NGSS Science and Engineering Practices Mapped to Literacy Standards and Skills

LiteracyTA has produced valuable online tools, professional development, and teacher materials to help science teachers deliver Next Generation Science Standards (NGSS). Organized into three categories, Science and Engineering Practices, Crosscutting Concepts, and Core Ideas, the new science standards bring together skills, knowledge, and habits of mind that target ways of learning in science. The goal of these standards is to improve student achievement in science and deepen students' knowledge of how science and engineering works in the world.

The purpose of this document is to help science teachers confidently plan and implement Science and Engineering Practices, preparing students for college and careers.

Although LiteracyTA offers many tools and resources to help science teachers plan and implement NGSS lessons, LiteracyTA best supports the Science and Engineering Practices (SEP). With our skills for reading, speaking, and writing about scientific and technical texts, LiteracyTA is uniquely qualified to support literacy practices in the science classroom.

This document, therefore, provides a crosswalk that connects Science and Engineering Practices (1-4, 6, 7-8) to College and Career Readiness standards (CCRs) and LiteracyTA's reading, speaking, and writing skills. Not included in this crosswalk is Practice 5: Using Mathematics and Computational Thinking because what students are asked to do is outside the scope of the new state literacy standards.

Here is a list of all 8 Science and Engineering Practices.

Practice 1: Asking Questions and Defining Problems
Practice 2: Developing and Using Models
Practice 3: Planning and Investigating Models
Practice 4: Analyzing and Interpreting Data
Practice 5: Using Mathematics and Computational Thinking
Practice 6: Constructing Explanations and Designing Solutions
Practice 7: Engaging in Argument from Evidence
Practice 8: Obtaining, Evaluating, and Communicating Information

The Science and Engineering Practices identify what students are expected to do, but as the NGSS states, they do not provide teaching methods or curriculum for science teachers. The following pages identify “what” students are expected to do. LiteracyTA provides the “how” for classroom instruction by aligning their reading, speaking, and writing skills to SEP and CCR literacy standards.

Here is how the document is organized:
Pages 2-8: Grades 6-8
Pages 9-15: Grades 9-10
Pages 16-22: Grades 11-12
SEP 1: Asking Questions and Defining Problems

College and Career Readiness Standards

RST.6-8.4: 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 6-8 texts and topics.

RST.6-8.5: Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.

RST.6-8.6: Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.

WST.6-8.7: Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.

WST.6-8.8: Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.

WST.6-8.9: Draw evidence from informational texts to support analysis, reflection, and research.

WST.6-8.2: Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

LiteracyTA’s Skills

Critical Concepts
Critical concepts is a teacher lead activity that allows students to gain understanding of unfamiliar words and concepts relevant to the content.

Investigative Reading
Students work in small groups and practice asking and answering self-generated questions while reading scientific and technical texts.

Sequence/Process Organizer
Students use this organizer to explain the steps or process to solving a problem or to demonstrate how to build a system or a tool that provides a solution.

Informative Writing Plan
Students use this tool to organize their thoughts and to write scientific documents that summarize their research and findings.
SEP 2: Developing and Using Models

College and Career Readiness Standards

SL.6-8.1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly.

SL.6-8.4: Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.

SL.6-8.6: Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See grade 7 Language standards 1 and 3 here for specific expectations.)

WST.6-8.5: With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.

WST.6-8.9: Draw evidence from informational texts to support analysis, reflection, and research.

WST.6-8.2: Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

LiteracyTA’s Skills

Cause and Effect Organizer
Students use this organizer to explore and express cause and effect relationships when developing or building a model.

Problem and Solution Organizer
Students use this organizer to explore and explain problem and solution relationships when developing or building a model.

Informative Writing Plan
Students use this tool to organize their thoughts and to write scientific and technical texts that explain a model, a process, or data.

Peer Review
Students work in small groups to revise and/or modify a pre-existing model or work together to revise an original model.
SEP 3: Planning and Carrying Out Investigations

College and Career Readiness Standards

RST.6-8.3: Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

RST.6-8.7: 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.

WST.6-8.7: Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

WST.6-8.9: Draw evidence from informational texts to support analysis, reflection, and research.

WST.6-8.2: Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

LiteracyTA’s Skills

Analyzing Data
Students use this graphic organizer to determine the meaning of quantitative or technical information and translate visual information into words.

Investigative Reading
Students work in small groups and practice asking and answering self-generated questions while reading scientific and technical texts.

Sequence/Process Organizer
Students use this organizer to explain the steps or process to solving a problem or to demonstrate how to build a system or a tool that provides a solution.

Informative Writing Plan
Students use this tool to organize their thoughts and to write scientific and technical texts that explain a model, a process, or data.
SEP 4: Analyzing and Interpreting Data

College and Career Readiness Standards

RST.6-8.7: Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

RST.6-8.5: Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.

WST.6-8.9: Draw evidence from informational texts to support analysis, reflection, and research.

WST.6-8.2: Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

LiteracyTA’s Skills

Analyzing Data
Students use this graphic organizer to determine the meaning of quantitative or technical information and translate visual information into words.

Introducing Sources
Students use language templates to help introduce and discuss data from scientific and technical texts.

Sequence/Process Organizer
Students use this organizer to explain the steps or process to solving a problem or to demonstrate how to build a system or a tool that provides a solution.
SEP 6: Constructing Explanations and Designing Solutions

College and Career Readiness Standards

RST.6-8.9: Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

WST.6-8.7: Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.

WST.6-8.8: Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.

WST.6-8.9: Draw evidence from informational texts to support analysis, reflection, and research.

WST.6-8.1: Write arguments focused on discipline-specific content.

LiteracyTA’s Skills

Taking Research Notes
Students use this graphic organizer to gather relevant information from multiple scientific and technical texts.

Compare and Contrast Organizer
Students use this graphic organizer to compare and contrast findings presented in text to those from other sources like demonstrations and experiments.

Introducing Sources
Students use language templates to help introduce and discuss information presented in scientific and technical texts.

Argument Writing Plan
Students use this tool to organize their arguments with reasons and evidence from scientific and technical texts.

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SEP 7: Engaging an Argument from Evidence

College and Career Readiness Standards

RST.6-8.8: Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.

RST.6-8.6: Analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.

RST.6-8.9: Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

WST.6-8.8: Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.

RST.6-8.9: Draw evidence from informational texts to support analysis, reflection, and research.

RST.6-8.1: Write arguments focused on discipline-specific content.

LiteracyTA’s Skills

Marking a Text
Students use this close reading skill to identify claims and evidence in a text. Once the text is marked, students can evaluate the claims and evidence.

Analyzing Evidence
Students analyze the quality, credibility, and sufficiency of evidence given in written and spoken arguments.

Compare and Contrast Organizer
Students use this graphic organizer to compare and contrast two arguments on the same topic and analyze the evidence and interpretation of facts.

Argument Writing Plan
Students use this tool to make arguments about the natural world or the effectiveness of a design solution using scientific knowledge and evidence.
SEP 8: Obtaining, Evaluating, and Communicating Information

College and Career Readiness Standards

RST.6-8.2: Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

RST.6-8.4: 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 6-8 texts and topics.

RST.6-8.6: Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.

WST.6-8.8: Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.

WST.6-8.9: Draw evidence from informational texts to support analysis, reflection, and research.

WST.6-8.2: Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

LiteracyTA's Skills

Analyzing Data

Students use this graphic organizer to determine the meaning of quantitative or technical information and translate visual information into words.

Marking a Text

Students use this close reading skill to critically read scientific and technical texts in order to determine central ideas, claims, and evidence.

Synthesizing Sources

Students use this skill and related academic language supports to integrate information from multiple sources.

Informative Writing Plan

Students use this tool to organize their thoughts and to write scientific and technical texts that explain a model, a process, or data.
SEP 1: Asking Questions and Defining Problems

College and Career Readiness Standards

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 structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).

RST.9-10.6: 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.

WST.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.

WST.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.

WST.9-10.9: Draw evidence from informational texts to support analysis, reflection, and research.

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

LiteracyTA’s Skills

Critical Concepts
Critical concepts is a teacher lead activity that allows students to gain understanding of unfamiliar words and concepts relevant to the content.

Investigative Reading
Students work in small groups and practice asking and answering self-generated questions while reading scientific and technical texts.

Sequence/Process Organizer
Students use this organizer to explain the steps or process to solving a problem or to demonstrate how to build a system or a tool that provides a solution.

Informative Writing Plan
Students use this tool to organize their thoughts and to write scientific documents that summarize their research and findings.
SEP 2: Developing and Using Models

College and Career Readiness Standards

SL.9-10.1: Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.

SL.9-10.4: Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.

SL.9-10.6: Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See grades 9-10 Language standards 1 and 3 here for specific expectations.)

WST.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.

WST.9-10.9: Draw evidence from informational texts to support analysis, reflection, and research.

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

LiteracyTA’s Skills

Cause and Effect Organizer
Students use this organizer to explore and express cause and effect relationships when developing or building a model.

Problem and Solution Organizer
Students use this organizer to explore and explain problem and solution relationships when developing or building a model.

Informative Writing Plan
Students use this tool to organize their thoughts and to write scientific and technical texts that explain a model, a process, or data.

Peer Review
Students work in small groups to revise and/or modify a pre-existing model or work together to revise an original model.
SEP 3: Planning and Carrying Out Investigations

College and Career Readiness Standards

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.

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.

WST.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.

WST.9-10.9: Draw evidence from informational texts to support analysis, reflection, and research.

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

LiteracyTA’s Skills

Analyzing Data
Students use this graphic organizer to determine the meaning of quantitative or technical information and translate visual information into words.

Investigative Reading
Students work in small groups and practice asking and answering self-generated questions while reading scientific and technical texts.

Sequence/Process Organizer
Students use this organizer to explain the steps or process to solving a problem or to demonstrate how to build a system or a tool that provides a solution.

Informative Writing Plan
Students use this tool to organize their thoughts and to write scientific and technical texts that explain a model, a process, or data.

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SEP 4: Analyzing and Interpreting Data

College and Career Readiness Standards

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

WST.9-10.9: Draw evidence from informational texts to support analysis, reflection, and research.

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

LiteracyTA’s Skills

Analyzing Data
Students use this graphic organizer to determine the meaning of quantitative or technical information and translate visual information into words.

Introducing Sources
Students use language templates to help introduce and discuss data from scientific and technical texts.

Sequence/Process Organizer
Students use this organizer to explain the steps or process to solving a problem or to demonstrate how to build a system or a tool that provides a solution.
SEP 6: Constructing Explanations and Designing Solutions

College and Career Readiness Standards

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.

WST.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.

WST.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.

WST.9-10.9: Draw evidence from informational texts to support analysis, reflection, and research.

WST.9-10.1: Write arguments focused on discipline-specific content.

LiteracyTA’s Skills

Taking Research Notes
Students use this graphic organizer to gather relevant information from multiple scientific and technical texts.

Compare and Contrast Organizer
Students use this graphic organizer to compare and contrast findings presented in text to those from other sources like demonstrations and experiments.

Introducing Sources
Students use language templates to help introduce and discuss information presented in scientific and technical texts.

Argument Writing Plan
Students use this tool to organize their arguments with reasons and evidence from scientific and technical texts.
SEP 7: Engaging an Argument from Evidence

**College and Career Readiness Standards**

RST.9-10.8: 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.

RST.9-10.6: 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.

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.

WST.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.

RST.9-10.9: Draw evidence from informational texts to support analysis, reflection, and research.

RST.9-10.1: Write arguments focused on discipline-specific content.

**LiteracyTA’s Skills**

**Marking a Text**
Students use this close reading skill to identify claims and evidence in a text. Once the text is marked, students can evaluate the claims and evidence.

**Analyzing Evidence**
Students analyze the quality, credibility, and sufficiency of evidence given in written and spoken arguments.

**Compare and Contrast Organizer**
Students use this graphic organizer to compare and contrast two arguments on the same topic and analyze the evidence and interpretation of facts.

**Argument Writing Plan**
Students use this tool to make arguments about the natural world or the effectiveness of a design solution using scientific knowledge and evidence.
SEP 8: Obtaining, Evaluating, and Communicating Information

College and Career Readiness Standards

RST.9-10.2: 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.

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.9-10.6: 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.

WST.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.

WST.9-10.9: Draw evidence from informational texts to support analysis, reflection, and research.

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

LiteracyTA’s Skills

Analyzing Data
Students use this graphic organizer to determine the meaning of quantitative or technical information and translate visual information into words.

Marking a Text
Students use this close reading skill to critically read scientific and technical texts in order to determine central ideas, claims, and evidence.

Synthesizing Sources
Students use this skill and related academic language supports to integrate information from multiple sources.

Informative Writing Plan
Students use this tool to organize their thoughts and to write scientific and technical texts that explain a model, a process, or data.
SEP 1: Asking Questions and Defining Problems

**College and Career Readiness Standards**

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: Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.

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.

WST.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.

WST.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.

WST.11-12.9: Draw evidence from informational texts to support analysis, reflection, and research.

WST.11-12.2: Write informative/explanatory texts.

**LiteracyTA’s Skills**

- **Critical Concepts**
  Critical concepts is a teacher lead activity that allows students to gain understanding of unfamiliar words and concepts relevant to the content.

- **Investigative Reading**
  Students work in small groups and practice asking and answering self-generated questions while reading scientific and technical texts.

- **Sequence/Process Organizer**
  Students use this organizer to explain the steps or process to solving a problem or to demonstrate how to build a system or a tool that provides a solution.

- **Informative Writing Plan**
  Students use this tool to organize their thoughts and to write scientific documents that summarize their research and findings.
SEP 2: Developing and Using Models

College and Career Readiness Standards

SL.11-12.1: Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11-12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

SL.11-12.4: Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.

SL.11-12.6: Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate. (See grades 11-12 Language standards 1 and 3 here for specific expectations.)

WST.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.

WST.11-12.9: Draw evidence from informational texts to support analysis, reflection, and research.

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

LiteracyTA’s Skills

- **Cause and Effect Organizer**
  Students use this organizer to explore and express cause and effect relationships when developing or building a model.

- **Problem and Solution Organizer**
  Students use this organizer to explore and explain problem and solution relationships when developing or building a model.

- **Informative Writing Plan**
  Students use this tool to organize their thoughts and to write scientific and technical texts that explain a model, a process, or data.

- **Peer Review**
  Students work in small groups to revise and/or modify a pre-existing model or work together to revise an original model.
SEP 3: Planning and Carrying Out Investigations

College and Career Readiness Standards

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.

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.

WST.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.

WST.11-12.9: Draw evidence from informational texts to support analysis, reflection, and research.

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

LiteracyTA’s Skills

Analyzing Data
Students use this graphic organizer to determine the meaning of quantitative or technical information and translate visual information into words.

Investigative Reading
Students work in small groups and practice asking and answering self-generated questions while reading scientific and technical texts.

Sequence/Process Organizer
Students use this organizer to explain the steps or process to solving a problem or to demonstrate how to build a system or a tool that provides a solution.

Informative Writing Plan
Students use this tool to organize their thoughts and to write scientific and technical texts that explain a model, a process, or data.
SEP 4: Analyzing and Interpreting Data

College and Career Readiness Standards

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.11-12.5: Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.

WST.11-12.9: Draw evidence from informational texts to support analysis, reflection, and research.

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

LiteracyTA’s Skills

Analyzing Data
Students use this graphic organizer to determine the meaning of quantitative or technical information and translate visual information into words.

Introducing Sources
Students use language templates to help introduce and discuss data from scientific and technical texts.

Sequence/Process Organizer
Students use this organizer to explain the steps or process to solving a problem or to demonstrate how to build a system or a tool that provides a solution.

Analyzing Text Structure
Students use this skill to analyze how speakers and writers use text structure to communicate information in science and technical texts.
SEP 6: Constructing Explanations and Designing Solutions

College and Career Readiness Standards

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.

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.

WST.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.

WST.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.

WST.11-12.9: Draw evidence from informational texts to support analysis, reflection, and research.

WST.11-12.1: Write arguments focused on discipline-specific content.

LiteracyTA’s Skills

Taking Research Notes
Students use this graphic organizer to gather relevant information from multiple scientific and technical texts.

Compare and Contrast Organizer
Students use this graphic organizer to compare and contrast findings presented in text to those from other sources like demonstrations and experiments.

Introducing Sources
Students use language templates to help introduce and discuss information presented in scientific and technical texts.

Argument Writing Plan
Students use this tool to organize their arguments with reasons and evidence from scientific and technical texts.
SEP 7: Engaging an Argument from Evidence

College and Career Readiness Standards

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.11-12.6: 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.

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.

WST.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.

RST.11-12.9: Draw evidence from informational texts to support analysis, reflection, and research.

RST.11-12.1: Write arguments focused on discipline-specific content.

LiteracyTA’s Skills

Marking a Text
Students use this close reading skill to identify claims and evidence in a text. Once the text is marked, students can evaluate the claims and evidence.

Analyzing Evidence
Students analyze the quality, credibility, and sufficiency of evidence given in written and spoken arguments.

Compare and Contrast Organizer
Students use this graphic organizer to compare and contrast two arguments on the same topic and analyze the evidence and interpretation of facts.

Argument Writing Plan
Students use this tool to make arguments about the natural world or the effectiveness of a design solution using scientific knowledge and evidence.
SEP 8: Obtaining, Evaluating, and Communicating Information

College and Career Readiness Standards

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

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.9-10.6: 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.

WST.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.

WST.11-12.9: Draw evidence from informational texts to support analysis, reflection, and research.

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

LiteracyTA’s Skills

Analyzing Data
Students use this graphic organizer to determine the meaning of quantitative or technical information and translate visual information into words.

Marking a Text
Students use this close reading skill to critically read scientific and technical texts in order to determine central ideas, claims, and evidence.

Synthesizing Sources
Students use this skill and related academic language supports to integrate information from multiple sources.

Informative Writing Plan
Students use this tool to organize their thoughts and to write scientific and technical texts that explain a model, a process, or data.