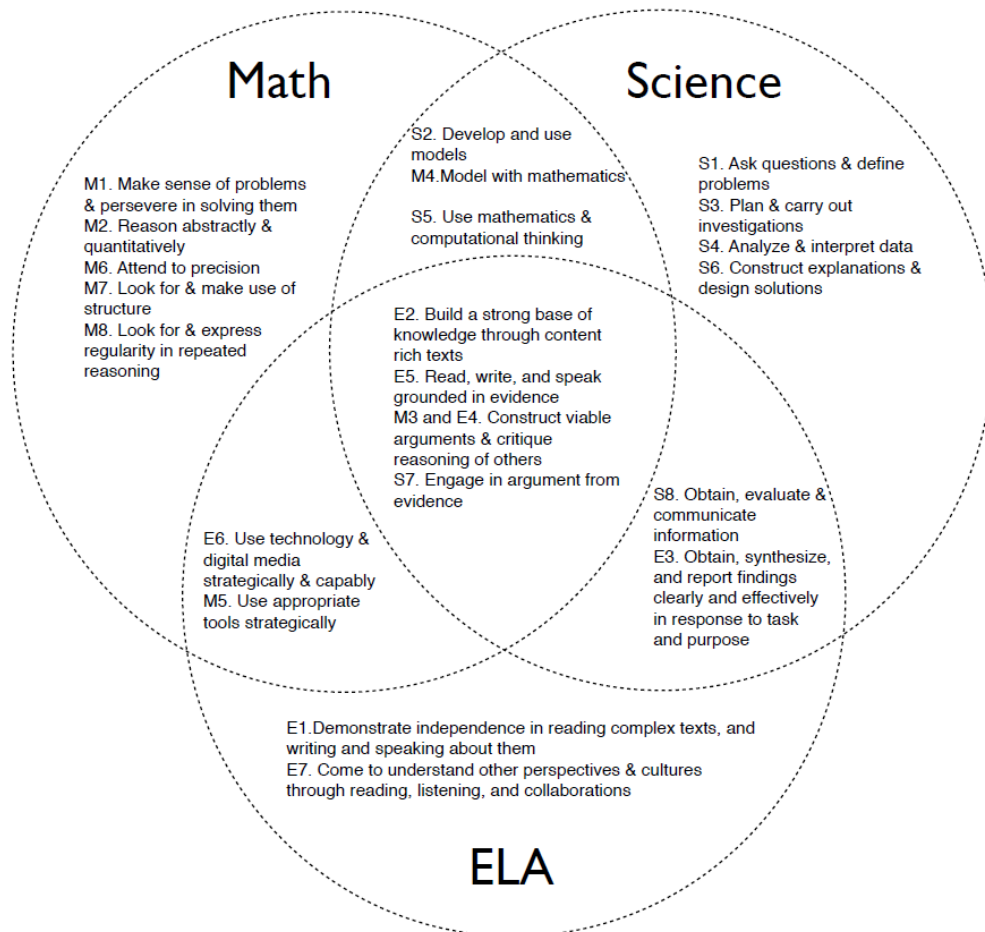


**Connections to the Common Core State Standards for Literacy in Third, Fourth, and Fifth Grade Science**

Literacy skills are critical to building knowledge and effective communications in science. To ensure the CCSS literacy standards work in tandem with the specific demands articulated in the NGSS, literacy and science specialists from the NJDOE identified key literacy connections to the specific science practices in the NGSS. As the CCSS affirms, reading in science requires an appreciation of the norms and conventions of the discipline of science, including understanding the nature of evidence used, an attention to precision and detail, and the capacity to make and assess intricate arguments, synthesize complex information, and follow detailed procedures and accounts of events and concepts. Students also need to be able to gain knowledge from diagrams and data that convey information and illustrate scientific concepts. Likewise, writing and presenting information orally are key means for students to assert and defend claims in science, demonstrate what they know about a concept, and convey what they have experienced, imagined, thought, and learned.

This document is based on *the Connections to the Common Core State Standards for Literacy in Science and Technical Subjects for grades 6-12* (Achieve, 2013).

**Convergence of Science, Mathematics and Literacy**



<b>Asking Questions and Defining Problems</b> Students at any grade level should be able to ask questions of each other about the texts they read, the features of the phenomena they observe, and the conclusions they draw from their models or scientific investigations. For engineering, they should ask questions to define the problem to be solved and to elicit ideas that lead to the constraints and specifications for its solution (pp. 54-56, NRC 2012).	
<b>Supporting CCSS Literacy Anchor Standards and Relevant Portions of the Corresponding Standards for Science and Technical Subjects</b>	<b>Connection to Asking Questions and Defining Problems</b>
<p><b>CCR Reading Anchor #1:</b> Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.</p> <p><b>Third Grade</b></p> <p><b>RI.3.1</b> Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.</p> <p><b>Fourth Grade</b></p> <p><b>RI.4.1</b> Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.</p> <p><b>Fifth Grade</b></p> <p><b>RI.5.1</b> Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.</p>	<p>Evidence plays a critical role in the kinds of questions asked, information gathered, and findings reported in science and technical texts. The notion of close reading in <b>Reading Standard 1</b> emphasizes the use of asking and refining questions in order to answer them with evidence that is either explicitly stated or implied.</p>
<p><b>CCR Reading Anchor #7:</b> Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.</p> <p><b>Third Grade</b></p> <p><b>RI.3.7</b> Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).</p> <p><b>Fourth Grade</b></p> <p><b>RI.4.7</b> Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.</p>	<p>Scientists and engineers present data in a variety of visual formats in order to reveal meaningful patterns and trends. <b>Reading Standard 7</b> speaks directly to the importance of asking questions about and evaluating data presented in different formats.</p>

<p><b>Fifth Grade</b></p> <p><b>RI.5.7</b> Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.</p>	
<p><b>CCR Reading Anchor #8:</b> 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.</p> <p><b>Third Grade</b></p> <p><b>RI.3.8</b> Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence).</p> <p><b>Fourth Grade</b></p> <p><b>RI.4.8</b> Explain how an author uses reasons and evidence to support particular points in a text.</p> <p><b>Fifth Grade</b></p> <p><b>RI.5.8</b> Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).</p>	<p>Challenging or clarifying scientific hypotheses, arguments, experiments or conclusions—and the evidence and premises that support them—are key to this practice. <b>Reading Standard 8</b> emphasizes evaluating the validity of arguments and whether the evidence offered backs up the claims logically.</p>
<p><b>CCR Writing Anchor #7:</b> Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.</p> <p><b>Third Grade</b></p> <p><b>W.3.7</b> Conduct short research projects that build knowledge about a topic.</p> <p><b>Fourth Grade</b></p> <p><b>W.4.7</b> Conduct short research projects that build knowledge through investigation of different aspects of a topic.</p> <p><b>Fifth Grade</b></p> <p><b>W.5.7</b> Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.</p>	<p>Generating focused questions and well-honed scientific inquiries are key to conducting investigations and defining problems. The research practices reflected in <b>Writing Standard 7</b> reflect the skills needed for successful completion of such research-based inquiries.</p>
<p><b>CCR Speaking &amp; Listening Anchor #1:</b> Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.</p> <p><b>Third Grade</b></p> <p><b>SL.3.1</b> Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led)</p>	<p>The ability to pose relevant questions, clarify or elaborate on the ideas of others or request information from others are crucial to learning and conducting investigations in science class. <b>Speaking and Listening Standard 1</b> speaks</p>

with diverse partners on *grade 3 topics and texts*, building on others' ideas and expressing their own clearly.

- **SL.3.1a** Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
- **SL.3.1b** Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
- **SL.3.1c** Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others.
- **SL.3.1d** Explain their own ideas and understanding in light of the discussion.

#### **Fourth Grade**

**SL.4.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 4 topics and texts*, building on others' ideas and expressing their own clearly.

- **SL.4.1a** Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
- **SL.4.1b** Follow agreed-upon rules for discussions and carry out assigned roles.
- **SL.4.1c** Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others.
- **SL.4.1d** Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.

#### **Fifth Grade**

**SL.5.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 5 topics and texts*, building on others' ideas and expressing their own clearly.

- **SL.5.1a** Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
- **SL.5.1b** Follow agreed-upon rules for discussions and carry out assigned roles.
- **SL.5.1c** Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.
- **SL.5.1d** Review the key ideas expressed and draw conclusions in light of information and knowledge

directly to the importance of asking and refining questions to clarify ideas that generate solutions and explanations.

gained from the discussions.	
<p><b>CCR Speaking &amp; Listening Anchor #3:</b> Evaluate a speaker’s point of view, reasoning, and use of evidence and rhetoric.</p> <p><b>Third Grade</b></p> <p><b>SL.3.3</b> Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.</p> <p><b>Fourth Grade</b></p> <p><b>SL.4.3</b> Identify the reasons and evidence a speaker provides to support particular points.</p> <p><b>Fifth Grade</b></p> <p><b>SL.5.3</b> Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.</p>	<p>Evaluating the soundness of a speaker’s reasoning and evidence concerning scientific theories and concepts through a series of inquiries teaches students to be discriminating thinkers. <b>Speaking and Listening Standard 3</b> directly asserts that students must be able to critique a point of view from the perspective of the evidence provided and reasoning advanced.</p>

<b>Planning and Carrying Out Investigations</b>	
<p>Students should have opportunities to plan and carry out several different kinds of investigations during their K-12 years. At all levels, they should engage in investigations that range from those structured by the teacher—in order to expose an issue or question that they would be unlikely to explore on their own (e.g., measuring specific properties of materials)—to those that emerge from students’ own questions. (pp. 59-61, NRC, 2012)</p>	
<b>Supporting CCSS Literacy Anchor Standards and Relevant Portions of the Corresponding Standards for Science and Technical Subjects</b>	<b>Connection to Planning and Carrying Out Investigations</b>
<p><b>CCR Reading Anchor #3:</b> Analyze how and why individuals, events, or ideas develop and interact over the course of a text.</p> <p><b>Third Grade</b></p> <p><b>RI.3.3</b> Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.</p> <p><b>Fourth Grade</b></p> <p><b>RI.4.3</b> Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.</p> <p><b>Fifth Grade</b></p> <p><b>RI.5.3</b> Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.</p>	<p>Systematic investigations in the field or laboratory lie at the heart of scientific inquiry. <b>Reading Standard 3</b> emphasizes the importance of accuracy in carrying out such complex experiments and procedures, in following a course of action that will provide the best evidence to support conclusions.</p>
<p><b>CCR Writing Anchor #7:</b> Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.</p> <p><b>Third Grade</b></p> <p><b>W.3.7</b> Conduct short research projects that build knowledge about a topic.</p> <p><b>Fourth Grade</b></p> <p><b>W.4.7</b> Conduct short research projects that build knowledge through investigation of different aspects of a topic.</p> <p><b>Fifth Grade</b></p> <p><b>W.5.7</b> Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.</p>	<p>Planning and carrying out investigations to test hypotheses or designs is central to scientific and engineering activity. The research practices reflected in <b>Writing Standard 7</b> reflect the skills needed for successful completion of such research-based inquiries.</p>

<p><b>CCR Writing Anchor #8:</b> Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.</p> <p><b>Third Grade</b></p> <p><b>W.3.8</b> Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.</p> <p><b>Fourth Grade</b></p> <p><b>W.4.8</b> Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.</p> <p><b>Fifth Grade</b></p> <p><b>W.5.8</b> Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.</p>	<p>Collecting relevant data across a broad spectrum of sources in a systematic fashion is a key element of this scientific practice. <b>Writing Standard 8</b> spells out the importance of gathering applicable information from multiple reliable sources to support claims.</p>
<p><b>CCR Speaking &amp; Listening Anchor #1:</b> Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others’ ideas and expressing their own clearly and persuasively.</p> <p><b>Third Grade</b></p> <p><b>SL.3.1</b> Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others’ ideas and expressing their own clearly.</p> <ul style="list-style-type: none"> <li>• <b>SL.3.1a</b> Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.</li> <li>• <b>SL.3.1b</b> Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).</li> <li>• <b>SL.3.1c</b> Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others.</li> <li>• <b>SL.3.1d</b> Explain their own ideas and understanding in light of the discussion.</li> </ul> <p><b>Fourth Grade</b></p> <p><b>SL.4.1</b> Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on <i>grade 4 topics and texts</i>, building on others’ ideas and expressing their own clearly.</p> <ul style="list-style-type: none"> <li>• <b>SL.4.1a</b> Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.</li> </ul>	<p>Carrying out investigations in collaborative settings is crucial to learning in science class and engineering settings. <b>Speaking and Listening Standard 1</b> speaks directly to the importance of exchanging theories and evidence cooperatively and collaboratively to carrying out investigations.</p>

- **SL.4.1b** Follow agreed-upon rules for discussions and carry out assigned roles.
- **SL.4.1c** Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others.
- **SL.4.1d** Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.

**Fifth Grade**

**SL.5.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 5 topics and texts*, building on others' ideas and expressing their own clearly.

- **SL.5.1a** Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
- **SL.5.1b** Follow agreed-upon rules for discussions and carry out assigned roles.
- **SL.5.1c** Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.
- **SL.5.1d** Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.



<p><b>Analyzing and Interpreting Data</b></p> <p>Once collected, data must be presented in a form that can <u>reveal any patterns and relationships</u> and that allows results to be communicated to others. Because <u>raw data as such have little meaning</u>, a major practice of scientists is to <u>organize and interpret data through tabulating, graphing, or statistical analysis</u>. Such analysis can bring out the meaning of data—and their relevance—so that they may be used as evidence.</p> <p>Engineers, too, make decisions based on evidence that a given design will work; they rarely rely on trial and error. Engineers often analyze a design by creating a model or prototype and collecting extensive data on how it performs, including under extreme conditions. Analysis of this kind of data not only informs design decisions and enables the prediction or assessment of performance but also helps define or clarify problems, determine economic feasibility, evaluate alternatives, and investigate failures (pp. 61-63, NRC, 2012).</p>	
<p><b>Supporting CCSS Literacy Anchor Standards and Relevant Portions of the Corresponding Standards for Science and Technical Subjects</b></p>	<p><b>Connection to Analyzing and Interpreting Data</b></p>
<p><b>CCR Reading Anchor #7:</b> Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.</p> <p><b>Third Grade</b></p> <p><b>RI.3.7</b> Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).</p> <p><b>Fourth Grade</b></p> <p><b>RI.4.7</b> Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.</p> <p><b>Fifth Grade</b></p> <p><b>RI.5.7</b> Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.</p>	<p>Scientists and engineers present data in a myriad of visual formats in order to reveal meaningful patterns and trends. <b>Reading Standard 7</b> speaks directly to the importance of understanding and presenting information that has been gathered in various formats to reveal patterns and relationships and allow for deeper explanations and analyses.</p>
<p><b>CCR Reading Anchor #9:</b> Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.</p> <p><b>Third Grade</b></p> <p><b>RI.3.9</b> Compare and contrast the most important points and key details presented in two texts on the same</p>	<p>Scientists and engineers use technology to allow them to draw on multiple sources of information in order to create data sets. <b>Reading Standard 9</b> identifies the importance of analyzing multiple</p>

<p>topic.</p> <p><b>Fourth Grade</b></p> <p><b>RI.4.9</b> Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.</p> <p><b>Fifth Grade</b></p> <p><b>RI.5.9</b> Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.</p>	<p>sources in order to inform design decisions and create a coherent understanding of a process or concept.</p>
<p><b>CCR Speaking and Listening #2:</b> Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.</p> <p><b>Third Grade</b></p> <p><b>SL.3.2</b> Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.</p> <p><b>Fourth Grade</b></p> <p><b>SL.4.2</b> Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.</p> <p><b>Fifth Grade</b></p> <p><b>SL.5.2</b> Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.</p>	<p>Central to the practice of scientists and engineers is integrating data drawn from multiple sources in order to create a cohesive vision of what the data means. <b>Speaking and Listening Standard 2</b> addresses the importance of such synthesizing activities to building knowledge and defining and clarifying problems. This includes evaluating the credibility and accuracy of data and identifying possible sources of error.</p>
<p><b>CCR Speaking and Listening #5:</b> Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.</p> <p><b>Third Grade</b></p> <p><b>SL.3.5</b> Create engaging audio recordings of stories or poems that demonstrate fluid reading at an understandable pace; add visual displays when appropriate to emphasize or enhance certain facts or details.</p> <p><b>Fourth Grade</b></p> <p><b>SL.4.5</b> Add audio recordings and visual displays to presentations when appropriate to enhance the</p>	<p>Presenting data for the purposes of cross-comparison is essential for identifying the best design solution or scientific explanation. <b>Speaking and Listening Standard 5</b> stresses the importance of visual displays of data within presentations in order to enhance understanding of the relevance of the evidence. That way others can make critical decisions regarding what is being</p>

<p>development of main ideas or themes.</p> <p><b>Fifth Grade</b></p> <p><b>SL.5.5</b> Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.</p>	<p>claimed based on the data.</p>
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<b>Constructing Explanations and Designing Solutions</b>	
<p>Asking students to demonstrate their own understanding of the implications of a scientific idea by developing their own explanations of phenomena, whether based on observations they have made or models they have developed, engages them in an essential part of the process by which conceptual change can occur.</p> <p>In engineering, the goal is a design rather than an explanation. The process of developing a design is iterative and systematic, as is the process of developing an explanation or a theory in science. Engineers’ activities, however, have elements that are distinct from those of scientists. These elements include specifying constraints and criteria for desired qualities of the solution, developing a design plan, producing and testing models or prototypes, selecting among alternative design features to optimize the achievement of design criteria, and refining design ideas based on the performance of a prototype or simulation. (NJDOE, 2009, p. 2.;NRC, 2012, p. 68-69)</p>	
<b>Supporting CCSS Literacy Anchor Standards and Relevant Portions of the Corresponding Standards for Science and Technical Subjects</b>	<b>Connection to Constructing Explanations and Designing Solutions</b>
<p><b>CCR Reading Anchor #1:</b> Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.</p> <p><b>Third Grade</b></p> <p><b>RI.3.1</b> Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.</p> <p><b>Fourth Grade</b></p> <p><b>RI.4.1</b> Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.</p> <p><b>Fifth Grade</b></p> <p><b>RI.5.1</b> Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.</p>	<p>Evidence plays a critical role in determining a theory in science and a design solution in engineering. The notion of close reading in <b>Reading Standard 1</b> emphasizes pursuing investigations into well-supported theories and design solutions on the basis of evidence that is either explicitly stated or implied.</p>
<p><b>CCR Reading Anchor #2:</b> Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.</p> <p><b>Third Grade</b></p> <p><b>RI.3.2</b> Determine the main idea of a text; recount the key details and explain how they support the main idea.</p>	<p>Part of the power of a scientific theory or engineering design is its ability to be cogently explained. That ability to determine and clearly state an idea lies at the heart of <b>Reading Standard 2</b>.</p>

<p><b>Fourth Grade</b></p> <p><b>RI.4.2</b> Determine the main idea of a text and explain how it is supported by key details; summarize the text.</p> <p><b>Fifth Grade</b></p> <p><b>RI.5.2</b> Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.</p>	
<p><b>CCR Reading Anchor #8:</b> 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.</p> <p><b>Third Grade</b></p> <p><b>RI.3.8</b> Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence).</p> <p><b>Fourth Grade</b></p> <p><b>RI.4.8</b> Explain how an author uses reasons and evidence to support particular points in a text.</p> <p><b>Fifth Grade</b></p> <p><b>RI.5.8</b> Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).</p>	<p>Constructing theories and designing solutions both require analysis that is rooted in rational argument and in evidence stemming from an understanding of the world. <b>Reading Standard 8</b> emphasizes evaluating the validity of arguments and whether the evidence offered backs up the claim logically.</p>
<p><b>CCR Writing Anchor #2:</b> Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.</p> <p><b>Third Grade</b></p> <p><b>W.3.2</b> Write informative/explanatory texts to examine a topic and convey ideas and information clearly.</p> <ul style="list-style-type: none"> <li>• <b>W.3.2a</b> Introduce a topic and group related information together; include illustrations when useful to aiding comprehension.</li> <li>• <b>W.3.2b</b> Develop the topic with facts, definitions, and details.</li> <li>• <b>W.3.2c</b> Use linking words and phrases (e.g., also, another, and, more, but) to connect ideas within</li> </ul>	<p>Building a theory or a model that explains the natural world requires close attention to how to weave together evidence from multiple sources. With a focus on clearly communicating complex ideas and information by critically choosing, arranging, and analyzing information, <b>Writing Standard 2</b> requires students to develop theories with the end goal of explanation in mind.</p>

categories of information.

- **W.3.2d** Provide a concluding statement or section.

**Fourth Grade**

**W.4.2** Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

- **W.4.2a** Introduce a topic clearly and group related information in paragraphs and sections; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.
- **W.4.2b** Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.
- **W.4.2c** Link ideas within categories of information using words and phrases (e.g., another, for example, also, because).
- **W.4.2d** Use precise language and domain-specific vocabulary to inform about or explain the topic.
- **W.4.2e** Provide a concluding statement or section related to the information or explanation presented.

**Fifth Grade**

**W.5.2** Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

- **W.5.2a** Introduce a topic clearly, provide a general observation and focus, and group related information logically; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.
- **W.5.2b** Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.
- **W.5.2c** Link ideas within and across categories of information using words, phrases, and clauses (e.g., in contrast, especially).
- **W.5.2d** Use precise language and domain-specific vocabulary to inform about or explain the topic.
- **W.5.2e** Provide a concluding statement or section related to the information or explanation presented.

**CCR Writing Anchor #8:** Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.

**Third Grade**

**W.3.8** Recall information from experiences or gather information from print and digital sources; take brief

Collecting relevant data across a broad spectrum of sources in a systematic fashion is a key element of constructing a theory with explanatory power or a design that meets multiple constraints.

<p>notes on sources and sort evidence into provided categories.</p> <p><b>Fourth Grade</b></p> <p><b>W.4.8</b> Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.</p> <p><b>Fifth Grade</b></p> <p><b>W.5.8</b> Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.</p>	<p><b>Writing Standard 8</b> spells out the importance of gathering applicable information from multiple reliable sources in order to construct well-honed explanations.</p>
<p><b>CCR Writing Anchor #9:</b> Draw evidence from literary or informational texts to support analysis, reflection, and research.</p> <p><b>Third Grade</b></p> <p>Begins in grade 4.</p> <p><b>Fourth Grade</b></p> <p><b>W.4.9</b> Draw evidence from literary or informational texts to support analysis, reflection, and research.</p> <ul style="list-style-type: none"> <li>• <b>W.4.9a</b> Apply grade 4 Reading standards to literature (e.g., “Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text [e.g., a character’s thoughts, words, or actions].”).</li> <li>• <b>W.4.9b</b> Apply grade 4 Reading standards to informational texts (e.g., “Explain how an author uses reasons and evidence to support particular points in a text”).</li> </ul> <p><b>Fifth Grade</b></p> <p><b>W.5.9</b> Draw evidence from literary or informational texts to support analysis, reflection, and research.</p> <ul style="list-style-type: none"> <li>• <b>W.5.9a</b> Apply grade 5 Reading standards to literature (e.g., “Compare and contrast two or more characters, settings, or events in a story or a drama, drawing on specific details in the text [e.g., how characters interact]”).</li> <li>• <b>W.5.9b</b> Apply grade 5 Reading standards to informational texts (e.g., “Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point[s]”).</li> </ul>	<p>The route towards constructing a rigorous explanatory account centers on garnering the necessary empirical evidence to support a theory or design. That same focus on generating evidence that can be analyzed is at the heart of <b>Writing Standard 9</b>.</p>

<p><b>CCR Speaking and Listening Anchor #4:</b> Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.</p> <p><b>Third Grade</b></p> <p><b>SL.3.4</b> Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.</p> <p><b>Fourth Grade</b></p> <p><b>SL.4.4</b> Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.</p> <p><b>Fifth Grade</b></p> <p><b>SL.5.4</b> Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.</p>	<p>A theory in science and a design in engineering is a rational explanatory account of how the world works in light of the evidence. <b>Speaking and Listening Standard 4</b> stresses how the presentation of findings crucially relies on how the evidence is used to illuminate the line of reasoning embedded in the explanation offered.</p>



<b>Engaging in Argument from Evidence</b>	
<p>The study of science and engineering should produce a sense of the process of argument necessary for advancing and defending a new idea or an explanation of a phenomenon and the norms for conducting such arguments. In that spirit, students should argue for the explanations they construct, defend their interpretations of the associated data, and advocate for the designs they propose. (NJDOE, 2009, p. 4.; NRC, 2012, p. 73)</p>	
<b>Supporting CCSS Literacy Anchor Standards and Relevant Portions of the Corresponding Standards for Science and Technical Subjects</b>	<b>Connection to Engaging in Argument from Evidence</b>
<p><b>CCR Reading Anchor #6:</b> Assess how point of view or purpose shapes the content and style of a text.</p> <p><b>Third Grade</b></p> <p><b>RI.3.6</b> Distinguish their own point of view from that of the author of a text.</p> <p><b>Fourth Grade</b></p> <p><b>RI.4.6</b> Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in focus and the information provided.</p> <p><b>Fifth Grade</b></p> <p><b>RI.5.6</b> Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.</p>	<p>The central motivation of scientists and engineers is to put forth what they believe is the best explanation for a natural phenomena or design solution, and to verify that representation through well wrought arguments. Understanding the point of view of scientists and engineers and how that point of view shapes the content of the explanation is what <b>Reading Standard 6</b> asks students to attune to.</p>
<p><b>CCR Reading Anchor #8:</b> 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.</p> <p><b>Third Grade</b></p> <p><b>RI.3.8</b> Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence).</p> <p><b>Fourth Grade</b></p> <p><b>RI.4.8</b> Explain how an author uses reasons and evidence to support particular points in a text.</p> <p><b>Fifth Grade</b></p> <p><b>RI.5.8</b> Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).</p>	<p>Formulating the best explanation or solution to a problem or phenomenon stems from advancing an argument whose premises are rational and supported with evidence. <b>Reading Standard 8</b> emphasizes evaluating the validity of arguments and whether the evidence offered backs up the claim logically.</p>
<p><b>CCR Reading Anchor #9:</b> Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.</p> <p><b>Third Grade</b></p> <p><b>RI.3.9</b> Compare and contrast the most important points and key details presented in two texts on the same topic.</p>	<p>Implicit in the practice of identifying the best explanation or design solution is comparing and contrasting competing proposals. <b>Reading Standard 9</b> identifies the importance of comparing different sources in the process of</p>

<p><b>Fourth Grade</b></p> <p><b>RI.4.9</b> Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.</p> <p><b>Fifth Grade</b></p> <p><b>RI.5.9</b> Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.</p>	<p>creating a coherent understanding of a phenomenon, concept, or design solution.</p>
<p><b>CCR Writing Anchor #1:</b> Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.</p> <p><b>Third Grade</b></p> <p><b>W.3.1</b> Write opinion pieces on topics or texts, supporting a point of view with reasons.</p> <ul style="list-style-type: none"> <li>• <b>W.3.1a</b> Introduce the topic or text they are writing about, state an opinion, and create an organizational structure that lists reasons.</li> <li>• <b>W.3.1b</b> Provide reasons that support the opinion.</li> <li>• <b>W.3.1c</b> Use linking words and phrases (e.g., because, therefore, since, for example) to connect opinion and reasons.</li> <li>• <b>W.3.1d</b> Provide a concluding statement or section.</li> </ul> <p><b>Fourth Grade</b></p> <p><b>W.4.1</b> Write opinion pieces on topics or texts, supporting a point of view with reasons and information.</p> <ul style="list-style-type: none"> <li>• <b>W.4.1a</b> Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer’s purpose.</li> <li>• <b>W.4.1b</b> Provide reasons that are supported by facts and details.</li> <li>• <b>W.4.1c</b> Link opinion and reasons using words and phrases (e.g., for instance, in order to, in addition).</li> <li>• <b>W.4.1d</b> Provide a concluding statement or section related to the opinion presented.</li> </ul> <p><b>Fifth Grade</b></p> <p><b>W.5.1</b> Write opinion pieces on topics or texts, supporting a point of view with reasons and information.</p> <ul style="list-style-type: none"> <li>• <b>W.5.1a</b> Introduce a topic or text clearly, state an opinion, and create an organizational structure in which ideas are logically grouped to support the writer’s purpose.</li> <li>• <b>W.5.1b</b> Provide logically ordered reasons that are supported by facts and details.</li> <li>• <b>W.5.1c</b> Link opinion and reasons using words, phrases, and clauses (e.g., consequently, specifically).</li> <li>• <b>W.5.1d</b> Provide a concluding statement or section related to the opinion presented.</li> </ul>	<p>Central to the process of engaging in scientific thought or engineering practices is the notion that what will emerge is backed up by rigorous argument. <b>Writing Standard 1</b> places argumentation at the heart of the CCSS for science and technology subjects, stressing the importance of logical reasoning, relevant evidence, and credible sources.</p>

**CCR Speaking & Listening Anchor #1:** Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

### Third Grade

**SL.3.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.

- **SL.3.1a** Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
- **SL.3.1b** Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
- **SL.3.1c** Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others.
- **SL.3.1d** Explain their own ideas and understanding in light of the discussion.

### Fourth Grade

**SL.4.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.

- **SL.4.1a** Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
- **SL.4.1b** Follow agreed-upon rules for discussions and carry out assigned roles.
- **SL.4.1c** Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others.
- **SL.4.1d** Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.

### Fifth Grade

**SL.5.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.

- **SL.5.1a** Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
- **SL.5.1b** Follow agreed-upon rules for discussions and carry out assigned roles.
- **SL.5.1c** Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.
- **SL.5.1d** Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.

Reasoning and argument require critical listening and collaboration skills in order to identify the best explanation for a natural phenomenon or the best solution to a design problem. **Speaking and Listening Standard 1** speaks directly to the importance of comparing and evaluating competing ideas through argument to cooperatively and collaboratively identify the best explanation or solution.

<p><b>CCR Speaking &amp; Listening Anchor #3:</b> Evaluate a speaker’s point of view, reasoning, and use of evidence and rhetoric.</p> <p><b>Third Grade</b></p> <p><b>SL.3.3</b> Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.</p> <p><b>Fourth Grade</b></p> <p><b>SL.4.3</b> Identify the reasons and evidence a speaker provides to support particular points.</p> <p><b>Fifth Grade</b></p> <p><b>SL.5.3</b> Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.</p>	<p>Evaluating the reasoning in an argument based on the evidence present is crucial for identifying the best design or scientific explanation. <b>Speaking and Listening Standard 3</b> directly asserts that students must be able to critique the point of view within an argument presented orally from the perspective of the evidence provided and reasoning advanced by others.</p>
<p><b>CCR Speaking and Listening Anchor #4:</b> Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.</p> <p><b>Third Grade</b></p> <p><b>SL.3.4</b> Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.</p> <p><b>Fourth Grade</b></p> <p><b>SL.4.4</b> Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.</p> <p><b>Fifth Grade</b></p> <p><b>SL.5.4</b> Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.</p>	<p>The practice of engaging in argument from evidence is a key ingredient in determining the best explanation for a natural phenomenon or the best solution to a design problem. <b>Speaking and Listening Standard 4</b> stresses how the presentation of findings crucially relies on how the evidence is used to illuminate the line of reasoning embedded in the explanation offered.</p>

<p><b>Obtaining, Evaluating, and Communicating Information</b></p> <p>Any education in science and engineering needs to develop students’ ability to read and produce domain-specific text. As such, every science or engineering lesson is in part a language lesson, particularly reading and producing the genres of texts that are intrinsic to science and engineering. (NJDOE, 2009, pp. 3-4.; NRC, 2012, p. 76)</p>	
<p><b>Supporting CCSS Literacy Anchor Standards and Relevant Portions of the Corresponding Standards for Science and Technical Subjects</b></p>	<p><b>Connection to Obtaining, Evaluating, and Communicating Information</b></p>
<p><b>CCR Reading Anchor #2:</b> Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.</p> <p><b>Third Grade</b></p> <p><b>RI.3.2</b> Determine the main idea of a text; recount the key details and explain how they support the main idea.</p> <p><b>Fourth Grade</b></p> <p><b>RI.4.2</b> Determine the main idea of a text and explain how it is supported by key details; summarize the text.</p> <p><b>Fifth Grade</b></p> <p><b>RI.5.2</b> Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.</p>	<p>Part of the power of a scientific theory or engineering design is its ability to be cogently explained. That ability to determine and clearly state or summarize a salient scientific concept or phenomena lies at the heart of <b>Reading Standard 2</b>.</p>
<p><b>CCR Reading Anchor #7:</b> Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.</p> <p><b>Third Grade</b></p> <p><b>RI.3.7</b> Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).</p> <p><b>Fourth Grade</b></p> <p><b>RI.4.7</b> Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.</p> <p><b>Fifth Grade</b></p> <p><b>RI.5.7</b> Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.</p>	<p>A key practice within scientific and engineering communities is communicating about data through the use of tables, diagrams, graphs and models. <b>Reading Standard 7</b> speaks directly to the importance of understanding information that has been gathered by investigators in visual formats that reveal deeper explanations and analyses.</p>
<p><b>CCR Reading Anchor #9:</b> Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.</p> <p><b>Third Grade</b></p> <p><b>RI.3.9</b> Compare and contrast the most important points and key details presented in two texts on the same topic.</p>	<p>The end goal of these scientific and engineering practices is to position scientists and engineers to be able to evaluate the merit and validity of claims, methods, and designs. <b>Reading Standard 9</b> identifies the importance of synthesizing information from a range</p>

<p><b>Fourth Grade</b></p> <p><b>RI.4.9</b> Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.</p> <p><b>Fifth Grade</b></p> <p><b>RI.5.9</b> Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.</p>	<p>of sources to the process of creating a coherent understanding of a phenomenon or concept.</p>
<p><b>CCR Reading Anchor #10:</b> Read and comprehend complex literary and informational texts independently and proficiently.</p> <p><b>Third Grade</b></p> <p><b>RI.3.10</b> By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 2–3 text complexity band independently and proficiently.</p> <p><b>Fourth Grade</b></p> <p><b>RI.4.10</b> By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 4–5 text complexity band proficiently, with scaffolding as needed at the high end of the range.</p> <p><b>Fifth Grade</b></p> <p><b>RI.5.10</b> By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4–5 text complexity band independently and proficiently.</p>	<p>When reading scientific and technical texts, students need to be able to gain knowledge from challenging texts that often make extensive use of elaborate diagrams and data to convey information and illustrate concepts. <b>Reading Standard 10</b> asks students to read complex informational texts in these fields with independence and confidence.</p>
<p><b>CCR Writing Anchor #2:</b> Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.</p> <p><b>Third Grade</b></p> <p><b>W.3.2</b> Write informative/explanatory texts to examine a topic and convey ideas and information clearly.</p> <ul style="list-style-type: none"> <li>• <b>W.3.2a</b> Introduce a topic and group related information together; include illustrations when useful to aiding comprehension.</li> <li>• <b>W.3.2b</b> Develop the topic with facts, definitions, and details.</li> <li>• <b>W.3.2c</b> Use linking words and phrases (e.g., also, another, and, more, but) to connect ideas within categories of information.</li> <li>• <b>W.3.2d</b> Provide a concluding statement or section.</li> </ul>	<p>The demand for precision in expression is an essential requirement of scientists and engineers, and using the multiple means available to them is a crucial part of that expectation. With a focus on clearly communicating complex ideas and information by critically choosing, arranging, and analyzing information—particularly through the use of visual means—<b>Writing Standard 2</b> requires students to develop their claims with the end goal of explanation in mind.</p>

<p><b>Fourth Grade</b></p> <p><b>W.4.2</b> Write informative/explanatory texts to examine a topic and convey ideas and information clearly.</p> <ul style="list-style-type: none"> <li>• <b>W.4.2a</b> Introduce a topic clearly and group related information in paragraphs and sections; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.</li> <li>• <b>W.4.2b</b> Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.</li> <li>• <b>W.4.2c</b> Link ideas within categories of information using words and phrases (e.g., another, for example, also, because).</li> <li>• <b>W.4.2d</b> Use precise language and domain-specific vocabulary to inform about or explain the topic.</li> <li>• <b>W.4.2e</b> Provide a concluding statement or section related to the information or explanation presented.</li> </ul> <p><b>Fifth Grade</b></p> <p><b>W.5.2</b> Write informative/explanatory texts to examine a topic and convey ideas and information clearly.</p> <ul style="list-style-type: none"> <li>• <b>W.5.2a</b> Introduce a topic clearly, provide a general observation and focus, and group related information logically; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.</li> <li>• <b>W.5.2b</b> Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.</li> <li>• <b>W.5.2c</b> Link ideas within and across categories of information using words, phrases, and clauses (e.g., in contrast, especially).</li> <li>• <b>W.5.2d</b> Use precise language and domain-specific vocabulary to inform about or explain the topic.</li> <li>• <b>W.5.2e</b> Provide a concluding statement or section related to the information or explanation presented.</li> </ul>	
<p><b>CCR Writing Anchor #8:</b> Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.</p> <p><b>Third Grade</b></p> <p><b>W.3.8</b> Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.</p> <p><b>Fourth Grade</b></p> <p><b>W.4.8</b> Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.</p> <p><b>Fifth Grade</b></p> <p><b>W.5.8</b> Recall relevant information from experiences or gather relevant information from print and digital</p>	<p>Collecting relevant data across a broad spectrum of sources in a systematic fashion is a key element of assessing the validity of claims, methods, and designs. <b>Writing Standard 8</b> spells out the importance of gathering applicable information from multiple reliable sources so that information can be communicated accurately.</p>

<p>sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.</p>	
<p><b>CCR Speaking &amp; Listening Anchor #1:</b> Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others’ ideas and expressing their own clearly and persuasively.</p> <p><b>Third Grade</b></p> <p><b>SL.3.1</b> Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others’ ideas and expressing their own clearly.</p> <ul style="list-style-type: none"> <li>• <b>SL.3.1a</b> Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.</li> <li>• <b>SL.3.1b</b> Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).</li> <li>• <b>SL.3.1c</b> Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others.</li> <li>• <b>L.3.1d</b> Explain their own ideas and understanding in light of the discussion.</li> </ul> <p><b>Fourth Grade</b></p> <p><b>SL.4.1</b> Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on <i>grade 4 topics and texts</i>, building on others’ ideas and expressing their own clearly.</p> <ul style="list-style-type: none"> <li>• <b>SL.4.1a</b> Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.</li> <li>• <b>SL.4.1b</b> Follow agreed-upon rules for discussions and carry out assigned roles.</li> <li>• <b>SL.4.1c</b> Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others.</li> <li>• <b>SL.4.1d</b> Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.</li> </ul> <p><b>Fifth Grade</b></p> <p><b>SL.5.1</b> Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others’ ideas and expressing their own clearly.</p> <ul style="list-style-type: none"> <li>• <b>SL.5.1a</b> Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.</li> <li>• <b>SL.5.1b</b> Follow agreed-upon rules for discussions and carry out assigned roles.</li> <li>• <b>SL.5.1c</b> Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.</li> <li>• <b>SL.5.1d</b> Review the key ideas expressed and draw conclusions in light of information and knowledge</li> </ul>	<p>Reasoning and argument require critical listening and collaboration skills in order to evaluate the merit and validity claims, methods, and designs. <b>Speaking and Listening Standard 1</b> speaks directly to the importance of comparing and assessing competing ideas through extended discussions grounded in evidence.</p>



<p>gained from the discussions.</p>	
<p><b>CCR Speaking and Listening Anchor #4:</b> Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.</p> <p><b>Third Grade</b></p> <p><b>SL.3.4</b> Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.</p> <p><b>Fourth Grade</b></p> <p><b>SL.4.4</b> Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.</p> <p><b>Fifth Grade</b></p> <p><b>SL.5.4</b> Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.</p>	<p>Central to the professional activity of scientists and engineers alike is communicating their findings clearly and persuasively. <b>Speaking and Listening Standard 4</b> stresses how the presentation of findings crucially relies on how the evidence is used to illuminate the line of reasoning embedded in the explanation offered.</p>
<p><b>CCR Speaking and Listening #5:</b> Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.</p> <p><b>Third Grade</b></p> <p><b>SL.3.5</b> Create engaging audio recordings of stories or poems that demonstrate fluid reading at an understandable pace; add visual displays when appropriate to emphasize or enhance certain facts or details.</p> <p><b>Fourth Grade</b></p> <p><b>SL.4.5</b> Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes.</p> <p><b>Fifth Grade</b></p> <p><b>SL.5.5</b> Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.</p>	<p>Presenting data for the purposes of communication is essential for evaluating the merit and validity of claims, methods, and designs. <b>Speaking and Listening Standard 5</b> stresses the importance of visual or digital displays of data within presentations in order to enhance understanding of the evidence. That way others can make critical decisions regarding what is being claimed based on the data.</p>

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