

**Alignment
of**

**Project Learning Tree
Secondary Environmental
Education Program**

**Exploring Environmental Issues:
Places We Live**

to

**California
Science**

Mathematics

History-Social Studies

English-Language Arts

Content Standards

and

***Education and the Environment Initiative's*
Environmental Principles and Concepts**



Introduction

The purpose of this document is to provide California secondary educators who use Project Learning Tree's *Exploring Environmental Issues: Places We Live* with an easy reference guide as to how PLT's activities align to the California Content Standards for grades 6-12. As part of the national movement to reform education, the California State Board of Education has adopted criteria to measure the skills, knowledge and ability that all students should be able to master in language arts, history/social science, science and mathematics.

Additionally, the content of the module were aligned to the "Education and the Environment Initiative's (AB 1548, Chapter 665, Statutes of 2003 and AB 1721, Chapter 581 of 2005) "environmental principles and concepts".

Project Learning Tree is an interdisciplinary environmental education program. PLT activities supplement curriculum and can be used to organize instructional units in a variety of subjects. As this correlation will demonstrate, educators can use PLT activities to teach or assess mastery of content areas knowledge and skills. It is the goal of this document to help teachers provide students with lessons that reinforce critical and creative thinking while also covering the required standards.

The research and development for this document were prepared by Kathleen D. Fleming and Dr. Darleen Stoner, California State University, San Bernardino. The project was coordinate by the California Department of Forestry and Fire Protection.

For more information about Project Learning Tree in California, contact Kay Antunez, PLT Coordinator, California Department of Forestry and Fire Protection, P.O. Box 944246, Sacramento, CA 94244-2460, or call (916) 653-7958.

A copy of the Content Standards for Grades K-12 can be obtained at: www.cde.ca.gov/be/st/ss For additional information on the "Education and the Environment Initiative" check www.calepa.gov/Education.

Additional information about Project Learning Tree and copies of the correlations for other PLT materials can be obtained at: www.plt.org

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Correlation of Activities to the California History-Social Science Content Standards Grades 6 – 12

Grades 6 – 8: Historical and Social Sciences Analysis Skills

The intellectual skills noted below are to be learned through, and applied to, the content standards for grades six through eight. They are to be assessed *only in conjunction with* the content standards in grades six through eight.

In addition to the standards for grades six through eight, students demonstrate the following intellectual reasoning, reflection, and research skills:

Chronological and Spatial Thinking

- 3. Students use a variety of maps and documents to identify physical and cultural features of neighborhoods, cities, states, and countries and to explain the historical migration of people, expansion and disintegration of empires, and the growth of economic systems.**

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Research, Evidence, and Point of View

- 1. Students frame questions that can be answered by historical study and research.**

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- 5. Students detect the different historical points of view on historical events and determine the context in which the historical statements were made (the questions asked, sources used, author's perspectives).**

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Historical Interpretation

1. **Students explain the central issues and problems from the past, placing people and events in a matrix of time and place.**

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2. **Students understand and distinguish cause, effect, sequence, and correlation in historical events, including the long- and short-term causal relations.**

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6. **Students interpret basic indicators of economic performance and conduct cost-benefit analyses of economic and political issues.**

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Grade 8 - United States History and Geography: Growth and Conflict

8.12 Students analyze the transformation of the American economy and the changing social and political conditions in the United States in response to the Industrial Revolution.

5. Examine the location and effects of urbanization, renewed immigration, and industrialization (e.g., the effects on social fabric of cities, wealth and economic opportunity, the conservation movement).

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Grade 9-12 Historical and Social Sciences Analysis Skills

The intellectual skills noted below are to be learned through, and applied to, the content standards for grades nine through twelve. They are to be assessed *only in conjunction with* the content standards in grades nine through twelve.

In addition to the standards for grades nine through twelve, students demonstrate the following intellectual, reasoning, reflection, and research skills.

Chronological and Spatial Thinking

1. Students compare the present with the past, evaluating the consequences of past events and decisions and determining the lessons that were learned.

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2. Students analyze how change happens at different rates at different times; understand that some aspects can change while others remain the same; and understand that change is complicated and affects not only technology and politics but also values and beliefs.

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3. Students use a variety of maps and documents to interpret human movement, including major patterns of domestic and international migration, changing environmental preferences and settlement patterns, the frictions that develop between population groups, and the diffusion of ideas, technological innovations, and goods.

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4. Students relate current events to the physical and human characteristics of places and regions.

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Historical Research, Evidence, and Point of View

4. Students construct and test hypotheses; collect, evaluate, and employ information from multiple primary and secondary sources; and apply it in oral and written presentations.

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Historical Interpretation

1. Students show the connections, causal and otherwise, between particular historical events and larger social, economic, and political trends and developments.

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5. Students analyze human modifications of landscapes and examine the resulting environmental policy issues.

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Grade 10- World History, Culture, and Geography: The Modern World

10.3 Students analyze the effects of the Industrial Revolution in England, France, Germany, Japan, and the United States.

3. Describe the growth of population, rural to urban migration, and growth of cities associated with the Industrial Revolution.

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5. Understand the connections among natural resources, entrepreneurship, labor, and capital in an industrial economy.

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10.11 Students analyze the integration of countries into the world economy and the information, technological, and communications revolutions (e.g., television, satellites, computers).

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Grade 11- United States History and Geography: Continuity and Change in the Twentieth Century

11.2 Students analyze the relationship among the rise of industrialization, large-scale rural-to-urban migration, and massive immigration from Southern and Eastern Europe.

2. Describe the changing landscape, including the growth of cities linked by industry and trade, and the development of cities divided according to race, ethnicity, and class.

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6. Trace the economic development of the United States and its emergence as a major industrial power, including its gains from trade and the advantages of its physical geography.

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11.11 Students analyze the major social problems and domestic policy issues in contemporary American society.

5. Trace the impact of, need for, and controversies associated with environmental conservation, expansion of the national park system, and the development of environmental protection laws, with particular attention to the interaction between environmental protection advocates and property rights advocates.

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Grade 12- Principles of American Democracy and Economics

Principles of American Democracy

12.2 Students evaluate and take and defend positions on the scope and limits of rights and obligations as democratic citizens, the relationships among them, and how they are secured.

4. Understand the obligations of civic-mindedness, including voting, being informed on civic issues, volunteering and performing public service, and serving in the military or alternative service.

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5. Describe the reciprocity between rights and obligations; that is, why enjoyment of one's rights entails respect for the rights of others.

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12.3 Students evaluate and take and defend positions on what the fundamental values and principles of civil society are (i.e., the autonomous sphere of voluntary personal, social, and economic relations that are not part of government), their interdependence, and the meaning and importance of those values and principles for a free society.

1. Explain how civil society provides opportunities for individuals to associate for social, cultural, religious, economic, and political purposes.

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2. Explain how civil society makes it possible for people, individually or in association with others, to bring their influence to bear on government in ways other than voting and elections.

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12.7 Students analyze and compare the powers and procedures of the national, state, tribal, and local governments.

5. Explain how public policy is formed, including the setting of the public agenda and implementation of it through regulations and executive orders.

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6. Compare the processes of lawmaking at each of the three levels of government, including the role of lobbying and the media.

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Principles of Economics

12.1 Students understand common economic terms and concepts and economic reasoning.

1. Examine the causal relationship between scarcity and the need for choices.

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2. Explain opportunity cost and marginal benefit and marginal cost.

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3. Identify the difference between monetary and nonmonetary incentives and how changes in incentives cause changes in behavior.

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4. Evaluate the role of private property as an incentive in conserving and improving scarce resources, including renewable and nonrenewable natural resources.

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12.2 Students analyze the elements of America's market economy in a global setting.

1. Understand the relationship of the concept of incentives to the law of supply and the relationship of the concept of incentives and substitutes to the law of demand.

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4. Explain how prices reflect the relative scarcity of goods and services and perform the allocative function in a market economy.

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10. Discuss the economic principles that guide the location of agricultural production and industry and the spatial distribution of transportation and retail facilities.

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12.3 Students analyze the influence of the federal government on the American economy.

1. Understand how the role of government in a market economy often includes providing for national defense, addressing environmental concerns, defining and enforcing property rights, attempting to make markets more competitive, and protecting consumers' rights.

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Correlation of Activities to the California English-Language Arts Content Standards Grades 6 – 12

Grade 6- Reading

2.0 Reading Comprehension (Focus on Informational Materials)

Students read and understand grade-level-appropriate material. They describe and connect the essential ideas, arguments, and perspectives of the text by using their knowledge of text structure, organization, and purpose. The selections in *Recommended Literature, Kindergarten Through Grade Twelve* illustrate the quality and complexity of the materials to be read by students. In addition, by grade eight, students read one million words annually on their own, including a good representation of grade-level appropriate narrative and expository text (e.g., classic and contemporary literature, magazines, newspapers, online information). In grade six, students continue to make progress toward this goal.

Reading Structural Features of Informational Materials

2.1 Identify the structural features of popular media (e.g., newspapers, magazines, online information) and use the features to obtain information.

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2.2 Analyze text that uses the compare-and-contrast organizational pattern.

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Comprehension and Analysis of Grade-Level-Appropriate Text

2.3 Connect and clarify main ideas by identifying their relationships to other sources and related topics.

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2.4 Clarify an understanding of texts by creating outlines, logical notes, summaries, or reports.

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Expository Critique

2.6 Determine the adequacy and appropriateness of the evidence for an author’s conclusions.

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2.7 Make reasonable assertions about a text through accurate, supporting citations.

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2.8 Note instances of unsupported inferences, fallacious reasoning, persuasion, and propaganda in text.

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Grade 6 - Writing

1.0 Writing Strategies

Students write clear, coherent, and focused essays. The writing exhibits students’ awareness of the audience and purpose. Essays contain formal introductions, supporting evidence, and conclusions. Students progress through the stages of the writing process as needed.

Organization and Focus

1.2 Create multiple-paragraph expository compositions: a. Engage the interest of the reader and state a clear purpose. b. Develop the topic with supporting details and precise verbs, nouns, and adjectives to paint a visual image in the mind of the reader. c. Conclude with a detailed summary linked to the purpose of the composition.

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Research and Technology

- 1.4 Use organizational features of electronic text (e.g., bulletin boards, databases, keyword searches, e-mail addresses) to locate information.

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2.0 Writing Applications (Genres and Their Characteristics)

Students write narrative, expository, persuasive, and descriptive texts of at least 500 to 700 words in each genre. Student writing demonstrates a command of standard American English and the research, organizational, and drafting strategies outlined in Writing Standard 1.0. Using the writing strategies of grade six outlined in Writing Standard 1.0, students:

- 2.2 Write expository compositions (e.g., description, explanation, comparison and contrast, problem and solution): a. State the thesis or purpose. b. Explain the situation. c. Follow an organizational pattern appropriate to the type of composition. d. Offer persuasive evidence to validate arguments and conclusions as needed.

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- 2.3 Write research reports: a. Pose relevant questions with a scope narrow enough to be thoroughly covered. b. Support the main idea or ideas with facts, details, examples, and explanations from multiple authoritative sources (e.g., speakers, periodicals, online information searches). c. Include a bibliography.

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- 2.5 Write persuasive compositions: a. State a clear position on a proposition or proposal. b. Support the position with organized and relevant evidence. c. Anticipate and address reader concerns and counterarguments.

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Grade 6- Listening & Speaking

1.0 Listening and Speaking Strategies

Students deliver focused, coherent presentations that convey ideas clearly and relate to the background and interests of the audience. They evaluate the content of oral communication.

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2.0 Speaking Applications (Genres and Their Characteristics)

Students deliver well-organized formal presentations employing traditional rhetorical strategies (e.g., narration, exposition, persuasion, description). Student speaking demonstrates a command of standard American English and the organizational and delivery strategies outlined in Listening and Speaking Standard 1.0. Using the speaking strategies of grade six outlined in Listening and Speaking Standard 1.0, students:

- 2.1 Deliver narrative presentations: a. Establish a context, plot, and point of view. b. Include sensory details and concrete language to develop the plot and character. c. Use a range of narrative devices (e.g., dialogue, tension, or suspense).

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- 2.2 Deliver informative presentations: a. Pose relevant questions sufficiently limited in scope to be completely and thoroughly answered. b. Develop the topic with facts, details, examples, and explanations from multiple authoritative sources (e.g., speakers, periodicals, online information).

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- 2.3 Deliver oral responses to literature: a. Develop an interpretation exhibiting careful reading, understanding, and insight. b. Organize the selected interpretation around several clear ideas, premises, or images. c. Develop and justify the selected interpretation through sustained use of examples and textual evidence.

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- 2.4 Deliver persuasive presentations: a. Provide a clear statement of the position. b. Include relevant evidence. c. Offer a logical sequence of information. d. Engage the listener and foster acceptance of the proposition or proposal.

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- 2.5 Deliver presentations on problems and solutions: a. Theorize on the causes and effects of each problem and establish connections between the defined problem and at least one solution. b. Offer persuasive evidence to validate the definition of the problem and the proposed solutions. 41

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Grade 7 - Reading

2.0 Reading Comprehension (Focus on Informational Materials)

Students read and understand grade-level-appropriate material. They describe and connect the essential ideas, arguments, and perspectives of the text by using their knowledge of text structure, organization, and purpose. The selections in *Recommended Literature, Kindergarten Through Grade Twelve* illustrate the quality and complexity of the materials to be read by students. In addition, by grade eight, students read one million words annually on their own, including a good representation of grade-level-appropriate narrative and expository text (e.g., classic and contemporary literature, magazines, newspapers, online information). In grade seven, students make substantial progress toward this goal.

Structural Features of Informational Materials

- 2.1 Understand and analyze the differences in structure and purpose between various categories of informational materials (e.g., textbooks, newspapers, instructional manuals, signs).

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- 2.2 Locate information by using a variety of consumer, workplace, and public documents.

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- 2.3 Analyze text that uses the cause-and-effect organizational pattern.

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Expository Critique

- 2.6 Assess the adequacy, accuracy, and appropriateness of the author's evidence to support claims and assertions, noting instances of bias and stereotyping.

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Grade 7 - Writing

1.0 Writing Strategies

Students write clear, coherent, and focused essays. The writing exhibits students' awareness of the audience and purpose. Essays contain formal introductions, supporting evidence, and conclusions. Students progress through the stages of the writing process as needed.

Research and Technology

- 1.4 Identify topics; ask and evaluate questions; and develop ideas leading to inquiry, investigation, and research.

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2.0 Writing Applications (Genres and Their Characteristics)

Students write narrative, expository, persuasive, and descriptive texts of at least 500 to 700 words in each genre. The writing demonstrates a command of standard American English and the research, organizational, and drafting strategies outlined in Writing Standard 1.0. Using the writing strategies of grade seven outlined in Writing Standard 1.0, students:

- 2.2 Write responses to literature: a. Develop interpretations exhibiting careful reading, understanding, and insight. b. Organize interpretations around several clear ideas, premises, or images from the literary work. c. Justify interpretations through sustained use of examples and textual evidence.

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- 2.3 Write research reports: a. Pose relevant and tightly drawn questions about the topic. b. Convey clear and accurate perspectives on the subject. c. Include evidence compiled through the formal research process (e.g., use of a card catalog, *Reader's Guide to Periodical Literature*, a computer catalog, magazines, newspapers, dictionaries). d. Document reference sources by means of footnotes and a bibliography.

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- 2.4 Write persuasive compositions: a. State a clear position or perspective in support of a proposition or proposal. b. Describe the points in support of the proposition, employing well-articulated evidence. c. Anticipate and address reader concerns and counterarguments.

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- 2.5 Write summaries of reading materials: a. Include the main ideas and most significant details. b. Use the student's own words, except for quotations. c. Reflect underlying meaning, not just the superficial details.

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Grade 7- Listening and Speaking

2.0 Speaking Applications (Genres and Their Characteristics)

Students deliver well-organized formal presentations employing traditional rhetorical strategies (e.g., narration, exposition, persuasion, description). Student speaking demonstrates a command of standard American English and the organizational and delivery strategies outlined in Listening and Speaking Standard 1.0. Using the speaking strategies of grade seven outlined in Listening and Speaking Standard 1.0, students:

- 2.1 Deliver narrative presentations: a. Establish a context, standard plot line (having a beginning, conflict, rising action, climax, and denouement), and point of view. b. Describe complex major and minor characters and a definite setting. c. Use a range of appropriate strategies, including dialogue, suspense, and naming of specific narrative action (e.g., movement, gestures, expressions).

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- 2.2 Deliver oral summaries of articles and books: a. Include the main ideas of the event or article and the most significant details. b. Use the student's own words, except for material quoted from sources. c. Convey a comprehensive understanding of sources, not just superficial details.

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- 2.3 Deliver research presentations: a. Pose relevant and concise questions about the topic. b. Convey clear and accurate perspectives on the subject. c. Include evidence generated through the formal research process (e.g., use of a card catalog, *Reader's Guide to Periodical Literature*, computer databases, magazines, news-papers, dictionaries). d. Cite reference sources appropriately.

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- 2.4 Deliver persuasive presentations: a. State a clear position or perspective in support of an argument or proposal. b. Describe the points in support of the argument and employ well-articulated evidence.

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Grade 8 – Writing

1.0 Writing Strategies

Students write clear, coherent, and focused essays. The writing exhibits students' awareness of audience and purpose. Essays contain formal introductions, supporting evidence, and conclusions. Students progress through the stages of the writing process as needed.

Research and Technology

1.4 Plan and conduct multiple-step information searches by using computer networks and modems.

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2.0 Writing Applications (Genres and Their Characteristics)

Students write narrative, expository, persuasive, and descriptive essays of at least 500 to 700 words in each genre. Student writing demonstrates a command of standard American English and the research, organizational, and drafting strategies outlined in Writing Standard 1.0. Using the writing strategies of grade eight outlined in Writing Standard 1.0, students:

2.2 Write responses to literature: a. Exhibit careful reading and insight in their interpretations. b. Connect the student's own responses to the writer's techniques and to specific textual references. c. Draw supported inferences about the effects of a literary work on its audience. d. Support judgments through references to the text, other works, other authors, or to personal knowledge.

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2.3 Write research reports: a. Define a thesis. b. Record important ideas, concepts, and direct quotations from significant information sources and paraphrase and summarize all perspectives on the topic, as appropriate. c. Use a variety of primary and secondary sources and distinguish the nature and value of each. d. Organize and display information on charts, maps, and graphs.

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- 2.4 Write persuasive compositions: a. Include a well-defined thesis (i.e., one that makes a clear and knowledgeable judgment). b. Present detailed evidence, examples, and reasoning to support arguments, differentiating between facts and opinion. c. Provide details, reasons, and examples, arranging them effectively by anticipating and answering reader concerns and counterarguments.

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Grade 8- Listening and Speaking Strategies

2.0 Speaking Applications (Genres and Their Characteristics)

Students deliver well-organized formal presentations employing traditional rhetorical strategies (e.g., narration, exposition, persuasion, description). Student speaking demonstrates a command of standard American English and the organizational and delivery strategies outlined in Listening and Speaking Standard 1.0. Using the speaking strategies of grade eight outlined in Listening and Speaking Standard 1.0, students:

- 2.1 Deliver narrative presentations (e.g., biographical, autobiographical): a. Relate a clear, coherent incident, event, or situation by using well-chosen details. b. Reveal the significance of, and the subject's attitude about, the incident, event, or situation. c. Employ narrative and descriptive strategies (e.g., relevant dialogue, specific action, physical description, background description, comparison or contrast of characters).

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- 2.2 Deliver oral responses to literature: a. Interpret a reading and provide insight. b. Connect the students' own responses to the writer's techniques and to specific textual references. c. Draw supported inferences about the effects of a literary work on its audience. d. Support judgments through references to the text, other works, other authors, or personal knowledge.

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- 2.3 Deliver research presentations: a. Define a thesis. b. Record important ideas, concepts, and direct quotations from significant information sources and paraphrase and summarize all relevant perspectives on the topic, as appropriate. c. Use a variety of primary and secondary sources and distinguish the nature and value of each. d. Organize and record information on charts, maps, and graphs.

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- 2.4 Deliver persuasive presentations: a. Include a well-defined thesis (i.e., one that makes a clear and knowledgeable judgment). b. Differentiate fact from opinion and support arguments with detailed evidence, examples, and reasoning. c. Anticipate and answer listener concerns and counterarguments effectively through the inclusion and arrangement of details, reasons, examples, and other elements. d. Maintain a reasonable tone.

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Grades 9 and 10- Reading

2.0 Reading Comprehension (Focus on Informational Materials)

Students read and understand grade-level-appropriate material. They analyze the organizational patterns, arguments, and positions advanced. The selections in *Recommended Literature, Kindergarten Through Grade Twelve* illustrate the quality and complexity of the materials to be read by students. In addition, by grade twelve, students read two million words annually on their own, including a wide variety of classic and contemporary literature, magazines, newspapers, and online information. In grades nine and ten, students make substantial progress toward this goal.

Comprehension and Analysis of Grade-Level-Appropriate Text

- 2.3 Generate relevant questions about readings on issues that can be researched.

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- 2.4 Synthesize the content from several sources or works by a single author dealing with a single issue; paraphrase the ideas and connect them to other sources and related topics to demonstrate comprehension.

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- 2.5 Extend ideas presented in primary or secondary sources through original analysis, evaluation, and elaboration.

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- 2.6 Demonstrate use of sophisticated learning tools by following technical directions (e.g., those found with graphic calculators and specialized software programs and in access guides to World Wide Web sites on the Internet).

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Expository Critique

2.7 Critique the logic of functional documents by examining the sequence of information and procedures in anticipation of possible reader misunderstandings.

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2.8 Evaluate the credibility of an author’s argument or defense of a claim by critiquing the relationship between generalizations and evidence, the comprehensiveness of evidence, and the way in which the author’s intent affects the structure and tone of the text (e.g., in professional journals, editorials, political speeches, primary source material).

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Grades 9 and 10 - Writing

1.0 Writing Strategies

Students write coherent and focused essays that convey a well defined perspective and tightly reasoned argument. The writing demonstrates students’ awareness of the audience and purpose. Students progress through the stages of the writing process as needed.

Research and Technology

1.3 Use clear research questions and suitable research methods (e.g., library, electronic media, personal interview) to elicit and present evidence from primary and secondary sources.

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- 1.4 Develop the main ideas within the body of the composition through supporting evidence (e.g., scenarios, commonly held beliefs, hypotheses, definitions).

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- 1.5 Synthesize information from multiple sources and identify complexities and discrepancies in the information and the different perspectives found in each medium (e.g., almanacs, microfiche, news sources, in-depth field studies, speeches, journals, technical documents).

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2.0 Writing Applications (Genres and Their Characteristics)

Students combine the rhetorical strategies of narration, exposition, persuasion, and description to produce texts of at least 1,500 words each. Student writing demonstrates a command of standard American English and the research, organizational, and drafting strategies outlined in Writing Standard 1.0. Using the writing strategies of grades nine and ten outlined in Writing Standard 1.0, students:

- 2.1 Write biographical or autobiographical narratives or short stories: a. Relate a sequence of events and communicate the significance of the events to the audience. b. Locate scenes and incidents in specific places. c. Describe with concrete sensory details the sights, sounds, and smells of a scene and the specific actions, movements, gestures, and feelings of the characters; use interior monologue to depict the characters' feelings. d. Pace the presentation of actions to accommodate changes in time and mood. e. Make effective use of descriptions of appearance, images, shifting perspectives, and sensory details.

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- 2.3 Write expository compositions, including analytical essays and research reports: a. Marshal evidence in support of a thesis and related claims, including information on all relevant perspectives. b. Convey information and ideas from primary and secondary sources accurately and coherently. c. Make distinctions between the relative value and significance of specific data, facts, and ideas. d. Include visual aids by employing appropriate technology to organize and record information on charts, maps, and graphs. e. Anticipate and address readers' potential misunderstandings, biases, and expectations. f. Use technical terms and notations accurately.

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- 2.4 Write persuasive compositions: a. Structure ideas and arguments in a sustained and logical fashion. b. Use specific rhetorical devices to support assertions (e.g., appeal to logic through reasoning; appeal to emotion or ethical belief; relate a personal anecdote, case study, or analogy). c. Clarify and defend positions with precise and relevant evidence, including facts, expert opinions, quotations, and expressions of commonly accepted beliefs and logical reasoning. d. Address readers' concerns, counterclaims, biases, and expectations.

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Grades 9 and 10 – Listening and Speaking

2.0 Speaking Applications (Genres and Their Characteristics)

Students deliver polished formal and extemporaneous presentations that combine the traditional rhetorical strategies of narration, exposition, persuasion, and description. Student speaking demonstrates a command of standard American English and the organizational and delivery strategies outlined in Listening and Speaking Standard 1.0. Using the speaking strategies of grades nine and ten outlined in Listening and Speaking Standard 1.0, students:

- 2.1 Deliver narrative presentations: a. Narrate a sequence of events and communicate their significance to the audience. b. Locate scenes and incidents in specific places. c. Describe with concrete sensory details the sights, sounds, and smells of a scene and the specific actions, movements, gestures, and feelings of characters. d. Pace the presentation of actions to accommodate time or mood changes.

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- 2.2 Deliver expository presentations: a. Marshal evidence in support of a thesis and related claims, including information on all relevant perspectives. b. Convey information and ideas from primary and secondary sources accurately and coherently. c. Make distinctions between the relative value and significance of specific data, facts, and ideas. d. Include visual aids by employing appropriate technology to organize and display information on charts, maps, and graphs. e. Anticipate and address the listener's potential misunderstandings, biases, and expectations. f. Use technical terms and notations accurately.

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- 2.3 Apply appropriate interviewing techniques: a. Prepare and ask relevant questions. b. Make notes of responses. c. Use language that conveys maturity, sensitivity, and respect. d. Respond correctly and effectively to questions. e. Demonstrate knowledge of the subject or organization. f. Compile and report responses. g. Evaluate the effectiveness of the interview.

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- 2.5 Deliver persuasive arguments (including evaluation and analysis of problems and solutions and causes and effects): a. Structure ideas and arguments in a coherent, logical fashion. b. Use rhetorical devices to support assertions (e.g., by appeal to logic through reasoning; by appeal to emotion or ethical belief; by use of personal anecdote, case study, or analogy). c. Clarify and defend positions with precise and relevant evidence, including facts, expert opinions, quotations, expressions of commonly accepted beliefs, and logical reasoning. d. Anticipate and address the listener's concerns and counterarguments.

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- 2.6 Deliver descriptive presentations: a. Establish clearly the speaker's point of view on the subject of the presentation. b. Establish clearly the speaker's relationship with that subject (e.g., dispassionate observation, personal involvement). c. Use effective, factual descriptions of appearance, concrete images, shifting perspectives and vantage points, and sensory details.

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Grades 11 and 12 – Reading

2.0 Reading Comprehension (Focus on Informational Materials)

Students read and understand grade-level-appropriate material. They analyze the organizational patterns, arguments, and positions advanced. The selections in *Recommended Literature, Kindergarten Through Grade Twelve* illustrate the quality and complexity of the materials to be read by students. In addition, by grade twelve, students read two million words annually on their own, including a wide variety of classic and contemporary literature, magazines, newspapers, and online information.

Structural Features of Informational Materials

2.1 Analyze both the features and the rhetorical devices of different types of public documents (e.g., policy statements, speeches, debates, platforms) and the way in which authors use those features and devices.

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Expository Critique

2.6 Critique the power, validity, and truthfulness of arguments set forth in public documents; their appeal to both friendly and hostile audiences; and the extent to which the arguments anticipate and address reader concerns and counterclaims (e.g., appeal to reason, to authority, to pathos and emotion).

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Grades 11 and 12 – Writing

1.0 Writing Strategies

Students write coherent and focused texts that convey a well-defined perspective and tightly reasoned argument. The writing demonstrates students' awareness of the audience and purpose and progression through the stages of the writing process.

Research and Technology

1.6 Develop presentations by using clear research questions and creative and critical research strategies (e.g., field studies, oral histories, interviews, experiments, electronic sources).

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Grades 11 and 12- Listening and Speaking

2.0 Speaking Applications (Genres and Their Characteristics)

Students deliver polished formal and extemporaneous presentations that combine traditional rhetorical strategies of narration, exposition, persuasion, and description. Student speaking demonstrates a command of standard American English and the organizational and delivery strategies outlined in Listening and Speaking Standard 1.0.

2.4 Deliver multimedia presentations: a. Combine text, images, and sound by incorporating information from a wide range of media, including films, newspapers, magazines, CD-ROMs, online information, television, videos, and electronic media-generated images. b. Select an appropriate medium for each element of the presentation. c. Use the selected media skillfully, editing appropriately and monitoring for quality. d. Test the audience's response and revise the presentation accordingly.

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Correlation of Activities to the California Science Content Standards Grades 6 – 12

Grade 6 – Focus on Earth Sciences

Shaping Earth's Surface

2. Topography is reshaped by the weathering of rock and soil and by the transportation and deposition of sediment. As a basis for understanding this concept:

- a. *Students know* water running downhill is the dominant process in shaping the landscape, including California's landscape.

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- b. *Students know* rivers and streams are dynamic systems that erode, transport sediment, change course, and flood their banks in natural and recurring patterns.

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- c. *Students know* beaches are dynamic systems in which the sand is supplied by rivers and moved along the coast by the action of waves.

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- d. *Students know* earthquakes, volcanic eruptions, landslides, and floods change human and wildlife habitats.

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Resources

6. Sources of energy and materials differ in amounts, distribution, usefulness, and the time required for their formation. As a basis for understanding this concept:

- b. *Students know* different natural energy and material resources, including air, soil, rocks, minerals, petroleum, fresh water, wildlife, and forests, and know how to classify them as renewable or nonrenewable.

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Grade 6 - Investigation and Experimentation

7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:

- b. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.

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- c. Construct appropriate graphs from data and develop qualitative statements about the relationships between variables.

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- d. Communicate the steps and results from an investigation in written reports and oral presentations.

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- f. Read a topographic map and a geologic map for evidence provided on the maps and construct and interpret a simple scale map.

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- h. Identify changes in natural phenomena over time without manipulating the phenomena (e.g., a tree limb, a grove of trees, a stream, a hill slope).

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Grade 7 – Investigation and Experimentation

7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:

- a. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.

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- b. Use a variety of print and electronic resources (including the World Wide Web) to collect information and evidence as part of a research project.

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- c. Communicate the logical connection among hypotheses, science concepts, tests conducted, data collected, and conclusions drawn from the scientific evidence.

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- d. Construct scale models, maps, and appropriately labeled diagrams to communicate scientific knowledge (e.g., motion of Earth's plates and cell structure).

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- e. Communicate the steps and results from an investigation in written reports and oral presentations.

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Grades 9-12 – Biology / Life Sciences

Ecology

6. Stability in an ecosystem is a balance between competing effects. As a basis for understanding this concept:

- a. *Students know* biodiversity is the sum total of different kinds of organisms and is affected by alterations of habitats.

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- b. *Students know* how to analyze changes in an ecosystem resulting from changes in climate, human activity, introduction of nonnative species, or changes in population size.

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- c. *Students know* how fluctuations in population size in an ecosystem are determined by the relative rates of birth, immigration, emigration, and death.

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Grades 9-12 – Investigation and Experimentation

1. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other four strands, students should develop their own questions and perform investigations. Students will:

- a. Select and use appropriate tools and technology (such as computer-linked probes, spreadsheets, and graphing calculators) to perform tests, collect data, analyze relationships, and display data.

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- g. Recognize the usefulness and limitations of models and theories as scientific representations of reality.

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- h. Read and interpret topographic and geologic maps.

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- i. Analyze the locations, sequences, or time intervals that are characteristic of natural phenomena (e.g., relative ages of rocks, locations of planets over time, and succession of species in an ecosystem).

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- l. Analyze situations and solve problems that require combining and applying concepts from more than one area of science.

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- m. Investigate a science-based societal issue by researching the literature, analyzing data, and communicating the findings. Examples of issues include irradiation of food, cloning of animals by somatic cell nuclear transfer, choice of energy sources, and land and water use decisions in California.

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Education and the Environment Initiative's Environmental Principles and Concepts

Principle I

People Depend on Natural Systems

The continuation and health of individual human lives and of human communities and societies depend on the health of the natural systems that provide essential goods and ecosystem services. As a basis for understanding this principle:

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

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Concept b. Students need to know that the ecosystem services provided by natural systems are essential to human life and to the functioning of our economies and cultures.

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Concept c. Students need to know that the quality, quantity and reliability of the goods and ecosystem services provided by natural systems are directly affected by the health of those systems.

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Principle II

People Influence Natural Systems

The long-term functioning and health of terrestrial, freshwater, coastal and marine ecosystems are influenced by their relationships with human societies. As a basis for understanding this principle:

Concept a. Students need to know that direct and indirect changes to natural systems due to the growth of human populations and their consumption rates influence the geographic extent, composition, biological diversity, and viability of natural systems.

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Concept b. Students need to know that methods used to extract, harvest, transport and consume natural resources influence the geographic extent, composition, biological diversity, and viability of natural systems.

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Concept c. Students need to know that the expansion and operation of human communities influences the geographic extent, composition, biological diversity, and viability of natural systems.

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Concept d. Students need to know that the legal, economic and political systems that govern the use and management of natural systems directly influence the geographic extent, composition, biological diversity, and viability of natural systems.

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Principle III

Natural Systems Change in Ways that People Benefit from and can Influence

Natural systems proceed through cycles that humans depend upon, benefit from and can alter. As a basis for understanding this principle:

Concept a. Students need to know that natural systems proceed through cycles and processes that are required for their functioning.

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Concept b. Students need to know that human practices depend upon and benefit from the cycles and processes that operate within natural systems.

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Concept c. Students need to know that human practices can alter the cycles and processes that operate within natural systems.

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Principle IV

There are no Permanent or Impermeable Boundaries that Prevent Matter from Flowing between Systems

The exchange of matter between natural systems and human societies affects the long-term functioning of both. As a basis for understanding this principle:

Concept a. Students need to know that the effects of human activities on natural systems are directly related to the quantities of resources consumed and to the quantity and characteristics of the resulting byproducts.

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Concept b. Students need to know that the byproducts of human activity are not readily prevented from entering natural systems and may be beneficial, neutral, or detrimental in their effect.

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Concept c. Students need to know that the capacity of natural systems to adjust to human-caused alterations depends on the nature of the system as well as the scope, scale, and duration of the activity and the nature of its byproducts.

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Principle V

Decisions Affecting Resources and Natural Systems are Complex and Involve Many Factors

Decisions affecting resources and natural systems are based on a wide range of considerations and decision making processes. As a basis for understanding this principle:

Concept a. Students need to know the spectrum of what is considered in making decisions about resources and natural systems and how those factors influence decisions.

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Concept b. Students need to know the process of making decisions about resources and natural systems, and how the assessment of social, economic, political, and environmental factors has changed over time.

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