial patterns of human communities that exist between or within contemporary boundaries.</p> <p>2. Connect regional or local development to global ones.</p> <p>3. Analyze how and why diverse communities interact and become dependent on each other.</p>
C) Resources—Learners understand that the importance and use of resources change over time and vary under different economic and technological systems.			
D) Technology—Learners are able to examine the social and environmental impacts of various technologies and technological systems.	<p><b>US27 Science, technology, and society. The student understands the impact of science, technology, and the free enterprise system on the economic development of the United States. The student is expected to:</b></p>		

EE Learner Guidelines	High School US History	CCRS Science	CCRS Social Studies
	(B) explain how specific needs result in scientific discoveries and technological innovations in agriculture, the military, and medicine, including vaccines;		
E) Environmental issues—Learners are familiar with a range of environmental issues at scales that range from local to national to global. They understand that these scales and issues are often linked.			
<b>Strand 3: Skills for Understanding and Addressing Environmental Issues</b>			
<b>Strand 3.1: Skills for Analyzing and Investigating Environmental Issues</b>			
A) Identifying and investigating issues—Learners apply their research and analytical skills to investigate environmental issues ranging from local issues to those that are regional or global in scope.	<p><b>US32 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to</b></p> <p>(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution; and</p> <p>(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.</p>	<p><b>III. Foundation Skills: Scientific Applications of Communication</b></p> <p><b>D. Research skills/information literacy</b></p> <p>2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	
B) Sorting out the consequences of issues—Learners are able to evaluate the consequences of specific environmental changes, conditions, and issues for human and ecological systems.	<p><b>US29 Social studies skills. The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:</b></p>	<p><b>IV. Science, Technology, and Society</b></p> <p><b>B. Social ethics</b></p> <p>1. Understand how scientific research and technology have and impact on ethical and legal practices</p>	

EE Learner Guidelines	High School US History	CCRS Science	CCRS Social Studies
	(B) analyze information by sequencing, categorizing, identifying cause-effect relationships, comparing and contrasting, finding the main idea, summarizing, making generalizations, making predictions, drawing inferences, and drawing conclusions.		
C) Identifying and evaluating alternative solutions and courses of action—Learners are able to identify and propose action strategies that are likely to be effective in particular situations and for particular purposes.	<b>US32 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to</b>	<b>IV. Science, Technology, and Society</b> <b>B. Social ethics</b> 1. Understand how scientific research and technology have and impact on ethical and legal practices 2. Understand how commonly held ethical beliefs impact scientific research	
	(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution; and		
	(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.		
D) Working with flexibility, creativity, and openness—While environmental issues investigations can bring to the surface deeply held views, learners are able to engage each other in peer review conducted in the spirit of open inquiry.		<b>III. Foundation Skills: Scientific Applications of Communication</b> <b>D. Research skills/information literacy</b> 2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.	
<b>Strand 3.2: Decision Making and Citizenship Skills</b>			
A) Forming and evaluating personal views—Learners are able to communicate, evaluate, and justify their own views on environmental issues and alternative ways to address them.	<b>US23 Citizenship. The student understands efforts to expand the democratic process. The student is expected to:</b>		

EE Learner Guidelines	High School US History	CCRS Science	CCRS Social Studies
	(A) identify and analyze methods of expanding the right to participate in the democratic process, including lobbying, non-violent protesting, litigation, and amendments to the U.S. Constitution;		
B) Evaluating the need for citizen action—Learners are able to decide whether action is needed in particular situations and whether they should be involved.			
C) Planning and taking action—Learners know how to plan for action based on their research and analysis of an environmental issue. If appropriate, they take actions that are within the scope of their rights and consistent with their abilities and responsibilities as citizens.	<p><b>US23 Citizenship. The student understands efforts to expand the democratic process. The student is expected to:</b></p> <p>(B) evaluate various means of achieving equality of political rights, including the 19th, 24th, and 26th amendments and congressional acts such as the American Indian Citizenship Act of 1924;</p>		
D) Evaluating the results of actions—Learners are able to evaluate the effects of their own actions and actions taken by other individuals and groups, including possible intended and unintended consequences of actions.			

EE Learner Guidelines	High School US History	CCRS Science	CCRS Social Studies
<b>Strand 4: Personal and Civic Responsibility</b>			
A) Understanding societal values and principles—Learners know how to analyze the influence of shared and conflicting societal values.		<b>IV. Science, Technology, and Society</b> <b>B. Social Ethics</b> 1. Understand how scientific research and technology have an impact on ethical and legal practices. 2. Understand how commonly held ethical beliefs impact scientific research.	
B) Recognizing citizens' rights and responsibilities—Learners understand the importance of exercising the rights and responsibilities of citizenship.			
C) Recognizing efficacy—Learners possess a realistic self-confidence in their effectiveness as citizens.	<b>US23 Citizenship. The student understands efforts to expand the democratic process. The student is expected to:</b>  (C) explain how participation in the democratic process reflects our national ethos, patriotism, and civic responsibility as well as our progress to build a "more perfect union."		
D) Accepting personal responsibility—Learners understand that their actions can have broad consequences and accept responsibility for recognizing those effects and changing their actions when necessary.			

## EE-TEKS-CCRS CROSSWALK

### *Alignment of the North American Excellence in Environmental Education: Guidelines for Learning (NAAEE) and the College and Career Readiness Standards (CCRS) with the Texas Essential Knowledge and Skills (TEKS) for High School Government*

EE Learner Guidelines	High School Government	CCRS Science	CCRS Social Studies
<b>Strand 1: Questioning, Analysis &amp; Interpretation Skills</b>			
A) Questioning—Learners are able to develop, modify, clarify, and explain questions that guide environmental investigations of various types. They understand factors that influence the questions they pose.		<b>I. Nature of Science: Scientific Ways of Learning and Thinking</b> <b>A. Cognitive skills in science</b> 3. Formulate appropriate questions to test understanding of natural phenomena.	<b>I. Interrelated Disciplines and Skills</b> <b>F. Problems solving</b> 1. Use a variety of research and analytical tools to explore questions or issues thoroughly and fairly.
B) Designing investigations—Learners know how to design investigations to answer particular questions about the environment. They are able to develop approaches for investigating unfamiliar types of problems and phenomena.		<b>I. Nature of Science: Scientific Ways of Learning and Thinking</b> <b>B. Scientific Inquiry</b> 1. Design and conduct scientific investigations in which hypotheses are formulated and tested	<b>IV. Analysis, Synthesis, and Evaluation of Information</b> <b>B. Research and methods</b> 1. Use established research methodologies
C) Collecting information—Learners are able to locate and collect reliable information for environmental investigations of many types. They know how to use sophisticated technology to collect information, including computer programs that access, gather, store, and display data.		<b>I. Scientific Ways of Learning and Thinking</b> <b>A. Cognitive Skills in science</b> 4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes. <b>D. Current Scientific Technology</b> 3. Demonstrate appropriate use of a wide variety of apparatuses, equipment, techniques, and procedures for collecting quantitative and qualitative data <b>III. Foundation Skills: Scientific Applications of Communication</b> <b>A. Research Skills/Information Literacy</b> 1. Use search engines, databases, and other digital electronic tools effectively to locate information.	<b>IV. Analysis, Synthesis, and Evaluation of Information</b> <b>B. Research and methods</b> 3. Gather, organize and display the results of data and research 4. Identify and collect sources

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<p>D) Evaluating accuracy and reliability—Learners can apply basic logic and reasoning skills to evaluate completeness and reliability in a variety of information sources.</p>		<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>A. Cognitive Skills in Science</b>  1. Utilize skepticism, logic, and professional ethics in science  4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.  <b>III. Foundation Skills: Scientific Applications of Communication</b>  <b>D. Research skills/information literacy</b>  2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>A. Critical examinations of texts, images, and other sources of information</b>  1. Identify and analyze the main idea(s) and point(s)-of-view in sources.  2. Situate an informational source in its appropriate contexts (contemporary, historical, cultural)  3. Evaluate sources from multiple perspectives  4. Understand the difference between a primary and secondary source and use each appropriately to conduct research and construct arguments  5. Read narrative texts critically  6. Read research data critically</p>
<p>E) Organizing information—Learners are able to organize and display information in ways appropriate to different types of environmental investigations and purposes.</p>		<p><b>I. Nature of Science: Scientific Ways of Thinking</b>  <b>A. Cognitive Skills in Science</b>  2. Use creativity and insight to recognize and describe patterns in natural phenomena.  <b>E. Effective communication of scientific information</b>  1. Use several modes of expression to describe or characterize natural phenomena. These modes of expression include narrative, and numerical, graphical, pictorial, symbolic, and kinesthetic.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>B. Research methods</b>  3. Gather, organize, and display the results of data and research</p>

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<p>F) Working with models and simulations—Learners are able to create, use, and evaluate models to understand environmental phenomena.</p>			<p><b>I. Nature of Science: Scientific Ways of Learning and Thinking</b>  <b>D. Current Scientific Technology:</b>  2. Use computer models, applications, and simulations  <b>II. Foundations Skills: Scientific Application of Mathematics</b>  <b>B. Mathematics as symbolic language</b>  2. Represent natural events, processes, and relationships with algebraic expressions and algorithms  <b>V. Cross Disciplinary Themes</b>  <b>E. Measurements and Models</b>  1. Use models to make predictions  2. Use scale to relate models and structures</p>
<p>G) Drawing conclusions and developing explanations—Learners are able to use evidence and logic in developing proposed explanations that address their initial questions and hypotheses.</p>		<p><b>I. Nature of Science: Scientific Ways of Thinking</b>  <b>A. Cognitive Skills in Science</b>  4. Rely on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes.</p>	<p><b>IV. Analysis, Synthesis, and Evaluation of Information</b>  <b>D. Reaching Conclusions</b>  1. Construct a thesis that is supported by evidence</p>
<p><b>Strand 2.1: Knowledge of Environmental Processes and Systems</b></p>			
<p>A) Processes that shape the Earth—Learners understand the major physical processes that shape the Earth. They can relate these processes, especially those that are large-scale and long-term, to characteristics of the Earth.</p>		<p><b>IX. Earth and Space Sciences</b>  <b>A. Earth Systems</b>  3. Possess a scientific understanding of the history of the Earth's systems.  <b>E. Plate Tectonics</b>  1. Describe evidence that supports the current theory of plate tectonics  2. Identify major tectonic plates  3. Describe the motion and interaction of tectonic plates  4. Describe the rock cycle and its products</p>	

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<p>B) Changes in matter—Learners apply their understanding of chemical reactions to round out their explanations of environmental characteristics and everyday phenomena.</p>		<p><b>V. Cross-Disiplinary Themes</b>  <b>A. Matter/states of matter</b>            2. Understanding typical states of matter (solid, liquid, gas) and phase changes among these. <b>VII.</b>  <b>Chemistry</b>  <b>A. Matter and its properties</b>            1. Know that physical and chemical properties can be used to describe and classify matter. Recognize and classify pure substances (elements and compounds) and mixtures.</p>	
<p>C) Energy—Learners apply their knowledge of energy and matter to understand phenomena in the world around them.</p>		<p><b>V. Cross-Disciplinary Themes</b>  <b>B. Energy (thermodynamics, kinetic, potential, energy transfers)</b>            1. Unerstand the Laws of Thermodynamics            2. Know the processes of energy transfer  <b>VI. Biology</b>  <b>G. Ecology</b>            2. Know patterns of energy flow and material cycling in Earth's ecosystems.  <b>VII. Chemistry</b>  <b>H. Thermochemistry</b>            1. Understand the Law of Conservation of Energy and processes of heat transfer.            2. Understand energy changes and chemical reactions  <b>VIII. Physics</b>  <b>C. Force and Motion</b>            1. Understand the fundamental concepts of kinematics            2. Understand forces and Newton's Law,            3. Understand the concept of momentum.  <b>D. Mechanical Energy</b>            1. Understand potential and kinetic energy.            2. Understand conservation of energy            3. Understand relationship of work and mechanical energy  <b>X. Environmental Science</b>  <b>B. Energy</b>            1. Understand energy transformations            2. Know various sources of energy for humans and other biological systems</p>	

EE Learner Guidelines	High School Government	CCRS Science	CCRS Social Studies
<b>Strand 2.2: The Living Environment</b>			
<p>A) Organisms, populations, and communities—Learners understand basic population dynamics and the importance of diversity in living systems.</p>		<p><b>VI. Biology</b>  <b>G. Ecology</b>            1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.            2. Know patterns of energy flow and material cycling in Earth's ecosystems.</p>	
<p>B) Heredity and evolution—Learners understand the basic ideas and genetic mechanisms behind biological evolution.</p>		<p><b>VI. Biology</b>  <b>C. Evolution and populations</b>            1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.            2. Recognize variations in population sizes, including extinction, and describe mechanisms and conditions that produce these variations.  <b>D. Molecular genetics and heredity</b>            1. Understand Mendel's Law of inheritance,            2. Know modifications of Mendel's Law,            3. Understand the molecular structure and functions of nucleic acids            4. Understand simple principles of population genetics and describe characteristics of Hardy-Weinberg population.            5. Describe the major features of meiosis and relate this process to Mendel's law of inheritance.</p>	

EE Learner Guidelines	High School Government	CCRS Science	CCRS Social Studies
<p>C) Systems and connections—Learners understand the living environment to be comprised of interrelated, dynamic systems.</p>		<p><b>IV. Biology</b>  <b>C. Evolution and populations</b>            1. Know multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organisms.  <b>G. Ecology</b>            1. Identify Earth's major biomes, giving their locations, typical climate conditions, and characteristic organisms.            2. Know patterns of energy flow and material cycling in Earth's ecosystems.            3. Understand typical forms of organismal behavior            4. Know the process of succession  <b>X. Environmental Science</b>  <b>A. Earth Systems</b>            5. Be familiar with the Earth's major biomes</p>	
<p>D) Flow of matter and energy—Learners are able to account for environmental characteristics based on their knowledge of how matter and energy interact in living systems.</p>		<p><b>V. Biology</b>  <b>B. Biochemistry</b>            3. Describe the major features and chemical events of photosynthesis            4. Describe the major features and chemical events of cellular respiration            5. Know how organisms respond to the presence or absence of oxygen, including mechanisms of fermentation  <b>G. Ecology</b>            2. Know the patterns of energy flow and material cycling in Earth's ecosystems.  <b>X. Environmental Science</b>  <b>B. Energy</b>            1. Understanding energy transformations            2. Know the various sources of energy for humans and other biological systems</p>	

EE Learner Guidelines	High School Government	CCRS Science	CCRS Social Studies
<b>Strand 2.3: Humans and Their Societies</b>			
<p>A) Individuals and groups—Learners understand the influence of individual and group actions on the environment, and how groups can work to promote and balance interests.</p>			<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b>  2. Analyze the interaction between human communities and the environment.  <b>II. Diverse Human Perspectives</b>  <b>B. Factors that influence personal and group identities (e.g. race, ethnicity, gender, nationalist, institutional affiliations, socioeconomic status)</b>  6. Analyze how individual and group identities are established and changes over time.</p>
<p>B) Culture—Learners understand cultural perspectives and dynamics and apply their understanding in context.</p>			<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical processes that shape the human experience.</b>  2. Analyze the interaction between human communities and the environment.  3. Analyze how physical and cultural processes have shaped human communities over time.  5. Analyze how various cultural regions of changed over time. 6.  Analyze the relationship between geography and the development of human communities.</p>
<p>C) Political and economic systems—Learners understand how different political and economic systems account for, manage, and affect natural resources and environmental quality.</p>		<p><b>X. Environmental Science</b>  <b>D. Economics and politics</b>  1. name and describe major environmental policieis and legislation  2. Understand the types, uses, and regulations of various natural resources</p>	<p><b>I. Interrelated Disciplines and Skills</b>  <b>C. Change and continuity of political ideologies, constitutions and political behaviour.</b>  1. Evaluate different governmental systems and functions  <b>D. Change and continuity of economis systems and processes.</b>  1. Identify and evaluate the strengths and weaknesses of different economic systems.</p>

EE Learner Guidelines	High School Government	CCRS Science	CCRS Social Studies
D) Global connections—Learners are able to analyze global social, cultural, political, economic, and environmental linkages.			<b>III. Interdependence of Global Communities</b> <b>A. Spatial understanding of global, regional, national, and local communities.</b> 1. Distinguish spatial patterns of human communities that exist between or within contemporary political boundaries. 2. Connect regional or local developments to global ones. 3. Analyze how and why diverse communities interact and become dependent on each other.
E) Change and conflict—Learners understand the functioning of public processes for promoting and managing change and conflict, and can analyze their effects on the environment.			<b>I. Interrelated disciplines and Skills</b> <b>E. Change and continuity of social groups, civic organizations, institutions, and their interaction.</b> 4. Identify and evaluate the sources and consequences of social conflict.
<b>Strand 2.4: Environment and Society</b>			
A) Human/environment interactions—Learners understand that humans are able to alter the physical environment to meet their needs and that there are limits to the ability of the environment to absorb impacts or meet human needs.		<b>X. Environmental Science</b> <b>E. Human practices and their impacts</b> 1. Describe the different uses for land (land management) 2. Understand the use and consequences of pest management 3. Know the different methods used to increase food production 4. Understand land and water usage and management practices 5. Understand how human practices affect air, water, and soil quality	<b>I. Interrelated Disciplines and Skills</b> <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b> 2. Analyze the interaction between human communities and the environment. 4. Evaluate the causes and effects of human migration patterns over time 6. Analyze the relationship between geography and the development of human communities.

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<p>B) Places—Learners understand "place" as humans endowing a particular part of the Earth with meaning through their interactions with that environment.</p>	<p><b>GVT4 Geography. The student understands why certain places or regions are important to the United States. The student is expected to:</b></p> <p>(A) identify the significance to the United States of the location and key natural resources of selected global places or regions; and</p>		<p><b>I. Interrelated Disciplines and Skills</b>  <b>A. Spatial analysis of physical and cultural processes that shape the human experience</b>  2. Analyze the interaction between human communities and the environment.  <b>III. Interdependence of Global Communities</b>  <b>A. Spatial understanding of global, regional, national, and local communities.</b>  1. Distinguish spatial patterns of human communities that exist between or within contemporary boundaries.  2. Connect regional or local development to global ones.  3. Analyze how and why diverse communities interact and become dependent on each other.</p>
<p>C) Resources—Learners understand that the importance and use of resources change over time and vary under different economic and technological systems.</p>			
<p>D) Technology—Learners are able to examine the social and environmental impacts of various technologies and technological systems.</p>	<p><b>GVT19 Science, technology, and society. The student understands the impact of advances in science and technology on government and society. The student is expected to:</b></p> <p>(A) understand the potential impact on society of recent scientific discoveries and technological innovations; and</p> <p>(B) evaluate the impact of the Internet and other electronic information on the political process.</p>		
<p>E) Environmental issues—Learners are familiar with a range of environmental issues at scales that range from local to national to global. They understand that these scales and issues are often linked.</p>			

EE Learner Guidelines	High School Government	CCRS Science	CCRS Social Studies
<b>Strand 3: Skills for Understanding and Addressing Environmental Issues</b>			
<b>Strand 3.1: Skills for Analyzing and Investigating Environmental Issues</b>			
A) Identifying and investigating issues—Learners apply their research and analytical skills to investigate environmental issues ranging from local issues to those that are regional or global in scope.		<b>III. Foundation Skills: Scientific Applications of Communication</b> <b>D. Research skills/information literacy</b> 2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.	
B) Sorting out the consequences of issues—Learners are able to evaluate the consequences of specific environmental changes, conditions, and issues for human and ecological systems.		<b>IV. Science, Technology, and Society</b> <b>B. Social ethics</b> 1. Understand how scientific research and technology haveand impact on ethical and legal practices	
C) Identifying and evaluating alternative solutions and courses of action—Learners are able to identify and propose action strategies that are likely to be effective in particular situations and for particular purposes.		<b>IV. Science, Technology, and Society</b> <b>B. Social ethics</b> 1. Understand how scientific research and technology haveand impact on ethical and legal practices 2. Understand how commonly held ethical beliefs impact scientific research	
D) Working with flexibility, creativity, and openness—While environmental issues investigations can bring to the surface deeply held views, learners are able to engage each other in peer review conducted in the spirit of open inquiry.		<b>III. Foundation Skills: Scientific Applications of Communication</b> <b>D. Research skills/information literacy</b> 2. Evaluate quality, accuracy, completeness, reliability, and currency of information from any source.	
<b>Strand 3.2: Decision Making and Citizenship Skills</b>			
A) Forming and evaluating personal views—Learners are able to communicate, evaluate, and justify their own views on environmental issues and alternative ways to address them.	<b>GVT14 Citizenship. The student understands the difference between personal and civic responsibilities. The student is expected to:</b>		
	(A) explain the difference between personal and civic responsibilities;		

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<p>B) Evaluating the need for citizen action—Learners are able to decide whether action is needed in particular situations and whether they should be involved.</p>	<p><b>GVT14 Citizenship. The student understands the difference between personal and civic responsibilities. The student is expected to:</b></p> <p>(A) explain the difference between personal and civic responsibilities;</p> <p>(B) evaluate whether and/or when the obligation of citizenship requires that personal desires and interests be subordinated to the public good;</p>		
<p>C) Planning and taking action—Learners know how to plan for action based on their research and analysis of an environmental issue. If appropriate, they take actions that are within the scope of their rights and consistent with their abilities and responsibilities as citizens.</p>	<p><b>GVT14 Citizenship. The student understands the difference between personal and civic responsibilities. The student is expected to:</b></p> <p>(C) understand the responsibilities, duties, and obligations of citizenship such as being well informed about civic affairs, serving in the military, voting, serving on a jury, observing the laws, paying taxes, and serving the public good; and</p> <p>(D) understand the voter registration process and the criteria for voting in elections.</p>		
<p>D) Evaluating the results of actions—Learners are able to evaluate the effects of their own actions and actions taken by other individuals and groups, including possible intended and unintended consequences of actions.</p>	<p><b>GVT15 Citizenship. The student understands the importance of voluntary individual participation in the U.S. constitutional republic. The student is expected to:</b></p> <p>(A) analyze the effectiveness of various methods of participation in the political process at local, state, and national levels;</p> <p>(B) analyze historical and contemporary examples of citizen movements to bring about political change or to maintain continuity;</p>		

EE Learner Guidelines	High School Government	CCRS Science	CCRS Social Studies
<b>Strand 4: Personal and Civic Responsibility</b>			
<p>A) Understanding societal values and principles—Learners know how to analyze the influence of shared and conflicting societal values.</p>		<p><b>IV. Science, Technology, and Society</b>  <b>B. Social Ethics</b>            1. Understand how scientific research and technology have an impact on ethical and legal practices.            2. Understand how commonly held ethical beliefs impact scientific research.</p>	
<p>B) Recognizing citizens' rights and responsibilities—Learners understand the importance of exercising the rights and responsibilities of citizenship.</p>			
<p>C) Recognizing efficacy—Learners possess a realistic self-confidence in their effectiveness as citizens.</p>			
<p>D) Accepting personal responsibility—Learners understand that their actions can have broad consequences and accept responsibility for recognizing those effects and changing their actions when necessary.</p>			