



EXPEDITIONARY
LEARNING

Grade 7: Module 4B: Unit 1: Lesson 9

Clarifying Thinking on Water Management: Revisiting the Gallery Walk



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

I can explain how ideas clarify a topic, text, or issue. (SL.7.2)
I can cite several pieces of text-based evidence to support an analysis of informational text. (RI.7.1)

Supporting Learning Targets

- I can explain how the video “The Future of Water” and excerpts from *The Big Thirst* clarified my thinking on the issue of water sustainability.
- I can cite several pieces of text-based evidence to find places on a map.
- I can analyze photos, videos, and quotes to find a main idea.

Ongoing Assessment

- Thinking Log
- World maps (from homework)
- Notices and Wonders note-catcher

Agenda

1. Opening
 - A. Entry Task: Defining Vocabulary Words from Unit 1 (2 minutes)
 - B. Sharing Unit 1 Vocabulary (6 minutes)
 - C. Reviewing Learning Targets (2 minutes)
2. Work Time
 - A. Reviewing thinking Log and World Map Homework (15 minutes)
 - B. Reviewing Gallery Walk (15 minutes)
3. Closing and Assessment
 - A. Thinking Log (5 minutes)
4. Homework
 - A. Read the article “Wringing Dry” and complete the Tracing an Argument note-catcher

Teaching Notes

- This lesson continues to draw upon students’ use of video and text to clarify the issue of water sustainability. In addition, students review their homework and check their thinking based on text-based evidence.
- Students revisit the Gallery Walk from Lesson 1 to think about what they now know and what they still would like to understand better. This reflective process helps them build on new understandings. A self-monitoring or metacognitive approach can help students develop the ability to take control of their own learning, define learning goals, and monitor their progress.
- As in the Gallery Walk in Lesson 1, item 1 is a short video, which students can watch on a computer in the classroom. Cue up the Web page before class starts so that students can click “play” as they get to the station. Choose whether students will use headphones or listen at the station in small groups, quietly so that it will not disrupt others.
- In advance: Prepare Quiz-Quiz-Trade cards (see supporting materials); decide how best to group students into triads for Work Time B; review the Quiz-Quiz-Trade and Gallery Walk protocols (see Appendix), and cue up the video.
- Post: Domain-Specific Vocabulary anchor chart, Gallery Walk items from Lesson 1, learning targets.



Lesson Vocabulary	Materials
<p>synthetic, imminent (Paragraph 1), intensive (Paragraph 5), nitrate, phosphate (Paragraph 6), brackish (Paragraph 8), calibrated (Paragraph 9)</p>	<ul style="list-style-type: none"> • Unit Vocabulary Quiz-Quiz-Trade Cards • Domain-Specific Vocabulary anchor chart (begun in Lesson 2) • Notices and Wonders note-catcher (from Lesson 1; students' completed copies) • Suggested Gallery Walk items (from Lesson 1) • "Wringing Dry" (one per student) • Tracing an Argument note-catcher (from Lesson 7; one new blank copy per student) • Tracing an Argument note-catcher on "Wringing Dry," Teacher's Guide (for teacher reference)

Opening	Meeting Students' Needs
<p>A. Entry Task: Defining Vocabulary Words from Unit 1 (2 minutes)</p> <ul style="list-style-type: none"> • Distribute one vocabulary card for each student from the Unit Vocabulary Quiz-Quiz-Trade Cards. • Ask students to write the definition of the word on the back of the card. Remind them that they can use their prior Reader's Notes to define the word. 	<ul style="list-style-type: none"> • If students need help defining the word, prompt them to look at their Reader's Notes from Unit 1, the Domain-Specific Vocabulary anchor chart or other classroom resources. • Consider allowing students to choose from multiple representations (words, pictures, etc.) on the back of the card to help define the word.



Opening (continued)	Meeting Students' Needs
<p>B. Sharing Unit 1 Vocabulary (6 minutes)</p> <ul style="list-style-type: none"> • Let students know that they will be doing the Quiz-Quiz-Trade protocol. Briefly review the directions: • When prompted, find a partner and show him or her the vocabulary word on your card. • Your partner will use his or her resources to try to define your word. • Then the process repeats, with you defining your partner's word. • After both of you have tried to determine the meaning of the words, share the correct definitions, then trade cards and find new partners. • Clarify directions as needed, and then invite the class to begin. Circulate to guide students and to listen in on their understanding of the words. • Once students have partnered up four times, ask them to return to their seats. • Ask students to examine their vocabulary from their homework and place a star next to those words that are domain-specific. Cold call students and add these words to the Domain-Specific Vocabulary anchor chart. 	
<p>C. Reviewing Learning Targets (2 minutes)</p> <ul style="list-style-type: none"> • Read the day's learning targets aloud or ask a volunteer to do so: <ul style="list-style-type: none"> * "I can explain how the video 'The Future of Water' and excerpts from <i>The Big Thirst</i> clarified my thinking on the issue of water sustainability." * "I can cite several pieces of text-based evidence to find places on a map." * "I can analyze photos, videos, and quotes to find a main idea." • Remind students of the Fist to Five checking for understanding technique (introduced in Module 1). • Cold call a few students to provide evidence for the rating they gave themselves. • Tell students that today they will review the homework in preparation for their end of unit assessment (in Lesson 10), during which they will need to identify and evaluate arguments. 	<ul style="list-style-type: none"> • Checking in with learning targets helps students self-assess their learning. This research-based strategy supports struggling learners most. • Allowing students to discuss with a partner before writing or sharing with the whole class is a low-stress strategy to help them process in a risk-free situation.



Work Time	Meeting Students' Needs
<p>A. Reviewing Thinking Log and World Map Homework (15 minutes)</p> <ul style="list-style-type: none"> • Ask students to locate and silently review their homework: their Thinking Log and world maps. • Ask them to turn and talk to a partner and share their thinking: <ul style="list-style-type: none"> * “How were your ideas clarified by the video and reading from the previous lesson?” • Cold call several students to share their ideas with the whole group. • Place students in triads. Tell them they will work with their triad to share the places they found on the maps. Give directions: <ol style="list-style-type: none"> 1. In your triad, number yourselves off, student 1, 2, and 3. 2. Student 1, share a place and the place in the book that it was mentioned. 3. Students 2 and 3, check whether you also have that place. If not, add it. 4. Student 2, share a place. Students 1 and 3, check whether you also have that place. If not, add it. 5. Student 3, share a place. Students 1 and 2, check whether you also have that place. If not, add it. 6. Continue taking turns until your triad has listed all the places you found in the text. 	
<p>B. Revisiting Gallery Walk (15 minutes)</p> <ul style="list-style-type: none"> • Distribute students' Notices and Wonders note-catcher from Lesson 1. • Tell students that they will re-examine the Gallery Walk items from Lesson 1, including quotes, images, and the video. Some of the information will now seem familiar, but some might still be new and interesting; students should add anything they observe, or that is still new or interesting, in the Notices column. They also may still find some of the information surprising or may have additional questions that are not answered in the image or quote. They can add any questions in the Wonders column. • Review the Gallery Walk protocol as needed and get students in small groups with their note-catchers to begin. • Ask them to silently wander to each image, quote, or the video and write down what they notice and what they wonder for about 8 minutes. They may linger at any item and not worry about getting to all the items. Invite students to play the video, already on the class computer screen. Tell them the video runs about 2 minutes, but they do not have to stay for the whole time. Remind students of the norms for moving calmly around the room and moving to those images, quotes, or video where there are fewer classmates. 	



Work Time (continued)	Meeting Students' Needs
<ul style="list-style-type: none"> • Invite students to begin the Gallery Walk. Consider participating in this step and writing your own Notices and Wonders. Or circulate to listen in and clarify procedures as needed. • After 8 minutes, invite students to sit and finish writing their thoughts, especially adding to their thinking at the bottom of the handout. Starting with Notices, allow students to “popcorn” discuss any of the ideas they have written down. Next, invite them to “popcorn” discuss the questions that they still have after the Gallery Walk. Tell them that their questions may become research questions for Unit 2. Collect the Notices and Wonders note-catchers. • Congratulate students on how much they have learned about water since Lesson 1. Point out specific learning that students didn’t know in the first Gallery Walk but did know in the second, as well as deeper and/or different questions formed based on increasing understanding of water sustainability and water management. 	
Closing and Assessment	Meeting Students' Needs
<p>A. Thinking Log (5 minutes)</p> <ul style="list-style-type: none"> • Ask students to pair up and discuss this question before writing: <ul style="list-style-type: none"> * “How has revisiting the resources in the Gallery Walk clarified your thinking about the issues of water sustainability and water management?” • Then have students respond in their Thinking Log. • Cold call students to share their current thinking. • Preview the homework and distribute the homework text and note-catcher. 	
Homework	Meeting Students' Needs
<ul style="list-style-type: none"> • Read the article “Wringing Dry” and complete the Tracing an Argument note-catcher. 	



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Supporting Materials



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Unit Vocabulary Quiz:
Quiz Trading Cards

abundance

agriculture

aquatic

aqueous

aquifer



Unit Vocabulary Quiz:
Quiz Trading Cards

beleaguered

blasé

blighted

brackish

briny

calibrated

claim

conditioned



Unit Vocabulary Quiz:
Quiz Trading Cards

crisis/crises

desertification

endemic

evaporation

imminent

irrigate

levees

saline



Unit Vocabulary Quiz:
Quiz Trading Cards

water management

sustainability

industry

potable



Wringing Dry

Ready to give up long showers, water parks, and unlimited water gushing out of your faucets? Well, you don't have to just yet, unless world leaders can't resolve the world's worsening water shortage. The oceans are full, of course. But the liquid most important to human life--fresh, clean water for drinking and watering crops--is in short supply in many parts of the world. Rivers are running low, lakes are shrinking, streams have stopped flowing, and groundwater is being pumped dry.

Drought conditions are spreading in Africa, causing crop failures, malnutrition, and starvation.

Millions of people in Africa and Asia have turned to drinking and washing with contaminated water, leading to the spread of diseases. Infectious water-borne diseases, such as typhus and cholera, are now responsible for 80 percent of illnesses and deaths in poor countries. Many of those affected are children. If the trends continue, one-third of the world population will face a severe water shortage by 2025.

World Water Forum

That's part of a sobering assessment by the World Water Forum, which meets every three years. This year, 25,000 delegates from 100 countries convened in Istanbul, Turkey, to figure out a solution to solve the world's water crisis.

"There are several rivers that don't reach the sea anymore," Mark Smith, head of the water program for the International Union for the Conservation of Nature, told the BBC. "The Yellow River [Huang River in China] is one, the Murray-Darling [river system in Australia] is nearly another--they have to dredge the mouth of the river every year to make sure it doesn't dry up. The Aral Sea [in west-central Asia] and Lake Chad [in Africa] have shrunk because the rivers that feed them have been largely dried out."

Smith says small streams and rivers, especially in Africa, are drying up for at least part of the year, leading to even less usable water for small communities.

When streams and lakes dry up, people look underground. In parts of Africa and Asia, deep tube wells have replaced streams and rivers for farm irrigation and for drinking water. But because of the need to produce more and more crops, even the deepest wells are going dry. In rural western India, says Fred Pearce, author of *When the Rivers Run Dry*, "half the traditional wells and millions of tube wells have dried up."

Wringing Dry

"For nearly 3 billion people, access to a [water and] sanitation system comparable to that of ancient Rome would be a significant improvement," scientist Peter Gleick told *Public Works* magazine.

In 2008, lack of water led China to try to lease or purchase land in southern Africa to grow crops to help feed China's population. South Korea, which is experiencing its own drought, is looking to lease land in Madagascar, an island nation off eastern Africa, to grow food. Other countries in Asia, including Saudi Arabia, are considering similar moves.

"In general, we see drying...from southern Europe across to Kazakhstan and from north Africa to Iran," Martin Parry, of the Intergovernmental Panel on Climate Change, told the BBC. "And the drying extends westward into Central America [as well as into southern Africa and Australia]." Since 2002, Australia has been in the grip of its worst drought in history.

The United States also has been hit hard. In 2007, Lake Superior, one of the world's largest freshwater lakes, dropped to its lowest level in 80 years. California has a 20-year supply of freshwater left. New Mexico has 10 years' worth. Since 2000, the Colorado River, which provides water for seven U.S. states, has carried less water than at any time in its known history. Experts say those problems represent more than a temporary drought. In fact, the Environmental Protection Agency warns that if current water use continues unchecked, 36 states will suffer water shortages within the next five years.

Causes and Solutions

What is causing the crisis? Experts say it is a complex combination of climate change and rapid population growth. Areas that once received a lot of rain now get less rain; areas that got little rain now get more rain. When areas experience less or no rain, and rivers, streams, and lakes dry up, crops fail and hunger increases. According to the Intergovernmental Panel on Climate Change, the area of Earth's land that is classified as "very dry" has doubled since 1970, and the trend is expected to grow.

The world population today is about 6.7 billion people, and it is expected to grow to more than 9 billion by 2050, according to United Nations projections. Much of the growth is expected to take place in countries that are already water poor, putting further stress on a dwindling water supply.



Wringing Dry

One partial answer to the world water shortage, at least for countries near the sea, is to build more desalination plants that convert seawater to freshwater. A new desalination plant has been built in drought-struck Australia, and several are planned for California. Another suggested solution is for water-rich countries, such as Canada, to sell water to water-poor countries. A third suggestion is for countries to adopt ways of increasing the freshwater supply, such as teaching farmers in Africa methods of capturing clean rainwater.

Delegates to last month's Istanbul conference discussed those and other ways to help solve the water crisis. Nearly everyone agreed that the amount of water on our planet can't be changed, but the way we use it can be if more people realized the problem.

"We're waking up," Gleick told Time magazine about the growing awareness of the world water shortage. "But not fast enough."

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Tracing an Argument Note-Catcher for “Wringing Dry”
Teacher’s Guide (For Teacher Reference)

Name:

Date:

Name of Text/Excerpt/Clip: Wringing Dry		
Author/ Speaker’s Name: Weekly Reader		
Claim: We are running out of freshwater, and we must do something about it.		
Supporting Evidence 1	Supporting Evidence 2	Supporting Evidence 3
One-third of the world population will face a severe water shortage by 2025.	Small streams and rivers, especially in Africa, are drying up for at least part of the year, leading to even less usable water for small communities.	In rural western India, says Fred Pearce, author of <i>When the Rivers Run Dry</i>, "half the traditional wells and millions of tube wells have dried up.
Is this evidence relevant? Yes / No Explain why this evidence is or is not relevant to the claim: <i>This evidence demonstrates the worldwide nature of the lack of water.</i>	Is this evidence relevant? Yes / No Explain why this evidence is or is not relevant to the claim: <i>This evidence shows how water access from streams and rivers is decreasing.</i>	Is this evidence relevant? Yes / No Explain why this evidence is or is not relevant to the claim: <i>This evidence shows how even underground water is decreasing in some parts of the world.</i>



Tracing an Argument Note-Catcher for “Wringing Dry”
Teacher’s Guide (For Teacher Reference)

Supporting Evidence 4	Supporting Evidence 5	Supporting Evidence 6
<p>Since 2002, Australia has been in the grip of its worst drought in history.</p>	<p>If current water use continues unchecked, 36 states will suffer water shortages within the next five years.</p>	<p>According to the Intergovernmental Panel on Climate Change, the area of Earth's land that is classified as "very dry" has doubled since 1970, and the trend is expected to grow.</p>
<p>Is this evidence relevant?</p> <p>Yes / No</p> <p>Explain why this evidence is or is not relevant to the claim:</p> <p><i>This evidence gives a specific example of a country which is experiencing lack of water.</i></p>	<p>Is this evidence relevant?</p> <p>Yes / No</p> <p>Explain why this evidence is or is not relevant to the claim:</p> <p><i>This evidence gives a specific example of a country (the US) which may experience lack of water due to our usage.</i></p>	<p>Is this evidence relevant?</p> <p>Yes / No</p> <p>Explain why this evidence is or is not relevant to the claim:</p> <p><i>This evidence shows how climate change has contributed to the water decrease.</i></p>
<p>Did the author provide sufficient evidence? Explain why or why not.</p> <p>Yes. The author used facts and expert testimony to support the claim.</p>		
<p>Was the reasoning sound? Explain why or why not.</p> <p>Yes. The author gave two main reasons for lack of water and supported them with connected evidence, and also gave evidence that logically demonstrated a water crisis.</p>		



Tracing an Argument Note-Catcher for “Wringing Dry”
Teacher’s Guide (For Teacher Reference)

Overall, does the author successfully prove the claim? Why or why not? Refer to what you wrote above about relevant and sufficient evidence and sound reasoning.

The author proved the claim by providing sufficient and sound evidence within the article.