HOW I USE WATER IN MY DAILY LIFE

GRADES 3-12

MATERIALS

"How I Use Water In My Daily Life" Worksheet
Scissors, glue sticks, construction paper, markers, colored pencils, magazines (Grades 3-5)
Use of computer with Internet access (Grades 6-12)

BACKGROUND

The United States is the seventh most water rich country in the world (1). However, the US is the third largest consumer of freshwater (2), behind China and India, with Brazil, Russia, Indonesia, Pakistan, Mexico, Japan, and Nigeria behind the U.S. and rounding out the list of countries that consume the most freshwater. The amount of available water on planet earth is finite - there will never be any new water! Water is used in nearly every aspect of our lives, as students will investigate in the following activity.

TEACHER PREPARATION

Make photocopies of the "How I Use Water In My Daily Life" worksheet, enough for one per student. Grades 3-5 will only need the first page of the worksheet.

DEFINITIONS

Developing country - Countries or nations with an average income that is relatively lower than in highly industrialized countries, and are in the process of change toward economic growth. They are comparatively lower than the developed countries in terms of health care, literacy, and per capita income.

Developed country - Having a relatively high level of industrialization and standard of living.

Water-rich - (As it pertains to countries) Having an abundance of water so that there is surplus after agricultural, industrial, and domestic use.

DID YOU KNOW?

It takes a little over 39,000 gallons of water to make one car (3); that's nearly 10,000 gallons more water than the average swimming pool (4)!

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INSTRUCTIONS FOR GRADES 3-5

1. Ask students to reflect on their personal water use by completing p.1 of the "How I Use Water in My Daily Life" worksheet, taking it home to discuss with parents/guardians.

2. Ask students to create a personal water use collage. Using old magazines, ask them to look through and cut out any items that use water. Students can also use markers, colored pencils, and construction paper to draw pictures of additional water uses. Display collages in the classroom and discuss how almost every aspect of our lives uses water, from our food to clothes, toilets and cars.

DID YOU KNOW?

In the developed world (e.g. North America, Europe, Oceania, etc.), there are 10 million people without access to water. There are more than 30 times as many people (355 million) in Africa without access to water.

Adapted from http://static.water.org/docs/curriculums/WaterOrg%20ElemCurric4.pdf

INSTRUCTIONS FOR GRADES 6-12

1. The Additional Resources section includes a link to two short National Geographic videos that provide an introduction to various global water issues. Watch one or more of these videos and discuss as a class. "Freshwater: Why Care About Water?" provides an overview of global water supplies and challenges, while "The Burden of Thirst" ties in particularly well with the worksheet that students will be completing.

2. Ask students to reflect on their personal water use by completing p.1-2 of the "How I Use Water in My Daily Life" worksheet, taking it home to discuss with parents/guardians.

3. Once worksheets are completed, guide students in comparing their water use to that of water poor countries (1). Divide the students into groups of 2-3 and assign each group its own country. Ask students to work together to research their assigned country's water use and compare that with American water use. Each group will report their findings to the class. After each group has presented their findings, lead a class discussion comparing and contrasting water use in these countries with water rich countries such as the United States.

4. Finally, ask each student to write an individual reflection (2-3 paragraphs in length) about their findings in this activity.

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ADDITIONAL RESOURCES

http://www.fao.org/docrep/005/Y4473E/y4473e08.htm (UN FAO report on world water resources listed by country)

http://www.scientificamerican.com/article.cfm?id=water-in-water-out (Illustrates which countries use the most water and how water is being used)

http://pubs.usgs.gov/circ/1344/pdf/c1344.pdf (Estimated Use of Water in the United States in 2005 - USGS document with detailed information about water usage in the US, how that water is being used, and broken down state-by-state)

http://water.org/water-crisis/water-facts/water/ (Provides quick facts and illustrations about global water distribution and challenges)

http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/SC/temp/wwap_pdf/WWAP%20WWDR2%20Facts%20and%20Figures.pdf (Quick facts about the state of water around the world from UN World Water Development Report)

http://www.unwater.org/worldwaterday/animation_101.html (Fun, middle-school aged animation that talks about water consumption; note that units are metric)

http://www.unwater.org/worldwaterday/animation_recyclingsociety_en.html (Another middle-school aged friendly animation that discusses how water can be reused)

http://www.unwater.org/downloads/watersecurity_analyticalbrief.pdf (UN Publication - Water Security & the Global Water Agenda)

http://www.trust.org/item/?map=factbox-the-worlds-water-scarce-hotspots/ (User-friendly article about the world's water scarce hotspots)

http://www.greenbang.com/the-10-most-water-stressed-countries-in-the-world_21834.html (10 most water stressed countries in the world)

Materials Referenced in Text:

(1) http://www.fao.org/docrep/005/Y4473E/y4473e0g.gif
(2) http://www.scientificamerican.com/article.cfm?id=water-in-water-out
(3) http://www.treehugger.com/clean-technology/how-many-gallons-of-water-does-it-take-to-make.html
(4) http://texas.sierraclub.org/press/facts3.pdf

Videos:

http://video.nationalgeographic.com/video/environment/freshwater/env-freshwater-whycare/ ("Freshwater: Why Care About Water?" - short National Geographic video presenting overview of global water issues)
http://ngm.nationalgeographic.com/video/player#/?titleID=water-thirsty-world&catID=1 ("The Burden of Thirst" highlights water supply issues in developing countries)

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Name _____

HOW I USE WATER IN MY DAILY LIFE

Worksheet

Brainstorm and record at least 15 ways that water is used in your home.

From your list above, rank the top 5 ways you think your family uses the most water.

1.

2.

3.

4.

5.

Complete the Personal Water Use chart below.

				Total Water Used
Activity	**Times/Day**	**Approximate Gallons/Use**	**Gallons/Day**	**Gallons/Week**
Taking a bath		40 gallons		
Showering (5 min)		20 gallons		
Showering (10 min)		60 gallons		
Showering (15 min)		120 gallons		
Flushing toilet		1.5 gallons		
Washing face/hands		5 gallons		
Drink from tap		.25 gallons		
Brushing teeth (tap is off while brushing)		.25 gallons		
Brushing teeth (tap left on)		2 gallons		
Cooking		10 gallons		
Washing clothes		60 gallons		
Washing dishes by hand		30 gallons		
Automatic dishwasher		10 gallons		
Other				
Totals				
Multiply weekly total by 52 for total annual water use				

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1) Brainstorm and record ways that you can reduce your personal water usage.

DID YOU KNOW?
In developing countries, people walk an average of 3.7 miles (7.4 miles round trip) to get water. The average weight of the water they carry back home is 40 pounds!

NOW imagine that tomorrow all the faucets and pipes in your house stop working. Your only choice is to walk to get the water you need. Just like those in developing countries, you will have to walk 3.7 miles (7.4 miles round trip).

2) From the Personal Water Use chart, I use _____ gallons of water/day.

3) How much would this amount of water weigh?
Hint: One gallon of water weighs 8.32 pounds (Handbook of Chemistry and Physics).

(_____ gallons of water/day) * (8.32 pounds/gallon) = _____ pounds of water/day

4) The average weight of water carried in developing countries is 40 pounds per trip. How many trips would be required to carry the amount of water you use each day?

(_____ pounds of water per day)/(40 pounds per trip) = _____ trips to get water
Remember, each trip is an average of 7.4 miles roundtrip.

5) Assuming an average walking speed of 3.1 miles/hour, calculate how many hours a 7.4 mile trip will take.
Hint: Speed = Distance/Time (or, rearranged, Time = Distance/Speed)

(7.4 miles)/(3.1 miles/hour) = _____ hours

And just think, this trip will likely take even longer when carrying 40 pounds of water!

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