WORKING WITH BOIL WATER ADVISORY DATA

RECOMMENDED GRADE LEVEL: Grades 7 to 8

SUBJECT: Math

Suggested time: Two 75 minute lessons

Essential Question: How can data help us understand the impact of social issues on individuals and communities?

LEARNING GOALS

Students will:

• Develop an understanding the importance of water in everyday life and the impacts that drinking water advisories have on First Nations communities in Canada

• Read, interpret and draw conclusions from data

• Collect and organize data and display the data using graphs and relative frequency tables

WORD BANK

Boil water advisory—used to advise home residents that they should bring their tap water to a rolling boil for at least one minute before drinking or using for other purposes (Health Canada)

Drinking water advisory—issued to protect the public from drinking water that's potentially unsafe or confirmed to be unsafe (Health Canada)

Long-term—occurring over a long period of time

Revoke —officially cancel

Short-term —occurring over a short period of time

MATERIALS AND RESOURCES

• Computer/tablet with internet access

• “What’s it like living with dirty water? Ask anyone on the White Bear First Nation in Saskatchewan” aptnnews.ca/2016/10/04/whats-it-like-living-with-dirty-water-ask-anyone-on-the-white-bear-first-nation-in-saskatchewan/

• “Long-term DWA progress since November 2015” (graph) www.aadnc-aandc.gc.ca/eng/1488477520261/1488477554976

Lesson Part 1

EDUCATOR’S NOTE: This lesson is recommended as part of or follow up to a data management or data analysis unit. Alternatively, lesson also provides opportunities for interdisciplinary connections to Science and Geography.

1. RECOMMENDED ASSESSMENT FOR LEARNING: Divide students into pairs or small groups and, on a chart paper, give students five minutes to brainstorm what they would do if they were faced with one of the following situations:

   • What would you do if a pipe broke and we didn’t have any water at school?
   • What would you do if the city/town shut off your water at home for half a day for maintenance?
   • What would you do if a big ice storm caused you to be without water for three days?
   • What would you do if you lived in a city where your water came from a reservoir and that reservoir became contaminated, leaving you without water for a month?

   Briefly discuss students’ responses to each situation and then discuss: “What would you do if you lived in a community that hasn’t had a functioning water system for ten years?”

2. Show students the video “What’s it like living with dirty water? Ask anyone on the White Bear First Nation in Saskatchewan” www.aptnnews.ca/2016/10/04/whats-it-like-living-with-dirty-water-ask-anyone-on-the-white-bear-first-nation-in-saskatchewan (4:13) and assign each pair or group one of the following questions:

   • Why do humans need clean water?
   • What are the everyday uses for water?
Lesson Part 2

1. **RECOMMENDED ASSESSMENT FOR LEARNING:** Tell students that as a part of the 2016 Budget the Government of Canada has committed to ending all long-term drinking water advisories that are affecting public water systems on reserves. They plan to achieve this goal by 2021. [www.aadnc-aandc.gc.ca/eng/1488477520261/1488477554976](http://www.aadnc-aandc.gc.ca/eng/1488477520261/1488477554976)

Show students the graph “Long-term DWA progress since November 2015” [www.aadnc-aandc.gc.ca/eng/1488477520261/1488477554976](http://www.aadnc-aandc.gc.ca/eng/1488477520261/1488477554976) and discuss what conclusions can be drawn from the data. What data is being represented? Where does this data come from? What were the changes from 2015 to 2017? What data would you request in order to see a different perspective?

2. **RECOMMENDED ASSESSMENT AS LEARNING:** In groups of three or four, students will research the number of boil water advisories in the First Nations communities in one of Canada’s provinces or regions. Students should explore what types of advisories they are and how they have changed over time.


3. **RECOMMENDED ASSESSMENT OF LEARNING:** Students will display the data they collected using the type of graph they think best represents their province/region (bar, column or pie). Remind students to include a title and legend, to label the x and y axis where applicable, and to ensure the numerical values are consistent and start at 0. Then they will represent the data from their research and from their graphs on a relative frequency table.

Have students write an individual paragraph to summarize their results and reflect on the following questions. In order to provide opportunities for differentiation, students should answer all questions in section A and then choose one question from section B to answer. Questions may be adapted or extended depending on the needs of the students.

**A**
- How many boil water advisories are there in the province or region?
- How many advisories are long-term or short-term?
- How many have been revoked?
- How has the data changed over time?

**B**
- Is the situation improving in the province or region or is it getting worse? How do you know?
- If you were not able to easily access clean water, who would you turn to for help?
- Who is responsible for ensuring easy and affordable access to clean water? Why does this issue affect such a large number of First Nations communities?
- How is the quality of life of the communities’ citizens affected by these advisories?
- Is there a solution to this issue?
EXTENSION: Ask each group to present their graph and table to the class and then compare the results across Canada. How many boil water advisories are there in First Nations communities across Canada? Which provinces or regions have the most advisories? Are there any discrepancies in the data? Is any data missing or unavailable? Which provinces are making the most progress towards eliminating drinking water advisories?

ENRICHMENT: Raising awareness allows students to spread the knowledge and information they have gained and empowers them to make a change. Ask students to reflect on how raising awareness of this issue could impact the First Nations communities that are being affected by boil water advisories. Discuss various ways they could raise awareness for this issue within the school and within the community. Put one or more of the ideas into action to help make water boil advisories a part of our past.
