

Lesson 3

Water Values

How much water is available for human consumption?
How much is used during the day?
Are there ways that water can be conserved?

GOAL To understand that water is a finite resource to be conserved.

OBJECTIVES Students will:

- ✓ conduct a demonstration showing the amount of water available
- ✓ examine how they use their water by “paying” for it
- ✓ think of ways to conserve water

MATERIALS three 5 gallon plastic containers, one 1-Cup plastic container, eyedropper, water dollars (to be copied), water use chart, log notebook, water bank, pencils

CORE CURRICULUM CONTENT STANDARDS

- Math 1(1-3), 2(1,2), 3(1,3)
- Science 8(1-3)
- Social Studies 10(2-4), 13(2,5)

VOCABULARY finite, conservation, consumption

PROCEDURES

1. Begin by explaining to students that water is a finite resource to be conserved. There are many ways that water is used and water we use today has been recycled through the water cycle. We have the same amount of water today as we had millions of years ago.
2. Conduct a demonstration to the class, having a student help.
3. Present a container filled with 5 gallons of water. This container represents all the water on Earth.
4. Explain to students that 97.2% of all the water is contained in the oceans. This is salt water and unsuitable for drinking or irrigating crops, etc. Remove 2 ¼ cups of water and leave approximately 97.2% of the water.
5. Place the 2 ¼ cups of water in another five gallon clear container or have a student conduct this part of the activity. This amount represents the amount of fresh water. However, 2% of the fresh water is located in glaciers and ice caps and is not available to us, leaving a ½ cup.
6. Remove ½ cup from second container and place into another five gallon clear container. This is what is left for us to use. Explain that part of this water is trapped underground or is polluted, so therefore, unsuitable for drinking. That leaves approximately 5 drops of water for us to use. Remove 5 drops of water with a dropper and place in the 1-Cup container. The five drops represent the water available for all those uses. Have students think of all the ways they used water. List on board.

7. Now that students are aware of how much water is available to them, have them think of how their day would be without water. What could they not do?
8. Explain that starting today and for 2 days they are going to have to examine how they use their water by paying for it.
9. Students will receive a chart with water use categories, amount in liters that is used, and the amount of water dollars required.
10. They will receive five sheets of water dollars that they will use. The “play money” will be used each time a student uses water at school or at home during this 2-day period. The dollar amount represents the amount of liters. They will receive 400 water liter dollars.
11. Have students cut out water dollars and write his or her name on the dollars.
12. They may make payments by placing dollars in a container labeled “Water Bank”.
13. Instruct students to keep track by recording how they spent their dollars and mark it in a log.
14. The next day, students discuss how they spent their water dollars. Questions to consider include: Did they have enough water for the two days? Did they need to conserve? How do they think they did?

EXTENSIONS

1. Read the following statement: “Farmington River Watershed provides 100% of drinking water to 600,000 people in the Greater Hartford area.” How would they think or react differently knowing that how they protect or take care of their water and land could affect the water they drink? Have students discuss in groups and present to class.
2. Is water a renewable or non-renewable resource? Discuss terms.

RESOURCES

Denver Water Department, Colorado River Water Conservation District, Denver, Colorado

Farmington River Watershed Association, August 2003, *State of the Farmington River Watershed Report*, Farmington River Association, Inc.

Haskin, Kathleen M, *The Ways of the Watersheds: An Educators Guide to the Environmental and Cultural Dynamics of New York City's Water Supplies*, 1995, Claryville, NY: The Frost Valley YMCA

GLOSSARY

conservation - preservation or restoration from loss, damage, or neglect

consumption - the using up of goods and services by consumer purchasing or in the production of other goods

finite - having bounds; limited

Water Use Chart

Use Category	Amount (liters)	Assumptions	Water dollars required	Potential savings	Water saving suggestions
Drinking	3	Daily requirement	3	None	
Water fountain	1	Each trip	1	None	
Toilet	20	Each flush	20	5	Tank displacement
Brushing teeth	40	Water on 2 minutes	40	35	Turn water off while brushing
Washing hands	20	Water on 1 minute	20	15	Turn off water while soaping hands
Shower	100	Water on 5 minutes	100	40	Take shorter shower/ turn off while soaping
Washing clothes	120	1 load	120	20	Wash full loads
Washing dishes	100	1 load, automatic dishwasher	100	17	Wash full loads, or Soap first then rinse if hand-washing dishes
Washing car	100	Water on 5 minutes	100	60	Turn off water when not washing, wash less frequently
Lawn watering	250	Full lawn	250	150	Use native plants to reduce water usage

\$1 WATER DOLLAR	\$1 WATER DOLLAR	\$1 WATER DOLLAR	\$1 WATER DOLLAR	\$1 WATER DOLLAR	\$1 WATER DOLLAR
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