UNIT B: LESSON 8

LEARNING OBJECTIVES

INSTRUCTIONS FOR TEACHERS:

- Refer students to the standards and objectives.
- Review the standards and objectives with students one at a time.
- At the end of the lesson, ask students what they did in class to meet the standards.

INSTRUCTIONS FOR STUDENTS:
Listen as your teacher reviews the standards and objectives. Your teacher will call on an individual or pair to explain what they mean.

ELA Objective(s): I can **evaluate** the **development** of the **argument** in "Wringing Dry." Language Objective(s): I can **explain** how the different **aspects** of "Wringing Dry" **contribute** to my understanding of water sustainability.	***evaluate*** – judge ***development*** – growth; when something becomes more complete ***argument*** – writing for or against something ***explain*** – talk about what something means ***aspect*** – part ***contribute*** – add

ACQUIRING AND USING VOCABULARY

INSTRUCTIONS FOR TEACHERS:

- Review student instructions.
- Familiarize students with their glossary. It is located in Appendix A (Glossary; labeled "Appendix: Glossary" in the student version). Tell students to use the glossary throughout the lesson.
- Pre-teach the vocabulary selected for extended instruction, provided as word cards in Appendix B (Teacher Resources). This vocabulary is abstract and critical to understanding the text.

INSTRUCTIONS FOR STUDENTS:

Your teacher will pre-teach several key vocabulary words that are critical to understanding the text. Use your glossary for the rest of the lesson to find meanings for words you don't know. Words that are **bold** in the text and word banks can be found in the glossary. The glossary is located in the Appendix at the end of the lesson.

INTERACTING WITH THE TEXT

INSTRUCTIONS FOR TEACHERS:

- First, read the guiding question and text aloud to students, modeling appropriate pace and intonation.
    - During the read-aloud, define words and phrases in context that students are unlikely to know, drawing defintions from the glossary when you can. Translations, examples, gestures, and visuals also help.
- After the text has been read aloud, ask students to read the text on their own.
- Next, ask students to work with a partner to answer supplementary questions.
    - At this time, ask students to use their glossary to help them with word meanings.
- Then, call on pairs to answer the supplementary questions.
- Lastly, discuss the guiding question(s) as a group and then have students write the answer in their student chart.

INSTRUCTIONS FOR STUDENTS:

- Your teacher will ask you a guiding question that you will think about as your teacher reads the text aloud to you. As your teacher reads the text aloud, listen and follow along in your text.
- After the text has been read aloud, work with a partner to reread the text and answer the supplementary questions. Use your glossary to help you.
- Next, your teacher will review the answers with the class.
- You will then discuss the guiding question(s) with your teacher and the class.
- Finally, you will complete a written response to the guiding question(s).

GUIDING QUESTION(S): *What is the assessment of the World Water Forum about water? What are recommendations of experts to solve the world water shortage?*

"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.

WORD BANK:

2025	eighty	poor	shortage
crops	flowing	pumped	shrinking
diseases	**malnutrition**	**resolve**	**starvation**
dry	one-third	**severe**	

SUPPLEMENTARY QUESTIONS:

1. Why might you have to give up using lots of water?

You will have to give up using lots of water if world leaders can't resolve the global water shortage.

2. What is the evidence listed in this text for the short supply of clean water for drinking and watering crops?

The evidence includes:

A. rivers becoming dry
B. lakes shrinking (getting smaller)
C. streams not flowing anymore
D. groundwater pumped dry.

3. What are the consequences, or results of drought named in this text?

The consequences of drought named in this text include:

A. failure of crops to grow
B. malnutrition (not having enough food)
C. starvation (dying of hunger).

4. What is the consequence of drinking and washing with contaminated, or dirty, water?

The spread of diseases is the consequence of drinking and washing with contaminated water. These diseases are the cause of eighty percent of the sickness and death in poor countries.

*5. What will happen if water shortage **trends** continue?*

If water shortage trends continue, one-third of people on earth will face 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."

"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 (buy) 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.

WORD BANK:

2025	communities	part of	thousands of years ago
Africa	drying up	**populations**	usable
America	Europe	purchase	water
Antarctica	hard	sanitation	**wells**
Asia	lease	sea	
Australia	one-third	**severe**	

SUPPLEMENTARY QUESTIONS:

6. What is the assessment of 25,000 delegates from 100 countries who belong to the World Water Forum?

Their assessment is that one-third of people on earth will face severe water shortage by 2025.

7. What is happening to rivers all over the world?

Rivers are drying up so badly that the river waters no long reach the sea.

8. What is happening in some small rivers and streams in Africa?

Some small rivers and streams in Africa are drying up for part of the year.
This means that there is even less usable water for small communities.

9. What happens when streams and lakes become dry?

When streams and lakes become dry, communities dig wells, but the wells are also drying up.

10. What does the scientist, Peter Gleick, infer, or conclude, when he says, "For nearly 3 billion people, access to a [water and] sanitation system comparable to that of ancient Rome would be a significant improvement?"

The scientist is inferring that even people who lived thousands of years ago (the time of Ancient Rome) had better water and sanitation systems than many people living today.

11. What are some countries doing to grow crops when they do not have enough water?
Countries that do not have enough water to grow crops have begun to lease (rent) or purchase (buy) land in other countries to help feed their populations.

12. List the continents where drying is happening.
Continents were drying is happening include:

A. Europe
B. Asia
C. Africa
D. Australia
E. South America
F. North America

13. What is the one continent that has not been affected by water shortage?
The one continent not affected is Antarctica.

14. Has the United States escaped, or avoided, having water shortages?
No (Yes/No). There are (are/are not) water shortages in the United States. The United States has been hit hard.

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.

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. (Desalination plants take the salt out of sea water.) A new desalination plant has been built in drought-stricken 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."

WORD BANK:

awareness	desalination	**population**	stress
capture	**dwindling**	problem	water-poor
changed	Earth	rainwater	water-rich
climate change	**experts**	realize	
complex	fast	shortage	
countries	freshwater	shortages	

SUPPLEMENTARY QUESTIONS:

15. According to this text, what is causing the water crisis?

The problem is complex. Experts believe the problem is a combination of climate change and population growth.

16. The world population is expected to grow even more by the year 2050. Where is the world population expected to grow the most? Why will this be a challenge?

The world population is expected to grow the most in countries that have water shortages now. This will stress the already dwindling (decreasing) water supply.

17. What are some ways to address these challenges that are suggested in the text?

The text suggests:

A. building desalination plants
B. having water-rich countries sell water to water-poor countries
C. having countries increase freshwater supplies, for example, by teaching farmers how to capture (collect) clean rainwater.

18. What was agreed upon at the conference?

Almost everyone at the conference agreed that the way we use water can be changed. More people must realize (completely understand) the problem.

19. Does the article end positively or negatively?

The article ends both positively and negatively (positively/negatively/both positively and negatively). The final quote says that people are gaining an awareness of the world water shortage, but it is not happening fast enough.

20. Look back at the title of the article, "Wringing Dry." To "wring" means to twist and squeeze tightly. We might wring out a bathing suit to make it dry after swimming. What does the title mean for this article?
For this article, the title "Wringing Dry" means that humans are wringing Earth dry as a result of climate change and population growth.

RESPONSE TO GUIDING QUESTION(S):
What is the assessment of the World Water Forum about water? What are some of the answers of experts to solve the world water shortage?
Suggested response: The assessment of the World Water Forum is that one-third of people on earth will face severe water shortage by 2025. Answers to the world water shortage include: building desalination plants in countries close to the sea; having water-rich countries sell water to water-poor countries; and having countries increase freshwater supplies, for example, by teaching farmers how to capture rainwater.

NOTE-CATCHER: TRACING AN ARGUMENT

INSTRUCTIONS FOR TEACHERS:
Review student instructions.

INSTRUCTIONS FOR STUDENTS:

- Work with a partner. Use the word bank to complete your note-catcher.
- In your note-catcher write down key, or important, evidence from the video.
  - First, you will write the author's claim, or what they are trying to show.
  - Then, you will write at least three pieces of supporting evidence, or proof, for the author's claim. Write why the evidence is relevant, or important.
- Finally, you will write whether you think the evidence is good. Why or why not?

WORD BANK:
2025, **access**, Asia, **droughts**, five, fresh, growing, lakes, need, one-third, people, **population**, run out, shortage, shortages, **trends**, United States, water, **wells**, world

Claim:
People all over the world will run out of fresh water unless we do something about it.

Supporting Evidence: If the trends continue, one-third of the world population will face a severe water shortage by 2025.	**Why it is relevant**: Most of the world will face a water shortage soon.
Supporting Evidence: Rivers and lakes in Africa and Asia are drying up. Wells are also going dry. And the world population is growing.	**Why it is relevant:** People all over the world are losing access to fresh water. But there are more people than ever who need it.
Supporting Evidence: Many states are experiencing droughts. 36 states will have water shortages within the next five years.	**Why it is relevant**: Even the United States is experiencing water shortages.

Write whether the speaker provided strong/weak or poor evidence. Why or why not?
I think the speakers evidence is (strong/weak) _____ because
_____
_____

FUNCTIONAL ANALYSIS

INSTRUCTIONS FOR TEACHERS:

- Review student instructions for functional analysis with the whole class.
- Complete the functional analysis with the whole class.
- Have students work with a partner to rewrite the sentence in their own words.

INSTRUCTIONS FOR STUDENTS:

Work with your class to analyze an important sentence(s) from the text.

- Every sentence has someone or something that *does* something. First you determine this *who or what*.
- Every sentence has something that they *did or are.* Figure that part out next. Now you have the most important parts of the sentence in place.
- Then you will figure out what they *are*.
- Finally, you will write the descriptive details.
- Write your answers in the spaces below.
- When you are done, write the sentence again in your own words.

You may want to use definitions from the glossed text in the sections above.

Functional Analysis:

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

WHAT (Actor): *fresh, clean* water *for* drinking *and* watering crops

DESCRIPTOR (Detail): *The* liquid *most important to* human life

WHAT HAPPENED (Action): *is*

WHAT: *in* short supply

DESCRIPTOR (Where): *in* many parts of the world

What the sentence says:	**My own words:**
The liquid most important to human life	_____
fresh, clean water for drinking and watering crops	_____ _____
is	*is*
in short supply	_____
in many parts of the world	_____

Write the sentence in your own words and then explain it to your partner.

Water is _____

Water is the most important _____ .

EXIT TICKET

INSTRUCTIONS FOR TEACHERS:

- Review student instructions with the whole class.

INSTRUCTIONS FOR STUDENTS:

This graphic organizer will help you keep track of information about the water for all of the readings. Each day you will write down new information from each reading.

- First, write what you learned about water in other parts of the world
- Next, provide, or write, information about water in the United States.

As you write, think about today's reading. Also think about everything else you have learned about water sustainability.

Information about Water in Other Parts of the World	**Information about Water in the United States**
1. _____ 2. _____	1. _____ 2. _____

Appendix A: Glossary

Word	Definition	Example
access	ability to get or use something	"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.
area	a place or region	**Areas** that once received a lot of rain now get less rain; **areas** that got little rain now get more rain.
assessment	evaluation or judgment	That's part of a sobering **assessment** by the World Water Forum, which meets every three years.
aware (awareness)	notice and understand something	"We're waking up," Gleick told Time magazine about the growing **awareness** of the world water shortage.
capture	collect or take	We can adopt ways of increasing the freshwater supply, such as teaching farmers in Africa methods of **capturing** clean rainwater.
combination	when things are joined or mixed together	Experts say it is a complex **combination** of climate change and rapid population growth.
complex	something that has many different parts	Experts say it is a **complex** combination of climate change and rapid population growth.
convene (convention)	bring together a group of people, as in a formal meeting	This year, 25,000 delegates from 100 countries **convened** in Istanbul, Turkey, to figure out a solution to solve the world's water crisis.

Word	Definition	Example
convert	change	One partial answer to the world water shortage is to build more desalination plants that **convert** seawater to freshwater.
droughts	long periods of time with little or no rain	Many states are experiencing **droughts**.
discuss	talk about something	Delegates to last month's Istanbul conference **discussed** ways to help solve the water crisis.
dwindling	decreasing or shrinking	Much of the population growth is expected to take place in countries that are already water poor, putting further stress on a **dwindling** water supply.
expert	someone who knows a lot about a particular thing	**Experts** say those problems represent more than a temporary drought.
infectious	easily spread to other people, especially diseases	**Infectious** diseases, such as typhus and cholera, are now responsible for 80 percent of illnesses and deaths in poor countries.
malnutrition	not having enough food for good health	Drought conditions are spreading in Africa, causing crop failures, **malnutrition**, and starvation.
method	a way of doing something	We can adopt ways of increasing the freshwater supply, such as teaching farmers in Africa **methods** of capturing clean rainwater.
panel	a group of persons gathered to discuss, or talk about, a specific topic	Martin Parry, of the Intergovernmental **Panel** on Climate Change, spoke about the water shortage problem.

Word	Definition	Example
population	the number of people living in a place	Many of those affected are children. If the trends continue, one-third of the world **population** will face a severe water shortage by 2025.
produce	grow or bring into being	But because of the need to **produce** more and more crops, even the deepest wells are going dry.
projection	a guess about the future based on what is happening now	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.**
resolve	decide on a solution to fix a problem	You don't have to change yet, unless world leaders can't **resolve** the world's worsening water shortage.
severe	very strong or intense; very bad	One-third of the world population will face a **severe** water shortage by 2025.
significant	major or important; consequential	A water and sanitation system comparable to that of ancient Rome would be a **significant** improvement.
starvation	dying of hunger	Drought conditions are spreading in Africa, causing crop failures, malnutrition, and **starvation**.
stress	strain	Much of the growth is expected to take place in countries that are already water poor, putting further **stress** on a dwindling water supply.
traditional	something that is passed down from generation to generation (from parents to children)	In rural western India half the **traditional** wells and millions of tube wells have dried up.

Word	Definition	Example
trend	something that is happening more and more	The area of Earth's land that is classified as "very dry" has doubled since 1970, and the **trend** is expected to grow.
unchecked	not held back	If current water use continues **unchecked**, 36 states will suffer water shortages within the next five years.
unlimited	having no end or restrictions	Ready to give up **unlimited** water gushing out of your faucets?
wells	deep holes dug in the ground to get water	In parts of Africa and Asia, deep tube **wells** have replaced streams and rivers for farm irrigation and for drinking water.

Italicized words are from the Academic Word List.

Appendix B: Teacher Resources

resolve	
 	• Look at the first picture. This boy lives in a place where there is a severe, or very bad, drought. All of the water has dried up. • The second picture shows the town planners. They are working to find a solution. They want to resolve the water problem in the town. • When you resolve a problem, you decide on a solution. You fix the problem. • Partner talk: What is a major issue, or problem, at your school? How should it be resolved and who should resolve it?

trend	
	• Look at the picture. This woman owns a business. She is showing her team what to do. More and more women are starting their own businesses. It is a positive trend. • A trend is something that is happening more and more. It can be positive or negative. • Partner talk: Think about all of the reading you have done about water sustainability. What is the trend for fresh water in the United States? Is it a positive trend or a negative trend?