

## UNIT B: LESSON 4

### LEARNING TARGETS

#### 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.

#### Learning Target:

I can **analyze** the **interaction** between people and water in “Water is Life.”

#### Learning Target:

I can **articulate** how ideas **presented** in the text **clarify** the **issue** of water sustainability.

*analyze* – study something and explain it

*interaction* – how two things change one another

*articulate* – speak or write clearly about something

*present* – show

*clarify* – make something easier to understand

*issue* – subject

### ACQUIRING AND USING VOCABULARY

#### INSTRUCTIONS FOR STUDENTS:

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

## THINKING LOG

### 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. 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:** *What is the major dilemma (problem) Barbara identifies (sees) in human use of **resources** or useful things that are in the world like water? Why is this important?*

Water is Life

By Barbara Kingsolver

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Civilization has been **similarly** slow to give up on our **myth** of the Earth's **infinite** generosity. **Declining** to look for **evidence** to the **contrary**, we just knew it was there. We pumped **aquifers** and **diverted** rivers, trusting the twin lucky stars of **unrestrained** human **expansion** and endless **supply**. Now **water tables plummet** in countries **harboring** half the world's population. Rather grandly, we have overdrawn our accounts.

### WORD BANK:

**aquifers**

limitless

rivers

**water tables**

**infinitely**

**myth**

water

**SUPPLEMENTARY QUESTIONS:**

1. In lesson 3, we read how scientists did not give up for centuries the idea that stars could be seen from the bottom of a well. What is another, similar myth (idea that is not true) that we humans do not want to give up?

We do not want to give up on the \_\_\_\_\_ that the Earth is \_\_\_\_\_ generous.

2. What does it mean to say that thinking the Earth is infinitely generous is a myth?

It means that the Earth does not have \_\_\_\_\_ resources. Resources, especially \_\_\_\_\_, are limited.

3. What evidence (facts) is there that we have been ignoring how limited our water resources are?

We have pumped \_\_\_\_\_ and diverted \_\_\_\_\_. This has led to \_\_\_\_\_ plummeting (falling) for half the world's population.

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In 1968 the **ecologist** Garrett Hardin wrote a paper called "The Tragedy of the Commons," required reading for biology students ever since. It addresses the problems that can be **solved** only by "a change in human **values** or ideas of morality" in situations where **rational pursuit of individual self-interest** leads to **collective ruin**. Cattle farmers who share a common pasture, for example, will increase their herds one by one until they destroy the pasture by overgrazing. Agreeing to self-imposed limits instead, unthinkable at first, will become the right thing to do.

**WORD BANK:**

limit                      pasture                      **self-interest**                      "The Tragedy of the Commons"  
overgrazing              **ruin**                      **solved**                      **values**

**SUPPLEMENTARY QUESTIONS:**

4. What paper did Garrett Hardin, the ecologist, write?

Garrett Hardin wrote "\_\_\_\_\_."

5. What problems does the paper address (talk about)?

It addresses problems that can only be \_\_\_\_\_ (fixed) by changes in human \_\_\_\_\_.

6. In what situations is there a need for change in human values?

There is a need for a change in human values in situations where \_\_\_\_\_ leads to collective \_\_\_\_\_ (destruction of the community).

7. What is an example of changing human values so that self-interest does not lead to collective ruin?

An example is as follows: Cattle farmers will increase their herds (groups of cattle) until they destroy the pasture (grassland) by \_\_\_\_\_ (letting their cattle eat all the grass). If each cattle farmer agrees to \_\_\_\_\_ the number of cattle, then the \_\_\_\_\_ will not be overgrazed. This would be the right thing to do, even if it is against the farmers' own \_\_\_\_\_.

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Water is the **ultimate** commons. But rules change. Time and again, from New Mexico's antique **irrigation** codes or rules to the UN Convention on International Watercourses, **communities** have studied water systems and **redefined** wise use. Now Ecuador has become the first nation on Earth to put the rights of nature in its **constitution** so that rivers and forests are not simply property but **maintain** their own right to **flourish**. Under these laws a citizen might file suit **on behalf of** an injured watershed, recognizing that its health is **crucial** to the common good. Other nations may follow Ecuador's lead. Just as legal systems once reeled to comprehend women or former slaves as fully entitled, law schools in the U.S. are now reforming their curricula with an eye to understanding and **acknowledging** nature's rights.

**WORD BANK:**

<b>constitution</b>	good	property	<b>ruin</b>
<b>crucial</b>	<b>maintain</b>	<b>protecting</b>	<b>self-interest</b>
<b>flourish</b>	<b>on behalf of</b>	rights	

**SUPPLEMENTARY QUESTIONS:**

8. What is meant by "water is the ultimate commons"?

"Water is the ultimate commons" because if we all pursue our \_\_\_\_\_ and use up the water, it will lead to collective \_\_\_\_\_ when we run out.

9. What is Ecuador the first nation to do?

Ecuador has put the \_\_\_\_\_ of nature in its \_\_\_\_\_.

10. What does this mean?

This means that rivers and forests are not \_\_\_\_\_ (do not belong to anyone). They \_\_\_\_\_ their own right to \_\_\_\_\_ (grow and thrive).

11. For example, what can a citizen in Ecuador do to protect an injured watershed (a watershed that is being destroyed)?

An Ecuadorean citizen can file suit (make a legal complaint) \_\_\_\_\_ the watershed to protect it.

12. *Why might an Ecuadorean citizen file suit to protect an injured watershed?*

The citizen might file suit because \_\_\_\_\_ (helping) the watershed might be \_\_\_\_\_ for the common \_\_\_\_\_ of the whole community.

14

On my desk, a glass of water has caught the afternoon light, and I'm still looking for wonders. Who owns this water? How can I call it mine when its fate is to run through rivers and living bodies, so many already and so many more to come? It is an **ancient**, dazzling **relic**, **temporarily** quarantined here in my glass, waiting to return to its kind, waiting to move a mountain. It is the gold standard of biological **currency**, and the good news is that we can **conserve** it in countless ways. Also, unlike petroleum, water will always be with us. Our trust in Earth's **infinite** generosity was half right, as every raindrop will run to the ocean, and the ocean will rise into the firmament. And half wrong, because we are not important to water. It's the other way around. Our task is to work out reasonable ways to **survive** inside its boundaries. We'd be wise to fix our sights on some new stars. The gentle nudge of **evidence**, the guidance of science, and a heart for **protecting** the commons: These are the tools of a new century. Taking a wide-eyed look at a watery planet is our way of knowing the stakes, the better to know our place.

**WORD BANK:**

<b>ancient</b>	living bodies	Petroleum	science
<b>conserve</b>	love	<b>protect</b>	water
courage	<b>on behalf of</b>	<b>protecting</b>	with us
<b>evidence</b>	owns	rivers	

**SUPPLEMENTARY QUESTIONS:**

13. *Barbara is looking at a glass of water, and she is asking a question. What question is she asking?*

Barbara is asking who \_\_\_\_\_ the \_\_\_\_\_ in her glass.

14. *Can Barbara say that she owns the water? Why or why not?*

\_\_\_\_\_ (Yes, she can/No, she cannot) call the water hers. This is because water is \_\_\_\_\_, or very old, and runs through everything, like \_\_\_\_\_ and \_\_\_\_\_.

15. *What is the good news about water?*

The good news about water is that we can \_\_\_\_\_ (save) it. Water will always be \_\_\_\_\_.

16. *What is a resource that will not be with us forever?*

\_\_\_\_\_ (oil) is a resource that will not be with us forever.

17. *What are the tools of the new century that we can use to survive?*

The tools of the new century are \_\_\_\_\_, \_\_\_\_\_, and a heart for \_\_\_\_\_ the commons.

18. *What does “a heart for protecting the commons” mean?*

It means that humans will need to have the \_\_\_\_\_ and \_\_\_\_\_ to \_\_\_\_\_ the water \_\_\_\_\_ all of us on planet Earth.

**RESPONSE TO GUIDING QUESTION(S):**

*What is the major dilemma (problem) Barbara identifies (sees) in human use of resources like water? Why is this important?*

*Response:*

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## WATER NOTE-CATCHER

### INSTRUCTIONS FOR STUDENTS:

Work with a partner. Use your water note-catcher to write down key, or important, information from the text. You will write down main ideas and some details, or specific information, about each main idea. You can use information from your Thinking Log. Some information is already filled in for you.

### WORD BANK:

**acknowledge, acknowledges, aquifers, believe, constitution, contrary, crucial, evidence, infinite, limits, observe, protect, resource, resources, rivers, rules, running out, supply, survive, *Tragedy of the Commons*, water tables**

### Summary from yesterday:

People do not always look for \_\_\_\_\_, or proof of what they \_\_\_\_\_. But we can \_\_\_\_\_ or see what is happening.

### Brief background:

There is a book called \_\_\_\_\_. It says if we all use as much of our \_\_\_\_\_ as we want, the \_\_\_\_\_ will be used up.

### Main idea:

People treat water like it is \_\_\_\_\_ without observing \_\_\_\_\_ to the \_\_\_\_\_, or opposite.

### Supporting details:

We pump \_\_\_\_\_. We divert \_\_\_\_\_. We trust in an endless \_\_\_\_\_. Now \_\_\_\_\_ are falling. We are \_\_\_\_\_ of water.

### Main idea:

Water is a common \_\_\_\_\_, so we need to \_\_\_\_\_ it.

### Supporting details:

People are starting to change \_\_\_\_\_ about water. Ecuador \_\_\_\_\_ nature's rights in its \_\_\_\_\_. Other countries \_\_\_\_\_ that water is \_\_\_\_\_.

### Conclusion:

Water is not \_\_\_\_\_. Humans have to live within the \_\_\_\_\_ of water to \_\_\_\_\_.

## FUNCTIONAL ANALYSIS

### 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 *do or did*. Figure that part out next. Now you have the most important parts of the sentence in place.
- Then you will figure out what they did the action *to or for*.
- 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:**

*Time and again, from New Mexico's antique irrigation codes to the UN Convention on International Watercourses, communities have studied water systems and redefined wise use.*

WHAT (Actor): \_\_\_\_\_

WHAT HAPPENED (Action): *have* \_\_\_\_\_

WHAT (Recipient): *water* \_\_\_\_\_

TRANSITION: and

WHAT (Actor): [*they*]

WHAT HAPPENED (Action): [*have*] \_\_\_\_\_

WHAT (Recipient): *wise* \_\_\_\_\_

DETAIL (When): *time and* \_\_\_\_\_

DETAIL (Examples): *from New Mexico's* \_\_\_\_\_ *to the*

\_\_\_\_\_

What the sentence says:	My own words:
Communities	_____
have studied	_____
water systems	_____
[ <i>transition</i> ] and	and
[ <i>they have</i> ]	the communities have
redefined	_____
wise use	using _____ wisely, or well
[ <i>They have done this</i> ] time and again	_____



from New Mexico's antique irrigation codes to the UN Convention on International Watercourses	Here are examples: _____ and _____
<b>Write the sentence in your own words and then explain it to your partner.</b>	
Communities have _____	
and they have _____.	
They have done this _____.	
Here are examples: _____	
and _____.	

## EXIT TICKET

### INSTRUCTIONS FOR STUDENTS:

This graphic organizer will help you keep track of information about water for all of the readings. In the readings so far, we have learned four important lessons about water.

- First, describe, or write about, the importance of water.
- Next, describe the amount of water we have globally (*hint: are there limits to water?*)
- Then, describe how people use water.
- Finally, describe what we can do to save water for all people on earth (*so what?*).

Importance of water	Amount of water available globally	How people use water	So what?
Water is important because it is _____ for life.	Water is not _____ .	People use too much water. They use water for _____ and _____ and _____ .	<i>[Write what we can do to save water for all people on Earth:]</i>

## Appendix: Glossary

Word	Definition	Example
acknowledge	accept or understand that something is true	Law schools in the U.S. are now reforming their curricula with an eye to understanding and <b>acknowledging</b> nature's rights.
aquifers	an area under the ground that has water we can drink	We pumped <b>aquifers</b> and diverted rivers, trusting the twin lucky stars of unrestrained human expansion and endless supply.
ancient	very old	Water is an <b>ancient</b> , dazzling relic.
collective	related to or involving a group of different individuals that are thought of as one	Rational pursuit of individual self-interest can lead to <b>collective</b> ruin.
communities	Groups of people who live in the same place or have the same interests.	<b>Communities</b> have studied water systems.
conserve	use something wisely and without wasting it; save it	The good news is that we can <b>conserve</b> water in countless ways.
constitution	the written record of a country's laws	Now Ecuador has become the first nation on Earth to put the rights of nature in its <b>constitution</b> .
contrary	opposite or totally different	Declining to look for evidence to the <b>contrary</b> , we just knew it was there.
crucial	very important	These laws recognize that water is <b>crucial</b> to the common good.
currency	something of value that can be exchanged, or traded	Water is the gold standard of biological <b>currency</b> .
decline	refuse or decide not to do something	<b>Declining</b> to look for evidence to the contrary, we just knew it was there.
divert (diverted)	turn something in a different direction	We pumped aquifers and <b>diverted</b> rivers.

Word	Definition	Example
ecologist	a scientist who studies the relationships between living things and their environments	In 1968 the <b>ecologist</b> Garrett Hardin wrote a paper called "The Tragedy of the Commons."
evidence	facts; proof	Declining to look for <b>evidence</b> to the contrary, we just knew it was there.
expand (expansion)	grow larger	We trusted the twin lucky stars of unrestrained human <b>expansion</b> and endless supply.
flourish	grow and thrive; be healthy	Rivers and forests in Ecuador are not simply property but maintain their own right to <b>flourish</b> .
harbor	protect or provide shelter for someone	Now water tables plummet in countries <b>harboring</b> half the world's population.
individual	a single person	Rational pursuit of <b>individual</b> self-interest can lead to collective ruin.
infinite	without limits; unending	Civilization has been similarly slow to give up on our myth of the Earth's <b>infinite</b> generosity.
irrigation	supplying water to land by man-made means.	Time and again, from New Mexico's antique <b>irrigation</b> codes or rules to the UN Convention on International Watercourses, communities have studied water systems and redefined wise use.
maintain	keep	Rivers and forests in Ecuador are not simply property but <b>maintain</b> their own right to flourish.
myth	a story or belief based on tradition	Civilization has been similarly slow to give up on our <b>myth</b> of the Earth's infinite generosity.

Word	Definition	Example
on behalf of	in someone else's place; representing someone	Under these laws a citizen might file suit <b>on behalf of</b> an injured watershed.
plummet	fall very fast	Now water tables <b>plummet</b> in countries harboring half the world's population.
protect	keep something from harm (keep it safe)	<b>Protecting</b> the commons is a tool of a new century.
pursuit		
redefine	decide what something means again	Time and again, communities have studied water systems and <b>redefined</b> wise use.
relic	something saved from the past	Water is an ancient, dazzling <b>relic</b> .
rational	Sensible or intelligent	<b>Rational</b> pursuit of individual self-interest can lead to collective ruin.
resource	a useful thing that grows or exists in the world	Water is a useful <b>resource</b> .
ruin	destruction	Rational pursuit of individual self-interest can lead to collective <b>ruin</b> .
self-interest	acting for oneself instead of for the good of the community, or group	Rational pursuit of individual <b>self-interest</b> can lead to collective ruin.
similar (similarly)	almost the same	Civilization has been <b>similarly</b> slow to give up on our myth of the Earth's infinite generosity.
solve (solved)	fix or find an answer to a problem	The book addresses the problems that can be <b>solved</b> only by "a change in human values or ideas of morality."
supply	the amount of something that is available to be used	We pumped aquifers and diverted rivers, trusting in an endless <b>supply</b> of water.
survive	continue to live	Our task is to work out reasonable ways to <b>survive</b> inside its boundaries.

Word	Definition	Example
task	a piece of work to be done; duty	Our <b>task</b> is to work out reasonable ways to survive inside its boundaries.
temporary (temporarily)	lasting a short time; not permanent	It is an ancient, dazzling relic, <b>temporarily</b> quarantined here in my glass.
ultimate	fundamental or most essential	Water is the <b>ultimate</b> commons.
unrestrained	not held back by anything	We pumped aquifers and diverted rivers, trusting in <b>unrestrained</b> human expansion.
values	ideals or morals; ways of living that a person thinks are important	The book addresses the problems that can be solved only by "a change in human <b>values</b> or ideas of morality."
water table	the level below which the ground is saturated with, or full of water	Now <b>water tables</b> plummet in countries harboring half the world's population.