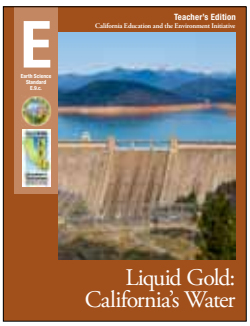
TEACH COMMON CORE STANDARDS WITH THE EEI CURRICULUM

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.

E.9.c.—Liquid Gold: California's Water



In this unit, students study how water is distributed and managed as a natural resource. The unit looks specifically at the challenges California faces in balancing available water supply and societal demands. Students analyze the CALFED Bay-Delta Program, and identify issues around managing California's water supply. They analyze a case study, review California's hydrologic regions, and identify the state's surface and ground water sources. They also trace how water is moved from its origin through state and local water projects. Later students discuss case studies illustrating the effects of water transfers on ecosystems and describe factors in California's water allocation decisions. Finally, they evaluate the contribution of the scientific community to water management issues in California.

LESSONS	RST.9–10.1	RST.9–10.2	RST.11–12.2	RST.9–10.4	RST.9–10.5	RST.9–10.7	RST.9–10.10	WHST.9–10.1	WHST.9–10.2	WHST.9–10.4	SL.9–10.1	SL.9–10.2	SL.9–10.4
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
- **RST:** Reading Standards for Literacy in Science and Technical Subjects
- **SL:** Speaking and Listening 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 18–19 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:** 4 groups
- **Lesson 2:** Whole class then small groups
- **Lesson 3:** Whole class; (optional) partners; 3 groups; reassemble in groups of 3
- **Lesson 4:** Divide class in half; pairs; (optional) medium-sized groups
- **Lesson 5:** Whole class

National Geographic Resources

- **Water For Life** wall map (Lessons 1, 2, 3, and 4)
- **View From Space** wall map (Lesson 2)

Unit Assessment Options

Assessments	Common Core Standards Applications
Traditional Assessment	
Students answer 15 multiple choice questions, then write paragraphs to answer five more questions.	**RST.9–10.2:** Determine the central ideas or conclusions of a text;…provide an accurate summary of the text. **WHST.9–10.2:** Write informative/explanatory texts… b) Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples…
Alternative Assessment	
Students create a "tri-fold" brochure to educate the public on the importance of water to California, the sources of water, and the relationship between supply and need. Each panel of the brochure covers specific information.	**RST.9–10.2:** Determine the central ideas or conclusions of a text;…provide an accurate summary of the text. **WHST.9–10.2:** Write informative/explanatory texts… b) Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples… **WHST.9–10.4:** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose and audience.

Lesson 1: Who's in Charge of the Water?

Students read about the Sacramento-San Joaquin Delta and the establishment of the CALFED Bay-Delta Program to manage its resources. They work in groups to identify elements of California's water management and use issues through analysis of the article.

Who's in Charge of the Water?

This lesson introduces the challenges involved in the management of what is arguably the most precious resource in California—fresh water. Students read about California's reliance on the Sacramento-San Joaquin Delta and the establishment of the CALFED Bay-Delta Program to help manage natural supply and human demand, and restore Delta ecosystems.

Through the reading, the students become aware of the issues involved in managing California's water resources, such as supply and demand, human activities, and natural events, on the health of the Bay-Delta ecosystem, and specific considerations that have been involved in decision-making about water supplies in the state and the establishment of the fundamentals of water management (the geology of reservoir, history of water rights, and projections of water resources for the future), which not explored in subsequent lessons. At the end of this introductory lesson, students understand there is a wide spectrum of considerations involved in the management of California's water management and use.

Background

Water in California is an essential natural resource that is necessary for the prosperity and growth of the state. Because California's water supply is constantly changing, local, state, and federal agencies are faced with the challenge of balancing water supply and demand. An imbalance in the water budget results in a shortage of water resources for users and the amount of water needed to support California. The uneven distribution of water resources in relation to freshwater source results in complex supply, demand, and quality issues. Because the hydrological conditions of our state fluctuate greatly from year to year. For example, heavy rainfall in El Niño years creates an abundance of surface water, while prolonged periods of little precipitation, which requires Californians to rely on water reserves and groundwater, are characterized as droughts. Most experts believe that California has entered into an era of increasing water scarcity due to population growth and a changing climate.

Because of these factors, there is an immediate and ongoing need for the coordinated management of water resources and the operation of the major projects dedicated to the management of California's water. The CALFED Bay-Delta Program (CALFED Program). In 1994, the Bay-Delta Accord the CALFED Bay-Delta Program was formed to the Bay-Delta. The CALFED Bay-Delta Program is carried out by 25 state and federal agencies with the mandate to improve the quality and reliability of California's water supply and restore the Delta ecosystem. The CALFED Bay-Delta Program is a collaborative decision-making and consultive all stakeholder interests to advise the agencies involved in how the Bay-Delta water

Lesson 1

Learning Objective

Describe the spectrum of considerations that are involved in decisions about the management of fresh water.

Key Vocabulary

CALFED Bay-Delta Program: A collaborative of 25 state and federal agencies working cooperatively to improve the quality and reliability of California's water supplies, while restoring the Delta ecosystem.

Confluence: The area where two or more streams or rivers meet or join.

Runoff: Water from precipitation or irrigation and other human processes, that flows over the ground and eventually reaches a stream or river.

Sacramento-San Joaquin Delta: The water, land, and ecosystem that begins at the confluence of the Sacramento and San Joaquin rivers and extends inland and east from Suisun Marsh.

Water budget: A summation of inputs, outputs, and net changes to a water system, such as a watershed, aquifer, or a state, over a fixed period.

National Geographic Resource

- **Water for Life** wall map

Use this correlation in conjunction with the **Procedures** located on pages 36–37 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.	**RST.9–10.4:** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific…context…
Steps 2–3: Students are organized into four groups: geographers, problem solvers, historians, and delta visionaries. Students read ***California Connections: Taking Charge of the Bay-Delta*** (Student Edition, pages 2–5), with each group focusing on a different aspect of the information and taking notes. Then each group discusses the information related to the topic area and decides what to include on the assignment page. Each group selects a "spokesperson" to relay the group's assigned information. An alternative is to give the groups time to organize a brief presentation where each person shares a segment of their topic. ***Note:*** *With prior training in collaborative conversations, the student groups can lead their discussion of the material, posing questions from the information and using decision-making processes for agreement on the key elements to include in their assignment.*	**RST.11–12.2:** Determine the central ideas or conclusions of a text… **RST.9–10.10:** …read and comprehend science…texts…independently and proficiently. **SL.9–10.1:** Initiate and participate effectively in a range of collaborative discussions…with diverse partners,… building on others' ideas and expressing their own clearly and persuasively. b) Work with peers to set rules for collegial discussions and decision-making… c) Propel conversations by posing and responding to questions…and clarify, verify, or challenge ideas and conclusions. d) …summarize points of agreement… **SL.9–10.4:** Present information, findings, and supporting evidence clearly, concisely, and logically…

Student Tasks	Common Core Standards Applications
Reading ***California Connections*** with a Common Core Focus: In addition to providing support for Reading Literacy standards, this 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. In addition to reading ***California Connections*** for content, students should look at several key elements on how the writing is structured. This can be done while they're reading, with the teacher rotating around to different groups to help point out text structures, or students who have been familiarized with this process can identify these structural elements as they read by themselves. Refer to the **Reading *California Connections* Using a Common Core Reading and Writing Focus** on pages 13–17 to view specific suggestions for integrating Common Core standards while reading this selection not only for content, but for text structure as well.	**RST.9–10.10:** …read and comprehend science…texts…independently and proficiently.
Tip: *A suggestion for the end of the lesson is to let each group know that in future lessons, the groups will be asked to again briefly summarize the information from their reading in order to refresh the class memory for the topic of the lesson. It would be helpful to post a schedule showing what days which groups will be giving their summary, so students can come prepared. Give a few minutes for students to identify the salient points to include in their summary.*	**SL.9–10.4:** Present information…

Lesson 2: Supply and Demand for California's Water

Students review the hydrologic cycle and general climatology, topography, and geology of California, and identify surface water and groundwater sources in California. They analyze the hydrologic regions of the state and discuss California's water supply and use patterns.

Lesson 2

Supply and Demand for California's Water

Learning Objectives

Key Vocabulary

National Geographic Resource

- **View from Space** wall map
- **Water for Life** wall map

Use this correlation in conjunction with the **Procedures** located on pages 50–51 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.	**RST.9–10.4:** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific…context…
Step 1: A suggestion for Step 1 is to have the "Geographer" group from Lesson 1 present a brief summary of the information shared on their topic during Lesson 1 rather than the teacher reviewing it.	**SL.9–10.4:** Present information, findings, and supporting evidence clearly, concisely, and logically…
Steps 2–3: Students view diagrams and maps, and interpret them to describe the hydrologic cycle and the particular California geography that leads toward different climates in different locations.	**RST.9–10.7:** …translate information expressed visually…into words. **SL.9–10.2:** Integrate multiple sources of information presented in diverse media or formats…
Step 4: After listening to information presented with the **Water for Life** wall map for reference, students are organized into small groups to discuss and interpret maps and data represented on graphs. They then work together to answer short essay questions in Parts 1 and 2 of **Water in California** (Student Workbook, pages 8–10).	**RST.9–10.7:** …translate information expressed visually…into words. **SL.9–10.1:** Initiate and participate effectively in a range of collaborative discussions…with diverse partners… **SL.9–10.2:** Integrate multiple sources of information presented in diverse media or formats…

Student Tasks	Common Core Standards Applications
Step 5: Students write a two- or three-paragraph description of California's fresh water sources, supply, and uses, using information from the visual and print sources provided in the lessons.	**WHST.9–10.2:** Write informative/explanatory texts… b) Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples… c) Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts. d) Use precise language and domain-specific vocabulary…

Lesson 3: Moving California's Water

Students examine components of the California Aqueduct and then trace how water in California is moved from its origin to areas where it is used. They read about federal, state, and local water projects, including the Central Valley Project, that distribute water throughout California.

Lesson 3

Moving California's Water

National Geographic Resource

- **Water for Life** wall map

Use this correlation in conjunction with the **Procedures** located on pages 66–67 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.	**RST.9–10.4:** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific…context…
Step 1: An alternative to the teacher reviewing the Lesson 1 information is for the "Problem Solvers" group to present the information (see note in Lesson 1 correlation).	**SL.9–10.4:** Present information, findings, and supporting evidence clearly, concisely, and logically…
Steps 2–4: Students view photos, diagrams, and maps and interpret the information they display.	**RST.9–10.7:** …translate information expressed visually…into words. **SL.9–10.2:** Integrate multiple sources of information presented in diverse media or formats… ***Suggestion:*** *Have student pairs summarize the information presented or the processes represented in the map diagrams at the end of each step.*
Steps 5–6: The class is divided into three groups, with each group reading about a different Water Project and writing paragraphs to answer five questions on **Moving Water Around California** (Student Workbook, pages 11–12). "Experts" from each of the 3 previous readings form groups of 3 to share the information from their assigned water project.	**RST.9–10.2:** Determine the central ideas or conclusions of a text… **RST.9–10.10:** …read and comprehend science texts…independently and proficiently. **SL.9–10.4:** Present information, findings, and supporting evidence clearly, concisely, and logically… **WHST.9–10.2:** Write informative/explanatory texts… b) Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples…

Lesson 4: Salt and Smelt—Feeling the Effects of California's Thirst

Students read about the detrimental effect of water transfers on the ecosystem of the Bay-Delta and the simultaneous buildup of salt in soils that are irrigated by that water. Students discuss these cases and describe factors in making decisions about water allocation.

Lesson 4

Salt and Smelt—Feeling the Effects of California's Thirst

Use of the water resources in and around California has some unwanted side effects. In this lesson, students learn about two of the consequences of using and managing the state's fresh water supplies: the endangerment of species that are part of the Bay-Delta ecosystem and the buildup of salt in irrigated croplands in the San Joaquin Valley.

Students read about the delta smelt, a native fish that lives in the Bay-Delta and whose population has been significantly affected by the buildup of salt in the soil in agricultural areas of the San Joaquin Valley. Students learn that both are connected to the stakes of the Bay-Delta. At the end of the lesson, students describe the spectrum of factors that are considered in making decisions about California's water.

Background

Fresh water and associated water resources have always been in high demand by the people of California: farmers, anglers, developers, utility providers, and citizens in general. In the past, water was seen as a factor of consideration that need to be analyzed. Economics, concern for our state's growth, and conservation of its natural resources

Learning Objective

Provide examples of the direct and indirect effects of the growing human demand for water on the Bay-Delta ecosystem, zooplankton, biological diversity, and viability of natural systems.

Edition Tech Focus called for students to make reports from the Bay-Delta during spring and fall to protect the breeding grounds of other threatened and endangered species. Students learn that more than the collapse of the Chinook salmon population is largely due to the buildup of salt in the soil and problems in the Bay-Delta region.

Using water from the Bay-Delta to irrigate crops in the San Joaquin Great Central Valley is also causing problems. Irrigation in a hot and arid region, such as the San Joaquin Valley, results in the accumulation of salt in the soil, which leads to a drop in decreased productivity and lower crop yields. Over the long term, irrigation in this region may not be sustainable in these and valley regions.

Key Vocabulary

Impaired waterbodies: Lakes, streams, and rivers that do not meet water quality standards set by the U.S. Clean Water Act. The Clean Water Act covers all of the waters, including water, recreation, or health of aquatic ecosystems. Impaired waterbody has ever put bodies of water on this impaired list.

Indicator species: An organism whose survival is representative of the health of a habitat or ecosystem.

Salinity: The total amount of salts dissolved in water, one water averages 35 parts per thousand.

Salinization: The accumulation of salts in soil to levels that are detrimental.

Salinization

National Geographic Resource

- **Water for Life** wall map

Use this correlation in conjunction with the **Procedures** located on pages 86–87 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.	**RST.9–10.4:** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific…context…
Step 2: An alternative to the teacher reviewing the information from Lesson 1 is for the "Geographers" group to present the information (see note in Lesson 1 correlation). Instead of just asking students to recall information about the Sacramento-San Joaquin River Delta, have students turn to ***California Connections: Taking Charge of the Bay-Delta*** (Student Edition, pages 2–5), silently review the information, and then cite evidence from the text to support the information they share.	**RST.9–10.1:** Cite specific textual evidence… **SL.9–10.4:** Present information, findings, and supporting evidence clearly, concisely, and logically…
Steps 3 and 4: The class is divided in half, with one half reading **The Delta Smelt** (Student Edition, pages 14–15) and the other reading **A Salty Situation** (Student Edition, pages 16–17) When students finish reading, they partner up with another student and share the information each of them learned. Then they complete **The Effects of California's Thirst** (Student Workbook, pages 13–14) using the information from the articles and the other lessons.	**RST.9–10.2:** Determine the central ideas or conclusions of a text… **RST.9–10.10:** …read and comprehend science…texts…independently and proficiently. **SL.9–10.1:** Initiate and participate effectively in a range of collaborative discussions…with diverse partners… **WHST.9–10.2:** Write informative/explanatory texts… b) Develop the topic with well-chosen, relevant, and sufficient facts… c) Use varied transitions and sentence structures…

Student Tasks	Common Core Standards Applications
Step 5: An alternative to the teacher reviewing the information is for the "Problem Solvers" group to present the information (see note in Lesson 1 correlation). Have students turn to ***California Connections*** and locate where it describes the problem of the delta smelt and its solution. ***Tip:*** *The last bulleted question in Step 5 lends itself very well to collaborative discussion as students consider different perspectives behind the decisions about California's water supply and use, either in medium-sized groups, or as a whole class. Encourage students to expand on concerns and issues from each point of view.*	**RST.9–10.1:** Cite specific textual evidence to support analysis of science…texts… **SL.9–10.1:** Initiate and participate effectively in a range of collaborative discussions…with diverse partners… c) Propel conversations by posing and responding to questions… d) Respond thoughtfully to diverse perspectives…qualify or justify their own views and understanding and make new connections in light of the…reasoning presented. **SL.9–10.4:** Present information, findings, and supporting evidence clearly, concisely, and logically…

Lesson 5: The Watery Decisions We Make

Students revisit the Delta Vision Blue Ribbon Task Force's purpose, discuss the contributions of the scientific community to management of water in the state, analyze the state's current "water budget," and discuss water issues California is likely to face in the future.

Use this correlation in conjunction with the **Procedures** located on pages 100–101 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.	**RST.9–10.4:** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific…context…
Step 1: An alternative to the teacher reviewing the information from Lesson 1 is for the "Historians" group to present the information (see note in Lesson 1 correlation). Students reread the last two sections of ***California Connections: Taking Charge of the Bay-Delta*** (Student Edition, pages 2–5) and state the mission of the Task Force.	**RST.9–10.2:** Determine the central ideas or conclusions of a text… **RST.9–10.10:** …read and comprehend science…texts…independently and proficiently. **SL.9–10.4:** Present information, findings, and supporting evidence clearly, concisely, and logically…
Step 2: An alternative to the teacher reviewing the information from Lesson 1 is for the "Delta Visionaries" group to present the information (see note in Lesson 1 correlation).	**SL.9–10.4:** Present information, findings, and supporting evidence clearly, concisely, and logically…
Steps 3–5: Students watch a video of the **Chairman's Address to the Association of California Water Agencies (ACWA)** and take notes. Then they interpret and discuss **California's Annual Water Budget** (Visual Aid #11) and answer questions about the water budget and "stakeholders" in the process. ***Tip:*** *The questions in Step 4 lend themselves to a collaborative discussion about the representation of the "stakeholders" in the meetings and related issues. Encourage students to expand upon these questions to look at the "stakeholders" issues in depth and from multiple perspectives.*	**SL.9–10.1:** Initiate and participate effectively in a range of collaborative discussions…with diverse partners… c) Propel conversations by posing and responding to questions… d) Respond thoughtfully to diverse perspectives…qualify or justify their own views and understanding and make new connections in light of the…reasoning presented. **SL.9–10.2:** Integrate multiple sources of information presented in diverse media or formats…

Student Tasks	Common Core Standards Applications
Step 5: Students write an essay giving a recommendation about California's future water use, using information from today's lesson, ***California Connections***, and the previous lessons in the unit.	**WHST.9–10.1:** Write arguments focused on *discipline-specific content.* a) Introduce precise claim(s)…and create an organization that establishes clear relationships… b) Develop claim(s)…supplying data and evidence… c) Use words, phrases, and clauses to link…the text, create cohesion, and clarify the relationships… between reasons and evidence… d) Establish and maintain a formal style… e) Provide a concluding statement…

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:

- Note how the author cites evidence to support main points; note any gaps or inconsistencies. **(RST.9–10.1** and **RST.11–12.1)**
- Note how the author sets up the central ideas or conclusions; trace the text's explanation or depiction of a process or concept; summarize concepts, processes, and information by paraphrasing the text and the text as a whole. **(RST.9–10.2** and **RST.11–12.2)**
- Note how the author explains multi-step procedures. **(RST.9–10.3** and **RST.11–12.3)**
- Note how the author explains the meaning of key terms, symbols, domain specific words, and phrases. **(RST.9–10.4** and **RST.11–12.4)**
- Analyze the structure of the relationships among concepts in a text, and the relationships among key terms, including categories or hierarchies. **(RST.9–10.5** and **RST.11–12.5)**
- Analyze the author's purpose in providing an explanation or describing a procedure, and how this defines the question the author seeks to address; identify important unresolved issues. **(RST.9–10.6** and **RST.11–12.6)**
- Note how the information in the ***California Connections*** text integrates with information provided throughout the unit in diverse formats, including tables, charts, maps, and quantitative data. **(RST.9–10.7** and **RST.11–12.7)**
- Assess the extent to which the reasoning and evidence in a text support the author's claim; evaluate the analysis and conclusions in the text. **(RST.9–10.8** and **RST.11–12.8)**
- When other documents are included, compare and contrast findings presented in this text to those in other sources, noting when the findings support or contradict previous explanations. **(RST.9–10.9** and **RST.11–12.9)**
- Note comprehension strategies for understanding science texts. **(RST.9–10.10** and **RST.11–12.10)**

Note: *Standard descriptions are paraphrased, using terminology that applies to reading a* ***California Connections*** *selection.*

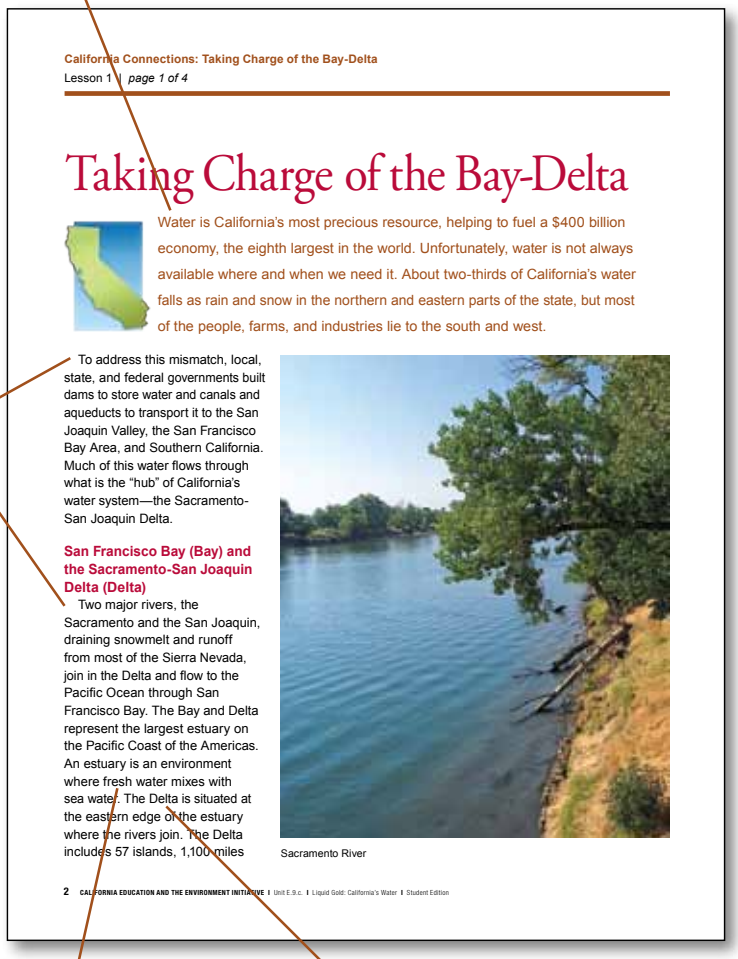
Writing

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.

Attention Grabber: *Using notable facts to introduce a subject*



California Connections: Taking Charge of the Bay-Delta
Lesson 1 | *page 1 of 4*

Taking Charge of the Bay-Delta

Water is California's most precious resource, helping to fuel a $400 billion economy, the eighth largest in the world. Unfortunately, water is not always available where and when we need it. About two-thirds of California's water falls as rain and snow in the northern and eastern parts of the state, but most of the people, farms, and industries lie to the south and west.

To address this mismatch, local, state, and federal governments built dams to store water and canals and aqueducts to transport it to the San Joaquin Valley, the San Francisco Bay Area, and Southern California. Much of this water flows through what is the "hub" of California's water system—the Sacramento-San Joaquin Delta.

San Francisco Bay (Bay) and the Sacramento-San Joaquin Delta (Delta)

Two major rivers, the Sacramento and the San Joaquin, draining snowmelt and runoff from most of the Sierra Nevada, join in the Delta and flow to the Pacific Ocean through San Francisco Bay. The Bay and Delta represent the largest estuary on the Pacific Coast of the Americas. An estuary is an environment where fresh water mixes with sea water. The Delta is situated at the eastern edge of the estuary where the rivers join. The Delta includes 57 islands, 1,100 miles

Sacramento River

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RST.9–10.10: …read and comprehend science… texts…independently and proficiently.

Suggestion: *While reading the text, have students apply reading strategies to aid comprehension of the science content.*

WHST.9–10.2c: Use varied transitions… to…clarify relationships among…concepts.

RST.9–10.2: Determine the central ideas or conclusions of a text; trace the text's explanation…of a… process…or concept; provide an accurate summary of the text.

Suggestion: *While reading, pause as concepts are developed and have students trace the explanation as well as summarize the key concepts.*

RST.9–10.4: Determine the meaning of…key terms, and other domain-specific words…

- Estuary

RST.9–10.5: Analyze the structure of the relationships among concepts in a text…

- Spatial organization*

RST.9–10.5: Analyze the structure of the relationships among concepts in a text…

- The overall structure of the text is chronological sequence, but within that are other structures.
- After reading the text for content, reread the text to examine the structure used to convey the information.
- Use the structure of the text to increase comprehension of the science content.

WHST.9–10.2a: …organize…information;…include formatting (e.g. headings)…

Suggestion: *Examine the subheadings throughout the selection and how they organize the ideas and information into broad categories.*

**Spatial organization is describing where features are located.*

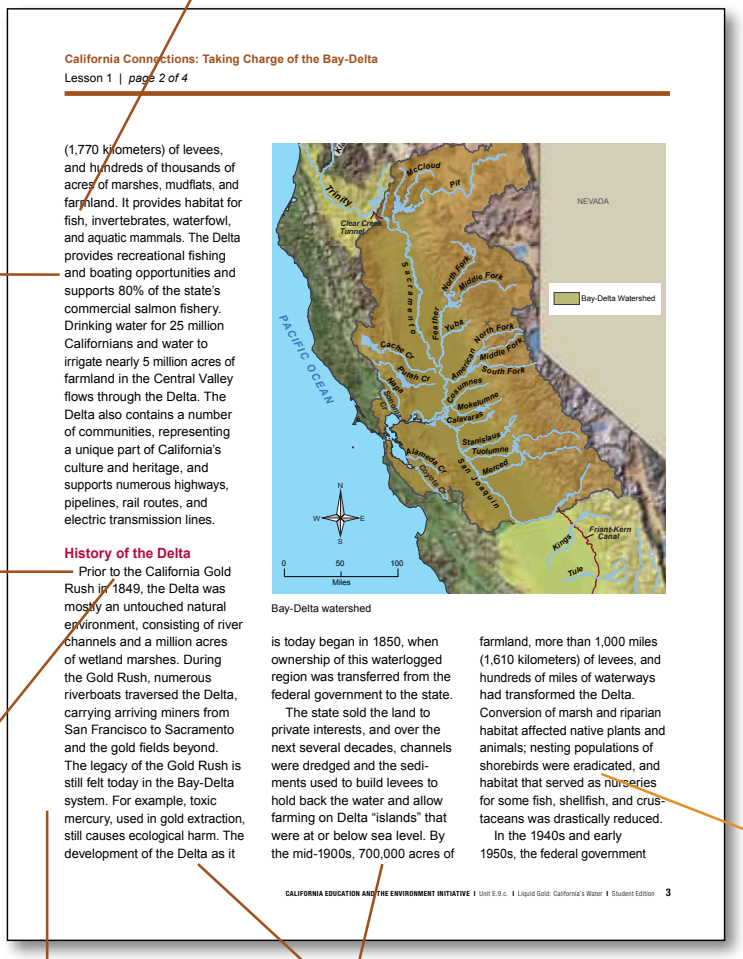
WHST.9–10.2b: Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples…

Suggestion: *Have students pay attention to the types of facts, details, information, and examples the author uses to develop and explain the concepts.*

RST.9–10.5: Analyze the structure of the relationships among concepts in a text…

- Definition and description

WHST.9–10.2c: Use varied transitions…to… clarify the relationships among…concepts.



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(1,770 kilometers) of levees, and hundreds of thousands of acres of marshes, mudflats, and farmland. It provides habitat for fish, invertebrates, waterfowl, and aquatic mammals. The Delta provides recreational fishing and boating opportunities and supports 80% of the state's commercial salmon fishery. Drinking water for 25 million Californians and water to irrigate nearly 5 million acres of farmland in the Central Valley flows through the Delta. The Delta also contains a number of communities, representing a unique part of California's culture and heritage, and supports numerous highways, pipelines, rail routes, and electric transmission lines.

History of the Delta

Prior to the California Gold Rush in 1849, the Delta was mostly an untouched natural environment, consisting of river channels and a million acres of wetland marshes. During the Gold Rush, numerous riverboats traversed the Delta, carrying arriving miners from San Francisco to Sacramento and the gold fields beyond. The legacy of the Gold Rush is still felt today in the Bay-Delta system. For example, toxic mercury, used in gold extraction, still causes ecological harm. The development of the Delta as it is today began in 1850, when ownership of this waterlogged region was transferred from the federal government to the state.

The state sold the land to private interests, and over the next several decades, channels were dredged and the sediments used to build levees to hold back the water and allow farming on Delta "islands" that were at or below sea level. By the mid-1900s, 700,000 acres of farmland, more than 1,000 miles (1,610 kilometers) of levees, and hundreds of miles of waterways had transformed the Delta. Conversion of marsh and riparian habitat affected native plants and animals; nesting populations of shorebirds were eradicated, and habitat that served as nurseries for some fish, shellfish, and crustaceans was drastically reduced.

In the 1940s and early 1950s, the federal government

Bay-Delta watershed

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RST.9–10.4: Determine the meaning of…key terms, and other domain-specific words…

- Eradicated

RST.9–10.5: Analyze the structure of the relationships among concepts in a text…

- Chronological sequence starts here; overall the article is chronological

RST.9–10.2: Determine the central ideas or conclusions of a text; trace the text's explanation…of a complex process…or concept; provide an accurate summary of the text.

Suggestion: *Beginning at the heading "History of the Delta," students should trace the changes made to the delta and their short- and long-term effects over time.*

RST.9–10.5: Analyze the structure of the relationships among concepts in a text…

- Cause and effect

RST.9–10.4: Determine the meaning of…key terms, and other domain-specific words…

- Convey
- Followed suit
- Hub
- Subsidence
- Common ground

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constructed the Central Valley Project to capture and store runoff from the Sacramento River and its tributaries and convey it across the Delta to irrigate the San Joaquin Valley. In the 1960s, the state followed suit with construction of the State Water Project to serve farms and the growing population of Southern California and the San Francisco Bay Area. On the average, the two projects pump about 1.6 trillion gallons (7 trillion liters) of water per year from the south end of the Delta, making the Delta truly the "hub" of California's water system.

The Delta in Crisis

The Delta faces many challenges. The levees that formed the delta islands were not designed nor built to support the multibillion dollar economy that depends on the Delta. Subsidence, or sinking of the land, is caused by oxidation of peat soils when exposed to air, and contributes to the instability of the levees. This area has historically been subject to flooding, which occurred as recently as the spring of 2006. The levees can collapse during floods, and a moderate earthquake on one of the nearby faults could cause numerous levee failures. With such an event, salt water from the Bay would rush into the islands, rendering the water undrinkable, and ceasing water exports for months or years. The threat of sea level rise caused by global climate change further increases the risk of levee failure.

Since the completion of the last major state or federal water project, California has experienced enormous population and economic growth, putting greater stress on the state's water supplies and leading to conflicts over water exports from the Delta. For several decades, the increasing need to export water has influenced the functioning of the Delta ecosystem, often to its detriment.

Actions to Protect and Restore the Delta

A six-year drought, beginning in 1987, brought water conflicts to a head. State and federal agencies began working to improve water quality and fish populations, and ensure continued water exports from the Delta. However, their actions were not coordinated, and the agencies involved were often at odds. It became clear that the key stakeholders in this issue (farmers, municipal water users, state and federal governmental agencies, and environmental advocates) needed to seek common ground if anything was to be achieved.

What resulted was the San Francisco Bay-Delta Accord, enacted in 1994. The accord called for the creation of a joint federal and state program to manage the long-term restoration of the Bay-Delta and for the costs of the program to be split evenly between the state and federal governments. The accord provided the legal framework for the creation of the CALFED Bay-Delta Program (CALFED)—the coalition of

Reinforcing levees

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RST.9–10.2: Determine the central ideas or conclusions of a text; trace the text's explanation… of a complex process… or concept; provide an accurate summary of the text.

Suggestion: *Have students trace how population growth and development have impacted the delta and its levee system. Students could summarize this with a partner.*

RST.9–10.5: Analyze the structure of the relationships among concepts in a text…

- Cause and effect

RST.9–10.5: Analyze the structure of the relationships among concepts in a text…

- Proposition support*

** Proposition Support is a structure where a statement is made and then supported with details, examples, explanations, definitions, etc.*

RST.9–12.5: Analyze the structure of the relationships among concepts in a text…

- Chronological

Suggestion: *As students read this page, they can note the transition and connecting words and phrases that help the reader trace the chronological events that have impacted the delta.*

RST.9–10.4: Determine the meaning of…key terms, and other domain-specific words…

- Elusive
- Task force

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state and federal agencies that manage the Bay-Delta's water and environment.

In 2000, CALFED issued an environmental impact report (EIR) that identified hundreds of actions to restore and protect the Delta. In response to this EIR, the California Legislature enacted the California Bay-Delta Act of 2003, creating the CALFED Bay-Delta Authority as the new government entity to coordinate the CALFED Bay-Delta Program. The act charged the Authority to oversee the 24 state and federal agencies working cooperatively to solve the problems of the Delta.

CALFED agencies faced enormous challenges to implement this large and technically complex effort. The CALFED Program was strongly criticized; many people believed that CALFED was ineffective and lacked strong leadership. In 2005, after five years and $3 billion in spending, the governor and state legislature questioned the progress and the ability of the CALFED Program to lead the restoration of the Delta. Despite so much effort, a comprehensive solution to the Delta's problems was still elusive.

The Future

In an effort to expand on the work of CALFED, Governor Arnold Schwarzenegger signed Executive Order S-17-06 (September 2006), which called for an independent Delta Vision Blue Ribbon Task Force to develop a new strategy for managing the Delta as a healthy ecosystem that would continue to provide California with its critical water supply. Governor Schwarzenegger appointed seven task force members with experience in addressing and resolving complex natural resource management issues. The Task Force released its Final Delta Vision Strategic Plan in October 2008. The plan based on the goals of restoring the Delta ecosystem and creating a reliable water supply for California, described actions designed to restore the environment, promote water conservation, construct new aqueducts and reservoirs, respond to possible levee failures, and implement a new governance structure for the Delta.

In December 2008, the Delta Vision Committee, made up of five appointees in the Governor's cabinet, evaluated the Strategic Plan and sent an Implementation Report containing their recommendations to the Governor and the Legislature. By February 2009, a number of bills relating to the funding, governance, and implementation of the Delta Vision had been introduced in both houses of the California Legislature.

San Francisco Bay

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RST.9–10.2: Determine the central ideas or conclusions of a text; trace the text's explanation…of a…concept; provide an accurate summary of the text.

Suggestion: *Have students summarize the central ideas of the selection by paraphrasing them in simpler but still accurate terms.*

Suggestion: *As an extension, students could research what has happened with the task force recommendations since 2009.*

RST.9–10.5: Analyze the structure of the relationships among concepts in a text…

- Chronological overall

Note: *The historian group will be taking notes in the first lesson to create a timeline using the information from the previous page and this page about the organizations and task forces that have been created to solve the Delta problem, when they were formed, when they gave recommendations, and any actions that have been taken. It may be helpful to inform students that this timeline will be shared in a later lesson to clarify these events. The group could produce a visual of their timeline to display in a future lesson to clarify events for the class.*

California Common Core State Standards Descriptions for Grades 9–10

Reading Standards for Literacy in Science and Technical Subjects

- **RST.9–10.1:** Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.
- **RST.9–10.2:** Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.
- **RST.9–10.4:** 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 9–10 texts and topics*.
- **RST.9–10.5:** Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., *force, friction, reaction force, energy*).
- **RST.9–10.7:** Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.
- **RST.9–10.10:** By the end of grade 10, read and comprehend science/technical texts in the grades 9–10 text complexity band independently and proficiently.

Speaking and Listening Standards

- **SL.9–10.1:** Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grades 9–10 topics, texts, and issues,* building on others' ideas and expressing their own clearly and persuasively.
  - b) Work with peers to set rules for collegial discussions and decision-making (e.g., informal consensus, taking votes on key issues, presentation of alternate views), clear goals and deadlines, and individual roles as needed.
  - c) Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions.
  - d) Respond thoughtfully to diverse perspectives, summarize points of agreement and disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented.
- **SL.9–10.2:** Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.
- **SL.9–10.4:** Present information, findings, and supporting evidence clearly, concisely, and logically **(using appropriate eye contact, adequate volume, and clear pronunciation)** such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose **(e.g., argument, narrative, informative, response to literature presentations),** audience, and task. **CA**

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

- **WHST.9–10.1:** Write arguments focused on *discipline-specific content.*
  - a) Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence.
  - b) Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns.
  - c) Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
  - d) Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
  - e) Provide a concluding statement or section that follows from or supports the argument presented.
- **WHST.9–10.2:** Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.
  - a) Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
  - b) Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
  - c) Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts.
  - d) Use precise language and domain-specific vocabulary to manage the complexity of the topic and convey a style appropriate to the discipline and context as well as to the expertise of likely readers.
- **WHST.9–10.4:** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

California Common Core State Standards Descriptions for Grades 11–12

Reading Standards for Literacy in Science and Technical Subjects

- **RST.11–12.2:** Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.