

Grade 7: Module 4B: Unit 2: Lesson 2
Analyzing Interaction: Categories of Water
Management in *The Big Thirst*





Analyzing Interaction:

Categories of Water Management in The Big Thirst

Long-Term Targets Addressed (Based on NYSP12 ELA CCLS)

I can analyze the interactions between individuals, events, and ideas in a text. (RI.7.3) I can evaluate the credibility and accuracy of each source. (W.7.8)

Supporting Learning Targets	Ongoing Assessment
 I can use close reading strategies to determine the multiple uses of water in society. I can apply the meanings of "personal," "agricultural," and "industrial" to examples of water use in my text. I can evaluate the credibility and accuracy of <i>The Big Thirst</i>. 	 Reader's Notes for pages 20, 21, and 24 of <i>The Big Thirst</i> (from homework) Excerpts from <i>The Big Thirst</i> Pages 20, 21, and 24 Text-Dependent Questions Thinking Log



Analyzing Interaction:

Agenda	Teaching Notes
 Opening A. Recording Vocabulary and Collecting Homework (6 minutes) Work Time A. Example Sort and Jigsaw Part I: Managements of Water (6 minutes) B. Mini Lesson: Credible Sources (5 minutes) C. Close Read: Excerpts of The Big Thirst, Pages 20, 21, and 24 (15 minutes) D. Jigsaw Part II: Sharing Knowledge (8 minutes) Closing and Assessment A. Read-aloud; Reviewing Learning Targets (5 minutes) Homework A. Read pages 123–125 of The Big Thirst and complete the Reader's Notes. 	 This is the first lesson in a full unit arc that scaffolds background knowledge, research skills, and note-taking toward a final product in which students will write about and present a position on the best strategies for agricultural and industrial water management (Lessons 11–17). The students begin by using their homework from Lesson 1, paired with this lesson's close reading of excerpts from <i>The Big Thirst</i>, to solidify and apply definitions of the four main uses of water. The Big Thirst is a dense informational text. This lesson, along with the ones that follow, builds in at least three supported reads of each piece of text to ensure that students understand the gist of the text, important supporting details, necessary inferences, essential vocabulary, and the writer's craft and purpose. For example, students will read pages 123–125 out loud in class, a second time for homework, and a third time in Lesson 3. Informational texts of this nature should be reread multiple times by students as a matter of course. The homework and the Opening have students understanding and applying four main uses of water, but the Work Time reduces these to three (personal, industrial, and agricultural). The absence of the fourth use (municipal) is intentional, as it overlaps with the other three categories in a way that may be confusing for the purposes of this project. However, <i>The Big Thirst</i> often addresses the issues of municipal/governmental management of water, and there is room within extension activities to further address this aspect. When students have conversations or make comments that verge on the municipal management of water, consider acknowledging them as such and set them aside—perhaps in a Parking Lot-type anchor chart—for further exploration and discussion later. Encourage students to return to the original Fishman text at any point for any clarification they require. Returning to the text consistently is a "habit of mind" that should be emphasized. In this less

Analyzing Interaction:

Lesson Vocabulary	Materials
personal, agricultural, industrial, municipal, irony, credible source, squander, startling, vulnerability	 Thinking Log (distributed in Unit 1) Domain-Specific Vocabulary anchor chart (begun in Unit 1) Water Management Example Cards (one set per triad and one for display, if needed) Tape dispenser (one per triad) Water Management note-catchers (industrial, agricultural, personal) (one set per triad) Water Management Example Cards (answers, for teacher reference) Assessing Sources document (one per student and one poster-size to display) The Big Thirst: The Secret Life and Turbulent Future of Water (book; one per student) Excerpts from The Big Thirst Pages 20, 21, and 24 Text-Dependent Questions (one per student and one to display) Excerpts from The Big Thirst Pages 20, 21, and 24 Close Reading Guide (for teacher reference) Document camera Reader's Notes for pages 123–125 of The Big Thirst (one per student) Reader's Notes for pages 123–125 of The Big Thirst (answers, for teacher reference)

words."

GRADE 7: MODULE 4B: UNIT 2: LESSON 2

Analyzing Interaction:

Categories of Water Management in The Big Thirst

Opening Meeting Students' Needs A. Recording Vocabulary and Collecting Homework (6 minutes) • Whenever possible, have students who need physical activity take on Have students get out their homework (Reader's Notes for pages 20, 21, and 24 of The Big Thirst). Draw their attention to the active roles of managing and the four vocabulary words provided on the Reader's Notes: personal, agricultural, industrial, municipal. writing on the anchor chart, · Have them read each word along with you. Repeat with corrected pronunciation if needed. Ask: handing out materials, etc. * "What part of speech are all of these words?" · Consider selecting students ahead of • Listen for: "adjective" and/or "describing word." time for cold calls. Those who need practice in oral response or • Point out the repetition of these words in the learning targets for today. Have the students turn to an elbow partner and extended processing time can be discuss briefly:

• Refer students to the last question of the Reader's Notes:

* "How will these four words help me achieve the targets today?"

* "The author concludes the chapter by stating, 'It is one of the *ironies* of our relationship to water that the moment it becomes unavailable, the moment it really disappears—that's when water becomes the most urgently visible.' Explain this statement and why it is ironic."

• Cold call two or three students for their ideas. Listen for answers that connect the vocabulary specifically with the learning

targets; for example, "These are all examples of how we use water," or "People and water interact in each of these vocabulary

- Ask students to share their thoughts on the answer. Reiterate the definition of *irony* if needed ("a reversal of what is expected in a situation"). Listen for: "When we really need water and there isn't any, it becomes the most important thing to our survival," "It's all we can think about when we really need it," or "If it goes away, you might think that we wouldn't care about it anymore, but it is so important that the opposite happens."
- Emphasize to students that this statement is an important summary of author Charles Fishman's claim in *The Big Thirst*.
- Have students record parts of speech and definitions for *personal*, *agricultural*, *industrial*, and *municipal* in their **Thinking Log**. Record the same on the class **Domain-Specific Vocabulary anchor chart**. Note that students will use these words consistently throughout the rest of the unit.
- Collect the Reader's Notes for pages 20, 21 and 24 of *The Big Thirst*.

consider selecting students ahead of time for cold calls. Those who need practice in oral response or extended processing time can be told the prompt before class begins to prepare for their participation. This also allows for a public experience of academic success for students who may struggle with ondemand questioning, or for struggling students in general.



Analyzing Interaction:

Categories of Water Management in *The Big Thirst*

Work Time Meeting Students' Needs

A. Example Sort and Jigsaw Part I: Managements of Water (6 minutes)

- Arrange the students into groups of three.
- Give each triad one set of **Water Management Example Cards**, one **tape dispenser**, and one set of color-coded **Water Management note-catchers**. Have students spread the cards out and give one note-catcher to each student.
- Explain that each student in the group is now going to be the "Master" of a particular use of water: the Industrial Master, the Agricultural Master, and so on. As the Master, that student is responsible for collecting and maintaining on the note-catcher an active list of the examples he or she hears and sees in class today of that particular use of water. Explain that groups will not have a Municipal Master to keep things simple during their upcoming research. Each Master will begin work by looking at the Water Management Example Cards and determining which ones belong to their area of water use. Give them 4 minutes for this work.
- Cold call various Masters to explain the reasoning behind their choices. Be sure to discuss both correct and incorrect answers, referring to the **Water Management Example Cards (answers, for teacher reference)** as needed. Solicit incorrect answers respectfully and celebrate those students who respond, along these lines:
 - * "We need one or two brave students to volunteer to discuss an answer they sorted incorrectly, so we can learn from their thinking. Remember that mistakes are necessary; they mean you're persevering and growing. Thank you so much."
- Should students feel shy about volunteering incorrect answers, use this incorrect example: "A batch of T-shirts being dyed is a personal use of water, because I know lots of my friends tie-dye their shirts for fun."
- Once correct answers have been verified, students should tape the correct cards to the top of their note-catcher.

- · When time allows, take a glance through the homework from Lesson 1, the Reader's Notes for pages 20, 21, and 24 of The Big Thirst. Sort students into three general groups: struggling students, proficient students, and students at mastery level. Keep the three lists at hand as you proceed through the unit. Use it to support differentiation of oral/individual support during class, heterogeneous grouping, extended or modified homework, or extra assistance outside of class hours. Also, as evidence accumulates throughout the unit, consider making these groupings fluid.
- The "incorrect answer discussion" does not need to be prolonged (one or two answers will do). It is written specifically to address any misconceptions that might arise and also to honor and celebrate the *effort* of students, as well as their achievement. If you have a struggling student who may need this kind of positive reinforcement, call on him or her here.



Analyzing Interaction:

Work Time (continued)	Meeting Students' Needs
B. Mini Lesson: Credible Sources (5 minutes)	
• Speak to students about the importance of using credible sources to build up their background knowledge and conduct research. On the Domain-Specific Vocabulary anchor chart, briefly create a class definition of a <i>credible source</i> , including but not limited to: ", uses a significant amount of verifiable evidence, and is as unbiased as possible."	
Hand out the Assessing Sources document . Briefly review its contents with the class.	
• Refer back to the definition of a credible source on the Domain-Specific Vocabulary anchor chart. Ask students to have a 30-second discussion with a partner about one thing they would change, keep, or modify about the definition, now that they have reviewed the Assessing Sources document.	
• Cold call two or three students for their answers. Make the changes suggested on the anchor chart. If students do not cover a key point of determining a credible source or incorrectly identify a change, model adding it or modifying it on the anchor chart for the class.	
• Direct students' attention to the poster-size Assessing Sources document and remind them that this will be posted for the remainder of the unit for their reference.	
C. Close Read: Excerpts of <i>The Big Thirst</i> , Pages 20, 21, and 24 (15 minutes)	
• Be sure students have their text, <i>The Big</i> Thirst. Distribute the Excerpts from <i>The Big Thirst</i> Pages 20, 21, and 24 Text-Dependent Questions .	
• Tell students that now they will individually engage in close reading strategies with you, using excerpts from pages 20, 21, and 24.	
• Refer to the learning targets. Explain that the purpose of the close reading today is to continue to build their background knowledge on the three main types of water management, as the learning targets indicate.	
• Let them know that in the next lesson, they will begin to see how this all fits into a larger research project they will conduct during this unit.	
• Remind students that they will discuss the reliability of <i>The Big Thirst</i> during the close reading lesson.	
• Use the Excerpts from <i>The Big Thirst</i> Pages 20, 21, and 24 Close Reading Guide (for teacher reference) to guide students through their text-dependent questions document. Display these questions using a document camera as you work.	



Analyzing Interaction:

Work Time (continued)	Meeting Students' Needs
D. Jigsaw Part II: Sharing Knowledge (8 minutes)	
• After completing the close reading lesson, have students (refer to them as "Masters") get up and take a quick stretch. Congratulate them on their hard work.	
• Ask them to gather in groups of three with other Masters of their type, using their color-coded note-catchers to assist them. Groups should be of homogeneous colors.	
 Homogeneous Masters Groups should now spend 4 minutes comparing, contrasting, adding to, and revising their notes on water use. 	
• Have students return to their original groups. Masters should now share their list with their group for 4 minutes.	
Remind the Masters to keep these lists in a safe place because they will be used in the next class.	

Analyzing Interaction:

Closing and Assessment	Meeting Students' Needs
A. Read-aloud; Reviewing Learning Targets (5 minutes)	
• Ask students to open <i>The Big Thirst</i> to page 123. Starting with the line "In the last decade" read aloud and have them follow along until the section break on page 125.	
• Direct students' attention to the learning targets one last time:	
* "I can use close reading strategies to determine the multiple uses of water in society."	
* "I can apply the meanings of "personal," "agricultural," and "industrial" to examples of water use in my text."	
* "I can evaluate the credibility and accuracy of <i>The Big Thirst</i> ."	
Ask them to turn and talk with an elbow partner:	
* "Did I hit my learning targets today? If I didn't, what action can I take to help me hit them by the next lesson?"	
• Distribute the homework for this lesson: Reader's Notes for pages 123–125 of <i>The Big Thirst</i> .	
Homework	Meeting Students' Needs
• Read pages 123–125 of <i>The Big Thirst</i> and complete the Reader's Notes.	
Note: In the next lesson, students will need to look up definitions in a dictionary or on the internet. You may need to make arrangements to have a class set of dictionaries or computers available.	



Grade 7: Module 4B: Unit 2: Lesson 2 Supporting Materials







Water Management Example Cards

Name:	
Date:	
A field of soybeans is irrigated by a network of ditches connected to the nearest river.	
A man fills the bathroom sink with water to help him shave.	
The floor of a slaughterhouse is washed down every evening.	
A batch of white T-shirts is dipped into several vats of commercial dye in a factory.	
Parts of an airplane are cast out of metal, then placed in baths of water to cool.	
A family car is washed in the driveway on a hot summer day.	
A refrigerator uses a special mechanism to make ice.	
Apple trees on a farm are sprayed with liquid pesticide.	
A soft drink is mixed using carbonated water as a base, then bottled in a bottling plant.	



	Industrial Management of Water Note-catcher
	Name:
	Date:
Tape the appropriate Water Management	Example Cards here.
What other examples of industrial water the Big Thirst, pages 20, 21, and 24?	management have you seen or heard in the text of





	Agricultural Management of Water Note-catcher
	Name:
	Date:
Tape the appropriate Water Management Exa	imple Cards here.
What other examples of agricultural water matter the Big Thirst, pages 20, 21, and 24?	anagement have you seen or heard in the text of



E
EXPEDITIONARY
LEARNING

	Personal Management of Water Note-catcher
	Name:
	Date:
Tape the appropriate Water Management E	Example Cards here.
What other examples of personal water ma The Big Thirst, pages 20, 21, and 24?	anagement have you seen or heard in the text of



Water Management Example Cards Answers for Teacher Reference

A field of soybeans is irrigated by a network of ditches connected to the nearest river.	agricultural
A man fills the bathroom sink with water to help him shave.	personal
The floor of a slaughterhouse is washed down every evening.	agricultural
A batch of white T-shirts is dipped into several vats of commercial dye in a factory.	industrial
Parts of an airplane are cast out of metal, then placed in baths of water to cool.	industrial
A family car is washed in the driveway on a hot summer day.	personal
A refrigerator uses a special mechanism to make ice.	personal (arguments can be made for both industrial and agricultural, however—this card is deliberately vague)
Apple trees on a farm are sprayed with liquid pesticide.	agricultural
A soft drink is mixed using carbonated water as a base, then bottled in a bottling plant.	industrial

Assessing Sources



	•
Name:	
Date:	

When you find a text you think you might use for research, you first need to assess it by asking these questions.

1. Assess the Text's Accessibility

- Am I able to read and comprehend the text easily?
- Do I have adequate background knowledge to understand the terminology, information, and ideas in the text?

2. Assess the Text's Credibility and Accuracy

- Is the author an expert on the topic?
- Is the purpose to inform or to persuade/sell?
- When was the text first published?
- How current is the information on the topic?
- Does the text have specific facts and details to support the ideas?
- Does the information in this text expand on or contradict what I already know about the topic?

3. Assess the Text's Relevance

- Does the text have information that helps me answer my research questions? Is it information that I don't have already?
- How does the information in the text relate to other texts I have found?

Informed by "Assessing Sources," designed by Odell Education





Excerpts from *The Big Thirst* Pages 20, 21, and 24 Text-Dependent Questions

Name:

Date:



Excerpts from *The Big Thirst* Pages 20, 21, and 24
Text-Dependent Questions

Qı	uestions	
4.	The passage reads, "Meanwhile, we haven't yet really tried to get Americans to install water-efficient fixtures at home." What do you think a water-efficient fixture is? What does efficient mean? How do you know? Give an example of a context clue from the text.	
5.	In the previous lesson, we discussed how the evidence of facts and statistics helps to make a strong argument. What facts does the author choose to discuss in the excerpt, and what claims and reasons do they support?	



Excerpts from *The Big Thirst* Pages 20, 21, and 24
Text-Dependent Questions

Qı	uestions:	
6.	Does the author believe that technology assists with water problems or makes them worse? Use at least one example from the text to support your answer.	
7.	Where would "technology" cause a problem in the three categories of water use we have studied, and why? Use examples from the text to support your answer.	



Excerpts from *The Big Thirst* Pages 20, 21, and 24 Close Reading Guide For Teacher Reference

Questions	Teacher Guide
1. At the bottom of page 20, a sentence says, "Poor farming practices around the world squander huge quantities of water." What do you think the word squander might mean?	Say: * "Please read along in your heads while I read aloud." Begin reading on page 20, from "But the idea" and continue to page 21, " a 70% larger harvest," without pausing for questions. Let the class hear the whole text without interruption.
What word in that sentence gives you the best clue to the meaning of <i>squander</i> ? 2. Talk about a fact about water	After you have read these two pages, pause. Ask the questions one at a time. For each question, ask students to think individually and then raise their hands when they know their answer. When most of the class has a hand up, call on several students to share out.
2. Talk about a fact about water that jumped out at you while reading this excerpt. Which of the three uses of water we have studied today relates the most closely to that fact?	After each text-dependent question, ask Masters to check, add to, or revise their lists of examples of water management based on what they read in the preceding excerpt. 1) Listen for: <i>Squander</i> means "waste," "abuse," or "misuse."
3. In this passage, there are three footnotes. How does this relate to the idea that <i>The Big Thirst</i> is a credible source ?	The word "poor" lets students know that the farming being discussed wastes water. 2) Listen for students to bring up specific facts and interpret them directly through the lens of personal, agricultural, or industrial use of water. Probe for explicit, text-based explanations.
	3) Listen for students to draw a connection between the footnotes and naming one's sources, as well as using many sources, to be credible.



Excerpts from *The Big Thirst* Pages 20, 21, and 24 Close Reading Guide For Teacher Reference

Questions:	Teacher Guide:
4. The passage reads, "Meanwhile, we haven't yet really tried to get Americans to install waterefficient fixtures at home." What do you think a water-efficient	Say: * "Please read silently in your heads as I read aloud." Read on page 21 from "And the water revolution" to the bottom of the last paragraph.
fixture is? What does <i>efficient</i> mean? How do you know? Give an example of a context clue from the text.	4) Listen for students to talk about turning off the water or using water thoughtfully as clues to the meaning of <i>efficient</i> . Students may also reference parts of the text not included in the excerpt.
5. In the previous lesson, we discussed how the evidence of facts and statistics helps to make a strong argument. What facts does the author choose to discuss in the excerpt, and what claims and reasons do they support?	5) Listen for students to bring up the fact that companies are tracking water use to support the author's claim that the water revolution is beginning in the economy, for the reason that companies in general are examining and reimagining water use; and also for the reason that that we haven't tried very hard to get Americans to cut down on their personal use of water (50% of water for Florida lawns).



Excerpts from *The Big Thirst* Pages 20, 21, and 24 Close Reading Guide For Teacher Reference

Qı	uestions:	Teacher Guide:
6.	Does the author believe that technology assists with water problems or makes them worse? Use at least one example from the text to support your answer.	Say: * "Please read silently in your heads as I read aloud." Read from the top of page 24 to the end of the second paragraph. The last two questions relate to the excerpt as a whole.
7.	Where would "technology" cause a problem in the three categories of water use we have studied, and why? Use examples from the text to support your answer.	6) Listen for students to say that the author believes both statements. They should say that the author believes technology can solve most water problems, but that other technologies, such as fracking, are causing new problems with water.
		7) Listen for students to connect personal, industrial, and agricultural uses of water to technology. Examples could include but are not limited to: the use of water in making personal computers; fertilizer runoff; modern plumbing making it easier to overuse water personally.





Reader's NotesPages 123–125 of *The Big Thirst*

Jse this Main Idea and Supporting Details graphic organizer to get the gist of the reading.			
Main idea: "In the last decade, business has discovered water as both a startling vulnerability and an opportunity to reduce costs and turn water itself into a business" (123).			
startling: surprising; frightening			
vulnerability: a weakness open to attack or da	amage		
Supporting detail:	Supporting detail:		
Supporting detail:	Supporting detail:		
Supporting detail:	Supporting detail:		
Why would water be regarded by business as a "startling vulnerability"? Use at least one of the supporting details above to support your answer.			

Name:

Date:



	Vocabulary
Name:	
Date:	

Some definitions have been provided for you. For words without definitions, create a definition from the context and fill out the Context Clues column. Then, check your definition against a dictionary to see if you were correct.

Word	Definition	Context clues: How did you figure out this word?
painstaking (123)		
inevitable (123)	impossible to avoid	X
potable (123)	suitable for drinking	X
desalination (123/124)		
culinary (124)		
prosaic (124)	being dull, ordinary, or uninteresting	X
trivial (125)		



Reader's Notes Pages 123–125 of *The Big Thirst*Answers for Teacher Reference

Use this Main Idea and Supporting Details graphic organizer to get the gist of the reading.

Main idea: "In the last decade, business has discovered water as both a *startling* vulnerability and an opportunity to reduce costs and turn water itself into a business" (123).

startling: surprising; frightening

vulnerability: a weakness open to attack or damage

Supporting detail:	Supporting detail:
Berkshire Hathaway's new investment in water management	"Royal Caribbean has eliminated a whole category of water use."
Supporting detail:	Supporting detail:
Using superchilled river rock on cruise ships	Nalco has \$4 billion in revenue.
Supporting detail:	Supporting detail:
Levi's water life cycle analysis	Levi asks outsourced companies to treat its wastewater.

Why would water be regarded by business as a "startling vulnerability"? Use at least one of the supporting details above to support your answer.

If anything goes wrong with the water in a business, the whole business could shut down. For example, if there is no water to grow the cotton for Levi's jeans, making the jeans becomes impossible.



Vocabulary
Answers for Teacher Reference

Some definitions have been provided for you. For words without definitions, create a definition from the context and fill out the Context Clues column. Then, check your definition against a dictionary to see if you were correct.

Word	Definition	Context clues: How did you figure out this word?
painstaking (123)	taking or showing great care and effort	The description of the analysis is very detailed.
inevitable (123)	impossible to avoid	X
potable (123)	suitable for drinking	X
desalination (123/124)	taking the salt out of something	The sentence shows that the water is being treated somehow.
culinary (124)	of or relating to the kitchen or cooking	The sentence has lots of references to dining.
prosaic (124)	being dull, ordinary, or uninteresting	X
trivial (125)	of little worth or importance	The sentence next to it says, "On the other hand it is a stroke of genius," so it must originally mean something boring or worthless.