

Tapped Out

Grade Level: 8

Materials:

- Online Video: (7:31 min) Bottled Water vs. Tap Water on 20/20 <http://www.youtube.com/watch?v=3QBZac3MSY&feature=related>
 - Online Video: (6:25) Bottled Water (created by The Open University) <http://www.youtube.com/watch?v=e7mUhtfA3qo&NR=1>
 - Reusable cups (or have students bring in their own empty water bottles)
 - Scrap paper
 - Worksheets:
Tap water vs. Bottled Water: Waste
Tap water vs. Bottled Water: Health
Tap water vs. Bottled Water: Source
- ***If classroom does not have internet access:
- Printed copies of online articles and web pages referred to on worksheets
 - Library materials for research purposes

Background

In recent years there has been a municipal push across Canada to curb the ever increasing consumption of bottled water. Many bottled water companies market their product as a healthier, fresher, and cleaner alternative to tap water. The reality is that municipal tap water is more heavily regulated than bottled water and in some cases the differences between the two products are scarce. Bottled water has a heavy ecological footprint because of the reliance on energy, freshwater, and petroleum resources in the product production and transportation. As it is not recommended to reuse plastic bottles, many of these bottles end up as landfill waste. A minority of water bottles does end up as recycled materials; however, this practice also requires energy and resources for processing and transportation. As North Americans, we are lucky to have such pristine and inexpensive tap water available to almost everyone. Drinking tap water is an easy way to be greener - and can save you hundreds of dollars!

Objectives

Students will:

- Examine their own motives for consuming tap water vs. bottled water.
- Identify the environmental impacts of consuming bottled water vs. those of tap water.
- Research waste, health issues and/or the sources of bottled water vs. tap water.
- Creatively present research findings to peers.

Lesson continued on page 2.....

Curriculum Alignment

Junior High Science, Unit E: Freshwater and Saltwater Systems

Learner Outcomes: *Students will:*

1. Describe the distribution and characteristics of waste in local and global environments, and identify the significance of water supply and quality to the needs of humans and other living things
 - Describe, in general terms, the distribution of water in Alberta, Canada and the world and interpret information about water characteristics
4. Analyze human impacts on aquatic systems; and identify the roles of science and technology in addressing related questions, problems and issues
 - Analyze human water uses, and identify the nature and scope of impacts resulting from different uses
 - Identify current practices and technologies that affect water quality, evaluate environmental costs and benefits, and identify and evaluate alternatives

Cross-Curricular Connections

Social Studies

Art

English Language Arts

Introduction

- Students will first answer three questions on their worksheets.



vs.



Activity #1

- Fill at least two jugs with water from different bottled water brands and one jug with Lethbridge tap water.
- Assign a number to each jug and keep track of which number corresponds to each water source. Do not let students see the number key.
- Give each student a reusable cup and have them taste each type of water and list the jug numbers in order of what tasted the best to what tasted the worst on a scrap piece of paper.
- When students are done have them hand in their ratings to be tallied.
- Have students watch online video: Bottled Water vs. Tap Water on 20/20 (7:31 min)



Activity #2

- Inform students that many environmental groups and municipalities have been encouraging people to drink tap water. Have a classroom discussion about why these groups might do this.
- Watch online video: Bottled Water (6:25)
- Have students research at least one of the following topics on drinking water to answer the questions on the worksheets:
 - ⇒ Tap water vs. Bottled Water: Waste
 - ⇒ Tap water vs. Bottled Water: Health
 - ⇒ Tap water vs. Bottled Water: Source

Students can use the websites referenced on the worksheets or collect library books to assist with their research!

Activity #3

- Have students form groups to collaborate on their findings and create a presentation about their topic to share with the class. The presentation can be in one of the following formats:
 - ⇒ Slide show
 - ⇒ Poster
 - ⇒ Dramatization (filmed or live)
 - ⇒ Other presentation type approved by instructor
- Students will present their topic to the classroom and allow for members of the class to ask relevant questions.

Conclusion

- Tally score for each type of water to find out what the class ranking was.
- Discuss if anyone in the class has changed their opinion on using tap water or bottled water for drinking. Why or why not?

Additional Resources

- Book: Plain Talk About Drinking Water by Dr. James M. Symons. Borrow this book from the City of Lethbridge or a local library.
- Calculate the real cost of bottled water <http://www.newdream.org/water/calculator.php>
- Check out the cities that have banned municipal purchases of bottled water to date [http://www.canadians.org/water/issues/Unbottle It/jurisdictions.html](http://www.canadians.org/water/issues/Unbottle%20It/jurisdictions.html)
- Health Canada <http://www.hc-sc.gc.ca>
- The City of Lethbridge <http://www.lethbridge.ca>
- Earth Policy: Pouring resources down the drain <http://www.earth-policy.org/Updates/2006/Update51.htm>
- For a compelling and vivid image of plastic water bottle waste visit www.chrisjordan.com

Extension Activities

- Do an in depth product life cycle analysis of a plastic bottle and try to come up with alternatives to life cycle stages that produce the most waste
- Come up with a proposal to make your school or school district water bottle free. For guidelines, recommendations, and campaign support visit <http://www.insidethebottle.org/join-bottled-water-free-zones-campaign-0>
- Have students conduct a taste test at home. Pool the results in a spreadsheet to create a graphical representation of a larger sample's water ratings

Local Field Trips

- University of Lethbridge Water Science Building - Dana Andrei # 403-332-4040
- Lethbridge Water Treatment Facilities - Duane Guzzi # 403-320-3081
- Lethbridge Municipal Landfill - Mary Hughes # 403-315-1497
- BFI Recycling Depot - Colin Harms # 403-328-6355
- Ability Resource Centre - Jane VanLent # 403-329-3937

Helen Schuler Nature Centre
910-4th Ave. S.
Lethbridge, AB
T1J 0P6

Phone: 403-320-3064
E-mail: hsccl@lethbridge.ca

Municipalities often have seasonal programs throughout the year! Check out what's happening at the City of Lethbridge at

www.lethbridge.ca



CITY OF
Lethbridge

Tap Water vs. Bottled Water: Health

Research support:

- FAQs Health Canada http://www.hc-sc.gc.ca/fn-an/securit/facts-faits/faqs_bottle_water-eau_embouteillee-eng.php
- FAQs Water Utilities, City of Lethbridge <http://www.lethbridge.ca/home/City+Hall/Departments/Water+Utility/FAQs/WATER+UTILITY+FAQ.htm>
- David Suzuki Foundation, The great water bottle controversy http://www.davidsuzuki.org/NatureChallenge/newsletters/Water_Nov2006/page4.asp
- EPA differences btw tap water and bottled water testing <http://www.nrdc.org/water/drinking/nbw.asp>

Answer as many of the following questions as you can to guide you in your presentation research:

1. How is tap water treated in Lethbridge?
2. Is Lethbridge tap water tested for contaminants?
3. Is bottled water healthier than tap water?
4. Is bottled water regulated differently than tap water?
5. Is bottled water tested differently than tap water?

Tap Water vs. Bottled Water: Source

Research support:

- FAQs Health Canada http://www.hc-sc.gc.ca/fn-an/securit/facts-faits/faqs_bottle_water-eau_embouteillee-eng.php
- FAQs Water Utilities, City of Lethbridge <http://www.lethbridge.ca/home/City+Hall/Departments/Water+Utility/FAQs/WATER+UTILITY+FAQ.htm>
- Canadian Food Inspection Agency <http://www.inspection.gc.ca/english/fssa/concen/specif/bottwate.shtml>

Answer as many of the following questions as you can to guide you in your presentation research:

1. Where does Lethbridge tap water come from?
2. What types of bottled water are there? (Where does the water come from?)
3. Where can you find out where your bottled water comes from?
4. Name at least three brands of water along with where they came from.

Tap Water vs. Bottled Water: Waste

Research support:

- David Suzuki Foundation, The great water bottle controversy http://www.davidsuzuki.org/NatureChallenge/newsletters/Water_Nov2006/page4.asp
- Toxic Nation, Bottled water; what a waste <http://www.toxicnation.ca/node/9>
- Increasing Use of Bottled Water http://energy-conservation.suite101.com/article.cfm/increased_use_of_bottled_water_a_waste_of_energy
- Inside the Bottle <http://www.insidethebottle.org/canada-bottled-water-and-water-privatization-ruse-and-resistance>
- The water project http://thewaterproject.org/bottled_water_wasteful.asp#

Answer as many of the following questions as you can to guide you in your presentation research:

1. What are some of the wastes produced from bottled water?
2. What are some of the environmental impacts from producing water bottles?
3. How are water bottles manufactured. What is wasted in the manufacturing process?