Illinois Standards-Aligned Instruction for Libraries • 2015

Aligned with Illinois Common Core Standards,
Next Generation Science Standards,
AASL Standards for the 21st Century Learner,
and Guided by the ISTE Standards
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The Illinois School Library Media Association (ISLMA) would like to express its appreciation to the following persons for assisting with the design and development of this project:

ISLMA Standards Committee consisting of:

2015: Holly Pantle, Chair; Laura Winters, Board Representative; Rebecca Swanson, Becky Robinson, Jennifer Campbell, Angie Green, Pat Salvatini, Dan Heaver, Nancy Wadin, Emily Pickell.

2011: Becky Robinson, Chair; Erin Wyatt, Board Representative; Pam Kramer, Adviser Katie Alexander, Vandora Elfrink, Inma Galan-Leonard, Angie Green, Marianne O'Keefe, Pat Salvatini, Christy Semande, Paula Shapiro, Karen Smith-Cox.

2008: Becky Robinson, Chair;
Connie Amon, Dorsey Chambers, Kristen Considine, Angie Green,
John Moranski, Daniel Russo, Christy Semande.

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Purpose

To empower, educate, and encourage school library information specialists to plan strategically with other teachers to incorporate information literacy skills in lessons and thereby provide college and career readiness for students.

Vision

The vision of the ISLMA Standards Committee is that this framework will be used to aid in demonstrating the cross-curricular value of school libraries. If used properly, this framework, along with collaboration with other classroom teachers, will provide the data many administrators use for making decisions.

History

Annually, the Alliance Library System consulting staff (now part of RAILS-Reaching Across Illinois Library System) conducted site visits at each of its member libraries. In 2007, the staff noticed a need for an information literacy or library skills curriculum aligned with the Illinois Learning Standards and the new American Association for School Librarians (AASL) standards. In January 2008, a focus group researched sample curricula and drafted the format of the final tool. In August 2008, the Alliance Library System staff, with the help of member librarians, published the first version in CD format and as an online wiki. In October 2008, the framework was presented to the Illinois School Library Media Association (ISLMA) for adoption as a statewide model. The 2011 revision occurred as a response to the adoption of the Illinois Common Core Standards in English and Math. The 2015 revision occurred as a response to the Next Generation Science Standards. The I-SAIL document will continue to be revised as needed to maintain its currency and usefulness.
I-SAIL Standards

Standard 1: Access information efficiently and effectively to inquire, think critically, and gain knowledge
- Recognize the need for information
- Formulate questions based on information needs
- Identify various potential sources of information
- Develop and use successful strategies for locating information
  - Seek information from diverse sources

Standard 2: Evaluate information critically and competently
- Determine accuracy, relevance, and comprehensiveness of information
- Distinguish among fact, point of view, and opinion
- Identify inaccurate and misleading information
- Select information appropriate to the problem or question

Standard 3: Use information accurately, creatively, and ethically to share knowledge and to participate collaboratively and productively as a member of a democratic society
- Organize information for practical application
- Integrate new information into own schema
- Produce and communicate information and ideas in appropriate formats
- Use problem-solving techniques to devise strategies for improving process or product
- Practice ethical behavior when using print and digital resources (including freedom of speech, intellectual freedom, copyright, and plagiarism)

Standard 4: Appreciate literature and other creative expressions of thoughts and ideas and pursue knowledge related to personal interests and aesthetic growth
- Cultivate a love of reading and become a self-motivated reader
- Develop a knowledge of genres and literary elements
- Derive meaning from informational texts in various formats

Standard 5: Understand and practice Internet safety when using any electronic media for educational, social, or recreational purposes
- Practice strategies that promote personal safety and protect online and offline reputation
- Recognize that networked environments are public places governed by codes of ethical behavior
- Practice positive digital citizenship
- Distinguish website authority, validity, and purpose
- Understand the need for protecting personal privacy when using public access to digital sources
- Protect personal information and electronic devices in an online environment
## Standard 1

**Access information efficiently and effectively to inquire, think critically, and gain knowledge**

- Recognize the need for information
- Formulate questions based on information needs
- Identify various potential sources of information
- Develop and use successful strategies for locating information
- Seek information from diverse sources

### LIBRARY BENCHMARKS

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>A.</td>
<td>Understand scope, depth, and potential usefulness of more advanced, sophisticated, and diverse resources</td>
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<tr>
<td>B.</td>
<td>Develop and execute successful strategies to access information efficiently and effectively</td>
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### LIBRARY OBJECTIVES

1. With guidance, create a purpose or thesis statement to define an information need and use search strategies to identify resources and locate information
2. Identify and use various strategies and techniques to execute and refine successful searches (e.g., Boolean)
3. Employ advanced features of library catalog and other databases with guidance
4. Consider scope, depth, and accessibility of materials to efficiently select resource most appropriate for information need

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<thead>
<tr>
<th>COMMON CORE STANDARDS</th>
<th>NGSS</th>
<th>AASL STANDARDS FOR THE 21ST CENTURY LEARNER</th>
<th>ISTE STANDARDS: STUDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reading Informational Text</strong>&lt;br&gt;Craft and Structure&lt;br&gt;CC.9-10.RI.6 Determine an author’s point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose.</td>
<td><strong>Physical Sciences</strong>&lt;br&gt;&lt;i&gt;Matter and Its Interactions&lt;/i&gt;&lt;br&gt;HS-PS1-3. Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles.</td>
<td>1.1.1 Follow an inquiry-based process in seeking knowledge in curricular subjects and make the real world connection for using this process in own life.</td>
<td>3. Research and Information Fluency&lt;br&gt;Students apply digital tools to gather, evaluate, and use information. Students: a. plan strategies to guide inquiry. b. locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media. c. evaluate and select information sources and digital tools based on the appropriateness to specific tasks.</td>
</tr>
<tr>
<td><strong>Writing</strong>&lt;br&gt;Text Types and Purposes&lt;br&gt;CC.9-10.W.2.b Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience’s knowledge of the topic.</td>
<td><strong>Motion and Stability: Forces and Interactions</strong>&lt;br&gt;HS-PS2-5. Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.</td>
<td>1.1.2 Use prior and background knowledge as context for new learning.</td>
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<tr>
<td><strong>Research to Build and Present Knowledge</strong>&lt;br&gt;CC.9-10.W.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.&lt;br&gt;CC.9-10.W.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.</td>
<td><strong>Energy</strong>&lt;br&gt;HS-PS3-4. Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics).</td>
<td>1.1.3 Develop and refine a range of questions to frame search for new understanding.</td>
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<tr>
<td><strong>Life Science</strong>&lt;br&gt;From Molecules to Organisms: Structures and Processes&lt;br&gt;HS-LS1-1. Construct an explanation based on evidence</td>
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<td>1.1.4 Find, evaluate, and select appropriate sources to answer questions.</td>
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<td>1.1.5 Evaluate information found in selected sources on the basis of accuracy, validity, appropriateness for needs, importance, and social and cultural context.</td>
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<td>1.1.6 Read, view, and listen for information presented in any format (e.g., textual, visual, media, digital) in order to make inferences and gather meaning.</td>
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<td></td>
<td>1.1.7 Make sense of information gathered from diverse sources by identifying misconceptions, main and supporting ideas, conflicting information, and point of view or bias.</td>
<td>4. Critical Thinking, Problem Solving, and Decision Making&lt;br&gt;Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. Students: a. identify and define authentic problems and significant questions for investigation. b. plan and manage activities to develop a solution or complete a project. c. collect and analyze data to identify solutions and/or make informed decisions.</td>
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<td>1.1.8 Demonstrate mastery of</td>
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<thead>
<tr>
<th>CC.9-10.W.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.</th>
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<tbody>
<tr>
<td><strong>Language</strong></td>
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<tr>
<td><strong>Vocabulary Acquisition and Use</strong></td>
</tr>
<tr>
<td>CC.9-10.L.4 Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 9–10 reading and content, choosing flexibly from a range of strategies.</td>
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<tr>
<td>CC.9-10.L.4.c Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology.</td>
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<tr>
<td>CC.9-10.L.4.d Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).</td>
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<tr>
<td><strong>Reading in History/Social Studies</strong></td>
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<tr>
<td><strong>Craft and Structure</strong></td>
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<tr>
<td>CC.9-10.RH.4 Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history/social science.</td>
</tr>
<tr>
<td><strong>Integration of Knowledge and Ideas</strong></td>
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<tr>
<td>CC.9-10.RH.9 Compare and contrast treatments of the same topic in several primary and secondary sources.</td>
</tr>
<tr>
<td><strong>Reading in Science and Technical Subjects</strong></td>
</tr>
<tr>
<td><strong>Key Ideas and Details</strong></td>
</tr>
<tr>
<td>CC.9-10.RST.1 Cite specific textual evidence to support analysis of science and technical subjects for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.</td>
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<tr>
<td>HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.</td>
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<tr>
<td>HS-LS1-3. Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.</td>
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<tr>
<td>HS-LS1-6. Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules.</td>
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<tr>
<td><strong>Ecosystems: Interactions, Energy, and Dynamics</strong></td>
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<tr>
<td>HS-LS2-1. Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.</td>
</tr>
<tr>
<td>HS-LS2-2. Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.</td>
</tr>
<tr>
<td>HS-LS2-3. Construct and revise an explanation based on technology tools for accessing information and pursuing inquiry.</td>
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<tr>
<td>1.1.9 Collaborate with others to broaden and deepen understanding.</td>
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<tr>
<td>1.2.1 Display initiative and engagement by posing questions and investigating the answers beyond the collection of superficial facts.</td>
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<tr>
<td>1.2.2 Demonstrate confidence and self-direction by making independent choices in the selection of resources and information.</td>
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<tr>
<td>1.2.3 Demonstrate creativity by using multiple resources and formats.</td>
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<tr>
<td>1.2.4 Maintain a critical stance by questioning the validity and accuracy of all information.</td>
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<tr>
<td>1.2.5 Demonstrate adaptability by changing the inquiry focus, questions, resources, or strategies when necessary to achieve success.</td>
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<tr>
<td>1.2.6 Display emotional resilience by persisting in information searching despite challenges.</td>
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<td>1.2.7 Display persistence by continuing to pursue information to gain a broad perspective.</td>
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<tr>
<td>1.3.1 Respect copyright/intellectual property rights of creators and producers.</td>
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<tr>
<td>1.3.2 Seek divergent perspectives during information gathering and assessment.</td>
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<tr>
<td>1.3.8 Support precision of language when engaging in discussions about technical subjects.</td>
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<tr>
<td>d. use multiple processes and diverse perspectives to explore alternative solutions.</td>
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**5. Digital Citizenship**
Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

- a. advocate and practice safe, legal, and responsible use of information and technology.
- b. exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.
- c. demonstrate personal responsibility for lifelong learning.
- d. exhibit leadership for digital citizenship.

**6. Technology Operations and Concepts**
Students demonstrate a sound understanding of technology concepts, systems, and operations.

- a. understand and use technology systems.
- b. select and use applications effectively and productively.
- d. transfer current knowledge to learning of new technologies.

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texts, attending to the precise details of explanations or descriptions.

**Craft and Structure**

**Writing in History/Social Studies, Science, and Technical Subjects**

**Research to Build and Present Knowledge**

CC.9-10.RST.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.

CC.9-10.WHST.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.

CC.9-10.WHST.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.

**Statistics and Probability**

**Making Inferences and Justifying Conclusions**

CC.9-12.S.IC.6 Make inferences and justify conclusions from sample surveys, experiments, and observational studies. Evaluate reports based on data.*

| 1.3.3 Follow ethical and legal guidelines in gathering and using information. |
| 1.3.4 Contribute to the exchange of ideas within the learning community. |
| 1.3.5 Use information technology responsibly. |
| 1.4.1 Monitor own information seeking processes for effectiveness and progress, and adapt as necessary. |
| 1.4.2 Use interaction with and feedback from teachers and peers to guide own inquiry process. |
| 1.4.3 Monitor gathered information and assess for gaps or weaknesses. |
| 1.4.4 Seek appropriate help when it is needed. |
| 2.1.1 Continue an inquiry-based research process by applying critical thinking skills (analysis, synthesis, evaluation, organization) to information and knowledge in order to construct new understandings, draw conclusions, and create new knowledge. |
| 2.1.2 Organize knowledge so that it is useful. |
| 2.1.3 Use strategies to draw conclusions from information and apply knowledge to curricular areas, real world situations, and further investigations. |
| 2.1.6 Use the writing process. |

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*Evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions. HS-LS2-5. Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere. HS-LS2-7. Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.*

**Heredity: Inheritance and Variation of Traits**

HS-LS3-1. Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.

HS-LS3-2. Make and defend a claim based on evidence that inheritable genetic variations may result from: (1) new genetic combinations through meiosis, (2) viable errors occurring during replication, and/or (3) mutations caused by environmental factors.

**Biological Evolution: Unity and Diversity**

HS-LS4-1. Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions. HS-LS2-5. Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere. HS-LS2-7. Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.

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HS-LS4-2. Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment.

HS-LS4-4. Construct an explanation based on evidence for how natural selection leads to adaptation of populations.

HS-LS4-5. Evaluate the evidence supporting claims that changes in environmental conditions may result in: (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.

HS-LS4-6. Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.

Earth and Space Sciences

Earth’s Place in the Universe
HS-ESS1-1. Develop a model based on evidence to illustrate the life span of the sun and other stars in the Milky Way galaxy. This model should demonstrate that the formation of stars occurs within rotating clouds of material known as nebulae. Media and visual literacy, and technology skills to create products that express new understandings.

2.2.1 Demonstrate flexibility in use of resources by adapting information strategies to each specific resource and by seeking additional resources when clear conclusions cannot be drawn.

2.2.2 Use both divergent and convergent thinking to formulate alternative conclusions and test them against the evidence.

2.2.3 Employ a critical stance in drawing conclusions by demonstrating that the pattern of evidence leads to a decision or conclusion.

3.1.1 Conclude an inquiry-based research process by sharing new understandings and reflecting on the learning.

3.1.3 Use writing and speaking skills to communicate new evidence.

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and the role of nuclear fusion in the sun’s core to release energy in the form of radiation.

HS-ESS1-2. Construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe.

HS-ESS1-3. Communicate scientific ideas about the way stars, over their life cycle, produce elements.

HS-ESS1-5. Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.

HS-ESS1-6. Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth’s formation and early history.

**Earth’s Systems**

HS-ESS2-2. Analyze geoscience data to make the claim that one change to Earth’s surface can create feedbacks that cause changes to other Earth systems.

HS-ESS2-3. Develop a model based on evidence of Earth’s interior to describe the cycling of matter by thermal convection.

HS-ESS2-5. Plan and conduct investigations to elucidate how energy is transferred through an Earth system.

3.1.4 Use technology and other information tools to organize and display knowledge and understanding in ways that others can view, use, and assess.

3.1.5 Connect learning to community issues.

3.1.6 Use information and technology ethically and responsibly.

3.3.1 Solicit and respect diverse perspectives while searching for information, collaborating with others, and participating as a member of the community.

3.3.2 Respect the differing interests and experiences of others and seek a variety of viewpoints.

3.3.7 Respect the principles of intellectual freedom.

4.1.3 Respond to literature and creative expressions of ideas in various formats and genres.

4.4.4 Interpret new information based on cultural and social context.

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conducted an investigation of the properties of water and its effects on Earth materials and surface processes.

**HS-ESS2-6. Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.**

**HS-ESS2-7. Construct an argument based on evidence about the simultaneous coevolution of Earth's systems and life on Earth.**

**Earth and Human Activity**

**HS-ESS3-1. Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.**

**HS-ESS3-2. Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.**

**HS-ESS3-3. Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.**

**HS-ESS3-4. Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.**

**HS-ESS3-5. Analyze geoscience data and the results**
from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems.

**Engineering, Technology, and Applications of Science**

**Engineering Design**

HS-ETS1-1. Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.

HS-ETS1-3. Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.

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**Standard 2**

**Evaluate information critically and competently**

- Determine accuracy, relevance, and comprehensiveness of information
- Distinguish among fact, point of view, and opinion
- Identify inaccurate and misleading information
- Select information appropriate to the problem or question

<table>
<thead>
<tr>
<th>LIBRARY BENCHMARKS</th>
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<tbody>
<tr>
<td>A. Identify main, supporting, and conflicting information using multiple sources to support interpretation or point of view</td>
</tr>
<tr>
<td>B. Critically examine and analyze relevant information from various sources to discover relationships and patterns among ideas</td>
</tr>
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<th>LIBRARY OBJECTIVES</th>
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<td>1. Read, view, and listen to information critically</td>
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<tr>
<td>2. Apply evaluative criteria to print and/or nonprint materials to determine the relative value of the information: relevancy, suitability, authority, objectivity, currency</td>
</tr>
<tr>
<td>3. Identify information relevant and essential to the information need</td>
</tr>
<tr>
<td>4. Use paraphrasing, highlighting, or other extraction techniques or strategies to identify and record relevant information</td>
</tr>
<tr>
<td>5. Combine ideas and information to develop and demonstrate new understanding</td>
</tr>
<tr>
<td>6. Work with others to select, organize, and integrate information and ideas from various sources and formats</td>
</tr>
<tr>
<td>7. Use technology tools, online environments, and other collaborative tools to create and share information</td>
</tr>
<tr>
<td>8. Cite all sources used according to style formats within print and electronic resources effectively and independently</td>
</tr>
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### COMMON CORE STANDARDS

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<tr>
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<th>AASL STANDARDS FOR THE 21ST CENTURY LEARNER</th>
<th>ISTE STANDARDS: STUDENTS</th>
</tr>
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<tbody>
<tr>
<td><strong>Key Ideas and Details</strong></td>
<td></td>
<td>1.1.1 Follow an inquiry-based process in seeking knowledge in curricular subjects and make the real world connection for using this process in own life.</td>
<td>1. Creativity and Innovation</td>
</tr>
<tr>
<td>CC.9-10.RL.1 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.</td>
<td></td>
<td>1.1.2 Use prior and background knowledge as context for new learning.</td>
<td>Students:</td>
</tr>
<tr>
<td><strong>Craft and Structure</strong></td>
<td></td>
<td>1.1.3 Develop and refine a range of questions to frame search for new understanding.</td>
<td>a. apply existing knowledge to generate new ideas, products, or processes.</td>
</tr>
<tr>
<td>CC.9-10.RL.6 Analyze a particular point of view or cultural experience reflected in a work of literature from outside the United States, drawing on a wide reading of world literature.</td>
<td></td>
<td>1.1.4 Find, evaluate, and select appropriate sources to answer questions.</td>
<td>b. create original works as a means of personal or group expression.</td>
</tr>
<tr>
<td><strong>Integration of Knowledge and Ideas</strong></td>
<td></td>
<td>1.1.6 Read, view, and listen for information presented in any format (e.g., textual, visual, media, digital) in order to make inferences and gather meaning.</td>
<td>c. use models and simulations to explore complex systems and issues.</td>
</tr>
<tr>
<td>CC.9-10.RL.7 Analyze the representation of a subject or a key scene in two different artistic mediums, including what is emphasized or absent in each treatment (e.g., Auden’s “Musée des Beaux Arts” and Breughel’s Landscape with the Fall of Icarus).</td>
<td></td>
<td>1.1.7 Make sense of information gathered from diverse sources by identifying misconceptions, main and supporting ideas, conflicting information, and point of view or bias.</td>
<td>2. Communication and Collaboration</td>
</tr>
<tr>
<td><strong>Reading Informational Text</strong></td>
<td></td>
<td>1.1.8 Demonstrate mastery of technology tools to access information and pursue inquiry.</td>
<td>Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. Students:</td>
</tr>
<tr>
<td><strong>Key Ideas and Details</strong></td>
<td></td>
<td>1.2.1 Display initiative and engagement by posing questions and investigating the answers beyond the collection</td>
<td>a. interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.</td>
</tr>
<tr>
<td>CC.9-10.RL.1 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.</td>
<td></td>
<td>1.2.2 Create original works as a means of personal or group expression.</td>
<td>b. communicate information and ideas effectively to multiple audiences using a variety of media and formats.</td>
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<tr>
<td>CC.9-10.RL.2 Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of</td>
<td></td>
<td>2.1.1 Analyze the representation of a subject or a key scene in two different artistic mediums, including what is emphasized or absent in each treatment (e.g., Auden’s “Musée des Beaux Arts” and Breughel’s Landscape with the Fall of Icarus).</td>
<td></td>
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</table>

**Physical Sciences**

**Matter and Its Interactions**

HS-PS1-1. Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.

**Motion and Stability: Forces and Interactions**

HS-PS2-2. Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

**Waves and Their Applications in Technologies for Information Transfer**

HS-PS4-1. Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.

HS-PS4-2. Evaluate questions about the advantages of using a digital transmission and storage of information.

HS-PS4-3. Evaluate the claims, evidence, and reasoning behind the idea that

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the text.

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

Craft and Structure
CC.9-10.RI.4 Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).

CC.9-10.RI.5 Analyze in detail how an author’s ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).

CC.9-10.RI.6 Determine an author’s point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose.

Integration of Knowledge and Ideas
CC.9-10.RI.7 Analyze various accounts of a subject told in different mediums (e.g., a person’s life story in both print and multimedia), determining which details are emphasized in each account.

CC.9-10.RI.8 Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.

CC.9-10.RI.9 Analyze seminal U.S. documents of historical and literary significance (e.g., Washington’s Farewell Address, the

Life Science
From Molecules to Organisms: Structures and Processes
HS-LS1-1. Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.

HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

HS-LS1-3. Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.

HS-LS1-4. Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.

HS-LS1-5. Use a model to of superficial facts.

1.2.2 Demonstrate confidence and self-direction by making independent choices in the selection of resources and information.

1.2.3 Demonstrate creativity by using multiple resources and formats.

1.2.4 Maintain a critical stance by questioning the validity and accuracy of all information.

1.2.5 Demonstrate adaptability by changing the inquiry focus, questions, resources, or strategies when necessary to achieve success.

1.2.6 Display emotional resilience by persisting in information searching despite challenges.

1.2.7 Display persistence by continuing to pursue information to gain a broad perspective.

1.3.1 Respect copyright/intellectual property rights of creators and producers.

1.3.2 Seek divergent perspectives during information gathering and assessment.

1.3.3 Follow ethical and legal guidelines in gathering and using information.

1.3.5 Use information technology responsibly.

1.4.1 Monitor own information seeking processes for effectiveness and progress, and adapt as necessary.

1.4.3 Monitor gathered information and adapt as necessary.

d. contribute to project teams to produce original works or solve problems.

3. Research and Information Fluency
Students apply digital tools to gather, evaluate, and use information. Students:

a. plan strategies to guide inquiry.

b. locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.

c. evaluate and select information sources and digital tools based on the appropriateness to specific tasks.

d. process data and report results.

4. Critical Thinking, Problem Solving, and Decision Making
Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. Students:

a. identify and define authentic problems and significant questions for investigation.

b. plan and manage activities to develop a solution or complete a project.

c. collect and analyze data to identify solutions and/or make informed decisions.

d. use multiple processes and diverse perspectives to

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RP=Rations and History

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Gettysburg Address, Roosevelt’s Four Freedoms speech, King’s “Letter From Birmingham Jail”), including how they address related themes and concepts.

Writing

Text Types and Purposes

CC.9-10.W.1 Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
CC.9-10.W.2.a Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
CC.9-10.W.2.b Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience’s knowledge of the topic.

Research to Build and Present Knowledge

CC.9-10.W.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 and assess for gaps or weaknesses.

HS-LS1-6. Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules.

HS-LS1-7. Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.

Ecosystems: Interactions, Energy, and Dynamics

HS-LS2-1. Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.

HS-LS2-2. Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.

HS-LS2-3. Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions.

HS-LS2-4. Use and assess for gaps or weaknesses.

2.1.1 Continue an inquiry-based research process by applying critical thinking skills (analysis, synthesis, evaluation, organization) to information and knowledge in order to construct new understandings, draw conclusions, and create new knowledge.

2.1.2 Organize knowledge so that it is useful.

2.1.3 Use strategies to draw conclusions from information and apply knowledge to curricular areas, real world situations, and further investigations.

2.1.4 Use technology and other information tools to analyze and organize information.

2.1.5 Collaborate with others to exchange ideas, develop new understandings, make decisions, and solve problems.

2.1.6 Use the writing process, media and visual literacy, and technology skills to create products that express new understandings.

2.2.1 Demonstrate flexibility in the use of resources by adapting information strategies to each specific resource and by seeking additional resources when clear conclusions cannot be drawn.

2.2.2 Use both divergent and convergent strategies to explore alternative solutions.

5. Digital Citizenship

Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

Students:

a. advocate and practice safe, legal, and responsible use of information and technology.
b. exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.
c. demonstrate personal responsibility for lifelong learning.
d. exhibit leadership for digital citizenship.

6. Technology Operations and Concepts

Students demonstrate a sound understanding of technology concepts, systems, and operations.

Students:

a. understand and use technology systems.
b. select and use applications effectively and productively.
c. troubleshoot systems and applications.
d. transfer current knowledge to learning of new technologies.
<table>
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<tr>
<th>Nature of the Inquiry</th>
<th>Support the Conclusion with Evidence</th>
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<td>Develop a model to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.</td>
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<td><strong>Science Inquiry</strong></td>
<td>Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere.</td>
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<td><strong>Critical Thinking</strong></td>
<td>Develop a model to evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.</td>
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<td><strong>Ethical Decision Making</strong></td>
<td>Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.</td>
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<td><strong>Argumentation</strong></td>
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### Reading in History/Social Studies

**Key Ideas and Details**

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<th>CC.9-10.RH.1</th>
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</tr>
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<tbody>
<tr>
<td>CC.9-10.RH.2</td>
<td>Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.</td>
</tr>
<tr>
<td>CC.9-10.RH.1.c</td>
<td>Propose conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions.</td>
</tr>
<tr>
<td>CC.9-10.RH.1.d</td>
<td>Respond thoughtfully to diverse perspectives, summarize points of agreement and disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented.</td>
</tr>
<tr>
<td>CC.9-10.RH.2</td>
<td>Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.</td>
</tr>
<tr>
<td>CC.9-10.RH.3</td>
<td>Evaluate a speaker’s point of view, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence.</td>
</tr>
</tbody>
</table>

**Biological Evolution: Unity and Diversity**

- **HS-LS4-1.** Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence.
- **HS-LS4-2.** Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment.
- **HS-LS4-3.** Apply concepts of statistics and probability to support explanations that organisms with an advantageous heritable trait tend to increase in proportion to organisms lacking this trait.
- **HS-LS4-4.** Construct an explanation based on evidence for how natural selection leads to adaptation of populations.
- **HS-LS4-5.** Evaluate the evidence supporting claims that changes in environmental conditions may result in: (1) increases in the number of and display knowledge and understanding in ways that others can view, use, and assess.

**3.1.5 Connect learning to community issues.**

**3.1.6 Use information and technology ethically and responsibly.**

**3.2.2 Show social responsibility by participating actively with others in learning situations and by contributing questions and ideas during group discussions.**

**3.3.1 Solicit and respect diverse perspectives while searching for information, collaborating with others, and participating as a member of the community.**

**3.3.2 Respect the differing interests and experiences of others and seek a variety of viewpoints.**

**3.3.3 Use knowledge and information skills and dispositions to engage in public conversation and debate around issues of common concern.**

**3.3.6 Use information and knowledge in the service of democratic values.**

**3.3.7 Respect the principles of intellectual freedom.**

**3.4.1 Access the process by which learning was achieved in order to revise strategies and learn more effectively in the future.**

**3.4.2 Assess the quality and diversity of historical, literary, and scientific sources.**
CC.9-10.RH.3 Analyze in detail a series of events described in a text; determine whether earlier events caused later ones or simply preceded them.

Craft and Structure
CC.9-10.RH.6 Compare the point of view of two or more authors for how they treat the same or similar topics, including which details they include and emphasize in their respective accounts.

CC.9-10.RH.8 Assess the extent to which the reasoning and evidence in a text support the author’s claims.

CC.9-10.RH.9 Compare and contrast treatments of the same topic in several primary and secondary sources.

Reading in Science and Technical Subjects
Key Ideas and Details
CC.9-10.RST.1 Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.

CC.9-10.RST.2 Determine the central ideas or conclusions of a text; trace the text’s explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.

Craft and Structure
CC.9-10.RST.5 Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).

CC.9-10.RST.6 Analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, defining the question the author seeks to address.

individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.

HS-LS4-6. Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.

Earth and Space Sciences
Earth’s Place in the Universe
HS-ESS1-1. Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun’s core to release energy in the form of radiation.

HS-ESS1-2. Construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe.

HS-ESS1-5. Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.

HS-ESS1-6. Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth’s formation and early history.

Earth’s Systems
HS-ESS2-2. Analyze geoscience data to make the claim effectiveness of the learning product.

4.1.1 Read, view, and listen for pleasure and personal growth.

4.1.2 Read widely and fluently to make connections with own self, the world, and previous reading.

4.1.3 Respond to literature and creative expressions of ideas in various formats and genres.

4.1.6 Organize personal knowledge in a way that can be called upon easily.

4.2.3 Maintain openness to new ideas by considering divergent opinions, changing opinions or conclusions when evidence supports the change, and seeking information about new ideas encountered through academic or personal experiences. 4.4.4 Interpret new information based on cultural and social context.

4.2.4 Show an appreciation for literature by electing to read for pleasure and expressing an interest in various literary genres.

4.3.2 Recognize that resources are created for a variety of purposes.

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### Integration of Knowledge and Ideas

**CC.9-10.RST.7** Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.

**CC.9-10.RST.8** Assess the extent to which the reasoning and evidence in a text support the author's claim or a recommendation for solving a scientific or technical problem.

**CC.9-10.RST.9** Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.

### Writing in History/Social Studies, Science, and Technical Subjects

**Text Types and Purposes**

**CC.9-10.WHST.1.b** Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns.

**CC.9-10.WHST.2.a** Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

**CC.9-10.WHST.2.b** Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, that one change to Earth’s surface can create feedbacks that cause changes to other Earth systems.

**HS-ESS2-3.** Develop a model based on evidence of Earth’s interior to describe the cycling of matter by thermal convection.

**HS-ESS2-5.** Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.

**HS-ESS2-7.** Construct an argument based on evidence about the simultaneous coevolution of Earth’s systems and life on Earth.

### Earth and Human Activity

**HS-ESS3-1.** Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.

**HS-ESS3-2.** Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.

**HS-ESS3-4.** Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.

**HS-ESS3-5.** Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or

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quotations, or other information and examples appropriate to the audience's knowledge of the topic.

**Production and Distribution of Writing**
CC.9-10.WHST.6 Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.

**Research to Build and Present Knowledge**
CC.9-10.WHST.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.

CC.9-10.WHST.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.

CC.9-10.WHST.9 Draw evidence from informational texts to support analysis, reflection, and research.

**Statistics and Probability**
**Making Inferences and Justifying Conclusions**
CC.9-12.S.IC.1 Understand and evaluate random processes underlying statistical experiments. Understand statistics as a process for making inferences about

regional climate change and associated future impacts to Earth systems.

**Engineering, Technology, and Applications of Science**
**Engineering Design**
HS-ETS1-1. Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.

HS-ETS1-3. Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.
population parameters based on a random sample from that population.*

**CC.9-12.S.IC.3** Make inferences and justify conclusions from sample surveys, experiments, and observational studies. Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.*

**CC.9-12.S.IC.5** Make inferences and justify conclusions from sample surveys, experiments, and observational studies. Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.*

**CC.9-12.S.IC.6** Make inferences and justify conclusions from sample surveys, experiments, and observational studies. Evaluate reports based on data.*

### Statistics and Probability

#### Using Probability to Make Decisions

**CC.9-12.S.MD.5 (+)** Use probability to evaluate outcomes of decisions. Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values.*

**CC.9-12.S.MD.5b (+)** Evaluate and compare strategies on the basis of expected values. For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.*
### Standard 3

Use information accurately, creatively, and ethically to share knowledge and to participate collaboratively and productively as a member of a democratic society

- Organize information for practical application
- Integrate new information into own schema
- Produce and communicate information and ideas in appropriate formats
- Use problem-solving techniques to devise strategies for revising and improving process and product
- Practice ethical behavior when using print and digital resources (including freedom of speech, intellectual freedom, copyright, and plagiarism)

### LIBRARY BENCHMARKS

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>A.</td>
<td>Organize and synthesize information from multiple sources</td>
</tr>
<tr>
<td>B.</td>
<td>Create and effectively communicate information and ideas to others</td>
</tr>
<tr>
<td>C.</td>
<td>Understand and respect the concepts of intellectual freedom, intellectual property, and plagiarism</td>
</tr>
</tbody>
</table>

### LIBRARY OBJECTIVES

1. Analyze information and identify topics, subtopics, and relationships
2. Organize information in a logical sequence
3. Select an appropriate format for communicating ideas
4. Develop a formal outline or storyboard
5. Create a product that clearly expresses ideas
6. Use appropriate resources and technology in creating products
7. Revise and refine as necessary
8. Present, perform, or share information and ideas successfully
9. Evaluate product or presentation
10. Do not plagiarize
11. Observe copyright guidelines
12. Cite print and nonprint sources in a properly formatted bibliography
13. Respect intellectual freedom and recognize various viewpoints

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### COMMON CORE STANDARDS

<table>
<thead>
<tr>
<th><strong>Reading Literature</strong></th>
<th><strong>Physical Sciences Matter and Its Interactions</strong></th>
<th><strong>AASL STANDARDS FOR THE 21ST CENTURY LEARNER</strong></th>
<th><strong>ISTE STANDARDS: STUDENTS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Key Ideas and Details</strong></td>
<td><strong>HS-PS1-2. Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.</strong></td>
<td><strong>1.1.1 Follow an inquiry-based process in seeking knowledge in curricular subjects and make the real world connection for using this process in own life.</strong></td>
<td><strong>1. Creativity and Innovation</strong></td>
</tr>
<tr>
<td>CC.9-10.RL.1 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.</td>
<td><strong>HS-PS1-4. Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.</strong></td>
<td><strong>1.1.2 Use prior and background knowledge as context for new learning.</strong></td>
<td><strong>Students:</strong></td>
</tr>
<tr>
<td>CC.9-10.RL.2 Determine a theme or central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.</td>
<td><strong>HS-PS1-5. Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.</strong></td>
<td><strong>1.1.4 Find, evaluate, and select appropriate sources to answer questions.</strong></td>
<td><strong>a. apply existing knowledge to generate new ideas, products, or processes.</strong></td>
</tr>
<tr>
<td><strong>Integration of Knowledge and Ideas</strong></td>
<td><strong>HS-PS1-7. Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.</strong></td>
<td><strong>1.1.5 Evaluate information found in selected sources on the basis of accuracy, validity, appropriateness to needs, importance, and social and cultural context.</strong></td>
<td><strong>b. create original works as a means of personal or group expression.</strong></td>
</tr>
<tr>
<td>CC.9-10.RL.9 Analyze how an author draws on and transforms source material in a specific work (e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare).</td>
<td><strong>HS-PS1-8. Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission.</strong></td>
<td><strong>1.1.6 Read, view, and listen for information presented in any format (e.g., textual, visual, media, digital) in order to make inferences and gather meaning.</strong></td>
<td><strong>2. Communication and Collaboration</strong></td>
</tr>
<tr>
<td><strong>Reading Informational Text</strong></td>
<td><strong>HS-PS1-1. Follow an inquiry-based process in seeking knowledge in curricular subjects and make the real world connection for using this process in own life.</strong></td>
<td><strong>1.1.7 Make sense of information gathered from diverse sources by identifying misconceptions, main and supporting ideas, conflicting information, and point of view or bias.</strong></td>
<td><strong>Students:</strong></td>
</tr>
<tr>
<td><strong>Key Ideas and Details</strong></td>
<td><strong>HS-PS1-2. Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.</strong></td>
<td><strong>1.1.8 Demonstrate mastery of technology tools to access information and pursue inquiry.</strong></td>
<td><strong>a. interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.</strong></td>
</tr>
<tr>
<td>CC.9-10.RL.2 Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.</td>
<td><strong>HS-PS1-3. Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.</strong></td>
<td><strong>1.1.9 Collaborate with others to</strong></td>
<td><strong>b. communicate information and ideas effectively to multiple audiences using a variety of media and formats.</strong></td>
</tr>
<tr>
<td>CC.9-10.RL.3 Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed.</td>
<td><strong>HS-PS1-4. Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.</strong></td>
<td><strong>2. Communication and Collaboration</strong></td>
<td><strong>c. contribute to project teams to produce original works or solve problems.</strong></td>
</tr>
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developed, and the connections that are drawn between them.

**Craft and Structure**
CC.9-10.RI.5 Analyze in detail how an author’s ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).
CC.9-10.RI.6 Determine an author’s point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose.

**Integration of Knowledge and Ideas**
CC.9-10.RI.7 Analyze various accounts of a subject told in different mediums (e.g., a person’s life story in both print and multimedia), determining which details are emphasized in each account.
CC.9-10.RI.8 Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.
CC.9-10.RI.9 Analyze seminal U.S. documents of historical and literary significance (e.g., Washington’s Farewell Address, the Gettysburg Address, Roosevelt’s Four Freedoms speech, King’s “Letter From Birmingham Jail”), including how they address related themes and concepts.

**Writing**

**Text Types and Purposes**
CC.9-10.W.1 Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
CC.9-10.W.1.a Introduce precise claim(s), evidence, and logical reasoning to persuade the reader to support the claim(s). Develop说服力 by clear and engaging organization; use the text to analyze the relationship between specific ideas or events.

**Energy**
HS-PS3-1. Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.
HS-PS3-2. Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motion and radioactive decay.

**Motion and Stability: Forces and Interactions**
HS-PS2-2. Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.
HS-PS2-3. Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.
HS-PS2-4. Use mathematical representations of Newton’s Law of Gravitation and Coulomb’s Law to describe and predict the gravitational and electrostatic forces between objects.
HS-PS2-6. Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.

**Craft and Structure**
3. Research and Information Fluency
Students apply digital tools to gather, evaluate, and use information. Students:
- a. plan strategies to guide inquiry.
- b. locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
- c. evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
- d. process data and report results.

**4. Critical Thinking, Problem Solving, and Decision Making**
Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. Students:
- b. plan and manage activities to develop a solution or complete a project.
- c. collect and analyze data to identify solutions and/or make informed decisions.
- d. use multiple processes and diverse perspectives to explore alternative solutions.

**5. Digital Citizenship**
Students understand human, cultural, and societal issues related to technology and practice.
distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among claim(s), counterclaims, reasons, and evidence.

**CC.9-10.W.1.b** Develop claim(s) and counterclaims fairly, supplying evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience’s knowledge level and concerns.

**CC.9-10.W.1.c** Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.

**CC.9-10.W.1.d** Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.

**CC.9-10.W.1.e** Provide a concluding statement or section that follows from and supports the argument presented.

**CC.9-10.W.2** Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

**CC.9-10.W.2.a** Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

**CC.9-10.W.2.b** Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, motions of particles (objects) and energy associated with the relative positions of particles (objects).

**HS-PS3-3.** Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy

**HS-PS3-5.** Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.

**Waves and Their Applications in Technologies for Information Transfer**

**HS-PS4-5.** Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

**Life Science**

**From Molecules to Organisms: Structures and Processes**

**HS-LS1-1.** Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.

**HS-LS1-2.** Develop and use a model to illustrate the hierarchical organization of seeking processes for effectiveness and progress, and adapt as necessary.

**1.4.2** Use interaction with and feedback from teachers and peers to guide own inquiry process.

**1.4.3** Monitor gathered information and assess for gaps or weaknesses.

**1.4.4** Seek appropriate help when needed.

**2.1.1** Continue an inquiry-based research process by applying critical thinking skills (analysis, synthesis, evaluation, organization) to information and knowledge in order to construct new understandings, draw conclusions, and create new knowledge.

**2.1.2** Organize knowledge so that it is useful.

**2.1.3** Use strategies to draw conclusions from information and apply knowledge to curricular areas, real world situations, and further investigations.

**2.1.4** Use technology and other information tools to analyze and organize information.

**2.1.5** Collaborate with others to exchange ideas, develop new understandings, make decisions, and solve problems.

**2.1.6** Use the writing process, media and visual literacy, and technology skills to create legal and ethical behavior.

**Students:**

a. advocate and practice safe, legal, and responsible use of information and technology.

b. exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.

c. demonstrate personal responsibility for lifelong learning.

d. exhibit leadership for digital citizenship.

**6. Technology Operations and Concepts**

Students demonstrate a sound understanding of technology concepts, systems, and operations. Students:

a. understand and use technology systems.

b. select and use applications effectively and productively.

c. troubleshoot systems and applications.

d. transfer current knowledge to learning of new technologies.

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<tr>
<th>Quotations, or other information and examples appropriate to the audience’s knowledge of the topic.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.9-10.W.2.c Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.</td>
</tr>
<tr>
<td>CC.9-10.W.2.e Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.</td>
</tr>
<tr>
<td>CC.9-10.W.3 Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.</td>
</tr>
</tbody>
</table>

### Production and Distribution of Writing

<table>
<thead>
<tr>
<th>CC.9-10.W.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.9-10.W.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. (Editing for conventions should demonstrate command of Language standards 1–3 on up to and including grades 9-10 page 55.)</td>
</tr>
<tr>
<td>CC.9-10.W.6 Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology’s capacity to link to other information and to display information flexibly and dynamically.</td>
</tr>
</tbody>
</table>

### Research to Build and Present Knowledge

<table>
<thead>
<tr>
<th>CC.9-10.W.8 Gather relevant information from interacting systems that provide specific functions within multicellular organisms.</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS-LS1-3. Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.</td>
</tr>
<tr>
<td>HS-LS1-4. Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.</td>
</tr>
<tr>
<td>HS-LS1-5. Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.</td>
</tr>
<tr>
<td>HS-LS1-6. Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules.</td>
</tr>
<tr>
<td>HS-LS1-7. Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.</td>
</tr>
</tbody>
</table>

### Ecosystems: Interactions, Energy, and Dynamics

<table>
<thead>
<tr>
<th>HS-LS2-1. Use mathematical and/or computational representations to support explanations of factors that affect products that express new understandings.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2.1 Demonstrate flexibility in use of resources by adapting information strategies to each specific resource and by seeking additional resources when clear conclusions cannot be drawn.</td>
</tr>
<tr>
<td>2.2.2 Use both divergent and convergent thinking to formulate alternative conclusions and test them against the evidence.</td>
</tr>
<tr>
<td>2.2.3 Employ a critical stance in drawing conclusions by demonstrating that the pattern of evidence leads to a decision or conclusion.</td>
</tr>
<tr>
<td>2.2.4 Demonstrate personal productivity by completing products to express learning.</td>
</tr>
<tr>
<td>2.3.1 Connect understanding to the real world.</td>
</tr>
<tr>
<td>2.3.2 Consider diverse and global perspectives in drawing conclusions.</td>
</tr>
<tr>
<td>2.3.3 Use valid information and reasoned conclusions to make ethical decisions.</td>
</tr>
<tr>
<td>2.4.1 Determine how to act on information (accept, reject, modify).</td>
</tr>
<tr>
<td>2.4.2 Reflect on systematic process and assess for completeness of investigation.</td>
</tr>
<tr>
<td>2.4.3 Recognize new knowledge and understanding.</td>
</tr>
</tbody>
</table>

### Inferences and Justifying Conclusions

<table>
<thead>
<tr>
<th>3.1.1 Conclude an inquiry-based</th>
</tr>
</thead>
</table>

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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.

CC.9-10.W.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.

**Range of Writing**

CC.9-10.W.10 Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

**Speaking and Listening**

**Comprehension and Collaboration**

CC.9-10.SL.1 Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others’ ideas and expressing their own clearly and persuasively.

CC.9-10.SL.1.a 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.

CC.9-10.SL.1.d Respond thoughtfully to diverse perspectives, summarize points of carrying capacity of ecosystems at different scales.

CC.9-10.SL.1.d Respond thoughtfully to diverse perspectives, summarize points of research process by sharing new understandings and reflecting on the learning.

**HS-LS2-2.** Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.

**HS-LS2-3.** Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions.

**HS-LS2-4.** Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.

**HS-LS2-5.** Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere.

**HS-LS2-7.** Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.

**Heredity: Inheritance and Variation of Traits**

**HS-LS3-2.** Make and defend a claim based on evidence that inheritable genetic variations may result from: (1) new genetic combinations through meiosis, (2) viable errors occurring during replication, and/or (3) mutations caused by environmental factors.

**HS-LS3-3.** Apply concepts of carrying capacity of ecosystems at different scales.
agreement and disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented.

**CC.9-10.SL.2** Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.

**CC.9-10.SL.3** Evaluate a speaker’s point of view, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence.

**Presentation of Knowledge and Idea**

**CC.9-10.SL.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.

**CC.9-10.SL.5** Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

**Language**

**Knowledge of Language**

**CC.9-10.L.3.a** Write and edit work so that it conforms to the guidelines in a style manual (e.g., MLA Handbook, Turabian’s Manual for Writers) appropriate for the discipline and writing type.

**Vocabulary Acquisition and Use**

**CC.9-10.L.4.c** Consult general and specialized statistics and probability to explain the variation and distribution of expressed traits in a population.

**Biological Evolution: Unity and Diversity**

**HS-LS4-1.** Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence.

**HS-LS4-2.** Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment.

**HS-LS4-4.** Construct an explanation based on evidence for how natural selection leads to adaptation of populations.

**Earth and Space Sciences**

**Earth’s Place in the Universe**

**HS-ESS1-1.** Develop a model based on evidence to illustrate the life span of the sun perspectives while searching for information, collaborating with others, and participating as a member of the community.

3.3.2 Respect the differing interests and experiences of others, and seek a variety of viewpoints.

3.3.3 Use knowledge and information skills and dispositions to engage in public conversation and debate around issues of common concern.

3.3.4 Create products that apply to authentic, real-world contexts.

3.3.5 Contribute to the exchange of ideas within and beyond the learning community.

3.3.6 Use information and knowledge in the service of democratic values.

3.3.7 Respect the principles of intellectual freedom.

3.4.2 Assess the quality and effectiveness of the learning product.

3.4.3 Assess own ability to work with others in a group setting by evaluating varied roles, leadership, and demonstrations of respect for other viewpoints.

3.4.4 Read widely and fluently to make connections with own self, the world, and previous reading.

3.4.1 Respond to literature and

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Reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology.

CC.9-10.L.4.d Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

**Reading in History/Social Studies**

**Key Ideas and Details**

CC.9-10.RH.1 Cite specific textual evidence to support analysis of primary and secondary sources, attending to such features as the date and origin of the information.

CC.9-10.RH.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.

CC.9-10.RH.3 Analyze in detail a series of events described in a text; determine whether earlier events caused later ones or simply preceded them.

**Craft and Structure**

CC.9-10.RH.4 Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history/social studies.

CC.9-10.RH.5 Analyze how a text uses structure to emphasize key points or advance an explanation or analysis.

CC.9-10.RH.6 Compare the point of view of two or more authors for how they treat the same or similar topics, including which details they include and emphasize in their respective accounts.

and the role of nuclear fusion in the sun’s core to release energy that eventually reaches Earth in the form of radiation.

HS-ESS1-2. Construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe.

HS-ESS1-3. Communicate scientific ideas about the way stars, over their life cycle, produce elements.

HS-ESS1-5. Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.

HS-ESS1-6. Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth’s formation and early history.

**Earth’s Systems**

HS-ESS2-1. Develop a model to illustrate how Earth’s internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.

HS-ESS2-2. Analyze geoscience data to make the claim that one change to Earth’s surface can create feedbacks that cause changes to other Earth systems.

HS-ESS2-3. Develop a model based on evidence of creative expressions of ideas in various formats and genres.

4.1.6 Organize personal knowledge in a way that can be called upon easily.

4.1.7 Use social networks and information tools to gather and share information.

4.2.3 Maintain openness to new ideas by considering divergent opinions, changing opinions or conclusions when evidence supports the change, and seeking information about new ideas encountered through academic or personal experiences.

4.3.1 Participate in the social exchange of ideas, both electronically and in person.

4.3.2 Recognize that resources are created for a variety of purposes.

4.3.4 Practice safe and ethical behaviors in personal electronic communication and interaction.

4.4.4 Interpret new information based on cultural and social context.

4.4.5 Develop personal criteria for gauging how effectively own ideas are expressed.

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**Integration of Knowledge and Ideas**

C.9-10.RH.7 Integrate quantitative or technical analysis (e.g., charts, research data) with qualitative analysis in print or digital text.

CC.9-10.RH.8 Assess the extent to which the reasoning and evidence in a text support the author's claims.

CC.9-10.RH.9 Compare and contrast treatments of the same topic in several primary and secondary sources.

**Reading in Science and Technical Subjects**

**Key Ideas and Details**

CC.9-10.RST.1 Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.

CC.9-10.RST.2 Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.

CC.9-10.RST.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks attending to special cases or exceptions defined in the text.

**Integration of Knowledge and Ideas**

CC.9-10.RST.7 Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.

CC.9-10.RST.8 Assess the extent to which the reasoning and evidence in a text support the author's claim or a recommendation for Earth’s interior to describe the cycling of matter by thermal convection.

HS-ESS2-4. Use a model to describe how variations in the flow of energy into and out of Earth’s systems result in changes in climate.

HS-ESS2-5. Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.

HS-ESS2-6. Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.

HS-ESS2-7. Construct an argument based on evidence about the simultaneous coevolution of Earth’s systems and life on Earth.

**Earth and Human Activity**

HS-ESS3-1. Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.

HS-ESS3-2. Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.

HS-ESS3-4. Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.

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<td>Revised on January 11, 2016</td>
<td>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.</td>
<td>Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence.</td>
<td>Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience’s knowledge level and concerns.</td>
<td>Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</td>
<td>Provide a concluding statement or section that follows from or supports the argument presented.</td>
<td>Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, solving a scientific or technical problem.</td>
<td>Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems.</td>
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</table>
or technical processes.

CC.9-10.WHST.2.a Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

CC.9-10.WHST.2.b Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience’s knowledge of the topic.

CC9-10WHST.2.c Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts.

CC9-10WHST.2.d Use precise language and domain-specific vocabulary to manage the complexity of the topic and convey a style appropriate to the discipline and context as well as to the expertise of likely readers.

CC9-10WHST.2.e Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.

CC.9-10.WHST.2.f Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

Production and Distribution of Writing

CC.9-10.WHST.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

CC.9-10.WHST.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.

CC.9-10.WHST.6 Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology’s capacity to link to other information and to display information flexibly and dynamically.

**Research to Build and Present Knowledge**

CC.9-10.WHST.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.

CC.9-10.WHST.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.

CC.9-10.WHST.9 Draw evidence from informational texts to support analysis, reflection, and research.

**Statistics and Probability**

**Making Inferences and Justifying Conclusions**

CC.9-12.S.IC.3 Make inferences and justify conclusions from sample surveys, experiments, and observational studies.

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Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.*

CC.9-12.S.IC.6 Make inferences and justify conclusions from sample surveys, experiments, and observational studies. Evaluate reports based on data.*
### Standard 4

**Appreciate literature and other creative expressions of thoughts and ideas and pursue knowledge related to personal interests and aesthetic growth**

- Cultivate a love of reading and become a self-motivated reader
- Develop a knowledge of genres and literary elements
- Derive meaning from informational texts in various formats

<table>
<thead>
<tr>
<th>LIBRARY BENCHMARKS</th>
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<tbody>
<tr>
<td>A. Use both text and visuals to understand literature</td>
</tr>
<tr>
<td>B. Select a book for a specific purpose</td>
</tr>
<tr>
<td>C. Distinguish between different types and elements of literature</td>
</tr>
<tr>
<td>D. Analyze and understand information presented creatively in various nontextual formats</td>
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<tr>
<td>E. Seek information related to personal interests</td>
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<tr>
<td>F. Select resources and materials based on interest, need, and appropriateness</td>
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<thead>
<tr>
<th>LIBRARY OBJECTIVES</th>
</tr>
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<tbody>
<tr>
<td>1. Self-select reading material appropriate for a specific purpose</td>
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<tr>
<td>2. Read literature from diverse places and perspectives</td>
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<tr>
<td>3. Read from a wide range of genres</td>
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<td>4. Read informational texts for enjoyment and to fulfill information need</td>
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<td>5. Reinforce mastery of literary elements</td>
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<tr>
<td>6. Participate in discussions about literature to share opinions and responses</td>
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<td>7. Refine individual taste in series, author, and genre reading</td>
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<td>8. Use literary awards to help guide personal reading selections</td>
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<tr>
<td>9. Appreciate information presented creatively in various formats</td>
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<td>10. Read for pleasure, seek answers, and explore topics of personal interest</td>
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<td>11. Access libraries, library staff, and library resources both personally and virtually</td>
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<td>COMMON CORE STANDARDS</td>
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<tr>
<td>Reading Literature</td>
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<tr>
<td>Key Ideas and Details</td>
</tr>
<tr>
<td>CC.9-10.RL.1 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.</td>
</tr>
<tr>
<td>CC.9-10.RL.2 Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.</td>
</tr>
<tr>
<td>CC.9-10.RL.3 Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a text, interact with other characters, and advance the plot or develop the theme.</td>
</tr>
<tr>
<td>CC.9-10.RL.4 Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone).</td>
</tr>
<tr>
<td>CC.9-10.RL.5 Analyze how an author’s choices concerning how to structure a text, order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise.</td>
</tr>
<tr>
<td>CC.9-10.RL.6 Analyze a particular point of view</td>
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or cultural experience reflected in a work of literature from outside the United States, drawing on a wide reading of world literature.

**Integration of Knowledge and Ideas**
CC.9-10.RL.9 Analyze how an author draws on and transforms source material in a specific work (e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare).

**Range of Reading and Level of Text Complexity**
CC.9-10.RL.10 By the end of grade 9, read and comprehend literature, including stories, dramas, and poems, at the high end of the grades 9–10 text complexity band independently and proficiently.

**Reading Informational Text**

**Key Ideas and Details**
CC. 9–10.RI.3 Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.

**Craft and Structure**
CC.9–10.RI.4 Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning

Earth and Space Sciences
Earth’s Place in the Universe
HS-ESS1-1. Develop a model based on evidence to illustrate the life span of the sun

**Biological Evolution: Unity and Diversity**
HS-LS4-1. Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence.

HS-LS4-2. Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment.

HS-LS4-3. Apply concepts of statistics and probability to support explanations that organisms with an advantageous heritable trait tend to increase in proportion to organisms lacking this trait.

Earth and Space Sciences
Earth’s Place in the Universe
HS-ESS1-1. Develop a model based on evidence to illustrate the life span of the sun

2.1.1 Continue an inquiry-based research process by applying critical thinking skills (analysis, engagement by posing questions and investigating the answers beyond the collection of superficial facts.

1.2.3 Demonstrate creativity by using multiple resources and formats.

1.2.4 Maintain a critical stance by questioning the validity and accuracy of all information.

1.2.5 Demonstrate adaptability by changing the inquiry focus, questions, resources, or strategies when necessary to achieve success.

1.2.6 Display emotional resilience by persisting in information searching despite challenges.

1.3.1 Respect copyright/intellectual property rights of creators and producers.

1.3.2 Seek divergent perspectives during information gathering and assessment.

1.3.3 Follow ethical and legal guidelines in gathering and using information.

1.3.5 Use information technology responsibly.

1.4.1 Monitor own information seeking processes for effectiveness and progress, and adapt as necessary.

1.4.3 Monitor gathered information and assess for gaps or weaknesses.

5. Digital Citizenship
Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

Students:

a. advocate and practice safe, legal, and responsible use of information and technology.

b. exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.

c. demonstrate personal responsibility for lifelong learning.

d. exhibit leadership for digital citizenship.

6. Technology Operations and Concepts
Students demonstrate a sound understanding of technology concepts, systems, and operations.

Students:

a. understand and use technology resources. Students:

a. identify and define authentic problems and significant questions for investigation.

b. plan and manage activities to develop a solution or complete a project.

c. collect and analyze data to identify solutions and/or make informed decisions.

d. use multiple processes and diverse perspectives to explore alternative solutions.

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**English/Language Arts Strand Code:** RL=Reading Literature; RI=Reading Informational Text; RF=Reading Foundational Skills; W=Writing; SL=Speaking and Listening; L=Language; RH=Reading in History/Social Studies; RST=Reading In Science and Technical Subjects; WHST=Writing in History/Social Studies, Science, and Technical Subjects; CC=Common Core.

**Math Standards Code:** OA=Operations and Algebraic Thinking; NBT=Number and Operations in Base 10; MD=Measurements and Data; G=Geometry; NF=Number and Operations-Fractions; RP=Rations and Proportional Relationships; NS=Number System; EE=Expressions and Equations; S=Statistics and Probability; S-ID=Interpreting Categorical and Quantitative Data; S-IC=Making Inferences and Justifying Conclusions; F=Functions. F-IF=Interpreting Functions.
<table>
<thead>
<tr>
<th>Standards Code</th>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.9-10.RI.5</td>
<td>Reading Informational Text</td>
<td>Analyze in detail how an author’s ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).</td>
</tr>
<tr>
<td>CC.9-10.RI.6</td>
<td>Reading Informational Text</td>
<td>Determine an author’s point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose.</td>
</tr>
<tr>
<td>CC.9-10.RI.7</td>
<td>Reading Informational Text</td>
<td>Analyze various accounts of a subject told in different mediums (e.g., a person’s life story in both print and multimedia), determining which details are emphasized in each account.</td>
</tr>
<tr>
<td>CC.9-10.RI.9</td>
<td>Reading Informational Text</td>
<td>Analyze seminal U.S. documents of historical and literary significance (e.g., Washington’s Farewell Address, the Gettysburg Address, Roosevelt’s Four Freedoms speech, King’s “Letter From Birmingham Jail”), including how they address related themes and concepts.</td>
</tr>
<tr>
<td>CC.9-10.RI.10</td>
<td>Reading Informational Text</td>
<td>By the end of grade 9, read and comprehend literary nonfiction in the grades 9—10 text complexity band proficiently, with scaffolding as needed at the high end of the range. By the end of grade 10, read and comprehend literary nonfiction at the high end of the grades 9—10 text complexity band independently and proficiently.</td>
</tr>
<tr>
<td>CC.9-10.W.7</td>
<td>Writing</td>
<td>Conduct short as well as more sustained research projects to answer a question or solve a problem; gather and evaluate relevant information; determine a point of view or purpose; and develop and refine their explanations or conclusions.</td>
</tr>
<tr>
<td>HS-ESS1-2</td>
<td>Earth’s Systems</td>
<td>Construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe.</td>
</tr>
<tr>
<td>HS-ESS2-2</td>
<td>Earth’s Systems</td>
<td>Analyze geoscience data to make the claim that one change to Earth’s surface can create feedbacks that cause changes to other Earth systems.</td>
</tr>
<tr>
<td>HS-ESS2-5</td>
<td>Earth’s Systems</td>
<td>Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.</td>
</tr>
<tr>
<td>HS-ESS2-7</td>
<td>Earth’s Systems</td>
<td>Construct an argument based on evidence about the simultaneous coevolution of Earth’s systems and life on Earth.</td>
</tr>
<tr>
<td>HS-ESS3-1</td>
<td>Earth and Human Activity</td>
<td>Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.</td>
</tr>
<tr>
<td>HS-ESS3-5</td>
<td>Earth and Human Activity</td>
<td>Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of climate change.</td>
</tr>
</tbody>
</table>

**Integration of Knowledge and Ideas**

- **Earth’s Systems**
  - HS-ESS1-2 Construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe.
  - HS-ESS2-2 Analyze geoscience data to make the claim that one change to Earth’s surface can create feedbacks that cause changes to other Earth systems.
  - HS-ESS2-5 Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.
  - HS-ESS2-7 Construct an argument based on evidence about the simultaneous coevolution of Earth’s systems and life on Earth.

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

- **Earth and Human Activity**
  - HS-ESS3-1 Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.
  - HS-ESS3-5 Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of climate change.

**Writing**

- **Research to Build and Present Knowledge**
  - CC.9-10.W.7 Conduct short as well as more sustained research projects to answer a question or solve a problem; gather and evaluate relevant information; determine a point of view or purpose; and develop and refine their explanations or conclusions.

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**English/Language Arts Strand Code**: RL=Reading Literature; RI=Reading Informational Text; RF=Reading Foundational Skills; W=Writing; SL=Speaking and Listening; L=Language; RH=Reading in History/Social Studies; RST=Reading in Science and Technical Subjects; WHST=Writing in History/Social Studies, Science, and Technical Subjects; CC/Common Core.

**Math Standards Code**: QA=Operations and Algebraic Thinking; NBT=Number and Operations in Base 10; MD=Measurements and Data; G=Geometry; NF=Number and Operations-Fractions; RP=Ratios and Proportional Relationships; NS=Number System; EE=Expressions and Equations; S=Statistics and Probability; S-ID=Interpreting Categorical and Quantitative Data; S-IC=Making Inferences and Justifying Conclusions; F=Functions. F-IF=Interpreting Functions.
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.

CC.9-10.W.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.

CC.9-10.W.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.

CC.9-10.W.9.a Apply grades 9–10 Reading standards to literature (e.g., “Analyze how an author draws on and transforms source material in a specific work [e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare”).

CC.9-10.W.9.b Apply grades 9–10 Reading standards to literary nonfiction (e.g., “Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning”).

Speaking and Listening
Comprehension and Collaboration
CC.9-10.SL.1 Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with global or regional climate change and associated future impacts to Earth systems.

2.2.4 Demonstrate personal productivity by completing products to express learning.

2.3.1 Connect understanding to the real world.

2.3.2 Consider diverse and global perspectives in drawing conclusions.

2.3.3 Use valid information and reasoned conclusions to make ethical decisions.

2.4.1 Determine how to act on information (accept, reject, modify).

2.4.2 Reflect on systematic process and assess for completeness of investigation.

2.4.3 Recognize new knowledge and understanding.

2.4.4 Develop directions for future investigations.

3.1.1 Conclude an inquiry-based research process by sharing new understandings and reflecting on the learning.

3.1.3 Use writing and speaking skills to communicate new understandings effectively.

3.1.4 Use technology and other information tools to organize and display knowledge and understanding in ways that others can view, use, and assess.

3.1.5 Connect learning to community issues.

3.1.6 Use information and technology ethically and responsibly.

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diverse partners on grades 9–10 topics, texts, and issues, building on others’ ideas and expressing their own clearly and persuasively.

CC.9-10.SL.1.c Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions.

**Presentation of Knowledge and Idea**

CC.9-10.SL.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 on pages 54 for specific expectations.)

**Reading in History/Social Studies**

**Craft and Structure**

CC.9-10.RH.4 Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history/social science.

CC.9-10.RH.6 Compare the point of view of two or more authors for how they treat the same or similar topics, including which details they include and emphasize in their respective accounts.

**Reading in Science and Technical Subjects**

**Craft and Structure**

CC.9-10.RST.6 Analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, defining the question the author seeks to address.

3.2.2 Show social responsibility by participating actively with others in learning situations and by contributing questions and ideas during group discussions.

3.3.1 Solicit and respect diverse perspectives while searching for information, collaborating with others, and participating as a member of the community.

3.3.2 Respect the differing interests and experiences of others and seek a variety of viewpoints.

3.3.3 Use knowledge and information skills and dispositions to engage in public conversation and debate around issues of common concern.

3.3.4 Create products that apply to authentic, real-world contexts.

3.3.6 Use information and knowledge in the service of democratic values.

3.3.7 Respect the principles of intellectual freedom.

4.1.1 Read, view, and listen for pleasure and personal growth.

4.1.2 Read widely and fluently to make connections with own self, the world, and previous reading.

4.1.3 Respond to literature and creative expressions of ideas in various formats and genres.

4.1.4 Seek information for personal learning in a variety of formats and genres.

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Integration of Knowledge and Ideas
CC.9-10.RST.9 Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.

Range of Reading and Level of Text Complexity
CC.9-10.RST.10 By the end of grade 10, read and comprehend science/technical texts in the grades 9–10 text complexity band independently and proficiently.

Writing in History/Social Studies, Science, and Technical Subjects
Research to Build and Present Knowledge
CC.9-10.WHST.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.

4.1.5 Connect ideas to own interests and previous knowledge and experience.
4.1.6 Organize personal knowledge in a way that can be called upon easily.
4.1.7 Use social networks and information tools to gather and share information.
4.1.8 Use creative and artistic formats to express personal learning.
4.2.1 Display curiosity by pursuing interests through multiple resources.
4.2.2 Demonstrate motivation by seeking information to answer personal questions and interests, trying a variety of formats and genres, and displaying a willingness to go beyond academic requirements.
4.2.3 Maintain openness to new ideas by considering divergent opinions, changing opinions or conclusions when evidence supports the change, and seeking information about new ideas encountered through academic or personal experiences.
4.2.4 Show an appreciation for literature by electing to read for pleasure and expressing an interest in various literary genres.
4.3.2 Recognize that resources are created for a variety of purposes.

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| 4.3.3 Seek opportunities for pursing personal and aesthetic growth. |
| 4.4.1 Identify own areas of interest. |
| 4.4.2 Recognize the limits of own personal knowledge. |
| 4.4.3 Recognize how to focus the efforts in personal learning. |
| 4.4.4 Interpret new information based on cultural and social context. |
| 4.4.5 Develop personal criteria for gauging how effectively own ideas are expressed. |
| 4.4.6 Evaluate own ability to select resources that are engaging and appropriate for personal interests and needs. |

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### Standard 5

**Understand and practice Internet safety when using any electric media for educational, social, or recreational purposes**

- Practice strategies that promote personal safety and protect online and offline reputation
- Recognize that networked environments are public places governed by codes of ethical behavior
- Practice positive digital citizenship
- Distinguish website authority, validity, and purpose
- Understand the need for protecting personal privacy when using public access to digital sources
- Protect personal information and electronic devices in an online environment

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#### LIBRARY BENCHMARKS

A. Understand the long-term impact of digital information  
B. Behave responsibly and respectfully in a networked environment  
C. Use electronic devices safely and appropriately

#### LIBRARY OBJECTIVES

1. Acknowledge the permanence of online content and understand that once information (including photos, videos, etc.) is posted online, it is no longer controlled by the original poster, and consider the consequences of posting personal information
2. Use the Internet to locate information safely
3. Foster a positive online reputation and abstain from inappropriate or illegal online behavior
4. Report inappropriate online behavior (harassment, cyberbullying, threats, etc.)
5. Recognize and avoid inappropriate content (advertising, malware, phishing, viruses, pornography, etc.)
6. Recognize and avoid potentially damaging or invasive content (malware, phishing scams, viruses, etc.) by using appropriate filters and antivirus software
7. Download content only from ethical and reputable sources
8. Understand the basics of online consumerism (identity theft, security, fraud, phishing, etc.)
9. Read and comprehend AUPs, privacy policies, and terms of use

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## COMMON CORE STANDARDS

### Reading Informational Text

**Integration of Knowledge and Ideas**

CC.9-10.RI.8 Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.

### Writing

**Production and Distribution of Writing**

CC.9-10.W.6 Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology’s capacity to link to other information and to display information flexibly and dynamically.

### Research to Build and Present Knowledge

CC.9-10.W.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.

CC.9-10.W.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.

### Speaking and Listening

**Comprehension and Collaboration**

CC.9-10.SL.1 Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-lead) with diverse partners on grades 9–10 topics, texts, and issues.

### AASL STANDARDS FOR THE 21ST CENTURY LEARNER

1.1.1 Follow an inquiry-based process in seeking knowledge in curricular subjects and make the real world connection for using this process in own life.

1.1.2 Use prior and background knowledge as context for new learning.

1.1.3 Develop and refine a range of questions to frame search for new understanding.

1.1.4 Find, evaluate, and select appropriate sources to answer questions.

1.1.5 Evaluate information found in selected sources on the basis of accuracy, validity, appropriateness to needs, importance, and social and cultural context.

1.1.6 Read, view, and listen for information presented in any format (e.g., textual, visual, media, digital) in order to make inferences and gather meaning.

1.1.7 Make sense of information gathered from diverse sources by identifying misconceptions, main and supporting ideas, conflicting information, and point of view or bias.

1.1.8 Demonstrate mastery of technology tools to access information and pursue inquiry.

1.2.1 Display initiative and engagement

### ISTE STANDARDS: STUDENTS

#### 2. Communication and Collaboration

Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. Students:

a. interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.

b. develop cultural understanding and global awareness by engaging with learners of other cultures.

c. locate, organize, analyze, evaluate, and use information.

#### 3. Research and Information Fluency

Students apply digital tools to gather, evaluate, and use information. Students:

a. interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.

b. evaluate and select information sources and digital tools based on the appropriateness to specific tasks.

#### 4. Critical Thinking, Problem Solving, and Decision Making

Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. Students:

a. interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.

b. evaluate and select information sources and digital tools based on the appropriateness to specific tasks.

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building on others’ ideas and expressing their own clearly and persuasively.

CC.9-10.SL.2 Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.

CC.9-10.SL.3 Evaluate a speaker’s point of view, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence.

Presentation of Knowledge and Idea
CC.9-10.SL.5 Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

Language
Vocabulary Acquisition and Use
CC.9-10.L.4.c Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology.

Reading in History/Social Studies
Key Ideas and Details
CC.9-10.RH.1 Cite specific textual evidence to support analysis of primary and secondary sources, attending to such features as the date and origin of the information.

Integration of Knowledge and Ideas
CC.9-10.RH.7 Integrate quantitative or technical analysis (e.g., charts, research data) with qualitative analysis in print or digital text.

Writing in History/Social Studies, Science, and Technical Subjects
Text Types and Purposes
CC.9-10.WHST.2.a Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

by posing questions and investigating the answers beyond the collection of superficial facts.

1.2.2 Demonstrate confidence and self-direction by making independent choices in the selection of resources and information.

1.2.3 Demonstrate creativity by using multiple resources and formats.

1.2.4 Maintain a critical stance by questioning the validity and accuracy of all information.

1.2.5 Demonstrate adaptability by changing the inquiry focus, questions, resources, or strategies when necessary to achieve success.

1.2.6 Display emotional resilience by persisting in information searching despite challenges.

1.2.7 Display persistence by continuing to pursue information to gain a broad perspective.

1.3.1 Respect copyright/intellectual property rights of creators and producers.

1.3.2 Seek divergent perspectives during information gathering and assessment.

1.3.3 Follow ethical and legal guidelines in gathering and using information.

1.3.5 Use information technology responsibly.

1.4.1 Monitor own information seeking processes for effectiveness and progress, and adapt as necessary.

1.4.3 Monitor gathered information and assess for gaps or weaknesses.

1.4.4 Seek appropriate help when needed.

solutions and/or make informed decisions.

5. Digital Citizenship
Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

Students:
- advocate and practice safe, legal, and responsible use of information and technology.
- exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.
- demonstrate personal responsibility for lifelong learning.
- exhibit leadership for digital citizenship.

6. Technology Operations and Concepts
Students demonstrate a sound understanding of technology concepts, systems, and operations. Students:
- understand and use technology systems.
- select and use applications effectively and productively.
- troubleshoot systems and applications.
- transfer current knowledge to learning of new technologies.

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Production and Distribution of Writing
CC.9-10.WHST.6 Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.

Research to Build and Present Knowledge
CC.9-10.WHST.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.
CC.9-10.WHST.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.

Functions
Interpreting Functions
CC.9-12.F.IF.7 Analyze functions using different representations. Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.*

2.1.1 Continue an inquiry-based research process by applying critical thinking skills (analysis, synthesis, evaluation, organization) to information and knowledge in order to construct new understandings, draw conclusions, and create new knowledge.
2.1.2 Organize knowledge so that it is useful.
2.1.3 Use strategies to draw conclusions from information and apply knowledge to curricular areas, real world situations, and further investigations.
2.1.4 Use technology and other information tools to analyze and organize information.
2.1.6 Use the writing process, media and visual literacy, and technology skills to create products that express new understandings.
2.2.1 Demonstrate flexibility in use of resources by adapting information strategies to each specific resource and by seeking additional resources when clear conclusions cannot be drawn.
2.2.2 Use both divergent and convergent thinking to formulate alternative conclusions and test them against the evidence.
2.2.3 Employ a critical stance in drawing conclusions by demonstrating that the pattern of evidence leads to a decision or conclusion.
2.3.3 Use valid information and reasoned conclusions to make ethical decisions.
2.4.1 Determine how to act on information (accept, reject, modify).
2.4.2 Reflect on systematic process and
assess for completeness of investigation.

3.1.1 Conclude an inquiry-based research process by sharing new understandings and reflecting on the learning.

3.1.2 Participate and collaborate as members of a social and intellectual network of learners.

3.1.3 Use writing and speaking skills to communicate new understandings effectively.

3.1.4 Use technology and other information tools to organize and display knowledge and understanding in ways that others can view, use, and assess.

3.1.5 Connect learning to community issues.

3.1.6 Use information and technology ethically and responsibly.

3.3.1 Solicit and respect diverse perspectives while searching for information, collaborating with others, and participating as a member of the community.

3.3.5 Contribute to the exchange of ideas within and beyond the learning community.

3.3.7 Respect the principles of intellectual freedom.

3.4.2 Assess the quality and effectiveness of the learning product.

4.1.3 Respond to literature and creative expressions of ideas in various formats and genres.

4.1.6 Organize personal knowledge in a way that can be called upon easily.

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4.1.7 Use social networks and information tools to gather and share information.
4.3.1 Participate in the social exchange of ideas, both electronically and in person.
4.3.2 Recognize that resources are created for a variety of purposes.