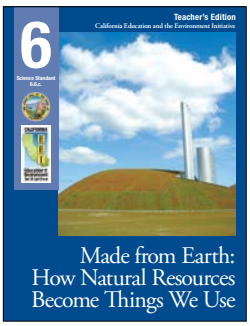
TEACH COMMON CORE STANDARDS WITH THE EEI CURRICULUM

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.

6.6.c.—Made from Earth: How Natural Resources Become Things We Use



In this unit, students' knowledge about resources originated in natural systems is reinforced and expanded. Students explore surfboard manufacturing as an example of natural resources people use, and use that example to design their own toy. They examine the design process and selection of materials during manufacturing. Students identify the sources of natural resources and modes of transporting raw materials using the surfboard example and, then apply this to their own toy design. They then compare methods used to extract and harvest natural resources. Students assess how human consumption can influence natural systems, and determine the cost to our natural resources.

LESSONS	RI.6.1 and RST.6–8.1	RI.6.2 and RST.6–8.2	RI.6.3 and RST.6–8.3	RI.6.4 and RST.6–8.4	RI.6.7 and RST.6–8.7	RI.6.10 and RST.6–8.10	W.6.2 and WHST.6–8.2	W.6.4 and WHST.6–8.4	W.6.7 and WHST.6–8.7	W.6.8 and WHST.6–8.8	W.6.9 and WHST.6–8.9	SL.6.1	SL.6.2	SL.6.3	SL.6.4	SL.6.5	L.6.3	L.6.4
California Connections		✓	✓		✓		✓										✓	✓
1	✓			✓	✓	✓			✓			✓	✓					✓
2				✓	✓	✓				✓		✓	✓	✓	✓			✓
3				✓	✓							✓	✓					✓
4	✓	✓		✓			✓	✓		✓	✓	✓	✓					✓
5	✓			✓			✓			✓		✓	✓					✓
6				✓						✓		✓	✓					✓
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
- **RI:** Reading Standards for Informational Text
- **RST:** Reading Standards for Literacy in Science and Technical Subjects
- **SL:** Speaking and Listening Standards
- **W:** Writing Standards
- **WHST:** Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects

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 17–19 of this document.*

A Note about Common Core Speaking and Listening Standards

Throughout this unit, students participate in various learning structures and groups to analyze, discuss, and synthesize data, which 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 on collaborative discussions, these various groupings and the materials students examine lend themselves to prime discussion material for collaborative discussions. Learning structures with tasks for pairs and groups are in the following lessons:

- **Lesson 1:** Whole class, partners (optional)
- **Lesson 2:** Whole class, partners (optional)
- **Lesson 3:** Whole class, partners (optional)
- **Lesson 4:** Whole class, 5 groups
- **Lesson 5:** Whole class, partners (optional)
- **Lesson 6:** Whole class, partners (optional)

National Geographic Resources

No maps or posters are used with this unit.

Unit Assessment Options

Assessments	Common Core Standards Applications
Traditional Assessment	
Made from Earth (Traditional Unit Assessment Master) is comprised of matching and sequencing activities, as well as multiple-choice and short-answer questions.	**SL.6.1c:** …respond to specific questions with elaboration and detail… **W.6.2d** and **WHST.6–8.2d:** Use precise language and domain-specific vocabulary to inform about or explain the topic.
Alternative Assessment	
Toy Showcase Instructions (Alternative Unit Assessment Master), students design a model or a more detailed blueprint of the toy they have been designing throughout the unit. ***Suggestion:*** *Students can write a short essay describing all of the elements required in the instructions.* ***Tip:*** *Blueprints can be constructed digitally or manually.*	**SL.6.5:** Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information. **W.6.2** and **WHST.6–8.2:** Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. a) Introduce a topic…; organize ideas, concepts, and information, using strategies such as definition, classification, comparison/contrast, and cause/effect; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension… b) Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples. c) Use appropriate transitions to clarify the relationships among ideas and concepts. d) Use precise language and domain-specific vocabulary to inform about or explain the topic. e) Establish and maintain a formal style. f) Provide a concluding statement or section that follows from the information or explanation presented.

Lesson 1: What a Resource!

Students read about surfboard manufacturing and chart the steps through which natural resources become objects useful to people. They begin to design toys for manufacture. Throughout the unit, students gather additional information about the manufacturing process that they can use to further develop their toys.

Lesson 1

What a Resource!

Learning Objectives

Key Vocabulary

Background

Surfer in Southern California

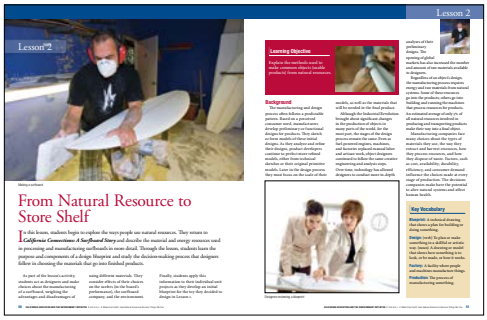
Overseas sanding in a sewing factory

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.*	**L.6.4c:** Consult reference materials… to…determine…[a word's] meaning… **RI.6.4** and **RST.6–8.4:** Determine the meaning of…key terms, and other domain-specific words and phrases as they are used in a specific scientific… context…
Step 2: After reading and discussing the **Natural Resource Use Flowchart** (Student Workbook, page 2) students produce their own examples that fit into the flowchart. ***Suggestion:*** *Students can partner-share their examples to increase discussion in the classroom.* ***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.*	**SL.6.1c:** …respond to specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion. **SL.6.2:** Interpret information presented in diverse media and formats…and explain how it contributes to a topic, text, or issue under study.
Steps 3 and 4: Read through the procedure steps in the Teacher's Edition. You may want to display the discussion questions prior to students reading the ***California Connections: A Surfboard Story*** (Student Edition, pages 2–6). Students connect the information from the story to information in the **Origins Chart** (Student Workbook, pages 3–4). ***Suggestion:*** *Refer to* ***Reading*** **California Connections** ***Using a Common Core Reading and Writing Focus*** *on pages 11–16 to view specific suggestions for integrating Common Core standards while reading this selection not only for content, but for text structure as well.* *In addition to providing support for Reading Literacy standards, the* **California Connections** *selection provides a writing model for the Writing Literacy standards. As students read for content, explicitly point out the text structures the author uses to convey the information. Once familiar with the process, students can identify these structural elements as they read independently.*	**RI.6.1** and **RST.6–8.1:** Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. **RI.6.7:** Integrate information presented in different…formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue. **RI.6.10** and **RST.6–8.10:** …read and comprehend literary nonfiction…
Steps 5 and 6: Students begin to develop a new toy, giving details about the natural resources or raw materials that are used.	**W.6.7** and **WHST.6–8.7:** Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.

Lesson 2: From Natural Resource to Store Shelf

Students discuss the design process and evaluate different raw material options and the factors involved in making decisions about materials for manufacturing. They make a blueprint of the toy they are designing and indicate the materials they will use for each part.


Lesson 2

From Natural Resource to Store Shelf

Use this correlation in conjunction with the **Procedures** located on pages 54–55 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.	**L.6.4c:** Consult reference materials… to…determine…[a word's] meaning… **RI.6.4** and **RST.6–8.4:** Determine the meaning of…key terms, and other domain-specific words and phrases as they are used in a specific scientific… context…
Step 3: Students study and discuss multiple blueprints, and analyze what is included in the blueprint and the steps involved in creating a design. ***Suggestion:*** *Have students discuss their analysis of the blueprint in partners prior to sharing with the whole class to increase their communication skills.*	**RI.6.7** and **RST.6–8.7:** 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 (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.
Step 4: Students decide which materials to make their surfboard out of by reading about the material and the resources used to make the materials. ***Suggestion:*** *Students should work in partners or small groups to discuss the costs and benefits of each material.*	**RI.6.10** and **RST.6–8.10:** …read and comprehend literary nonfiction… **SL.6.2:** Interpret information presented in diverse media and formats… **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…
Steps 5 and 6: Students draw blueprints for their own toy, list materials needed for their toy, and note the resource the materials came from.	**W.6.8** and **WHST.6–8.8:** Gather relevant information from multiple print and digital sources…

Lesson 3: World Travelers

Students refer to a world resources map to identify where raw materials used in surfboard manufacturing come from. They determine travel distances and select modes of transportation for the raw materials and resources they have chosen to use in their own toy designs.

Lesson 3

World Travelers

Lesson 3

Learning Objective

Key Vocabulary

Background

Use this correlation in conjunction with the **Procedures** located on pages 68–69 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.	**L.6.4c:** Consult reference materials… to…determine…[a word's] meaning… **RI.6.4** and **RST.6–8.4:** Determine the meaning of…key terms, and other domain-specific words and phrases as they are used in a specific scientific… context…
Step 1: Review with students what materials are needed to make surfboards. ***Tip:*** *Redistribute* ***California Connections: A Surfboard Story*** *for students to use as a reference.*	**SL.6.1c:** …respond to specific questions with…detail by making comments that contribute to the topic, text, or issue under discussion.
Steps 2–4: Students analyze multiple visual aids to determine where natural resources are found and how they are transported. ***Tip:*** *To increase communications between students, have them pair-share with each other.*	**SL.6.1c:** …respond to specific questions with…detail by making comments that contribute to the topic, text, or issue under discussion. **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 6–8: After teacher modeling, students list three of the natural resources needed to complete their toy, calculate the distance between resource and the toy factory, and determine the mode of transportation needed to get the product to the factory. ***Tip:*** *The distance calculation, while still approximate, can be done digitally, incorporating computer skills into the project.*	**RI.6.7** and **RST.6–8.7:** 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.6.2:** 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 4: Meet the Extractors and Harvesters

Students read about methods used to extract and harvest natural resources, and they participate in a mock convention in which they mingle and inform each other about their resource-related jobs. They apply this information to their toy project plans.

Lesson 4

Meet the Extractors and Harvesters

In this lesson students learn about some of the methods humans use to acquire natural resources and use materials that go into everyday products. In preparation for a mock convention, students learn how people extract or harvest five natural resources (copper, cotton, petroleum, silica, and wood) and process them for manufacturing.

Each student takes on the role of one of the extractors or harvesters and prepares for his or her part by reading about the resource and the methods (including tools used, location of extraction or harvesting, and steps required for processing) of one of the five resources.

Students mingle at the mock convention and take notes on each other's jobs. They apply their new knowledge to a toy project and a technology that was designed to help describe the extraction or harvesting process for a natural resource needed for their toys.

Background

The extraction and harvesting of natural resources and the processing of these resources to produce the additional natural resources (in the form of materials and energy). The methods used to have activities vary according to the nature of the

Lesson 4

Learning Objective

Describe the methods used to extract, harvest, and transport the materials used to make everyday products from natural resources.

resource, the location where it grows or is found, the tools and equipment available at the time, and place of extraction or harvesting.

People who gather wood (log resources usually "extract" these resources) use axes and saws to remove natural cores and drill wells for water. The geology of a location, including the kind of rocks and soil present, determines the step extractors remove the resource. Extractors of petroleum and silica work much as coal, at the ground's surface by removing soil, rock, and sediment with pressurized water, explosives, digging machines, or a combination of these techniques. They reach the resource by removing the overburden, such as pavement, by tunneling or drilling into soil, rock, and sediment and carrying the resources out through shafts. Harvesters of wood (log resources) "harvest" from farms, other agricultural operations, or forests. Farmers and forest harvesters stand/fell the source of the resource in order to collect the resource (wood) for processing. Harvesters fell elephants for their tusks, while cotton harvesters simply remove the flower from a cotton plant because only the cotton boll

level profit is collected.

Farmers and forest harvesters choose their collection methods based on their technological options and desired outcomes. Before the advent of machines, fire, explosives, and mining relied on people using hand tools to cut, chisel, and pick. Today, the dynamite allowed much more ore to be exposed in much less time and with much less human labor. However, this ore extraction method often leads to the destruction of entire ecosystems.

Key Vocabulary

Ecosystem A community of plants, animals, and their surroundings that depend on each other.

Log harvester removing a log pile

Session 1

Use this correlation in conjunction with the **Procedures** located on pages 84–85 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.	**L.6.4c:** Consult reference materials… to…determine…[a word's] meaning… **RI.6.4** and **RST.6–8.4:** Determine the meaning of…key terms, and other domain-specific words and phrases as they are used in a specific scientific… context…
Steps 1 and 2: Students look at the most common natural resource used in the previous lesson and identify which of the four categories the resource belongs to. Then they are given the 5 common natural resources and they discuss, "How do people use each of these resources?"	**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 3: In 5 different groups, students become experts in one form of extracting and harvesting a certain natural resource. They take notes on different aspects of their "job."	**RI.6.1** and **RST.6–8.1:** Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. **RI.6.2** and **RST.6–8.2:** Determine a central idea of a text and how it is conveyed through particular details… **W.6.2d** and **WHST.6–8.2d:** Use precise language and domain-specific vocabulary to inform about or explain the topic. **W.6.9** and **WHST.6–8.9:** Draw evidence from…informational texts to support… research.

Session 2

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.	**L.6.4c:** Consult reference materials… to…determine…[a word's] meaning… **RI.6.4** and **RST.6–8.4:** Determine the meaning of…key terms, and other domain-specific words and phrases as they are used in a specific scientific… context…
Steps 2 and 3: Review the procedures for these steps. ***Tip:*** *The teacher may decide to facilitate expert groups and assign the different "jobs" to get together to discuss information. Students may do an expert jigsaw, rather than mingle.*	**SL.6.1d:** Review the key ideas expressed and demonstrate understanding… through reflection and paraphrasing.
Step 4: After gathering data on the additional 4 "jobs," students discuss the answers to these questions: ■ What was something new you learned about how workers extract or harvest various resources? ■ What similarities did you see between two or more types of extraction or harvesting? What differences did you see?	**SL.6.1d:** Review the key ideas expressed and demonstrate understanding… through reflection and paraphrasing. **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: Complete **To Extract or to Harvest: That Is the Question!** (Student Workbook, page 21)	**W.6.4** and **WHST.6–8.4:** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience… **W.6.8** and **WHST.6–8.8:** Gather relevant information from…print…and quote or paraphrase the information…

Lesson 5: The Effects of Consumption

After discussing photographs of areas influenced by the harvesting and extraction of resources and raw materials used in the manufacturing process, students consider the variety of ways human consumption can influence natural systems, including the creation of air pollution.

Lesson 5

The Effects of Consumption

In this lesson students consider the effects of the manufacturing process on natural systems. The class looks at a series of photographs showing places before and after extraction, farming, and the processing of raw materials have taken place.

Use this correlation in conjunction with the **Procedures** located on pages 108–109 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.	**L.6.4c:** Consult reference materials… to…determine…[a word's] meaning… **RI.6.4** and **RST.6–8.4:** Determine the meaning of…key terms, and other domain-specific words and phrases as they are used in a specific scientific… context…
Steps 3 and 4: Students analyze a series of before-and-after photos and describe the changes that they see. ***Note:*** *The "textual evidence" referred to in standard RI.6.1 is in the form of pictorial evidence in this case.*	**RI.6.1** and **RST.6–8.1:** Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. **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 5 and 6: Discuss the effects on the environment from using natural resources for a variety of resources. Air pollution is a major concern for most manufacturing businesses. ***Suggestion:*** *The discussion can be done in partners or small groups to increase communication.*	**SL.6.1c:** Pose and respond to specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion.
Step 7: Students apply the information they learned about cause-and-effect of using natural resources to their own toy.	**W.6.2d** and **WHST.6–8.2d:** Use precise language and domain-specific vocabulary to inform about or explain the topic. **W.6.8** and **WHST.6–8.8:** Gather relevant information from multiple print and digital sources…and quote or paraphrase the data and conclusions…

Lesson 6: What Does It Cost?

Students return to the surfboard from Lessons 1 and 2 and discuss the inputs and outputs associated with the production of that product. They create an input-output diagram for the toys they are designing in their Manufacturing and Design Journals.

Lesson 6

What Does It Cost?

In this final lesson, students return to the surfboard that began the unit. After defining the terms "input" and "output," students draw on what they learned in previous lessons to identify the inputs and outputs associated with the production of a surfboard.

Lesson 6

Learning Objective

Background

Key Vocabulary

Use this correlation in conjunction with the **Procedures** located on pages 124–125 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.	**L.6.4c:** Consult reference materials… to…determine…[a word's] meaning… **RI.6.4** and **RST.6–8.4:** Determine the meaning of…key terms, and other domain-specific words and phrases as they are used in a specific scientific… context…
Step 1: Students return to ***California Connections: A Surfboard Story*** and recall the making of the surfboard.	**SL.6.1d:** Review the key ideas expressed and demonstrate understanding… through reflection and paraphrasing.
Steps 2–4: With guidance, students will determine the inputs and outputs that happen when making a surfboard. Then determine why it is important that people think about the inputs and outputs to things we buy and use. ***Suggestion:*** *The discussion in Step 4 can be done with a partner to increase communication.* ***Tip:*** *If students are struggling with coming up with inputs and outputs, display the visual aid in Step 5 prior to completing these steps.*	**SL.6.1c:** Pose and respond to specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion. **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 6: Students apply what they have learned about inputs and outputs in a flow chart of their own.	**W.6.8** and **WHST.6–8.8:** Gather relevant information from multiple print and digital sources…and quote or paraphrase the data and conclusions…

Unit Assessment

Refer to the introduction pages at the front of this document for information regarding the Traditional and Alternative Assessments for this unit and their Common Core correlations.

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:

- **RST.6–8.1:** Note how the author cites evidence to support main points; note any gaps or inconsistencies.
- **RST.6–8.2:** Note how the author sets up the central ideas or conclusions; and provide an accurate summary of the text distinct from prior knowledge or opinions; trace the text's explanation or depiction of a complex concept, process or phenomenon.
- **RST.6–8.3:** Analyze how the author describes a scientific process or a multi-step procedure.
- **RST.6–8.4:** Note how the author explains the meaning of key terms, symbols, domain specific words, and phrases.
- **RST.6–8.5:** 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. Note the structures of the relationships among concepts, key terms, and ideas, including categories or hierarchies.
- **RST.6–8.6:** Analyze the author's purpose in providing an explanation, or describing a procedure, and define the question the author seeks to address, defining important issues that remain unresolved.
- **RST.6–8.7:** Note how the information in the California Connections text integrates with information provided throughout the unit in diverse formats, including tables, charts, graphs, diagrams, maps, and quantitative data.
- **RST.6–8.8:** Distinguish among facts, reasoned judgment based on research findings, and speculation in a text, assessing and evaluating the extent to which the reasoning and evidence support the author's claim.
- **RST.6–8.9:** When other documents or media sources are included, compare and contrast the information presented in the various formats, and note how the information from the range of sources contributes to a coherent understanding of the process, phenomenon, or concept.
- **RST.6–8.10:** Note comprehension strategies for understanding the text.

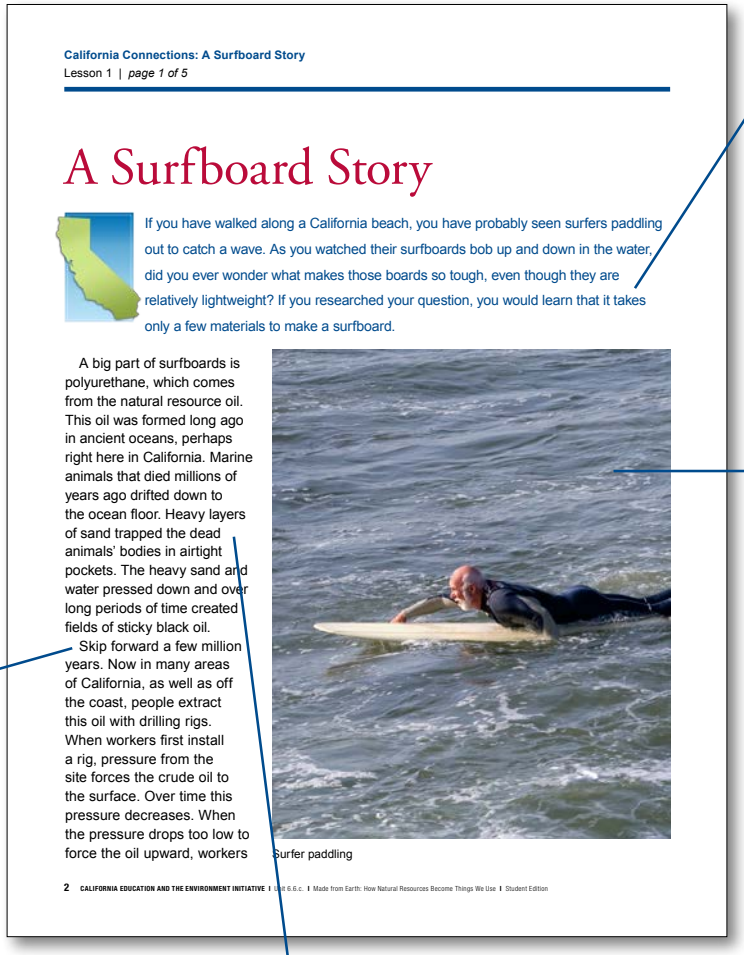
Note: *Standard descriptions from the Reading Standards for Literacy in Science and Technical Subjects are paraphrased and combined, using terminology that applies to reading a* ***California Connections*** *selection.*

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, using this selection as a writing model. They also provide suggestions for teaching students to analyze text structure using the Reading Literacy Standards. Teachers can incorporate more suggestions from the list above. In addition, for teachers of self-contained classrooms, ELA standards are included.



California Connections: A Surfboard Story
Lesson 1 | *page 1 of 5*

A Surfboard Story

If you have walked along a California beach, you have probably seen surfers paddling out to catch a wave. As you watched their surfboards bob up and down in the water, did you ever wonder what makes those boards so tough, even though they are relatively lightweight? If you researched your question, you would learn that it takes only a few materials to make a surfboard.

A big part of surfboards is polyurethane, which comes from the natural resource oil. This oil was formed long ago in ancient oceans, perhaps right here in California. Marine animals that died millions of years ago drifted down to the ocean floor. Heavy layers of sand trapped the dead animals' bodies in airtight pockets. The heavy sand and water pressed down and over long periods of time created fields of sticky black oil.

Skip forward a few million years. Now in many areas of California, as well as off the coast, people extract this oil with drilling rigs. When workers first install a rig, pressure from the site forces the crude oil to the surface. Over time this pressure decreases. When the pressure drops too low to force the oil upward, workers

Surfer paddling

2 CALIFORNIA EDUCATION AND THE ENVIRONMENT INITIATIVE | Unit 6.6.c. | Made from Earth: How Natural Resources Become Things We Use | Student Edition

W.6.2a and **WHST.6–8.2a:** Introduce a topic or **thesis statement**…

W.6.2a and **WHST.6–8.2a:** …include formatting… graphics…and multimedia when useful to aiding comprehension…

W.6.2c and **WHST.6–8.2c:** Use appropriate transitions to clarify the relationships among ideas and concepts.

RI.6.7 and **RST.6–8.7:** Integrate information presented in different media or formats…to develop a coherent understanding of a topic…

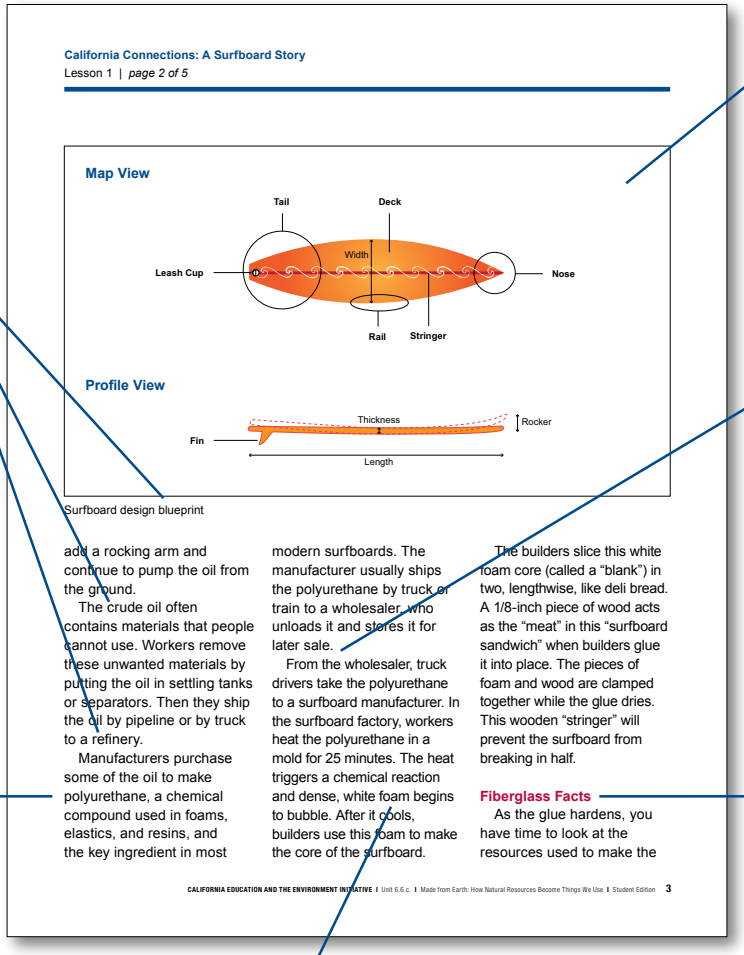
Suggestion: *Ask students, "Would looking at a diagram or picture of what the text is talking about, rather than the surfboards, help you with understanding this text better?"*

L.6.4: Determine or clarify the meaning of unknown…words and phrases…

RI.6.3 and **RST.6–8.3:** Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text (e.g., through examples or anecdotes).

L.6.4a: Use context…as a clue to the meaning of a word or phrase.

RI.6.3 and **RST.6–8.3:** Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text (e.g., through examples or anecdotes).



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Map View

Profile View

Surfboard design blueprint

add a rocking arm and continue to pump the oil from the ground.

The crude oil often contains materials that people cannot use. Workers remove these unwanted materials by putting the oil in settling tanks or separators. Then they ship the oil by pipeline or by truck to a refinery.

Manufacturers purchase some of the oil to make polyurethane, a chemical compound used in foams, elastics, and resins, and the key ingredient in most modern surfboards. The manufacturer usually ships the polyurethane by truck or train to a wholesaler, who unloads it and stores it for later sale.

From the wholesaler, truck drivers take the polyurethane to a surfboard manufacturer. In the surfboard factory, workers heat the polyurethane in a mold for 25 minutes. The heat triggers a chemical reaction and dense, white foam begins to bubble. After it cools, builders use this foam to make the core of the surfboard.

The builders slice this white foam core (called a "blank") in two, lengthwise, like deli bread. A 1/8-inch piece of wood acts as the "meat" in this "surfboard sandwich" when builders glue it into place. The pieces of foam and wood are clamped together while the glue dries. This wooden "stringer" will prevent the surfboard from breaking in half.

Fiberglass Facts

As the glue hardens, you have time to look at the resources used to make the

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W.6.2a and **WHST.6–8.2a:** …include formatting… graphics…and multimedia when useful to aiding comprehension…

W.6.2c and **WHST.6–8.2c:** Use appropriate transitions to clarify the relationships among ideas and concepts.

Suggestion: *Point out the different sequential transitions used throughout the article.*

W.6.2a and **WHST.6–8.2a:** …organize ideas, concepts, and information, using strategies such as…formatting (e.g., headings)…

RI.6.7 and **RST.6–8.7:** Integrate information presented in different media or formats…to develop a coherent understanding of a topic…

Suggestion: *Ask students, "Would looking at a diagram or picture of what the text is talking about, rather than the surfboards, help you with understanding this text better?"*

W.6.2a and **WHST.6–8.2a:** …organize ideas, concepts, and information, using strategies such as…formatting (e.g., headings)…

W.6.2b and **WHST.6–8.2b:** Develop the topic with relevant facts, definitions, concrete details,…or other information and examples.

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fiberglass that will cover the outside of the surfboard. The process of making fiberglass uses three major ingredients: limestone, soda ash, and silica sand.

Like oil, limestone forms from the remains (shells and bones) of ancient sea creatures. Wave action breaks up the shells and bones of marine animals and deposits the pieces on the ocean floor. Over millions of years, layers of shells, sand, and mud harden into limestone. People extract this abundant resource from many different places. Sometimes quarry workers take it from deposits on Earth's surface. In other places, miners extract limestone from underground deposits or caves.

Extracting soda ash is much different from limestone mining. In nature, soda ash is often invisible, since it dissolves in some lakes or accumulates in salt beds. People extract its white powder from these natural sources. However, scientists can also create soda ash in a lab.

The third key material in fiberglass is silica sand, which contains a lot of quartz. Over many years wind and water slowly grind quartz rocks into silica sand. People extract the silica sand from beaches, riverbeds, and lakes.

Mining companies use trucks or trains to ship the three minerals used to make fiberglass to wholesalers. The wholesalers sell the minerals and load them back onto trucks. The truckers deliver the minerals to the fiberglass manufacturer, where workers unload and store the minerals until they are needed.

Creating Glass Threads for Fiberglass

The manufacturer carefully weighs each raw material to

Cutting fiberglass wrap

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W.6.2a and **WHST.6–8.2a:** …include formatting…graphics…and multimedia when useful to aiding comprehension…

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Finishing fiberglass

get the exact quantities needed to make fiberglass. The workers mix the ingredients together and feed the batch into a furnace. To make glass fibers, the temperature must be very hot—approximately 2,500º F (1,371º C).

When the silica sand melts, it forms liquid glass. The molten glass goes into a machine with hundreds of small holes. The machine draws the glass through the holes, creating thin strands, or threads. These threads go into making many different fiberglass products. Workers load the products onto delivery trucks and ship them to manufacturers, such as the surfboard maker.

Meanwhile, Back at the Surfboard "Sandwich"

Now that the surfboard core and stringer are fused together, a saber saw cuts around the drawing of the outline of the surfboard. Then a motorized planer levels out the final shape. (A planer is a machine that evens things out.)

A big sander goes to work next, repeatedly sanding to remove ridges from the surfboard blank. As a last step in shaping, builders mark the position of the surfboard's fin. Many builders add their own special designs, or signatures, to identify their work. Then they blow the finished blank clean with compressed air.

To make the surfboard colorful, builders spray on paint with an airbrush or spray gun. Then they dry the surfboard once more.

The key to making the surfboard last a long time comes in the next stage, called glassing. In glassing, builders layer fiberglass sheets and resin. Resin is a thick fluid produced by plants or, more commonly, manufactured from oil-based chemicals. Resin is strong and keeps the surfboard from chipping or cracking.

After glassing, builders coat the board with one more layer of resin to plug any flaws on the standing surface, called the deck. They flip the board over and position the fin. Next, the builders wrap fiberglass

Final sanding

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RI.6.3 and **RST.6–8.3:** Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text (e.g., through examples or anecdotes).

L.6.4a: Use context…as a clue to the meaning of a word or phrase.

Suggestion: *Differentiate between appositive sentence formats and the parenthesis for finding the word's definition.*

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Surfer using the finished product

tape around the fin and add resin to it. Finally they coat the surfboard's underside and fin with a filler layer of shellac, which is made from trees. Later, when the entire surfboard is dry, the builders drill a small hole in the tail for a leg leash.

A final round of sanding removes any excess resin. More dust flies as the compressed air puffs the board clean. The builders add decals and graphics before brushing a final coat of shiny gloss resin over the board in the last 15 minutes before it hardens.

In another 12 hours the surfboard receives its final rubbing, buffing, and polishing. Later, workers stack it with other finished surfboards, where they wait to be loaded onto trucks and delivered to surf shops around California and the country.

Surfboard Shopping

Two weeks later, a surfer walks into a surf shop. She tells the clerk she wants a sturdy surfboard, but one that is easy to carry. Thirty minutes later, she tucks her new surfboard under her arm and walks out of the shop to her buddies. They drive to the beach, unload their gear, and get ready to paddle out past the breakers.

Sitting on the shore with a friend, you look up a little while later to see this surfer stand up for the first time on her new surfboard. As she makes her first cut, you turn to your friend and ask, "Hey, dude, do you know how surfboards are made?" When he shrugs, you say, "Well, it all began in an ocean a lot like this one millions of years ago…"

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L.6.3a: Vary sentence patterns for meaning, reader/listener interest, and style.

RI.6.2 and **RST.6–8.2:** 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.

W.6.2f and **WHST.6–8.2f:** Provide a concluding statement or section that follows from the information or explanation presented.

Suggestion: *Discuss with the class why the author chose to use a narrative-type conclusion and how it fits into the understanding of the article.*

California Common Core State Standards Descriptions

Language Standards

- **L.6.3:** Use knowledge of language and its conventions when writing, speaking, reading, or listening.
  - a) Vary sentence patterns for meaning, reader/ listener interest, and style.
- **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.
  - a) Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
  - 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.6.3:** Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text (e.g., through examples or anecdotes).
- **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.
- **RI.6.10:** By the end of the year, read and comprehend literary nonfiction in the grades 6–8 text complexity band proficiently, with scaffolding as needed at the high end of the range.

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.
  - c) Pose and respond to specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion.
  - d) Review the key ideas expressed and demonstrate understanding of multiple perspectives through reflection and paraphrasing.
- **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.

Writing Standards

- **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.
  a) Introduce a topic **or thesis statement**; organize ideas, concepts, and information, using strategies such as definition, classification, comparison/contrast, and cause/effect; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. **CA**
  b) Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples.
  c) Use appropriate transitions to clarify the relationships among ideas and concepts.
  d) Use precise language and domain-specific vocabulary to inform about or explain the topic.
  e) Establish and maintain a formal style.
  f) Provide a concluding statement or section that follows from the information or explanation presented.
- **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.6.7:** 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.
- **W.6.9:** Draw evidence from literary or informational texts to support analysis, reflection, and research.

Reading Standards for Literacy in Science and Technical 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.6–8.7:** 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).
- **RST.6–8.10:** By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.

Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects

- **WHST.6–8.2:** Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.
  a) Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.
  b) Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.
  c) Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.
  d) Use precise language and domain-specific vocabulary to inform about or explain the topic.
  e) Establish and maintain a formal style and objective tone.
  f) Provide a concluding statement or section that follows from and supports the information or explanation presented.

Common Core Reference Pages

- **WHST.6–8.4:** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- **WHST.6–8.7:** Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
- **WHST.6–8.8:** Gather relevant information from multiple print and digital sources **(primary and secondary),** using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. **CA**
- **WHST.6–8.9:** Draw evidence from informational texts to support analysis, reflection, and research.