

Water Down the Drain

Objectives

Students will:

- Discover how much water is lost through a leaky faucet

Background

Water leaks cause big problems to water systems, communities, households and other water users. Every year millions of gallons of water are lost through leaks. If a leak is underground, as in the case of our community water system lines, the leaks could go undetected for a long time, and in the process, cost the water system or water user money. For example, when developing a water system, project planners will calculate a 10% to 20% water loss factor to adjust for unaccountable losses (leaks). This means that a water system would be able to meet water needs.

The amount of water that can leak from a faucet or toilet over a day or week is sometimes quite sizable. Leaks cost water systems (the people that sell water) and water users money.

For example, if your faucet(s) leaks 50 gallons a day (4.5 oz per minute) for one month (30 days), 1,500 gallons will be wasted. If your water costs \$2.00 per thousand gallons of water consumed, you will pay \$3.00 more on your monthly water bill than you would pay without the leak. Looking at the bigger picture, that is \$36.00 a year or 18,000 gallons of water. These amounts are the equivalent of a new video game or 72 days (Over 2 months!) supply of water for a family of 4.

Procedure

- Display an eight-ounce container of water in front of your class. Explain that the water in the container was collected from a leaking faucet.
- To illustrate this point, turn on a faucet just far enough to get a steady drip. Ask your students to observe the dripping faucet and then estimate how long they think it would take to fill an eight-ounce container. The container should be filled with water within 30 minutes.
- Compare the students' estimates against your results. Explain that the size of the drops, frequency that the drops occur, and the length of time that a faucet is allowed to leak all affect the amount of water wasted.
- Provide each student with the "Water Down the Drain Worksheet."

Adapted with permission from Teaching Aquifer Protection, South Carolina Cooperative Extension Service, Clemson, SC.

Materials

- 8 ounce container
- Water
- Water faucet
- Water Down the Drain Student Worksheet (one for each student)

Class Extension

Brainstorm ideas for determining how much water is wasted through leaky plumbing fixtures (bathtub, shower, ice maker, washing machine, toilet, exterior faucet, etc.) at your house.

Complete the student worksheet to determine how much water and money could be saved by repairing the leaky fixtures.

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Student/Family Worksheet An Activity to Do at Home or School

Name _____

Date _____

Objective:

Learn how much water can be wasted or lost through a leaky faucet.

Materials:

1. Container to collect water
2. Water faucet
3. 8-ounce measuring cup

Procedure:

Compute the following based on the time it takes a leaky faucet to fill a cup:

Length of time to fill an 8-ounce cup (1/2 pint) _____

Length of time to fill a 1 gallon container _____

Amount of water lost from a leaky faucet in 1 hour _____

Amount of water lost from a leaky faucet in 24 hours _____

Amount of water lost from a leaky faucet in 365 days _____

How many days would this supply a family of four, when the daily rate of use is 250 gallons per day? _____

If the wasted water cost \$2.00 per 1000 gallons; how much money could be saved in a year? _____

What could you buy with the money saved by repairing the leaky faucet?

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