



6. DEVELOPING ENERGY



Activity overview

This activity looks at the roles of current pipelines and transmission lines in Canada and the challenges that come with creating new infrastructure.

Grade level

▷ 4–12

Time required

▷ 75 minutes

Materials

- ▷ Coloured chains (4 colours)
- ▷ Coloured pylons (4 colours)
- ▷ Rule cards (4)
- ▷ Arrow cards (30)
- ▷ Energy icons (43)

Set-up

Place a coloured chain, a coloured pylon and a rule card on each corner of the map. Make sure the arrow cards and energy icon cards are handy.

Introduction

Once students have had an opportunity to explore the map on their own, ask them to locate either a pipeline or an electrical transmission line and stand on it. Ask each student to determine the type of pipeline or transmission line and its start and end points. Give an arrow card to each student and ask them to determine the direction in which the energy flows through the pipeline or electrical transmission line. Note that some pipelines and transmission lines flow towards production facilities, and some flow away.

Explain to your students that pipelines and electrical transmission lines are a convenient way of transporting large volumes of oil, natural gas and electricity over long distances. Discuss the benefits and drawbacks of Canada's energy infrastructure. What story do pipelines and electrical transmission lines tell us about Canada's energy? Where are most of Canada's pipelines and electrical transmission lines located? What patterns might be noticed? What role does spatial significance (the physical and human features of a particular place) play in determining the location of the pipelines and transmission lines? How does geographic perspective (social, political, economic and environmental) help explain why there are very few pipelines and electrical transmission lines in the North? How are the East and West different? How do regions with no transmission lines get their energy?

Challenge your students to calculate the length of the pipeline or transmission line on which they are standing. Have younger students use their feet for measurement and encourage older students to use the scale found in each corner of the map to roughly calculate its length. Why might the length of the pipeline or transmission line affect the cost of the energy?

Development

Bring your class's attention to the dashed lines connected to pipelines and the outlined offshore oil platforms on the map. Explain that these dotted lines and outlined symbols show proposed energy projects that have not yet been approved by the Canadian government. Ask students to trace over some proposed pipelines using the chains provided in the trunk and place pylons on the proposed energy projects. What kind of energy resources would these projects move? In which direction would the energy flow? Why might these proposals not have been approved yet? Why might these locations have been selected for new energy projects?





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Designing and building pipelines and transmission lines is a long and complicated process. Geographic perspective (social, political, economic and environmental) plays a big role in where a new energy project can or cannot go. Have your students look at the map and identify at least five geographic features that could factor into the decision of where to build a new energy project (e.g., where people live, mountains, rivers).

Next, divide the class into four groups. Give each group a rule card and tell them they are in charge of deciding where a new energy project will go. They must follow the rules on the card and pay close attention to the physical and human geography when deciding where they will develop a new energy project. Have each group use the props included with the map to show their energy project. Instruct your students to focus on a route that would have the least environmental and/or social impact.

Conclusion

When all groups have mapped their proposed energy project, allow each group to share their proposal with the rest of the class. After each presentation, the other students can act as the governing body and question the group using the regulations found on the rule cards as a guide. Vote as a class to approve or decline each proposal. How many energy projects did your class approve? What factored into their decision-making process?

Extend your geographic thinking

Research existing and proposed pipelines and electrical transmission lines in your local area. What kind of newspaper articles can you find about pipelines and electrical transmission lines in Canada? What messages do these stories convey? How might geographic perspective play a role in the development of these lines? How might spatial significance affect the decision-making process?

Links to the Canadian National Standards for Geography

Essential Element 1: The World in Spatial Terms

- ▷ Location of major human and physical features on Earth
- ▷ Physical/political maps of the province, Canada and the world

Essential Element 2: Places and Regions

- ▷ Physical and human characteristics of places and regions
- ▷ How culture affects places and regions (e.g., cultural landscapes)

Essential Element 4: Human Systems

- ▷ Development of transportation and communication networks
- ▷ Types and patterns of economic activity (primary, secondary, tertiary, quaternary)

Essential Element 5: Environment and Society

- ▷ Renewable (land, forests, water) and non-renewable (minerals, fossil fuels) resources
- ▷ World patterns of resource distribution and utilization
- ▷ Impacts of technological hazards/disasters on the physical environment

Essential Element 6: The Uses of Geography

- ▷ Role of multiple points of view in contemporary geographic policies and issues