Be a Superhero:
Save Water with Water Woman

Day 3: **Water Woman Episode 3: The Longest Shower**

Developed by: Nathalie Boulanger & Amanda Reimer for the Cowichan Watershed Board

Suggested Date: Drinking Water Week (May 1-7, 2016)

Overview & Purpose

Increases in our population, the growth of industry and agriculture, and the effects of climate change all put pressure on our water supply. Learning to conserve water is essential to the health of our local ecosystems.

About 35% of our residential indoor water use is from showers and baths. In the third Water Woman video, Water Woman catches Leak E. Hoser in the act of having a really long shower and teaches him that he can save 14-20 litres per minute by taking shorter showers.

In this lesson, we include some data about water usage in baths and showers and suggest tips to save water. We recommend a classroom brainstorm about ways to save water while bathing/showering, and to also ask each student to make a personal

commitment that is meaningful to them. If this is relevant to your class, you may also do some math problem-solving with Leak E. Hoser and Water Woman.

Objectives

1. Students will learn ways to save water in the bath/shower.
2. Students will think critically about their own bathing habits and make a personal commitment that is relevant to them.
3. Students will practice math problem-solving skills.

Suggested Activities

Hook: Watch Water Woman Episode 3: The Longest Shower

1. Make a personal pledge to save water while bathing and showering

If you have chosen to create a visual banner to show your classroom's commitment to water conservation, follow the third episode of Water Woman with a classroom discussion on how we can save water in the shower and in the bath. Have each student think of one commitment they want to make and write it down (on a paper shaped like a drop of water or cut to the shape of their hand). Ask each student to glue their pledge on the banner to inspire other students to do the same.

Here is some data that relates to water conservation in the bathroom:

- About 35% of indoor water use is from showers and baths.
- A "full tub" varies of course, but it takes on average, 130 to 140 litres to fill a bathtub.
- An old shower with a regular showerhead uses, on average, 19 litres of water per minute.
- A shower with a low-flow showerhead uses,on average, 7-8 litres of water per minute.
- With a shut-off valve on your showerhead, you can quickly turn the water off while shampooing and turn it back on to rinse without having to adjust the water temperature every time.

Tips to save water in the bathroom and examples of student pledges:
- Take shorter showers.
- Take showers instead of baths.
- Put a bucket in the shower while you are waiting for the water to warm up, and use the water you catch for watering plants, flushing the toilet or cleaning.
- Turn the water off while shampooing, conditioning or lathering up with soap.
- Install a low-flow shower head and/or a shut-off valve.
- Take baths less often.
- Put less water in the bathtub.

2. Math Problem-Solving with Water Woman

The following word problems inspired by Water Woman and Leak E Hoser are a good way to apply mathematical problem-solving to water conservation situations. Working on these problems would be a good way for students to reflect on ways to save water prior to making their personal pledge.

These problems involve multiplications, additions and subtractions. If your students haven't learned to multiply yet, they could use a "repeated addition" strategy to find the answer, or use a calculator. Depending on your grade level, students could work on these problems as a class, in small groups or individually.

As an extension to this activity, your class could create a graph of how much water is used weekly, in each of the three scenarios provided. This would help students visualize the difference in water usage for each situation. As a point of comparison for this graph, you could also add a scenario where a person takes a bath with 150 litres of water everyday (1050 litres/week).

How much water can a Water Superhero save?

1. Leak E. Hoser loves to take long showers! His shower uses 18 litres per minute. Today, he took a 20 minute shower:

    a. Calculate how much water Leak E. Hoser used for his shower today.

    b. Calculate how much water Leak E. Hoser uses in a week if he takes a 20 minute shower everyday.

2. Water Woman is doing all she can to help her cousin Leak E. Hoser save precious water! She bought him a new, low-flow showerhead that uses only 7 litres of water per minute and installed it for him.

    a. Calculate how much water Leak E. Hoser will use for a 20 minute shower with his new shower head.

    b. How much water is Leak E. Hoser saving every time he has a shower?

    c. Calculate how much water Leak E. Hoser now uses during a week. Compare your result to your answer in 1.b) How much water does Leak E. Hoser save in one week with the new, low-flow showerhead?

3. Water Woman has a low-flow showerhead that uses 7 litres per minute. She also turns the water off while shampooing and conditioning her beautiful long hair, but she only washes her hair when necessary!

    a. Water Woman takes quick 5 minute showers on most days. Calculate how much water Water Woman uses for a quick shower (5 minutes).

    b. When she washes her hair, Water Woman has a 10 minute shower. Calculate how much water Water Woman uses when she washes her hair.

    c. Calculate how much water Water Woman used this week if she took 4 quick showers and washed her hair 3 times.

Answers:

1. a. 18 litres X 20 minutes = 360 litres

   b. 360 litres X 7 days= 2520 litres/week

2. a. 7 litres X 20 minutes = 140 litres

   b. 360 litres - 140 litres = 220 litres

   c. 140 litres X 7 days = 940 litres/week.

   2520 litres - 940 litres = 1580 litres/week. The low-flow shower head helps Leak E. Hoser save 1580 litres per week.

3. a. 7 litres X 5 minutes = 35 litres

   b. 7 litres X 10 minutes = 70 litres

   c. (4 X 35 litres) + (3 X 70 litres) = 140 litres + 210 litres = 350 litres. Water Woman uses only 350 litres per week to shower! That is less than what Leak E. Hoser used in a single shower with his old shower head!