

Grade 7: Module 4B:Overview





GRADE 7: MODULE 4B: OVERVIEW

Reading and Research:
Water is Life

This eight-week module focuses on a "science and society" topic, engaging students in reading compelling informational text about water sustainability, fresh water management, and how to make evidence-based decisions. In Unit 1, students read the article "Water Is Life" by Barbara Kingsolver as well as excerpts from The Big Thirst by Charles Fishman to build background knowledge about water sustainability and water management. Students determine main ideas and evidence in diverse media and clarify the issue of why humans need to manage water better. They also trace arguments and evaluate the soundness of reasoning and the sufficiency and relevancy of evidence in the texts and media that they engage with in this unit. In Unit 2, students participate in a robust research project in which they investigate the strategies of better agricultural and industrial water management. This research begins with students reading more excerpts from The Big Thirst to scaffold their research skills. Then students conduct internet-based research. To organize their research sources and information, students use a researcher's notebook. Once they have finished gathering information, students analyze the impact of water management strategies.

To help students grapple with this issue, Unit 2 introduces students to a decision-making process called "Stakeholder Consequences Decision-Making" (see the end of this document for details). This process will help students understand the implications of various choices, and will scaffold their ability to determine, based on evidence and their own values, what they themselves believe can and should happen. Unit 3 marks the transition from research to writing as students plan and draft a position paper, addressing the question: "Which category of water management, agricultural or industrial, would be a good place to begin to improve our use of fresh water?" Students have several opportunities for feedback and revision during this unit. As a final performance task, students publish and share a visual representation of their position paper. **This task centers on NYSP12 ELA CCLS RI.7.1, W.7.1, W.7.4, W.7.5, and L.7.6.**

Guiding Questions and Big Ideas

- How can we balance the needs of people and the environment?
- How does human activity influence the availability of our water resources?
- How should humans manage water resources in a way that is sustainable?
- Human activity can affect the availability of useable, fresh water.
- Humans use water for many things and manage water in a variety of ways.
- Sustainable water management is important in order to ensure that the needs of people and the environment will continue to be met.
- Making an evidence-based decision relies on research and an analysis of consequences and stakeholders.



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Performance Task

This performance task gives students a chance to demonstrate the ideas and evidence of their sustainable water management position papers in a multimedia format. Students will be crafting and sharing a visual representation of their position papers, including their claim, reasons, and evidence based on their research and the decision-making process in Unit 2. **This task addresses NYSP12 ELA CCLS RI.7.1, W.7.1, W.7.1, W.7.5, and L.7.6.**

Content Connections

This module is designed to address English Language Arts standards as students read informational texts about water management and sustainability. However, the module intentionally incorporates Science concepts and themes to support potential interdisciplinary connections to this compelling content.

These intentional connections are described below.

Big ideas and guiding questions are informed by the Next Generation Science Standards:

Influence of Engineering, Technology, and Science on Society and the Natural World

• All human activity draws on natural resources and has both short and long-term consequences, positive as well as negative, for the health of people and the natural environment.

The Roles of Water in Earth's Surface Processes

• Water continually cycles among land, ocean, and atmosphere via transpiration, evaporation, condensation and crystallization, and precipitation, as well as downhill flows on land. (MS-ESS2-4)

Earth and Human Activity

• Construct an argument supported by evidence for how increases in human population and per-capital consumption of natural resources impact Earth's systems.



CCS Standards: Reading—Literature	Long-Term Learning Targets
• RI.7.1. Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	I can cite several pieces of text-based evidence to support an analysis of informational text.
• RI.7.2. Determine two or more central ideas in a text and analyze their development over the course of the text; provide an objective summary of the text.	 I can determine a theme or the central ideas informational text. I can analyze the development of central ideas in a text.
• RI.7.3. Analyze the interactions between individuals, events, and ideas in a text (e.g., how ideas influence individuals or events, or how individuals influence ideas or events).	I can analyze the interactions between individuals, events, and ideas in a text.
• RI.7.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.	 I can determine the meaning of words and phrases in text (figurative, connotative, and technical meanings). I can analyze the impact of word choice on meaning and tone in an informational text.
RI.7.5. Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to the development of the ideas.	I can analyze the organization of an informational text (including how the major sections contribute to the whole and to the development of the ideas).
• RI.7.8. Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims.	 I can identify the argument and specific claims in a text. I can evaluate the argument and specific claims in a text for sound reasoning and relevant, sufficient evidence.
RI.7.9. Analyze how two or more authors writing about the same topic shape their presentations of key information by emphasizing different evidence or advancing different interpretations of facts.	I can contrast how multiple authors emphasize evidence or interpret facts differently when presenting information on the same topic.
• RI.7.10. By the end of the year, read and comprehend literary nonfiction in the grades 6–8 text complexity band proficiently, with scaffolding as needed at the high end of the range.	 I can read grade-level informational texts proficiently and independently. I can read above-grade-level texts with scaffolding and support.



CCS Standards: Writing	Long-Term Learning Targets
• W.7.1. Write arguments to support claims with clear reasons and relevant evidence.	I can write arguments to support claims with clear reasons and relevant evidence.
a. Introduce claim(s), acknowledge alternate or opposing claims, and organize the reasons and evidence logically.	
 Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text. 	
 Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), reasons, and evidence. 	
d. Establish and maintain a formal style.	
e. Provide a concluding statement or section that follows from and supports the argument presented.	
• W.7.4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Gradespecific expectations for writing types are defined in standards 1–3 above.)	I can produce clear and coherent writing that is appropriate to task, purpose, and audience.
 W.7.5. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed. 	With support from peers and adults, I can use a writing process to ensure that purpose and audience have been addressed.
 W.7.7. Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation. 	 I can conduct short research projects to answer a question. I can use several sources in my research. I can generate additional questions for further research.





CCS Standards: Writing	Long-Term Learning Targets
 W.7.8. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. 	 I can gather relevant information from a variety of sources. I can use search terms effectively. I can evaluate the credibility and accuracy of each source. I can quote or paraphrase others' work while avoiding plagiarism. I can use a standard format for citation.
 W.7.9. Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply grade 7 Reading standards to literary nonfiction (e.g., "Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims"). 	I can select evidence from literary or informational texts to support analysis, reflection, and research.
• W.7.10. 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 discipline-specific tasks, purposes, and audiences.	I can adjust my writing practices for different timeframes, tasks, purposes, and audiences.

CCS Standards: Speaking and Listening	Long-Term Learning Targets
 SL.7.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly. a. Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion. e. Seek to understand other perspectives and cultures and communicate effectively with audiences or individuals from varied backgrounds. 	 I can effectively engage in discussions with diverse partners about seventh-grade topics, texts, and issues. I can express my own ideas clearly during discussions. I can build on others' ideas during discussions.



CCS Standards: Speaking and Listening	Long-Term Learning Targets
• SL.7.2. Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.	 I can analyze the main ideas and supporting details presented in different media and formats. I can explain how ideas presented in different media and formats clarify a topic, text, or issue.
SL.7.3. Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and the relevance and sufficiency of the evidence.	 I can outline a speaker's argument and specific claims. I can evaluate the reasoning and evidence presented for soundness, relevance, and sufficiency.
• SL.7.4. Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.	 I can present claims and findings with descriptions, facts, details, and examples. I can use effective speaking techniques (appropriate eye contact, adequate volume, and clear pronunciation).
SL.7.5. Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.	I can include multimedia components and visual displays in a presentation to clarify claims and to add emphasis.
SL.7.6. Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.	I can adapt my speech for a variety of contexts and tasks, using formal English when indicated or appropriate.



CCS Standards: Language	Long-Term Learning Targets
• L.7.4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on <i>grade 7 reading and content</i> , choosing flexibly from a range of strategies.	I can use a variety of strategies to determine the meaning of unknown words or phrases.
a. Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.	
b. Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., <i>belligerent</i> , <i>bellicose</i> , <i>rebel</i>).	
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 or its part of speech.	
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).	
L.7.6. Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.	 I can accurately use seventh-grade academic vocabulary to express my ideas. I can use resources to build my vocabulary.





Central Texts

- 1. Barbara Kingsolver, "Water Is Life," in *National Geographic* (April 2010), http://ngm.nationalgeographic.com/2010/04/water-is-life/kingsolver-text.
- 2. Charles Fishman, The Big Thirst: The Secret Life and Turbulent Future of Water (New York: Free Press, 2012), ISBN: 978-1-4391-0208-4.
- 3. Daniel C. Edelson, Adam Tarnoff, Kathleen Schwille, Meridith Bruozas, and Anna Switzer, "Learning to Make Systematic Decisions," in *The Science Teacher* (Vol. 73, Issue 4), 2006.
- 4. Kathiann M. Kowalski, "Beyond Thirst: The Global Water Crisis". Faces Apr 2009, pp. 8-11.
- 5. CNN, "New York Bottled Water Ban," Riverkeeper (video), September 2, 2009. Accessed August 14, 2013, http://www.riverkeeper.org/campaigns/tapwater/.
- 6. Weekly Reader Corporation, "Wringing Dry." Current Events Apr 13, 2009: pp. 4+.
- 7. National Geographic, "Why Care about Water?" *National Geographic* (video), n.d. Accessed August 14, 2013. http://video.nationalgeographic.com/video/environment/freshwater/env-freshwater-whycare/.
- 8. The Lavin Agency, "Charles Fishman: Why College Students Should Start Paying Attention to Water," YouTube (video), February 25, 2013. Accessed August 14, 2013. http://www.youtube.com/watch?v=XM7S0_Qi3B4.
- 9. The Lavin Agency, "Charles Fishman: The Water Crisis Isn't Global. It's Local" YouTube (video), May 15, 2013. Accessed August 14, 2013. http://www.youtube.com/watch?v=lZxVyIiPDsA.
- 10. Landmark Media Inc., "The Future of Water," YouTube (video), December 5, 2008. Accessed August 14, 2013. http://www.youtube.com/watch?v=-qpbWZRC_dw.
- 11. The Lavin Agency, "Corporations Need to Pay More Attention to Water: Charles Fishman," YouTube (video), February 25, 2013. Accessed August 14, 2013. http://www.youtube.com/watch?v=8uWzIDMuM_U.
- 12. Various informational texts for an extensive research project.





Week	Instructional Focus	Long-Term Targets	Assessments		
Unit 1: Buildin	Unit 1: Building Background Knowledge: Management and Sustainability of Water				
Weeks 1–2	 Building background knowledge about water sustainability Read "Water Is Life" Introduce Domain-Specific Vocabulary anchor chart Listening for main ideas and supporting details Start Thinking Log and Reader's Notes Begin reading <i>The Big Thirst</i> 	 I can cite several pieces of text-based evidence to support an analysis of literary text. (RL.7.1) I can determine a theme or the central ideas of informational text. (RI.7.2) I can analyze the development of central ideas in a text. (RI.7.2) I can determine the meaning of words and phrases in text (figurative, connotative, and technical meanings). (RI.7.4) I can analyze the impact of word choice on meaning and tone in an informational text. (RI.7.4) I can analyze the organization of an informational text (including how the major sections contribute to the whole and to the development of the ideas). (RI.7.5) I can analyze the main ideas and supporting details presented in different media and formats. (SL.7.2) I can explain how ideas presented in different media and formats clarify a topic, text, or issue. (SL.7.2) 	Mid-Unit 1: "The Water Crisis Isn't Global. It's Local": Listening for Main Supporting Details (SL.7.2) Supporting Details (SL.7.2)		



Week	Instructional Focus	Long-Term Targets	Assessments
Weeks 1-2, continued	 Continue building background knowledge on water sustainability through reading informational texts, including <i>The Big Thirst</i> Trace the arguments of several informational texts Listen for arguments in informational videos Introduce Evaluating an Argument anchor chart 	 I can cite several pieces of text-based evidence to support an analysis of informational text. (RI.7.1) I can analyze the interactions between individuals, events, and ideas in a text. (RI.7.3) I can identify the argument and specific claims in a text. (RI.7.8) I can evaluate the argument and specific claims in a text for sound reasoning and relevant, sufficient evidence. (RI.7.8) I can explain how ideas clarify a topic, text, or issue. (SL.7.2) I can outline a speaker's argument and specific claims. (SL.7.3) I can evaluate the reasoning and evidence presented for soundness, relevance, and sufficiency. (SL.7.3) 	End of Unit 1: We Need to Pay More Attention to Water: Tracing and Evaluating Arguments in Text and Video (RI.7.8 and SL.7.3)



Week	Instructional Focus	Long-Term Targets	Assessments
Unit 2: Resear	ch Study: Industrial and Agricultural Water Ma	nagement	
Weeks 3-6	 Compare and contrast authors' use of evidence in several different text pairings Start research on agricultural and industrial water management including teaching the following skills: Evaluating the credibility of sources Generating supporting research questions Quoting or paraphrasing others' work Introduce the researcher's notebook and researcher's roadmap 	 I can analyze the interactions between individuals, events, and ideas in a text. (RI.7.3) I can contrast how multiple authors emphasize evidence or interpret facts differently when presenting information on the same topic. (RI.7.9) I can evaluate the credibility and accuracy of each source. (W.7.8) I can conduct short research projects to answer a question. (W7.7) I can generate additional questions for further research. (W 7.7) I can gather relevant information from a variety of sources. (W.7.8) I can use a variety of strategies to determine the meaning of unknown words or phrases. (L.7.4) 	



Week	Instructional Focus	Long-Term Targets	Assessments
Weeks 3-6, continued	 Practice comparing author's use of evidence Continue gathering information on agricultural and industrial water management from <i>The Big Thirst</i> Use search terms effectively Conduct internet-based research Use dictionaries to confirm or revise inferred meanings of words. 	 I can contrast how multiple authors emphasize evidence or interpret facts differently when presenting information on the same topic. (RI.7.9) I can conduct short research projects to answer a question. (W.7.7) I can generate additional questions for further research. (W.7.7) I can gather relevant information from a variety of sources. (W.7.8) I can use search terms effectively. (W.7.8) I can evaluate the credibility and accuracy of each source. (W.7.8) I can quote or paraphrase others' work while avoiding plagiarism. (W.7.8) I can use a variety of strategies to determine the meaning of unknown words or phrases. (L.7.4) 	Mid-Unit 2: Simulated Research Task: Water Management Strategies (RI.7.9, W.7.7, W.7.8, L.7.4c, and L.7.4d)



Week	Instructional Focus	Long-Term Targets	Assessments
Weeks 3-6, continued	 Introduce the decision-making process including Cascading Consequence chart and Stakeholder chart Weighing the evidence: Fishbowl discussion on possible approaches to better water management Creating a visual display for a presentation Formal presentations of claims about whether we should begin addressing agricultural or industrial water management first 	 I can write arguments to support claims with clear reasons and relevant evidence. (W.7.1) I can select evidence from literary or informational texts to support analysis, reflection, and research. (W.7.9) I can self-select a text based on personal preferences and read it independently. (RI.7.11a) I can use my experience and knowledge of language and logic, as well as culture, to think analytically, address problems creatively, and advocate persuasively. (RI.7.9a and SL.7.2a) I can come to discussions prepared to refer to evidence on the topic, text, or issue that probes and reflects on ideas under discussion. (SL.7.1 and SL.7.1a) I can present claims and findings with descriptions, facts, details, and examples, using effective speaking techniques (appropriate eye contact, adequate volume, and clear pronunciation). (SL.7.4) I can present claims and findings with descriptions, facts, details, and examples. (SL.7.4) I can include multimedia components and visual displays in a presentation to clarify claims and to add emphasis. (SL.7.5) 	End of Unit 2 Assessment: Making a Claim about Water Management (Part 1: SL.7.1, SL.7.1a, SL.7.1e; Part 2: SL.7.3a, SL.7.4, SL.7.5, SL.7.6, and RI.7.9a)





Week	Instructional Focus	Long-Term Targets (continued)	Assessments
Weeks 3-6, continued		I can adapt my speech for a variety of contexts and tasks, using formal English when indicated or appropriate. (SL.7.6)	
Unit 3: Performa	ance Task	'	
Weeks 7–8	 Analyze model position paper for argument and structure Plan position paper using Sustainable Water Management Position Paper Planner Introduce Steps to Writing a Position Paper anchor chart Engage in peer feedback to strengthen argument in position papers. Cite sources correctly Draft the position paper 	 I can cite several pieces of text-based evidence to support an analysis of informational text. (RI.7.1) I can identify the argument and specific claims in a text. (RI.7.8) I can evaluate the argument and specific claims in a text for sound reasoning and relevant, sufficient evidence. (RI.7.8) I can write arguments to support claims with clear reasons and relevant evidence. (W.7.1) I can produce clear and coherent writing that is appropriate to task, purpose, and audience. (W.7.4) With support from peers and adults, I can use a writing process to ensure that purpose and audience have been addressed. (W.7.5) I can use a standard format for citation. (W.7.8) I can select evidence from literary or informational texts to support analysis, reflection, and research. (W.7.9) I can accurately use seventh-grade academic vocabulary to express my ideas. (L.7.6) 	Mid-Unit 3: First Draft of Position Paper (RI.7.1, W.7.1a,b,e, and W.7.4)





Week	Instructional Focus	Long-Term Targets (continued)	Assessments
Weeks 7-8, continued		• I can use resources to build my vocabulary. (L.7.6)	
	 Create final independent reading product Revise position paper based on teacher feedback Reflect on the steps to writing a position paper Craft visual representation of position paper Publish visual representations and share with class in a Gallery Walk 	 I can cite several pieces of text-based evidence to support an analysis of informational text. (RI.7.1) I can use established criteria to make informed judgments about the quality of texts, and interpret texts artistically. (RL.7.11b) I can write arguments to support claims with clear reasons and relevant evidence. (W.7.1) I can produce clear and coherent writing that is appropriate to task, purpose, and audience. (W.7.4) With support from peers and adults, I can use a writing process to ensure that purpose and audience have been addressed. (W.7.5) I can accurately use seventh-grade academic vocabulary to express my ideas. (L.7.6) I can use resources to build my vocabulary. (L.7.6) 	 Final independent reading product (RL.7.11b) End of Unit 3 Assessment: Final Draft of Position Paper and Reflection on the Writing Process (RI.7.1, W.7.1c,d, W.7.4, W.7.5, and L.7.6)





Preparation and Materials

Preparation and Materials

In advance, read the article about the Stakeholder Consequences Decision-Making (SCDM) process to build your own background knowledge about it. You can download the article "Learning to Make Systematic Decisions" at the following URL:

http://education.nationalgeographic.com/education/media/learning-make-systematicdecisions/?ar_a=1

This article is not used with students during the module, but it provides some examples of how students have used this process in a science curriculum. Also, note that in this module, students are not using the entire SCDM process; they will be learning only the Cascading Consequences and Stakeholders charts.

For schools with access to the complete book version of the The Big Thirst:

If your school has access to the complete book version of *The Big Thirst*, consider the following possibilities:

- The complete text may be used as an independent reading book for very strong readers. An alternative approach would be to create a "book club" where several strong readers apply themselves to the entire text at once. If you have students who wish to read the entire text, encourage them to start after the class has read the first excerpt (Unit 1, Lesson 6). Consider how you can help them apply the skills they use to read in class when reading other parts of the text that they read independently (e.g. re-reading, focusing on Fishman's purpose, types of evidence used, etc.).
- Consider asking students to read several additional excerpts from the chapters which are studied in class (Chapters 1, 5 and 7). Of these three, most of the in-class reading comes from Chapters 1 and 5; it may make sense to have students complete the entirety of chapter 1 as a springboard into the rest of the book's content.
- Consider also having students read Chapter 2, which is a treatment of the scientific particulars of where water comes from, and why.
- Fishman interweaves facts and analysis with anecdotal explanations of his theses. Consider assigning alternative sections in the book which specifically use anecdotes. Reading comprehension increases when facts are presented in a narrative format.
- A specific anecdote which may be put to good use can be located in Chapter 8, "Where Water Is Worshipped, But Gets No Respect" (about water use in India), beginning on page 239. This portion of the chapter describes the walking required to transport water to family homes in the village of Jargali, and is a direct parallel to the central narrative of *Long Walk to Water*, read in Module 1. This chapter may also be of interest as a whole to ELL students or students whose ethnic heritage originates in India or Asia.
- Consider also collaborating with your Science colleagues to identify other excerpts of the texts they might use with students to reinforce key scientific content or concepts.