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CANDU (CANAdian Deuterium Uranium) reactors have many unique features. One such feature is the horizontal design of the fuel rods. This design allows a machine such as the one in the image above to refuel the reactor while it is operating. Currently, 14 CANDU nuclear power reactors are operating in Canada. If the planned overhaul of six other reactors is completed, then one-sixth of Canada's electricity will be generated by nuclear power by 2003. Nuclear power, however, is highly controversial.

Proponents of nuclear power emphasize that nuclear power plants, when operating under normal conditions, do not add pollutants to the atmosphere, unlike fossil fuel burning power plants. Proponents will also stress that in the more than 50 years that Canada has been operating nuclear reactors, no member of the public has been harmed as a result.

Opponents of nuclear power argue that all of the benefits of nuclear power do not outweigh the risks of a single nuclear accident. They will point to the Chernobyl and Three Mile Island reactor incidents and maintain that Canada should avoid any possibility of a similar incident occurring here.

In this chapter, you will learn about nuclear fission and fusion so that when you read or hear either side of an argument about nuclear power, you can understand and interpret what is presented and make your own informed decisions.

TARGET SKILLS

- Initiating and planning
- Communicating results



What are your perceptions of nuclear power? Do your perceptions differ from those of your classmates? How has the media influenced your opinions? In this activity, you will try to answer some of those questions.

As a class make a list of questions or statements about nuclear energy. The list on the right might give you some ideas. Then ask at least five people outside of your class to respond to the questions or statements. Summarize the responses. As a class, discuss all of the responses that the class obtained in the survey. Analyze the degrees of agreement or disagreement. Write your own position statement about the survey questions.

1. In an accident, a nuclear reactor explodes like a nuclear bomb.
2. All nuclear reactors are essentially the same.
3. All nuclear reactors are dangerous.
4. Exposure to any amount of radiation is hazardous.
5. People were never exposed to radiation until physicists learned how to “split the atom.”

Analyze and Conclude

1. Are most of your classmates in agreement about the risks and benefits of nuclear energy? If so, what is the general position of the class? If not, what are the issues about which your classmates do not agree?
2. From your survey, do you believe that the general public is for or against the use of nuclear power?
3. Have your surveys or discussions changed your own position about nuclear power? If so, in what way have your perceptions changed?
4. After studying this chapter, review your position and decide if you have changed your mind in any way.