



wildsight

TEACH THE COLUMBIA

Mechanics and economics of dams

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? What are the economic costs to 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 economic pros and cons of damming rivers

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. Print off one **instruction sheet** per group, or post this to an 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 pros and cons of dammed rivers. **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: dams in BC; dam mechanics; economic pros; economic cons). 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**
4. 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**
5. Each group takes a turn presenting (format of choice) what they have learned to the class. **15 mins**
6. 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**
7. To summarize, get students to share whether or not they think the economic pros outweigh the cons, based on what they have learned so far. Why or why not? **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? Produce the most electricity?
- Watch **historical video** of Columbia River Dams
- Debate pros and cons of dam economics using the **4 corner debate strategy**
- Explore other case studies from “**A Review of the Range of Impacts and Benefits of the Columbia River Treaty on Basin Communities**”, such as the Hugh Keenleyside, Revelstoke, Libby, or Duncan dams.

Curriculum links:

Science 10

Social studies 10

Social studies 11

Earth Science 11

Environmental Science 11

Human Geography 12

Physical Geography 12