

## Literacy in Science and Technical Subjects Common Core State Standards Disaggregated Template

<b>Strand:</b>	Reading for Literacy in Science and Technical Subjects	<b>Anchor Standard:</b>	Key Ideas and Details	<b>Grade level:</b>	9-10
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Number Sequence & Standard	Correlating ELA Standard
9-10.RST.1 Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.	9-10.RI.1 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

Student Friendly Language:
<p>I can understand the information in the text.</p> <p>I can analyze what the text is saying.</p> <p>I can draw deeper meaning from the text.</p> <p>I can share evidence found in the text.</p> <p>I can find specific examples in the text to support my analysis of the text.</p>

Know (Factual)	Understand (Conceptual) The students understand that:	Do (Procedural, Application, Extended Thinking)
<p>* Process of analyzing text for evidence</p> <p>* How to cite appropriate information from the text</p> <p>*How to draw scientific conclusions</p>	<p>The author supports his/her ideas with explicit evidence.</p> <p>Inferences can be drawn through text analysis.</p> <p>The makeup of the audience can affect descriptions and explanations</p>	<p>Analyze for deeper meaning in text.</p> <p>Support conclusions created in the analysis by citing text.</p> <p>Draw inferences from the text.</p> <p>Support evidence gathered from the essential ideas of the text.</p> <p>Cite appropriate text support for hypotheses and conclusions.</p> <p>Differentiate between strong and weak textual support.</p> <p>Develop scientific conclusions about theories in a text.</p>

**Key Vocabulary:**

Inferences  
explicit  
analyze  
cite  
textual  
analysis  
evidence

**Relevance and Applications:** How might the grade level expectation be applied at home, on the job or in a real-world, relevant context? Include at least one example stem for the conversation with students to answer the question “why do I have to learn this”?

Informed citizens search the media independently for meaningful and reflective discussions.

In order to successfully navigate the wide range of available information, students need to analyze and draw inferences from text such as newspapers, book reviews, letters and editorials.

Students need to cite examples from text to support their analyses and inferences drawn from text.

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Number Sequence & Standard	Correlating ELA Standard
9-10.RST.2 Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.	9-10.RI.2 Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.

Student Friendly Language:
<p>I can determine and express the main idea of the text.</p> <p>I can explain how a process, phenomenon, or concept is developed from the beginning to the end of the text.</p> <p>I can accurately summarize the text without giving my own opinion.</p>

Know (Factual)	Understand (Conceptual) The students will understand that:	Do Procedural, Application, Extended Thinking)
<ul style="list-style-type: none"> <li>• Objective summary</li> <li>• Recognition of specific detail</li> <li>• Development of a concept from beginning to end</li> </ul>	<p>Texts contain central ideas that change and develop.</p> <p>Ideas can be summarized without bias.</p> <p>The choice of style influences the development of the central idea.</p>	<p>Determine the central ideas of a text.</p> <p>Select evidence from text to support the central idea.</p> <p>Categorize specific details.</p> <p>Summarize text objectively.</p> <p>Trace a process, phenomenon, or concept from beginning to end, citing support from the text.</p>

Key Vocabulary:
objective, determine, central idea, summarize, analyze, refine, evidence, complex process, phenomenon, concept
Relevance and Applications: How might the grade level expectation be applied at home, on the job or in a real-world, relevant context? Include at least one example stem for the conversation with students to answer the question "why do I have to learn this"?
<p>In a real-world situation, a person might analyze nutritional value of the food served or analyze the health benefits of a product in order to relay this information to others. Mastery of this standard will help learners to follow steps necessary to construct complex machines or objects or to operate various technological equipment.</p> <p>This type of reading contributes to the process of becoming a life-long learner.</p>

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Number Sequence & Standard	Correlating ELA Standard
9-10.RST.3 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.	9-10.RI.3 Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.

Student Friendly Language:
<p>I can figure out how the author introduces ideas.</p> <p>I can explain how the author lays out the order of events to make his or her point.</p> <p>I can figure out how the author introduces ideas.</p> <p>I can evaluate the effectiveness of the author's choice of details. and the order in which the details are presented.</p> <p>I can explain how details are connected.</p> <p>I can follow a complex multistep procedure as described in the text.</p> <p>I can follow the procedure and make exceptions to the directions to fit special exceptions as explained in the text.</p>

Know (Factual)	Understand (Conceptual) The students will understand that:	Do (Procedural, Application, Extended Thinking)
<ul style="list-style-type: none"> <li>• Methods of framing a text</li> <li>• Methods of organization of a text</li> </ul>	<p>The author has purpose in arranging and connecting the details in a text.</p> <p>Proficient learners can/will precisely follow complex multistep procedures when performing various tasks.</p>	<p>Explain how the author's ideas are connected.</p> <p>Analyze how an author links ideas in a series.</p> <p>Demonstrate understanding of how the introduction of events or ideas can develop purpose throughout the text.</p> <p>Follow multistep procedures.</p> <p>Identify details that will cause a change in how procedures are followed.</p>

**Key Vocabulary:**

Analyze, unfold, sequence, connections, procedure, technical tasks

**Relevance and Applications:** How might the grade level expectation be applied at home, on the job or in a real-world, relevant context? Include at least one example stem for the conversation with students to answer the question “why do I have to learn this”?

Understanding the concept of cause and effect will help with any aspect of life. For example, a critical reader can see through the author’s intentions to more clearly understand an issue. Being able to follow procedures/directions and being able to identify details that may cause a change in how procedures are followed is an everyday life skill; i.e. cooking substitutions, taking medication, completing forms, etc.

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Number Sequence & Standard	Correlating ELA Standard
9-10.RST.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.	9-10.RI.4 Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper.)

Student Friendly Language:
<p>I can explain the meaning of words, phrases, and symbols I find in texts using context clues.</p> <p>I can determine the meaning of language specific to the topic</p> <p>I can identify and use scientific or technical language related to the topic.</p> <p>I can analyze why the author chose the words he/she did.</p> <p>I can examine how the combination of words used in a text establishes the tone for that text.</p>

Know (Factual)	Understand (Conceptual) Students will understand that:	Do (Procedural, Application, Extended Thinking)
<ul style="list-style-type: none"> <li>• Context clues</li> <li>• How to determine word meanings in context</li> <li>• The impact of scientific or technical language in a text</li> <li>• Literal meaning</li> <li>• Technical meaning</li> <li>• How to determine the difference between connotative and technical meanings</li> <li>• Tone</li> <li>• Technical meanings of words can influence texts.</li> </ul>	<p>Writers of science and technical texts make purposeful choices to achieve an intended effect within informational texts.</p> <p>Knowing scientific or technical definitions enhances a reader's understanding of the text.</p> <p>Author's word choice affects meaning and tone of text.</p> <p>Readers of science and technical texts actively seek the meaning of unknown words to deepen their understanding of informational texts.</p>	<p>Read and reread sentences, words, tables, diagrams, and graphs to identify context clues to help unlock the meaning of unknown words/phrases.</p> <p>Determine the meaning of words based on context.</p> <p>Identify and use scientific language.</p> <p>Determine how an author uses words to convey meaning.</p> <p>Analyze how word choice affects tone.</p> <p>Compare technical meanings to connotative meanings.</p> <p>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.</p>

**Key Vocabulary:**

Context clues	connotation	technical meaning
literal meaning	viewpoint	analyze
tone		

**Relevance and Applications:** How might the grade level expectation be applied at home, on the job or in a real-world, relevant context? Include at least one example stem for the conversation with students to answer the question “why do I have to learn this”?

Critical reading is required for students to analyze the impact of word choice on an author’s message.

Understanding the underlying meaning of words and phrases in a scientific or technical text can increase meaning and credibility of the topic.

Negative consequences can result if a reader does not understand words or misinterprets tone.

Students need to understand the meanings of domain-specific words related to their discipline to eliminate miscommunication, to make educated decisions, to be successful in a career or in post-secondary education, to be productive citizens, and simply to enjoy reading.

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Number Sequence & Standard	Correlating ELA Standard
9-10.RST.5 Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).	9-10.RI.5 Analyze in detail how an author’s ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).

Student Friendly Language:
<p>I can analyze a topic sentence to determine the author’s main idea of a paragraph.</p> <p>I can identify supporting details in a given paragraph.</p> <p>I can identify the author’s organizational patterns.</p> <p>I can analyze the purpose of one paragraph and how it relates to the text as a whole.</p> <p>I can provide evidence of the author’s claim and/or ideas in the text.</p>

Know (Factual)	Understand (Conceptual) Students will understand that...	Do (Procedural, Application, Extended Thinking)
<ul style="list-style-type: none"> <li>● Informational text (both literary nonfiction and expository/ technical texts)</li> <li>● How to analyze</li> <li>● Text Structures</li> <li>● Patterns of organization</li> <li>● Ideas and claims</li> </ul>	<p>Context clues shape vocabulary.</p> <p>Supporting evidence used in a text proves the thesis or hypothesis of the text.</p> <p>Paragraph construction is based upon the organization of the evidence in a text.</p> <p>Arrangement of the text can help to shape the author’s purpose.</p> <p>The author’s purpose reflects the credibility of the author.</p>	<p>Analyze thesis statement/claim/hypothesis.</p> <p>Use contextual evidence to prove understanding.</p> <p>Differentiate topic sentences from supporting details within a text.</p> <p>Describe the relationship between text organization and development of ideas and claims.</p> <p>Analyze all data as to its specific relevance.</p> <p>Evaluate ideas presented by the author to reach your own conclusions.</p> <p>Analyze how an author’s ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text.</p>

**Key Vocabulary:**

analyze	describe	argumentation	arrangement	jargon
contextual evidence	dichotomy	sentence types	point of view	
narrative voice	transition	charge words		

**Relevance and Applications:** How might the grade level expectation be applied at home, on the job or in a real-world, relevant context? Include at least one example stem for the conversation with students to answer the question “why do I have to learn this”?

Students need to be able to analyze an author’s claim and ideas in order to form their own opinions about the topic and to become critical thinkers (e.g., deciding which college to attend, being a consumer, analyzing manuals, being an informed citizen, voting.)

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Number Sequence & Standard	Correlating ELA Standard
9-10.RST.6 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.	9-10.RI.6 Determine an author’s point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose.

<b>Student Friendly Language:</b>
<p>I can identify evidence in the text to determine an author’s point of view or purpose within a text.</p> <p>I can analyze how the author uses persuasive techniques to develop that point of view or purpose.</p> <p>I can give evidence to support my analysis.</p> <p>I can do a close reading of a text that focuses on key details that advances point of view or purpose.</p> <p>I can do a close reading of a text that defines the questions the author seeks to address.</p>

<b>Know (Factual)</b>	<b>Understand (Conceptual) Students will understand that:</b>	<b>Do (Procedural, Application, Extended Thinking)</b>
<ul style="list-style-type: none"> <li>● Point of view</li> <li>● Purpose</li> <li>● Rhetoric</li> <li>● Analysis</li> <li>● Persuasive appeals</li> <li>● Audience</li> <li>● Style</li> <li>● Context</li> <li>● Annotate</li> <li>● Close reading</li> </ul>	<p>Every author has a purpose and point of view.</p> <p>Every piece of the text contributes to the whole.</p> <p>Authors can use many techniques to persuade an audience.</p> <p>Interpretation is subjective.</p> <p>Rhetoric refers to the use of language to further the argument.</p>	<p>Annotate a text focusing on rhetorical devices as applicable to an author’s purpose/point of view.</p> <p>Analyze an informational text for rhetorical devices.</p> <p>Determine an author’s point of view or purpose in a text.</p> <p>Critique the author’s use of rhetoric to advance his/her point of view or purpose.</p> <p>Define the questions the author seeks to address.</p>

**Key Vocabulary:**

ethos	pathos	logos	persuasiveness	argumentation
contradiction	counterargument	concession	refutation	controversial
subjective	objective	fallacies	provocative	claim and premise
bias	credibility	evidence	organizational structure	annotation (close reading)
semantics	critique	historical context	perspective	social norms
propaganda				

**Relevance and Applications:** How might the grade level expectation be applied at home, on the job or in a real-world, relevant context? Include at least one example stem for the conversation with students to answer the question “why do I have to learn this”?

It is important to understand differing perspectives and points of view in order to relate to many different types of people on many different levels. Good interpersonal skills are necessary to work effectively in social situations, i.e. the workplace.

Being able to use meaningful language allows an individual to communicate more effectively in diverse situations

Various media give information on political issues. Students must recognize the point of view and purpose in order to make educated judgments about using the information.

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Number Sequence & Standard	Correlating ELA Standard
9-10.RST.7 Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.	9-10.RI.7 Analyze various accounts of a subject told in different mediums (e.g., a person's life story in both print and multimedia), determining which details are emphasized in each account.

Student Friendly Language:
<p>I can find different accounts of a subject across a variety of sources.</p> <p>I can understand the differences in how the topic is presented.</p> <p>I can recognize which details are important for each account.</p> <p>I can explain how each form or representation emphasizes different aspects of the topic.</p> <p>I can translate a table, chart, or equation into words.</p>

Know (Factual)	Understand (Conceptual) The students will understand that:	Do (Procedural, Application, Extended Thinking)
<ul style="list-style-type: none"> <li>● Compare and contrast various accounts of a subject.</li> <li>● Primary source</li> <li>● Secondary source</li> <li>● Point of view from various mediums</li> <li>● Quantitative/Technical analysis (numbers, data, statistics)</li> <li>● Qualitative analysis (human behavior, reasons, non-numerical)</li> </ul>	<p>Creators and presenters of written and visual text choose details to present a particular topic or idea.</p> <p>The manner in which details are presented reflects their relative importance.</p> <p>The choice of medium affects what details can be emphasized.</p>	<p>Examine details in different accounts of a subject.</p> <p>Compare the relative importance of details presented in different accounts.</p> <p>Analyze the effect different sources have in regards to an author's/artist's choice of details.</p> <p>Translate textual information into visual representation.</p> <p>Translate visual representation into textual information.</p>

**Key Vocabulary:**

bias	quantitative
subjective	qualitative
objective	
accounts	

**Relevance and Applications:** How might the grade level expectation be applied at home, on the job or in a real-world, relevant context? Include at least one example stem for the conversation with students to answer the question “why do I have to learn this”?

Being able to understand how different details affect the understanding of a message is critical to effective communication. Understanding that authors and artists present accounts from differing perspectives is a key factor in being able to consume and respond to different media sources. Being able to identify the details through a closer examination of multiple accounts will lead to a deeper understanding of a subject. If ever on a jury, it will be important to analyze various witness accounts to understand the complete picture.

Researchers/scientists must present their findings in both textual and graphical form. As consumers of information, we need to understand both forms. As presenters of information, we must be able to provide the information in both forms based on our audiences and their needs.

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Number Sequence & Standard	Correlating ELA Standard
9-10.RST.8 Assess the extent to which the reasoning and evidence in a text support the author's claim or a recommendation for solving a scientific or technical problem.	9-10.RI.8 Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.

<b>Student Friendly Language:</b>
<p>I can outline the argument the author makes.</p> <p>I can evaluate whether the author's support is reliable.</p> <p>I can evaluate whether the author's evidence is valid.</p> <p>I can identify whether the author uses misleading information.</p> <p>I can evaluate an author's argument.</p>

<b>Know (Factual)</b>	<b>Understand (Conceptual) The students will understand that:</b>	<b>Do (Procedural, Application, Extended Thinking)</b>
<ul style="list-style-type: none"> <li>● Logical fallacies</li> <li>● Structure of an argument</li> <li>● Source evaluation (e.g. web evaluation)</li> <li>● Primary and secondary sources</li> <li>● Delineate</li> <li>● How to delineate an author's argument and specific claims</li> <li>● Fact/opinion</li> <li>● Relevant vs. irrelevant details</li> </ul>	<p>Claims can be valid or invalid.</p> <p>An author needs to use relevant information to support his/her claims.</p> <p>Some authors will use faulty reasoning and information.</p> <p>Proficient readers evaluate the reasons and evidence that authors use to support their arguments and specific claims in informational text(s).</p>	<p>Assess validity of the author's reasoning</p> <p>Evaluate evidence in reference to the claim</p> <p>Analyze statements for fallacious reasoning</p> <p>Evaluate the development of the author's argument</p> <p>Differentiate between valid and invalid claims</p>

<b>Key Vocabulary:</b>								
<table style="width: 100%; border: none;"> <tr> <td style="width: 25%;">relevant</td> <td style="width: 25%;">sufficient</td> <td style="width: 25%;">fallacious</td> <td style="width: 25%;">delineate</td> </tr> <tr> <td>valid/invalid</td> <td>assess</td> <td>evaluate</td> <td>relevant/irrelevant</td> </tr> </table>	relevant	sufficient	fallacious	delineate	valid/invalid	assess	evaluate	relevant/irrelevant
relevant	sufficient	fallacious	delineate					
valid/invalid	assess	evaluate	relevant/irrelevant					
<p><b>Relevance and Applications:</b> How might the grade level expectation be applied at home, on the job or in a real-world, relevant context? Include at least one example stem for the conversation with students to answer the question "why do I have to learn this"?</p>								
<p>An understanding of the standard will help students recognize the validity of information in their daily lives (e.g. media, gossip, etc.). Students will improve their ability to support their own argument and the ability to recognize faulty logic. It will help evaluate a colleague, employer, or client's arguments.</p>								

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Number Sequence & Standard	Correlating Standard in Previous Year
9-10.RST.9 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.	9-10.RI.9 Analyze seminal US documents of historical and literary significance (e.g., Washington’s Farewell Address, the Gettysburg Address, Roosevelt’s Four Freedom speech, King’s “Letter from Birmingham Jail”), including how they address related themes and concepts.

Student Friendly Language:
<p>I can make connections among several scientific and technological documents.</p> <p>I can communicate the important lessons learned from American documents and texts.</p> <p>I can evaluate the impact of the document on our scientific community.</p> <p>I can predict how this document will shape or influence other relevant documents.</p> <p>I can connect the written word of the document and actions taken in real life.</p>

Know (Factual)	Understand (Conceptual) The students will understand that:	Do (Procedural, Application, Extended Thinking)
<ul style="list-style-type: none"> <li>● Scientific and technical information within the particular document</li> <li>● Theme as a central idea of a work</li> <li>● Time-relevant verbiage and vocabulary such as “fourscore and seven...”</li> <li>● Purpose of the document at the time of its composition</li> <li>● Significance of a document</li> <li>● Theme, tone, mood, point of view, purpose of a specific US document</li> <li>● Fact vs. interpretation</li> </ul>	<p>Scientific documents can exhibit rhetorical devices.</p> <p>Documents show connections between the wording within the document and real life intentions.</p> <p>Documents shape the outcome of future as well as the time of the original writing.</p> <p>Documents are written to convey messages of insight and understanding.</p> <p>Common themes can be found across documents from varying topics and research.</p> <p>Proficient readers consult a variety of sources when investigating a topic or an event.</p>	<p>Compare and contrast thematic and conceptual connections among several documents.</p> <p>Formulate predictions based on the information noted in document.</p> <p>Evaluate scientific/technical significance of document.</p> <p>Identify a theme(s) for the document.</p> <p>Break down the document and paraphrase.</p> <p>Plan and execute experiments when necessary, noting when the findings support or contradict previous explanations or accounts.</p>

**Key Vocabulary:**

seminal  
address  
contradict  
rhetorical devices

theme and concept  
document

historical and literary significance  
analyze

**Relevance and Applications:** How might the grade level expectation be applied at home, on the job or in a real-world, relevant context? Include at least one example stem for the conversation with students to answer the question “why do I have to learn this”?

By reading and understanding scientific and technical documents, students can better see the relevance to an era and to the real world along with its impact in our current life and future generations. Students will carry on intellectual conversations about this. Understanding the theme and outcomes of particular studies may help the future generations progress instead of regress. Being able to identify and evaluate contradictory findings from multiple sources, will assist students in the critical thinking process and lead to them making more informed decisions.