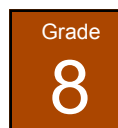


# Environmentally Friendly Community

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Topic: Waste  
Grade: 8  
Duration: 2 - 3 weeks research activity

*Students will discover what it takes to make their community more environmentally friendly. They will research the efforts being made by their own school and community with respect to recycling and reducing the amount of waste material produced. They will determine what is needed to help their school and community become more conscious of the impact of waste reduction on a local and global scale. Student teams will devise a more effective method of reducing waste in their school and their community. This can be used as a culminating activity at the end of the year to highlight what has been learned through the EarthCARE program.*

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## **Curriculum Expectations**

- 8s31: Describe how knowledge of the properties of fluids can help us to understand and influence organisms in the natural world, and to design and operate technological devices and to evaluate how efficiently different devices make use of these properties
- 8s59: Describe some effects of technological innovations related to hydraulics and pneumatics
- 8s85: Evaluate the effectiveness of energy transfer systems
- 8s86: Recognize that energy can be a significant cost in the manufacture and use of products or systems and explain how that determines its production
- 8s111: Identify consumer expectations regarding the function and effectiveness of a product, using information collected in a survey they made, and recognize that expectations may change
- 8s121: Examine how humans use resources from the earth's different water systems and identify the factors involved in managing these resources for sustainability
- 8s115: Assess the impact on the environment of the use and disposal of various products
- 8s116: Explain the economic, social, and environmental factors that can determine whether a product is manufactured
- 8s138: Communicate the procedures and results of investigations for specific purposes and to specific audiences, using media works, written notes and descriptions, charts, graphs, drawings, and oral presentations
- 8s139: Evaluate human use of water and the economic and environmental effects of that use
- 8s141: Evaluate the positive and negative effects on the earth's water supply of the development of natural resources
- 8e1: Communicate ideas and information for a variety of purposes (to evaluate information, to compare points of view) and to specific audiences, using forms appropriate for their purpose (e.g., a survey soliciting opinions on an environmental issue) and features appropriate to the form (e.g., focused questions)

- 8e5: Produce pieces of writing using a variety of specific forms (e.g., a script for a play), techniques and resources appropriate to the form and purpose, and materials from other media (e.g., lighting effects)
- 8e6: Produce media texts using writing and materials from other media
- 8e23: Use spreadsheets, computer-generated charts, and graphs for specific purposes (e.g., to convey data) and in appropriate contexts (e.g., research reports)
- 8e33: Make judgements and draw conclusions about ideas in written materials on the basis of evidence
- 8e36: Plan a research project and carry out the research
- 8e56: Use the specialized vocabulary appropriate to the topic in oral presentations
- 8e59: Use tone of voice and body language to clarify meaning during conversations and presentations
- 8e60: Adjust their delivery (e.g., pitch of voice, pace) to suit the size of different groups
- 8e61: Use resource materials (e.g., visual aids) to illustrate ideas in presentations
- 8e62: Contribute collaboratively in group situations by asking questions and building on the ideas of others
- 8e63: Work with members of their group to establish clear purposes and procedures for solving problems and completing projects
- 8e64: Identify and analyse the formulas used in different categories of media works
- 8e66: Evaluate the effectiveness of various informational media works
- 8e67: Create media works of some technical complexity
- 8m91: Systematically collect, organize, and analyse primary data
- 8m92: Use computer applications to examine and interpret data in a variety of ways
- 8m94: Evaluate data and draw conclusions from the analysis of data
- 8m97: Collect primary data using both a whole population (census) and a sample of classmates, organize the data on tally charts and stem-and-leaf plots, and display the data on frequency tables
- 8m99: Read a database or spreadsheet and identify its structure
- 8m100: Manipulate and present data using spreadsheets, and use the quantitative data to solve problems
- 8m101: Search databases for information and use the quantitative data to solve problems

### **Background Information**

The local town council or municipal government has great influence over how the environment is managed. They are responsible for sewage treatment, water supply, public transit, zoning, garbage collection and disposal, weed control, animal control, utilities, road construction and maintenance and green space.

To determine the performance of the local municipality on environmental issues, a broad range of topics must be examined. Each one has an impact on the natural environment and on the quality of life within the community. These questions should be considered.

- 1) Water Protection
  - Where does the water supply come from and what measures are in place to ensure its safety?
  - How are industries that discharge waste into the drinking water supply regulated?
  - How are shorelines being protected to prevent erosion and loss of habitat?
  - How is water usage measured? What conservation methods are in place?
- 2) Sewage Treatment
  - Just over 50% of Canadian communities treat their sewage – the rest discharge it into the water supply – how does your community deal with sewage treatment?
  - What is the age of the sewage treatment plant and what is being done to make it more efficient?
  - What plans does the community have for new developments?

- What happens to sewage during heavy rainfalls and storm run-offs and during very hot weather?
- 3) Waste Disposal
- Does the community have a landfill or use an incinerator?
  - What rates are charged for waste disposal? Cheap rates do not encourage industries to find alternate ways of disposing of their garbage!
  - What is the life span of the waste disposal facility? What plans are there for future developments? Where will they be located and why?
  - Are there any hazardous waste dumps in the area and if so, how are they monitored?
- 4) Waste Management
- Garbage collection is managed by municipal employees or a private contractor – what does your community use and what are the benefits?
  - What recycling plans are in place and what plans are there for an expansion to the program?
  - How does the community encourage composting?
  - What central plans are in place for the disposal of hazardous wastes?
- 5) Energy Supply
- What different energy supply systems are available in the community and who owns them?
  - How are rates determined?
  - How does the municipality deal with energy conservation in their own buildings?
  - What type of fuel do municipal vehicles use?
  - What energy conservation measures does the government encourage?
- 6) Roads Maintenance
- What types of road maintenance does the community practice?
  - How much sand, gravel and salt is used every year and how much of this is wasted by being blown into the ditches or onto lawns?
  - Does the community favour the use of recycled materials for road repair?
- 7) Transportation Options
- What types of public transportation are available and how are people encouraged to use it?
  - Are fares subsidized to encourage its use?
  - What provisions are there for bus lanes to encourage the use of public transportation during peak times?
  - What alternate forms of transportation are available? Are there bike trails and routes?
  - How friendly is the community towards pedestrians?
  - What parking facilities are there and how are these managed?
- 8) Zoning Regulations
- What plans does the community have for expansion?
  - How will the plans affect agricultural land or green space?
  - What considerations are given for expansion of facilities to accommodate future growth?
- 9) Green Space
- What values are placed on green space in the community?
  - How many parks are there and how are they maintained?
  - Does the community use pesticides and other chemicals?
  - What alternate forms of pest control have been explored?
- 10) Animal Control
- What laws are in place for the regulation of animals and their wastes?
  - How are stray animals and wildlife looked after?
  - How do they address the issue of the relocation of problem animals?

### **Accountability**

Students will appreciate what constitutes an environmentally friendly community and will understand how their school community compares to the ideal situation.

### **Teacher Notes**

1. This is an excellent activity for cooperative learning. Students can work in small groups with each one responsible for researching and reporting on one aspect of the community

Your school is creating an advertising campaign for the local newspaper to tell people how environmentally friendly your community has become. You are aiming this promotion towards young families who might be considering moving into your community. You want to convince them that this is the best place to live!

Create a plan for determining how your community addresses environmental issues. You will need to find out how the municipal government deals with these issues – waste management, water protection, transportation, sewage treatment, green space, recreation and alternate forms of energy. Prepare a report that outlines how your community stacks up with environmental topics. This report will be used in creating the promotional campaign.

2. These teams prepare a group report on the status of the health of their own community. This report will be used to assist future homeowners that this is where they would want to live.
3. Consider using a jigsaw model where students become experts in their chosen field and share this background with other teams.
4. Students could take on specific roles such as: environmental engineer, environmental officer, environmental health specialist, environmental scientist, environmental lawyer, biologist or naturalist.
5. Encourage students to research their local community to discover how it stacks up and compare to other communities in the vicinity. Use databases and spreadsheets to record and update the information. These resources can be shared by all groups.
6. Work with local municipalities for material and speakers.
7. Use the information from the EC Team in your investigations.
8. Create an advertising campaign that could be used in a variety of media – newspaper, Internet, radio, community posters.
9. Present your findings to the district school board's EC Team.

### **Home Extension**

1. Ask family members to provide information if the topics.

### **Lesson Comments**

Teachers, feel free to add in your own comments for this lesson.