Got Water?

Purpose

Students will learn about the importance of access to clean water and develop a better understanding of the benefits of having potable water by conducting a home water audit.

Overview

This activity provides a real-world model for how much water a family needs on a daily basis and how much effort it takes to carry water home from a clean water source.

Time

45 minutes plus three night home work assignment

Level

All

Conserve

In keeping with the theme of water conservation and management, you are encouraged to use non drinking (non potable) water for this activity. Reusing your water for gardening, etc. is also strongly encouraged.

Substitutions for water, such as rocks, sand, soil, etc. is also possible.

Home Water Audit

Explain to students the importance of water to sustain life. Explain how most people in the world do not have easy access to safe drinking water and must walk several kilometers each day to get it.

To get a idea of how much water your household uses daily, each student should be asked to conduct a home water audit.

Goal: Students will estimate their total home water use and discuss how conservation methods would change the amout of water used.

Introduce the Water Audit Worksheet to students. Explain that the students will track their water use for three days and estimate the average amount of water they use over that time.

After the students have tracked their water use and completed the GOT Water? Activity, have them share their results.

Learning Activity Materials

Playground or parking lot with a water source

Two large trash cans (2000 L)

Empty 2 liter containers or empty buckets (as many as possible)

A watch or clock with a second hand

Preparation

To set up your village we must establish both a home and a spring or well (source of clean water)

1) Place the two trash cans a good distance apart, opposite ends of the play ground or parking lot. This represents the distance students will walk to find usable water. This distance will represent 1 kilometer to the water source and 1 kilometer back to the house.

2) Fill one of the trash cans with water. This represents the spring or well. Place a sign and give the spring a name.

3) Leave the other trash can empty. This represents the family's house. You might place a sign here as well.

4) Measure the volume of the students containers to approximate number of liters

What to Do and How to Do It

1) Explain to students the importance of water to sustain life. Explain how most people in the world do not have easy access to safe drinking water and must walk several kilometers each day to get it. Remind the students they need almost 4.5 liters of water every day to drink for good health. The average global family will use as much as 682 liters every day at home for cooking, cleaning, bathing, etc.

2) Divide students into groups of 4. Each group represents a family.

3) Describe the family situation: The family can only get water by walking one kilometer to a spring or well, a source of water that's safe to drink.

(The daily average that women and girls in developing countries must walk every day is 6 kilometers typically carrying 20 liters of water.)

The family's job is to carry enough water to their house to make sure, first, that everyone remains healthy, and second to provide enough water for cooking, cleaning, bathing, etc.

Key Concepts

Humans must have access to potable water to survive

Access to potable water depends on topography, climate and social variables.

In the ideal situation the family of 4 needs:

- 18 liters every day for good health
- 45 liters to water the garden
- 68 liters for cooking
- 127 liters a day to do the dishes
- 254 liters for bathing and washing clothes

Additional Numbers to think about

- 4 liters to brushing your teeth (if you leave the faucet on)
- 13 to 22 liters to shave
- 136 liters to take a 5 minute shower
- 136 to 182 liters to do 1 load of laundry in a washing machine

Learning Activity Part 1: ALL IN

1) Select one family to start. Give each member of the family two buckets or jugs. Remind students to count how many buckets of water they carry home.

2) Time them as the walk from their house (the empty trash can) to the spring. Students should fill up their buckets/ jugs and carry them back to their house, dumping the water into the empty trash can.

3) Stop the group at 5 minutes. How many liters of water did they carry? Has each member of the family brought enough water home to keep them alive? (Each person needs almost a 4.5 liters of water a day to stay alive)

4) Has the group carried enough water to cook for the day? (They need 68 liters for this)

5) A liter of water weighs approximately 1 kilogram. How much weight has each person carried?

6) How many kilometers did each member of the family walk to get water?

7) Continue activity until all families have had the opportunity to walk to water.

8) Have Students record their answers on the accompanying worksheet (Make sure to put all the water back into the "spring" trash can)

Learning Activity Part 2: SPLIT THE WORK

1) Let another family try the experiment.

2) This time, two members of the family are busy either working in the fields or watching after the family's livestock, and they can't walk to get water. So only two members of the family will be making the journey.

3) Let two people carry as many empty buckets / jugs as they can and walk to the spring, fill them up and then back to the house. Just like before, students should fill up their buckets and empty them at the "house trash can"

4) Stop the group at 5 minutes. How much water did they carry? How do their results compare with the first group?

5) Have Students record their answers on the accompanying worksheet

Extensions of Basic Learning Activity

Think About It! – Get students to talk about what their life would be like if they had to walk for water every day and about the convenience of having indoor plumbing (faucets, toilets and tubs) in their home.

Compare the results of the Home Water Audits to the amount of water gathered by each student. Did they gather enough water to supply their home for the day?

Follow Up - Have students create a visual display of what they learned about water, including amount of distance traveled, amount of water carried and its impact on their daily activities. They may also include how much water would be needed for their family for a week.

Conserve – In keeping with the theme of water conservation and management, you are encouraged to use non drinking (non potable) water for this activity. Reusing your water for gardening, etc. is also strongly encouraged.

Substitutions for water, such as rocks, sand, soil, etc. is also possible.

Make a Difference – Encourage students to implement a change in their water use and track their use again for three days. Can they see a difference? Do the students feel they could make this change for the long term?

Resources

UNESCO United Nations Educational Scientific and Cultural Organization.

Core Content Standards

Science

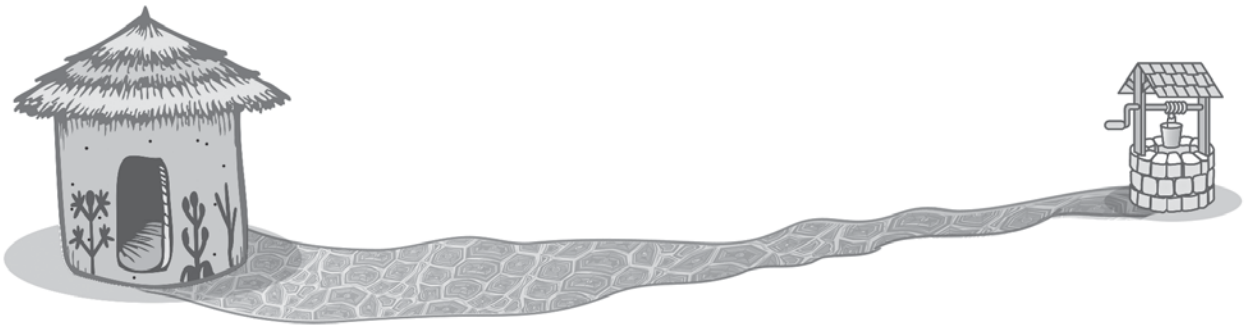
US NSES-6.3 Organisms have basic needs. For example, animals need air, water and food; plants need air, water, nutrients, ad light. Organisms can survive only in environments in which their needs are met.

US NSES-6.6 All organisms, including humans, cause changes in the environment where they

Got Water?

Your family lives in a rural village with no indoor plumbing and due to not having a sanitation department; the river next to their home is contaminated with sewage. The family can only get water by walking one kilometer to a spring or well, a source of water that's safe to drink.

The family's job is to carry enough water to their house to make sure, first, that everyone stays healthy and alive.Then, to carry enough water for cooking, cleaning, bathing, etc.



In the Ideal situation a family of 4 needs

18 liters every day for good health
45 liters to water the garden
68 liters for cooking
127 liters a day to do the dishes
254 liters for bathing and washing clothes

Learning Activity Part 1: ALL IN

1) How many litter bottles / buckets of water did the family carry in 5 minutes? _____

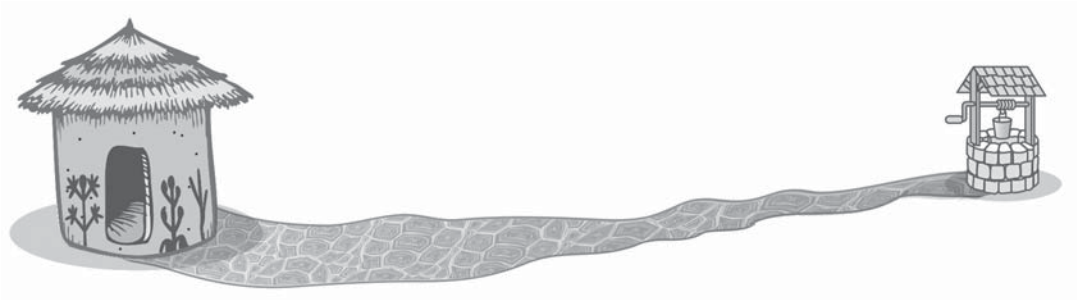
2) Did the family carry enough water for everyone to stay healthy? YES / NO

3) Did the family carry enough water to cook for the day? YES / NO

4) A typical family of 4 needs about 682 liters of water each day. How many more trips to the spring would it take to meet the need? _____

5) How much time would it take? _____

6) A liter of water weighs approximately 1 kilogram. Calculate how much weight the family carried in five minutes. _____



Learning Activity Part 2: SPLIT THE WORK

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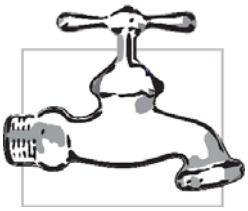

Home Water Audit

How does your House Measure Up?

Complete the water audit below for 3 days to the best of your ability.
Answer only the questions that apply to your house.

Household Information:

Type of Dwelling _____

Detached single family residence, Town house residence, Condominium residence,

Apartment residence

Number of people living in home: _____

Number of toilets: _____ Number of showers: _____

Dishwasher? _____Yes _____No Clothes washer? _____Yes _____No

Daily Water Use			
Use of Water	**Day 1**	**Day 2**	**Day 3**
Drinking Water: 2 cups is about .5L	L	L	L
Toilet Flushing: 23L*	L	L	L
Brushing Teeth: (water running) 27L for 2 minutes*	L	L	L
Dishwasher or Hand Washing Dishes: Dishwasher: 68L* Dish washing by hand with water running: 136L* Dish washing by hand with sink stopper: 45L*	L	L	L
Laundry: 181 L x number of loads	L	L	L
Shower or Bath: Shower: 11L / minute* Full Bath: 181L*	L	L	L
Other Uses: _____	L	L	L
Watering the Yard:(with garden hose) 1,363L / hour*	L	L	L
Total Water use for 3 Days			**Liters**