Water Footprint Classroom Activity: Teacher's Guide

Grade Level: 3-12
Curriculum Connections: Language Arts, Science, Math
Class Time: 45-60 minutes

Objectives

- To introduce the concept of water footprints.
- To allow students to consider their habits and see for themselves the varying impact their choices have on the environment.
- To give students the chance to make pledges to change their water use habits.
- To engage students and start a conversation about water use and conservation.

Materials

- Computer with internet access to use Water Footprint Calculator
- Student and Family Pledge to Save Water document (download from website)
- Optional: WaterSense Activity Page (download from website)

Initial Classroom Discussion (to provide background information):

Vocabulary (in bold): aquifer, groundwater, water footprint, water footprint calculator, pollutants

Do you know where the water you use comes from?
Long Island gets its water from right under our feet! Our water comes from something called an **aquifer**. An aquifer is a geologic formation underground that stores water and this water is pumped out of it for our use. People who live on Long Island get all of their drinking water from aquifers. This water is known as **groundwater**. The only way more water can get into an aquifer is through rain or snow seeping underground. If we use the water in the aquifer faster than it can be refilled by rain and snow, we could run out of water! Another consequence of pumping too much water out of the aquifer is that any **pollutants** like oil, pesticides, fertilizers and other toxins that get underground and into the aquifer can be sucked deeper into the water that we use to drink. This is why it is very important that we conserve our water in our everyday lives through the choices we make.

What makes up your water footprint?
Consider all of the different "things" you use in your daily life. What you eat for breakfast, the clothes you wear, the computer you use, the car you drive to school—they all require a significant amount of water to make or use. In this activity, **"water footprint"** refers to the amount of freshwater used by the everyday activities in your life. For this activity, you will use something called a **Water Footprint Calculator**. The calculator determines your water usage in gallons of water per day depending on the answers you provide to many questions about your everyday life. The calculator will ask questions about indoor water use, which would be water used to wash clothes, dishes and brush your teeth. Then it will ask about outdoor water use, like watering your lawn or filling up your swimming pool. The

calculator will also ask about virtual water use or things like diet choices, recycling habits and driving habits, which we wouldn't think would use a lot of water, but their production processes do.

Instructions

- Use a computer with internet access to go to the Water Footprint Calculator webpage: https://www.watercalculator.org/
- The teacher can use the calculator based on their lifestyle first to show the students how it works and so they can understand the consequences of certain actions in their everyday lives (also if students are too young to know all of the answers this is a good way to show them) or they can choose a student volunteer that would like to take the survey in front of the class
- The survey asks about the entire household, but if students do not know the habits of other family members they can select one person in their household and determine the water use for themselves only
- The teacher or student can select different choices for each question to see how many gallons/day of water is added on to the total for the different responses
- There are also many important water use factoids underneath each question that should be read out to the class or you can have students read them aloud. These will provide more information about each choice.
- Then a few students can use the calculator based on their choices in front of the class or if your classroom has multiple computers students can each take the survey themselves
- Allow students to compare their scores and discuss what habits require the largest water use
- Looking at your "Result in Detail" will help you compare each choice and see how many gallons per day it added to your final score
- The results also give you the US Average for each of the actions so you can compare your results and see if you are using more or less water than the average American citizen
- While taking the survey you should discuss which actions require more water than others, which will give students a good sense of what activities they can change in their lives to reduce water use
- You can also view tips for decreasing water use based on each question. For example the questions on showering and bathing habits provides tips like installing a low-flow showerhead or taking shorter showers and more.

Student and Family Pledge to Save Water

- After using and discussing the results of the water footprint calculator hand out the "Student and Family Pledge to Save Water" worksheet
- Review the instructions and actions with students
- Students should go home and complete the worksheet with their family members and then return it to the teacher
- After checking to see that the pledge is completed the teacher can return it to the student to hang in a prominent place of their home so that the student and their family are reminded of the actions they pledged to save water

Optional: WaterSense Activity Page

- Students can complete the WaterSense activity booklet in class or at home
- The Town of North Hempstead is a proud partner of the EPA's WaterSense program which offers simple ways to use less water including water-efficient products
- There are many fun activities with the theme of saving water in the booklet

Please contact 311 or email sustain@northhempsteadny.gov if you have any questions or comments about this lesson plan!