

California Education and the Environment Initiative

Increasing Environmental Literacy for K–12 Students...

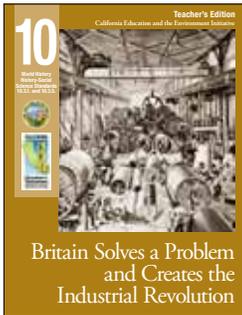
Because the Future is in Their Hands



TEACH COMMON CORE STANDARDS WITH THE EEI CURRICULUM

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

10.3.1. and 10.3.5.—Britain Solves a Problem and Creates the Industrial Revolution



In this unit, students analyze how natural resources, entrepreneurship, labor, and capital combined to produce key events and processes in the Industrial Revolution. Students begin by examining the history of the development of the microchip in Silicon Valley, and then begin noting parallels in the events leading to the Industrial Revolution. Then students examine images to explore England’s transition from an agricultural economy to cottage industries, and then to an industrial system. They read descriptions that help illustrate the relationships of economies and natural systems. To further their understanding, students interpret graphs of population growth, cotton textile production, iron production, and the use of coal. They use primary sources, both visual and written, to examine how the population and increased demand for raw materials affected natural systems. They examine the role of scarcity and innovation in promoting invention. They trace the reasoning and logic behind an historian’s account, and analyze other historical accounts which promote various perspectives regarding the causes of the Industrial Revolution.

Students determine the complex relationships among the factors that led up to the Industrial Revolution.

LESSONS	COMMON CORE STANDARDS															
	RH.9–10.1	RH.9–10.2	RH.9–10.3	RH.9–10.4	RH.9–10.5	RH.9–10.6	RH.9–10.8	RH.9–10.9	RH.9–10.10	WHST.9–10.1	WHST.9–10.2	WHST.9–10.4	WHST.9–10.7	SL.9–10.1	SL.9–10.2	SL.9–10.4
California Connections			✓	✓	✓		✓		✓		✓					
1		✓		✓					✓	✓	✓			✓		
2		✓		✓					✓		✓		✓	✓		✓
3	✓	✓		✓							✓				✓	
4	✓	✓	✓	✓	✓		✓		✓		✓			✓		
5		✓		✓					✓		✓			✓	✓	✓
6	✓	✓	✓	✓		✓	✓	✓		✓				✓		
Traditional Assessment		✓									✓					
Alternative Assessment		✓									✓	✓				

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

- **CCSS:** California Common Core State Standards
- **RH:** Reading Standards for Literacy in History-Social Studies
- **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 21–22 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 and pairs
- **Lesson 2:** 3 groups, reorganize to groups of 3, whole class
- **Lesson 3:** Pairs, groups, groups of 4, whole class
- **Lesson 4:** Whole class, independent, pairs
- **Lesson 5:** Whole class, pairs, groups of 6
- **Lesson 6:** Groups of 4, whole class or collaborative discussion groups

National Geographic Resources

- **Political** wall map (Lesson 1)

Unit Assessment Options

Assessments	Common Core Standards Applications
Traditional Assessment	
<p>Students answer multiple choice questions as well as several short answer and short essay questions. They read a primary document and answer related questions, followed by reading an academic article and answering several short answer and short essay questions.</p>	<p>RH.9–10.2: Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.</p> <p>WHST.9–10.2: Write informative/explanatory texts...</p> <p>b) Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples...</p>
Alternative Assessment	
<p>Students write a five paragraph essay explaining why England was the first country to industrialize. They include the following elements in their essays:</p> <ol style="list-style-type: none"> 1) Briefly introduce the topic and main thesis. 2) Describe what it means to industrialize. Include information about the transition from agricultural to cottage industries, and then to an industrial economy. Explain the significance of invention and innovation. 3) Explain how demand for resources was at the foundation of the industrial movement, including information about population and the importance of wood, coal and iron. 4) Give examples of natural resources, entrepreneurship, labor and capital that explain why England was positioned for industrialization. 5) Summarize the circumstances that led England to industrialize. 	<p>RH.9–10.2: Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.</p> <p>WHST.9–10.2: Write informative/explanatory texts...</p> <ol style="list-style-type: none"> a) Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions... 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 to manage the complexity of the topic and convey a style appropriate to the discipline and context... e) Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline... f) Provide a concluding statement or section that follows from and supports the information or explanation presented... <p>WHST.9–10.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose and audience.</p>

Lesson 1: New Challenges, New Opportunities, New Technology

Students read about and discuss the development of the computer industry in California’s Silicon Valley. They define key terms and concepts that they will use throughout the unit: capital, entrepreneurship, labor, and natural resources. In future lessons, students will use the ideas they learn from this California example to relate to the Industrial Revolution in England.



National Geographic Resources

- Political 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
<p>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.</p>	<p>RH.9–10.4: Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history-social science.</p>
<p>Steps 1 and 2: Students develop definitions of the words “industry” and “technology”, extending their understanding to broader terms than those commonly used in our generation.</p>	<p>RH.9–10.4: Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history-social science.</p>
<p>Steps 4 and 5: Read <i>California Connections: New Challenges, New Opportunities, New Technology</i> (Student Edition, pages 2–5) with a Common Core Focus.</p> <p>In addition to reading <i>California Connections</i> for content, students should look at several key elements in how the writing is structured. This can be done while they are reading, with the teacher rotating around to different groups to help point out text structures; alternatively, students who have been familiarized with this process can identify these structural elements as they read by themselves.</p> <p>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.</p> <p>Suggestion: Refer to the <i>Reading California Connections Using a Common Core Reading and Writing Focus</i> on pages 16–20 to view specific suggestions for integrating Common Core standards while reading this selection not only for content, but for text structure as well.</p>	<p>RH.9–10.2: Determine the central ideas or information of a primary or secondary source; provide an accurate summary of the source... of how key events or ideas develop over the course of the text.</p> <p>RH.9–10.10: ...Read and comprehend history-social studies texts... independently and proficiently.</p>
<p>Step 6: Students define four key factors needed for a new technology or industry to take hold—capital, entrepreneurship, labor, and natural resources—by looking them up in the Key Unit Vocabulary (Student Workbook, pages 2–3).</p>	<p>RH.9–10.4: Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history-social science.</p>

Student Tasks	Common Core Standards Applications
<p>Step 7: Students work in pairs to complete Elements of a New Revolution (Student Workbook, pages 4–6) using the California Connections article for examples and details. One question asks students to explain which of four key factors they think was most important in developing the microchip industry. The other questions ask students to explain several aspects related to the technological industry, including changes, influences, and considerations regarding natural systems and natural resources as the most basic capital for development.</p>	<p>RH.9–10.2: Determine the central ideas or information of a primary or secondary source; provide an accurate summary of...the text.</p> <p>SL.9–10.1: Initiate and participate effectively in a range of collaborative discussions...with diverse partners on grades 9–10 topics, texts, and issues, building on others’ ideas and expressing their own clearly and persuasively.</p> <p>WHST.9–10.1: Write arguments focused on <i>discipline-specific content</i>.</p> <p>WHST.9–10.2: Write informative/explanatory texts...</p> <p>b) Develop the topic with well-chosen, relevant, and sufficient facts...</p>

Lesson 2: The Industrial Revolution Changes Everything

Students analyze images and readings to examine the economy of England in 1600, 1700, and 1800. Prompted by discussion questions, students describe England’s transformation to an industrial economy and explore the relationships of different economies to natural resources.



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
<p>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.</p>	<p>RH.9–10.4: Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history-social science.</p>
<p>Step 2: Students are divided into three groups. Each group reads and takes notes on information about a different time period in England: 1600, 1700, 1800, looking for evidence of dependence on natural systems and resources, economic systems, and technology and sources of energy.</p>	<p>RH.9–10.2: Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.</p> <p>RH.9–10.10: ...Read and comprehend history-social studies texts... independently and proficiently.</p> <p>WHST.9–10.7: Conduct short...research projects to answer a question...</p>
<p>Step 3: Students are reorganized into groups of 3, each with notes from a different time period from the readings in step 2, where each shares the information from his/her reading selection. They take notes on their charts on the two time periods they did not originally read.</p>	<p>SL.9–10.1: Initiate and participate effectively in a range of collaborative discussions...with diverse partners...</p> <p>SL.9–10.4: Present information, findings, and supporting evidence clearly, concisely, and logically...</p>
<p>Step 4: The class engages in a discussion based on the information they have read and four questions about England’s changing economy. During the discussion they take notes.</p> <p>Suggestion: <i>Students with prior training in collaborative conversations could discuss the questions in medium-sized groups, with students serving as discussion leaders. Groups could then share out key points related to the questions, as well as any further questions or issues that their discussion generated.</i></p>	<p>SL.9–10.1: Initiate and participate effectively in a range of collaborative discussions...with diverse partners...</p> <p>a) Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence...</p> <p>c) Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas...</p>

Student Tasks	Common Core Standards Applications
<p>Step 5: Students answer questions on Natural Resources and Industrialization (Student Workbook, pages 12–14) including interpreting a quote from a historian.</p>	<p>RH.9–10.2: Determine the central ideas or information of a primary or secondary source...</p> <p>WHST.9–10.2: Write informative/explanatory texts...</p> <ul style="list-style-type: none"> 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 ...create cohesion... d) Use precise language and domain-specific vocabulary...

Lesson 3: More People, More Cotton, More Coal

Students interpret graphs showing population trends, cotton and coal consumption, and iron production in England during the Industrial Revolution. They evaluate the effects of population growth and industrialization on resource demand. Students examine historical quotes and art from primary source documents that illustrate the effects on natural systems.



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
<p>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.</p>	<p>RH.9–10.4: Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history-social science.</p>
<p>Steps 2 and 3: Students work in pairs to interpret several graphs and use data from More People, More Cotton, More Iron, More Coal (Student Edition, pages 9–10) to answer questions on Population Growth and Natural Resources (Student Workbook, pages 15–16).</p> <p>As a class, students review their answers and interpret more ideas from the graphs.</p>	<p>RH.9–10.2: Determine the central ideas or information of a primary or secondary source; provide an accurate summary of...the text.</p> <p>SL.9–10.2: Integrate multiple sources of information presented in diverse media or formats...</p>
<p>Step 5: In groups of four, students read primary source documents, including quotations, photos, a political cartoon, and a letter to the editor describing London’s air and water, and work together to answer questions.</p> <p>Be sure students are citing evidence from the different sources as they answer questions.</p> <p>Suggestion: <i>Common Core standards can be further addressed by leading a discussion about how the type of information gleaned from each source is different and needs to be considered from different points of view of the time period.</i></p>	<p>RH.9–10.1: Cite specific textual evidence to support analysis of primary and secondary sources, attending to such features as the date and origin of the information.</p> <p>RH.9–10.2: Determine the central ideas or information of a primary or secondary source; provide an accurate summary of...the text.</p> <p>SL.9–10.2: Integrate multiple sources of information presented in diverse media or formats...</p> <p>WHST.9–10.2: Write informative/explanatory texts...</p>

Student Tasks	Common Core Standards Applications
<p>Step 7: Students write a three-paragraph essay explaining how the Industrial Revolution affected the environment in England.</p> <p>Suggestion: <i>Remind students to cite evidence from the sources they've read and to include specific details to support their statements.</i></p>	<p>WHST.9–10.2: Write informative/explanatory texts...</p> <ul style="list-style-type: none"> a) Introduce a topic and organize ideas... 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... d) Use precise language and domain-specific vocabulary...

Lesson 4: The Ultimate Cause of the Industrial Revolution

Students read and analyze an article that identifies a scarcity of natural resources as the root of the Industrial Revolution. Students reconstruct the author's argument to understand the connections between the scarcity of wood and the invention of the steam engine.

Tip: This lesson is an exemplar for a Common Core analysis of a historian's account and interpretation of the events leading up to the English Industrial Revolution. It walks students step-by-step through the process of identifying the thesis, reconstructing the author's argument, and analyzing and summarizing the connections between natural resources and the industrial revolution.



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
<p>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.</p>	<p>RH.9–10.4: Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history-social science.</p>
<p>Step 3: Students read and analyze an historian's interpretation of the main causes of the industrial revolution in Analyzing the English Industrial Revolution (Student Workbook, pages 22–25).</p> <p>Suggestion: Throughout the following steps, encourage students to consider the organization of the article, the point of view of the author, and the context of the events surrounding the topic. Students should note the words and phrases that the author uses to reveal his/her point of view and to organize the material for the reader.</p>	<p>RH.9–10.1: Cite specific textual evidence to support analysis of primary and secondary sources...</p> <p>RH.9–10.2: Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.</p> <p>RH.9–10.3: Analyze in detail a series of events described in a text; determine whether earlier events caused later ones or simply preceded them.</p> <p>RH.9–10.10: ...Read and comprehend history-social studies texts... independently and proficiently.</p>

Student Tasks	Common Core Standards Applications
<p>Steps 5–8: Students work in pairs to identify the thesis of the article they read. They work individually to begin reconstructing the argument expressed in the article. Then students work in pairs to discuss and complete a page analyzing the article. Afterwards, they write a detailed paragraph summarizing the argument the author presents regarding the connection between resources and the Industrial Revolution.</p> <p>Ask students to analyze how the text uses structure to emphasize points or advance an explanation or analysis.</p> <p>Ask students to assess the extent to which the reasoning and evidence in the text support the author’s claim. Having students explicitly articulate each claim with its related reasoning and evidence will increase the level of analysis.</p> <p>Suggestion: <i>Analyzing arguments is emphasized in the Common Core standards, and this learning activity provides a structure that students can apply to other historical documents they read in class throughout the year.</i></p>	<p>RH.9–10.1: Cite specific textual evidence to support analysis of primary and secondary sources...</p> <p>RH.9–10.2: Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.</p> <p>RH.9–10.3: Analyze in detail a series of events described in a text; determine whether earlier events caused later ones or simply preceded them.</p> <p>RH.9–10.5: Analyze how a text uses structure to emphasize key points or advance an explanation or analysis.</p> <p>RH.9–10.8: Assess the extent to which the reasoning and evidence in a text support the author’s claims.</p> <p>RH.9–10.10: ...Read and comprehend history-social studies texts... independently and proficiently.</p> <p>SL.9–10.1: Initiate and participate effectively in a range of collaborative discussions...with diverse partners...</p> <p>WHST.9–10.2: Write informative/explanatory texts...</p> <p>b) Develop the topic with well-chosen, relevant, and sufficient facts...</p> <p>c) Use varied transitions and sentence structures to...clarify the relationships among ideas and concepts.</p>

Lesson 5: Inventions of the Industrial Revolution

Students analyze descriptions of key inventions and trace the advancing industrialization of three related industries: coal and iron, steam power, and cotton textiles. They explain how the inventions improved methods used to extract, harvest, and transport ecosystem goods to produce material items.



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
<p>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.</p>	<p>RH.9–10.4: Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history-social science.</p>
<p>Steps 3 and 4: Students work in pairs to learn about how inventions affected and were affected by England’s Industrial Revolution. They integrate information from information cards, a student edition article, and the student workbook. Each pair of students studies one of the following industries: coal and iron, steam power, or cotton textiles.</p>	<p>RH.9–10.2: Determine the central ideas or information of a...source...</p> <p>RH.9–10.10: ...Read and comprehend history-social studies texts... independently and proficiently.</p> <p>SL.9–10.1: Initiate and participate effectively in a range of collaborative discussions...with diverse partners...</p> <p>SL.9–10.2: Integrate multiple sources of information...</p>
<p>Step 5: Students are reorganized into groups of six, including one pair representing each of the three industries. Students explain the information from the industry they studied and take notes about the ecosystem goods needed to industrialize all three of these industries.</p> <p>Suggestion: <i>With prior training in collaborative conversations, each group could be assigned a discussion leader. After each pair shares information, the discussion leader can expand upon the concepts by asking students to discuss similarities, differences, and apparent patterns in each industry’s contribution, as well as pose questions that look for long term ramifications to the industry, the society, and to the environment. One of the connections students should see is how the demand for resources drives inventions in many industries. Students could then relate it to current day inventions and how society and the environment are changed. They could extend this idea to the California Connections article they read at the beginning of the unit.</i></p>	<p>SL.9–10.1: Initiate and participate effectively in a range of collaborative discussions...with diverse partners...</p> <p>c) Propel conversations by posing and responding to questions...</p> <p>d) Respond thoughtfully to diverse perspectives...qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented.</p> <p>SL.9–10.4: Present information, findings, and supporting evidence clearly, concisely, and logically...</p>
<p>Step 6: Students write 3–5 paragraphs describing how Great Britain’s increased demand for ecosystem goods created the opportunity for improvements in how materials were extracted, transported and produced; how one invention improved these methods; and how the demand for resources connects the coal and iron, steam power, and cotton textile industries, as well as how their respective inventions are interrelated.</p> <p>Suggestion: <i>Before students write, remind them of specifics from the WHST standard that they should incorporate into the structure and detail of their essay.</i></p>	<p>WHST.9–10.2: Write informative/explanatory texts...</p> <p>b) Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples...</p>

Lesson 6: Considering the Cause

Students work in groups to explore the complex of factors that gave rise to the Industrial Revolution. A final class discussion ties natural systems and the resources they provide to the factors that positioned Great Britain to be the first country to industrialize.



Use this correlation in conjunction with the **Procedures** located on page 136 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
<p>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.</p>	<p>RH.9–10.4: Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history-social science.</p>
<p>Step 2: In groups of four, students read Statements of Evidence (Student Edition, pages 14–16) and Causes of the Industrial Revolution (Student Workbook, pages 41–44), to identify different causes of the Industrial Revolution in Britain. Each of the readings in Statements of Evidence presents a different historian’s interpretation of the main causes of the Industrial Revolution. Students combine this information with information in the Student Workbook related to each cause in order to analyze each factor that led to the Industrial Revolution in Britain.</p> <p>Suggestion: <i>This learning exercise is rich in Common Core applications for many different Literacy standards. To add to the depth of the information within this unit, students could be assigned to read another source of information about the causes of the Industrial Revolution (course textbook, online resource, etc.) and analyze how that information compares with what the various authors present in the Statements of Evidence.</i></p>	<p>RH.9–10.1: Cite specific textual evidence to support analysis of primary and secondary sources, attending to such features as the date and origin of the information.</p> <p>RH.9–10.2: Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.</p> <p>RH.9–10.3: Analyze in detail a series of events described in a text; determine whether earlier events caused later ones or simply preceded them.</p> <p>RH.9–10.6: Compare the point of view of two or more authors for how they treat the same or similar topics, including which details they include and emphasize in their respective accounts.</p> <p>RH.9–10.8: Assess the extent to which the reasoning and evidence in a text support the author’s claims.</p> <p>RH.9–10.9: Compare and contrast treatments of the same topic in several primary and secondary sources.</p>

Student Tasks	Common Core Standards Applications
<p>Step 3: Students come together as a whole class to discuss the complexity of the factors that led to the Industrial Revolution in Great Britain. They discuss how four main factors connect with each other as well as to natural systems and the resources they provide.</p> <p>Suggestion: <i>The material in this lesson lends itself to a rich collaborative discussion. With prior training in collaborative conversations, students can lead this discussion, weighing in on the evidence and reasoning provided, using probing questions to clarify, verify, or challenge ideas and conclusions. Students can explore the complex interrelatedness of the various societal and natural factors leading to the industrial revolution as well as the complexity of interpreting those factors when evaluating historical events. This could be done either with the whole class as a discussion group, or dividing the class into 2 or 3 groups so that more students have opportunities to contribute ideas.</i></p>	<p>RH.9–10.1: Cite specific textual evidence to support analysis...</p> <p>SL.9–10.1: Initiate and participate effectively in a range of collaborative discussions...with diverse partners...</p> <ul style="list-style-type: none"> a) Come to discussions prepared... referring to evidence from texts...to stimulate a thoughtful, well-reasoned exchange of ideas. 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.

Student Tasks	Common Core Standards Applications
<p>Step 4: Students complete Summary (Student Workbook, pages 45–46).</p> <p>Tip: <i>The alternative assessment essay ties the Common Core elements of this lesson and the rest of the unit together.</i></p> <p>Suggestion: <i>In addition, a worthwhile extension that would tie the Common Core elements of this lesson and the rest of the unit together would be to have students write an essay in which they present their point of view regarding which causes were most important in leading towards Great Britain’s industrial revolution. Students should be encouraged to cite evidence from the various resources, as well as possibly use other available resources to supplement the evidence they provide to support their point of view.</i></p>	<p>SL.9–10.1: Initiate and participate effectively in a range of collaborative discussions...with diverse partners...</p> <ul style="list-style-type: none"> a) Come to discussions prepared...referring to evidence from texts...to stimulate a thoughtful, well-reasoned exchange of ideas. 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. <p><i>If the suggestion is used:</i></p> <p>WHST.9–10.1: Write arguments focused on <i>discipline-specific content</i>.</p> <ul style="list-style-type: none"> a) Introduce precise claim(s)...and create an organization that establishes clear relationships among the claim(s)...reasons, and evidence. b) Develop claim(s)...fairly, supplying data and evidence...while pointing out the strengths and limitations of both claim(s)... c) Use words, phrases, and clauses to link the...text, create cohesion, and clarify the relationships between claim(s) and reasons, 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

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

- Note how the author cites evidence to support main points and analysis; note any gaps or inconsistencies; note the date and origin of the source and whether it is primary or secondary. **(RH.9–10.1)**
- Note how the author sets up the central ideas or information; trace the relationship among key details and ideas; summarize how key events or ideas develop over the course of the text. **(RH.9–10.2)**
- Analyze a series of events described in the text; evaluate various explanations for actions or events; determine which explanation best accords with textual evidence; determine whether earlier events caused later ones or simply preceded them; acknowledge where matters are left uncertain. **(RH.9–10.3)**
- Note how the author explains and refines the meaning of key terms, symbols, domain-specific words, and phrases. **(RH.9–10.4)**
- Analyze how the structure is used to emphasize key points or advance an explanation or analysis and how key sentences, paragraphs, and larger portions of the text contribute to the whole. **(RH.9–10.5)**
- Compare and evaluate the point of view of the author(s); note which details are included and emphasized; assess the author's claims, reasoning, and evidence; compare the text with other authors on the same topic. **(RH.9–10.6)**
- Note how the information in the *California Connections* text integrates with information provided throughout the unit in diverse visual, quantitative, and qualitative formats, including tables, charts, research data, and maps, in print or digital texts. **(RH.9–10.7)**
- Assess whether the author's extent of reasoning and evidence in a text support the author's claim; evaluate the author's premises, claims, and evidence. **(RH.9–10.8)**
- 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, and identify any discrepancies. **(RH.9–10.9)**
- Note comprehension strategies for understanding text. **(RH.9–10.10)**

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

Writing

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

Using the *California Connections* Selection

The following pages note specific places where the *California Connections* selection provides examples for specific Writing Literacy Standards, 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.

RH.9–10.5: Analyze how a text uses structure to emphasize key points or advance an explanation or analysis.

- Compare then and now
- Then and now chronological

WHST.9–10.2c: Use varied transitions and sentence structures to...clarify relationships among...concepts.

Suggestion: Note transition sentences throughout the article.

California Connections: New Challenges, New Opportunities, New Technology
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New Challenges, New Opportunities, New Technology



Since the middle of the last century, electronic devices have transformed the way we work and live. Not too long ago, producing type for a newspaper, book, or magazine required a large machine that cast each line in metal. Highly skilled workers bound hundreds of metal lines together. They placed these lines, along with metal copies of photographs, into a metal frame. Other workers used the type in these frames to transfer ink to paper. Then trucks delivered the printed material to people to read.

Now most of us have the skills to write our thoughts on computers, where the words are mere flickers of light. We add color photographs that also exist only as electronic signals. We then write blogs or e-mails for anyone with a computer to read instantly.

Until 130 years ago, the only way to hear music was to listen to people performing it live. Fifty years ago, people could listen to music at home on a bulky radio or television or on a delicate record player that skipped if anyone jolted the machine. Now we listen to music wherever we go on a small device that fits in a pocket and carries thousands of songs.

Changes From a Chip
Key to the electronic devices that have changed our world



Silicon Valley, San Jose, California

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RH.9–10.10: ...Read and comprehend history-social studies texts... independently and proficiently.

Suggestion: Throughout the text, have students explain and use informational text comprehension strategies.

RH.9–10.3: Analyze in detail a series of events described in a text; determine whether earlier events caused later ones or simply preceded them.

Suggestion: Throughout the text, have students examine events and use the evidence in the article to determine any causality between earlier and later events.

RH.9–10.5: Analyze how a text uses structure to emphasize key points or advance an explanation or analysis.

Suggestion: After reading the text for content, reread the text to examine the structure used to convey the information.

WHST.9–10.2a: Introduce a topic and organize ideas... include formatting...

- Headings

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

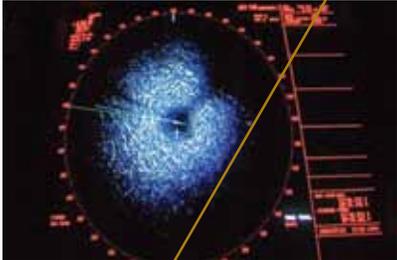
WHST.9–10.2b: Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples...

Suggestion: Note the specific types of supporting information provided to support each point throughout the document.

RH.9–10.4: Determine the meaning of words and phrases as they are used in a text...

- Entrepreneur
- Silicon
- Semiconductor

California Connections: New Challenges, New Opportunities, New Technology
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Radar technology

is the microchip. Scientists, entrepreneurs (people who start new businesses), and workers in Silicon Valley in northern California are among the world's leaders in developing microchips. Have you ever wondered why people call it Silicon Valley? Silicon is the main ingredient of microchips. Silicon is an element, like hydrogen, oxygen, and carbon. In fact, silicon is the second most common element on Earth. Sand is mostly silicon. Compounds containing silicon are present in many rocks and most soil. Even plants and animals contain silicon compounds. Why do we use silicon to make microchips? Silicon is a semiconductor. That means silicon sometimes conducts electricity and sometimes does not. Electronic devices produce words on a computer screen or music on a digital music player by managing tiny electrical currents. Scientists discovered that silicon is one of the best materials for containing those tiny electrical currents. Of course, silicon is not the only ingredient required to make a microchip. Microchips contain smaller amounts of elements, like copper, aluminum, and gold. The process of manufacturing chips also requires lots of energy and water.

The Innovation
Electronics innovation in Silicon Valley began in the 1930s. Engineering professors and students at Stanford University in Palo Alto took an interest in radio. Radio was a new technology. It had quickly become very popular for listening to news, music, and other entertainment. In response to the outbreak of World War II, in the early 1940s the U.S. government hired scientists around Palo Alto and elsewhere to develop military technologies. One example is radar. Radar uses electronic signals to locate ships and airplanes. Some of this research involved semiconductors. In 1947, William Shockley and two other scientists used semiconductor technology to invent the transistor. This device can increase electrical signals or switch electrical currents off and on. The scientists worked at Bell Laboratories in New Jersey at the time. A few years later, Shockley returned to California, where he had grown up. He became director of the Shockley Semiconductor Laboratory in Palo Alto. Shockley was both a scientist and an entrepreneur. He developed new scientific ideas. He also tried to make money from them by using them in products his company could make and sell. Shockley's engineers used germanium to make transistors. Germanium is a chemical element similar to tin. In 1957, several engineers left Shockley's company. They

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RH.9–10.4: Determine the meaning of words and phrases as they are used in a text...

- Radar
- Transistor
- Germanium

RH.9–10.5: Analyze how a text uses structure to emphasize key points or advance an explanation...

- Chronological

WHST.9–10.2c: Use varied transitions and sentence structure to link the major sections of the text...and clarify relationships...

Suggestion: Note the first sentences of paragraphs and how they link the information.

RH.9–10.5: Analyze how a text uses structure to emphasize key points or advance an explanation...

- Proposition support*

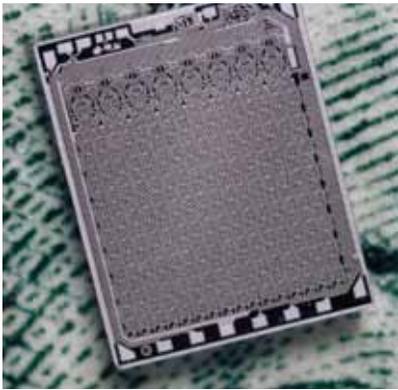
RH.9–10.8: Assess the extent to which the reasoning and evidence in a text support the author’s claims.

- How is this claim supported throughout the text?

Suggestion: Note subheadings and how they contribute to the structure of the text.

California Connections: **New Challenges, New Opportunities, New Technology**
Lesson 1 | page 3 of 4

formed their own company, Fairchild Semiconductor, in the nearby town of Mountain View. Here they explored uses of silicon. The engineers fit tiny transistors on a silicon chip. Thus was born the integrated circuit. The integrated circuit is one of the most important inventions in modern history. Like the transistor, the integrated circuit manages small electrical currents. However, the integrated circuit is much smaller than the transistor. It requires much less energy to operate. In the following years, engineers made smaller and smaller integrated circuits on chips of silicon. They called the tiny devices microchips. Microchips allow us to carry thousands of songs around in our pockets.



Microchip

The Entrepreneurs
Among the founders of Fairchild Semiconductor were Gordon Moore and Bob Noyce. Both Moore and Noyce were scientists: Noyce was one of the inventors of the integrated circuit. In 1968 they became entrepreneurs. That is when they left Fairchild to form Intel Corporation. Noyce typed up a one-page proposal and submitted it to Art Rock, a venture capitalist in San Francisco. Rock raised \$2.5 million to fund their new company. The following year, a Japanese company contracted with Intel to design 12 chips for a new calculator. Each chip would perform a separate task, such as keyboard function, display control, and printer command. Intel did not have enough engineers to design all 12 chips at once. But they had ingenuity. Engineer Ted Hoff and his team came up with the idea of using silicon semiconductor technology to combine the functions of all 12 chips onto a single chip. This microchip

was ¼-inch wide and ¼-inch long (.32 cm x .16 cm), yet it contained 2,300 transistors.

The Revolution
Building on this success, in 1971 Intel introduced one of the world’s first microprocessors. A microprocessor is a microchip that includes all the components necessary to run a device like a calculator, a computer, or a printer. The Intel 4004 microprocessor had as much power as existing computers that filled large rooms. It could make

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

- Microprocessor

RH.9–10.5: Analyze how a text uses structure to emphasize key points or advance an explanation...

- Cause and effect

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

RH.9–10.5: Analyze how a text uses structure to emphasize key points or advance an explanation or analysis.

- Compare then and now

Suggestion: Examine the end of the previous page and the beginning of this page to notice how the author transitions from the past to “today.”

RH.9–10.8: Assess the extent to which the reasoning and evidence in a text support the author’s claims.

RH.9–10.5: Analyze how a text uses structure to emphasize key points or advance an explanation or analysis.

- Here the text compares current events to an historical event.
- Much of the text is chronological.

Suggestion: After reading the text, review it, noting where chronological progression is enhanced with specific explanations and supporting evidence.

California Connections: New Challenges, New Opportunities, New Technology
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Personal Computer components

60,000 calculations per second. Microprocessors today contain 5.5 million transistors. They can make hundreds of millions of calculations each second. The modern computer based on the microprocessor is the most sophisticated piece of machinery humans have ever produced. In the 1990s a student working on at a personal computer could gain access to the World Wide Web.

Shockley Semiconductor Laboratory, Fairchild Semiconductor, and Intel are just three of hundreds of companies that grew up in Silicon Valley during the past 50 years. Stanford University provided a steady supply of talented engineers to work in

the companies. Scientists and entrepreneurs from all over the country moved to the area. They wanted to work with other people who were transforming the world by creating new electronic devices. The U.S. Department of Defense, as well as the National Science Foundation, invested in such ingenuity and productivity.

The Aftermath
As the Industrial Revolution showed, however, nothing comes free. Nineteenth-century inventions had significant influence on the local environment. So too did the computer revolution. Santa Clara County was once an agricultural region. With the

development of Silicon Valley, it has become a manufacturing region. Cement and fabrication plants have replaced orchards. Suburban neighborhoods have sprung up to house people for the growing labor force. Massive highways, built on once-open land, now connect people from the suburbs to their places of work.

Thus, even though the microchip is small, its influence on natural and human systems is large. In California, this has led to the State establishing an “e-waste” program to encourage the recycling of all electronic waste. People have benefited greatly from the computer revolution. Yet these benefits also have resulted in new challenges.

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RH.9–10.5: Analyze how a text uses structure...

- Cause and effect

WHST.9–10.2f: Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

WHST.9–10.2c: Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify relationships among ideas and concepts.

Suggestion: Note the first sentences of each of these paragraphs.

California Common Core State Standards Descriptions

Reading Standards for Literacy in History-Social Studies

- **RH.9–10.1:** Cite specific textual evidence to support analysis of primary and secondary sources, attending to such features as the date and origin of the information.
- **RH.9–10.2:** Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.
- **RH.9–10.3:** Analyze in detail a series of events described in a text; determine whether earlier events caused later ones or simply preceded them.
- **RH.9–10.4:** Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history-social science.
- **RH.9–10.5:** Analyze how a text uses structure to emphasize key points or advance an explanation or analysis.
- **RH.9–10.6:** Compare the point of view of two or more authors for how they treat the same or similar topics, including which details they include and emphasize in their respective accounts.
- **RH.9–10.8:** Assess the extent to which the reasoning and evidence in a text support the author’s claims.
- **RH.9–10.9:** Compare and contrast treatments of the same topic in several primary and secondary sources.
- **RH.9–10.10:** By the end of grade 10, read and comprehend history-social studies 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.
 - a) Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
 - 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.
 - e) Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
 - f) Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).
- **WHST.9–10.4:** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- **WHST.9–10.7:** Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.