






# Water: Why We ALL Need to Conserve It

## Overview:


Students will understand that there is a finite amount of water on our globe and for this reason — as well as the drought in the Western U.S. and global warming — we all need to conserve water. They will also learn various ways they and residents in Los Angeles can conserve water.

## Objectives:









At the end of the lesson students will be able to:

-  **Tell** why only a small fraction (0.6%) of water on our planet is clean, drinkable, and accessible.
-  **Explain** why water is called a “non-renewable” resource (i.e., we only have a finite quantity of water on our planet).
-  **Identify** some ways they and others can reduce their water usage.








## Preparation:

-  Set chairs up in a circle with one for every student in the class.



## Vocabulary:

- |  |   |
|--|---|
|  accessible water |  non-renewable |
|  conservation     |  source        |
|  drought          |  scarce        |
|  finite           |  reservoir     |

## Materials:

-  A transparent bucket
-  A one-gallon container of water
-  A transparent measuring cup with 3 oz. of water (which represents the 2.4% of fresh water on the globe that is not accessible to humans)
-  An eye dropper with 0.8 oz. of water (which represents the 0.6% of fresh water that is accessible)
-  A salt shaker
-  Teacher Supplement: “The Water Flows Game”
-  Visual Aid: “Water World Pie Chart”

## On the Board:

-  Student Reflection Questions
-  Vocabulary

## Suggested Snack:

-  Lemonade

 states of matter

## Learning Activities:

- I. Warm-Up (5 min.)

- A. Tell students that water is a scarce, precious resource. We could not survive without it. And we have the same amount of water on our globe as when it was created. But less and less of it is available to us as our globe warms up and the ice and snow melts.

## 2. Presentation (20 min.)

- A. Ask students to imagine the entire planet earth/globe and then imagine how much of it is covered with water (about 75%, and 97% of this is salt water). Uncover the pie chart as you talk about what percentage is salt water, fresh water, and then fresh water that is accessible (i.e., can be used by animals and plants).
  - Have a student pour the entire 1-gallon container of water into the bucket and ask students to imagine that the bucket holds all the water on planet earth.
  - Ask students: If you were looking at planet earth from space where would you expect to see most of this water? (in the oceans and seas)
  - Explain that this is all salt water. Can we drink it? Why not? Can we water plants with it? Why not?
- B. Hold up the three ounces of fresh water in the measuring cup and ask students which “state of matter” they think that most of this fresh water is in: solid, gas, or liquid? Actually, most fresh water (2.4%) is in a solid/frozen state in the polar ice caps. The remainder (0.6%) is in a liquid state and accessible to us.
- C. Now drop 0.8 ounce of the water from the eye dropper into the bucket to demonstrate the proportion of fresh water on the planet that is liquid. Why do we call this a “drop in the bucket”? What does this figure of speech mean?
  - Ask students where this fresh water is located (lakes, rivers, and reservoirs)?
  - Ask why we call it “a non-renewable source”? (There is a finite amount of water in our universe [i.e., there is no “new” water.])
- D. Close by asking students how they and their families can reduce their water usage.

## 3. Additional Activity (15 min.)

- A. If time allows, use the Teacher Supplement: “The Water Flows Game.” (This is a version of “musical chairs.”) Remove one seat. A student or the teacher reads questions on a card about water consumption and the students who think the statement is true stand up and change seats. The student who remains standing reads the correct or incorrect answer on the back of the card and then takes a new card to read the next question.

4. Snack: Serve lemonade. (5 min.)
5. Have students answer the Reflection Questions in their garden journals. (5 min.)

### Student Reflection Questions:

1. Create a list of ways you and your family can reduce your water usage, including ways to reduce water when irrigating plants or your lawn (if you have one).
2. How could we reduce the amount of water we get from Northern California? (e.g., by recycling, watering our lawn with rain water caught in a barrel, turf removal, desalination, etc.)

### Assessment Questions:

1. How much of the water on our globe does NOT have salt in it?
  - A. 50%
  - B. 75%
  - C. 3%
2. What state is most fresh (with no salt in it) water on our globe in?
  - A. liquid
  - B. solid/frozen
  - C. gas

### Standards:

#### Next Generation Science Standards

- ESS3.C: Human Impacts on Earth Systems

Human activities have significantly altered the biosphere, sometimes damaging or destroying natural habitats and causing the extinction of other species. But changes to Earth's environments can have different impacts (negative and positive) for different living things. (MS-ESS3-3)

#### Common Core State Standards

- CCSS.ELA-LITERACY.RST.6-8.1  
Cite specific textual evidence to support analysis of science and technical texts.
- CCSS.ELA-LITERACY.RST.6-8.2  
Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

- CCSS.ELA-LITERACY.RST.6-8.7  
Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

### Acknowledgements:

“Drop in the Bucket.” The Edible Schoolyard.  
<https://edibleschoolyard.org>

# The Water Flows Game (revised from The Wind Blows ESY Berkeley)

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**Subject:** Science

**Place of Learning:** Garden

**Resource Type:** Lessons

**Grade Level:** Grade 5, Grade 6

Program Affiliations:

- [Maharishi School Garden of Bliss](#) [1]



[GoB logo.jpg](#) [2]

This game is adapted from the "Wind Blows" game associated with the Drop in a Bucket lesson from ESY Berkeley for use in the Maharishi School Garden of Bliss, Fairfield, Iowa.

Objectives

Students will become aware of:

- Ways to conserve water in their daily routines
- How much water we use
- The source of water for Fairfield, Iowa

Materials

1. **Cards:** Make a 5X7 card with the Water Flows prompt on the front and the associated information (written in italics below) on the back. Cards can be used in any order.
  - EXAMPLE:
    - **FRONT OF CARD:** The water flows for anyone who leaves the water running while brushing his or her teeth.
    - **BACK OF CARD:** Leaving the water running while you brush your teeth can use up to 10 gallons of water!
2. Chairs or cushions

Water Flows Prompts

**1. The water flows for anyone who leaves the water running while brushing his or her teeth.**

*Leaving the water running while you brush your teeth can use up to 10 gallons of water!*

**2. The water flows for anyone who flushes the toilet two times they use the toilet.**

*The average toilet uses between 5 and 7 gallons every time it is flushed!*

**3. The water flows for anyone who has watered plants in the garden in the heat of the day.**

*Watering when it is hot out is less efficient because more water evaporates before it reaches the soil. We try to water the garden in mornings and evenings when possible.*

**4. The water flows for anyone who takes a shower every day.**

*For every minute spent in the shower, ten gallons of water are used!*

**5. The water flows for anyone who has eaten red meat in the last week.**

*It takes over 5,000 gallons of water to raise and process a pound of beef – this is ten times the amount it takes to grow 1 pound of wheat!*

**6. The water flows for anyone who has a lawn at home.**

*Lawns are extremely water inefficient. Native and drought-resistant plants use only a fraction of the water lawns use and can survive long periods of time without any water at all!*

**7. The water flows for anyone who thinks they know where Fairfield tap water originates.**

*The water in Fairfield comes from the Jordan Sands Aquifer which is found deep underground in an area covering all of Iowa and parts of Minnesota, Wisconsin, Illinois and Missouri.*

**8. The water flows for anyone who thinks they use less than 80 gallons of water per day.**

*The average US resident uses 160 gallons of water per day.*

**9. The water flows for anyone who thinks that bottled water is safer than tap water.**

*Actually, bottled water is less regulated than tap water. Bottled water companies do not have to disclose the water's source, purification methods, or chemical pollutants in each bottle.*

**10. The water flows for anyone who uses a reusable water bottle.**

*Bottling water produces more than 2.5 million tons of carbon dioxide per year. Also, it takes three liters of water to produce every liter of bottled water.*

**11. The water flows for anyone who has seen a leaky faucet.**

*A small leak may seem harmless, but leaky faucets can waste about 2,000 gallons of water per year! If you notice a leak, speak up so that it gets fixed soon.*

**12. The water flows for anyone who has access to clean and safe drinking water whenever they want it.**

*Water is essential for all life on Earth but many people do not have access to a clean and reliable source of water. Approximately 1 out of 8 people globally do not have access to safe drinking water. 3.5 million people die each year from diseases caused by consuming contaminated water.*

**Procedures**

To play The Water Flows, which is similar to musical chairs, there must be one less seat than participants in the circle (in our class, we ask that each student sit on one gardening cushion). The person standing reads the first Water Flows card and all players for whom the sentence applies must stand up and find a new seat, moving at least 3 spaces away from their original seat. The standing person also finds a seat, so whoever is left without a seat replaces the standing person next to the

# Water World

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