



LEARNING INQUIRIES

RESPONSIBLE ENERGY DEVELOPMENT

TIME: THREE 30-MINUTE PERIODS

DEVELOPED BY: DAPHNE EGILSSON



OVERVIEW/FOCUS QUESTION

Learners will evaluate how human activity contributes to climate change.

The increase of carbon emissions in the atmosphere is one of the main reasons that climate change is happening, and much of those emissions come from energy production. By studying both renewable and non-renewable energy resources, learners will be able to evaluate the positive and negative impacts of human activity on the environment.

SUBJECT/TOPIC

ENERGY RESOURCES AND CLIMATE CHANGE

GRADE LEVEL

GRADE 8
(can be adjusted for older grades)

INDICATORS

- Analyse the causes of climate change (CZ/COM/CT/TF*)
- Evaluate the environmental impact of various sources of energy (CZ/COM/CT/TF*)
- Analyse how climate change is being expedited (CZ/COM/CT/TF*)

***Key:** COM - Communication; CZ - Citizenship; CT - Critical Thinking; TF - Technological Fluency
(This page is from the Nova Scotia Department of Education & Early Childhood Development Grade 8 Curriculum Review Pilot Documents for Grade 8)

CONCEPTS

- Energy production
- Climate change
- Environmental paradigm shift
- Greenhouse effect
- Human impact

GUIDING QUESTIONS

- How are human activities linked to climate change?
- From where do we get our energy?
- Which communities are most affected by climate change?
- What are the socioeconomic implications of climate change?
- How is environmental awareness changing?
- How do we monitor our ecological footprint?

CONNECTION TO THE CANADIAN GEOGRAPHY FRAMEWORK

CONCEPTS OF GEOGRAPHIC THINKING

- Patterns and trends
- Interrelationships
- Geographic perspective
- Spatial significance

INQUIRY PROCESS

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

GEOSPATIAL SKILLS

- Foundational elements
- Spatial representations
- Technology
- Fieldwork

INTRODUCTION

Students will explore their own energy consumption to create a foundation for the exploration of energy consumption on a larger scale.

LESSON ACTIVITIES

GOALS

- Students will identify their role as energy consumers.
- Students will identify ways to reduce their energy consumption.

ACTIVATION OF PRIOR KNOWLEDGE:

- How do we use energy?

ENERGY DIARY

Provide students with the Energy Worksheet and bring attention to the Energy Consumption Log (on paper or electronically) to record their energy consumption during a 24-hour period prior to class discussion. Review student energy logs.

Collaboratively create a list of ways that students have consumed energy in the past 24 hours.

Discussion Questions

- What would students be willing to give up? What do they believe are necessary uses of energy that they would not want to give up?

POWER OUTAGE FEEDBACK

Discuss times in the past when the power has gone out. What are the reasons we might lose power?

Refer back to the Energy Worksheet and bring attention to the Life in A Power Outage - How Are Things Different? section (on paper or electronically) to record the impact of a power outage on their energy consumption.

Discussion questions

- What are the ways in which a power outage impacts students?
- What role do seasons play in power outages?
- What are the impacts on your community? Young people? Seniors? People with medical conditions?
- How does it affect transportation networks?
- What are the impacts on emergency services? How do emergency service providers prepare for power outages?

Next Steps

- Discuss how we can have an impact on reducing the amount of energy we consume.
- Discuss the ways in which we can prepare for a power outage.

RESOURCES

- Video: Canadian Geographic Education Energy IQ
[Managing Climate Change and Global Energy Demand](#)
- Canadian Red Cross
[Power Outages: Before, During & After](#)

POSSIBLE AREAS OF FUTURE EXPLORATION

1. Explore and critically evaluate personal, local, provincial, national, and international news items regarding responsible energy development. Look at as many diverse points of view as you can find.
2. Explore career opportunities in all areas of responsible energy development. How are these occupations changing?
3. Explore various geographic and political areas of Canada. How is energy produced and consumed in each area?
4. Explore causes of climate change on local, provincial, national, and international levels.
5. Debate the use of renewable and non-renewable sources of energy.
6. Develop a plan for reducing waste within the school.
7. Develop a plan to present to your local government to address issues of energy production and consumption in your own community.
8. Invite local/provincial/federal politicians to your class/school to speak about energy.
9. Identify local resources for responsible energy use.
10. Create models (digital or physical) of energy extraction methods. Generate suggestions for improving the process.
11. Explore reclamation sites. Generate suggestions for improving the process.
12. Create educational materials to share with younger students.
13. Discussion question: How does energy get to the sites/devices that you use on a regular basis?
14. Create cross-curricular units with other teachers.

STUDENT ACTIVITY SHEETS

ENERGY CONSUMPTION LOG

WHAT ARE YOU USING THE ENERGY FOR? (E.G., TO POWER YOUR COMPUTER, BOIL WATER)	LENGTH OF TIME

LIFE IN A POWER OUTAGE - HOW ARE THINGS DIFFERENT?

SUMMER	WINTER
Right away	Right away
After an hour	After an hour
After a day	After a day
After three days	After three days