



Broken Promises and Access to Clean Drinking Water in Indigenous Communities across Canada

Organizational Info:

Title: Broken Promises and Access to Clean Drinking Water in Indigenous Communities across Canada

Summary: With a focus on Constance Lake First Nation students learn about the lack of access to clean drinking water in Indigenous communities across Canada. Students also learn about how technology can be used monitor water health and other changes in the natural world.

Inquiry Question: Inquiry Question 4: How do Contaminants Threaten Water?

Duration: 60 minutes

Learning Environment: Classroom, online, outdoor

Season: Summer, Spring, Fall, Winter, All

Materials:

- Threatened Water Fact Sheet.pdf
- ArcGIS StoryMap: The Water Crisis in Canada's First Nations Communities:
<https://storymaps.arcgis.com/stories/52a5610cca604175b8fb35bccf165f96>
- Video on Constance Lake First Nation: <https://www.youtube.com/watch?v=cYYloIUf5CI>
- Constance Lake Background.pdf
- Western Science Connection.pptx
- Real World STEM Connection article.pdf
- Links to Pheno Camera Networks:
 - <https://qubs.ca/resources/live-streams>

Meta Data:

Content Type: Activity

Bundle: Water

Theme: Contaminants in the Environment

Subject Area: Biology, Chemistry, Drama, Environmental Education, Geography, History, Outdoor Education, Science, Social Studies

Curriculum Focus: 8

Curriculum Links:

Science and Technology: C1.2, D1.2, E1.1, E1.2, E1.3, E2.3, E2.6, E2.7

Geography: A2.4

Ojibwe and Odawa Knowledge Keeper Liz Osawamick from Wiikwemkong Unceded First Nation on Manitoulin Island and Ojibwe and Odawa Elder Shirley Williams from Wiikwemkong Unceded First Nation on Manitoulin Island shared with QUILLS that there are many communities, Indigenous and non-Indigenous, from across Canada and the world that have



threatened water sources. Indigenous communities in Canada, however, are disproportionately impacted. Have students brainstorm examples they know of.

1. Teacher has students sit in a circle. Each student is given one statement to read from **Threatened Water Fact Sheet.pdf**. The first time around the circle students take turns reading their statement aloud to the class. The second time around students share one word or phrase that captures how the statement they read made them feel.
2. To deepen learning explore the ArcGIS StoryMap: The Water Crisis in Canada's First Nations Communities for detailed information about the current status of water advisories and their impacts:
<https://storymaps.arcgis.com/stories/52a5610cca604175b8fb35bccf165f96>
3. Teacher introduces Constance Lake First Nation to students as an example of how important it is to keep watersheds free of contaminants. Teachers can watch the following video focused on Constance Lake First Nation to gain background information required to facilitate the discussion with their class.

<https://www.youtube.com/watch?v=cYYloUf5CI>

Background Information:

Ecosystems and watersheds are interconnected but do not follow political boundaries/borders. In Constance Lake First Nation in Northern Ontario, which is on reserve land (unceded territory) but is impacted by activities off reserve, a massive blue green algae boom was created by sawmill run off. Also, a provincially managed dump runs into a lake that flows into Constance Bay (Algae blooms are caused by nutrient waste ie: from farms, landfills, excessive fertilizer use). The local water treatment plant could no longer treat water as the intake pipe became clogged. As a result, community members had rashes, hives, blisters etc. Important to be aware of this as the North is experiencing rapid resource development managed by different sources.

Western Science Connection:

- By reviewing a PowerPoint found in **Western Science Connection.pptx** students will learn about the work of Yuixiang Wang and Allen Tian (QUBS researchers) who use drone technology to conduct eDNA barcoding as well as monitor for blue green algae around QUBS.
- Teacher can lead a discussion with students regarding how advances in technology can contribute to scientific (particularly biological research) ie: phenological monitoring. This can link back to points made in the **Real World STEM Connection.pdf** regarding the use of technology to mitigate environmental impacts.



Optional Extension Activity:

- Students can review footage from pheno camera networks to conduct their own phenological monitoring. Results can be stored on database for subsequent classes in future years to examine. Students can also explore online pheno cameras to see changes over time (ex. Through seasons, night and day).
 - <https://qubs.ca/resources/live-streams>

Please note that the learning represented in these activities reflects Big Idea D. in the Indigenous Knowledge Learning Bundle: “Drawing on both Indigenous Ways of Knowing and Being and Western Science will Help us to Address the World’s Problems”. To help your students learn more about this check out the Learning Activities titled: *Two-Eyed Seeing*, *Drawing on Two-Eyed Seeing to Seek Solutions to Real World Issues*, *Two-Row Wampum*, and *Tying it All Together* found in the *Indigenous Ways of Knowing and Being with the Natural World* Learning Bundle (Grades 7-10).