Lesson 13

Water at Home and Abroad

Learning Standards & Assessment Tools

Time

Resources

Curricular Integration

Handouts

Letters to Parents/Guardians

Lesson 13:

Water at Home and Abroad

Purpose

In this lesson, students build on their knowledge of local water use and begin to gain understandings of the implications and the universal importance of water, and the uneven distribution and use of water globally.

Preparation

- Invite a representative from a local Aboriginal community to talk to the class about the importance of water in their traditional culture– see Procedure Step 2. To ensure proper protocol, contact your school or district Aboriginal education co-ordinators to facilitate bringing in a guest from the community.
- Photocopy student handout "My Invention" (one/student)
- Open **http://chartsbin.com/view/1455**

Procedure

Warm Up: World Water and Canada

1. Ask students to write the name of a lake, stream, creek, river or ocean on a sticky note and Indicate if it is salt or fresh water.
2. Display a world map, and help students post their sticky notes in the appropriate locations.
3. Ask students: *Compared to the rest of the world, do you think Canada has a lot of fresh water? Why or why not? Note the bodies of water on land. In Canada we have a lot of the fresh water available on Earth- however, not all of it is handy- much of it flows north away from the concentrated population or underground. Point out the Great Lakes region shared by Canada and the USA. Explain to students that the Great Lakes are the world's largest source of fresh water.*

CREATE A CLASS GOOGLE MAP

Search locations and bodies of water and drop a pin to that location for easy identification. Smoothly zoom in and out from regional perspective to global view and never lose sight of those locations. Reuse the map for later lessons.

Once logged in, click Create Map, type a title and description. Click "done". Start adding locations to your map. Search by name or address, click "save to map".

Social Studies

Big Ideas

- Local actions have global consequences, and global actions of local consequences.
- Individuals have rights and responsibilities as global citizens.
- Canada is made up of many diverse regions and communities.

Content

- Relationships between people and the environment in different communities
- Diverse features of the environment in other parts of Canada and the world
- Rights and responsibilities of individuals regionally and globally
- Diverse characteristics of communities and cultures around the world, including at least one Canadian First Peoples community and culture
- How people's needs and wants are met in communities

60-75 minutes

Educator's Kits, including hardcopy lesson plans and support materials, are available for loan through the CRD. For pickup locations, print-friendly materials and multimedia tools see **www.crd.bc.ca/teacher** or contact the CRD at 250.360.3133.

Teacher Resources

- Global Water
- Water at Home and Abroad

Student Resources

- "My Invention"

Lesson Resources

- KWL chart (begun in Lesson 1)
- Map: Greater Victoria Water Supply System (included in this kit)
- Map of Canada
- Map of the world
- Pictures of people using water in various countries
- 4 L milk jug filled with water
- Book: "How Kids Are Saving the Planet" by Janet Wilson
- Book: "Salmon Boy" by Donna Joe
- Global Water
- Internet, computer and projector.

Transition: Ask students to look at where the majority of towns and cities in BC are in relation to rivers and the coast.

Visualization- In the 1700's

1. "Imagine you are travelling back in time, 100 years, 200 years, 300 years. There are no taps, no water pipes, no roads, no cars, but you do have a canoe. You need fresh water to survive- to drink, to wash. Where will you build your home?"

HISTORY OF DRINKING WATER DISINFECTION

Records indicate the Greeks were among the first to disinfect their drinking water as far back as 4000 BC.
www.excelwater.com/can/b2c/about_7.php?
www.lenntech.com/processes/disinfection/history/history-drinking-water-treatment.htm

HISTORY OF CHLORINE

In Canada, we started to add chlorine to our drinking water in 1917, more than 80 years after Great Britain and 10 years after the United States.
www.safewater.org/fact-sheets-1/2017/1/23/what-is-chlorination

2. Ask students if they know why towns and cities in BC are near rivers and the coast. *Transportation and easy access to water.*

Visualization- In the 1850's

1. "Imagine you are travelling back in time, 100 years, 150 years. There are still no taps, no water pipes and no cars, but now there are trails to springs and ponds. You lay a barrel down on its side, tying the end of a rope to one side of the barrel, then the other end of the rope to the other side of the barrel. You pull this along the trail to the pond and back home again. It's hard work, but you need water to survive. They are building roads now, so you can take the horse and cart. The trips are long and you have to make them often."
2. What could you do to make getting water easier?" *Brainstorm possible solutions such as finding another source of clean water closer to home, inventing a filter that would clean any water so you don't have to walk as far, lay pipes to bring water to you. Discuss how the first pipelines were made from hollowed trees, to bring water to the city centre. Later steel pipelines brought water right into the home. Alternately, build a well by drilling into the ground to access groundwater.*

Transition – We are lucky to have safe, clean, fresh water delivered directly to our taps- but it's not like this everywhere in the world.

Global Water Use

1. Ask students if they think that in Canada we use a lot of water compared to other countries. Optional – project the Total Water Use Per Capita by Country. **http://chartsbin.com/view/1455** *Yes, compared with many countries we do use a lot of fresh water, this is partly because we have good access to safe drinking water. But our water use is going down.*
2. Write the following figures on the board – these are the average amounts of water used residentially in each country per person per day:
   - Canada = 274 L
   - Sweden = 200 L
   - Brazil = 44 L
   - India = 39 L
   - Zimbabwe = 26 L
3. Help students find these countries on a map of the world. Display the graph found in the Teacher Resource, *Global Water*. You may also want to cut these graphs out and post them on a world map on the countries they represent.

Demonstration- Transporting Water

1. Explain that, in some countries, people have very limited access to water using as little as three litres per person per day, walking long distances every day to bring home the water they need.
2. To help students comprehend the task of transporting water, ask for a student volunteer to carry a full 4L jug once around the room. How easy was it? What would it be like if you had to carry this for several kilometres, and had to do it every day? How this could be made easier? Brainstorm ideas, example solution "Q drum" **qdrum.co.za**

Book: "Our Earth: How Kids are Saving the Planet"

1. In some countries, the fresh water available to drink is not always safe, and many people get sick or even die from drinking unsafe water. Here in the Greater Victoria area, the water that we get from the tap is disinfected so that it is safe to drink.
2. Brainstorm some possible solutions.
3. Read *"Our Earth: How Kids are Saving the Planet"* by Ryan Hreljac, 7 Canada by Janet Wilson. The story of a seven year old boy who started a well foundation to build water and sanitation projects in 16 countries. See also **www.ryanswell.ca**
4. Show images of water related inventions such as, LifeStraw or LifeSaver Bottle, portable water treatment plants, water purification tablets. Education is also very important, knowing how to keep water clean.
5. Distribute the student handout *"My Invention"* OR provide students with materials to build a 3D conceptualization of their invention.

Guest Speaker

1. Have a representative from a local Aboriginal community talk to the class about the importance of water in their traditional culture (e.g., transportation, source of food, spiritual beliefs) and/or see Extensions and Adaptations for other ideas.

Book: Salmon Boy

- Read aloud "Salmon Boy" by Donna Joe, the story of a boy who learns to live sustainably while living among the salmon people.

Assessment Opportunity

In a conference approach, ask questions such as the following:

- What it might be like to live in a country where they only had a few litres of water per day?
- What things do they do now that they would they not be able to do without enough water?

Look for evidence that they understand the role of water on their daily lives. Use criteria such as those outlined in the Assessment Tool "Water at Home and Abroad" as a checklist or rating scale to record students' learning in relation to all the activities in this lesson.

KWL Chart

1. Revisit the KWL chart, and ask students to suggest additions and modifications based on what they learned from this lesson.
2. Conclude by reminding students that, even though we live in Canada, and particularly in the Greater Victoria area where we are lucky to have good access to a clean water supply, it is still very important to conserve water every way we can:
   - The quality of our water is better when the reservoir is full.
   - In case of drought or fire.
   - To provide enough water downstream for fisheries and First Nation's ceremonial and cultural needs.

Distribute the Parent Handout "Global Water" for students to take home.

Curricular Competencies

Look for evidence that students are able to:

Social Studies

- Use Social Studies inquiry processes and skills to ask questions; gather, interpret, and analyze ideas; and communicate findings and decisions
- Explain why people, events, or places are significant to various individuals and groups (significance)
- Ask question, make inferences and draw conclusion about the content and features of different types of sources (evidence)
- Sequence objects, images, and events, or explain why some aspects change and others stay the same (continuity and change)
- Recognize causes and consequences of events, decisions, or developments (cause and consequence)
- Explain why people's beliefs, values, worldviews, experiences, and roles give them different perspectives on people, places, issues, or events (perspective)
- Make value judgements about events, decisions, or actions, and suggest lessons that can be learned (ethical judgment)

Extensions and Adaptations

- This lesson is designed for students who have some experience with using maps. If students do not already have this level of familiarity with map reading, this lesson can be simplified by eliminating the requirement of having students identify water bodies and countries themselves.
- To address additional social studies learning outcomes, engage students in simple map-reading activities. For example: What is in the north of the map? What is in the south? Is the Sooke Lake Reservoir east or west of Elk Lake?
- If you have any students who hav elived in other countries, invite them to share their stories about water

use in theose countries.

- Investigate opportunities for students to become involved in water projects in developing countries. (Appendix D: Additional Resources.)
- Show students some inventions that have been created to improve access to clean drinking water. Will need scaffolding as language can be technical.
  - Q drum: The q-drum makes carrying water simpler. See it in action in the image gallery **qdrum.co.za**
  - Michael Pritchard: Water filtration in a reusable water bottle **www.ted.com/talks/michael_pritchard_invents_a_water_filter**
  - Lifestraw- a water filtration system in a large straw like device. **lifestraw.com**
  - Water purification tablets
- **Mother Earth Water Walk**
  During the spring 2010, Anishinabe women and men walk around the Great Lakes to raise awareness about our water. *"The 11,525 miles or 18,549 kilometers were walked to call attention to the sacred gift of water, the source of our life, the source of all life. The past walks also raised awareness of the need to take care of the water, and to help our Mother Earth, who is struggling to survive and to provide for all her children. Each of the 24,113,700 steps taken was a prayer for the water, for Mother Earth, for the animals, the birds, the insects, the trees and for us, all two leggeds. Together the walks were one prayer for life."*
  April 10, 2011 Press Release
  http://motherearthwaterwalk.com/

1. Share the story of "The Nibi (water) Song" a Migizi Clan song. Listen and learn it as a class.
   www.motherearthwaterwalk.com/?attachment_id=2244
2. Introduce your students to Mother Earth Water Walks
   - Browse the photo galleries of past Water Walks
   - Share journal entries from past Water Walks
3. Plan and lead a Water Walk.
   - Plan the route
   - What will be the focus? E.g. could sing or speak "The Nibi Song" words along your water walk, or write your own class song.
   - Share your project process or outcomes with the Mother Earth Water Walk community by leaving a comment on their website's Guest Book.

- **BC Royal Museum: First Peoples Gallery**

1. Take the online virtual tour or visit the gallery in person
2. Have students put on "water detector" hats/goggles. What can they find in the exhibit that relates to water?
   - cedar wood and bark for clothes, tools, canoes, lodgings, and art needs water to grow
   - transportation on water
   - water for drinking
   - water for washing
   - water for food preparation
   - fish and shellfish live in water (food)
   - plants and berries need water to grow (food/medicinal)
   - shells in artwork

- cultural and social practices (e.g. tribal journeys, place of offering, purification ceremonies, prayer)
- medicinal plants with water have spiritual significance (spring water)
- in stories, oral histories, and dance

http://www.royalbcmuseum.bc.ca

Other related resources:

- **"Healing Circle"** by Carolyn Ali. An article retelling the experience of participating in a sweat lodge, published August 9,2006 on Straight.com.
  http://www.straight.com/article/healing-circle-0
- **University of Victoria's Centre For Indigenous research and Community-Led Engagement.**
  www.uvic.ca/research/centres/circle/
- Hear from Canadian First Nations about what water means to them. This is a video trailer for a documentary film created by the University of Victoria's Centre For Aboriginal Health Research. The video focus is drinking water quality on Reserves in Canada. *Note: First Nations Reserves within the Greater Victoria Drinking Water Area receive water from the Sooke Lake Reservoir and secondary reservoirs.*
  - Crisis on Tap Trailer. (1:14 – 2: 38) **http://www.youtube.com/watch?v=08L4Rtrt8hk**
  - Crisis on Tap- Full documentary film (0:00-2:00)
    http://www.youtube.com/watch?v=Ixmht-g2C5s

For more information about safe drinking water on reserves see:

- Indigenous Services Canada: Frequently Asked Questions- Safe Drinking Water for First Nations Act
  www.sac-isc.gc.ca/eng/1506514143353/1533317130660
- "Harper Government Introduces Updated Legislation to Protect Drinking Water in First Nation Communities"
  http://www.aadnc-aandc.gc.ca/eng/1330541162174

- **First Nations Traditional Ecological Knowledge and Water**
  - Traditional Ecological Knowledge (TEK) is:
    - » holistic knowledge (historical, cultural and spiritual)
    - » formed over generations of living in an environment
    - » collective, shared by a community
    - » passed through stories, traditions, observation and action
  - Now start to combine TEK and western planning .
  - Water is Mother Earth's blood.
  - Water is not a commodity, it is something to be taken care of.
  - It is not about cause and effect, but cycles, changes.

http://www.afn.ca/honoring-water/
https://waterbucket.ca/cfa/files/2017/09/Water-FN-Spiritual-Ecological-Perspective_2001.pdf
http://www.ocic.on.ca/wp-content/uploads/2017/07/Traditional-Knowledge-Toolkit-NAHO.pdf

Curricular Integration

- Personal planning: This lesson addresses issues of healthy living and community responsibility and well-being.
- Mathematics: Comparing water consumption figures helps students develop mathematics concepts in relation to numeracy and data analysis.
- English language arts: Have students compose a diary entry or letter from the point of view of someone living in a country with limited access to water.

My Invention

Name: _____ Date: _____

If you could invent something to help protect, conserve and/or make clean drinking water handy to everyone, what would it look like? What would it be made of? How would it work?

Draw, describe and name your invention.

My invention's name: _____

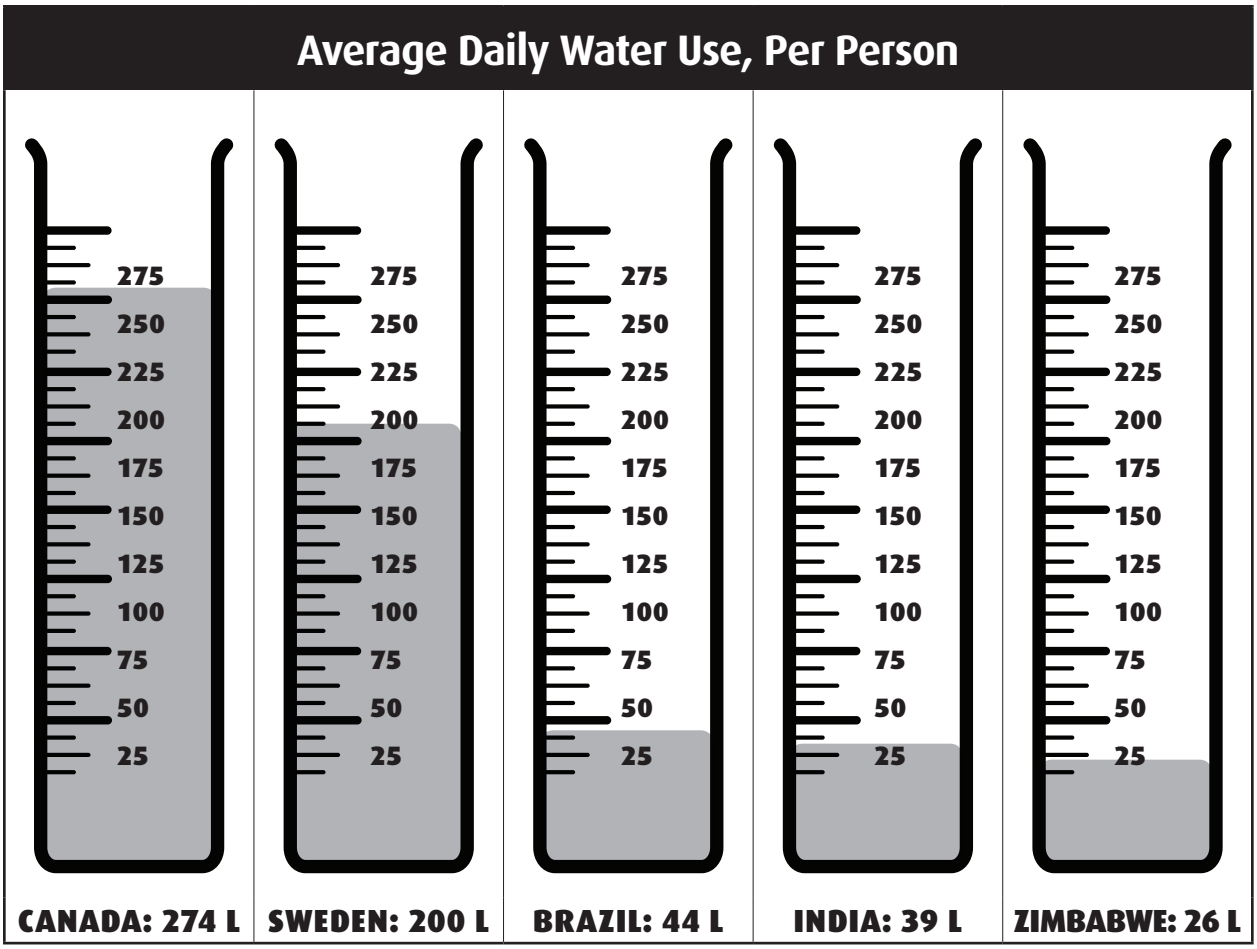
About my invention:

_____

_____

_____

Global Water



Water At home and Abroad

Student Name	SOCIAL STUDIES LEARNING Standards	Student can make connections between personal experiences and concepts discussed in class	Student can identify major water bodies	Student demonstrates understanding of how water influences human activities	Student can demonstrate understanding of the global importance of water for all humans	Other:

Water Consumption

Date: ______________________________

	Meets
	Exceeds
	In Progress

Global Water

Dear Parent,

Today in class your child learned a little bit about how fresh water use in the Greater Victoria area compares to fresh water use in other parts of the world. However, this is a huge topic, one that cannot be addressed by a single lesson.

Your child also learned about inventions that are helping to make clean, safe drinking water more accessible for everyone, and came up with one of his/her own.

Here are some resources that you may enjoy exploring together:

- Water Use Calculator
  https://www.watercalculator.org/

  https://www.home-water-works.org/calculator
- Water Education Foundation (California)
  https://www.watereducation.org/water-kids