

State Standards

California:

- **ELA**
- **W.11-12.1:** Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
- Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences claim(s), counterclaims, reasons, and evidence.
- Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases.
- Use words, phrases, and clauses as well as varied syntax 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.
- Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
- Provide a concluding statement or section that follows from and supports the argument presented.
- 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). **CA**
- **W.11-12.2:** Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
- Introduce a topic or thesis statement; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. **CA**
- Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
- Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
- Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic.
- Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
- 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).
- **W.11-12.3:** Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.
- Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.
- Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.

- Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution).
- Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.
- Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.
- W.11-12.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
- W.11-12.6: Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
- W.11-12.7: 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.
- W.11-12.9: Draw evidence from literary or informational texts to support analysis, reflection, and research.
- Apply grades 11–12 Reading standards to literature (e.g., “Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics”).
- Apply grades 11–12 Reading standards to literary nonfiction (e.g., “Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy [e.g., The Federalist, presidential addresses]”).
- W.11-12.10: Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.
- SL.11-12.1: Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11–12 topics, texts, and issues, building on others’ ideas and expressing their own clearly and persuasively.
- 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.
- Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.
- Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives.
- Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.
- SL.11-12.4: Present information, findings, and supporting evidence (e.g., reflective, historical investigation, response to literature presentations), conveying a clear and distinct perspective and a logical argument, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks. Use appropriate eye contact, adequate volume, and clear pronunciation. CA

- Plan and deliver a reflective narrative that: explores the significance of a personal experience, event, or concern; uses sensory language to convey a vivid picture; includes appropriate narrative techniques (e.g., dialogue, pacing, description); and draws comparisons between the specific incident and broader themes. (11th or 12th grade) CA
- Plan and present an argument that: supports a precise claim; provides a logical sequence for claims, counterclaims, and evidence; uses rhetorical devices to support assertions (e.g., analogy, appeal to logic through reasoning, appeal to emotion or ethical belief); uses varied syntax to link major sections of the presentation to create cohesion and clarity; and provides a concluding statement that supports the argument presented. (11th or 12th grade) CA
- **STEM**
- HS-ESS2-2: Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.
- HS-ESS2-4: Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate.
- HS-ESS3-5: Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems.
- HS-ETS1-1: Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.
- CCSS.MATH.CONTENT.HSA.REI.D.10: Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).
- CCSS.MATH.CONTENT.HSS.ID.A.1: Represent data with plots on the real number line (dot plots, histograms, and box plots).
- CCSS.MATH.CONTENT.HSS.ID.B.5: Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.

Massachusetts:

- **ELA**
- W.11-12.1: Write arguments (e.g., essays, letters to the editor, advocacy speeches) to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
- W.11-12.1.a: Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences claim(s), counterclaims, reasons, and evidence.
- W.11-12.1.b: Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases.
- W.11-12.2: Write informative/explanatory texts (e.g., essays, oral reports, biographical feature articles) to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
- W.11-12.2.a: Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include text features (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
- W.11-12.3: Write narratives to develop experiences or events using effective literary techniques, well-chosen details, and well-structured sequences.

- W.11-12.3.a: Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create an appropriate progression of experiences or events.
 - W.11-12.3.b: Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.
 - W.11-12.3.c: Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution).
 - W.11-12.6: Use technology, including current web-based communication platforms, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
 - SL.11-12.4: Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, vocabulary, substance, and style are appropriate to purpose, audience and a range of formal and informal tasks. (See grades 11-12 Language Standards 4-6 for specific expectations regarding vocabulary.)
 - SL.11-12.5: Make strategic use of digital media (e.g., audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
 - WCA.11-12.1: Write arguments focused on discipline-specific content.
 - WCA.11-12.2: Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.
- **STEM**
 - HS.ESS.2.2: Analyze geoscience data to make the claim that one change to Earth's hydrosphere can create feedbacks that cause changes to other Earth systems. Clarification Statement: Examples can include how decreasing the amount of glacial ice reduces the amount of sunlight reflected from Earth's surface, increasing surface temperatures and further reducing the amount of ice; how the loss of ground vegetation causes an increase in water runoff and soil erosion; how dammed rivers increase groundwater recharge, decrease sediment transport, and increase coastal erosion; and how the loss of wetlands causes a decrease in local humidity that further reduces the wetland extent.
 - HS.ESS.2.4: Use a model to describe how variations in the flow of energy into and out of Earth's systems over different time scales result in changes in climate. Analyze and interpret data to explain that long-term changes in Earth's tilt and orbit result in cycles of climate change such as Ice Ages. Clarification Statement: Examples of the causes of climate change differ by timescale: large volcanic eruption and ocean circulation over 1-10 years; changes in human activity, ocean circulation, and solar output over tens to hundreds of years; changes to Earth's orbit and the orientation of its axis over tens to hundreds of thousands of years; and long-term changes in atmospheric composition over tens to hundreds of millions of years. State Assessment Boundary: Changes in climate will be limited to changes in surface temperatures, precipitation patterns, glacial ice volumes, sea levels, and biosphere distribution in state assessment.
 - HS.ESS.2.5: Describe how the chemical and physical properties of water are important in mechanical and chemical mechanisms that affect Earth materials and surface processes. Clarification Statements: Examples of mechanical mechanisms involving water include stream transportation and deposition, erosion using variations in soil moisture content, and frost wedging by the expansion of water as it freezes. Examples of chemical mechanisms involving water include chemical weathering and recrystallization (based on solubility of different materials) and melt generation (based on water lowering the melting temperature of most solids).
 - HS.ESS.3.5: Analyze results from global climate models to describe how forecasts are made of the current rate of global or regional climate change and associated future impacts to Earth systems.

Clarification Statement: Climate model outputs include both climate changes (such as precipitation and temperature) and associated impacts (such as on sea level, glacial ice volumes, and atmosphere and ocean composition).

- **HS.ETS.1.1:** Analyze a major global challenge to specify a design problem that can be improved. Determine necessary qualitative and quantitative criteria and constraints for solutions, including any requirements set by society. Clarification Statement: Examples of societal requirements can include risk mitigation, aesthetics, ethical considerations, and long-term maintenance costs.
- **MI.A-REI.D.10:** Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). Show that any point on the graph of an equation in two variables is a solution to the equation.
- **MI.S-ID.A.1:** Represent data with plots on the real number line (dot plots, histograms, and box plots).
- **MI.S-ID.B.5:** Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.

Stone Soup Leadership Institute

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