California Education and the Environment Initiative

Increasing Environmental Literacy for K–12 Students…
Because the Future is in Their Hands

TEACH COMMON CORE STANDARDS WITH THE EEI CURRICULUM

Created with your needs in mind, this document shows the correlation between the EEI Curriculum and the California Common Core State Standards. By teaching the EEI unit lessons in your classroom, you will be simultaneously addressing the Common Core standards depicted in this guide.

6.5.c.—Energy: Pass It On!

In this unit, students will know populations of organisms can be categorized by the functions they serve in an ecosystem. Students will learn about populations, byproducts, producers and consumers, and also be able to analyze the flow of energy between trophic levels on a food web. The unit concludes with an analysis of how the consumption of a variety of resources by humans alters natural systems.

LESSONS	RI.6.1	RI.6.2	RI.6.4	RI.6.7	RH.6–8.4	RH.6–8.7	RST.6–8.1	RST.6–8.2	RST.6–8.3	RST.6–8.4	RST.6–8.5	RST.6–8.7	W.6.1	W.6.2	W.6.4	W.6.6	W.6.7	W.6.8	SL.6.1	SL.6.2	SL.6.3	SL.6.4	SL.6.5	SL.6.6	L.6.1	L.6.2	L.6.3	L.6.4
California Connections							✓	✓		✓	✓																	
1			✓		✓			✓						✓	✓				✓	✓		✓				✓		✓
2			✓	✓	✓		✓								✓				✓	✓	✓	✓				✓	✓	
3			✓	✓	✓	✓			✓			✓			✓				✓	✓		✓			✓	✓	✓	
4			✓		✓							✓	✓		✓				✓	✓			✓		✓			
5			✓		✓										✓				✓	✓		✓	✓	✓	✓		✓	
Traditional Assessment		✓	✓	✓										✓	✓													
Alternative Assessment	✓	✓		✓					✓						✓	✓	✓	✓										

COMMON CORE STANDARDS

Note: *For your reference, the list of California Common Core State Standards abbreviations is on the following page.*

Using the EEI-Common Core Correlation Matrix

The matrix on the front page identifies a number of Common Core standards that are supported by this EEI unit. However, the check marks in the matrix do not necessarily signify that the Common Core standards checked will be taught to mastery by using this EEI unit alone. Teachers are encouraged to select which Common Core standards they wish to emphasize, rather than teaching to every indicated standard. By spending more time on selected standards, students will move toward greater Common Core proficiency in comprehension, critical thinking and making reasoned arguments from evidence. Teaching this EEI unit will provide opportunities for teachers to implement the shift in instructional practice necessary for full Common Core implementation.

California Common Core State Standards Abbreviations

- **CCCSS:** California Common Core State Standards
- **L:** Language Standards
- **RH:** Reading Standards for Literacy in History/Social Studies
- **RI:** Reading Standards for Informational Text
- **RST:** Reading Literacy Standards in Science and Technical Subjects
- **SL:** Speaking and Listening Standards
- **W:** Writing Standards

Note: *Since each Common Core standard includes a breadth of skills, in this correlation, the portion of the standard description that is featured in the Common Core Standards Applications is cited, using "…" to indicate omitted phrases. For a list of the complete standard descriptions, please see the Common Core Reference Pages located on pages 20–21 of this document.*

A Note about Speaking and Listening Common Core Standards

Many of the EEI units provide various learning structures, materials, and groupings that lead toward students working in pairs or small groups to discuss concepts and ideas. This supports the skill in Speaking and Listening Standard 1 "Participate effectively in a range of collaborative discussions (one-on-one, groups…) with diverse partners." With prior instruction in collaborative discussion techniques, students can be placed in pairs or small groups to discuss the lesson topics. To aid in teacher planning, the lessons are listed below which include tasks for whole class, pairs/partners, and/or small groups:

- **Lesson 1:** Whole class, pairs, individual
- **Lesson 2:** Whole class, individual
- **Lesson 3:** Whole class, pairs, individual
- **Lesson 4:** Whole class, small groups, pairs, individual
- **Lesson 5:** Whole class, large groups, pairs, individual

National Geographic Resources

- **Natural Regions** wall map (Lesson 2)
- **Political** wall map (Lesson 2)

Unit Assessment Options

Assessments	Common Core Standards Applications
Traditional Assessment	
Energy: Pass It On! (Traditional Unit Assessment Master) is comprised of matching, multiple-answer, listing, and short-answer questions that assess students' achievement of the unit's learning objectives.	**RI.6.2:** Determine a central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments. **RI.6.4:** Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings… **RI.6.7:** Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue. **W.6.2:** Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. **W.6.4:** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience…
Alternative Assessment	
Summary of an Ecosystem (Alternative Unit Assessment Master) has students analyze a natural region of California to describe how populations of organisms within that ecosystem exchange energy and nutrients. ***Suggestion:*** *Have students select an ecosystem they have not studied in class and conduct an independent research project to learn about the new natural region and human practices that may affect it.*	**RI.6.1:** Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. **RI.6.2:** Determine a central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments. **RI.6.7:** Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue. **RST.6–8.3:** Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks. **W.6.4:** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience… **W.6.6:** Use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of three pages in a single sitting. **W.6.7:** Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate. **W.6.8:** Gather relevant information from multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and providing basic bibliographic information for sources.

Lesson 1: What Is a Population?

Students explore the definition of population and consider examples in their school's environment. They read about the wolverine population in California, observe maps of wolverine distribution, and discuss how other populations of organisms interact with the wolverines in their habitat.

Lesson 1

What Is a Population?

Lesson 1

Learning Objective

Define a population.

Key Vocabulary

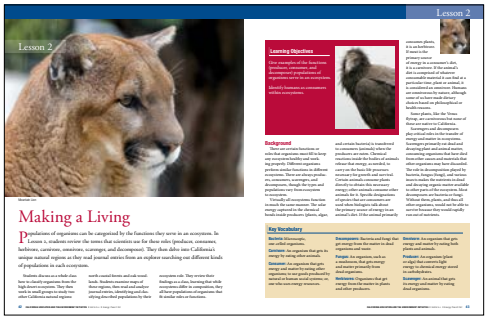
Use this correlation in conjunction with the **Procedures** located on pages 34–35 of the Teacher's Edition. Only procedure steps with a Common Core correlation are included in the table below.

Student Tasks	Common Core Standards Applications
Vocabulary Development: For depth of understanding, vocabulary may be featured within the context of the unit instead of or in addition to the beginning of the lesson. ***Tip:*** *If* ***Dictionary Workbooks*** *need to be reused from year to year, students should not write in them.*	**RH.6–8.4:** Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies. **RI.6.4:** Determine the meaning of words and phrases as they are used in a text…
Steps 1 and 2: Write the word "population" on the board and have students work in pairs to discuss what it means. Record some answers. Then have a group discussion about population using page 34 of the **Teacher's Edition**.	**L.6.4c:** Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 6 reading and content*, choosing flexibly from a range of strategies…consult reference materials ie dictionaries. **RH.6–8.4:** Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies. **SL.6.1:** Engage effectively in a range of collaborative discussions… **SL.6.4:** Present claims and findings.
Step 3: Using **Wolverine in Its Habitat** (Visual Aid #1), conduct a class discussion by identifying the animal, then making predictions of habitat and essential resources based on the photograph.	**SL.6.1:** Engage effectively in a range of collaborative discussions… **SL.6.2:** Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.

Student Tasks	Common Core Standards Applications
Step 4: Using ***California Connections: Where Are the Wolverines*** (Student Edition, pages 2–5), instruct students to work in pairs and take notes on "The Mighty Skunk-Bear" section for any references to other populations of organisms. ***Suggestion:*** *Refer to the* ***Reading*** **California Connections** ***Using a Common Core Reading and Writing Focus*** *on pages 15–19 to view specific suggestions for integrating Common Core standards while reading the selection not only for content, but for text structure as well.*	**L.6.2:** Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. **RST.6–8.2:** Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions. **SL.6.1:** Engage effectively in a range of collaborative discussions **W.6.2:** Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
Steps 5 and 6: Conduct a discussion using the prompts found on page 35 of the Teacher's Edition. Then, using **Wolverine Distribution Map** (Visual Aid #2), discuss how the population of wolverines has changed in the past several hundred years. Have them discuss with a partner, then share out to the class.	**SL.6.1:** Engage effectively in a range of collaborative discussions **SL.6.4:** Present claims and findings…
Step 7: Students work independently to answer the questions in **Populations** (Student Workbook, page 2). ***Tip:*** *If* ***Student Workbooks*** *need to be reused from year to year, students should not write in them. Some strategies teachers use to preserve the workbooks are:* ■ *Have students use binder paper or other lined or unlined paper.* ■ *Have students use a sheet protector over the page and write with a whiteboard marker.* ■ *Do together as a class on a projector or chart paper.* ■ *Project the digital fill-in version and do together as a class.* ■ *Students use digital devices to fill in the digital version found on the website.* ■ *Make student copies when necessary.*	**L.6.2:** Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. **W.6.4:** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)

Lesson 2: Making a Living

Students review terminology regarding roles of organisms in ecosystems. They read journal entries from an explorer describing life in three different natural regions in California. They identify populations of organisms in each region and classify each based on its function in its ecosystem.


Lesson 2

Making a Living

Populations of organisms can be categorized by the functions they serve in an ecosystem. In Lesson 2, students review the terms that scientists use for these roles (producer, consumer, herbivore, carnivore, omnivore, scavenger, and decomposer). They then delve into California's unique natural regions as they read journal entries from an explorer searching out different kinds of populations in each ecosystem.

Students discuss as a whole class how to classify organisms from the high desert ecosystem. They then work in small groups to study two other California natural regions: north coastal forests and oak woodlands. Students encounter maps of these regions, then read and analyze journal entries, identifying and classifying described populations by their ecosystem role. They revisit their findings as a class, learning that while ecosystems differ in composition, they all have populations of organisms that fit similar roles or functions.

Learning Objectives

Give examples of the functions (producer, consumer, and decomposer) populations of organisms can be in an ecosystem.

Identify humans as consumers within ecosystems.

Background

Key Vocabulary

National Geographic Resources

- **Natural Regions** wall map
- **Political** wall map

Use this correlation in conjunction with the **Procedures** located on pages 46–47 of the Teacher's Edition. Only procedure steps with a Common Core correlation are included in the table below.

Student Tasks	Common Core Standards Applications
Vocabulary Development: For depth of understanding, vocabulary may be featured within the context of the unit instead of or in addition to the beginning of the lesson.	**RH.6–8.4:** Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies. **RI.6.4:** Determine the meaning of words and phrases as they are used in a text…
Step 1: Using **Organisms and Their Functions** (Visual Aid #3), conduct a class discussion matching each vocabulary word with the appropriate definition.	**RI.6.4:** Determine the meaning of words and phrases as they are used in a text… **RI.6.7:** Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.
Step 2: While reading through **Explorer's Journals** (Student Edition, pages 6–8), have students make a list of any organisms that they encounter in the reading. Ask students to think about what roles those organisms would play in a high-desert ecosystem.	**L.6.2:** Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. **RI.6.7:** Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.
Step 3: Using **Roles in the Ecosystem** (Student Workbook, pages 3–4), conduct a class discussion on the organisms they discovered in the reading, and their role in the high desert ecosystem. Record student answers.	**L.6.2:** Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. **RI.6.7:** Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.

Student Tasks	Common Core Standards Applications
Step 3 (Continued):	**RST.6–8.1:** Cite specific textual evidence to support analysis of science and technical texts. **SL.6.1:** Engage effectively in a range of collaborative discussions… **SL.6.2:** Interpret information presented in diverse media and formats…and explain how it contributes to a topic, text, or issue under study. **SL.6.3:** Delineate a speaker's argument and specific claims, distinguishing claims that are supported by reasons and evidence from claims that are not. **SL.6.4:** Present claims and findings. **(e.g., argument, narrative, informative, response to literature presentations)**…**CA**
Steps 4–7: By referencing the **Political** wall map, conduct a class discussion about the other regions in California. Then have them read the remaining entries of the **Explorer's Journals** and classify the organisms by role in the **Roles in an Ecosystem** chart. Ask for volunteers to share their answers.	**RI.6.7:** Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue. **SL.6.1:** Engage effectively in a range of collaborative discussions… **SL.6.4:** Present claims and findings…
Step 8: Have students complete the questions on page 2 of **Roles in an Ecosystem** independently.	**L.6.2:** Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. **L.6.3:** Use knowledge of language and its conventions when writing, speaking, reading, or listening. **W.6.4:** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience…

Lesson 3: The Higher, the Fewer

Students use energy pyramids and role-playing to learn about energy flow in a community. They start with 10,000 energy units, and as they read a script, they observe how energy is lost at each trophic level in a food chain.

Lesson 3

Learning Objective

The Higher, the Fewer

Key Vocabulary

Background

Use this correlation in conjunction with the **Procedures** located on pages 62–63 of the Teacher's Edition. Only procedure steps with a Common Core correlation are included in the table below.

Student Tasks	Common Core Standards Applications
Vocabulary Development: For depth of understanding, vocabulary may be featured within the context of the unit instead of or in addition to the beginning of the lesson.	**RH.6–8.4:** Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies. **RI.6.4:** Determine the meaning of words and phrases as they are used in a text…
Step 1: Conduct a class discussion using the prompts on page 62 of the **Teacher's Edition**. ***Suggestion:*** *Have students write their answers independently, then pair-share, then share out to the class.*	**L.6.1:** Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. **L.6.3:** Use knowledge of language and its conventions when writing, speaking, reading, or listening. **SL.6.1:** Engage effectively in a range of collaborative discussions…
Steps 2–4: Conduct a role-play using **The Energy Transfer Story: The Higher, The Fewer** (Student Edition, pages 9–10) by selecting 6 students to read each part. Once the role play is finished, lead a class discussion using the prompts on page 62 of the **Teacher's Edition**.	**L.6.1:** Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. **L.6.3:** Use knowledge of language and its conventions when writing, speaking, reading, or listening. **SL.6.1:** Engage effectively in a range of collaborative discussions… **SL.6.2:** Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study. **SL.6.4:** Present claims and findings… **RI.6.7:** Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.

Student Tasks	Common Core Standards Applications
Steps 2–4 (Continued):	**RH.6–8.7:** Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts. **RST.6–8.3:** Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks. **RST.6–8.7:** Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually…
Steps 5 and 6: Using the **Sierra Nevada Energy Pyramid** (Visual Aid, #5), conduct a class discussion on the various roles organisms play in an ecosystem. Use the questions on page 63 of the **Teacher's Edition**.	**RI.6.7:** Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue. **SL.6.1:** Engage effectively in a range of collaborative discussions… **SL.6.2:** Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.
Step 7: Have students independently fill in the diagram on the **Energy Pyramids** (Student Workbook, page 5).	**L.6.2:** Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. **L.6.3:** Use knowledge of language and its conventions when writing, speaking, reading, or listening. **W.6.4:** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

Lesson 4: Cause and Effect?

Students construct a partial food web of the wolverine's ecosystem. They read about the decline in the wolverine population in California, and then work in groups to examine how human practices may affect the flow of matter through an ecosystem's food web.

Lesson 4

Cause and Effect?

Students have learned how energy and matter flow through a natural system. In this lesson, students focus on humans in natural systems, examining how human practices alter the transfer of matter in a food web.

Lesson 4

Learning Objective

Describe the effects of human practices on the transfer of matter through natural systems.

Key Vocabulary

food web A group of connected food chains in an ecosystem.

Background

A food web provides a model of the transfer of matter and energy that occurs in a natural system. In any ecosystem, there are complex relationships between organisms. For example, when hunting or fishing pressure on a predator's prey increases, may thrive, as may former competing predators. When urban development, mining, logging, or agriculture increases and fragments habitat, some species may increase their direct food source. The effects are also felt by secondary consumers, which were also food for the original prey. Concerns about where and when numbers grow or share livestock allow the kinds of predators to increase and decrease of the prey, which affects which herbivores will flourish in an ecosystem. The relationships are complex and often are often complex, making it difficult to predict how species will respond.

Consider the case study of the wolverine. Historically, trapping and hunting threatened this species as settlers moved into California. Today, wolverines live in Northern California, some very large in begin with, in most almost gone. Many other human activities currently threaten wolverine populations worldwide. Wolverines, like all living things, get matter through the food web in order to supply the wolverine with essential energy. Wolverines are carnivores that also the availability of certain, such as deer and elk, likely affect the wolverine population. Human activities such fragmentation and development are two likely candidates of threats to large herbivores, and subsequently, wolverines.

Wolverines are one of the fattest requirements for the wolverine and the food web relationships in its ecosystem are currently lacking. Some wolverines are so rare to member of the family, Mustelidae, has dwindled, they are hard to study. Interestingly, scientists believe that the elimination of wolverines from an ecosystem may have a significant impact on the populations of other organisms. Because wolverines are so scarce, they are not the only predator of their prey. Any individual deer may be at risk, but wolverines probably cannot significantly affect large populations of other organisms in its habitat.

Optional viewing

Use this correlation in conjunction with the **Procedures** located on pages 78–79 of the Teacher's Edition. Only procedure steps with a Common Core correlation are included in the table below.

Student Tasks	Common Core Standards Applications
Vocabulary Development: For depth of understanding, vocabulary may be featured within the context of the unit instead of or in addition to the beginning of the lesson.	**RH.6–8.4:** Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies. **RI.6.4:** Determine the meaning of words and phrases as they are used in a text…
Step 1: In groups of 4, have students create a food web using the **Food Web Cards** (Information Cards #7–16), chart paper, and colored markers.	**RH.6–8.7:** Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts. **RST.6–8.7:** Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually **SL.6.1:** Engage effectively in a range of collaborative discussions… **SL.6.2:** Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.
Steps 2 and 3: Using the **Partial Wolverine Ecosystem Food Web** (Visual Aid #6), conduct a class discussion on the correct web design, as well as how changes to one organism in the food web may or may not affect other organisms. For reference, use the prompts on page 78 of the **Teacher's Edition**.	**SL.6.1:** Engage effectively in a range of collaborative discussions… **SL.6.2:** Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.

Student Tasks	Common Core Standards Applications
Step 4: Read ***California Connections: Where Are the Wolverines?*** (Student Edition, pages 2–5) aloud as a class, then discuss what factors may have reduced the wolverine population. ***Suggestion:*** *Have students read to each other in pairs, and also discuss the prompt questions. Then conduct a class discussion.*	**L.6.1:** Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. **SL.6.1:** Engage effectively in a range of collaborative discussions… **SL.6.2:** Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.
Step 5: After splitting the class into groups of 4, use the **Human Practices Cards** (Information Cards #17–24) and have each group member take a turn presenting the information on their card, then lead a group discussion about how their described human activity might affect relationships in the food web. Each student will record their predictions on **Human Practices and the Wolverine's Food Web** (Student Workbook, pages 6–7).	**SL.6.1:** Engage effectively in a range of collaborative discussions… **SL.6.2:** Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study. **SL.6.5:** Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information. **W.6.1:** Write arguments to support claims with clear reasons and relevant evidence. **W.6.4:** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience…
Step 6: Review all answers as a class, using **Partial Wolverine Ecosystem Food Web** as a guide.	**SL.6.1:** Engage effectively in a range of collaborative discussions… **SL.6.2:** Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.

Lesson 5: Making Choices: The Effects of Human Consumption

Students review resources that people consume from natural systems. They read about and discuss timber harvesting, identifying examples of byproducts and other changes caused by harvesting that alter natural systems. They read other examples of resource consumption and analyze how decisions about human practices affect ecosystems.

Lesson 5

Making Choices: The Effects of Human Consumption

Learning Objectives

Key Vocabulary

Use this correlation in conjunction with the **Procedures** located on pages 96–97 of the Teacher's Edition. Only procedure steps with a Common Core correlation are included in the table below.

Student Tasks	Common Core Standards Applications
Vocabulary Development: For depth of understanding, vocabulary may be featured within the context of the unit instead of or in addition to the beginning of the lesson.	**RH.6–8.4:** Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies. **RI.6.4:** Determine the meaning of words and phrases as they are used in a text…
Steps 1 and 2: Review the words "consumption" and "byproduct" with students. Have students write down, what other resources humans consume from the environment. Then have them share their answers with a partner.	**RI.6.4:** Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings… **SL.6.1:** Engage effectively in a range of collaborative discussions… **SL.6.2:** Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study. **SL.6.6:** Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. **L.6.1:** Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. **L.6.3:** Use knowledge of language and its conventions when writing, speaking, reading, or listening. **W.6.4:** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience…

Student Tasks	Common Core Standards Applications
Steps 3 and 4: Using **Human Practices and Natural Systems** (Student Workbook, pages 8–11) and **Timber Harvesting** (Student Edition, pages 11–12), have students read individually, then work with a partner to identify examples of byproducts or changes to the natural system caused by the human practice, whether they are a byproduct or a change, and the effects on the natural system. After 20 minutes, use **Part 1: Timer Harvesting 1 and 2** (Visual Aids #7–8) to review sample answers. Then conduct a class discussion using the prompts on page 97 of the **Teacher's Edition**.	**L.6.1:** Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. **L.6.3:** Use knowledge of language and its conventions when writing, speaking, reading, or listening. **SL.6.1:** Engage effectively in a range of collaborative discussions… **SL.6.2:** Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study. **SL.6.5:** Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information. **SL.6.6:** Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.
Step 5: Dividing the class into thirds, assign each third either **Gravel Mining** (Student Edition, pages 13–14), **Mineral Mining** (Student Edition, pages 15–16), or **Rice Mining** (Student Edition, pages 17–18). Have students work independently or in pairs to fill in the chart and answer the question on Part 2 of **Human Practices and Natural Systems**.	**L.6.1:** Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. **L.6.3:** Use knowledge of language and its conventions when writing, speaking, reading, or listening. **SL.6.1:** Engage effectively in a range of collaborative discussions… **SL.6.2:** Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study. **SL.6.6:** Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. **W.6.4:** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience…

Student Tasks	Common Core Standards Applications
Step 6: Have students present their scenarios, then conduct a class discussion on which choices students would select for each scenario.	**L.6.1:** Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. **L.6.3:** Use knowledge of language and its conventions when writing, speaking, reading, or listening. **SL.6.1:** Engage effectively in a range of collaborative discussions… **SL.6.2:** Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study. **SL.6.4:** Present claims and findings… **SL.6.5:** Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information. **SL.6.6:** Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.

Reading *California Connections* using a Common Core Reading and Writing Focus

Reading

Science teachers can further enhance the teaching of Common Core Reading Literacy Standards by noting the suggestions below and in the following pages while reading the ***California Connections*** selection for content. Explicitly teach students to pay attention to the structure of the text by noting the following:

- Note how the author cites evidence to support main points and analysis. **(RST.6–8.1)**
- Note how the author sets up the central ideas or conclusions; provide an accurate summary of the text distinct from prior knowledge or opinions. **(RST.6–8.2)**
- Analyze how the author describes a scientific process or a multi-step procedure. **(RST.6–8.3)**
- Note how the author explains the meaning of key terms, symbols, domain specific words, and phrases. **(RST.6–8.4)**
- Analyze the structure the author uses to organize the text, including how the major sections contribute to the whole and to an understanding of the topic. **(RST.6–8.5)**
- Analyze the author's purpose in providing an explanation or describing a procedure. **(RST.6–8.6)**
- Note how the information in the California Connections text integrates with information provided visually throughout the unit in diverse formats, including tables, charts, graphs, diagrams, maps, and quantitative data. **(RST.6–8.7)**
- Distinguish among facts, reasoned judgment based on research findings, and speculation in a text, noting the reasoning and evidence used to support the author's claim. **(RST.6–8.8)**
- When other documents or media sources are included, compare and contrast the information presented in the various formats and resources with that from the text, noting how the information contributes to a coherent understanding. **(RST.6–8.9)**
- Note comprehension strategies for understanding the text. **(RST.6–8.10)**

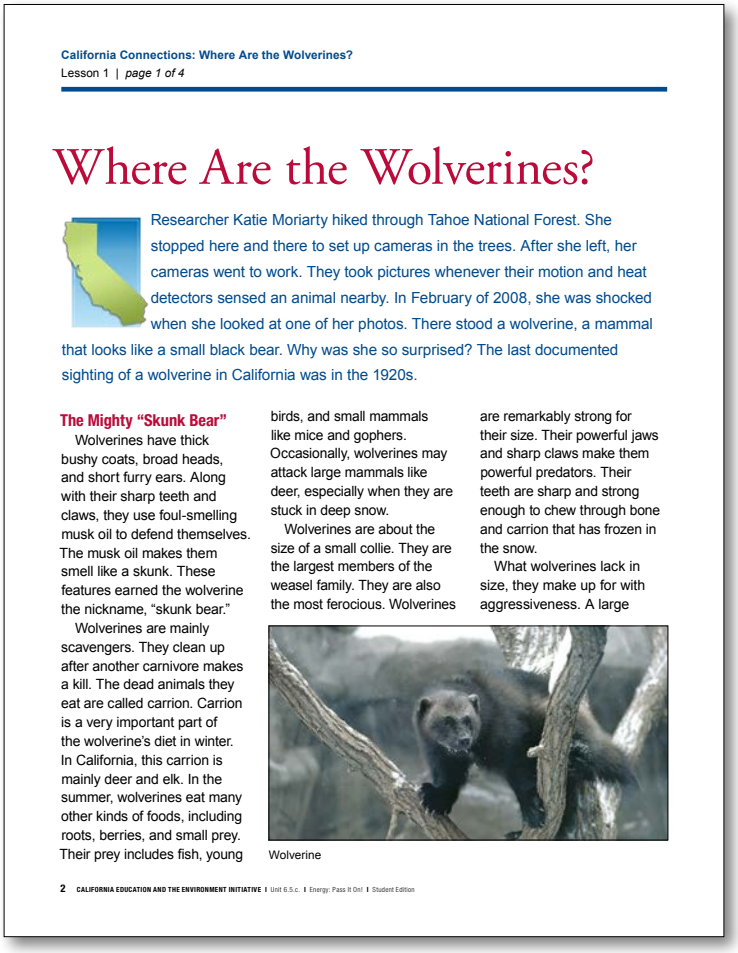
Note: *Standard descriptions from the Reading Standards for Literacy in Science and Technical Subjects are paraphrased and combined, using terminology that applies to reading a* ***California Connections*** *selection.*

Writing

Many ***California Connections*** selections can be used as a model for future student writing tasks applying the Writing Literacy Standards by noting how the author structures the text, organizes the ideas, and provides well-chosen relevant and sufficient facts, extended definitions, concrete details, quotations, or other information and examples.

Using the *California Connections* Selection

The following pages note specific places where the ***California Connections*** selection provides examples for specific Writing Literacy Standards for Science and Technical subjects, using this selection as a writing model. They also provide suggestions for teaching students to analyze text structure using the Reading Literacy Standards for Science and Technical Subjects. Teachers can incorporate more suggestions from the list above. In addition, for teachers of self-contained classrooms, ELA standards are included.



California Connections: Where Are the Wolverines?
Lesson 1 | *page 1 of 4*

Where Are the Wolverines?

Researcher Katie Moriarty hiked through Tahoe National Forest. She stopped here and there to set up cameras in the trees. After she left, her cameras went to work. They took pictures whenever their motion and heat detectors sensed an animal nearby. In February of 2008, she was shocked when she looked at one of her photos. There stood a wolverine, a mammal that looks like a small black bear. Why was she so surprised? The last documented sighting of a wolverine in California was in the 1920s.

The Mighty "Skunk Bear"

Wolverines have thick bushy coats, broad heads, and short furry ears. Along with their sharp teeth and claws, they use foul-smelling musk oil to defend themselves. The musk oil makes them smell like a skunk. These features earned the wolverine the nickname, "skunk bear."

Wolverines are mainly scavengers. They clean up after another carnivore makes a kill. The dead animals they eat are called carrion. Carrion is a very important part of the wolverine's diet in winter. In California, this carrion is mainly deer and elk. In the summer, wolverines eat many other kinds of foods, including roots, berries, and small prey. Their prey includes fish, young birds, and small mammals like mice and gophers. Occasionally, wolverines may attack large mammals like deer, especially when they are stuck in deep snow.

Wolverines are about the size of a small collie. They are the largest members of the weasel family. They are also the most ferocious. Wolverines are remarkably strong for their size. Their powerful jaws and sharp claws make them powerful predators. Their teeth are sharp and strong enough to chew through bone and carrion that has frozen in the snow.

What wolverines lack in size, they make up for with aggressiveness. A large

Wolverine

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RST.6–8.1: Cite specific textual evidence to support analysis of science and technical texts.

RST.6–8.2: Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

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Sierra Nevada, California

wolverine might weigh only 40 pounds. But it will challenge much larger predators and steal their prey. Hunters and trappers have seen 1,000-pound grizzly bears leave their meals behind when a wolverine approached.

Wolverines live in forests or tundra in the mountains. They prefer remote spaces with few people. They now live mainly on high mountaintops, where it is too cold and snowy for trees to grow, and because these areas are the least disturbed by humans. Wolverines share their habitat with other mammals, birds, insects, and fungi that they hunt and eat. Larger predators like mountain lions and bears also live in the same region. These predators compete with wolverines for food. On rare occasions, they may kill wolverines. Still, the wolverine depends on these predators to provide them with carrion.

Wolverines are well-adapted to live and hunt in the snow. Their fur is thick and keeps them warm. Their feet are large so they can walk easily on snow. If they are hungry, they can even use their long claws to dig 10 feet into the snow to find hibernating animals. In the tundra habitat, snow plays a very important role in wolverine survival. Female wolverines raise their babies in dens built in deep snow layers. These dens are long, complex snow tunnels that protect the young from predators and provide warmth in the cold climate. In forests, wolverines sometimes create dens from fallen or decayed trees.

Wolverines cover many miles in a day of hunting. Each animal needs lots of space to hunt and raise its young. Wolverines fight off other wolverines that try to enter their home territory.

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RST.6–8.4: Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context…

RST.6–8.5: Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.

RST.6–8.4: Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context…

This limits the total number of wolverines that can live in a region. It is one of the reasons that wolverines are one of the rarest mammals in North America.

Because wolverines are very secretive and travel across large ranges, they are hard for scientists to study. Many things about the species are not known. But one thing is certain, wolverines used to live throughout the Sierra Nevada Mountains. Now, they are exceedingly rare. In California, they are designated as a threatened species. Their decline is a mystery scientists want to explore.

Wolverine

What Happened to California's Wolverines?

The population of wolverines was never very large. Still, there were enough around in the 1800s to cause problems for people. Trappers would lose money when hungry wolverines stole animals from their traps. They began to use poisoned bait to kill wolverines. Wolverines also stole food from settlers' cabins. The "skunk bears" even ruined settlers' belongings with their musk and urine markings. People thought that wolverines were particularly fierce and dangerous animals. Settlers killed them whenever they got the chance. Today, in other parts of the world, hunters and trappers still kill wolverines for their fur.

What has changed over the last 150 years? For one thing, the ways people use the land have changed a lot. The discovery of gold at Sutter's Mill in 1848 began a major shift in the region. Is this what caused the wolverine to almost disappear?

After the Gold Rush started, miners and early settlers built many new towns in the Sierra Nevada Mountains. In 1860, about 150,000 people lived in the region. By 1960, that number grew to around 275,000. The population reached 650,000 in 1990 and will soon pass 1,000,000.

The Gold Rush paved the way for many new industries. Forests were cut to provide lumber for mines and houses. By 1880, over 1.5 million acres of pine forests had been cleared. Scientists

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wonder how this logging affected the wolverines. Could they still find safe dens for their young without the trees? People also built mines, farms, and ranches throughout the region, some located in the wolverine's habitat.

In the late 1800s, ranchers grazed sheep in the high grasslands. This practice cleared large areas of native grasses. Ranchers worried that wolverines would hunt and kill their livestock. Like trappers, they also poisoned wolverines in order to protect their income.

In the 1860s, people created parks at Yosemite Valley and Calaveras Big Trees. These were the first parks in the Sierra Nevada Mountains. More parks followed. Tourism brought more people to the area. More people meant more contact with wolverines. Some people were afraid of wolverines and sometimes killed them to protect themselves.

Mining, grazing, farming, logging, and recreation all affected the habitat of the wolverine. Wolverines had a harder time finding places to build dens and raise their young. They no longer had unbroken home ranges in which to hunt. In addition, the populations of some of their food sources may have changed. Hunters killed deer, an important part of the wolverine's winter diet. It grew harder and harder for the wolverine population to survive in the Sierra Nevada Mountains.

Will the wolverine continue to live in California? Or did Katie Moriarty find one of the last of a dying species? Scientists are studying how changes to the wolverine's habitat, populations of predators and prey, and other factors will affect the skunk bear's future.

Waterfall, Yosemite National Park

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RST.6–8.2: Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

California Common Core State Standards Descriptions

Language Standards

- **L.6.1:** Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- **L.6.2:** Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
- **L.6.3:** Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- **L.6.4:** Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 6 reading and content*, choosing flexibly from a range of strategies.
  - c) Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.

Reading Standards for Informational Text

- **RI.6.1:** Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
- **RI.6.2:** Determine a central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.
- **RI.6.4:** Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings. **(See grade 6 Language standards 4–6 for additional expectations.) CA**
- **RI.6.7:** Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.

Speaking and Listening Standards

- **SL.6.1:** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 6 topics, texts, and issues*, building on others' ideas and expressing their own clearly.
- **SL.6.2:** Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.
- **SL.6.3:** Delineate a speaker's argument and specific claims, distinguishing claims that are supported by reasons and evidence from claims that are not.
- **SL.6.4:** Present claims and findings **(e.g., argument, narrative, informative, response to literature presentations)**, sequencing ideas logically and using pertinent descriptions, facts, and details **and nonverbal elements** to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation. **CA**
- **SL.6.5:** Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.
- **SL.6.6:** Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See grade 6 Language standards 1 and 3 for specific expectations.)

Writing Standards

- **W.6.1:** Write arguments to support claims with clear reasons and relevant evidence.
- **W.6.2:** Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
- **W.6.4:** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
- **W.6.6:** Use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of three pages in a single sitting.
- **W.6.7:** Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.

- **W.6.8:** Gather relevant information from multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and providing basic bibliographic information for sources.

Reading Standards for Literacy in History/Social Studies

- **RH.6–8.4:** Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies.
- **RH.6–8.7:** Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.

Reading Literacy Standards in Science and Technology Subjects

- **RST.6–8.1:** Cite specific textual evidence to support analysis of science and technical texts.
- **RST.6–8.2:** Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
- **RST.6–8.3:** Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
- **RST.6–8.4:** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 6–8 texts and topics*.
- **RST.6–8.5:** Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.
- **RST.6–8.7:** Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).