

Liquid Assets

Teacher newsletter of the Slow the Flow Water Education Program

Water Footprints

What is a water footprint?

A water footprint is the amount of water used or polluted, directly and indirectly by a person, product or country. We use water directly when we flush toilets, shower, do laundry and water the lawn. We use water indirectly when we eat, as all foods require water to grow; when we buy clothing, which is manufactured using water; and when we use electricity and services that require water in their production. Since Canadians often buy imported goods, our water footprint can impact water resources in other countries. Our consumer choices impact the size of our water footprints.

What is the water footprint of the average Canadian?

Each of us has a footprint of 2333 cubic metres of water per person per year, according to the Water Footprint Network. It's enough water to fill 90% of an entire Olympic-sized swimming pool. That's also about 1000 cubic metres above the global average personal water footprint. Twenty percent of the water we use occurs in other countries where some of our food and goods are produced.

Why should I reduce my water footprint?

There are places on earth where human demand for water is greater than the amount of clean water that is available. As human populations grow, water scarcity and water pollution will continue to become more common. Our consumer choices in Canada do affect others around the world, and we can become better global citizens by reducing our personal water footprints.

How can I reduce my water footprint?

Being a wiser consumer is all it takes! Slow the flow at home by installing low flow devices where possible. To reduce your indirect water use, look for food that is in season, comes in less packaging, is locally produced or is grown in areas that are not water-stressed. When buying new clothing or goods, stop and think: do I need to buy this item? Try to buy fair-trade, eco-friendly or second-hand products more often. Reduce, Reuse and Recycle more, and choose gas-free transportation more often.

Did you know?

Water use by humans has increased 6 times in the past century, while global population has only doubled.

A five minute shower with a standard shower head uses 100 litres of water, whereas a five-minute shower with a low-flow shower head uses 35 litres of water.

It takes 15,500 litres of water to produce 1kg of beef. This water use occurs while the animal is growing, eating and drinking. For comparison, it takes 1,300 litres to grow 1kg of wheat.

It takes 11,000 litres of water to produce one pair of heavy jeans.

Approximately 10 litres of water is required to produce 1 litre of gasoline.



Image from discovermagazine.com

Water Footprint Activity Ideas

Science

- Water pollution contributes to water footprints. Discuss forms of water pollution: organic substances, toxic chemicals, thermal and ecological. Brainstorm sources of these pollutants, such as farming, industrial, and household. Have students create posters, videos or performances that educate others about what can be done to prevent water pollution (what should not go down the drain, sustainable farming, waste reduction etc.)

Social Studies

- Use the Global Water Activities section of your Slow the Flow Water Education Resource CD. Activity 2 outlines a lesson plan for creating an indirect water use collage.
- Find out more about where our food comes from. Have students complete research projects on an imported fruit or vegetable they commonly consume. Which countries is it grown in? How is it grown? Do the countries experience water stress, or grow the crop sustainably? Are there alternatives to buying this product from far away - can it be grown locally?

Mathematics

- Have students keep track of their water usage and make a food journal for one day. Use a large poster board at the front of the class to tally students' contributions by food and water use. The accompanying spreadsheet provides the data available (not all foods are included). Have students calculate the classrooms' total water footprint and decide upon categories of water use. They will then create bar or pie graphs displaying the data. Discuss the areas where students could improve their water use efficiency and reduce their water footprint.

Hands-on Activity - Science experiment modified from Environment Canada - Water

Conduct this simple experiment to demonstrate how water transports substances or pollutants even though we cannot see them.

1. Provide groups of students with 3 glasses of water, and containers of salt and sugar.
2. Ask the students to put a spoonful of salt in one glass and a spoonful of sugar in another. Stir both glasses.
3. When the solutions have settled, have students switch tables and try to identify which glass of water is the "pure" one....without using their sense of taste!
4. Ask students about what conclusions can be drawn from this simple experiment. How does this apply to any discussions you have been having about the properties of water and water pollution? A part of our water footprint is the amount of water we pollute. Use this activity to branch into a discussion of drinking and wastewater treatment in your community, or have students research and present about how to reduce water pollution.

Websites of Interest

- Water Footprint Network - <http://www.waterfootprint.org>
- Water Footprint Calculator (International) - <http://www.waterfootprint.org/?page=cal/WaterFootprintCalculator>
- Pollution and Water Quality (Canada) - <http://www.ec.gc.ca/eau-water/default.asp?lang=En&tn=2C3144F5-1#sec3>
- Alberta Water Portal - <http://www.albertawater.com/>
- Indirect Water Use information (US) - <http://environment.nationalgeographic.com/environment/freshwater/embedded-water/>
- Water Footprint Calculator (US) - <http://environment.nationalgeographic.com/environment/freshwater/water-footprint-calculator/>