

Home Water Audit

Goal:

Students estimate their home water use and discuss how conservation measures would change the amount of water they use.

Background:

Why is water conservation important in Portland? Doesn't it rain a lot here? Yes, it does rain a lot here, but not during the summer when we need it the most. Portland has limited storage of water in its two reservoirs in the Bull Run Watershed and in its in-town reservoirs. During the summer, when rain is scarce, we draw the level of these reservoirs down. Sometimes there isn't enough water for everyone to use as much as they want. For this reason, it is important to conserve water in Portland. Water use in Portland increases dramatically during the summer. People use water to wash cars, fill swimming pools, run through sprinklers, and water lawns and gardens.

Objectives:

Students will:

- Estimate the amount of water they use in their homes.
- Discuss conservation measures they could use to save water.

Curriculum Connections:

Math—Demonstrate conceptual meanings for addition, subtraction, multiplication and division.

Math—Describe, estimate and use units of measurement.

Science—Conduct procedures to collect, organize and display scientific data.

Science—Describe how daily choices of individuals, taken together, affect global resource cycles, ecosystems, and natural resource supplies.

Procedure:

Getting Ready:

- Gather supplies.
- Talk with your students about why water conservation is important in Portland.

Time:

Preparation: 15 minutes

Activity: 2 20-minute sessions

Materials:

- Personal Water Use Log (master attached)
- Optional—Home Water Use Audit Kit (materials listed below):
 - Toilet tape
 - Shower bag
 - Drip meter
 - Leak detection dye tablets (Audit Kit available for distribution - Contact the Portland Water Bureau at 503-823-7439.)

Key Concepts:

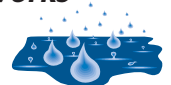
Personal water use
Water conservation

Skills:

Measurement
Mathematics
Data collection

**Portland Water Works
Connection:**

Chapter 5–6
Conserving our Water



The Activity:

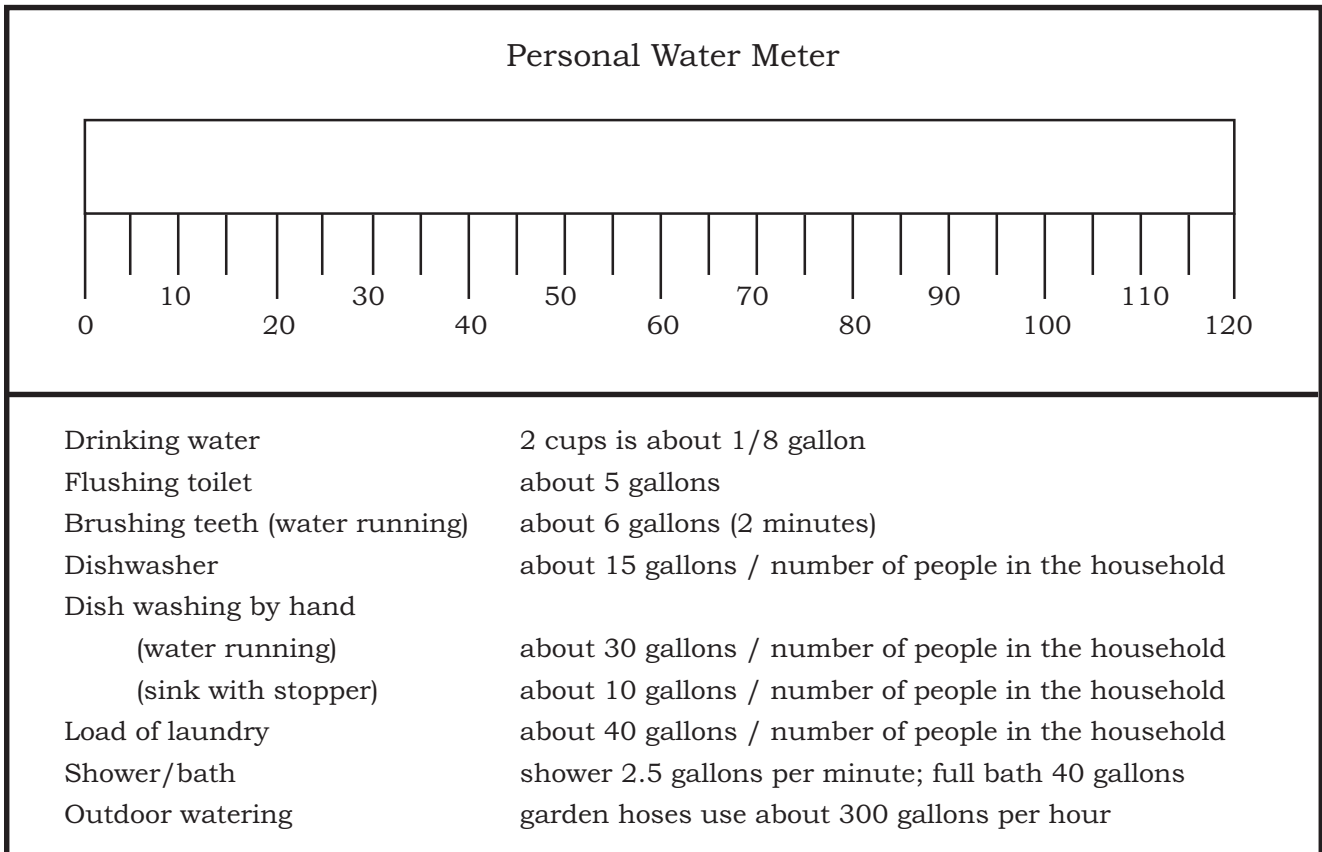
1. Introduce the Personal Water Use Log to students. Explain that the students will track their water use for three days and estimate how much water they use.
2. After the students have tracked their water use, have them share their results. How much variation was there in the classroom? For older students, array the data on a graph for visual impact.
3. Review with students why it's important to save water in Portland. Brainstorm how students could use less water. What behaviors or equipment would help them reduce water consumption in their homes?

Assessment:

- Have students assess the accuracy of their Personal Water Use Logs. What more information would they need to produce even more accurate records of their water use? (Actual toilet tank size, shower flow rate, etc.)

Extensions:

- 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?
- To help students grasp the scale involved, have each student bring in empty plastic gallon-size jugs. Then offer students a visual example of the quantity of water used with each activity.
- Have students graph their water use on the Personal Water Meter (see below), or make one large meter for the whole class.



Name: _____

Personal Water Use Log

Activity	Day 1 Date:	Day 2 Date:	Day 3 Date:
Drinking Water 2 cups is about 1/8 gallon	Gal.	Gal.	Gal.
Toilet Flushing About 5 gallons*	Gal.	Gal.	Gal.
Brushing Teeth (water running) About 6 gallons for 2 minutes*	Gal.	Gal.	Gal.
Dishwasher or Hand Washing Dishes Dishwasher = 15 gallons* ÷ number of people in house Dish washing by hand with water running = 30 gallons* ÷ number of people in house Sink with stopper = 10 gallons* ÷ number of people in house	Gal.	Gal.	Gal.
Laundry 40 gallons* ÷ number of people in house x number of loads	Gal.	Gal.	Gal.
Shower or Bath Shower = 2.5 gallons/minute* Full bath = 40 gallons*	Gal.	Gal.	Gal.
Other Uses Watering w/garden hose = 300 gallons/hour*	Gal.	Gal.	Gal.
Total	Gal.	Gal.	Gal.

Total for the 3 days: _____ Gallons

*Use these average figures unless more accurate household-specific data is available.