



11th-12th Guidance for Literacy Task Design in the Science/Technical Subjects' Classroom

(Literacy tasks allow students to read and write about science/technical subjects and are designed to be at the core of all multi day lessons/units).



11th-12th Grade Literacy Task Design

The purpose of providing guidance for designing literacy tasks is to provide classroom teachers with crucial steps in designing high quality student learning tasks that integrate reading and writing aligned with the standards that can be easily integrated with the Illinois Science/Technical Subjects Standards. This document provides guidance into the necessary steps of task design. Literacy Tasks should be a part of multi-day lessons and units in order to integrate and implement the standards.

Steps for Designing Literacy Tasks

Step 1 **Determine the focus of the task. Standards can be clustered to help drive a number of key components of multi-day lessons/units. (For example, essential questions, assessments, writing to reading prompts, etc.) Examples of ways standards can be clustered for a task are as follows:**







Possible Combined Standards for a Literacy Task Prompt

- When reading texts, analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment, identifying important issues that remain unsolved.
Clustered Standards: (RST.1 & 6)
- Integrate and evaluate multiple sources of information presented in diverse formats/media to address a question or solve a problem.
Clustered Standards: (RST.1 & 7)
- Synthesize information from a range of sources into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
Clustered Standards: (RST.1 & 9)
- Evaluate the hypothesis, data, analysis and conclusions in a text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.
Clustered Standards: (RST.1 & 8)
- Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
Clustered Standards: (RST. 1 & 3)

RST: Reading for Science & Technical Subjects

Step 2

Determine anchor text (focus text) and coordinating texts/multimedia to accompany the anchor text.

Literacy Task Texts	Anchor Text	Coordinating Text	Coordinating Text
	 Textbook Segment	 Article	 Video
	Anchor Text	Coordinating Text	Coordinating Text
	 Article	 Primary Source	 Textbook Segment

Online Resources for Texts

There are a number of online resources available to coordinate with current classroom materials. The following are a few:

- **Illinois Classrooms in Action Science Resources** – This site provides teachers with a one-stop shop of all resources for Illinois Science Teachers: <http://www.ilclassroomsinaction.org/ngss.html>
- **Newsela** – www.newsela.com: Newsela is a free resource that presents articles on a range of topics such as: War and Peace, **Science**, Kids, Money, Law, Health, Arts, and Sports. The system enables you to convert the articles into higher or lower Lexiles so you can use them with any grade from 3-12
- **Bozeman Science** - <http://www.bozemanscience.com/> Paul Anderson has compiled a series of explanatory NGSS videos. This link will take you directly to the page where he has posted an 8 to 20-minute video for every Scientific and Engineering Practice, Crosscutting Concept, and Disciplinary Core Idea including a description of the progression of each element from Kindergarten through Grade 12.
- **Science News for Kids** - <https://www.sciencenewsforstudents.org/how-to-use>
Science News for Students is an award-winning online publication dedicated to providing age-appropriate, topical science news to learners, parents and educators. In addition, many additional resources accompany stories to boost their impact in classrooms and on overall science literacy.

Step #3**Develop questions for each text using the Reading for Science/Technical Subjects Standards for 11th-12th grades. Question Guidance:**

<http://achievethecore.org/page/46/complete-guide-to-creating-text-dependent-questions>

Question Consideration: Transform the following *Reading Standards for Science/Technical Subject Standards* into questions/tasks/activities throughout the task/lesson/unit.

RST.1	<input type="checkbox"/> Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.
RST.2	<input type="checkbox"/> Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
RST.3	<input type="checkbox"/> Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
RST.4	<input type="checkbox"/> 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 <i>grades 11-12 texts and topics</i> .
RST.5	<input type="checkbox"/> Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.
RST.6	<input type="checkbox"/> Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.
RST.7	<input type="checkbox"/> Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.
RST.8	<input type="checkbox"/> Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.
RST.9	<input type="checkbox"/> Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
RST.10: By the end of grade 12, read and comprehend science/technical texts in the grades 11-CCR text complexity band independently and proficiently.	

Step 4

Determine what type of writing will be required of students to record information and show understanding of the content.

Writing in the Science/Technical Subject Classroom should happen routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences (WHST.10).

When creating culminating task/writing prompts, teachers can return to step 1 to view clustered standards for ideas. The standards require students to be able to write arguments (WHST.1) and informational/explanatory (WHST.2) writings. Writing can appear in many forms – from note taking, to short summaries, to learning logs, to essays, a simple quick write or a formal report.

See the following link for the 9th-10th Grade Science/Technical Subject Writing Standards:

<http://www.corestandards.org/ELA-Literacy/WHST/9-10/>

Task Template for Culminating Tasks

The following task frame is **one way** to design a prompt where students can show their learning after reading/researching a variety of sources.

Today you will research _____ by reading _____ and watching a video clip about _____. As you review these resources think about the following question:

“ _____?”

Gather evidence from each source to answer the question.

Classroom Example

Today you will research electricity and consider some of the methods used in science texts and videos to support different purposes. First you will read an article that explains some general principles of electricity. Next you will watch a video about fun ways to learn about electricity circuits. Finally you will read an article that explains how different materials conduct electricity. As you read/review these sources, think about the purpose of each and the role that explanations, demonstrations, and/or descriptions play in communicating that purpose. Write an essay that informs the reader about what you learned. Use evidence from each source.