EXPLORING THE EVOLUTION OF ELECTRICITY IN CANADA

Overview

In this activity, students will explore the historical timeline of electricity development in Canada and its significance. They will engage in map-based activities that encourage them to make connections between historical events, as well as connections between events and locations in Canada. Through inquiry-based discussions and analysis, students will develop a deeper understanding of the historical development of electricity and its impact on Canada's infrastructure and people.

After completing the lesson, students will be able to answer the following questions:

- How did electricity development progress over time?
- What were the key milestones and events in the history of electricity in Canada?
- How did the development of electricity affect infrastructure and communities throughout Canada?
- How does understanding the historical development of electricity in Canada enhance our knowledge of its importance in society?

Time

90 minutes (can be divided)

Grade

Grades 7 - 10 (modifications for younger and older grades provided)

Lesson implementation

Minds on (40 minutes)

Begin the lesson by engaging students in a brief discussion about life before electricity. Elicit their thoughts and ideas with the following questions:

- Can you imagine life without electricity? What would it be like?
- How do you think people manage their daily activities and tasks without electricity?
- How do you think a lack of electricity affects communication, transportation, and other aspects of life?

Transition into the importance of electricity in our lives today and its relevance to the history of electricity development. Ask the following questions to stimulate further discussion:

- What are some of the essential ways in which we use electricity in our daily lives?
- How does electricity affect our ability to communicate, travel, and access information?
- Why do you think the development of electricity was such a significant milestone in human history?

Summarize the discussion by highlighting the profound impact electricity has had on society, leading to advancements in technology, improved living conditions, and increased productivity.

Next, direct students' attention to the timeline located around the edges of the map. Explain that this timeline represents the historical progression of electricity and consists of major milestones and events that have shaped Canada's electrical development.

Divide the class into small groups of 3-5 students each. Assign each group a specific section of the timeline on the Giant Floor Map.

Provide each group with markers and sticky notes (or small cards), and instruct them to use different colours to categorize historical events related to electricity development into one of the following three groups:

1. Key discoveries
2. Technological advancements
3. Infrastructure development

Explain to the students that although they are focusing on a specific section, the goal is to collectively build an understanding of the overall timeline and identify connections between different sections.

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Subjects

- Social studies
- Geography
- History
- Technology

Topics

History of electricity; development of electricity in Canada; electricity infrastructure; geographical connections; significance of electricity in society

Materials

- Pylons
- Markers
- Sticky notes (or blank cards)
- Notebooks and writing utensils
- Electronic devices with internet connection
- Legends (5)
- **Historical events cards:** Historical events in Canada related to electricity development (included)

Learning objectives

- Students will learn about the historical development of electricity in Canada.
- Students will analyze patterns and trends in the timeline of electricity development in Canada.
- Students will develop a geographic perspective of electricity development in Canada.

Give the groups about 5-7 minutes to examine their section of the timeline, discuss among themselves, and categorize the significant events. Encourage them to discuss the relationships between the events within their section and how they might connect to events in other sections.

Next, inform students that they will now explore the rest of the timeline to look for patterns and connections by examining the events categorized by other students. Encourage them to walk around the timeline, taking notes or jotting down any observations or connections they notice between their section and the events examined by other groups. Allocate about 10 minutes for this activity. Encourage students to engage with one another during this activity by having them ask each other questions and share insights. They can discuss their own section and the connections they see with other groups' event categories.

Next, have the student groups return to their section of the timeline for a group discussion.

First, ask each group the following questions:

- Which events do you consider to be particularly significant within your assigned section? Why?
- Are there any events or milestones in your section that correspond to, or have connections with, events in other sections? If so, what are they?

Then, ask the class if anyone noticed any recurring themes or patterns related to technological advancements, infrastructure development, or key discoveries in the various sections.

Some possible answers:

- *Students may observe that technological advancements can be triggered by key discoveries and that technological advancements often drive infrastructure development, as new technologies require the establishment or improvement of infrastructure to support their implementation. The development of new infrastructure can, in turn, facilitate further technological advancements and discoveries.*
- *Students may observe a pattern of increasing sophistication and efficiency in electricity generation, transmission, and usage over time.*
- *Students might identify the development of renewable energy sources, such as hydroelectric power, wind turbines, or solar panels, as significant advancements in the modern era.*
- *Students may recognize a pattern of expanding electrical grids and networks, starting from major urban centres and gradually extending to rural areas.*

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- Students will recognize the importance of understanding the historical context of electricity development in enhancing their knowledge of its impact on society.

Connections to the Canadian Geography Learning Framework

Geoinquiry

- Formulate questions
- Gather and organize
- Interpret and analyze
- Evaluate and draw conclusions
- Communicate

Geospatial skills

- Foundational elements
- Spatial representations

Concepts of geographic thinking

- Interrelationships
- Patterns and trends

- *Students might note the construction of power plants, substations, and transmission lines as crucial infrastructure developments in electricity distribution.*
- *Students may observe the establishment of electrical regulatory bodies or organizations responsible for overseeing and maintaining the electrical infrastructure.*

Consolidate student learning by emphasising that, in general, these patterns highlight the interdependence and symbiotic relationship between technological advancements, infrastructure development, and key discoveries in the history of electricity development. Each component influences and supports the others, leading to significant advancements and transformations in how electricity is generated, transmitted, and used.

Action (30 minutes)

Divide the class into smaller groups of 2-3 students each. Explain to students that they will now be exploring the history of electricity development in specific Canadian communities. Assign each group of students a **Historical events card** related to an electricity development that took place in Canada.

Once all groups have been assigned a different historical event, ask them to find and mark the location of that event on the Giant Floor Map using a pylon.

Next, instruct each group to prepare a short oral presentation highlighting connections between their historical event and the region where that event took place as well as the impact of this electricity development on that community and beyond.

To help students create their presentation, prompt them to consider questions such as:

- What specific event related to electricity occurred in that place? When did it occur?
- Did any geographical factors/features influence the historical event that occurred there?
- How did this development affect the daily lives, economy, industry, and/or environment of the community?
- Did this development pave the way for other new discoveries, technologies, or infrastructure? Alternatively, if this is a more recent event, how might it pave the way for future developments?

Encourage students to use the information shown on the map (with the help of a legend), drawing connections between their historical event and present-day electricity infrastructure. They may also use electronic devices to conduct research online.

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After providing sufficient time for discussion, research, and planning, have each group present their findings and share their insights with the rest of the class. Encourage classmates to actively listen and ask questions for further discussion.

After each presentation, facilitate a brief class discussion to draw connections between different communities and the overall impact of electricity development in Canada over time.

Conclusion (20 minutes)

Wrap up the lesson by summarizing the key takeaways from the presentations and discussions.

Reinforce the idea that electricity development not only transformed individual communities but also contributed to the overall progress of Canada as a nation (and continues to do so).

Encourage students to reflect on the role of electricity in their own lives and the ongoing advancements in the field. Have them write a few short paragraphs to reflect on the history of electricity. They can either take a creative approach and pretend to be writing a diary entry from a time in the past or they can write about their own day and what role electricity played in it.

Modifications

There are many ways in which this activity can be modified for different age groups. Here are some of our suggestions:

Younger students:

- Use age-appropriate language and explanations to ensure younger students can understand the historical concepts and events.
- Break down complex ideas into simpler terms and provide additional examples or visuals to aid comprehension.
- Provide sentence starters or prompts to guide their discussions and reflections.
- Assign roles within each group to ensure every student actively participates and contributes to the discussion.

Older students:

- Encourage more in-depth analysis and critical thinking by challenging students to consider the broader implications and consequences of electricity development.
- Incorporate higher-order thinking skills by asking students to evaluate the significance and long-term impact of key events and milestones.

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- Assign individual or group research projects where students investigate specific aspects of electricity development in Canada, such as the impact of electricity on industrialization or the role of electricity in sustainable energy practices.
- Have students present their findings in a variety of formats, such as research papers, multimedia presentations, or debates.
- Explore connections between electricity development and broader historical events, such as the Industrial Revolution or World Wars, to deepen students' understanding of the interplay between technology and society.
- Encourage students to think critically about the future of electricity development, considering emerging technologies, environmental sustainability, and social equity.

Extend your learning

Once students have had a chance to learn about the history of electricity development in Canada, encourage them to take their learning beyond the classroom! Here are some suggested extension activities:

- Organize a field trip to a local power plant or electricity-related facility. This will give students the opportunity to see firsthand how electricity is generated, transmitted, and used in their community. If you need help connecting with your local utility, please contact EHRC at info@ehrc.ca.
- Meet with someone who works in the electricity industry or is knowledgeable about the history of electricity in Canada. This could be an engineer, a representative from an electricity provider, or a historian specializing in electricity development.
- Encourage students to explore the connections between electricity development and their local community. They can interview local residents who may have experienced the introduction of electricity or have insights into its impact on the community.
- Organize a technology showcase where students can demonstrate or present innovative technologies related to electricity. This could include projects such as solar-powered devices, wind turbines, or energy-efficient designs. Students can explain the principles behind their technology, their technology's historical influences, and the potential benefits and impact of these technologies on society.

Supporting resources

- Electricity Canada - History of Electricity
- The Canadian Encyclopedia - Development of Electric Power in Canada