



TEACH THE COLUMBIA

Dams Mechanics and Benefits from Hydropower

Lesson 2-2

Guiding questions

What dams exist in BC? How do dams create electricity? What is needed to create a dam?

What are the economic incentives for building and maintaining dams?

Learning goals

- Get a sense of the geography of BC dams and the hydroelectric system
- Understand the mechanics of dams, different types of dams, and hydro electricity production
- Consider the positive aspects of hydropower from economic and environmental perspectives

Materials

[Know, Wonder, Learn \(KWL\) sheet](#)

[Instruction sheet](#)

[Topic summary sheet](#)

Preparation

1. Print off the [KWL sheets](#) for each student
2. Print off [one topic summary sheet](#) per group
3. Post [instruction sheets](#) to a shared online platform where students can access and click the links
4. Distribute devices for students to research their topic and/or print off resources for each group

Instructions

Total time: 80 minutes

1. Introduce dam lessons by getting students to fill out the KW (Know, Wonder) sections of the KWL sheet. Prompt students by asking them what they already know about hydro-electricity, the mechanics of dams, and the benefits of damming rivers to generate hydropower. 10 mins
2. Students share their notes with a partner, and then

share with the class. Teachers can then choose to answer some of the questions students had in their “Wondering” section, or leave these questions to answer later in the lesson. 10 mins

3. Break students into 4 groups, where each group will have a different topic to learn about (4 topics: 1) Dams in BC; 2) Dam mechanics 3) The Power Grid; 4) Benefits of Hydropower (note: lessons 2-3 and 2-4 cover the negative impacts of dams)
4. Distribute devices, instructions sheets and summary sheets for each group to use, and encourage them to use their devices to do further research if necessary. 5 mins
5. Students will have time to read/watch/research/discuss in their group to understand their topic, before sharing what they learned with the rest of the class. Each group will fill out a Topic Summary Sheet, which will help guide their presentations to the class. 30 mins
6. Each group takes a turn presenting (format of choice) what they have learned to the class. 15 mins
7. Give students time after the presentations to fill out the “Learn” section of their note taking sheet, as well as ask any more questions in the “Wonder” section that have come up. 5 mins
8. To summarize, get students to share their understandings of dams and hydroelectricity generation, as well as the benefits of hydropower, based on what they have learned so far. 5 mins

Extensions

- Investigate the [BC Dam Map](#). Research questions: How many dams are there in your geographic area? Compare the dams in your area: Which are the biggest? Which produces the most electricity?
- Try a simulated experience of being a power manager, buying and selling electricity from different sources, and choosing when to import or export power, while playing [this game](#) (from a UK energy system operator)

- Explore [currently available BC Hydro jobs](#) and consider which kinds of jobs you might be interested in.
- If you are also going to do lessons 2-3 and/or 2-4 on the negative impacts of dams, consider debating the pros and cons of dam using the four corner debate strategy (a few examples online include [this one](#) and [this one](#))

Curriculum links:

[Science 10](#)

[Social studies 10](#)

[Social studies 11](#)

[Earth Science 11](#)

[Environmental Science 11](#)

[Human Geography 12](#)

[Physical Geography 12](#)