5. IMPORTS AND EXPORTS

Activity overview

This activity examines the role of energy imports and exports in Canada. Students will use their mathematical skills to understand how much energy is imported, exported and consumed. They will also discover the importance of energy resources to Canada.

Grade level

- 4–12

Time required

- 30–40 minutes

Materials

- Arrow cards (30)
- Stacking blocks (100)
- Country flag cards (6)
- Number cards (3)
- Teacher guide card (1)

Set-up

Ensure that all materials are present.

Introduction

Once students have had an opportunity to explore the map on their own, divide them into three groups, each group representing one of the main types of energy production displayed on the map (red = natural gas, purple = crude oil and blue = electricity). Ask students to discuss patterns and trends they observe based on where their colour is displayed on the map.

Explain that energy plays a pivotal role in our lives and will continue to do so in the future. In fact, global demand is projected to increase by about 36 per cent by 2035, according to the International Energy Agency. Have students explore the main types of energy produced in each province and territory, and then discuss where the rest of the power is sourced from. For instance, in Prince Edward Island, students will see that only wind power is being produced, but the residents of Prince Edward Island rely on more than wind power to live. How do they meet the rest of their power needs?

Development

Review the terms “import” and “export” with your class, and ask students what commodities Canada is known for importing and exporting. Place a pylon on Halifax and on Vancouver. Explain that these two cities have Canada’s busiest ports and play a role in exporting and importing energy resources. Near each city, have students locate the purple dotted arrows and share the name of the country next to these dotted lines. Have volunteers place the country flag cards on these transmission routes.

Explain that Canada imports and exports many different energy resources, such as oil, natural gas, electricity and coal, and that exporting these resources to other countries (almost all to the United States) helps fuel Canada’s economy. In 2016, Canada exported $49.8-billion worth of crude oil, $8.8-billion worth of natural gas (via pipeline), and $2.9-billion worth of electricity. Place the American flag somewhere on the United States to highlight the importance of the United States as an export market.

Using the same three groups as in the intro activity, ask students to place an arrow card on an area of the map where they think Canada is exporting an energy resource to another country. Ask students to pay particular attention to the geography of the area and discuss how this might affect the amount of energy that can be transported and exported.

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Divide the blocks among the three groups, and give each group a number card. Have your students estimate and show with blocks how much of their natural resource or energy form is exported from Canada each day. Ensure that all students understand how much energy is represented by one block. Give all groups time to share their answers. Next, ask students how much of their resource or energy form is imported to Canada each day. Ask them to show this with the blocks, using the numbers and statistics outlined on their cards. Brainstorm reasons why Canada may need to import energy when it is already so rich in energy resources. How might these patterns of imports and exports affect sustainability?

Conclusion

Ask your students what similarities and differences they notice between their two piles of blocks. Explain that although Canada is rich in natural resources, some energy resources are still imported. Looking at the transmission routes on the map: Can students think of a reason why Canada must import so many resources? Why might there be gaps in the transmission routes? Ask students if they see any proposed energy projects that could alter the amount of energy imported and exported by Canada each year. Why or why not?

Bring attention back to the country flag cards used at the beginning of this lesson. Ask students which type of resource is mainly imported into Canada and which countries it is coming from. Discuss the energy industry in these countries and use this as an opportunity to bring current media into your classroom to discuss Canada's economy.

Extend your geographic thinking

Explain to your class that the 2016 census counted 35,151,728 people living in Canada. Ask students to use blocks to represent how many people they think have jobs in the oil and gas industry. After students have shared their estimates, explain that more than 425,000 Canadians have jobs related to the oil and gas industry. If one block is equal to 100,000 people, how many blocks would that be? (about 4 blocks) Ask your students to look at the map and consider where they think most oil and gas jobs are located. Have them do the same for all other types of energy. Encourage your students to research the types of jobs associated with the energy sector in Canada and where they are located. Have each student create a profile of a job that supports the energy sector in Canada.

Links to the Canadian National Standards for Geography

Essential Element 2: Places and Regions

- Physical and human characteristics of places and regions
- Factors that influence people's perception of places and regions

Essential Element 4: Human Systems

- Types of economic activity (resources, manufacturing, service)
- Development of transportation and communication networks
- Global economic interdependence (e.g., regional specialization, trade, transnationalism, multinationals)

Essential Element 5: Environment and Society

- Renewable (land, forests, water) and non-renewable (minerals, fossil fuels) resources
- World patterns of resource distribution and utilization
- Use and sustainability of resources