Environmental Literacy Compendium for the California History-Social Science Framework







Environmental Literacy Compendium for the California History-Social Science Framework

Principal Writers

Charley Gilmore, Curriculum Specialist, History-Social Science Jonathan Rhodea, Curriculum Specialist, Science Phil Romig, Curriculum Specialist, Science Sacramento County Office of Education







The development of this resource was supported by a grant from the California Department of Education, administered by the San Joaquin County Office of Education, and by the California Regional Environmental Education Community Network.

Environmental Literacy Compendium for the California History-Social Science Framework Table of Contents

Introduction	3
How to Use This Compendium	3
Environmental Principles and Concepts	4
Grades Kindergarten through Three	6
Kindergarten - Learning and Working Now and Long Ago	7
Grade One - A Child's Place in Time and Space	
Grade Two - People Who Make a Difference	19
Grade Three - Continuity and Change	23
Grades Four and Five	29
Grade Four - California: A Changing State	
Grade Five - United States History and Geography: Making a New Nation	
Grades Six through Eight	
Grade Six - World History and Geography: Ancient Civilizations	40
Grade Seven - World History and Geography: Medieval and Early Modern Times	49
Grade Eight - United States History and Geography: Growth and Conflict	55
Grades Ten through Twelve	61
Grade Ten - World History, Culture, and Geography: The Modern World	62
Grade Eleven - United States History and Geography: Continuity and Change in Modern United States History	69
Grade Twelve - Principles of American Democracy	76
Grade Twelve - Principles of Economics	80
Environmental Literacy Resources	86

Environmental Literacy Compendium for the 2016 California History-Social Science Framework

Introduction

The environment is a central character in the story of human history. From the river systems that fostered the first human civilizations to the current challenge of addressing and combating climate change, the story of humanity is inextricably intertwined with the natural systems that have influenced our development and whose health and viability are impacted by their relationship with us. In order to tackle contemporary environmental issues, students must develop their environmental literacy. As a guide to the development of students' literacy related to the environment, California adopted five Environmental Principles, each with two to three Environmental Concepts. These Environmental Principles and Concepts (EP&Cs) examine the interactions and interdependence of human societies and natural systems and are incorporated in the History-Social Science, Science, and Health Frameworks. Instruction aligned to the EP&Cs furthers students' environmental literacy, equipping them to better understand conceptual issues of the past and present.

Appendix B of the Framework identifies "Science, Technology, and the Environment" as a key theme in the history and geography classroom. The Framework describes key developments in history that highlight the importance of the environment and the ways in which human society has interacted with it. The development of agriculture allowed people to extract greater quantities of resources from the land increasing the human population. Human practices could have the opposite effect as well. The Framework identifies salinization of the land due to early Mesopotamian irrigation practices as leading to a long-term decline in the population of that region. In more recent history, the Industrial Revolution has allowed the population of Earth to grow at exponential rates, but as the byproducts of manufacturing have entered the world's ecosystems, societies have had to grapple with ways to preserve the health of the environment while balancing the need for resources and goods.

The challenge is not convincing teachers of history of the importance of the environment in our discipline, but providing the tools that allow teachers to seamlessly incorporate the EP&Cs into their instruction. This compendium is one tool teachers can use to help meet this challenge.

How to Use This Compendium

In this compendium, selected sections of the Framework, particularly suited to the integration of the EP&Cs, are identified next to suggestions for instructional implementation. The instructional suggestions are not fully developed lesson plans, but are meant to provide teachers with a foundation on which to build a lesson. Below the instructional suggestions the EP&Cs addressed are identified and, when appropriate, connections to NGSS Performance Expectations. This compendium isn't the first effort to integrate instruction on the EP&Cs into history-social science, and after each grade-level, you will see brief summaries of units created as part of the Environmental and Education Initiative. These are available at no cost at https://www.californiaeei.org/curriculum.



Principle 1: The continuation and health of individual human lives and of human communities and societies depend on the health of the natural systems that provide essential goods and ecosystem services.

Concept A. The goods produced by natural systems are essential to human life and to the functioning of our economies and cultures.

Concept B. The ecosystem services provided by natural systems are essential to human life and to the functioning of our economies and cultures.

Concept C. The quality, quantity, and reliability of the goods and ecosystem services provided by natural systems are directly affected by the health of those systems.

Principle 2: The long-term functioning and health of terrestrial, freshwater, coastal, and marine ecosystems are influenced by their relationships with human societies.

Concept A. Direct and indirect changes to natural systems due to the growth of human populations and their consumption rates influence the geographic extent, composition, biological diversity, and viability of natural systems.

Concept B. Methods used to extract, harvest, transport, and consume natural resources influence the geographic extent, composition, biological diversity, and viability of natural systems.

Concept C. The expansion and operation of human communities influences the geographic extent, composition, biological diversity, and viability of natural systems.

Concept D. The legal, economic, and political systems that govern the use and management of natural systems directly influence the geographic extent, composition, biological diversity, and viability of natural systems.

Environmental Literacy Compendium for the California History-Social Science Framework

Principle 3: Natural systems proceed through cycles that humans depend upon, benefit from, and can alter.

Concept A. Natural systems proceed through cycles and processes that are required for their functioning.

Concept B. Human practices depend upon and benefit from the cycles and processes that operate within natural systems.

Concept C. Human practices can alter the cycles and processes that operate within natural systems.

Principle 4: The exchange of matter between natural systems and human societies affects the long-term functioning of both.

Concept A. The effects of human activities on natural systems are directly related to the quantities of resources consumed and to the quantity and characteristics of the resulting byproducts.

Concept B. The byproducts of human activity are not readily prevented from entering natural systems and may be beneficial, neutral, or detrimental in their effect.

Concept C. The capacity of natural systems to adjust to human-caused alterations depends on the nature of the system as well as the scope, scale, and duration of the activity and the nature of its byproducts.

Principle 5: Decisions affecting resources and natural systems are based on a wide range of considerations and decision-making processes.

Concept A. There is a spectrum of what is considered in making decisions about resources and natural systems and how those factors influence decisions.

Concept B. The process of making decisions about resources and natural systems, and how the assessment of social, economic, political, and environmental factors has changed over time.

K-3 Social Studies

In the early elementary years, students' social studies curriculum seeks to grow their understanding of their community, their place within it, and how it has changed over time. This focus on communities and the role of people within them, lends itself naturally to the integration of California's Environmental Principles and Concepts. Students can learn about how local and regional ecosystems affect the development of communities, cultural traditions, and the types of work done by people today and long ago. In addition, students learn about how people's actions affect their local ecosystem, both positively and negatively, and how many factors play into decisions communities make affecting resources and natural systems. Below is a brief overview of how each of the five Environmental Principles fits within this grade span.

Principle I: The continuation and health of individual human lives and of human communities and societies depend on the health of the natural systems that provide essential goods and ecosystem services.

- People and the communities in which they live depend on the goods and ecosystem services produced by natural systems.
- Healthy natural systems produce more and better goods and ecosystem services than unhealthy natural systems

Principle II: The long-term functioning and health of terrestrial, freshwater, coastal and marine ecosystems are influenced by their relationships with human societies.

- Human activity can positively and negatively affect natural systems.
- Communities develop rules on how to interact with local ecosystems.
- How people and communities interact with natural systems changes over time.

Principle III: Natural systems proceed through cycles that humans depend upon, benefit from, and can alter.

• Seasonal cycles help determine what goods and ecosystem services are available and when.

Principle IV: The exchange of matter between natural systems and human societies affects the long-term functioning of both.

• Byproducts from people and communities affects natural systems and communities can work to limit negative effects.

Principle V: Decisions affecting resources and natural systems are based on a wide range of considerations and decision-making processes.

• Decisions by people and communities affect natural systems and these decisions have changed over time.

Kindergarten – Learning and Working Now and Long Ago	
From the Framework: Chapter 3	Environmental Literacy Integration
 How can we learn and work together? What does it mean to be an American? How are our lives different from those who lived in the past? How are they the same? What is our neighborhood like? 	Compelling Question: Do we need rules? Students can explore the necessity of rules by evaluating and developing rules with a focus on their interaction with the local environment. Environmental Principle II seeks to have students understand that our ecosystem is affected by human action. Using examples of how animals follow behavioral 'rules' in nature can hook student interest and demonstrate the universality of rule systems.
In kindergarten, students begin the study of history-social science with concepts anchored in the experiences they bring to school from their families and communities. Students explore the meaning of good citizenship, national symbols, work now and long ago, geography, time and chronology, and life in the past. In Standard K.1, students explore the meaning of good citizenship by learning about rules and work together, as well as the basic idea of government, in response to the question How can we learn and work together? An informational book such as Rules and Laws by Ann- Marie Kishel may be used to introduce the topic while teachers use classroom problems that arise as opportunities for critical thinking and problem solving. For example, problems in sharing scarce resources or space with others or in planning ahead and ending an activity on time for the next activity will teach students to function as a community of learners who make choices about how they conduct themselves. Students need help in analyzing problems, determining why the problem arose, developing alternatives, considering how these alternatives might bring different results, and learning to appreciate behaviors and values that are consistent with a democratic ethic.	 Put slips of paper, each with a picture of a pet on it, into a bowl. Choose pets that are familiar and engaging to students. As a whole class activity, pull out the slips one by one and ask the class, "What are the rules that this pet follows?" As an example, if a cat is pulled, students may respond with, "Uses the litter box." List the students' ideas on the board. Ask the question, "Why do we need these rules for pets?" and "What would happen if we removed one of these rules?" The concluding concept with these questions is that we have rules for pets because we want to preserve the environment of a home and for the safety of people within the home. After leading the class through several think alouds, ask the questions, "What rules do humans live by?" and "What would happen if human(s) decide to break these rules?" "How would this affect the environment and the safety of other humans?" For example, a student may respond that they have to help take out the trash each week. The teacher might follow up this response with the question, "What would happen if we didn't follow that rule?"
Students and teachers can dramatize issues and choices that create conflict on the playground, in the classroom, and at home and can	Lead students to the understanding that we have rules on how humans interact with their environment to help maintain the balance

brainstorm choices that exemplify compromise, cooperation, and	of the ecosystem and preserve natural habitats for all animals. Use
respect for rules and laws Students must have apportunities to	the animal aspect as context with the ultimate goal of students
discuss these more desirable behaviors try them out and examine	understanding the rules surrounding their interaction with the
how they lead to more barmonious and socially satisfying	anvironment
now they read to more nurmonious and socially satisfying	environment.
relationships with others. Literature books such as kevin Henkes's	The first state of the state of
Lily's Purple Plastic Purse, David Snannon's David Goes to School, and	lask: Students could work collectively to develop a list of rules on
Laura Vaccaro Seeger's Bully may be used to explore these themes.	how to keep a specific environment (e.g., school, home) clean.
and laws and why a government is necessary. Teachers may discuss	Environmental Principles and Concepts
rules at home and in school and ask why they are important. What	Principle II Concept d Students need to know that the legal, economic
happens when family members choose not to follow rules? Students	and political systems that govern the use and management of natural
may help create classroom rules for the purpose of establishing a safe	systems directly influence the geographic extent. composition.
environment where learning can occur. Students may also discuss	biological diversity, and viability of natural systems.
possible consequences for breaking these rules.	
	Principle IV Concept b Students need to know that the byproducts of
	human activity are not readily prevented from entering natural
	systems and may be beneficial, neutral, or detrimental in their effect.
	Connection to NGSS Performance Expectation
	K-LS1-1. Use observations to describe patterns of what plants and
	animals (including humans) need to survive
In Standard K.3, students learn about the different types of jobs and	Environmental Literacy Integration
work performed by people in their school and local community. This	
standard may be integrated with Standard K.4; as students construct	Compelling Question: How have tools changed over time?
school and neighborhood maps and talk about neighborhood	
structures such as the fire station, supermarkets, houses, banks, and	The History-Social Science Framework's suggestion that students
hospitals, the jobs and workers can be introduced as well. As students	learn how the nature of work has changed over time aligns well with
learn about daily life in the past in Standard K.6, they may investigate	the NGSS Performance Expectation's call to analyze how people can
ways in which work and jobs have changed or remained the same	solve a problem through the development of a new tool. Students
over time by answering the prompt How are our lives different from	can analyze how the development of new technologies affected
those who lived in the past? How are they the same? The teacher	employment in their local community over time, and how it changed
should provide prompting and support as students analyze multiple	the community's interaction with the local environment.

sources, including primary-source photographs, picture books, and informational books for young readers such as Vicki Yates's Life at Work (Then and Now). Students should understand that one purpose of school is to develop their skills and knowledge and that this is as important as any job in the community. Working collaboratively to do tasks, students can practice problem solving, conflict resolution, and taking personal responsibility.

- As a whole class, brainstorm the types of jobs students are aware of in their community. The teacher can prompt students with questions like: "What is work?"; "What work do members of your family do?"; and "What sort of work do you see people doing at school?"
- After the class compiles a list of different types of jobs, ask the question, "Why do people do the work they do?" Students may respond with answers like: "They enjoy it."; "They make money."; and "We need them to do it."
- Choose a few occupations from the class list and ask students to identify tools people might use to help them do the work. Students may identify a computer for an office-based occupation or a tractor for a job in agriculture.
- 4. You can prompt students with questions such as, "Do you think a farmer might use a tractor as a tool?" and "What would he do if he didn't have a tractor?"
- 5. Choose an occupation that clearly impacts the environment (e.g., farming, lumber, fishing, construction) and describe for students what that profession looked like in the past. Lead students through a discussion of how technological changes in the profession have impacted the environment in your community. For example, a teacher in the Central Valley could help students understand how the mechanization of farming has allowed more acreage to be planted, altering the natural environment and requiring more water.
- 6. Organize students into small groups and assign them each an occupation. Provide students with a set of visuals (cartoons, drawings, pictures, etc.) of the assigned occupation from the present and the past. Have students analyze the images and sort into past or present.
- 7. As an extension activity, consider having your students interview one of their parents/guardians about the tools they use at their job and what their job might have looked like in

	the past. For example, does the parent/guardian use a computer at work, and what would that work have looked like before the invention of the personal computer?
	Environmental Principles and Concepts
	Principle V Concept a: Students need to know the spectrum of what
	is considered in making decisions about resources and natural
	systems and how those factors influence decisions.
	Connection to NGSS Performance Expectation
	K 2 ETS1 1 Ask questions make observations and gather
	information about a situation people want to change to define a
	simple problem that can be solved through the development of a new
	or improved object or tool
Students begin the study of geography by exploring the immediate	Environmental Literacy Integration
environment of the school and their neighborhood, including its	
topography, streets, transportation systems, structures, and human	Compelling Question: Why do we find plants and animals where
activities, in Standard K.4 using the question What is our	they are?
neighborhood like? Teachers guide students' investigations of their	
surroundings with questions about familiar features of the	Students' exploration of the geography of their immediate
environment, where they can be found, and how maps can be used to	environment allows them to not only know what is around them, but
locate them. Students demonstrate spatial concepts and skills by	also prompts them to ask why. By including a study of why plants,
using a variety of materials such as large building blocks, wood, tools,	trees, and water features are located where they are, the teacher can
toys, and other recycled objects to construct neighborhood structures.	facilitate student understanding of their local ecosystem.
Such group activities become important beginnings of map work for	
young students. Students are encouraged to build neighborhoods and	1. Lead your students on a walking tour of the campus to help
landscapes and to incorporate such structures as fire stations,	orient them to the location of key landmarks (classroom,
airports, houses, banks, hospitals, supermarkets, harbors, and	office, lunchroom, playground).
transportation lines. As a result of these activities, students are made	2. Display a map of your school for students with the key
aware of how stairs and curbs in their neighborhood pose physical	landmarks pre-highlighted. Consider pre-populating the map
barriers for people with mobility impairments such as those who use	with pictures of the landmarks to help students make spatial
wheelchairs. Picture files, stories, and information texts should be	connections to their walking tour.

used to deepen students' understanding about the places they are creating and the work that is done in these places. Literature such as The Listening Walk by Paul Showers, or Barrio: Jose's Neighborhood by George Ancona, featuring photos of a Latino neighborhood in San Francisco, may be used to pique students' interest in exploring their environment.

Exploring the environment surrounding their school today and discussing how it is different than when the school was built focuses students on the fact that people in earlier times used many of the same goods and ecosystem services that are used today, such as lumber, water, and food. They discover that in earlier times, people more directly consumed the goods and ecosystem services from natural systems rather than obtaining them from sources like grocery stores and lumberyards (see appendix G for California Environmental Principle II). Having students reflect on the management and use of natural resources on their campus provides them with a picture of the way resource use has changed over time (see the California Education and the Environment Initiative [EEI] curriculum unit "Some Things Change and Some Things Stay the Same," K.4.5-K.6.3).

- 3. Ask students why they think people would make a map of their school. Responses could include: to help people find their way from one place to another; to see where things are; or to easily see all the different types of places on campus.
- 4. Ask students where on campus the office is. Students may notice that it is near the front of campus. Ask students why they think it was placed there. Help students understand that the placement of the office is intentional. It is placed at the school's front to be accessible to visitors and easy for students to find.
- You can repeat the above discussion with other examples. Why are classrooms clustered together? Why is the playground next to the field? The goal is for students to begin to understand the purpose behind where things are.
- 6. Tell students they are going to work in teams to identify other important features on their campus, specifically, flowers, trees, bushes, and other plants. It may be best to enlist teacher aides and/or parent helpers to lead student teams.
- 7. In teams, have students lead an exploration of designated areas of campus, with the adult leader marking down student-identified natural features on a group map.
- 8. Reconvene in the classroom, project a blank map of the school and gather details from student-created maps to create one, whole-class map.
- 9. Ask students what they notice about where natural features are located and why they are there. Answers will vary depending on the campus, but may include responses like: "The trees are planted in the courtyard to provide shade at recess." or "The garden is near the fourth grade classrooms because those kids take care of the plants."
- 10. Students' awareness of nature in their school environment should grow and they will understand why plants on their campus are located where they are.

	11. Brainstorm with students what they can do at home and
	school to keep plants healthy.
	Environmental Principles and Concepts
	Principle I Concept c: Students need to know that the quality, quantity, and reliability of the goods and ecosystem services provided by natural systems are directly affected by the health of those systems.
	Principle II Concept a: Students need to know that direct and indirect changes to natural systems due to the growth of human populations and their consumption rates influence the geographic extent, composition, biological diversity, and viability of natural systems."
	Connection to NGSS Performance Expectations
	K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.
	K-ESS3-3. Communicate solutions that will reduce the impact of
	humans on the land, water, air, and/or other living things in the local
	environment.
In Standard K.6, students take their first vicarious steps into times	Environmental Literacy Integration
past to develop historical literacy and explore the themes of continuity	
and change. Students learn about national holidays and their	Compelling Question: How do we get what we need to survive?
purposes, as well as the events associated with them. Teachers may	
read historical accounts of famous Americans, which further	With standard K.6 students begin to explore the struggles faced by
establishes students' understanding of national identity and cultural	past generations and the celebrations we hold to commemorate the
literacy.	overcoming of adversity. As part of this, students make comparisons
	to today and begin to understand how daily life has changed with
Students also study the past and consider how life was the same as or	time. Similarly with NGSS Performance Expectation K-ESS2-2 students
different from their lives. For example, students may learn that	begin to understand that plants and animals change the environment

getting water from a well, growing food and raising livestock, and around them to meet their needs. This provides a natural opportunity making clothing are examples of how the past may be different from for interdisciplinary instruction in the self-contained classroom. *their lives today. Stories from the* My First Little House Books *series* and informational books such as Vicki Yates's Life at Home that 1. As you introduce students to the compelling question, have illustrate the work and daily lives of characters and people in the past them brainstorm a list of things they absolutely need as a can help students develop historical empathy and understand life in class. While students will hopefully identify items such as the past. Primary sources can be introduced by using photographs of food, water, clothing, and shelter, they may also choose transportation, homes, work, common household items, and clothing wants in addition to necessities. This can prompt a while questions are posed about which aspects of these items have conversation about the difference between needs and wants. changed, which have remained the same, and what this reveals about 2. Consider having students create a profile of themselves and life in the past. Students should be encouraged to engage in their needs. This can be done by giving students a blank discussions and write texts about the similarities and differences of silhouette and having them color it in to look like themselves daily life today versus daily life long ago by drawing on evidence from and drawing their "needs" alongside them. the primary-source photographs, informational texts, and literature 3. Ask students where they get the items they've identified. books used in their studies. 4. Provide students with a second blank silhouette and tell them, they are going to learn about children from the past. 5. Lead the class through an exercise identifying what needs a child had in a time long ago. The use of age-appropriate picture books could help students visualize the past. Students should find that many of the needs of children long ago are the same as today. 6. Now ask students to predict from where children long ago obtained these items. 7. After a round of predictions, lead students through the process of researching the answers to these questions. It may be helpful to have pictures ready to project showing places from long ago, like farms, rivers, lakes, markets, and textile factories. 8. Conclude by having students identify the major changes between then and now. This can prompt a discussion. For example, students can identify wells as sources of water in the past, while we have faucets today. In addition, students can discuss how to protect the resources we need to survive.

Environmental Principles and Concepts
Principle I Concept c: Students need to know that the quality, quantity, and reliability of the goods and ecosystem services provided by natural systems are directly affected by the health of those systems.
Principle II Concept a: Students need to know that direct and indirect changes to natural systems due to the growth of human populations and their consumption rates influence the geographic extent, composition, biological diversity, and viability of natural systems.
Connection to NGSS Performance Expectations
K-ESS2-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.

Appendix G, CA HSS Framework

Some Things Change and Some Things Stay the Same (CA HSS K.4.5, K.6.3)

Students see that the places we live in change over time, by first looking at their school and pictures of a school like theirs 100 years ago. Students compare and contrast the school, its surroundings, and the people of a "typical" California town 100 years ago to their modern community. They become familiar with the idea that history relates to events, people and places of other times. They also learn that the way history unfolds involves an ongoing interaction between people, their needs, and the resources that they use from their natural and physical environment.

First Grade - A Child's I	lace in Time and Space	
From the Framework: Chapter 4	Environmental Literacy Integration	
Students' growing sense of place and spatial relationships makes possible important new geographic learning in grade one. To develop geographic literacy, teachers can build on students' sense of their neighborhood and the places where students regularly go in order to shop, play, and visit. In response to the question What is our community like? , students demonstrate their emerging spatial concepts and skills by making a map of their neighborhood, town, and county and then labeling a map with California, the United States, the continents, and oceans. Books such as Me on the Map by Joan Sweeney and Maps and Globes by Jack Knowlton may be used to teach students about cartography as well as build conceptual knowledge of community, city, state, country, continent, and world.	 Compelling Question: What is our community like? As students develop their spatial awareness and mapping skills, the teacher can direct the students to pay special attention to the natural features of their local community. Where are parks located? Are there bodies of water (rivers, creeks, lakes) in the community? What about open space? Are there trees and plants in your community? Why are these important features in a community? Project or display a map or image of your local community. Ensure the map you are using identifies key natural and environmental features of the community. As a class, agree on symbols to use for key map features suc as trees, parks, roads, and creeks. 	al t
students may construct a three-almensional floor or table map of their immediate geographic region. Such an activity helps develop students' observational skills and spatial relationships and teaches the concepts of absolute and relative locations of people and places. Comparing the floor or table map to a picture map of this same region will help students make the connections between geographic features in the field, here-dimensional models of this region, and two- dimensional pictures or symbolic maps. Students should observe that the picture-symbol map "tells the same story" as the floor model but does so at a smaller scale. The picture-symbol map may also be hung upright without changing the spatial arrangement of these features and without altering their relationships to one another. For example, when the map is hung upright, the supermarket is still north of the post office. These critical understanding are important in developing reading and interpretation skills with maps.	 Provide students with a medium on to which they can create a map. This could be something as simple as a blank piece of paper. Students can work individually or collaboratively to plot key features of their community on their map using the agreed upon symbols. As students identify the location of natural features within and near their local community, the teacher can lead them through an exploration of why specific natural features are located where they are and how they are connected. For example, the teacher can help students trace the path of a river from its origin point to its end. The teacher can ask questions like "Which way does the water flow and why?" or "What do we find alongside the river?" Have students provide suggestions of ways to improve their 	n F

local community and add to their maps as appropriate. How

	can they maintain, protect, or grow the natural features and resources in their community?
	With the teacher's guidance, students can use their maps to start to understand the natural and physical features of their local community.
	Environmental Principles and Concepts
	Principle I: The continuation and health of individual human lives and
	of human communities and societies depend on the health of the
	natural systems that provide essential goods and ecosystem services.
In Standard 1.6, students acquire a beginning understanding of economics. For example, they learn about the use of money to	Environmental Literacy Integration
purchase goods and services and about the specialized work that people do to manufacture, transport, and market such goods and	Compelling Question: What do people in our community do?
services. They learn that people exchange money for the goods and	The nature of work varies from place to place depending on the local
services they want, and because money is limited, people must make	environment and resources. This was especially true in the past when
choices about how to spend their money. Even first-grade students	work was more frequently related to resource extraction and
can understand what budgets are and can study how people plan	harvesting.
their spending. These topics provide a foundation for later instruction	
in financial literacy.	1. Provide students with picture cards of different work-related locations within your community. These could include an
This standard can be taught in conjunction with, or build upon, the geographic exploration of the neighborhood and community. Students	office building, school, farm, wharf, market, restaurant, or the post office.
at this age level learn that the place where they live is interconnected with the wider world. This may include a focus on the trucks and	2. Ask students "What kind of things do people do here?" Consider modelling one for the class as a whole and then
railroad lines that bring products to this neighborhood for eventual	dividing the cards among small student groups and having
sale in its stores; to an industrial region, near or far away, producing	students brainstorm a list for their assigned card.
one or more needed products, such as bricks and building materials	3. After students identify what people do in different
for new home construction or clothing for the stores; and to the	occupations, ask "What tools do they use to help them do
airport or regional harbor that links this place with producers,	their jobs?" Students may identify tractors on farms,
suppliers, and families throughout the world.	computers in office buildings, and cash registers at the
	i market.

 Choose one or two careers with local resonance and direct relationships to natural resources, such as farming and fishing. Ask students how they think generations in the past may have conducted this work differently. Consider inviting in guest speakers and displaying regalia from the selected careers. Have students compare the impact of past and present practices on the natural environment such as the use of a tractor allows farmers to farm more land more quickly or chainsaws help people cut down more trees. Students can discuss how tools and practices that allow greater extraction
of resources can lead to environmental changes and challenges.
Environmental Principles and Concepts
Principle I Concept a: Students need to know that the goods produced by natural systems are essential to human life and the functioning of our economies and cultures.
Principle II Concept b: Students need to know that methods used to extract, harvest, transport, and consume natural resources influence the geographic extent, composition, biological diversity, and viability of natural systems.

Appendix G, CA HSS Framework

People and Places (CA HSS 1.2.4)

All lessons in this unit relate locations in California to the physical and human characteristics of those paces. Students learn human activities can change natural systems and how these changes can affect how people live. Information about two cities contrasts how people live in those places (looking at architecture, recreation, and jobs, for example). The unit provides an understanding of humans' dependence on goods

Environmental Literacy Compendium for the California History-Social Science Framework

and services provided by natural systems.

On the Move (CA HSS 1.4.2)

This unit focuses on transportation changes over time and how this brought about changes to communities. Students study photos and compare past and present transportation methods. Each lesson addresses differences in past and present transportation methods to help students learn how the methods of the past and present rely on ecosystem goods and ecosystem services provided by natural systems.

Second Grade - People Who Make a Difference	
From the Framework: Chapter 5	Environmental Literacy Integration
From the Framework: Chapter 5 In Standard 2.2, students learn to describe the absolute and relative locations of people, places, and environments. Students learn to locate specific locations and geographic features in their neighborhood or community by using a simple letter-number grid system. Maps should be utilized frequently to provide practice in the use of map elements such as a title, legend, directional indicator, scale, and date. Students demonstrate their spatial thinking skills and concepts by labeling a North American map with the names of countries, oceans, the Great Lakes, major rivers, and mountain ranges. Students may utilize world maps to locate places of family origin as part of the study of family history in Standard 2.1 in response to the question Why do people move? This activity allows the geographic theme of movement to be explored - why people move from place to place, as well as how and why they made the trip. Students gather evidence about the reasons and ways in which people move, by interviewing family members and neighbors, sharing their interviews with each other, and by reading historical fiction and nonfiction accounts of immigration experiences. Historical fiction books such as Watch the Stars Come Out by Riki Levinson and The Long Way to a New Land by Joan Sandin allow students to draw comparisons between their families' immigration stories and those of other people in other times	 Environmental Literacy Integration Compelling Question: How does where and when we live affect how we live? As students study their own family's geographic history and movement they can make comparisons between what their neighborhood was like then and now and how that influenced people's lives. 1. Have students interview someone from an older generation. This can be a family member, neighbor, community or faithbased leader, or other person of the student's choice. For best effect, the interviewee should be more than one generation removed from the student. 2. As a scaffold, consider inviting a speaker or speakers into the classroom and guide students through an interview. The class can collaborate to create interview questions in advance. 3. After asking questions about why their interviewee moved from place to place, the student can ask about the characteristics of their neighborhood, town, and/or region long ago. 4. Questions can include: "How many people lived in our neighborhood when you first moved here?"; "What would you say is the biggest change you've seen here over time?"; "What was life like when you first moved here?"; "What
in other times.	"What was life like when you first moved here?"; "What changes in our neighborhood have been good ones?"; and
Students also compare and contrast basic land use in urban, suburban, and rural environment in California. Maps, photographs, informational books, and Web resources provide evidence of differences in and environmental impacts of land use and help	 "What changes could make our neighborhood better today?" In addition, students may wish to reach out to people in a different location. As a class, the teacher could contact a class somewhere else through Mystery Skype. The students could contact a class is not provide to be a student of the students could contact a class.
students answer the question How can we best describe California ?	about what life is like where the other class lives.

This question may be explored as part of Standard 2.4 with the study	Environmental Principles and Concepts
of farming and moving food from the farm to the market.	
	Principle II Concept a: Students need to know that direct and indirect
	changes to natural systems due to the growth of human populations
	and their consumption rates influence the geographic extent,
	composition, biological diversity, and viability of natural systems.
	Connection to NGSS Performance Expectations
	2-LS4-1. Make observations of plants and animals to compare the
	diversity of life in different habitats.
	Environmental Literacy Integration
Standard 2.4 develops students' economic literacy and appreciation of	Compelling Question: Why do we eat what we eat?
amphasizes these who supply feed peeds who arous and harvest	As students study the production of food and their roles as
emphasizes those who supply jood, people who grow and harvest	As students study the production of 1000 and their roles as
crops such as wheat, vegetables, and fruit; workers who supply dairy	consumers, the teacher can lead them through an exploration from
products such as milk, butter, and cheese; and processors and	whence their food comes. Students can examine their own local
distributors who move the food from farm to market. Inroughout this	climate and resource availability to understand the regional and
study, students learn the basic economic concepts of human wants,	seasonal availability of certain produce. For example, locally grown
scarcity, and choice and the importance of specialization in work	apples are only available in the fall and winter.
today. In addition, students consider the interdependence of	
consumers, producers, processors, and distributors in bringing food to	1. Open the lesson with a discussion answering the question
market. Students also develop an understanding of their roles as	"Where do we get food we can't grow locally?" Students can
consumers in a complex economy. Ox-Cart Man by Donald Hall is an	look at seasonal offerings available at local farmers markets
engaging book that can help students develop their understanding of	to gain a broader understanding of their regional offerings.
economic concepts.	This can be compared to pictures of farmers markets in other
	parts of the country and the world, or local farmers markets
To engage students' interest and develop an understanding of the	during different seasons.
complex interdependence among the many workers in the food	2. Put students into small groups and assign each a month or
industry and how it functions the way it does, graphic organizers or	season of the year.
flowcharts may be used to illustrate these relationships. Climate and	3. Provide students with a list or card set of locally grown
geography affect the crops farmers grow and how farmers protect	produce available during each group's assigned time. In
them against frosts or drought, the water supply and how irrigation	addition, provide students with a blank calendar modeled
systems work, and the workforce necessary. Students can observe the	after your school's lunch calendar.

many linkages between their homes, the markets that supply their	4. Using knowledge of local, seasonal food availability, students
food, the places where people work to produce their food, and the	create a weeklong, school lunch menu. Each item on the
transportation systems that move food from farm to processor to	menu must include one locally available food item. For
market. Field trips to local businesses and books such as From Wheat	example, students at a school that has pizza on the menu
to Pasta by Robert Egan, From Cow to Ice Cream by Bertram T.	every Friday, could alter the menu to include cheese pizza
Knight, or Farming by Gail Gibbons are helpful for illustrating the	using fresh asparagus grown in the spring.
concepts and provide models for students to write their own	
informational/explanatory texts.	This activity will highlight unique assets and challenges in California's diverse communities.
Applying what they know about natural systems and food production,	
students can focus on strawberries, a major California crop, to learn	Environmental Principles and Concepts
about the interdependence of producers and consumers in the	
economic system. (See appendix G for Environmental Principle I;	Principle I Concept c: That the quality, quantity, and reliability of the
California Education and the Environment Initiative [EEI] curriculum	goods and ecosystem services provided by natural systems are
unit "The Dollars and Sense of Food Production," 2.4.2-2.4.3.)	directly affected by the health of those systems.
	Principle III Concept b: Students need to know that human practices
	depend upon and benefit from the cycles and processes that operate
	within natural systems.
	NGSS Performance Expectations Extension Connection
	2-LS2-1. Plan and conduct an investigation to determine if plants
	need sunlight and water to grow.
	2-LS2-2. Develop a simple model that mimics the function of an
	animal in dispersing seeds or pollinating plants.

Appendix G, CA HSS Framework

California Land Use - Then and Now (CA HSS 2.2.4)

This unit focuses on land use patterns in California and how these patterns have changed over time. Also presented are basic concepts related to the different types of land use in urban, suburban, and rural environments in California. Human influence on natural systems is addressed via community development and how the land is used for housing, transportation, agriculture, and recreation.

From Field to Table (CA HSS 2.4.1)

Accompanied by a mini newspaper and two grade-level readers, this unit teaches students about food production and consumption, both long ago and today. The roles of farmers, processors, distributors, weather, and land and water resources are introduced. Students also learn to recognize the relationship between human needs, components of the food production system, and the ecosystem goods and ecosystem services made available by natural systems. They study the ways that people have learned to use knowledge of natural systems to improve the quality, quantity, and reliability of food production.

The Dollars and Sense of Food Production (CA HSS 2.4.2, 2.4.3)

Students apply what they know about natural systems, plant growth, and food production to solve a mystery about missing strawberries. As students work to solve the mystery, they review ways in which food production depends on the availability of natural resources and how such resources are limited. Students provide examples of how decisions about what to produce and what to consume can be affected by the quality, quantity, and reliability of the resources provided by natural systems. Students also develop a clearer understanding of the interdependence of consumers and producers.

Third Grade - Continuity and Change	
From the Framework: Chapter 6	Environmental Literacy Integration
Students observe how their community has changed over time and why certain features have remained the same, in response to the question How has my community changed over time? The House on Maple Street by Bonnie Pryor demonstrates how a place changes over 300 years. This book may be used to introduce the study of students' local community. Primary sources, secondary sources, and other informational text specific to their local region can deepen students' appreciation for and understanding of their community.	 Compelling Question: What does it take to survive as circumstances change? Teachers can use the accessible and engaging theme of food to trace the development of their local community over time. 1. Start the exercise by having students brainstorm the foods they eat the most. Create a list of student responses. 2. Before providing students with additional information ask
To better understand how communities function, students compare the kinds of transportation people used, the ways in which people provided water for their growing community and farmlands, the sources of power, and the kinds of work people engaged in long ago. They discover that the changing history of their locality was, at all stages, closely related to the physical geography of this region: its topography, soil, water, mineral resources, and relative location.	 before providing statements with additional mornation, ask them to predict what they think the indigenous people in their community ate before the arrival of westerners. Create a class T-chart that lists the students' favorite foods on one side and what their research shows would be the likely foods an 8-year old indigenous person from the past consumed. Help students make reasonable connections as to how the land was managed to produce food. Identify who were the first non-indigenous settlers to arrive
Students can analyze how successive groups of settlers have made different uses of the land, depending on their skills, technology, and values. Students may observe how each period of settlement in their locality left its mark on the land and predict how decisions made today in their communities will impact their communities in the	 in your community. What food did they eat? Add to your chart what an average 8-year old in this group would have eaten. How did they get their food? 5. Provide resources to students to help them analyze how the diets of indigenous people changed after the arrival of
To bring earlier times alive, teachers may provide students with historical photos to observe the changes in the ways families lived, worked, played, dressed, and traveled. Primary sources, such as maps and photographs, can be utilized to observe how a given place, such as Main Street, looked long ago and how it looks today. Students can	 western settiers. Did the indigenous people's eating behavior change? How did the arrival of settlers affect the food sources of indigenous people? 6. Have students predict what the 8-year old indigenous child would do in the face of this change. How would he or she adapt? Students could do this through writing a journal entry in the voice of an indigenous child grappling with the changes he or she is experiencing.

by the teacher. Students can write explanatory texts about the	This activity causes students to analyze adaptability to change and
changes over time, using evidence from multiple visual or print	how what we eat is informed by our location and cultural traditions.
sources to support their ideas.	
	Environmental Principles and Concepts
The local community newspaper, libraries, the historical society, or	
other community organizations often can provide photos and articles	Principle II Concept a: "that direct and indirect changes to natural
on earlier events in the region. When available, old maps can be a	systems due to the growth of human populations and their
source of discoveries: the location of the early ranchos that once	consumption rates influence the geographic extent, composition,
occupied California: how people constructed streets have changed	biological diversity, and viability of natural systems."
over the years and how settlements have grown; how once-open	And
fields have changed to dense urban development; how a river or	Principle II Concept b: "that methods used to extract, harvest,
coastline has changed in location or size because of a dam	transport and consume natural resources influence the geographic
constructed upstream, a great earthquake in the past, or breakwaters	extent, composition, biological diversity, and viability of natural
that have been built to change the action of the sea.	systems."
	And
	Principle II Concept c: "that the expansion and operation of human
	communities influences the geographic extent, composition,
	biological diversity, and viability of natural systems."
	NGSS Performance Expectation Extension Connection
	PE 3-I S4-3 Construct an argument with evidence that in a particular
	habitat some organisms can survive well some survive less well and
	some cannot survive at all
Students are now ready to participate in shared-inquiny projects about	Environmental Literacy Integration
people who migrated or immigrated to their region and the impact of	
each new aroup. The teacher may begin the unit by exploring why	Compelling Question: How do communities change over time?
people move and settle in particular places by posina the auestion	
Why did people move to my community? The bilingual picture book	As students' knowledge and awareness of the distinct characteristics
My Diary from Here to There by Amada Irma Pérez, which recounts	of their local community grows, they can begin to explore why people
the move of one family from Mexico to Southern California for	moved to their community in the past, why they move their today,
economic reasons, may be used to develop conceptual knowledge of	and how people have changed their community over time. The
push-and-pull factors. Students can investigate when their families	teacher can draw explicit connections to the resources provided by
moved to the local region and what brought them here, placing these	the local environment in supporting the development of their local
	community and how human interaction with natural resources has

events on a class timeline. Then the sequence of historical events	changed over time. Students can identify key ways in which their
associated with the development of the community can be explored.	community has changed and understand why this happened, the
	benefits, and the possible costs.
Students may develop a community timeline by illustrating these	
events and placing these illustrations in sequence with a caption	1. The teacher can begin the lesson by displaying a physical map
under each. Depending on the local history, this sequence may include	of their local region and ask the class to identify key natural
the explorers who visited the area; the newcomers who settled there;	features.
the economy they established; their impact on the American Indians	2. The teacher can follow this with questions about specific
of the region; and their lasting marks on the landscape, including the	features. For example, she may ask, "What benefits does a
buildings, streets, political boundaries, names, and the rich legacy of	river provide to people?" Students may answer that it
cultural traditions that newcomers have brought with them.	provides water for drinking, fish for eating, travel by boat, or
	a cool place to swim.
	3. From here, the teacher asks the students, why do you think
	the class can create a list of natural resources in the region
	A From here, the teacher asks "Does our community look the
	same today as it did long ago? How has it changed and why?"
	5. The teacher can provide students with primary sources such
	as photographs, maps, newspaper articles, and personal
	diaries for students to explore and grow their understanding
	of how their community has changed over time.
	6. Depending on the nature of the local community, the teacher
	may choose an area to focus student study, such as the
	growth and mechanization of agriculture, the creation of
	reservoirs and canals, the changing nature of forestry and
	logging, off-shore oil drilling, or fishing.
	7. In small groups students can answer the compelling question
	by identifying a key way their community has changed over
	time, why this change happened, and how it benefited
	and/or cost their community and providing one key piece of
	evidence from the primary sources provided to support their
	claim. They can share their reasoning with the class as a
	whole.

	Environmental Principles and Concepts
	Principle I Concept a: Students need to know that the goods produced by natural systems are essential to human life and to the functioning of our economies and cultures.
	Principle II Concept a: Students need to know that direct and indirect changes to natural systems due to the growth of human populations and their consumption rates influence the geographic extent, composition, biological diversity, and viability of natural systems.
	Principle II Concept b: Students need to know that methods used to extract, harvest, transport, and consume natural resources influence the geographic extent, composition, biological diversity, and viability of natural systems.
Third grade students continue preparing to become active and	Environmental Literacy Integration
responsible citizens of their communities, of California, and the United States. In this unit, students focus on developing and understanding citizenship, civic engagement, the basic structure of government, and	Compelling Question: How do people preserve what they value?
responsible citizens of their communities, of California, and the United States. In this unit, students focus on developing and understanding citizenship, civic engagement, the basic structure of government, and the lives of famous national and local Americans who took risks to secure freedoms.	Compelling Question: How do people preserve what they value? Students can grow their knowledge of environmental literacy and their awareness of civic engagement by looking at movements within their community to preserve natural habitats and open spaces. The
responsible citizens of their communities, of California, and the United States. In this unit, students focus on developing and understanding citizenship, civic engagement, the basic structure of government, and the lives of famous national and local Americans who took risks to secure freedoms. Students can discuss the responsibilities of citizens, make a list, or create an illustration of what is considered a "good citizen" They can	Compelling Question: How do people preserve what they value? Students can grow their knowledge of environmental literacy and their awareness of civic engagement by looking at movements within their community to preserve natural habitats and open spaces. The study of how and why people in their community have joined together to preserve a natural environment for future generations.
responsible citizens of their communities, of California, and the United States. In this unit, students focus on developing and understanding citizenship, civic engagement, the basic structure of government, and the lives of famous national and local Americans who took risks to secure freedoms. Students can discuss the responsibilities of citizens, make a list, or create an illustration of what is considered a "good citizen." They can also study how this notion has changed over time: For example, how did children living on farms in the nineteenth century imagine citizenship? How did this change for children in the early twentieth	Compelling Question: How do people preserve what they value? Students can grow their knowledge of environmental literacy and their awareness of civic engagement by looking at movements within their community to preserve natural habitats and open spaces. The study of how and why people in their community have joined together to preserve a natural environment for future generations can empower students to assess what it is the value and to start learning the skills needed to take informed action in the future.
responsible citizens of their communities, of California, and the United States. In this unit, students focus on developing and understanding citizenship, civic engagement, the basic structure of government, and the lives of famous national and local Americans who took risks to secure freedoms. Students can discuss the responsibilities of citizens, make a list, or create an illustration of what is considered a "good citizen." They can also study how this notion has changed over time: For example, how did children living on farms in the nineteenth century imagine citizenship? How did this change for children in the early twentieth century who worked in factories? What are the similarities and differences?	Compelling Question: How do people preserve what they value? Students can grow their knowledge of environmental literacy and their awareness of civic engagement by looking at movements within their community to preserve natural habitats and open spaces. The study of how and why people in their community have joined together to preserve a natural environment for future generations can empower students to assess what it is the value and to start learning the skills needed to take informed action in the future. 1. Identify one local area that has been preserved for future generations. Ponder taking students on a field trip to the location to engage interest.
responsible citizens of their communities, of California, and the United States. In this unit, students focus on developing and understanding citizenship, civic engagement, the basic structure of government, and the lives of famous national and local Americans who took risks to secure freedoms. Students can discuss the responsibilities of citizens, make a list, or create an illustration of what is considered a "good citizen." They can also study how this notion has changed over time: For example, how did children living on farms in the nineteenth century imagine citizenship? How did this change for children in the early twentieth century who worked in factories? What are the similarities and differences? By considering the question How can I help my community? , students	 Compelling Question: How do people preserve what they value? Students can grow their knowledge of environmental literacy and their awareness of civic engagement by looking at movements within their community to preserve natural habitats and open spaces. The study of how and why people in their community have joined together to preserve a natural environment for future generations can empower students to assess what it is the value and to start learning the skills needed to take informed action in the future. 1. Identify one local area that has been preserved for future generations. Ponder taking students on a field trip to the location to engage interest. 2. Provide an overview of the area's history and natural

been honored locally for the special courage, responsibility, and concern they have displayed in contributing to the safety, welfare, and happiness of others.	 Ask students, "Why do you think people in the past wanted to preserve this area in its natural state?" While some answers may be generalized, be sure to elicit answers that are specific to the site you are studying. Ask students, "What would they need to do to achieve their goal of preserving this natural environment?" Brainstorm a list of possible civic actions as a class. Provide students with primary sources that describe the actions taken by people in the past to preserve the area being studied. You may need to chunk and/or modify language
	 from a contemporary newspaper article to make it accessible to students. 6. As a culminating activity, put students in groups and have them identify an area in their community they would like to preserve for future generations. To help convince others within their community to join them, have them create a persuasive piece (e.g., poster, speech, pamphlet) that outlines what they want and why.
	Environmental Principles and Concepts
	Principle II Concept c: Students need to know that the expansion and operation of human communities influences the geographic extent, composition, biological diversity, and viability of natural systems.
	Principle V Concept b: Students need to know that the process of making decisions about resources and natural systems, and how the assessment of social, economic, political, and environmental factors has changed over time.

Appendix G, CA HSS Framework

The Geography of Where We Live (CA HSS 3.1.1, 3.1.2)

This unit uses a series of wall maps to help students learn about their local region: the deserts, mountains, valleys, hills, coastal areas, oceans, and lakes. They identify the ecosystems (natural systems) that are found in their local region. The unit also explores the resources (ecosystem goods and ecosystem services) that are provided by the natural systems in their local region and their uses. Students learn about the ways that people use the resources provided by the ecosystems where they live. Finally, they look at the ways humans have changed the natural systems in their local region.

California Indian People - Exploring Tribal Regions (CA HSS 3.2.2)

This unit gives students and teachers tools to explore the interactions between the California Indian nations (peoples) and the components and processes of the natural system(s) in their local region. Using a series of wall maps and a grade-level reader, students identify their local region, the California Indians that lived in and around their local region (and perhaps still do), and characteristics of the natural regions in which they lived. Then, students study the ecosystem goods and ecosystem services available to the local California Indians, the resources they came to depend upon from the natural system(s), methods they used to acquire such resources, and how they influence the components and processes of the natural system(s) with which they interacted.

California's Economy - Natural Choices (CA HSS 3.5.2, 3.5.3)

This unit discusses the ways (past and present) in which local producers have used and are using natural resources, human resources, and capital resources to produce goods and services. Students study examples of the natural resources (ecosystem goods and ecosystem services) used by local producers. In addition, they learn to compare the costs and benefits of methods used by local producers to extract, harvest, transport, and consume natural resources. Students compare costs and benefits of producing goods - including food and other items - locally, as opposed to transporting them long distances.

History-Social Science, Grades 4-5

In grades four and five, students begin their study of the California and United States History. As they learn about the people, events, and social and technological developments covered in these courses, they can gain a greater understanding of how human activity has shaped and been shaped by the environment and how decisions affecting natural systems have changed over time. Below is a brief overview of how each of the five Environmental Principles fits within this grade span.

Principle I: The continuation and health of individual human lives and of human communities and societies depend on the health of the natural systems that provide essential goods and ecosystem services.

- The ways people in California, from pre-Columbian times to today, have depended on the goods and services provided by natural systems has changed over time.
- The draw of goods and ecosystem services was a significant factor in causing people to migrate to North America and California.

Principle II: The long-term functioning and health of terrestrial, freshwater, coastal and marine ecosystems are influenced by their relationships with human societies.

- California's ecosystems have been both exploited and preserved by human societies over time.
- The arrival of Europeans in North America influenced the functioning and health of ecosystems on the continent.

Principle III: Natural systems proceed through cycles that humans depend upon, benefit from, and can alter.

• As communities in California developed over time, they have sought to extract increased benefit from natural systems by altering and controlling their cycles, through the development of infrastructure such as dams and the use of agricultural tools such as fertilizer.

Principle IV: The exchange of matter between natural systems and human societies affects the long-term functioning of both.

• Human activities, such as mining for gold in California, and their resulting byproducts affect natural systems.

Principle V: Decisions affecting resources and natural systems are based on a wide range of considerations and decision-making processes.

• California's attempts to balance resource extraction with preservation of natural systems has evolved over time as different political, economic, and social factors have arisen.

Fourth Grade - California: A Changing State	
From the Framework: Chapter 7	Environmental Literacy Integration
After studying both indigenous life in California and the motives and practices of European explorers to the New World, students investigate what happens when two different cultures intersect: What impact did this encounter have upon Native peoples, Spanish missionaries and military, the Spanish-Mexican settler population, and California's natural environment? To secure the northwestern frontier of New Spain, King Charles III began colonizing California in 1769. While soldiers arrived to defend the territory, Franciscan missionaries came to convert native peoples to Christianity. Missions initially attracted many Indians, who were	Compelling Question: How did the establishment of missions change life for the people already there? The establishment of the mission system in California fundamentally altered the way humans interacted with their environment in California. The indigenous peoples' traditional methods of resource extraction and harvesting were disrupted with the introduction of new crops and livestock. Studying this disruption and change will allow students to understand not only a foundation for our current agricultural practices, but to gain a greater appreciation for methods employed in the past.
Impressed by the pageantry, material wealth, and abundant food of the Catholic Church. Over time, as Spanish livestock depleted traditional food sources and the presence of the Spanish disrupted Indian village life, many other Indians arrived at the missions seeking a reliable food supply. Once Indians converted to Catholicism, missionaries and presidio soldiers conspired to forcibly keep the Indians in residence at the missions. In addition to their agricultural labor at the missions, Indians contracted with presidio commanders to build presidio fortresses. Cattle ranches and civilian pueblos were developed around missions, often built by forced Indian labor. Spanish culture, religion, and economic endeavors - combined with indigenous peoples and practices - all converged to shape the developing society and environment during Spanish-era California.	 Review with students what they've already studied about the way in which California natives lived before the arrival of Europeans. Review with students what they've already studied about the practice of European explorers to the New World. In small groups, have students list all the ways in which they predict the two groups of people may come into conflict. It can help to model this. For example, students have likely learned that Spanish explorers and colonizers sought to convert indigenous people to Catholicism. They will have also learned that California natives had their own religious practices and beliefs. They could predict that the Europeans would want to convert the native people and that the native people may come into the formation.
transform Indian peoples into loyal Spanish subjects by converting them to Christianity, introducing them to Spanish culture and language, and intermarriage. The introduction of Christianity affected native peoples, many of whom combined Catholicism with their own belief systems. Vastly outnumbered by native peoples, missionaries	 Supply students with a graphic organizer. On one side, have students detail various aspects of native California life premission, as they read source material. It can help to have this information categorized (e.g., political, economic, environmental, religious, etc.)

relied on some Indian leaders to help manage the economic, religious, and social activities of the missions. Colonists introduced European plants, agriculture, and a pastoral economy based mainly on cattle.	 In a second column have students detail aspects of native California life after the establishment of the missions maintaining the same categories. Finish by having students communicate a conclusion as to what they think were the most significant changes to native California life, using evidence from source material to support their claim. This can be done in a paragraph, discussion, or other method of the teacher's choosing.
	Environmental Principles and Concepts
	Principle V Concept b: Students need to know that the process of making decisions about resources and natural systems, and how the assessment of social, economic, political, and environmental factors has changed over time.
	Environmental Literacy Integration
As the state's population continued to expand at the turn of the century, students examine the special significance of water in a state in which agricultural wealth depends on cultivating dry regions that have longer growing seasons and warmer weather than much of the rest of the nation. Students study the geography of water, the reclamation of California's marshlands west of the Sierra Nevada, and the great engineering projects that bring water to the Central Valley and the semiarid south. The invention of the refrigerated railroad car opened eastern markets to California fruit and produce. Students also examine the continuing conflicts over water rights.	What is the value of water in California? EP&C Principle I asks students to understand that natural systems provide both essential goods and ecosystem services. Teachers can use this frame to help students understand the historical and contemporary issues in California around the distribution of our limited water supply. As students study water rights issues of the past, connect their learning to contemporary water issues in their region. This can be done through a simulation where students adopt multiple perspectives on a water rights issue.
	 Study a historical water rights issue in your region. For example, San Francisco and the Hetch Hetchy Valley, Los Angeles and the Owens Valley, the Colorado River Project, Central Valley Project, or the State Water Project. Identify a water rights debate that is contemporary to your region. For example, construction of tunnels in the Sacramento-San Joaquin River Delta, construction of the Sites

 Reservoir, or the tension between agricultural water rights and environmental concerns. 3. Provide students with various roles to play, including: Members of the panel deciding the issue Advocates for every side of the debate (depending on the issue, the number of stakeholders may vary) Additional roles as the issue may warrant 4. Student advocates will present evidence-based testimony to the panel supporting a specific outcome. 5. The panel will listen to all sides, deliberate, and decide on the best course of action.
This activity allows students to connect historical debates to relevant current issues while growing their understanding of multiple points of view on complex social issues. In addition, they gain civic skills, learning how to advocate for a position with no guarantee of an outcome of their choosing. Consider having students bring their advocacy outside the classroom either on the issue discussed in class or something else, like water conservation efforts.
Environmental Principles and Concepts
Principle I Concept a: The goods produced by natural systems are essential to human life and to the functioning of our economies and cultures.
NGSS Performance Expectation Extension Connection
4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.
Appendix G, CA HSS Framework

Reflections of Where We Live (CA HSS 4.1.3, 4.1.5)

Lessons in this unit are tied together by the theme of "reflections" - that different aspects of human activity reflect the physical features of the environment in which they live. Students learn how human activities and structures reflect various aspects of the physical environment (water, landforms, vegetation, and climate), and that characteristics of regions in California are tied to human population density. Activities involve the study of maps, charts, and pictures to gather information about different geographic regions and related human population density, activities (including transportation), and structures (i.e., buildings). All lessons reinforce the concept that humans have learned to live in many locations and that how they live is shaped (or influenced), in part, by the environment.

California Indian Peoples and Management of Natural Resources (CA HSS 4.2.1)

This unite emphasizes modern-day California's natural diversity. At the time of European contact, California Indian nations managed this landscape to produce a myriad of resources. Intense land management sustained communities that varied from seasonally moving extended families to permanent settlements of several thousand. The physical and social practices of California Indians emphasized productivity, sustainability, and renewal. Today, California Indians continue many of these traditions. In this unit, students compare the ecosystem goods and ecosystem services available to California Indian people of the past, their worldviews, how they used and managed resources, and examine how they established trade networks to access goods from far-off regions. Students learn how some of these practices continue to the present day.

Cultivating California (CA HSS 4.2.6)

This unit provides an environmental framework for discussing the role of the Franciscan missionaries in changing the economy of California. Students consider how people use land and resources as they discern the far-reaching influences of the state's economic transition from hunter-gatherer societies to agriculture. Students begin the unit by reading a story about Anaheim's transformation from farmland to amusement parks. They then turn their attention to the economic interplay between the California Indians and the Franciscan missionaries in pre-California.

Witnessing the Gold Rush (CA HSS 4.3.3)

This unit provides a new perspective to what is often a favorite subject for teachers and students alike: the California Gold Rush. Students learn how the search for gold and the influx of settlers influenced the natural environment (rivers, forests, mountains, valleys), and placed great demands upon the state's natural and social resources. It also addresses how individuals, government, business, and industry responded to many of the continuing, and often unanticipated, effects of the Gold Rush on California's social, economic, political, and legal systems.

	depend on the health of the natural systems that provide essential
	goods and ecosystem services.
	Concept a: Students need to know that the goods produced by
	natural systems are essential to human life and to the functioning of
	our economies and cultures
	Concept b: Students need to know that the ecosystem services
	provided by natural systems are essential to human life and to the
	functioning of our economies and cultures.
	Environmental Literacy Integration
Students begin their study of the period by investigating this question:	,
Why did Europeans explore? In this unit, students concentrate on the	Compelling Question: Can food change a continent?
expeditions of the early explorers and lear about the explorers'	
European origins, motives, journeys, and the enduring historical	The Columbian exchange fundamentally changed the ecosystems of
significance of their voyages to the Americas. Several important	both Europe and the Americas. By choosing two natural resources,
factors contributed to the age of exploration: religious and political	one with its origins in Eurasia and the other with its origins in the
conflict in Western Europe, advances in nautical technology and	Americas, students can better understand how the exchange worked,
weaponry, and European competition over access and control of	the changes it caused, and the benefits and costs that accompanied
economic resources overseas. The alobal spread of plants, animals,	it. For this example we've chosen the potato and cultivated rice, but
people, and diseases (Columbian Exchange) beginning in the fifteenth	the teacher can choose resources that are relevant to their region
century transformed the world's ecosystems. The exchanges also had	and student population.
a devastating impact on indiaenous populations in the Western	
Hemisphere, due to the spread of illnesses such as measles and	1. Explain to students that the arrival of European explorers and
smallpox, for which the native populations had no natural immunity.	subsequent colonists caused people on both sides of the
······································	Columbian exchange to be exposed for the first time to a
	number of new plants, animals, and diseases. Today, they are
	going to trace the history of two plants and analyze how they
	caused change to their new environment.
	2. Provide students with a graphic medium to help guide them
	(e.g., a timeline, a cause and effect chart)
	3. First, the class will look at the history of the potato. Through
	reading source material, students will discover that the

potato originated in South America, specifically southern
Peru.
4. Spanish sailors, needing food for their journey back to Spain,
likely took potatoes with them. What was left uneaten on the
journey was planted back home.
5. The popularity of the potato spread throughout Europe as it
was cheap, calorically dense, and didn't spoil quickly.
6. The introduction of the potato allowed for the population to
grow, aiding in the development of the Industrial Revolution,
but the lack of variety due to its non-hative status made the
potato in Europe susceptible to blight as happened with the
7 While many people indigenous to North America gathered
wild rice and some regions of the Amazon saw the cultivation
of a local form of rice, the Asian and African rice common in
the Americas today came through the Columbian Exchange.
8. Students can learn about the introduction of rice cultivation
to South Carolina and Georgia in the late 17th century.
9. European colonists were unfamiliar with rice cultivation. This
caused them to learn skills from enslaved Africans who had
cultivated rice in Africa prior to losing their freedom.
10. Rice cultivation in the southern colonies incentivized the
Europeans there to increase their reliance on labor by
enslaved people. Subsequently, rice cultivation in the South
decreased after the abolition of slavery.
11. After conducting two case studies, have students
12 As an extension consider having students research a third
food that similarly made its way to a new environment via
the Columbian Exchange.

	Environmental Principles and Concepts
	Principle II Concept a: Students need to know that direct and indirect changes to natural systems due to the growth of human populations and their consumption rates influence the geographic extent, composition, biological diversity, and viability of natural systems.
	Environmental Literacy Integration
In this unit, students examine the daily lives of those who built the young republic under the new Constitution. The following questions should frame students' studies of the era: Who came to the United	Compelling Question: Why move west?
States in the first half of the nineteenth century? Where did they settle? How did they change the country? Between 1789 and 1850, new waves of immigrants arrived from Europe, especially English, Scots-Irish, Irish, and Germans. The Great Irish Famine (1840s) helped to push immigrants to come to the United States during this period. Traveling by overland wagons, canals, flatboats, and steamboats, these newcomers advanced into the fertile Ohio and Mississinni	The young republic saw numerous people push west into the Ohio and Mississippi River valleys. Why? What drew people to move west? Having students understand the draw of land and the resources therein will aid them in understanding this and later movements of settlers westward while acknowledging the displacement of those already living there.
valleys and through the Cumberland Gap to the south. Students may want to listen to or sing the songs of the boatmen and pioneers and read the tall tales of figures such as Mike Fink and Paul Bunyan, read Enid Meadowcroft's By Wagon or historical fiction such as Dandelions by Eve Bunting.	 Divide the class into four groups, assigning each group a perspective to research. Perspectives could include a German immigrant leaving political turmoil back home, a person seeking to escape slavery in the South, or an American looking for economic opportunity further west. Define the concept of push and pull factors for students.
Students also learn about the Louisiana Purchase and the expeditions of Lewis and Clark, guided by Sacagawea, and of John C. Fremont. The themes of exploration, emigration, and immigration help students examine the significance of mobility and geography during this period in American history. Stressing roles played by transportation technologies in this historical drama can make the processes and people under study far more accessible to students learning about a variety of cultures, communities, and environments.	 Define the concept of push and publications for students. Students use this frame to collaboratively gather information about the reasons these people settled/sought to settle in the Ohio Valley. Form student groups of four, with each group consisting of one student from the previous groupings. Each group of four should have one student representing one unique, researched perspective. Provide students with a graphic organizer on which they can document the push and pull factors for each perspective.
	5. As students share their perspectives, other students in the group should add information to their graphic organizer.

6. As a group, have students come to a consensus on the compelling question. What were the key reasons different groups of people moved west during this time? Answers should include several environmental factors such as the availability of natural resources and suitability to farming. In
addition, student answers can explore the impact westward
Environmental Principles and Concepts
Principle I Concept a: Students need to know that the goods
produced by natural systems are essential to human life and to the
functions of our economies and cultures.

Appendix G, CA HSS Framework

Human Settlement and the Natural Regions of the Eastern Seaboard (CA HSS 5.4.1)

Students explore the human settlement and natural features of the eastern seaboard, including the physical locations of the American Indian nations and the 13 colonies from the 1600s to 1763. Students act as "naturalists," recording examples of flora and fauna native to he eastern seaboard through excerpts from primary sources. Knowledge of the plants, animals, and the ocean services in the "New World" helps students understand what made the region attractive to Europeans and American Indians alike, and what made permanent settlement possible. The development of early economic systems in the Americas, particularly the staple crop economies, are discussed, and the increased likelihood of European encroachment into lands occupied by American Indian nations is introduced.

Nature and Newcomers (CA HS 5.8.4)

Through the perspective of the overland trail settlers in early American history, this unit teaches students to uncover connections between the natural environment (natural systems and resources) and the built environment (the ways that human beings attempt to influence the natural world). Students learn about the experiences of settlers on the trails and the factors that influence human beings when making decisions about natural resources, natural cycles, and natural processes. While investigating the physical landscape, vegetation, and climate of the major western overland trails, as well as the effects of natural cycles and processes upon the settlers, students understand the settlers' motivations for moving west.

History-Social Science, Grades 6-8

In grades six and seven students study world history from the beginnings of human civilization to the global convergence of the post-medieval period. The environment is one of four key themes of world history identified in the CA HSS Framework. In grade eight students have several opportunities to make connections to the EP&Cs as they study the effects of industrialization on the environment and the westward movement of people drawn to goods and ecosystem services provided in lands on the frontier. Below are some examples of how each Environmental Principle can fit within this grade span.

Principle I: The continuation and health of individual human lives and of human communities and societies depend on the health of the natural systems that provide essential goods and ecosystem services.

- Early civilizations began in locations where essential goods and ecosystem services were conducive to their development.
- Environmental variation in the United States contributed to the development of distinctive regional economies and cultures.

Principle II: The long-term functioning and health of terrestrial, freshwater, coastal and marine ecosystems are influenced by their relationships with human societies.

• Over time, new and more advanced methods have been developed to extract, harvest, transport, and consume natural resources which has affected the geographic extent, composition, biological diversity, and viability of natural systems.

Principle III: Natural systems proceed through cycles that humans depend upon, benefit from, and can alter.

• Early human civilizations' benefited from the development of irrigation and agriculture.

Principle IV: The exchange of matter between natural systems and human societies affects the long-term functioning of both.

• Human activities can lead to increased quantities of resources consumed such as the invention of the heavy plough and the use of crop rotation in the medieval period.

Principle V: Decisions affecting resources and natural systems are based on a wide range of considerations and decision-making processes.

• Economic considerations affect decisions about resources, including the growth of cotton as the primary cash crop of the Southern United States.

Sixth Grade - World History and Geography: Ancient Civilizations	
From the Framework: Chapter 10	Environmental Literacy Integration
Students investigate the dramatic changes that took place when some	Compelling Question: What does it take to grow a city?
humans began to domesticate plants and animals and settle in one	
place year-round. Students pursue answers to these questions: Why	In this unit, students learn how humans began to transition from
did some people develop agriculture and pastoral nomadism? What	nomadic hunter-gatherers to sedentary city-dwellers. Through
were the effects of these new ways of life?	simulating the benefits and societal changes caused by the
	development of agriculture, students can begin to understand the
Teachers begin by asking students why a gatherer might start	profound changes wrought when human interaction with their
planting seeds. How might a hunter start to tame an animal?	environment evolved.
Archaeological evidence indicates that in the Middle East, and	
probably Egypt, foraging bands settled near stands of edible grasses,	1. Divide the class into two or three groups. Groups should be of
the genetic ancestors of wheat and other grains. People deliberately	significant size.
began to sow plants that had favorable qualities – for example,	2. Describe the following roles to students, letting them know
varieties that were large, tasty, and easy to cook. In this way, they	that each person in their group must choose one role. The
gradually domesticated those plants. Domesticated plants and	group decides how many people choose each role.
animals became increasingly important to human diets regionally and	 Hunter - to hunt animals for food
turned people into farmers, that is, producers of food rather than	 Gatherer - to gather food from the wild
simply collectors of it.	 Builder - to build shelters for people and food storage
	3. Provide each student with an uncolored outline of an image
This huge change introduced a new way of life for humans – village	related to their choice. For example, you might provide an
agriculture. They could therefore live in larger settlements and	outline of a deer to the hunters and acorns to the gatherers.
accumulate more material goods than when they foraged for a living.	Builders can have either an outline of a house or a granary.
Teachers emphasize that agriculture involved not only the act of	4. Instruct students that they will have a set amount of time
farming but also a whole new way of life based on food production.	(30-60 seconds) to color in as many of their images as they
Improved production meant that not everyone in a village had to	can. Students should not be able to complete more than one
spend all of their time securing the food supply. Food surplus also	or two images in the time allotted. Provide restrictions such
invited conflict with neighboring tribes eager to expand their own	as:
reserves.	 no coloring outside the lines, and
	complete coverage required to count.
Another result of village agriculture is the development of tools. Early	5. Let them know that by the end of their time every student in
farmers gradually developed more varied stone tools, such as sickles	the group must have at least one unit of food and one
to cut grain and grindstones to make flour. They used fire to	shelter. Anyone without both items would not be able to

transform clay into durable pottery. They wove wool, cotton, and linen into textiles. Because the early millennia of agriculture involved more sophisticated stone tools, it is known as the Neolithic, or New Stone Age.

One of the major effects of the village agricultural way of life was an increase in social differences. In early villages, adult men and women probably worked together to perform many necessary tasks and treated each other with near equality. Because villages likely included several extended families living close together, however, leaders inevitably emerged to guide group decisions and settle personal conflicts. In addition, as soon as some families accumulated more stored food than did others and appointed guards to protect their wealth, the conditions for social inequality appeared. Teachers may ask students to examine differences in the contents of graves that archaeologists have excavated – some graves having jewelry, shells, or other fine materials and some having none of these things – for evidence about social ranking and inequality in early agricultural communities.

survive the winter and would be taken out of their group. If they've produced extra food they can store it in the granary for future use. If one group has extra food and shelter, and the other did not produce enough, students can move groups "growing the population" of the group with extra resources.

- 6. Tell students that they now have the option of adding an additional role to their group.
 - Artisan to create luxury goods
- 7. The winning group will be determined by who creates the most luxury goods. Any artisans who are unfed or unhoused by the end of the round, however, will not survive the winter and their luxury goods won't count.
- 8. After one additional round, introduce the last role:
 - Farmer to plant and harvest crops
- 9. In order to complete one task, farmers will have to complete two images. One image should represent planting the crop, the other harvesting the crop. The upside is that each harvested crop can feed four people.
- 10. Have students redistribute their group as they choose. Complete as many rounds as deemed worthwhile, allowing students to make corrections between rounds.
- 11. After a winning group is declared, debrief on a class as to what strategies they employed that were the most successful. Ideally, students will gain a greater understanding as to how the development of farming allowed more people to become artisans, advancing their civilization.

Environmental Principles and Concepts

Principle I Concept a: Students need to know that the goods produced by natural systems are essential to human life and to the functioning of our economies and cultures.

	Principle V Concept a: Students need to know that there is a
	chartering of what is considered in making designs about resources
	spectrum of what is considered in making decisions about resources
	and natural systems and now these factors influence decisions.
Teachers introduce students to Mesopotamia's numerous	Environmental Literacy Integration
technological and social innovations, including the wheel, the wooden	
plow, the seed drill, and improved bronze metallurgy, as well as	Compelling Question: What do a city's laws tell us about the people
advances in mathematics, astronomical measurement, and law. The	who live there?
cuneiform writing system was essential to the functioning of the legal	
system and the administrative structure of Mesopotamian kinadoms.	As people began to live in cities, laws were developed to ensure
The signs were written on clay tablets and could be used to represent	stability and order. Many of these laws centered on private property
nhonetically many ancient languages, including Sumerian and	rights and the cultivation of land, including a number detailed in the
Akkadian the languages of Mesonotamia Mesonotamians had a	Law Code of Hammurahi. Through an exploration of these laws
complex legal system and written laws of which Hammurahi's are the	students can gain an understanding as to how ancient sivilizations
host processed though not the parliast	made desisions affecting resources and influencing natural systems
best preserved, though not the earliest.	
	 Ask students, "What sort of laws might you need to live in a city with farmers, merchants, and others, that you wouldn't have needed as hunter-gatherers?" Have students collaboratively brainstorm responses. As students share their responses and categorize them. Possible categories can include: trade, religion, and property. Pass out to students excerpts of Hammurabi's code. There are nearly 300 to choose from. Choose those that cross an array of offenses, are of interest to students, and accessible. Examples include: If fire breaks out in a house, and some one who comes to put it out cast his eye upon the property of the owner of the house, he shall be thrown into that self-same fire. [25] If a tavern-keeper (feminine) does not accept corn according to gross weight in payment of drink, but takes money, and the price of the drink is less than

	that of the corn, she shall be convicted and thrown
	into the water. [108]
	 If anyone opens his ditches to water his crop, but is
	careless, and the water floods the field of his
	neighbor, then he shall pay his neighbor corn for his
	loss. [55]
	4. As students work through the examples provided, have them
	discuss what appeared to be the chief concerns of the people
	in Hammurabi's time. How do the laws they are reading
	reflect the nature of the world in which the people lived. How
	does that compare to pre-agrarian societies?
	5. As an extension, have students research contemporary laws
	in their city and/or state. What do those laws say about
	people today? Narrow students' focus to environmental laws
	(e.g., recycling, pollution, development/open space) for
	explicit connections to the EP&Cs.
	Environmental Principles and Concepts
	Principle II Concept b: Students need to know that methods used to
	extract, harvest, transport, and consume natural resources influence
	the geographic extent, composition, biological diversity, and viability
	of natural systems.
	Principle V Concept a: Students need to know that there is a
	spectrum of what is considered in making decisions about resources
	and natural systems and how those factors influence decisions.
In this unit, students learn about the ancient Greek world, which was	Environmental Literacy Integration
centered on the Aegean Sea, including both the Greek peninsula and	
the west coast of Anatolia (modern Turkey) They begin with the	Compelling Question: Does where we are, determine who we are?
question How did the environment of the Greek peninsula and	
islands, the Anatolian coast, and the surrounding seas affect the	As the teacher introduces the unit on Ancient Greece, she can
development of Greek societies? An elongated coastline and	activate student curiosity through an exploration of the region's

numerous islands stimulated seaborne trade, as well as easy communication between one community and another. The peninsula's interior of mountains and deep valleys, by contrast encouraged the independence of small communities and city-states, rather than a unified empire. Several waves of migration through the area brought significant changes to the population and culture. Greeks were oriented toward the sea, dependent on trade to feed themselves, and willing to move and settle colonies.	 geography. Using physical maps, satellite images, and pictures of dramatic landscapes allows students to begin the unit with a visual reference of the region studied and prompts students to consider the impact of the environment on the beginnings of ancient Greek civilization. 1. Display a physical map or satellite image of Greece and the Aegean Sea. 2. Conduct a visual discovery with students. Start by asking students to identify what they see without inference or interpretation. Responses should include things like, mountains, islands, and the sea. 3. Ask students what they think it would feel like to be in this country? What does the air smell like? What do they predict the weather is like? What kind of work would people do? 4. Display images of Greek topography. This can include pictures of the Attican coastline, Pindus Mountains, and islands like Santorini and/or Lesbos. Continue with the questioning and allow students to gather more evidence of the geography of Greece. 5. Organize students into groups of 3-4. Provide them with a T-chart. Have students collaboratively list the benefits and challenges of living in this region. Benefits could include good weather, beautiful scenery, and opportunities to fish. Challenges could include difficulty farming in mountains, isolation, and danger of sea travel. 6. Now that students have been primed with knowledge of
	 Organize students into groups of 3-4. Provide them with a T-chart. Have students collaboratively list the benefits and challenges of living in this region. Benefits could include good weather, beautiful scenery, and opportunities to fish. Challenges could include difficulty farming in mountains, isolation, and danger of sea travel. Now that students have been primed with knowledge of Greek geography and have begun to think of how that could affect life in the region, move into your unit on early Greek history, making consistent connections to the importance of geography in the development of ancient Greek civilization.

	Environmental Principles and Concepts
	 Principle I Concept a: Students need to know that the goods produced by natural systems are essential to human life and to the functioning of our economies and cultures. Principle I Concept b: Students need to know that the ecosystem services provided by natural systems are essential to human life and to the functioning of our economies and cultures.
The leaend of Cincinnatus also emphasizes that the duty of a Roman	Environmental Literacy Integration
to the state was often to fight. The Roman military was large, tough, and powerful. Environmental factors also influenced Rome's expansion, which students analyze with this guiding question: How did the environment influence the expansion of Rome and its	Compelling Question: What motivated Rome to conquer its neighbors?
<i>integrated trade networks?</i> During the Early Republic (509-264 BCE), the Romans took over the entire Italian peninsula, whose fertile valleys and coastal plains produced bountiful harvest of wheat, wine, olive oil, and wool. Rome defeated it nearby neighbors in a series of wars and partially incorporated them into the young state, which ensured a steady supply of soldiers for the growing army. Expansion around the Mediterranean rim began in the third century BCE, when	As students trace the growth of Rome, from a small city to an empire that stretched from Southwest Asia to the British Isles, they analyze the reasons Rome sought to expand, including the desire to control resources available in different parts of their region. Students can identify key resources in each newly conquered territory as they develop a timeline of Rome's expansion.
Rome defeated the maritime state of Carthage in the Punic Wars. By devastating Carthage, Rome gained thousands of square miles of wheat land in Sicily and North Africa, as well as a windfall of Spanish silver. In the decades before and after the turn of the millennium, Rome also conquered the Hellenistic kingdoms of Greece and Egypt.	 Display two images of Rome, one showing its territorial extent c. 500 BCE, the other showing it's extent in the 2nd century CE. Ask students, "How do you think an empire could expand so significantly?" Students could guess that the Romans were stronger than others, or better fighters and were able to conquer other people. Students might think non-Romans believed Romans were smarter or wealthier and chose to join them.
	 Ask students, "Why do you think the Romans wanted to expand their empire? Why wouldn't they be content with what they had?" Students could identify incentives for expansion like power, security, and wealth.

 4. As students identify wealth as a motivation for expansion, ask students what made an empire wealthy? They may immediately talk about gold, silver, and jewels. Facilitate the conversation toward natural resources and how trade allowed people in Rome access to goods they might not otherwise have. 5. Organize students into small groups. Tall them that the until the second students into small groups.
 Organize students into small groups. Feit them that they will develop a timeline of Rome's expansion that includes the following: The date and the name of each region annexed to the Republic/Empire How it was won for Rome What were the primary resources Rome imported
 What were the primary resources Rome imported from the annexed region? 6. Allow students flexibility with their timeline's formatting. Some may want to use a map to display the expansion of Rome, coloring the different regions by date of conquest and using images to represent the goods produced there.
acquisition as an incentive to expansion. This can be done through small group discussion, a whole-class debrief, or on an exit ticket.
Environmental Principles and Concepts
Principle I Concept a: Students need to know that the goods
produced by natural systems are essential to human life and to the functioning of our economies and cultures.
Principle V Concept a: Students need to know that there is a spectrum of what is considered in making decisions about resources and natural systems and how those factors influence decisions.

Appendix G, CA HSS Framework

Paleolithic People: Tools, Tasks, and Fire (CA HSS 6.1.1)

In this unit, students explore the essential characteristics of scavenger/hunter-gatherer societies, including the development of tools and the use of fire. Students read a story that sets the stage for exploration of ways in which humans, dating back to their earliest ancestors, have used and influenced the environment. The unit brings to light the prehistory of humans and introduces the interaction between human culture and the natural environment. This unique perspective provides students with a broader understanding of where humans have come from and where they may be headed.

Paleolithic People: Adapting to Change (CA HSS 6.1.2)

By identifying the locations of prehistoric human communities and providing examples of factors that influence their settlements, students learn to compare the lifestyles of different Paleolithic cultures and the ecosystem goods and services upon which they depended. The unit highlights climate change as one of the factors influencing human migration within and out of Africa. In addition, students consider how their own behaviors and activities depend on the ecosystem goods and services available to them today.

Rivers Systems and Ancient Peoples (CA HSS 6.2.1)

This unit teaches students that the physical geography of certain areas positioned them to become the locations of the world's first cities. Further lessons detail the rise of agriculture and civilization. Students learn to connect cycles, flow, and the role of rivers in ecosystems to the rise of the world's oldest cities in ancient Mesopotamia and Egypt.

Agricultural Advances in Ancient Civilizations (CA HSS 6.2.2)

This unit takes students on a journey from the earliest subsistence farms through the rise of ancient civilizations. By focusing on the effects of agricultural advancements, students learn about the importance of nature and natural cycles to the development of political, economic, religious, and social structures of the early civilizations of Mesopotamia, Egypt, and Kush. Students draw parallels between ancient and modern times by looking at the critical role of water. Although the unit focuses on ancient people, the problem-solving and critical thinking skills practiced throughout the unit are transferable skills that help students understand human reliance on natural resources in the present day.

Egypt and Kush: A Tale of Two Kingdoms (CA HSS 6.2.8)

Students learn about the complicated and interwoven histories of two ancient superpowers: Egypt and Kush. The unit begins with a present-day conflict that highlights the positive aspects and perils of resource competition and consumption. Students learn about the unique geography of the Nile Valley region and its myriad of natural resources that supported extensive cultures and a vast network of trade. Students also explore the ways in which civilizations throughout time have sought to control the natural environment and how those efforts have influenced their natural world.

The Rivers and the Ancient Empires of China and India (CA HSS 6.5.1, 6.6.1)

Students apply what they know about river systems - their processes, characteristics, and their importance to human settlement - to an exploration of the civilizations that arose in ancient India and China. By studying the physical and natural environments, students learn about geographic and climatic factors that contributed to the rise of great dynasties in both areas, and they discover the dependence of the people on the ecosystem goods and services provided by the rivers. The lessons reinforce how physical characteristics of the regions fostered the beginning of settled life and the growth of sophisticated cultures and civilizations.

Seventh Grade - World History and G	eography: Medieval to Modern Times
From the Framework: Chapter 11	Environmental Literacy Integration
This unit examines the geography of Southwestern Asia (including the Middle East), the Persian Sasanian Empire, the emergence and development of Islam, and interactions at three sites of encounter: Baghdad in the eighth century, Sicily in the twelfth century, and Cairo in the fourteenth century. The teacher beings with introducing the following question: How did the enivronment affect the development and expansion of the Persian Empire, Muslim empires, and cities? What impact did this expansion have on the environment? A climatic map of Southwestern Asia shows that much of this area falls within a long belt of dry country that extends from the Sahara Desert to the arid lands of northern China.	Compelling Question: How did the medieval Islamic world irrigate the desert? In addition to studying the expansion of Islam and the Muslim empires, students can research some of the early engineering inventions developed in SW Asia during the medieval period. While the suggestions below focus on inventions dealing specifically with agriculture and irrigation, a teacher could incorporate other inventions in the medieval Islamic world, including in the areas of medicine, mathematics, art, and literature.
In lesson one of California EEI curriculum unit "Arabic Trade Networks," 7.2.5, students examine the physical features and natural systems of the Arabian Peninsula and the human improvements to farming practices, which increased supplies of food. Across this dry zone, including Arabia, pastoral nomads herded camels and other animals, and oasis cities sheltered farmers, artisans, and merchants. North of the Arabian Peninsula is the lush agricultural land of Mesopotamia and Persia. Here settled farmers had supported an advanced civilization going back to ancient Mesopotamia. A map of the Eastern Hemisphere also shows students that Southwestern Asia, Persia, Arabia, the Red Sea, and the Persian Gulf were natural channels for land and seat trade in spices, textiles, and many other goods between the Indian Ocean world and the Mediterranean area. These geographic factors put Southwestern Asia and Arab, Persian, and Indian merchants and sailors at the center of the Afroeurasian trade networks, which began to grow dynamically after the seventh century.	 Divide students into groups of four and introduce them to the compelling question. Provide each group with a picture and fact sheet of an Arabian mechanical invention related to agriculture. Examples include: Double suction pump of Al-Jazari (12th century) Vertical windmills (6th century) Waterwheels (7th century) Third water-raising device of Al-Jazari (12th century) Provide students with guiding questions to help guide their research of the invention. Questions could include: When was this invented? What was its purpose? How did it help improve agriculture in SW Asia? Have students prepare a presentation to share their findings with their classmates. Their presentation could take a number of different forms, including poster or slides. Ensure student presentations tie back to the compelling question and include and evaluation of how their assigned technology impacted the environment.

	Environmental Principles and Concepts
	Principle II Concept b: Students need to know that methods used to extract, harvest, transport, and consume natural resources influence the geographic extent, composition, biological diversity, and viability of natural systems.
	NGSS Performance Expectation
	HS-ETS 1. Engineering Design. Evaluate a solution to a complex problem based on prioritized criteria and tradeoffs that account for a range of constraints as well as social, cultural, and environmental impacts.
Students turn their attention to the following question: How did	Environmental Literacy Integration
Chinese culture, ideas and technologies, and Buddhism influence Korea and Japan? Under the Tang Dynasty, China expanded its trade and cultural influence to Korea, Japan, and Southeast Asia. At sites of encounter, these societies adopted and adapted Chinese ideas and institutions and combined those with their own ideas and institutions to build distinct civilizations. This is the adoption-and-adaptation form of cultural encounter	Compelling Question: How do people ensure what is important survives? As students study the religious influence of China and Korea on Japan, they can make connections to EP&C V.b. and NGSS Performance Expectation MS-ESS3-2 by studying the construction of temples in
Between the third and sixth centuries, when China was politically fragmented, many Chinese and Koreans migrated to Japan seeking refuge or opportunity. Those newcomers introduced many innovations, including advanced metallurgy, writing, silk production, textile manufacture, papermaking, and Buddhism. Japanese tradition links the introduction of Buddhism and beginning of Chinese cultural influence with Prince Shotoku (574-622).	 Ask students what are some of the things that are most important to them. They can share as a whole, brainstorm in small groups, or individually. Ask students what they think people in medieval Japan may have thought was important. This can help gauge students' prior knowledge and spark their curiosity. Narrow the focus of your questions by asking students which heitligenergy in the students when a student is a student in the student is a student in the student is a student in the student in the student is a student in the student is a student in the student is a student in the student in the student is a student in the student is a student in the student is a student in the student in the student in the student is a student in the student in the student is a student in the student is a student in the student is a student in the student in the student in the student is a student in the student in the student in the student is a student in the student in the student in the student is a student in the student in the student in the student is a student in the student in the student in the student is a student in the student in the student in the student is a student in the stu
China's immense power under the Tang Dynasty stimulated Japanese interest in Chinese and Korean cultures. Literary scholars, officials	buildings medieval Japanese people may have valued the
and Buddhist monks traveled to Japan. In turn, Japanese intellectuals	4. Display a physical map of Japan noting that the nation
went west to seek knowledge, learn Confucian statecraft, and acquire Buddhist texts, some made in Korea with some of the earliest known	consists of a chain of mountainous islands. Ask students what tectonic processes create mountainous island chains like

woodblock printing technology. The Japanese gradually adapted Buddhism to fit older Shinto practices. For example, Shinto nature gods became associated with Buddhist spirits and saints. The Zen school of Buddhism spread widely among laboring men and women.	 Japan. If they do not identify earthquakes as one of the processes then lead them toward this conclusion. You can recall the 2011 Tohoku earthquake that led to a large tsunami and the deaths of over 18,000 people. 5. Inform students that we have records of several large earthquakes in medieval Japan and that, just like we do today, medieval Japanese sought to protect what they valued most. 6. Show students a video of how medieval Japanese temples survived earthquakes. Several can be found online. Temples over a millennia old have survived earthquakes that have toppled modern buildings. 7. Have students trace the development of this engineering to medieval China. As Japanese intellectuals sought knowledge of statecraft and religion from China, they brought back to
	of statecraft and religion from China, they brought back to Japan engineering knowledge as well. Students can make this connection through secondary source readings and/or videos of Chinese temples with similar earthquake-resistant design elements. 8. As an extension, partner with your school's science teachers
	who can have students analyze current technologies designed to mitigate the effects of natural disasters.
	Environmental Principles and Concepts
	Principle V Concept b: Students need to know that the process of making decisions about resources and natural systems, and how the assessment of social, economic, political, and environmental factors has changed over time.

	NGSS Performance Expectation
	MS-ESS3-2. Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.
Less positive things also spread along trade routes, such as the bubonic plague. The Black Death of the 1300s killed millions in China and caused the population of Europe and the Muslim world to	Environmental Literacy Integration Compelling Question: Can a bacteria change the world?
plummet temporarily by about one-third. In the Cairo lesson, students	
read primary sources from Ibn Battuta, Agnolo di Tura, and al-Maqrizi	Just as students have studied the natural cycles of the environment,
the Muslim world.	bacteria.
	 Show students a map of the bubonic plague's spread through Europe, without telling them what it represents. Ask students to predict what the map shows. Tell students the map represents the spread of a disease that killed approximately one-third of the population of Europe. Ask them questions such as: Why do you think the plague struck first in cities like Naples and Genoa? Why did the plague spread from Italy to England before Switzerland, even though Switzerland is closer to Italy? Provide students with a physical map of Europe that displays key geographic features such as rivers and mountains. Revisit questions asked earlier. How does the geography of Europe help explain the spread of the plague?
	network was created to facilitate the spread of disease. Tracing these
	trade routes and explicitly highlighting the correlation with the
	spread of bubonic plague can help students understand the

importance of geography in understanding the course of historical
events.
Environmental Principles and Concepts
Principle III Concept a: Students need to know that natural systems
proceed through cycles and processes that are required for their
functioning.
Principle III Concept b: Students need to know that human practices
depend upon and benefit from the cycles and processes that operate
within natural systems.
NGSS Performance Expectation Extension Connection
MS-LS1-5. Construct a scientific explanation based on evidence for
how environmental and genetic factors influence the growth of
organisms.

Appendix G, CA HSS Framework

Arabic Trade Networks: Growth and Expansion in the Middle Ages (CA HSS 7.2.5)

Beginning with a look at the unique geographical features of the Arabian Peninsula, students explore the relationships between components of the natural system and the social systems of Arabia - specifically those related to trade and commerce. Students see that the growth and expansion of Arabic trade led to the growth and expansion of human populations and Medieval cities and towns along the trade routes. They learn about the diffusion of popular goods over this vast trade network and the devastating effect of the plague on Afroeurasia's natural social systems.

Genius Across the Centuries (CA HSS 7.3.5)

This unit explores the influence of selected Chinese inventions and discoveries on the natural and human systems of medieval China and traces the influence of those discoveries on the modern world. Students study about early Chinese experimentation with things found in the world

around them, which produced useful goods and services. Students also discover how continued investigation led to innovations that influenced both society and natural systems. They learn how Chinese inventions have been disseminated into the modern world, influencing production methods and consumption patterns.

Managing Nature's Bounty: Feudalism in Medieval Europe (CA HSS 7.6.3)

The direct connection between feudal relationships and the environment is examined by demonstrating how feudalism served as a mechanism for controlling access to and the use of ecosystem goods and services in medieval Europe. Using a modern example, the formation of the California Department of Fish and Game, students learn about the complexities of managing natural resources in California today, before turning their attention to the foundations of resource management that arose in feudal Europe.

Students explore life on feudal manors and at feudal markets, analyzing the connections between the ecosystem goods and services available and the placement of towns. In the final lesson, stens explore feudal law for access to and the use of natural resources and what it meant to be an "outlaw" in medieval times.

Sun Gods and Jaguar Kings (CA HSS 7.7.1)

This unit teaches students that the diverse geography and natural resources of Central and South America set the stage for the rise of the first urban societies in this part of the world - those of the Maya, Aztec, and Inca civilizations. Students learn how the distribution of resources affected the location, land-use patterns, and settlement of locations within these landscapes. The development of social and political systems to control the production and flow of resources is discussed. These human systems and their interaction with the landscapes set the stage for not only the growth of great civilizations, but for their eventual decline. Students recognize ways in which early Meso-American societies depended on goods and ecosystem services provided by natural systems.

Broken Jade and Tarnished Gold (CA HSS 7.7.3)

Building on students' understanding of the diverse and resource-rich regions of Central and South America, this unit explores the rise and fall of the Aztec and Inca empires. The lessons highlight how cultural values created he empires the Spanish witnessed, as well as the ways that Spanish values and history shaped their decisions in the Americas. Students begin the unit by learning how empires manage both human and natural resources in order to concentrate wealth and power. The perspectives of each of the three empires on resource use is examined, and the role of disease on the Spanish conquest explored. Through this unit, students learn more than the facts related to the conquest; they understand how multiple factors, particularly decisions regarding the use of natural resources, shaped this critical era.

Eighth Grade - United States History	and Geography: Growth and Conflict
From the Framework: Chapter 12	Environmental Literacy Integration
Using shadow outlines of Hamilton and Jefferson's profiles, students can design a "historical head" to distinguish between the two founders' perspectives on the role of the government - how Jefferson prioritized the needs of the agrarian economy, while Hamilton promoted commerce and manufacturing, for example. These "historical heads" can also illuminate differences of opinion on the strength of the federal government, as compared with state and local governments, the protection of individual rights, the establishment of a national bank and what to do about public debt, and later support for infrastructure development, such as canals, roads, and land for schools Students can also learn about the ideals and aspirations of the people of the Early American Republic through a lens of demand for natural resources, a context for understanding the country's physical landscapes, political divisions, and the resulting pressures that led to territorial expansion. This approach challenges them to consider the complications involved in westward expansion and begin to recognize many consequences of that growth.	 Compelling Question: Does owning land guarantee your freedom? As students study the competing visions for the new nations held by Thomas Jefferson and Alexander Hamilton, they can explore more deeply Jefferson's vision for an agrarian republic and how it contrasted with Hamilton's industrial vision for the nation by evaluating statements made by each man. 1. Have students form a large circle. 2. Read a statement such as "I think our governments will remain virtuous for many centuries as long as they are chiefly agricultural; and this will be as long as there shall be vacant lands in any part of America." 3. Students who agree with the statement should move to the middle of the circle, those who don't should remain on the outside. 4. After moving, students form small groups to discuss their reasoning for choosing as they did. 5. One person from each group reports their reasoning. 6. Read a new statement and repeat. 7. You may want to consider providing the statements in advance so students can think through their answers and reasoning before the activity. Environmental Principles and Concepts
	Principle I Concept a: Students need to know that the goods produced by natural systems are essential to human life and to the functioning of our economics and cultures.

	Principle I Concept b: Students need to know that the ecosystem services provided by natural systems are essential to human life and to the functioning of our economies and cultures.
Territorial expansion and its consequences proved to be an ongoing source of conflict and debate for the new nation. The passage of the Northwest Ordinance established a process for adding new states to the country and placed a limit on the spread of slavery, but this expansion also brought Americans into increased conflict with American Indian nations. The Ordinance stated, "The utmost good faith shall always be observed towards the Indians," yet students learn that the reality was often very different.	 Environmental Literacy Integration Compelling Question: Was it all about land? Understanding the primary motivations for the early westward expansion of the United States necessitates understanding the desire and the demand for natural resources. Through analyzing the causes and effects of various conflicts and treaties between the US government and American Indian nations, students can gain a broader conceptual understanding of what undergirded decades of conflict between the US and indigenous peoples. 1. In small groups, assign students to research one major event in US relations with American Indian nations under the first four Presidents (1789-1817). 2. Possible events from which to choose include: Old Northwest War (1785-95) The Indian Trade and Intercourse Act (1790) Treaty of Greenville (1795) The Osage Treaty (1808) Treaty of Fort Wayne (1810) Battle of Tippecanoe (1811) Creek War (1814) First Seminole War (1816-18) 3. Have students analyze the causes of each event, major details, and the ultimate outcome. (Highlight any event or detail connected to natural resources in green.) They can record this information on a blank piece of paper. 4. Place a long string along a wall in your classroom to create the backbone for a class timeline.

	5. Have student groups present the information they've
	research chronologically, adding their paper to the timeline
	as they do.
	6. Lead students in a class wide discussion of the information
	presented analyzing the extent to which a desire for
	increased access to natural resources motivated movement
	westward during this time period.
	Environmental Principles and Concents
	Environmental rimeiples and concepts
	Principle V Concept a: Students need to know that there is a
	spectrum of what is considered when making decisions about
	resources and natural systems and how those factors influence
	decisions.
	Principle V Concept b: Students need to know that the process of
	making decisions about resources and natural systems, and how the
	assessment of social, economic, political, and environmental factors
	has changed over time.
As a link to the next region of study, students may explore the	Environmental Literacy Integration
interdependence between the slave South and the industrial North.	
During the American Revolution, Northern states had begun a slow	Compelling Question: Can an invention lead to war?
process of emancipation while their Southern counterparts, with the	
invention of the cotton gin, became increasingly tied to a slave-based	As students study the invention of the cotton gin and the rise of King
economy. Eli Whitney, a teacher and tinkerer from New England with	Cotton, they can ask the question, "Can an invention lead to war?" A
an education from Yale, was working on a Georgia plantation when	connection can be made to EP&C V. b. as students look at how the
he invented his famous machine that increased the productivity of	decision to plant cotton led to a change in the social, economic,
slave labor. Despite the fact that slavery was by and large a Southern	political, and environmental factors of the southern United States and
institution, Northern and Western business leaders and national	how an increased reliance on cotton and slave labor to plant and
economic institutions continued to derive their own wealth from the	harvest the crop led to increased sectionalism.
nation's use of slavery to extract raw materials.	

Slave labor produced the cotton and raw materials that enabled Northern manufacturers, financiers, and other business interests to thrive. This, in turn, spurred a new consumer culture in individual families, connected to the slave-based economy. These topics can help students address the question **How did the country become more connected in the first half of the nineteenth century?**

The South. During these years, the South diverged dramatically from the Northeast and the West. Its plantation economy depended on a system of slave labor to harvest such cash crops as cotton, rice, sugarcane, and tobacco. The invention of the cotton gin allowed for a dramatic expansion of plantation agriculture across the region. African American slavery, the "peculiar institution" of the South, had marked effects on the region's political, social, economic, and cultural development. Increasingly at odds with the rest of the nation, the South was unable to share in the popularity of democratic politics of the Jacksonian era or in the reform campaigns of the 1840s. Its system of public education lagged far behind the rest of the nation.

- 1. Show students a picture of a car. Ask them to list the positive consequences of its invention and the negative consequences.
- 2. Repeat this activity with two or three other common technologies, such as nuclear power, social media, or plastic.
- 3. Now introduce them to the cotton gin and have students research the positive and negative consequences of its invention. Facilitate their discovery that the growing number of cotton fields increased reliance on slavery.
- 4. Once they better understand the role of the cotton gin in the early-19th century economy of the US South, show them charts or maps that show the change in enslaved population in the South during that time frame.
- 5. Students should construct an argument answering the compelling question of the unit. The argument can take place in written form, through structured discussion, or another form of the teacher's choice, but should remain based on evidence from sources provided.

Environmental Principles and Concepts

Principle V Concept b: "the process of making decisions about resources and natural systems, and how the assessment of social, economic, political, and environmental factors has changed over time.

NGSS Performance Expectation Extension Connection

MS-LS4-6. Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.

Appendix G, CA HSS Framework

Land, Politics, and Expansion in the Early Republic (CA HSS 8.4.1)

This unit teaches students about the physical landscape of the United States, political divisions, and territorial expansion during the terms of the first four U.S. presidents. Students also learn about factors associated with the use of natural resources, especially land, which led to expansion. Students deepen their understanding of what the promise those resources held meant to American Indians and citizens of the new republic during that time. Students also learn about the development of federal land policy and how the political concerns that existed during this time influenced the development of land ordinances. The influence of expansion on the country's physical landscapes and natural systems is also examined.

America Grows (CA HSS 8.6.3)

Focusing n immigration from Northern Europe to the United States during the first half of the nineteenth century, this unit explores human dependence upon ecosystem goods and ecosystem services provided by natural systems. Students gain an understanding of the interrelatedness of natural and human social systems - how changes in one set of systems trigger changes in the other. Specifically, students learn how natural systems influence human social systems and how their interactions forced large numbers of Irish and Germans to emigrate to America. The lessons also explore whether the nation's new citizens chose to settle in areas that replicated the natural systems, or the human social systems, that the immigrants had left behind in Europe.

Struggles Over Water (CA HSS 8.8.4)

This unit teaches students about the role that the great rivers and other freshwater resources played in the United States in the early 1800s (for example, the location of towns, farming, and ranching). The lessons describe the role of scientific and technological knowledge in the establishment of water rights and provide examples of the economic, political, legal, and cultural factors that influenced decisions about water. Students also learn how the great river systems and water rights influenced the development of the West. Students see that water use and management in the West, and other parts of the United States, continues to influence the economy, politics, and legal system today.

Agricultural and Industrial Development in the United States (1877-1914) (CA HSS 8.12.1)

This unit examines the influence of urbanization and renewed industrialization at the turn of the century on natural systems and in defining the course of the United States into the twentieth century. Students begin the unit by "visiting" the 1893 World's Fair in Chicago, "touring" the California building, and the new technologies on display. Students look carefully at the patterns of agricultural and industrial development in the East and West as they related to climate, natural resources, and availability of markets. They come to understand that technological advances influenced the growth of human populations and the establishment of commercial centers. Students also learn about political, economic, cultural, and environmental factors that affected technological advances in agriculture and industry during this time.

Industrialization, Urbanization, and the Conservation Movement (CA HSS 8.12.5)

In this unit, students analyze ways that natural resources, entrepreneurship, labor, and capital combined to produce key events and processes in the Industrial Revolution. Students examine England's transition from a subsistence agricultural economy through preindustrial cottage industries and finally to an industrial system. They explore the inventions that marked the development of the steam power, coal and iron, and cotton textile industries. Students discover how advancing mechanization improved the methods used to extract, harvest, transport, and produce material goods from natural resources.

History-Social Science, Grades 10-12

In grades 10 and 11, students' study of modern history includes learning about the effects of industrialization and exploitative colonial practices on the environment and movements to conserve natural spaces, reduce pollution, and combat climate change. In grade 12 students learn the role of government in managing natural systems and its responsiveness to popular support. In addition, students can weigh the economic benefits and costs associated with how societies manage their resources and natural systems. Below are some examples of how each Environmental Principle can fit within this grade span.

Principle I: The continuation and health of individual human lives and of human communities and societies depend on the health of the natural systems that provide essential goods and ecosystem services.

- International accords, like the Paris Agreement signed in 2016, recognize the dependence of societies on healthy natural systems.
- Healthy ecosystems provide services that have a higher economic valuation, such property bordering a pristine beach.

Principle II: The long-term functioning and health of terrestrial, freshwater, coastal and marine ecosystems are influenced by their relationships with human societies.

- The conservation movement of the Progressive Era in the U.S. influenced the geographic extent of natural systems.
- Exploitative colonial practices, like the creation of rubber plantations on the Malay Peninsula by the British, continue to affect the health of ecosystems.

Principle III: Natural systems proceed through cycles that humans depend upon, benefit from, and can alter.

• Global interconnectedness and agricultural advances allow goods, once available cyclically, to be accessed year round.

Principle IV: The exchange of matter between natural systems and human societies affects the long-term functioning of both.

- Unsustainable farming practices, coupled with drought, resulted in the Dust Bowl.
- Human economic activity and its byproducts have caused detrimental environmental effects, like the 1969 Santa Barbara oil spill.

Principle V: Decisions affecting resources and natural systems are based on a wide range of considerations and decision-making processes.

- The growth of cotton production in British-controlled India was a direct result of decreased production from the U.S. during its Civil War.
- Societies balance the economic costs and benefits of environmental regulations on industry, both past and present.

Tenth Grade - World History, Culture	, and Geography: The Modern World
From the Framework: Chapter 15	Environmental Literacy Integration
Students use a variety of maps to explore Britain's resources, such as navigable rivers and large coal deposits, an available pool of labor, and economic and political systems that encouraged innovation. Students review economic data to see how industrialization generated profits for Great Britain through its role in worldwide trade and from aoods produced in its colonies. The inventions and discoveries of	Compelling Question: What is the cost of invention? As students study the new technologies of the Industrial Revolution, they begin to understand the genesis of many of our modern day environmental challenges. While these new technologies helped improve quality of life in many ways, as with any change there is a
James Watt, Eli Whitney, Henry Bessemer, Louis Pasteur, Thomas	cost. Asking students to put an aspect of the Industrial Revolution "on
Edison, and others resulted in advances in science and technology.	trial" is a way to connect history to contemporary issues while
Agricultural and scientific improvements made possible a more urban and healthy population. Advances in medicine led to an increasingly	allowing students to develop their research and argumentative skills.
institutionalized and professionalized medical establishment, which led to an increasing understanding of early germ theory.	 Choose an invention whose impact on the environment is notable. For example, the Bessemer Process resulted in many positives like cheap steel for railroads, as well as negatives
These new technologies and ways of understanding the world soon	such as increased air pollution.
spread beyond Western Europe to the United States and Japan, so that knowledge was shared worldwide. Students can also identify the environmental impact of the Industrial Revolution and discuss the positive and negative consequences of industrialization. Students learn that the industrializing nations - for example, Great Britain - were confronted with a wide array of changes from the Industrial Revolution. The rapidly growing population was putting great demands on the natural resources available to these countries.	 Assign students roles. There is some flexibility to what sort of roles you create, but at a minimum students should divide into pro and con teams (to include both advocates and witnesses) and a jury. In addition, you can assign students as the judge, bailiff, court reporter, and journalists. All students should research all aspects of the case. Provide each student/team with description of the responsibilities of their roles and allow class time for the
resulting for example, in a decreasing supply of wood, Great Britain's	research process to take place.
primary source of energy, as well as a major resource for buildings, ships, and tools (see appendix G for Environmental Principle I). Students learn that Great Britain created a system of factory production and coal-powered machinery to resolve the energy shortage, setting the stage for becoming the wealthiest country in the	4. During the "trial" each team can call their witness, ask questions, and make the case for their claim. The judge can control the flow of questioning and rule on any objections by the opposing team. It is up to the students serving as the jury to decide the final outcome.
world.	 The final product may differ depending on a student's role. Jurors could be tasked with supporting their verdict with evidence, journalists can create an article or blog post on the

	case, and the judge can write from their perspective. In the end, each student should support a claim on the topic with evidence, either verbally (through oral arguments) or in writing.
	Environmental Principles and Concepts
	Principle I Concept a: Students need to know that the goods produced by natural systems are essential to human life and to the functioning of our economies and cultures.
	Principle II Concept b: Students need to know that methods used to extract, harvest, transport, and consume natural resources influence the geographic extent, composition, biological diversity, and viability of natural systems.
	Principle III Concept b: Students need to know that human practices depend upon and benefit from the cycles and processes that operate within natural systems.
Industrialization also dramatically changed the way of life for millions of people who were not directly involved in factory work. Miners,	Environmental Literacy Integration
independent farmers, and plantation workers in Africa, Asia, and Latin America were essential to the creation of commodities produced in	Compelling Question: What happens when a city grows too fast?
factories. Students learn about the relation of commontes produced in factories. Students learn about the relationship between the Industrial Revolution and the growth of urban centers that resulted in depopulation of rural areas and migration to urban areas; a shift from an agrarian-based society to a manufacturing-based society; and a change in the pressures society places on natural resources.	Rapid urbanization in the 19th century caused people to face unique environmental challenges. Exploring these challenges through the social and political commentary of the time can help students make connections to efforts to tackle contemporary environmental challenges.
Students can consider the multiple ways in which industrialization transformed people's daily lives in terms of providing many more	 Project a political cartoon and model for students how to analyze it.
merchantable goods in the marketplace and standardizing time and work schedules. Students can also learn about the negative	 Organize students into small groups and provide each group with a packet of approximately 5-6 political cartoons. Some examples include:

consequences of industrialization: overcrowded cities and housing, poor sanitation, and unsafe working conditions, for example.	 o "Father Thames Introducing His Offspring to the Fair City of London" o "Death's Dispensary" o "A Court for King Cholera" o "Faraday Giving His Card to Father Thames" 3. To provide an additional perspective, include positive images of urban life such as the Crystal Palace, middle-class family life, and cultural events. 4. Explain to students that they will be using a strategy known as "The Drake Method" to evaluate the sources in their packet. 5. As a group they select a "first order" document. This is the document that they decide would be the most helpful in answering the compelling question. 6. Following this, the student groups will sort the second order
	 Following this, the student groups will sort the second order documents (those remaining) into two groups, those that support the central message of the first order document and those that contradict it. If time is available, students can research a third order document. The third order document must be on topic and can either support or contradict the first order document. Lead a debrief of the compelling question, ensuring students cite evidence from the documents in their discussion.
	Environmental Principles and Concepts
	Principle IV Concept b: Students need to know that the byproducts of human activity are not readily prevented from entering natural systems and may be beneficial, neutral, or detrimental in their effect.
The race to secure raw materials spurred European, Japanese, and American imperialism. Students can also learn about the process of imperialism by considering the question How did colonization work? Tropical products, such as rubber and tea, and other resources for	Environmental Literacy Integration Compelling Question: Could it be bad to have cool things?

industrial use drove competing nations to claim political, economic,	One of the key drivers of British imperialism was the need to import
and territorial rights to colonies.	raw materials for manufacture into finished goods. Having students
	map this trade while evaluating the positive and negative effects on
Students should read primary sources that reflect the motives behind	the environment in the UK and her colonies can help students make
European imperial efforts. F. D. Lugard's The Rise of Our East African	connections to the cost of trade today.
Empire explains in direct clear language why, in 1893, European	
leaders believed it to be necessary to expand their empires for	1. Divide students into small groups and assign each group a
economic reasons. To locate a useful excerpt from this text, teachers	raw material to research. Some of the most significant
should search online for the paragraph that begins with the following	imports of the time period were cotton, wool, lumber, tea,
sentence: It is sufficient to renerate here that, as follows our poincy is	Sugar, and tobacco.
one of free trade, we dre compened to seek new markets; for old ones	2. Provide them with questions to guide their research such as:
which formerly were the consumers of our goods are new becoming	 From where did the bittish import this product? How was it han ested (extracted and hy whem?)
which joinneny were the consumers of our goods, are now becoming	 How was it harvested/extracted and by whom: What role did it play in the economy of the place
	from which it came and how did this differ from what
	the economy looked like pre-colonization?
	 Why was this resource important to the British?
	 Willy was this resource important to the british: Have students make a final claim regarding their product
	Was the benefit of the finished good worth any harm it may
	have caused to the land and people who provided the raw
	materials?
	4. Have students present their findings to the class. Consider
	creating a map on the wall where students can post their
	findings and trace the path the raw materials travelled to
	reach Britain.
	5. As an extension, students could do a similar evaluation of a
	modern product like the smartphone.
	Environmental Principles and Concepts
	Principle II Concept b: Students need to know that methods used to
	extract, harvest, transport, and consume natural resources influence
	the geographic extent, composition, biological diversity, and viability
	of natural systems.

	 Principle II concept d: Students need to know that the legal, economic, and political systems that govern the use and management of natural systems directly influence the geographic extent, composition, biological diversity, and viability of natural systems. Principal V Concept b: Students need to know that the process of making decisions about resources and natural systems, and how the assessment of social, economic, political, and environmental factors
	has changed over time.
Other negative effects of globalization have become apparent. Critics point to environmental concerns, the impact on child labor, women's rights, and other issues.	Environmental Literacy Integration Compelling Question: Why move to the big city?
	In 1950, urbanized nations (those where a majority of people lived in urban areas) were largely high income and concentrated in Europe and North America. By the early 21st-century a majority of people worldwide lived in urban areas and urbanization was no longer a characteristic solely of high income countries. As students study the causes behind this rapid trend toward urbanization, they can pay special attention to environmental factors in several regions of the world that have been both push and pull factors.
	 Divide students into groups and inform them that they will be paying the role of committees tasked with addressing problems in a modern-day country. Assign each group a country that is currently experiencing rapid urbanization. Possible case studies could include China, India, Nigeria, and Brazil. Each group is tasked with researching the causes behind urbanization in their assigned country and developing a plan to address the challenges that accompany it. Consider providing students with specific areas to address such as availability of water, infrastructure to treat waste. policies to

balance job creation and environmental regulation, air quality, and quality of life initiatives.4. Have students present their plan to the class or in a persuasive white paper.
Environmental Principles and Concepts
Principle II Concept a: Students need to know that direct and indirect changes to natural systems due to the growth of human populations and their consumption rates influence the geographic extent, composition, biological diversity, and viability of natural systems.
Principle II Concept c: Students need to know that the expansion and operation of human communities influence the geographic extent, composition, biological diversity, and viability of natural systems.

Appendix G, CA HSS Framework

Britain Solves a Problem and Creates an Industrial Revolution (CA HSS 10.3.1)

In this unit, students analyze ways that natural resources, entrepreneurship, labor, and capital combined to produce key events and processes in the Industrial Revolution. Students examine England's transition from a subsistence agricultural economy through preindustrial cottage industries and finally to an industrial system. They explore the inventions that marked the development of the steam power, coal and iron, and cotton textile industries. Students discover how advancing mechanization improved the methods used to extract, harvest, transport, and produce material goods from natural resources.

Growth of Population, Cities, and Demands (CA HSS 10.3.3)

This unit teaches students about the relationship between the Industrial Revolution and the growth: depopulation of rural areas and migration to urban areas; the shift from an agrarian-based society to a manufacturing-based society; and they explore a change in demands for natural resources. Students examine problems that arose with the growth of the first "industrial" cities - particularly changes to natural systems - and analyze business and government solutions to these problems. They discover that the American standard of living is rooted in the Industrial

Revolution, when consumerism emerged in the middle class and manufacturing replaced cottage industries and agrarian society.

New Imperialism: The Search for Natural Resources (CA HSS 10.4.1)

In this unit, students investigate the decision-making processes used by industrializing nations in the mid-1800s, seeking raw materials and new markets for their growing economies. They compare disparate European beliefs about the use of natural resources and examine the government regulation that resulted from the management practices of the colonizers. Students consider how nature once changed, presented new challenges to colonial administrators, forcing them to reshape their imperial projects more generally. Throughout the unit, students are engaged in thinking critically about human reliance on natural resources and the increasing global interdependence of the era of New Imperialism.

New Imperialism: The Control of India's and South Africa's Resources (CA HSS 10.4.3)

This unit focuses on colonial experiences in India and South Africa during British hegemony. Students learn how British and local people's decisions about natural resources changed as a result of the industrialization taking place in the Western world. They analyze a case study about the use of Mount Shasta's resources by local residents and outside interests. Students then examine colonial India, where they learn how British and local people's decisions regarding natural resources changed over the period of colonization and directly influenced local responses to imperialism. They examine the complexities of colonial rule in South Africa, where the British competed with other Europeans for control of the region's gold and diamond mines. Finally, they identify key stakeholders in South Africa's development and learn the relationship between the control over natural resources and the emerging system of racial segregation.
Eleventh Grade - United States History and Geography:	Continuity and Change in Modern United States History
From the Framework: Chapter 16	Environmental Literacy Integration
New technology in farming, manufacturing, engineering, and the production of consumer goods created material abundance. The flood of new items supported a larger and more urban population, and it made the producers of the goods very wealthy when prices were stable. Industrialization made possible the wide-scale use of McCormick Reapers, hydropower mining, assembly lines, high-rise buildings, chain stores, and eventually automobiles, among many other technological feats from the turn of the century. These and other features of modern life seemed to confirm the idea of unending progress.	Compelling Question: Why is the United States rich? New technologies, developed during the Second Industrial Revolution, helped change the nature of work and leisure in the late- 19th century. They also changed the way people in the United States interacted with and the resources they extracted from their environment. Coupling students' study of economic and technological change during this time period with the impact of "progress" on the environment can deepen their understanding of both the time period and relevant contemporary issues.
By pooling together capital to minimize risk and increase profits, American entrepreneurs generated unprecedented wealth. Some large businesses in the nineteenth century grew by organizing into trusts and monopolies and through integration. Students can learn about different kinds of business growth in the nineteenth century by comparing vertical integration with horizontal integration. In the Gilded Age, the meatpacking industry integrated vertically by consolidating the many levels of bringing meat to the marketplace, but the oil industry integrated horizontally by having one company (Standard Oil) take over all refineries. Students may compare the strategies used by businesses in employing these two organizational strategies as well as the potential impact on consumers. Students also examine the emergence of industrial giants, "robber barons," anti- union tactics, and the gaudy excesses of the Gilded Age.	 Pose the compelling question to the class and have students brainstorm possible answers. Divide students into small groups. Assign each group a new technology or innovation developed during the "Gilded Age" (1877-1900). Options could include: refrigeration electrification telecommunications railroad mail order catalog Bessemer process motor oil refinement Allow student groups time to research their assigned innovation. Guiding questions could include: What need drove the development of this innovation? What way of doing things did this innovation replace and/or improve upon? How did this innovation impact people's lives?

	 How did this innovation affect people's interaction
	with the environment, the extraction of resources,
	and the production of byproducts?
	5. Students can organize their responses on chart paper and
	students can conduct a gallery walk to gain a broader
	knowledge of the innovations of the time period
	6 Provide a format (e.g. discussion, written response
	nresentation) for students to communicate their conclusion
	to the compelling question based on their research
	Environmental Principles and Concents
	Environmental Principles and concepts
	Principle II Concept b: Students need to know that methods used to
	extract harvest transport and consume natural resources influence
	extract, narvest, transport, and consume natural resources innuence
	the geographic extent, composition, biological diversity, and viability
	of natural systems.
	Principle IV Concept a: Students pood to know that the offects of
	human activities on natural systems are directly related to the
	number activities of natural systems are directly related to the
	quantities of resources consumed and to the quantity and
The offerte of the Creat Depression were wereened by the Dust Devil	
The effects of the Great Depression were worsened by the Dust Bowl,	Environmental Literacy integration
a result of natural arought combined with unwise agricultural	Commelling Question 14/hot served the Dust David
practices that led to the dislocation of farmers who could no longer	Compelling Question: what caused the Dust Bowl?
make a living from agriculture in the Great Plains. The famea Okies,	
portrayed in the literature of John Steinbeck and photographs of	The Dust Bowl is one of the largest environmental disasters to
Dorothea Lange (among other artists of the 1930s), were pushed off	happen to the United States and many of the causes were man made.
their land and joined the significant migration of workers who came	Students can evaluate these causes and connect this historical event
to California in search of work and opportunities only to find	to environmental challenges today.
themselves treated poorly and in a continued state of economic	
turmoil.	1. Project a picture from the Dust Bowl. There are many
	engaging pictures from which to choose, including those that
	show dust storms several dozens of feet high approaching
	small, wooden homes.
	2. Ask students to describe what they see without inference.

3. Progress to asking students what sensory inputs they would feel if they were in the scene photographed. How do they
imagine it smells? sounds? tastes?
4. Only once these details have been explored, should students
begin to infer what is happening in the picture.
5. Using primary and secondary sources, have students either
individually or in small groups, identify the primary causes of
farming, and removal of natural, drought-resistant grasses
6. As an extension, consider having students draw a connection
to an environmental concern today and identify ways in
which we can prevent an environmental collapse on scale
with the Dust Bowl.
Environmental Principles and Concepts
changes to natural systems due to the growth of human nonulations
and their consumption rates influence the geographic extent
composition, biological diversity, and viability of natural systems.
Principle II Concept b: Students need to know that methods used to
extract, harvest, transport, and consume natural resources influence
the geographic extent, composition, biological diversity, and viability
of natural systems.
Principle II Concept c: Students need to know that the expansion and
operation of human communities influences the geographic extent,
composition, biological diversity, and viability of natural systems.

Key New Deal innovations included the right to collective bargaining	Environmental Literacy Integration
for unions, minimum-wage and hours laws and Social Security for the	
elderly, disabled, unemployed, and dependent women and children.	Compelling Question: Is the Tennessee Valley Authority good
Taken together, these new developments created the principle that	policy?
the government has a responsibility to provide a safety net to protect	
the most vulnerable Americans; the legacy of these safety net	FDR signed the Tennessee Valley Authority (TVA) into law in 1933. It
programs created the notion of the modern welfare state.	was tasked with the total resource development of the Tennessee
	Valley region. The TVA aimed to modernize the economy and
New Deal agencies that students can focus on are the Agricultural	increase the living standards of one of the nation's most
Adjustment Administration (AAA), National Industrial Recovery	underdeveloped areas and in doing so continues to leave a significant
Administration (NIRA), and Works Progress Administration (WPA).	mark on the local environment.
These agencies - were based on a theory of Planned Scarcity; the root	
of economic problems was an oversupply of goods in the marketplace	1. Divide students into groups of 4. If you cannot divide your
and the role of the government would be to stabilize production and	class evenly by 4, you can have a few groups of five, but
aid businesses, which would ultimately help workers. John Maynard	should not have groups of 3.
Keynes, the leading economist whose ideas of "priming the pump"	2. Within each group divide students into two pairs or teams.
also guided many of Roosevelt's later economic policies, argued that if	3. Provide all students with a collection of primary and
the government directly invested in the economy - even if it had to run	secondary sources providing them with multiple perspectives
a deficit by doing so - individual Americans would have more	on the TVA. Sources could include:
purchasing power and the economy would recover sooner from the	 An excerpt from the law enacting the TVA
Depression.	 A map of the TVA's current projects
	 Photographs from the project (e.g., construction of
	the Douglas Dam, power stations in operation, the
	effects of fertilizer and irrigation on crop growth)
	 Critiques from Dean Russell, Barry Goldwater
	 News accounts of environmental accidents over time,
	such as Kingston coal ash spill
	4. Assign each team within a small group a position to research
	in response to the compelling question. The team should pull
	the 3-4 pieces of evidence from the source material they
	evaluate as the strongest to support their assigned claim.
	5. They take turns presenting this information to the other team
	with in their small group. Students should record the
	evidence for each position.

	 After the evidence has been presented, students can abandon their assigned position and work to come to a consensus as to the strongest response to the compelling question. Individually, students write an argumentative response, incorporating evidence from the sources, to the compelling question.
	Environmental Principles and Concepts
	Principle V Concept a: Students need to know that there is a spectrum of what is considered in making decisions about resources and natural systems and how those factors influence decisions.
	Principle V Concept b: Students need to know that the process of
	making decisions about resources and natural systems, and how the
	assessment of social, economic, political, and environmental factors
Finally, students read about the beginning of the modern	Environmental Literacy Integration
environmental movement in the 1960s and the resulting environmental protection laws that were passed in the next decade.	Compelling Question: When does bad become too bad?
environmental movement in the 1960s and the resulting environmental protection laws that were passed in the next decade. They note similarities and differences between environmentalism and	Compelling Question: When does bad become too bad?
environmental movement in the 1960s and the resulting environmental protection laws that were passed in the next decade. They note similarities and differences between environmentalism and other forms of activism of the decade, and they can also trace effects of the Cold War (especially fears of nuclear proliferation) to the priorities of the movement. Examining case studies, such as the controversial expansion of Redwood National Park and state parks in	Compelling Question: When does bad become too bad? In studying the environmental movement in the United States, students can explore what sort of events caused public attention and opinion to shift on this issue.
environmental movement in the 1960s and the resulting environmental protection laws that were passed in the next decade. They note similarities and differences between environmentalism and other forms of activism of the decade, and they can also trace effects of the Cold War (especially fears of nuclear proliferation) to the priorities of the movement. Examining case studies, such as the controversial expansion of Redwood National Park and state parks in 1978 and oil drilling in the Arctic National Wildlife Refuge, helps students develop skills in analysis of complex and controversial issues. Students may also link those early achievements with a student-led debate over issues such as climate change today and the appropriate role of government in dealing with these problems.	 Compelling Question: When does bad become too bad? In studying the environmental movement in the United States, students can explore what sort of events caused public attention and opinion to shift on this issue. 1. Create stations around the classroom, each dedicated to an environmental accident or disaster from the post-World War II period. Each station should contain readings for the student, such as news articles reporting on the event and photographs taken at the time. Additional stations may be set up to highlight actions taken by people to push for change in environmental laws.

 Santa Barbara oil spill (1969)
• Three Mile Island (1979)
 Love Canal (1976 on)
 Acid Rain (1970s on)
 Camp Fire in Paradise, CA (2018)
3. Tell students they are to adopt the role of a historian writing
about the environmentalist movement. Specifically, they are
to determine how events in the late 20th-century led to a
public that wanted action.
4. In small groups, students rotate through the stations,
gathering evidence to help them write their response. Allow
time for small group discussion as students work at a station.
5. Students use the evidence gathered to create an evidence-
based claim to the compelling question.
Environmental Principles and Concepts
Principle IV Concept b: Students need to know that the byproducts of
human activity are not readily prevented from entering natural
systems and may be beneficial, neutral, or detrimental in their effect.
Principle V Concept b: Students need to know that the process of
making decisions about resources and natural systems, and how the
assessment of social, economic, political, and environmental factors
has changed over time.

Education and the Environment Initiative (EEI) Curriculum Unit

Appendix G, CA HSS Framework

Mass Production, Marketing, and Consumption in the Roaring Twenties (CA HSS 11.5.7)

Students explore the "Roaring Twenties" to understand the dynamics of economic change and its social, political, and environmental consequences. They examine the environmental consequences of decisions made - and not made - by industry, government, and individuals to learn about "unintended consequences" related to disposal of the waste and byproducts generated by the automobiles and other technological advancements that followed World War I. The last lesson challenges students to apply their knowledge by evaluating the pros and cons associated with plastic grocery bags and ways to prevent or remedy detrimental environmental outcomes.

Postwar Industries and the Emerging Environmental Movement (CA HSS 11.8.6)

The unit examines the economic boom that followed World War II, especially in agriculture and energy industries, and it explores how technological changes after World War II resulted in increased demands for natural resources. Students explore some of the economic, social, and political consequences of growing resource demands and consider the effects on the environment across the United States. Students read a chapter from Rachel Carson's Silent Spring as the basis for examining the nation's changing perceptions about the environment and the resulting policy changes that governments implemented to mitigate environmental problems.

The United States and Mexico - Working Together (CA HSS 11.9.7)

This unit teaches students about treaties and agreements between the United States and Mexico related to environmental concerns. They examine the different ways the stakeholders balance decisions while analyzing cross-boundary environmental issues. Students consider how population growth and density influence an area's natural resources and environmental health, how environmental factors permeate political boundaries, and how environmental issues influence the relationship between the countries. Students read about the Rio Grande and, in a simulated conference, present perspectives of stakeholders concerned about water quality in the region. The final lesson focuses on the Tijuana River watershed and includes a class discussion of how actions in the rest of the border region influence U.S.-Mexico relations.

Many Voices, Many Visions: Analyzing Contemporary Environmental Issues (CA HSS 11.11.5)

This unit uses a series of case studies to teach students about the wide range of consideration and decision-making processes affecting natural resources management policies. Students develop skill in analyzing complex and controversial issues as they review expansion of Redwood National and State Parks in 1978, winter use of snowmobiles in Yellowstone National Park, and oil drilling in the Arctic National Wildlife Refuge. Each lesson approaches the complex nature of natural resource issues from a different vantage point, giving students the chance to use several different analytical skills and methods. Overall, the unit provides students with the knowledge and skills they need in order to evaluate future resource management issues.

Twelfth Grade - Principles of American Democracy	
From the Framework: Chapter 17	Environmental Literacy Integration
Students also learn about how citizens participate in the political process through voting, campaigning, lobbying, filing legal challenges, demonstrating, petitioning, picketing, and running for office. Because most students will be eligible to vote for the first time in a year of taking this course, questions like Why should I vote? and How can I get involved in a campaign? seem particularly relevant. This unit lends itself to utilizing real-world examples, case studies, and debates while students address the material.	Compelling Question: How do people advocate for the environment? Advocacy for or against policies related to the use of land and natural resources is an engaging and current topic for students. Students can use this lens to explore methods of civic participation. Consider having students use current and historical case studies in their local region to help them explore local avenues for advocacy.
Students can study current elections and campaigns, take part in the Secretary of State's Poll Worker program, and serve as campaign volunteers during an election. Students can also analyze proposed initiatives, controversial issues surrounding campaign financing, voter identification laws, redistricting, and negative campaign ads. To learn more about how the election process affects them and their education, students might be encouraged to study a school board race, candidate positions on education, or a local school bond or parcel tax campaign.	 In small groups, assign students a case study of an environmental policy debate, either current or historical. Have students research arguments made by proponents and opponents of their assigned policy. Explain to students that policy debate is often like a game of "tug-of-war" where each side attempts to pull the final outcome in their direction. In this lesson, students will use a simulated game of "tug-of-war" to evaluate the evidence presented for each side of their issue. Provide each group with a rope and have them mark the middle. One side of the rope represents arguments supporting policy change, the other side represents arguments opposing the policy change. As students gather evidence they place these "tugs" along the rope. Evidence they consider to be stronger should go further toward the end of the rope. Have students present their findings and draw an evidence- based conclusion as to which side's policy position was better supported and why. As an extension consider having students evaluate methods each side used to sway public opinion in addition to the

	avidance presented M/hat matheds of advacency are the most
	evidence presented. What methods of advocacy are the most
	Environmental Principles and Concepts
	Principle II Concept d: Students need to know that the legal,
	economic, and political systems that govern the use and management
	of natural systems directly influence the geographic extent.
	composition, biological diversity, and viability of natural systems.
	Principle V Concept a: Students need to know that there is a
	spectrum of what is considered in making decisions about resources
	and natural systems and how those factors influence decisions.
Matters such as education, health care, transportation, and housing	Environmental Literacy Integration
often have multiple government agencies regulating and funding	
them. Students may explore questions such as these: How is public	Compelling Question: How does the government regulate the
policy made at these various levels? How do regulatory departments	environment?
and agencies function, and how do state and local regulatory	
agencies differ from those at the federal level? Students should	As students study overlapping jurisdiction of national, state, and local
examine the important realms of law and the courts (for example,	government, they can use the lens of environmental policy to
criminal justice, family law, environmental protection, and education)	increase their understanding of how public policy is made at each
that remain largely under state and county control.	level. For this lesson, students should have prior knowledge of
	federalism and many of the powers, delegated and reserved.
	1. Provide students with a number of brief environmental
	scenarios. Examples could include:
	 fertilizer runoff into a creek
	 opening of new drilling sites off the coast
	 creating a curbside recycling program
	 increasing fuel standards on new vehicles
	 integrating environmental education into school
	curriculum
	2. Using their prior knowledge of delegated and reserved
	powers, have students sort the provided scenarios into three
	categories: federal, state, and local. Their goal is to predict

which level of government is responsible for policy changes
011 the issue.
through a gallery walk an interactive poll pairing or other
activity.
4. Sort students into small groups and have them discuss the
various scenarios, coming to consensus on which level of
government is responsible for each policy change.
5. Have groups share out their consensus decisions and the
reasoning used. If there are areas where groups significantly
disagree with each other, have a class discussion. If there are
areas where the class consensus is incorrect, facilitate a
6 In addition, students can brainstorm actions they can take to
influence environmental policies at the local state or federal
level.
Environmental Principles and Concepts
Principle II Concept du Students need to know that the legal
economic and political systems that govern the use and management
of natural systems directly influence the geographic extent.
composition, biological diversity, and viability of natural systems.
Principle V Concept a: Students need to know that there is a
spectrum of what is considered in making decisions about resources
and natural systems and how those factors influence decisions.
Principle V Concept b: Students need to know that the process of
making decisions about resources and natural systems, and how the
assessment of social, economic, political, and environmental factors
has changed over time.

Education and the Environment Initiative (EEI) Curriculum Unit

Appendix G, CA HSS Framework

This Land Is Your Land (CA HSS 12.2.2, 12.2.5 Principles of American Democracy)

Students explore case studies about California laws, regulations, policies, and decision-making processes related to environmental decisions and individual rights. Students consider the "balance" between an individual's use and management of natural resources and the "common good." They explore the reciprocity between rights and obligations to ensure public health and safety. Students learn that such decisions are influenced by a spectrum of factors, including laws, policies, financial incentives, risk analyses, knowledge, and rights and responsibilities. Analysis of the history of the Sunshine Canyon Landfill is the basis for examining conflicts over environmental issues that result from competing perspectives.

Active Voices: Civil Society and the Natural Environment (CA HSS 12.3.2 Principles of American Democracy)

Students examine case studies related to how citizens have influenced governmental decisions related to environmental issues in ways other than voting. Using a set of California specific case studies, students examine how citizens voice their needs for social and environmental justice. They build an understanding of the ways in which citizens make their voices heard, including methods that involve interaction with formal governmental processes and strategies that educate and galvanize public opinion. Finally, students, analyze commonalities and differences among the unit's environmental case studies, including differences in strategies that various stakeholders chose to implement.

Making and Implementing Environmental Laws (CA HSS 12.7.6 Principles of American Democracy)

This unit examines lawmaking processes and roles of federal, state, and local governments related to environmental and public health. Students read about federal and state Superfund laws and Superfund sites in California as a means of comparing different levels of government. They explore the complex relationship between state, federal, and local governments in resolving environmental issues. The final lessons analyze California's Brownfields Program and explore California's Green Chemistry Initiative, and policy strategy for encouraging industry to use "green," rather than potentially toxic, materials.

Twelfth Grade - Prir	nciples of Economics
From the Framework: Chapter 18	Environmental Literacy Integration
Economics is a social science that focuses on the choices people make about the utilization of resources and the production, distribution, and consumption of goods and services. Students can investigate the question How are resources allocated? to better understand the process of distributing resources. Students learn that each economic issue involves individual choices based on both monetary and nonmonetary incentives.	Compelling Question: What is the cost of gasoline? While students learn about economic incentives and opportunity cost, it can help to connect broader concepts to scenarios relevant to student interest. Having students research how the price of gas helps determine market demand for specific types of motor vehicles helps them connect a macroeconomic concept to something of personal interest.
	 Ask students to brainstorm a list of criteria people evaluate when purchasing a car. Examples could include age, miles, size, cost, or features. Students can categorize the criteria on their list as essential, significant, and minor. Provide students with a series of hypothetical scenarios, asking them to revisit their criteria prioritization. Scenarios could include: OPEC reduces production of crude oil, causing gas prices to rise over \$4 a gallon. New extraction technology allows the U.S. to dramatically increase domestic oil production, causing gas prices to drop below \$2 a gallon. The government expands carpool lanes throughout your area and grants access to cars that average over 40 miles per gallon. A tax rebate of several thousand dollars is offered to those who buy a car whose gas mileage is twice that of the average vehicle. You read an article about a study that shows the planet warming faster than previously thought.

	4. The examples above are specific to gas mileage and the
	monetary and nonmonetary incentives that car buyers take
	into consideration. Additional scenarios that deal with other
	criteria identified by students could be used independently or
	combined with one of the scenarios above.
	5. Pose the question, "What is the cost of gasoline?"
	Specifically, when do students believe the price of gas would
	affect broader consumer behavior?
	6. Students can read articles and look at data that shows
	correlation between gas prices and the types of vehicles
	purchased.
	7 Have students conduct a cost/benefit analysis of nurchasing
	cars with varving gas mileage. Students' analyses should
	include monetary factors, both short and long term
	environmental impact and convenience
	Environmental Principles and Concents
	Principle II Concept b: Students need to know that methods used to
	extract, harvest, transport, and consume natural resources influence
	the geographic extent, composition, biological diversity, and viability
	of natural systems
	Principle V Concept a: Students need to know that there is a
	spectrum of what is considered in making decisions about resources
	and natural systems and how those factors influence decisions.
Another component of the American economic system is that relative	Environmental Literacy Integration
prices in a market economy change over time with changes in supply	
and demand. The relationship between sellers and buyer may be	Compelling Question: What turns on the lights?
illustrated by having students learn about the logic of supply and	
demand. Students can trace changes in supply and demand by using	How different regions of the United States produce electricity varies
historical and contemporary examples and study the resulting change	greatly depending on the local geography and supply of natural
in equilibrium price and quantity. For example, an unusually large	resources. Understanding how market forces shape the electricity
wheat crop, without an increased demand, will cause wheat prices to	market can help students understand why some areas of the country

fall. Alternatively, a shortage of a popular video game system during	have moved more quickly toward renewable energy and others have
the holiday season will cause the price to rise. Students can examine	remained reliant on fossil fuels.
specific cases of price changes and determine whether a change in	
demand. or in supply. or both. caused the fluctuation in price.	1. Have students identify the primary methods of electricity
Students can also participate in a market economy simulation to learn	generation in the United States and categorize as renewable
about the interaction between sellers and buyers.	or non-renewable.
	2. Ask students to predict what source of energy is the most
	common in the US? What sources are becoming more
	common? less common? How do they predict California
	might differ from other parts of the country?
	3 Display a table that shows the proportion of electricity
	generated in the US from each source over time. One can be
	found on the New York Times' website titled "How Does Your
	State Make Electricity?" originally published on Dec 24, 2018
	4 Have students compare their predictions to the actual data
	5 In small groups assign students a region of the United States
	One group of suggested regions is:
	O West: Pacific Mountain
	 Midwest: West North Central, Fast North Central
	 South: West South Central, East South Central, South
	Atlantic
	 Northeast: Middle Atlantic, New England
	6. Have students create a regional energy profile, identifying
	significant changes in supply over time and developing
	evidence-based claims as to why their assigned region's
	energy profile is as it is. In addition, you can have the
	students predict how their regions energy supply may or may
	not change in the future.
	7. Students can include an evidence-based cost/benefits
	analysis of their regions primary energy sources.
	Environmental Principles and Concepts
	• • • • • •

	 Principle I Concept a: Students need to know that the goods produced by natural systems are essential to human life and to the functioning of our economies and cultures. Principle V Concept a: Students need to know that there is a spectrum of what is considered in making decisions about resources.
	and natural systems and how those factors influence decisions.
	Principle V Concept b: Students need to know that the process of making decisions about resources and natural systems, and how the assessment of social, economic, political, and environmental factors has changed over time.
Students can further their studies of the American economic system	Environmental Literacy Integration
<i>involved in the economy?</i> The U.S. economy is primarily a market economy with some government intervention. As a result, students learn that it is more accurately classified as a mixed economy	Compelling Question: Should the government regulate environmental policies?
Students may review from previous classes the economic significance of government actions like investments in roads and other infrastructure, health, basic medical and technological research, reining in monopolies and predatory practices, pure food and drug initiatives, and regulations against pollution and risky banking practices.	As students study the continuing debate over the level to which the U.S. government should intervene in the nation's economy, they can look at case studies where environmental challenges and concerns have been addressed through private or public action. Students can use the information gathered to evaluate the proper role of government in our "mixed economy."
Government agencies, like the Federal Reserve and Consumer Financial Protection Bureau, sometimes intervene in markets to promote the general welfare, provide for national defense, address environmental concerns, establish and enforce property rights, and protect consumer and labor rights. In this unit, students investigate	 Display an image of New York City during the 1966 smog. Run students through a protocol of questions beginning with simple questions asking what they see in the image to more complex questions aimed at having students predict, infer, and explain.
the changing role of government in the economy, including the consequences of both government action and inaction in specific	3. Have students read through a summary or excerpt of the Clean Air Act of 1970 with the intention of identifying
sectors of the economy, In particular, they can analyze the outcomes of incentives and investigate the distributive effects of government policy.	regulations created by the law.4. Provide time for students to talk in pairs or small groups responding to questions similar to the following:

They learn to identify the benefits and costs of government influence in the economy in different industries and of different groups of people. For example, students can consider the government's response to hydraulic fracturing. Government regulation of "fracking" may impact the environment, the local labor market, and the growth of a variety of small- and large-business interests. Students can trace how government policy steers sectors of the economy through regulatory activity.	 What regulations were introduced by the law? What were the regulations designed to accomplish? How significantly does the act insert government into the economy? How do you predict this could affect the nation's economy? Provide students with summaries or excerpts from the follow up amendments passed in 1977 and 1990. In pairs or small groups, students can continue their evaluation of the laws economic regulations. Provide students with contemporary evaluations of the Clean Air Act. The EPA as well as numerous non-profits have written on the impacts of the Clean Air Act in the past several years. Have students use the evidence gathered from their reading and discussion to create an evidence-based claim responding
	and discussion to create an evidence-based claim responding to the compelling question.
	Principle V Concept b: Students need to know that the process of
	making decisions about resources and natural systems, and how the assessment of social, economic, political, and environmental factors has changed over time.

Education and the Environment Initiative (EEI) Curriculum Unit

Appendix G, CA HSS Framework

Private Property and Resource Conservation (CA HSS 12.1.4 Economics)

Students explore economic issues as they relate to resource conservation. Students examine how Californians have dealt with water ownership in the 150 years since statehood. The unit focuses on the possible consequences of common ownership of resources, including possible degradation and resource depletion. Students see how water in the state came to be defined as a public, not a private, good. They also learn about land trust and other incentives that encourage private property owners to care for their natural resources. At the end of the unit, students use what they have learned to research and analyze ownership and use of a resource in their community over time.

Sustaining Economies and the Earth's Resources (CA HSS 12.2.2, 12.2.7 Economics)

Students study "sustainable economics," an economic system with a focus on sustaining ecosystem goods and services over a long period of time. By examining a case study about the U.S. and international fishing industries, they learn about economic forces and our dependence on natural systems. They analyze the relationship among supply, demand, scarcity, and price to learn about making informed decisions as consumers. In subsequent lessons, students apply their knowledge about ecosystem dynamics to an investigation about industry practices on ocean resources and marine ecosystems. The final lesson examines the function of regulatory measures in sustaining both the natural systems and the fishing industry for future generations.

Government and the Economy: An Environmental Perspective (CA HSS 12.3.1 Economics)

This unit focuses on understanding the role of government in a free-market economy from the perspective of addressing environmental concerns. Students examine the fiscal policies, incentives, and market forces used by government to influence business activities that affect the natural environment. Students consider the pros and cons of a new approach toward environmental protection - one that uses market mechanism. Emissions trading (for example, cap-and-trade) gives businesses incentives to comply with environmental standards while also allowing them flexibility in compliance.

ENVIRONMENTAL LITERACY RESOURCES

This section provides connections to additional resources for bringing instruction on Environmental Literacy into your classroom.

California Education and the Environment Initiative EEI, a statewide initiative, provides educators with professional learning and instructional materials that integrate the Environmental Principles and Concepts into traditional academic subjects like history, science, and ELA. EEI offers twenty K-12 history-social science units, free of charge. https://californiaeei.org

California History-Social Science Project The CHSSP has a wealth of resources for history-social science teachers, including a repository of current events related to the environment with teaching tools to provide historical context. This resource is updated regularly. <u>https://chssp.ucdavis.edu/current-context</u>

California Regional Environmental Education Community Network CREEC is a California Department of Education program that fosters partnerships across all regions of California to promote environmental education and environmental literacy. CREEC provides teachers with access to high quality professional learning and resources. https://creec.org

California Science Teachers Association CSTA has developed a position statement on climate change, vetted lesson sequences, and written a white paper on environmental literacy for California students. In addition, CSTA links to resources developed by members in regions throughout the state.

https://cascience.org

San Diego County Office of Education SDCOE has curated a large selection of resources related to Environmental Literacy in the classroom. These resources were developed through collaboration by teachers, scientists, community partners, and SDCOE. https://ngss.sdcoe.net/Environmental-Literacy/Environmental-Literacy-Resources

Ten Strands Ten Strands works to provide teachers with high quality instructional materials with the goal of raising environmental literacy for all California students K-12. Ten Strands' resources address the Common Core, Next Generation Science, History-Social Science, and English Language Development standards with the goal of infusing education on the environment into core subjects. <u>https://tenstrands.org/</u>

