

UNIT 4 **An Issue to Analyze**

The Costs of Getting Around

Many people blame the government for not enforcing sufficient regulations to protect and clean up the environment. New, cleaner technologies have been developed by science. Why don't we use them? The fact is, Canadians are accustomed to a comfortable lifestyle, and may not be willing to change it. How would you feel about stricter government regulations that affected *your* transportation and recreation?



Background

People have always turned to the cheapest and most efficient technologies. In the last few centuries, fossil fuels such as coal and oil were discovered in large amounts. These fuels were also very efficient, producing large amounts of energy. It is only recently that we have become aware of the environmental consequences of our use of fossil fuels.

Today, we are attempting to reduce environmental harm. Coal- and oil-burning engines have been replaced by cleaner gas-burning engines. Many engines are equipped with “scrubbers” that help remove toxins before releasing gases into the atmosphere. Most environmental problems have not been solved, however. Automobile emissions are one of our most serious environmental problems today.

Automobiles expel an enormous amount of toxins into the air every day. Besides harming the environment, these toxins are also dangerous to

human health. It is estimated that many cases of bronchitis, asthma, and even early death could be eliminated, by removing sulfur from fossil fuels before burning them. This process is possible, but it costs money. Ultimately, these additional costs would be paid by the consumer—you!



Often, Canadians do not appreciate or approve of government efforts to reduce automobile emissions. Some people were angry when, decades ago, the government asked them to switch to unleaded gasoline. Even now, many people remove factory-installed, pollution-reducing resonators and catalytic converters from their new cars. They do this in an effort to increase the power of their vehicles.

Environment Canada has copious amounts of research suggesting that reducing automobile emissions would improve the health of Canadians. The restrictions that would make these improvements, however, have not yet been enforced. For example, motorboats can be equipped with motors that are nearly silent and that do not dump oil into the water. Because these cleaner, quieter motors are more expensive, most boaters still use the old cheaper motors.

To what extent should individuals be allowed to make such choices? Should the good of the community and the overall environment have a higher priority than personal choice?

Plan and Present

As a class, you will debate the following proposal:

All vehicles must meet strict environmentally-friendly emissions standards. Any vehicles, new or old, that do not meet these standards must not be used until they are upgraded to the new emission standards. Individual owners must pay for this upgrading. Those individuals who cannot afford to upgrade their vehicles will be obliged to rely on public transportation.

There are many angles to this issue. You may wish to consider motorboat engines, private vehicles, commercial vehicles such as transport trucks, and the development and availability of public transportation.

- 1 Before starting your research, make a journal entry describing what you think of the proposal.
- 2 Look at the people listed below. How would each person react to the proposal? Why? For each person, write two comments expressing that person's point of view.
 - (a) someone your age who lives in a rural area where there is no public transportation at all
 - (b) someone your age who lives downtown in a city with excellent public transportation
 - (c) a commercial truck driver who uses thousands of litres of fuel each week
 - (d) a used-car salesperson
 - (e) an autoworker
- 3 Write a counterpoint or amendment to the resolution in order to respond to each of the comments in your answer to question 2.
- 4 Research the facts behind this situation. Before you start, brainstorm some specific questions to research. Some suggestions are given below.
 - What gases do cars and trucks emit?
 - Why are these gases harmful?
 - What emission standards might be set?
 - Who uses the most fuel?
 - What standards do other developed countries have?
 - What standards (if any) are in place in third world countries?
- 5 Predict two future consequences of not adopting the resolution, and two consequences of adopting it.
- 6 You will be assigned a viewpoint in a debate of the proposal. Prepare your arguments and participate in the debate.

Evaluate the Results

- 1 Did your class come to a conclusion about the proposal? Was a compromise reached, or are some parties still unsatisfied?
- 2 List any solutions or suggestions your class developed. Are these suggestions likely to work? Why or why not?
- 3 Suppose you were a member of the government who had to decide on this issue.
 - (a) Now that you have debated the issue, what is your decision?

After you have explored this issue,

- Assess the debate based on feedback from your classmates. How could you improve your debating skills?
- Assess your research skills during the course of analyzing this issue. How have your skills improved?

- (b) How will you respond to special interest groups who approach you and disagree with your decision?
- 4 How do you think the issue of vehicle emissions will be addressed in the future?

Web

LINK

To help you with your research, visit www.school.mcgrawhill.ca/resources/; go to Science Resources, then to Chemistry 11 for web site suggestions.