



## Objective

Students will learn the percentage of freshwater available for the world to share and explain why it is a limited resource. Students will understand that water has to be shared, conserved, and protected. Finally, students will apply their understanding of water as a limited resource to their pen-pals' country.

## Academic Expectations Fulfilled

AE 1.3, 2.2, 2.3, 2.4, 2.5, 2.6, 2.17, 2.19

## A Warm-Up Riddle

What do: a Tyrannosaurus Rex, George Washington, elephants in Africa, the bird outside of our window, every student in this classroom, and their future kids and grandchildren, have in common?

*We all drank, drink, and will drink the very same water!*

## Introduction: How Do We Use Water?

A Group Brainstorm Activity *Use the worksheet (p.5) for the students to follow along during the lesson.*

Students will brainstorm and record answers to the question, "How have you used water today? This week? This month?"

- Getting ready in the morning?
- At a restaurant?
- Outside?
- With breakfast?
- At the doctor's office?
- For hygiene?
- Bathroom trips?
- At school?
- To feed our pets?

How much water is used to make the things we *use* everyday?

- Growing cotton for our clothes
- In the factories that produce our desks and chairs
- Feeding the animals we eat
- Cleaning the places we visit

*According to earthcarecanada.com:*

*567 liters of water are used during the growth and production of a loaf of bread.*

*A human being can survive only three days without water.*

*The greatest amount of fresh water can be found in the Polar Ice Caps.*

*According to Water Partners International (water.org):*

*More than 700 gallons of water are needed to grow enough cotton to make a T-shirt.*



### Activity 1: Where Does Water Come From?

Briefly discuss the water cycle so students understand that water is a renewable resource.

The following websites offer classroom-friendly diagrams of the water cycle to aid in the discussion.

<http://cwc.gov.in/main/images/water%20cycle.gif>

<http://www.mcwa.com/watcycl2.gif>

Be sure to note: *Water is a renewable resource that must be shared amongst every single living being on this earth. Think back to the riddle— the dinosaurs drank the water, people hundreds of years ago drank the water, and our (your) grandchildren will drink the water! It is always the very same droplets of water that come and go, providing for the billions of people on our planet.*

### Activity 2: How do you like to use water?

Ask the students to think about their favorite way to use water. Allow them to draw a picture of themselves enjoying water on the worksheet (page 6).

Afterwards, remind the students of how many different ways we use water and why it is important. Instruct them to write one reason why water is important on the bottom of the worksheet on page six. Mail these letters to your pen-pals!

### Activity 3: Sharing Our Water Resource

*This lesson is adapted from the curriculum made available at [www.water.org](http://www.water.org). Water.org is a Creative Commons website, free for sharing and adapting. For the full lesson plan and many other resources on global water awareness, please visit <http://water.org/lessonplan>.*

Supplies Needed:

- |                                  |                                 |                             |
|----------------------------------|---------------------------------|-----------------------------|
| - 2 colors of construction paper | - sheets of white paper         | - markers                   |
| - globe/world map                | - 1000 mL beaker                | - 100 mL graduated cylinder |
| - water                          | - small dish                    | - salt                      |
| - freezer/ice bucket             | - eyedroppers or glass stir rod | - small metal bucket        |

Students will view the world's potable water proportion with the following illustration.

Show the class a liter (1,000 mL) of water and tell them it represents all the water on Earth.

Ask where most of the water is located. (Refer to a globe or map.) Pour 30 mL of the water into a 100-mL graduated cylinder. This represents Earth's fresh water, about 3% of the total.

Put salt in the remaining 970 mL to simulate water found in oceans, unsuitable for human consumption.

Ask students what is at the Earth's poles. Almost 80% of Earth's fresh water is frozen in ice caps and glaciers. Pour 6 mL of fresh water into a small dish or cylinder and place the rest in a nearby freezer or bucket. Make sure the students are very quiet so they can hear the sound of the drop hitting the bottom of the bucket. This represents clean, fresh water that is not polluted or otherwise unavailable for use, about .003% of the total! This precious drop must be managed properly.

Discuss the results of the demonstration. At this point many students will conclude that a very small amount of water is available to humans. However, this single drop is actually a large volume of water on a global scale.



### Activity 3: Sharing Our Water Resource (cont.)

More than 1 out of every 3 people in our world live without access to clean water. What may contribute to this?

*Discuss the main factors affecting water distribution on Earth, including weather changes (droughts and flooding), economic conditions, and contamination.*

*Prior to the lesson, you may choose to research water usage in your partner country. How do they get water? Often students have to carry water from the well or community faucet to their homes. How much water are they allowed to use? Explain the situation to your students and ask how their life would be different if they lived with similar circumstances.*

### Activity 4: Water in Your Partner Country

Give each student a map of your partner country to study and identify possible water sources. Use this website to find a map of water resources in Africa:

[http://maps.grida.no/go/graphic/water\\_availability\\_in\\_africa](http://maps.grida.no/go/graphic/water_availability_in_africa); or [www.worldatlas.com](http://www.worldatlas.com)

Use the following statements and questions as a discussion guide.

*Lakes and rivers and streams that flow out of lakes are good fresh water sources. People from different regions and communities often share the same resource, all coming to the river or stream to fill their containers and return home.*

*Why can we not use water from the oceans? Salt water is extremely expensive to desalinate.*

*What about rain water? Many communities (even in the US!) create systems to trap rainwater from roofs and other places that naturally catch rain. Rainwater can be a significant source of water for many people in Africa.*

*How can people that lack water to drink afford to water their crops? Communities that lack water not only live without water to drink, they also live with limited food resources due to the water conditions.*

### Activity 5: Key Words to Understand the Water Crisis

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*Use the handouts on pages 7 and 8 to help the students understand key terms in understanding the global water crisis. Upon completion, talk about how each of the words relates to this lesson's activities and how they may relate to your pen-pals.*

### What Can We Do?

*See more suggestions like these at [www.water.org](http://www.water.org).*

*Ride your bike! Encourage your family to drive less and ride more. Most regions are increasingly depleting their water supply as the weather patterns change. Reducing carbon emissions decreases these weather-changing effects.*

*Spread the word! Telling people about the global water crisis will increase awareness and influence people to make a difference. Go to [water.org](http://www.water.org) for more information.*

*Carry a bottle of water around school for the day! Raise awareness of the millions of women and children that must walk miles each day to fetch and carry water.*



## Teacher References

### Water Availability Table

The water availability table is part of the curriculum made available at [www.water.org](http://www.water.org). Water.org is a Creative Commons website, free for sharing and adapting. For the full lesson plan and many other resources on global water awareness, please visit <http://www.water.org/lessonplan>.

Quantity to be divided among people on Earth	Amount Available Liters/Person	% of Total Water
All the water on Earth	233.3 billion liters	100%
Only the fresh water (3% of the amount available)	7 billion liters	3%
Only the non-frozen fresh water (20% of the remaining amount)	1.4 billion liters	.6%
Available fresh water that is not polluted, trapped in soil, too far below ground, etc. (.5% of the remaining amount available)	7 million liters	.003%



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Name: \_\_\_\_\_

**Worksheet: Water!**

How have you used water today? How have you used water throughout the week?

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Draw a picture of the Water Cycle in the space below.

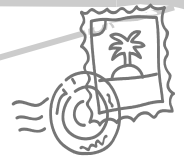


Name: \_\_\_\_\_

## Worksheet: Using Water

People use water differently all around the world! What do you like to do with water? Draw a picture of yourself enjoying water.

On a new sheet of paper, draw a picture for your pen-pal showing what you do when it rains!  
Send your picture to your pen-pals!



*Are you playing a game in the rain? Describe it so your pen-pals can play the game too!*

Describe what you're doing on the back or bottom of the picture.

*Do you think your pen-pals do the same things when it rains? If not, why? If so, do you think there is any thing different about the way they do it?*



Name: \_\_\_\_\_

### Key Water Words

fit or suitable for drinking

Geological formation containing ground water

Natural environment being contaminated with harmful substances

A source of supply support, or aid

Extreme illness

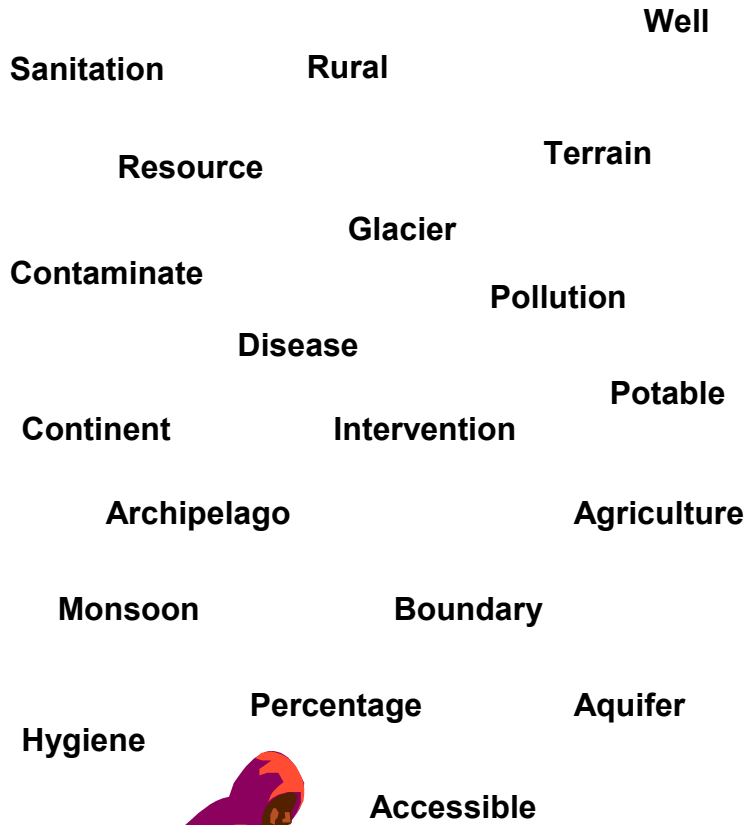
Taking precautions for the sake of cleanliness

One of the main land-masses of the globe

To make unsuitable by contact with something unclean

Easy to approach, reach, enter, or use

A hole drilled or bored into the earth to obtain water



The promotion and preservation of health

Interference in the affairs of another

Wind and heavy rains

“of the countryside”

Something that indicates limits

A rate or proportion per hundred

Farming and/or raising livestock

A huge mass of ice

A large group or chain of islands

The natural features of a tract of land



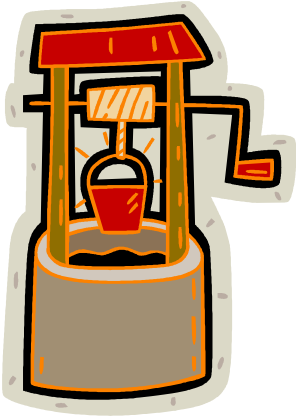
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Name: \_\_\_\_\_

## Key Water Words Definitions



Potable—fit or suitable for drinking

Well—a hole drilled or bored into the earth to obtain water

Aquifer—any geological formation containing or conducting ground water

Disease—extreme illness

Sanitation—the application of measures for the sake of cleanliness

Resource—a source of supply, support, or aid

Continent—one of the main landmasses of the globe

Contaminate—to make unsuitable by contact or mixture with something unclean

Accessible—easy to approach, reach, enter, or use

Pollution—natural environment being contaminated with harmful substances

Hygiene—the promotion and preservation of health

Intervention—interference in the affairs of another

Monsoon—wind storm and heavy rains

Rural—“of the countryside”

Boundary—something that indicates bounds or limits

Percentage—a rate or proportion per hundred

Agriculture—farming and/or raising livestock

Glacier—A huge mass of ice

Archipelago—a large group or chain of islands

Terrain—the natural features of land



This lesson is based on lessons provided by Water.org. For more information, please visit [www.water.org](http://www.water.org).

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