A LONG WALK TO WATER

Cross-Curricular Project

PROJECT CONTENTS

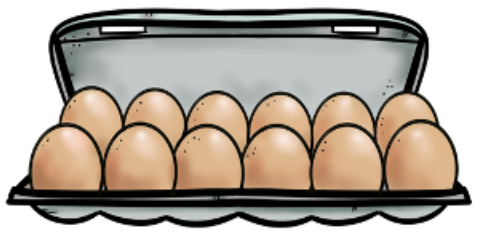
- Engaging Anticipation Activity – Water Production
- 2 Informational Texts to Build Background Knowledge
  - Water Availability and Scarcity
  - Effects of Water Scarcity
- Water Consumption Project
  - Monitor Water Usage
  - Conduct Research
  - Calculate Consumption
  - Mapping Water Usage Walk – Novel Connection
  - Survey and Reflection
  - Project Extension: Water Conservation Plan

Anticipation Activity

The Ultimate Water Consumption Clash!

Which takes more water to make?

1 Egg



VS.

Cup of Milk (8 oz.)

1 Chocolate Bar

VS.

4 Car Tires

1 Cup of Lettuce

VS.

1 Ounce of Ketchup

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- Determine the Water Usage of Everyday Objects
- Foster Discussion about Water Consumption
- Connect to Real Life Situations

Anticipation Activity

Anticipation Activity Name: How Much Water Does It Take?

Directions: For the following activity, two items will compete against each other. Each item takes water to produce. However, the big unknown is *how much* water each item takes! Your job is to try and correctly choose which item takes more water to make. After selections are made, we will discuss the answer and learn more about just how much a role water plays in our lives. Good luck!

1. Circle which item you believe takes more water to make. Then, explain your reasoning.

1 Egg 1 Cup of Milk

Why do you think the item you circled above takes more water to produce? _____

_____

Higher Water Consumption Item: _____

Explanation: _____

_____

2. Circle which item you believe takes more water to make. Then, explain your reasoning.

1 Chocolate Bar 4 Car Tires

Why do you think the item you circled above takes more water to produce? _____

_____

Higher Water Consumption Item: _____

Explanation: _____

_____

3. Circle which item you believe takes more water to make. Then, explain your reasoning.

1 Cup of Lettuce 1 Ounce of Ketchup

Why do you think the item you circled above takes more water to produce? _____

_____

Higher Water Consumption Item: _____

Explanation: _____

_____

4. Circle which item you believe takes more water to make. Then, explain your reasoning.

Smart Phone 1 Ton (2,000 lbs.) of Cement

Why do you think the item you circled above takes more water to produce? _____

_____

Higher Water Consumption Item: _____

Explanation: _____

_____

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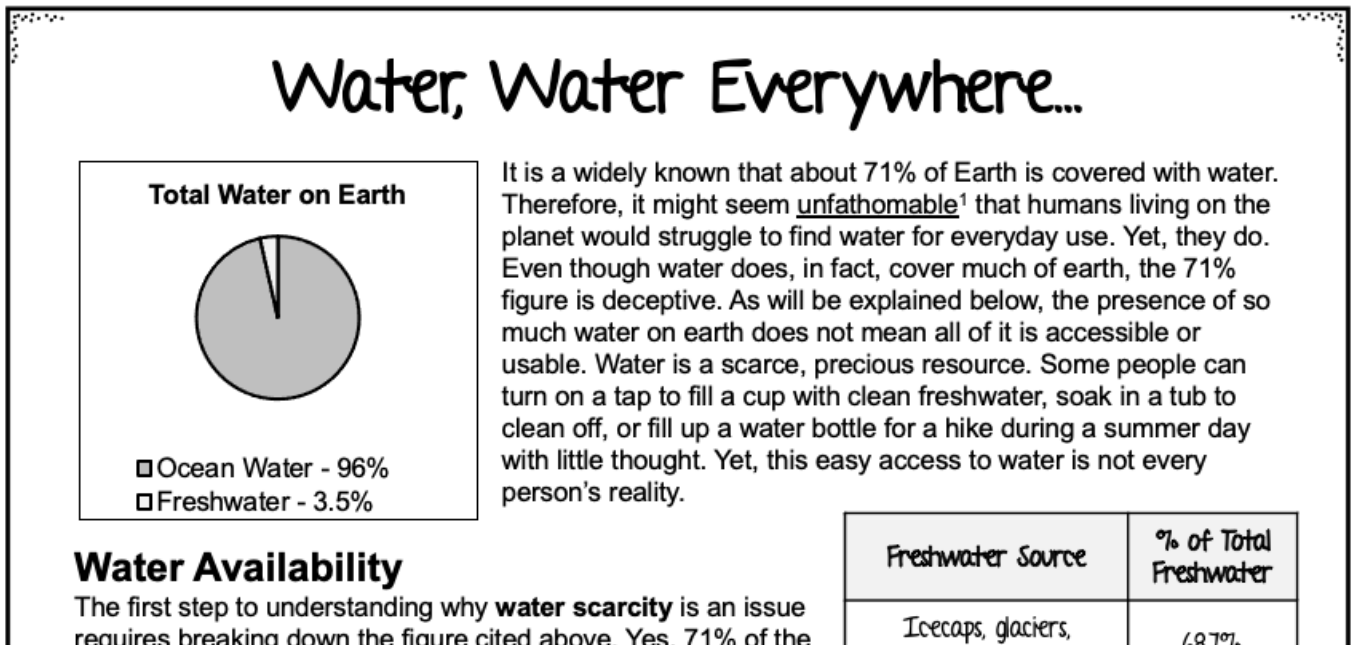
- Generate Excitement for Final Project
- Develop Critical Thinking about Water Usage
- Great for Small Group or Rotation Models

Informational Texts



Water, Water Everywhere...

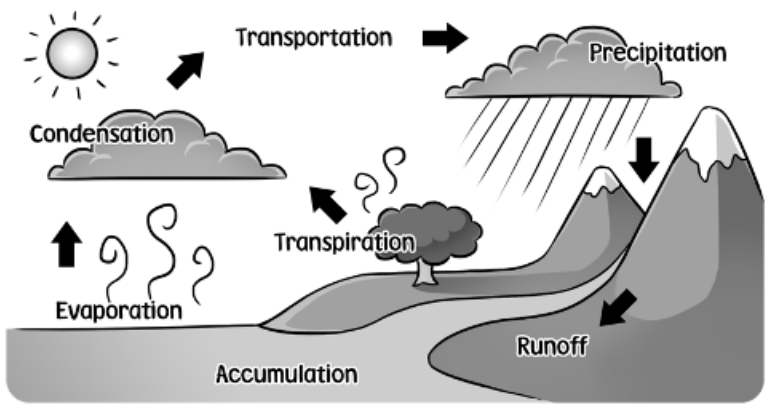
It is a widely known that about 71% of Earth is covered with water. Therefore, it might seem unfathomable[1] that humans living on the planet would struggle to find water for everyday use. Yet, they do. Even though water does, in fact, cover much of earth, the 71% figure is deceptive. As will be explained below, the presence of so much water on earth does not mean all of it is accessible or usable. Water is a scarce, precious resource. Some people can turn on a tap to fill a cup with clean freshwater, soak in a tub to clean off, or fill up a water bottle for a hike during a summer day with little thought. Yet, this easy access to water is not every person's reality.

Water Availability

The first step to understanding why **water scarcity** is an issue requires breaking down the figure cited above. Yes, 71% of the earth's surface is covered with water, but only a fraction of that figure is actually usable. 96% of that water is found in the oceans. (See Pie Chart) Since humans cannot drink the ocean's saltwater, it renders the vast majority of that surface water less useful for human purposes. Instead, humans must rely on the remaining 3.5%, which can be found in the Earth's freshwater sources. Like the oceans, not all water is actually potable. Half of the Earth's freshwater sources are trapped in glaciers, icecaps, and permanent snow, leaving it inaccessible for regular consumption. Taking away this amount helps clarify the amount of Earth's water truly available. Humans have access to less than 1.7% of the water present on Earth.

Freshwater Source	% of Total Freshwater
Icecaps, glaciers, permanent snow	68.7%
Groundwater	30.1%
Lakes, rivers, swamps	0.3%
Miscellaneous (Atmosphere, soil, etc.)	0.9%

Humans draw freshwater from two main sources: surface water and groundwater. Rivers, lakes, streams, and swamps constitute types of surface water sources. They are visible, but much more water can be found underground. Approximately 30% of the planet's freshwater is located in the ground. The water cycle constantly moves the water supply around the globe. As it does, water seeps into the ground and gathers in aquifers, which are underground layers of rock that hold water. On top of aquifers[2] rest the water table, and a water table, upon inspection, will reveal the amount of water saturating[3] the ground.



Both surface water and groundwater are vital to human life because we need freshwater to survive. While the vast majority of freshwater comes from rivers, advances in technology have allowed people to access more of the water trapped in the ground too. Nevertheless, as a close examination of the earth's geography shows, water is not evenly distributed across the globe. Certain areas have more freshwater in close proximity than others. At the same time, the world's population continues to

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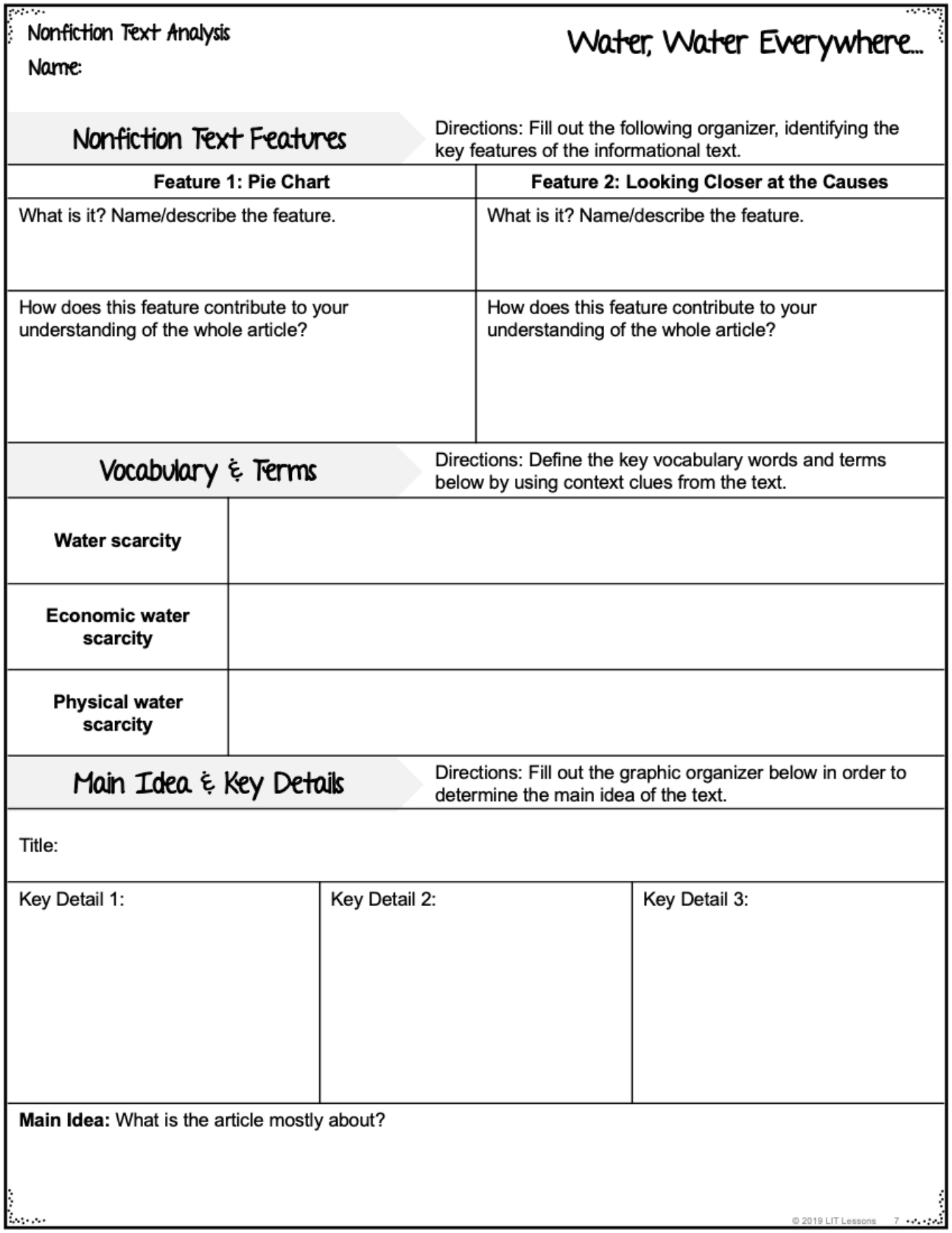
- 2 Nonfiction Readings
- Educational Text Features
- Glossary of Key Vocabulary
- 2 Pages Per Reading

Informational Texts



Nonfiction Text Analysis

Name:

Water, Water Everywhere...

Nonfiction Text Features

Directions: Fill out the following organizer, identifying the key features of the informational text.

Feature 1: Pie Chart	Feature 2: Looking Closer at the Causes
What is it? Name/describe the feature.	What is it? Name/describe the feature.
How does this feature contribute to your understanding of the whole article?	How does this feature contribute to your understanding of the whole article?

Vocabulary & Terms

Directions: Define the key vocabulary words and terms below by using context clues from the text.

Water scarcity	
Economic water scarcity	
Physical water scarcity	

Main Idea & Key Details

Directions: Fill out the graphic organizer below in order to determine the main idea of the text.

Title:

Key Detail 1:	Key Detail 2:	Key Detail 3:

Main Idea: What is the article mostly about?

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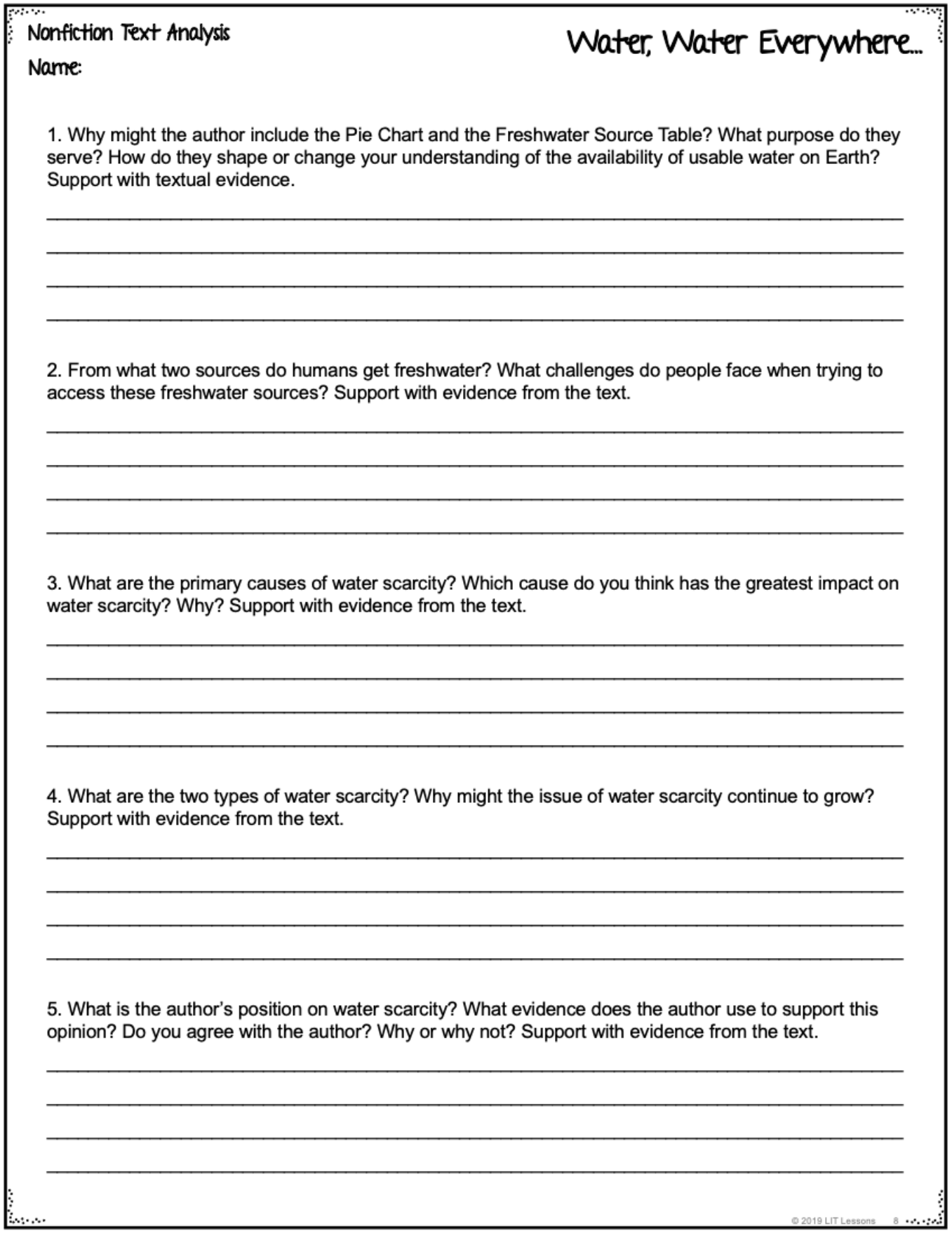
- Foster Discussion Between Texts and Novel
- Common Core-Aligned
- Informational Texts Standards
- Critical Thinking Opportunities

Informational Texts



Nonfiction Text Analysis

Name:

Water, Water Everywhere...

1. Why might the author include the Pie Chart and the Freshwater Source Table? What purpose do they serve? How do they shape or change your understanding of the availability of usable water on Earth? Support with textual evidence.

2. From what two sources do humans get freshwater? What challenges do people face when trying to access these freshwater sources? Support with evidence from the text.

3. What are the primary causes of water scarcity? Which cause do you think has the greatest impact on water scarcity? Why? Support with evidence from the text.

4. What are the two types of water scarcity? Why might the issue of water scarcity continue to grow? Support with evidence from the text.

5. What is the author's position on water scarcity? What evidence does the author use to support this opinion? Do you agree with the author? Why or why not? Support with evidence from the text.

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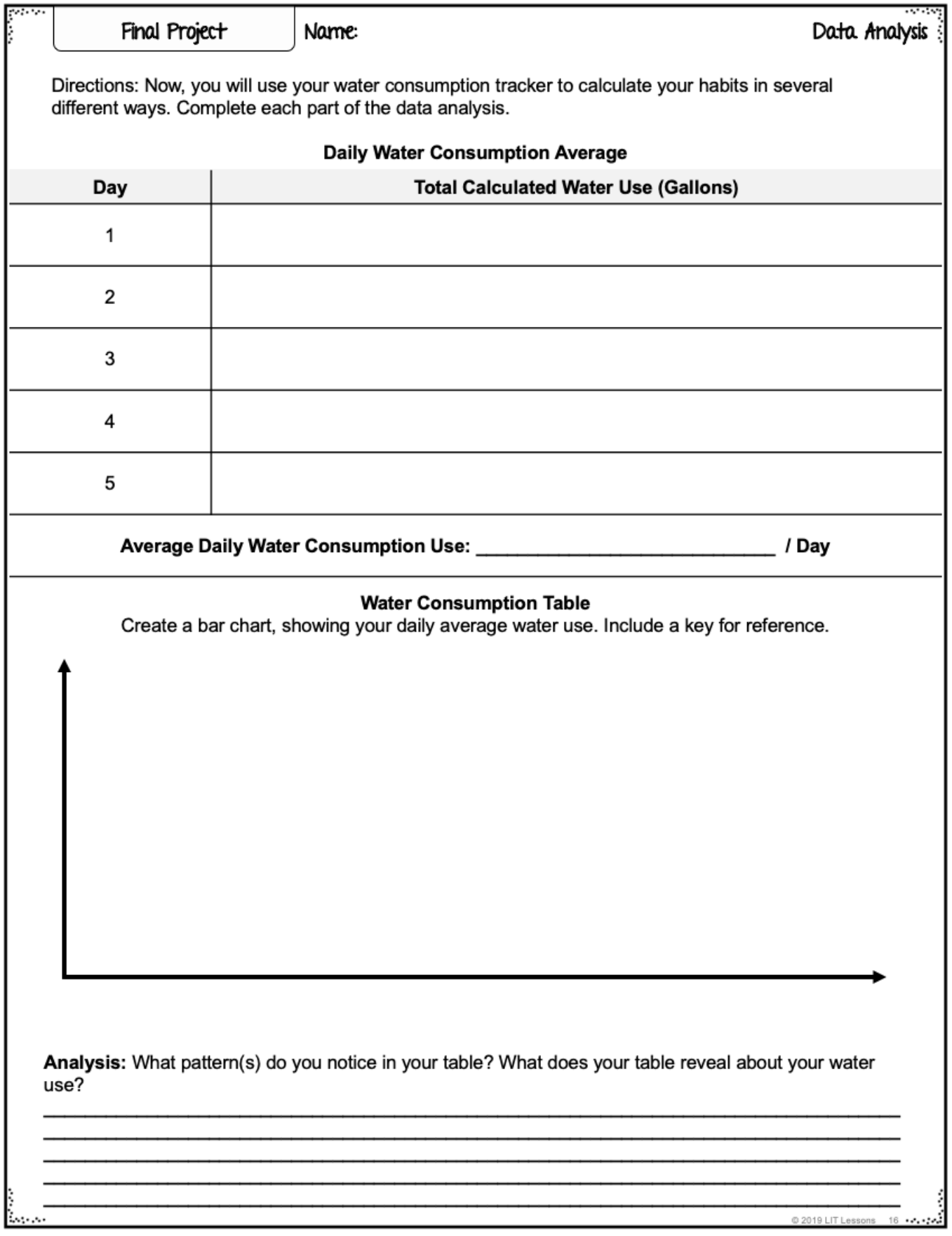
- Comprehension & Analysis Questions
- Format A – Text Features, Main Idea
- Format B – Analysis Questions
- Answer Key & Google Slides™ Links

Project Resources



Final Project | Name: | Data Analysis

Directions: Now, you will use your water consumption tracker to calculate your habits in several different ways. Complete each part of the data analysis.

Daily Water Consumption Average

Day	Total Calculated Water Use (Gallons)
1	
2	
3	
4	
5	

Average Daily Water Consumption Use: _____ / Day

Water Consumption Table

Create a bar chart, showing your daily average water use. Include a key for reference.

Analysis: What pattern(s) do you notice in your table? What does your table reveal about your water use?

_____
_____
_____
_____
_____

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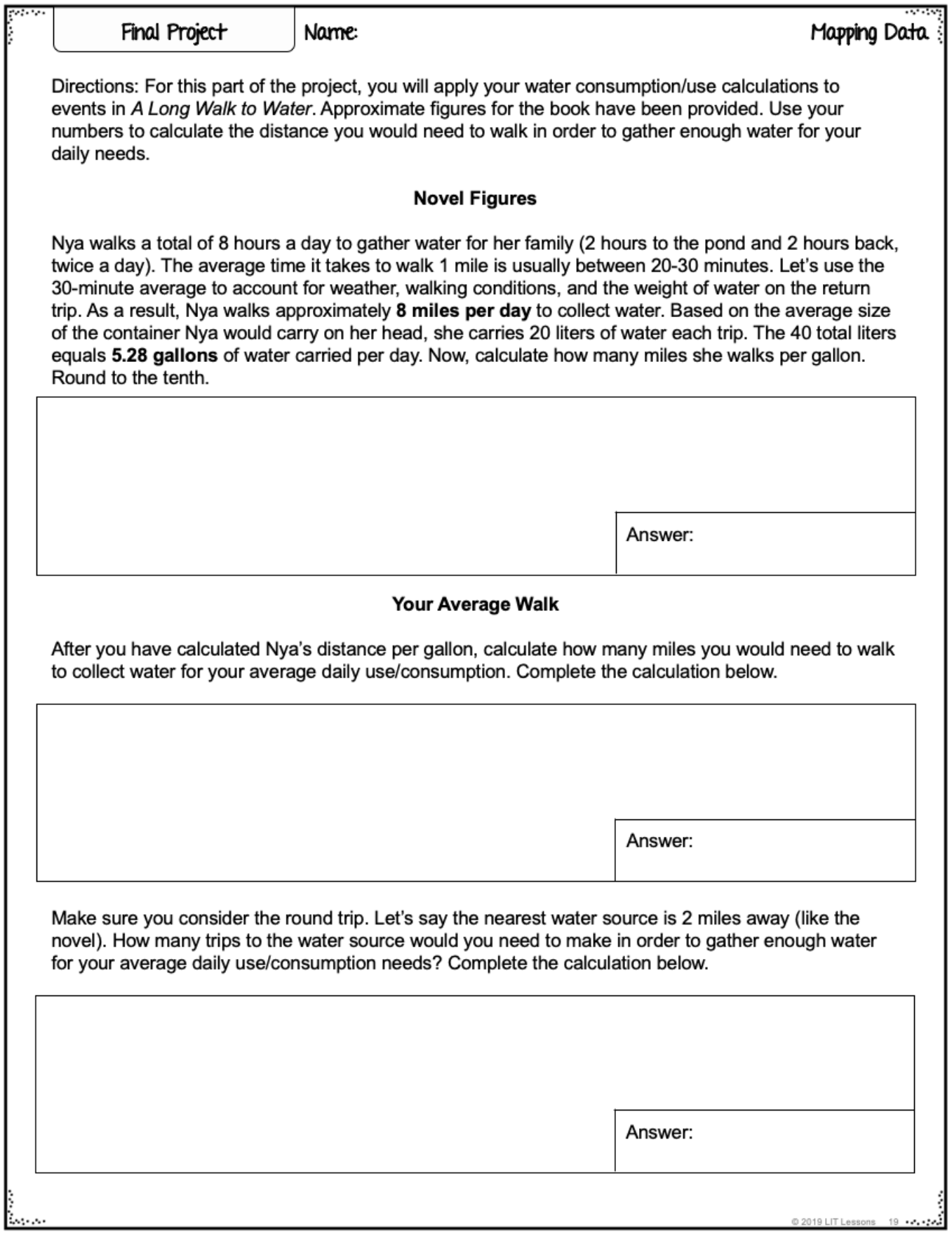
- Final Project with Extension Possibilities
- Real Life Application
- Data Collection, Research, and Analysis
- Create Charts and Map

Project Resources



Final Project | Name: | Mapping Data

Directions: For this part of the project, you will apply your water consumption/use calculations to events in *A Long Walk to Water*. Approximate figures for the book have been provided. Use your numbers to calculate the distance you would need to walk in order to gather enough water for your daily needs.

Novel Figures

Nya walks a total of 8 hours a day to gather water for her family (2 hours to the pond and 2 hours back, twice a day). The average time it takes to walk 1 mile is usually between 20-30 minutes. Let's use the 30-minute average to account for weather, walking conditions, and the weight of water on the return trip. As a result, Nya walks approximately **8 miles per day** to collect water. Based on the average size of the container Nya would carry on her head, she carries 20 liters of water each trip. The 40 total liters equals **5.28 gallons** of water carried per day. Now, calculate how many miles she walks per gallon. Round to the tenth.

Answer:

Your Average Walk

After you have calculated Nya's distance per gallon, calculate how many miles you would need to walk to collect water for your average daily use/consumption. Complete the calculation below.

Answer:

Make sure you consider the round trip. Let's say the nearest water source is 2 miles away (like the novel). How many trips to the water source would you need to make in order to gather enough water for your average daily use/consumption needs? Complete the calculation below.

Answer:

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- Examine Water Consumption
- Standards-aligned Material
- Calculate Water Usage and Connect to Novel
- Facilitate Discussion about Water Usage

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