**Science and Technical Subjects**

**Grade 9-12**

**Anchor Standards for Reading**

**Key Ideas and Details**

NJSLSA.R1. Read closely to determine what the text says explicitly and to make logical inferences and relevant connections from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

NJSLSA.R2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.

NJSLSA.R3. Analyze how and why individuals, events, and ideas develop and interact over the course of a text.

**Craft and Structure**

NJSLSA.R4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.

NJSLSA.R5. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.

NJSLSA.R6. Assess how point of view or purpose shapes the content and style of a text.

**Integration of Knowledge and Ideas**

NJSLSA.R7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.

NJSLSA.R8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.

NJSLSA.R9. Analyze and reflect on how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

NJSLSA.R10. Read and comprehend complex literary and informational texts independently and proficiently with scaffolding as needed.

## Note on range and content of student reading

To become college and career ready, students must grapple with works of exceptional craft and thought whose range extends across genres, cultures, and centuries. Such works offer profound insights into the human condition and serve as models for students’ own thinking and writing. Along with high-quality contemporary works, these texts should be chosen from among seminal U.S. documents, the classics of American literature, and the timeless dramas of Shakespeare. Through wide and deep reading of literature and literary nonfiction of steadily increasing sophistication, students gain a reservoir of literary and cultural knowledge, references, and images; the ability to evaluate intricate arguments; and the capacity to surmount the challenges posed by complex texts.

**Grades 9-10**

**Progress Indicators Reading Science and Technical Subjects**

**Key Ideas and Details**

RST.9-10.1. Accurately cite strong and thorough evidence from the text to support analysis of science and technical texts, attending to precise details for explanations or descriptions.

RST.9-10.2. Determine the central ideas, themes, 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.



[RST.9-10.3](http://www.corestandards.org/ELA-Literacy/RST/9-10/3/). 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.

**Craft and Structure**

[RST.9-10.4](http://www.corestandards.org/ELA-Literacy/RST/9-10/4/). 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*.

RST.9-10.5. Analyze the relationships among concepts in a text, including relationships among key terms (e.g., *force, friction, reaction force, energy*).

RST.9-10.6. Determine 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.

**Integration of Knowledge and Ideas**

[RST.9-10.7](http://www.corestandards.org/ELA-Literacy/RST/9-10/7/). 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.

RST.9-10.8. Determine if the reasoning and evidence in a text support the author’s claim or a recommendation for solving a scientific or technical problem.



[RST.9-10.9](http://www.corestandards.org/ELA-Literacy/RST/9-10/9/). 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.

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

[RST.9-10.10](http://www.corestandards.org/ELA-Literacy/RST/9-10/10/). By the end of grade 10, read and comprehend science/technical texts in the grades 9-10 text complexity band independently and proficiently.

**Grades 11-12**

**Progress Indicators for Reading Science and Technical Subjects**

The standards below begin at grade 6; standards for K-5 reading in history/social studies, science, and technical subjects are integrated into the K-5 Reading standards. The anchor standards and high school standards in literacy work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.

**Key Ideas and Details**

RST.11-12.1. Accurately cite strong and thorough evidence from the text to support analysis of science and technical texts, attending to precise details for explanations or descriptions.

RST.11-12.2. Determine the central ideas, themes, or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.



[RST.11-12.3](http://www.corestandards.org/ELA-Literacy/RST/11-12/3/). 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.

**Craft and Structure**

[RST.11-12.4](http://www.corestandards.org/ELA-Literacy/RST/11-12/4/). 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 11-12 texts and topics*.

[RST.11-12.5](http://www.corestandards.org/ELA-Literacy/RST/11-12/5/). Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.

[RST.11-12.6](http://www.corestandards.org/ELA-Literacy/RST/11-12/6/). 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.

**Integration of Knowledge and Ideas**

[RST.11-12.7](http://www.corestandards.org/ELA-Literacy/RST/11-12/7/). 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.

[RST.11-12.8](http://www.corestandards.org/ELA-Literacy/RST/11-12/8/). Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.



[RST.11-12.9](http://www.corestandards.org/ELA-Literacy/RST/11-12/9/). 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.

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

[RST.11-12.10](http://www.corestandards.org/ELA-Literacy/RST/11-12/10/). By the end of grade 12, read and comprehend science/technical texts in the grades 11-CCR text complexity band independently and proficiently.

**Anchor Standards for Writing**

**Text Types and Purposes**

NJSLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

NJSLSA.W2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.

NJSLSA.W3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.

**Production and Distribution of Writing**

NJSLSA.W4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

NJSLSA.W5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.

NJSLSA.W6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.

**Research to Build and Present Knowledge**

NJSLSA.W7. Conduct short as well as more sustained research projects, utilizing an inquiry-based research process, based on focused questions, demonstrating understanding of the subject under investigation.

NJSLSA.W8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.

NJSLSA.W9. Draw evidence from literary or informational texts to support analysis, reflection, and research.

**Range of Writing**

NJSLSA.W10. 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.

## Note on range and content in student writing

To build a foundation for college and career readiness, students need to learn to use writing as a way of offering and supporting opinions, demonstrating understanding of the subjects they are studying, and conveying real and imagined experiences and events. They learn to appreciate that a key purpose of writing is to communicate clearly to an external, sometimes unfamiliar audience, and they begin to adapt the form and content of their writing to accomplish a particular task and purpose. They develop the capacity to build knowledge on a subject through research projects and to respond analytically to literary and informational sources. To meet these goals, students must devote significant time and effort to writing, producing numerous pieces over short and extended time frames throughout the year.

**Grades 9-10**

#### Progress Indicators for Writing History, Science and Technical Subjects

The standards below begin at grade 6; standards for K-5 writing in history/social studies, science, and technical subjects are integrated into the K-5 Writing standards. The CCR anchor standards and high school standards in literacy work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.

#### Text Types and Purposes

WHST.9-10.1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant sufficient textual and non-textual evidence.

1. 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.
2. Develop claim(s) and counterclaims using sound reasoning, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience’s knowledge level and concerns.
3. Use transitions (e.g. words, phrases, 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.
4. Establish and maintain a style and tone appropriate to the audience and purpose (e.g. formal and objective for academic writing) while attending to the norms and conventions of the discipline in which they are writing.
5. Provide a concluding paragraph or section that supports the argument presented.

WHST.9-10.2. **Write informative/explanatory texts**, including **the narration** of historical events, **scientific procedures/ experiments**, or **technical processes**.

1. Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
2. 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.
3. Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts.
4. 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.
5. Establish and maintain a style and tone appropriate to the audience and purpose (e.g. formal and objective for academic writing) while attending to the norms and conventions of the discipline in which they are writing.
6. Provide a concluding paragraph or section that supports the argument presented.

[WHST.9-10.3](http://www.corestandards.org/ELA-Literacy/WHST/9-10/3/)
(See note; not applicable as a separate requirement)

#### Production and Distribution of Writing

[WHST.9-10.4](http://www.corestandards.org/ELA-Literacy/WHST/9-10/4/). Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

[WHST.9-10.5](http://www.corestandards.org/ELA-Literacy/WHST/9-10/5/). Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

WHST.9-10.6. Use technology, including the Internet, to produce, share, and update writing products, taking advantage of technology’s capacity to link to other information and to display information flexibly and dynamically.

#### Research to Build and Present Knowledge

[WHST.9-10.7](http://www.corestandards.org/ELA-Literacy/WHST/9-10/7/). Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

[WHST.9-10.8](http://www.corestandards.org/ELA-Literacy/WHST/9-10/8/). 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.

[WHST.9-10.9](http://www.corestandards.org/ELA-Literacy/WHST/9-10/9/). Draw evidence from informational texts to support analysis, reflection, and research.

#### Range of Writing

[WHST.9-10.10](http://www.corestandards.org/ELA-Literacy/WHST/9-10/10/). 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.

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.

#### Grades 11-12

#### Progress Indicators for Writing History, Science and Technical Subjects

The standards below begin at grade 6; standards for K-5 writing in history/social studies, science, and technical subjects are integrated into the K-5 Writing standards. The anchor standards and high school standards in literacy work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.

#### Text Types and Purposes

WHST.11-12.1. Write arguments focused on *discipline-specific content.*

1. 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.
2. Develop claim(s) and counterclaims using sound reasoning 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.
3. Use transitions (e.g. words, phrases, 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.
4. Establish and maintain a style and tone appropriate to the audience and purpose (e.g. formal and objective for academic writing) while attending to the norms and conventions of the discipline in which they are writing.
5. Provide a concluding paragraph or section that supports the argument presented.

WHST.11-12.2. **Write informative/explanatory texts**, including the **narration** of historical events, **scientific procedures/ experiments**, or technical processes.

1. Introduce a topic and 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.
2. 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.
3. 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.
4. 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.
5. Provide a concluding paragraph or section that supports the argument presented.

[WHST.11-12.3](http://www.corestandards.org/ELA-Literacy/WHST/11-12/3/)
(See note; not applicable as a separate requirement)

#### Production and Distribution of Writing

[WHST.11-12.4](http://www.corestandards.org/ELA-Literacy/WHST/11-12/4/). Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

[WHST.11-12.5](http://www.corestandards.org/ELA-Literacy/WHST/11-12/5/). Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

WHST.11-12.6. Use technology, including the Internet, to produce, share, and update writing products in response to ongoing feedback, including new arguments or information.

#### Research to Build and Present Knowledge

#### LAB

[WHST.11-12.7](http://www.corestandards.org/ELA-Literacy/WHST/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.

[WHST.11-12.8](http://www.corestandards.org/ELA-Literacy/WHST/11-12/8/). 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.

[WHST.11-12.9](http://www.corestandards.org/ELA-Literacy/WHST/11-12/9/). Draw evidence from informational texts to support analysis, reflection, and research.

#### Range of Writing

[WHST.11-12.10](http://www.corestandards.org/ELA-Literacy/WHST/11-12/10/). 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.

**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.