**ELACC6-8RST1**: Cite specific textual evidence to support analysis of science and technical texts.

**L9-10RST1**: Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.

**L11-12RST1**: Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.

Students examine the details of scientific or technical text to support their analysis of the document. Supporting evidence could include citing evidence that supports the author’s claim or conclusion, purpose, or perspective; evidence that supports the credibility and validity of the text, including research design or sample size; date of publication; visual representations of data and findings; or whether the supporting research has been peer reviewed.

Common science texts could include magazine or newspaper articles, journal articles, science textbooks, online resources, and personal narratives.

**Examples:**
- Read a news article about the extent of damage caused by a hurricane. Cite specific evidence in the article that supports the author’s claims of damage (cost of repairs, loss of life, habitat damage, etc.).
- Read an article explaining that dominant traits are not always the most common trait in a population. Cite specific evidence from the article that would support that idea and consider research factors (sample size, sampling methods, etc.) that could further support or weaken that claim.

**Close Read Overview** and **Close Reading Handout**
- Close Read 6th Grade Exemplar
- Close Read 12th Grade Exemplar

**Foldable Graphic Organizers**: Shutter Fold (Text/Analysis – Text Says/I Think), Foldable Frayer Books w/ page and paragraph numbers

**Presentation & Online Resources**
- Close Read Strategies PowerPoint
- Add a Citation (add citations to labs, lessons, review sheets etc...Page____, Paragraph ____).

**Sample Lesson for Citing Text and Writing and Argument**
- Yes Ma’am Constructed Response
- Annolighting: http://web001.greece.k12.ny.us/academics.cfm?subpage=1230
- Anticipation Guides
- Sample Anticipation Guide
- Interrogating Text – Harvard Website: http://guides.hcl.harvard.edu/sixreadinghabits
- Six Step Reading and Note Taking: 
- Dialectical Journal
- LDC Argumentation Tasks include Reading Standards 1, 2, 4, & 10
- LDC Explanatory or Informational Tasks include Reading Standards 1, 2, 4, 6, & 10

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<table>
<thead>
<tr>
<th><strong>Key Ideas and Details</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ELACC6-8RST2</strong>: Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.</td>
</tr>
</tbody>
</table>

**L9-10RST2**: Determine the central ideas or conclusions of a text; trace the text’s explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.

**L11-12RST2**: Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.

Students identify the key ideas of their text and provide an accurate summary for an expository text or sequencing summary for a functional text.

**Examples**:
- Develop an objective summary of the information provided in the text that does not include personal opinions or perspectives. Possible topics could include:
  - Difference between plant and animal cells.
  - Predator and prey relationships.
  - Dominant and recessive traits.
- When reading safety considerations or procedures prior to a laboratory activity, identify key safety concerns and/or summarize necessary precautions, such as proper handling procedures for acids/bases, how to use pH paper, or how pH paper works.

**Trace the Depiction of a Complex Process**
- First, have students use a visual from the text, make a sketch of their own, or use a graphic organizer to help them see the different parts of a process.
- Then have students talk with one another about the parts of the process and what each part means. Consider using guided questions to ask pairs of students questions.
- Finally, have students **write the sequence** of the process.
  
  (Deborah Wahlstrom, 2011)
  
  [http://datadeb.wordpress.com/](http://datadeb.wordpress.com/)

**Foldable Graphic Organizers**: 4-Door (I Used to Think, The Text Says, I Know Now, The Difference Between or Central Idea Tabs with supporting details underneath), Multi-Tab FGO with one tab for Central Ideas & additional tabs for supporting details

**Online Resources**

- **Central Idea Strategies: PowerPoint**
- **Planet Literacy During Reading**: Sticky Connections, Coding, Guided Reading, Summarizing
- **Key Concept Synthesis**
- **Natural Inquirer – Main Idea Lesson Plan 2**
- **Sum it Up Directions and Student Sheet**
- **Lesson Closure Frame**
- **Summarizing Strategies**
- **5-3-1 Summarizing**
- **Reading and Summarizing**
- **GIST**
- **Planet Literacy Writing Strategies**: Quick Writes, Ticket out the Door, Tweet
- **LDC Argumentation Tasks** include Reading Standards 1, 2, 4, & 10
- **LDC Explanatory or Informational Tasks** include Reading Standards 1, 2, 4, 6, & 10
- **Chart of Sample Complex Processes, Phenomena & Concepts (page 23 & 24)**

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<table>
<thead>
<tr>
<th>Key Ideas and Details</th>
<th>Science Notebooks-FOSS Guide</th>
<th>Episodic Organizer</th>
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<tr>
<td></td>
<td></td>
<td>Sequence of Events Chart</td>
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<tr>
<td></td>
<td></td>
<td>Cause and Effect Block Organizer</td>
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<td></td>
<td></td>
<td>Planet Literacy: Flip Strips (pre and post reading)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sample Lab Sheet Templates</td>
</tr>
</tbody>
</table>

**ELACC6-8RST3:** Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

**L9-10RST3:** Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; attending to special cases or exceptions defined in the text.

**L11-12RST3:** Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

Students follow a written lab protocol or sequence of steps to accomplish an activity. Students should pay attention to accuracy and precision when taking measurements.

**Examples:**
- Follow written instructions for conducting scratch tests to determine the hardness of rocks or using a key to classify rocks by their physical properties.
- Follow written instructions for using pH paper to determine whether a substance is an acid or base, demonstrating proper procedures and safety precautions.

In their science logs, **have students write the steps of procedures** they are going to use in a lab investigation. Remind students to check off each step as they work through the investigation. (This is a very good habit for students to learn because in the world beyond the classroom steps in a project don’t happen in one small allotted amount of time, i.e., one class period (Deborah Wahlstrom, 2011).
**Craft and Structure**

**ELACC6-8RST4**: Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.

**L9-10RST4**: Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.

**L11-12RST4**: Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.

Students determine the meaning of words and phrases as they read science content, including text books, lab materials, and other print or electronic sources of information. They use a variety of strategies (context clues, linguistic roots and affixes, restatement, examples, contrast, glossary, etc.) to determine the meaning of words and phrases in the text. This standard specifically addresses domain-specific Tier Three words and interpreting symbols in equations or in diagrams and flow charts.

Examples:

- Read about food chains and food webs, then identify the linguistic roots and affixes to help them identify the meanings of terms related to trophic levels, such as carnivore, herbivore, omnivore, autotroph, and heterotroph.
- Determine the meaning of the direction of the arrows in the food chains and food webs, rock cycle diagrams, or water cycle diagrams.
- Determine the meaning of variables in mathematical equations, such as f=ma or the meaning of symbols in the Periodic Table of Elements.

**Common Core, Appendix A-Three Tier Vocabulary**

**Content Vocabulary Strategies**: I Could Teach That, Sticky Words, Frayer Models, Personalize It, Synectics, Word Detective, Act It Out/Vocabulary Charades, Name That Category, Talk a Mile a Minute, Definition Shmeinition

**Academic Vocabulary Strategies**: PowerPoint

**Three Tier Vocabulary Power Point**

**Three Tier Vocabulary** (Handout)

**Concept Definition Map**

**KID – Keyword – Information - Drawing**

**Probable Passage**

**Foldable Graphic Organizers**: Vocabulary Pocket Book, Foldable Frayer Books, Vocabulary Tab FGO, **Online Resources**

**Planet Literacy Vocabulary Strategies**

**LDC Argumentation Tasks** include Reading Standards 1, 2, 4, & 10

**LDC Explanatory or Informational Tasks** include Reading Standards 1, 2, 4, 6, & 10

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### Craft and Structure

**ELACC6-8RST5:** Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.

**L9-10RST5:** Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).

**L11-12RST5:** Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.

Students identify different structures within a text (headings, sub-headings, bold words, pictures, graphs, data tables, paragraphs) and explain how the visual structures support, reinforce, or provide additional information to the paragraph text.

**Examples:**
- Read a section from a textbook and analyze how structures within the text (headers, bold words, embedded definitions, graphics) help the reader understand the meaning of the text.
- Read a research article or lab report and explain the purpose for each section (abstract, materials/methods, analysis, conclusion, etc.) and why the information is organized in that format.

**Structures of Relationships**
Science is all about the structures of relationships. Examples of relationships include cycles, cause-effect, sequence, compare and contrast, problem and solution, description, hierarchy, concept maps, sketches, and identification keys. For all of the relationships, have students create and use visuals depicting the relationship and have students write corresponding summaries (Deborah Wahlstrom, 2011).

**Analyze Text Structure Strategies: PowerPoint**

**THIEVES**

**Before During and After**

**Foldable Graphic Organizers:** Multi-Tab FGO with “main idea” tab and separate tabs for sections, Six-Panel Mini Book, [Online Resources](#)

**Planet Literacy:** SCAN & RUN, SQ3R, Coding

**Column Notes**

**Cause and Effect Graphic Organizer**

**Sequence of Events Chart**

**Compare and Contract Graphic Organizer**

**Problem and Solution Graphic Organizer**
<table>
<thead>
<tr>
<th>ELACC6-8RST6: Analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.</th>
</tr>
</thead>
</table>
| **Examples:**  
- Read a science article that describes the procedure for measuring earthquakes and then analyze why the author included the procedure in the text.  
- Read a newspaper article that provides information about which constellations are visible this month; the article contains an explanation on how to identify the major constellations. Explain why the author included information on how to identify constellations in the article. |

<table>
<thead>
<tr>
<th>L9-10RST6: Analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, defining the question the author seeks to address.</th>
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</table>

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<tr>
<th>L11-12RST6: Analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.</th>
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<tbody>
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<tr>
<th>Author’s Purpose Strategies: PowerPoint</th>
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<tbody>
<tr>
<td>SOAPS</td>
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<tr>
<td>Close Reading Videos from Arizona DOE</td>
</tr>
<tr>
<td>Foldable Graphic Organizer: Shutter Fold w/ Tabs for “Text” and “Purpose” Online Resources</td>
</tr>
<tr>
<td>Planet Literacy Pre Reading: Question Wheel, Anticipation Guides, Flip Strips</td>
</tr>
<tr>
<td>Planet Literacy During Reading: Read Aloud/Think Aloud, Sticky Connections, Coding</td>
</tr>
<tr>
<td>Key Concept Synthesis</td>
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<tr>
<td>LDC Explanatory or Informational Tasks include Reading Standards 1, 2, 4, 6, &amp; 10</td>
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</tbody>
</table>
Integration of Knowledge and Ideas

<table>
<thead>
<tr>
<th>Students will use words in a text and information expressed visually to obtain information about a given topic. Sources of text could include textbooks, magazine or newspaper articles, websites, or product information or safety sheets.</th>
<th>Visual Information Strategies: PowerPoint</th>
</tr>
</thead>
</table>
| **Examples:**  
- Integrate written descriptions in a textbook with visual images of the rock cycle or water cycle.  
- Integrate written descriptions of cell structures to a labeled model of a plant or animal cell.  
- Integrate written descriptions of weather systems on a website with graphical representations of weekly weather data.  
- Integrate written descriptions in a lab journal of measured movement over time with position-time graphs. | **Foldable Graphic Organizers:** Foldable Frayer Books, 3-Tab Venn Diagram  
**Online Resources** |
| **L9-10RST7:** Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words. | **Content Vocabulary Strategies:** Frayer Models, Word Expert, Thinking Maps/Word Maps, The Matrix (Comparing Terms), Draw Me |
| **L11-12RST7:** Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem. | Graphic Organizer Templates:  
http://www.eduplace.com/graphicorganizer/  
http://www.thinkport.org/technology/template.tp  
http://www.wordle.net/  
http://www.tagxedo.com/  
Diagrammr-Convert sentences into visual diagrams.  
http://www.diagrammr.com/ |
| **Use of Charts and Diagrams in Labs/Notebooks** |  
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<table>
<thead>
<tr>
<th>ELACC6-8RST8: Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.</th>
</tr>
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<tbody>
<tr>
<td><strong>Examples:</strong></td>
</tr>
<tr>
<td>- Read a letter to the editor that proposes solutions to prevent flooding during summer rainstorms. Analyze the text to identify which claims are supported by evidence and facts in the text and which claims are based on speculation or reasoned judgment.</td>
</tr>
<tr>
<td>- Read another student’s laboratory report and analyze the text to identify which claims in the conclusion section are supported by evidence and facts and which claims are speculation, reasoned judgment, or unsupported by evidence.</td>
</tr>
<tr>
<td><strong>Facts, Reasoned Judgment &amp; Speculation Strategies: PowerPoint</strong></td>
</tr>
<tr>
<td><strong>Foldable Graphic Organizers:</strong> Three Tab, Layered or ¾ FGO with tabs for facts, judgment, and speculation</td>
</tr>
<tr>
<td><strong>Online Resources</strong></td>
</tr>
<tr>
<td><strong>Planet Literacy:</strong> Four Corners, Flip Strips, Coding</td>
</tr>
<tr>
<td><strong>Fact vs. Opinion Jeopardy Game</strong> (ES &amp; Lower MS)</td>
</tr>
</tbody>
</table>

**Integration of Knowledge and Ideas**

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### ELACC6-8RST9

Compare and contrast the information gained from experiments, simulations, video or multimedia sources with that gained from reading a text on the same topic.

### L9-10RST9

Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.

### L11-12RST9

Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

Students compare and contrast the information gained (depth and scope of content, author’s purpose, whether the source provides new information or summarizes known information, etc.) from experiments, simulations, video or multimedia sources with information gained from reading a text on the same topic.

**Examples:**
- Watch a video that shows wind and water erosion, then read text (textbook, trade book, educational website) that provides information about wind and water erosion. Compare and contrast the amount and type of information conveyed by each source and be able to explain how each helps to develop understanding of erosion.
- Perform a series of experiments that show different types of evidence of chemical reactions (precipitate, gas, color change, change in temperature). After collecting data, read text that describes different chemical reactions and the different types of evidence of the reaction. Compare and contrast the amount and type of information conveyed by the experiment to that contained in the text and explain how each source of information helps to develop understanding of chemical reactions.

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### Comparing Text Strategies: PowerPoint

- **Foldable Graphic Organizers:** Four Door or Layered FGO (Video, Labs, Experiments, & Text)
- **Online Resources**
- **Planet Literacy:** Anticipation Guide w/ follow-up,
- **Compare and Contrast Graphic Organizer**
- **Reading Stations**

---

**Range of Reading and Level of Text Complexity**

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<table>
<thead>
<tr>
<th>ELACC6-BRST10: By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.</th>
<th>Students read and comprehend text in science and technical subjects at the appropriate grade level. See Appendix B of the Common Core State Standards for text examples and sample performance tasks that would be appropriate for the grades 6-8 complexity band.</th>
</tr>
</thead>
</table>
| L9-10RST10: By the end of grade 10, read and comprehend science/technical texts in the grades 9–10 text complexity band independently and proficiently. | Text Complexity Overview  
Georgia DOE Text Complexity Rubric and Instructions  
SCAN and RUN  
SQ3R Template  
SQ3R: [http://www.edmondschools.net/Portals/0/docs/SQR3.pdf](http://www.edmondschools.net/Portals/0/docs/SQR3.pdf)  
SQ4R: [http://www.edmondschools.net/Portals/0/docs/SQ4R.pdf](http://www.edmondschools.net/Portals/0/docs/SQ4R.pdf)  
Key Concept Synthesis  
Common Core Appendix A – Description of Text Complexity [http://www.corestandards.org/assets/Appendix_A.pdf](http://www.corestandards.org/assets/Appendix_A.pdf)  
Common Core Appendix B – Example Texts & Performance Tasks: [http://www.corestandards.org/assets/Appendix_B.pdf](http://www.corestandards.org/assets/Appendix_B.pdf)  
Georgia DOE Text Complexity Rubric: [http://tinyurl.com/cupw3qu](http://tinyurl.com/cupw3qu)  
Georgia DOE Text Complexity Sample Rubrics: [https://www.georgiastandards.org/Common-Core/Pages/TextComplexityRubrics.aspx](https://www.georgiastandards.org/Common-Core/Pages/TextComplexityRubrics.aspx)  
LDC Argumentation Tasks include Reading Standards 1, 2, 4, & 10  
LDC Explanatory or Informational Tasks include Reading Standards 1, 2, 4, 6, & 10 |

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### Text Types and Purposes

**EL ACC6-8 WHST1**: Write arguments focused on *discipline-specific content*.
- Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.
- Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources.
- Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.
- Establish and maintain a formal style.
- Provide a concluding statement or section that follows from and supports the argument presented.

**L9-10 WHST1**: Write arguments focused on *discipline-specific content*.
- 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.
- Develop claim(s) and counterclaims.

**Examples**:
- Write an essay or argument explaining how Cell Theory was a major milestone in science at the time and the implications of that information on science today.
- Write a persuasive essay that forms a logical argument about the importance of habitat restoration of wetlands or reforestation of clear cut areas.
- Write an essay or argument that evaluates the impact of a major scientific development that occurred within the past decade.

### Strategies, Techniques & Resources

- **RAFT and Role Play – Writing Strategies**
- **Common Core Standards Appendix C – Student Writing Samples**
- **Text Structure Cards**
- **Sample Lesson for Writing Arguments**
- **Writing Checklist for Argumentative Paper**
- **LDC Tasks** 1-10, pgs 7-15 and **Rubrics**, pgs 16-17

**LDC Argumentation Tasks** include the following “Built in” CCGPS: Reading 1, 2, 4, 10 & Writing 1, 4, 5, 9, 10

**Task 1**: After researching ________ (informational texts) on ________ (content), write a/an ________ (essay or substitute) that argues your position on ________ (content). Support your position with evidence from your research. L2 Be sure to acknowledge competing views.

**Task 1 Science Example**: After researching technical and academic articles on the use of pesticides in agriculture, write a speech that argues your position on the use of pesticides in managing crop production. Support your position with evidence from your research. L2 Be sure to acknowledge competing views.

**Task 2 Template**: [Insert question] After reading ________ (literature or informational texts), write a/an ________ (essay or substitute) that addresses the question and support your position with evidence from the text(s). L2 Be sure
After completing an experiment that compared the motion of a steel ball on different surfaces, write a conclusion that supports or refutes the statement “Rough surfaces provide more friction than smooth surfaces” and provide evidence to support the claim with the experimentally collected data in addition to other existing research.

| Task 3 Template: After researching ______ (informational texts) on ______ (content), write a/an ______ (essay or substitute) that compares ______ (content) and argues ______ (content). Be sure to support your position with evidence from the texts. (Argumentation/Comparison) |
| Task 4 Template: [Insert question] After reading ______ (literature or informational texts), write a/an ______ (essay or substitute) that compares ______ (content) and argues ______ (content). Be sure to support your position with evidence from the texts. (Argumentation/Comparison) |
| Task 5 Template: After researching ______ (informational texts) on ______ (content), write a/an ______ (essay or substitute) that discusses ______ (content) and evaluates ______ (content). Be sure to support your position with evidence from your research. (Argumentation/Evaluation) |
| Task 6 Template: [Insert question] After reading ______ (literature or informational texts), write a/an ______ (essay or substitute) that discusses ______ (content) and evaluates ______ (content). Be sure to support your position with evidence from the texts. (Argumentation/Evaluation) |
| Task 7 Template: After researching ______ (informational texts) on ______ (content), write a/an ______ (essay or substitute) that identifies a problem ______ (content) and argues for a solution. Support your position with evidence from your research. L2 Be sure to examine competing views. L3 Give examples from past or current events or issues to illustrate and clarify your position. (Argumentation/Problem-Solution) |
| Task 8 Template: [Insert question] After reading ______ (literature or informational texts) on ______ (content), write a/an ______ (essay or substitute) that identifies a problem ______ (content) and argues for a solution ______ (content). Support your position with evidence from the text(s). L2 Be sure to examine competing view. L3 Give examples from past or current events or issues to illustrate and clarify your position. (Argumentation/Problem-Solution) |
| Task 9 Template: After researching ______ (informational texts) on ______ (content), write a/an ______ (essay or substitute) that argues the causes of |

**L11-12WHST1**: Write arguments focused on discipline-specific content.

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 the claim(s), counterclaims, reasons, and evidence.

b. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience’s knowledge level, concerns, values, and possible biases.

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.
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.

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.

Task 10 Template: [Insert question] After reading _______ (literature or informational texts) on _______ (content), write a/an _______ (essay or substitute) that argues the causes of _______ (content) and explains the effects _______ (content). What _______ (conclusions or implications) can you draw? Support your discussion with evidence from the texts. (Argumentation/Cause-Effect)
### Text Types and Purposes

**ELACC6-8WHST2**: Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

- Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.
- Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.
- Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.
- Use precise language and domain-specific vocabulary to inform about or explain the topic.
- Establish and maintain a formal style and objective tone.
- Provide a concluding statement or section that follows from and supports the information.

**L9-10WHST2**: Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

- Introduce a topic and organize ideas, concepts, and information to make important connections and

<table>
<thead>
<tr>
<th>Task 11 Template: After researching ______ informational texts) on ________ (content), write a/an ________ (essay, report, or substitute) that defines ________ (term or concept) and explains ________ (content). Support your discussion with evidence from your research. <strong>L2</strong> What ________ (conclusions or implications) can you draw? (Informational or Explanatory/Definition)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task 12 Template: [Insert question] After reading ________ (literature or informational texts), write a/an ________ (essay, report, or substitute) that defines ________ (term or concept) and explains ________ (content). Support your discussion with evidence from the text(s). <strong>L2</strong> What ________ (conclusions or implications) can you draw? (Informational or Explanatory/Definition)</td>
</tr>
<tr>
<td>Task 13 Template: After researching ________ (informational texts) on ________ (content), write a/an ________ (report or substitute) that describes ________ (content). Support your discussion with evidence from your research. (Informational or Explanatory/Description)</td>
</tr>
<tr>
<td>Task 14 Template: [Insert question] After reading ________ (literature or informational texts), write a/an ________ (essay, report, or substitute) that describes ________ (content) and addresses the question. Support your discussion with evidence from the text(s). (Informational or Explanatory/Description)</td>
</tr>
<tr>
<td>Task 15 Template: After researching ________ informational texts) on ________</td>
</tr>
</tbody>
</table>

**Sample Science Lessons and Units:**

| 7th Grade Classification-Biodiversity-Informational |

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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).

L11-12WHST2: Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

a. Introduce a topic and organize (content), write a ________ (report or substitute) that explains ________ (content). What conclusion or implications can you draw? Cite at least _____ (#) sources, pointing out key elements from each source. L2 In your discussion, address the credibility and origin of sources in view of your research topic. L3 Identify any gaps or unanswered questions. Optional: Include ________ (e.g., bibliography). (Informational or Explanatory/Analysis)

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).

Task 16 Template: [Insert question] After reading ________ (literature or informational texts) on ________ (content), write a ________ (report or substitute) that explains ________ (content). Support your discussion with evidence from the text(s). (Informational or Explanatory/Procedural-Sequential)

Task 17 Science Example: After researching ________ (informational texts) on ________ (content), developing a hypothesis, and conducting an experiment examining ________ (content), write a laboratory report that explains your procedures and results and confirms or rejects your hypothesis. What conclusion(s) can you draw? (Informational or Explanatory/Procedural-Sequential)

Task 18 Template: After researching ________ (informational texts) on ________ (content), write a ________ (report or substitute) that explains ________ (content). What conclusion or implications can you draw? Cite at least _____ (#) sources, pointing out key elements from each source. L2 In your discussion, address the credibility and origin of sources in view of your research topic. L3 Identify any gaps or unanswered questions. Optional: Include ________ (e.g., bibliography). (Informational or Explanatory/Synthesis)

Task 19 Template: [Insert question] After reading ________ (literature or informational texts), write a/an ________ (essay or substitute) that explains ________ (content). What conclusion or implications can you draw? Cite at least _____ (#) sources, pointing out key elements from each source. L2 In your discussion, address the credibility and origin of sources in view of your research topic. L3 Identify any gaps or unanswered questions. Optional: Include ________ (e.g., bibliography). (Informational or Explanatory/Synthesis)

Task 20 Template: After researching ________ (informational texts) on ________ (content), write a ________ (report or substitute) that analyzes ________ (content), providing evidence to clarify your analysis. What ________ (conclusions or implications) can you draw? L2 In your discussion, address the credibility and origin of sources in view of your research topic. L3 Identify any gaps or unanswered questions. Optional: Include ________ (e.g., bibliography). (Informational or Explanatory/Analysis)

Task 21 Template: [Insert question] After reading ________ (literature or informational texts), write a/an ________ (report, essay or substitutes) that
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.

b. 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.

c. Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.

d. Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers.

e. Provide a concluding statement or section that follows from and supports the information or explanation provided (e.g., articulating implications or the significance of the topic).

addresses the question and analyzes _______ (content), providing examples to clarify your analysis. What conclusions or implications can you draw? L2 In your discussion, address the credibility and origin of sources in view of your research topic. L3 Identify any gaps or unanswered questions. Optional: Include ________ (e.g., bibliography). (Informational or Explanatory/Analysis)

Task 22 Template: After researching _______ (informational texts) on _______ (content), write a _______ (report or substitute) that compares _______ (content). L2 In your discussion, address the credibility and origin of sources in view of your research topic. L3 Identify any gaps or unanswered questions. (Informational or Explanatory/Comparison)

Task 23 Template: [Insert question] After reading _______ (literature or informational texts), write a/an _______ (essay, report, or substitute) that compares _______ (content). L2 In your discussion, address the credibility and origin of sources in view of your research topic. L3 Identify any gaps or unanswered questions. (Informational or Explanatory/Comparison)

Task 24 Template: After researching _______ (informational texts) on _______ (content), write a _______ (report or substitute) that examines causes of _______ (content) and explains effects _______ (content). What conclusions or implications can you draw? Support your discussion with evidence from your research. (Informational or Explanatory/Cause-Effect)
### Production and Distribution of Writing

**6-8, 9-10, & 11-12 WHST3.** (See note; not applicable as a separate requirement)

**Note:** Students’ narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In history/social studies, students must be able to incorporate narrative accounts into their analyses of individuals or events of historical import. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.

**Examples:**
- As part of a lab report, write a step-by-step procedure showing safe and correct use of a microscope or balance.
- As part of a challenge, design and test model cars with the goal of trying to get the car to go down a ramp and then travel the longest distance. Write a technical report that includes appropriate displays of the test data, descriptions and/or illustrations of the car design, and explanations of how preliminary test data was used to refine the car design.

| ELACC6-8WHST4: | Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. |
| L9-10WHST4: | Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. |
| L11-12WHST4: | Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. |

**Examples:**
- Write a lab report based on an activity aligned to the grade level Science Standard. In the report, include procedures, tables, graphs, charts, and/or diagrams that communicate the purpose, results, and conclusions of the research.
- Write a letter to the head of a governmental agency or a company, comparing solutions that best address possible solutions for the environmental risks in biological or geological systems.

**Text Structure Cards**

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### Production and Distribution of Writing

| ELACC6-8WHST5: Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently. | Students develop and strengthen their writing through the writing process with a focus on purpose and audience. Writing in science utilizes an academic voice and is mostly non-fiction and formal. At this level of the writing process students can use peers and adults to provide feedback on drafts of their writing. The writing process and peer/adult review of drafts can be used for any and all writing assignments within the science classroom. | LDC Argumentation Tasks include the following “Built in” CCGPS: Reading 1, 2, 4, 10 & Writing 1, 4, 5, 9, 10
LDC Informational or Explanatory Tasks include the following “Built In” standards: Reading 1, 2, 4, 6, 10 and Writing 2, 4, 5, 9, 10
Self and Peer Editing Template
Google Docs (for peer editing and collaboration) |
| L9-10WHST6: Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology’s capacity to link to other information and to display information flexibly and dynamically. | This standard requires the use of technology (Internet, keyboarding skills, formatting, storing) to create a published piece wherein information and ideas are connected and presented clearly and efficiently. **Example:**
- Use technology to create and publish any writing assignment aligned to the grade level Arizona Science Standard. The written product could be shared on a school or classroom website, blog, or discussion board. | 10 Sites for Creating Digital Magazines and Newspapers
25 Interactive Writing Tools:
http://www.squidoo.com/multimediamuse#module19536762
Voice Thread – Digital Storytelling
http://voicethread.com/
Dipity – Create timelines before you write
http://www.dipity.com/
Glogster Article:
http://twowritingteachers.wordpress.com/2010/08/31/glogster/
Glogster: http://www.glogster.com/
ReadWriteThink: http://www.readwritethink.org/
Young Writer’s Workshop – University of VA
http://fusion.web.virginia.edu/yww/writing.cfm |
### Research to Build and Present Knowledge

<table>
<thead>
<tr>
<th>ELACC6-8WHST7: Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.</th>
<th>Students conduct short (1-2 lab periods) research projects or experimental investigations meant to answer a question or solve a problem. Students answer questions - including those they create themselves - through research (online, library, laboratory investigations), to solve a problem. They will use and combine information from multiple sources to construct their claims, evidence, and explanations.</th>
<th>Conducting Short Research Projects: <a href="http://learni.st/users/60/boards/1903-conducting-short-research-projects">http://learni.st/users/60/boards/1903-conducting-short-research-projects</a></th>
</tr>
</thead>
</table>
| L9-10WHST7: 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. | Examples:  
- Generate questions about the migration behavior of hummingbirds or monarch butterflies (migration paths, time of year, duration) and then test the question experimentally or by researching published data.  
- Following the study of plate boundary movements, formulate a question about how or when a particular landform formed and conduct research using a variety of print and digital resources to make a claim that answers the question; support that claim with evidence gathered during research. | Basic Steps in the Research Process: [http://www.crlsresearchguide.org/](http://www.crlsresearchguide.org/) |
| L11-12WHST7: 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. | Text Structure Cards |  |

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| ELACC6-8WHST8: Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. | Students gather relevant information from a variety of credible print and digital sources (e.g., encyclopedias, Internet websites, experts, journal articles, magazine articles, textbooks). Students will then use quotations correctly and/or paraphrase information to avoid plagiarism. Citations will be in a standard recognized format (e.g., MLA) in both the text and the bibliography. | Internet Searches (PowerPoint)  
Criteria for Determining Website Credibility:  
http://mason.gmu.edu/~montecin/web-eval-sites.htm  
Determining the Credibility of Sources:  
http://www.abacon.com/twt/cred.html |
| L9-10WHST8: Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation. | Example:  
• Following a class discussion about weather-related natural disasters, find information about how people plan for and/or respond to tornadoes or flooding. Use multiple sources and include appropriate quotations and paraphrasing. |
| L11-12WHST8: Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation. |  |  |

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| ELACC-8WHST9: Draw evidence from informational texts to support analysis, reflection, and research. |
| L9-10WHST9: Draw evidence from informational texts to support analysis, reflection, and research. |
| L11-12WHST9: Draw evidence from informational texts to support analysis, reflection, and research. |

Students use evidence from informational texts (e.g., research papers, credible web sites, journal articles, textbooks) to support their claims, analyses, reflections, and/or research.

**Example:**

- Following a lab aligned to the grade level Science Standard, make a research claim and then find supporting evidence or scientific principles that support the claim. These additional sources can either be teacher provided or student researched.

**LDC Argumentation Tasks** include the following “Built in” CCGPS: Reading 1, 2, 4, 10 & Writing 1, 4, 5, 9, 10

**LDC Informational or Explanatory Tasks** include the following “Built In” standards: Reading 1, 2, 4, 6, 10 and Writing 2, 4, 5, 9, 10

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<table>
<thead>
<tr>
<th>Range of Writing</th>
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<tbody>
<tr>
<td><strong>ELACC6-8WHST10</strong>: Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</td>
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<tr>
<td><strong>L9-10WHST10</strong>: Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</td>
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<tr>
<td><strong>L11-12WHST10</strong>: Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</td>
</tr>
<tr>
<td>Students should be given multiple opportunities to write about a wide range of science topics aligned to their grade level Science Standard. Writing assignments should be of varying lengths (e.g., one paragraph responses, multiple paragraph essays, research projects).</td>
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<tr>
<td><strong>Examples</strong>:</td>
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<tr>
<td>- Write short explanations of tables or graphs to demonstrate understanding of the displayed data (population graphs, geological timelines, data tables, velocity-time graphs).</td>
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<tr>
<td>- Write short explanations of diagrams or images to demonstrate understanding of the illustration (cell models, diagrams of animal digestive or circulatory systems, food webs, rock cycle, models of Earth’s structures).</td>
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<tr>
<td>- Use reflective journaling as a concluding activity on any topic in a science classroom.</td>
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<td>- Write a letter to the editor of a paper or magazine critiquing the accuracy, reliability, or validity of a published science article.</td>
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<tr>
<td>- Write a research paper or laboratory report about a relevant topic over an extended time period.</td>
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</table>

**LDC Argumentation Tasks** include the following “Built in” CCGPS: Reading 1, 2, 4, 10 & Writing 1, 4, 5, 9, 10

**LDC Informational or Explanatory Tasks** include the following “Built In” standards: Reading 1, 2, 4, 6, 10 and Writing 2, 4, 5, 9, 10

**Text Structure Cards**
Additional Resources

http://literacyccgps.wikispaces.com/
Vertical Alignment of Elementary and Middle School Common Core Science Literacy Standards
K-12 Science Literacy Alignment
Vertical Alignment of Middle and High School Common Core Science Literacy Standards
Common Core Shifts
PARCC Sample Assessments

Websites

Dissecting Science Literacy Standards
Contents samples lessons and ideas for integrating the CCGPS into biology.
http://www.naturalinquirer.org/
The Natural Inquirer is a FREE middle school science education journal that contains real research conducted by scientists in the USDA Forest Service.
http://www.sciencenewsforkids.org/?gclid=CILQhK_I7rECFQ-c7Qod_WsABA
The name says it all, “Science News for Kids.” You can save and download articles as PDF files!
http://www.bbc.co.uk/news/science_and_environment/
Current science news articles. Short in length, but high in quality.
http://earthsky.org/
Wonderful images, great articles, and featured scientists. All about, you guessed it, the earth and sky.
http://www.pbs.org/wgbh/nova/sciencenow/
New articles, simulations, and more.
http://nsdl.org/browse/collections
NSDL has links to a wealth of sites that contain text, lessons, simulations, etc...
http://www.popsci.com/interstitial-ad/ad?destination=node&duration=10
Popular Science online – robots, mechanics, inventions, cutting edge technology – read all about it
http://www.nationalgeographic.com/
Probably even more wonderful than the printed version. Use it!
http://www.nature.com/nature/index.html
International weekly journal of science. Always current, very interesting.
http://www.scientificamerican.com/
Current scientific news that covers a range of topics.
Part of the CCGPS Science Literacy Standards require students to compare information from different resources, including videos. Discovery has wonderful, up to date science videos.

The Journal of Emerging Investigators is an open-access journal that publishes original research written by middle and high school students in biological and physical science.

Science magazine for students, published several times per year.

DON’T FORGET ABOUT GALILEO!!! It’s probably your best source of quality science content.
### Integrated Science Units

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### Integrated Technical Subjects Units

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