The History of Green Power

SUMMARY In this nonfiction selection, the author differentiates between renewable and nonrenewable energy. She describes the history of energy, from ancient times until present day. The author also focuses on possible green sources of energy for the future.

LESSON VOCABULARY
- consequences
- emissions
- ferocious
- forecasters
- incubator
- sustainable
- turbines

INTRODUCE THE BOOK
INTRODUCE THE TITLE AND AUTHOR Discuss the title and author of The History of Green Power. Encourage students to make a connection between the title and the cover photo of Earth.

BUILD BACKGROUND Ask students to discuss how we are able to heat and cool our homes; how we make our appliances work; and how we are able to drive our cars. Ask if they know where these sources of energy come from.

PREVIEW/USE TEXT FEATURES Direct students’ attention to the captions, headings, diagrams, and Glossary. Have them turn to the diagram on page 8. Ask: What is the title of the pie chart? Which source of energy do we use most? What percentage of our energy comes from renewable resources? (Sources of Energy in 2007: Where did our energy come from? oil; 7%)

READ THE BOOK
SET PURPOSE Have students set a purpose for reading The History of Green Power. They may be interested in the types of renewable energy and how it is used. As they read, ask students to consider why it is important to depend more on renewable sources of energy and less on nonrenewable sources.

STRATEGY SUPPORT: MONITOR AND CLARIFY As students read, they should monitor their comprehension to make sure they understand the selection. Point out that if something is unclear, students should try a strategy to clarify their thinking. Suggest that they reread and review sections of the text they find unclear. Explain to students that when they monitor what they are reading, they will better understand the sequence of events in the selection.

COMPREHENSION QUESTIONS
PAGE 4 Why do you think some people argue that trees are a nonrenewable resource? (Possible response: If people use trees faster than they plant them, or they don’t plant them at all, then we might run out of trees.)

PAGES 5–7 After the Industrial Revolution began, which three men developed inventions that depended on nonrenewable resources? (Possible response: In the 1700s James Watt invented the steam engine and Benjamin Franklin discovered that lightning was electricity. Around 1879 Thomas Edison began using electricity to light incandescent light bulbs. These inventions depended on coal and other fossil fuels.)

PAGE 11 How did space technology change during the 1950s and 1960s? (The very first PV cells were used to create enough electricity for satellites, space technology, and space exploration.)

PAGE 16 What two facts support the conclusion that Calgary is a green city? (The wind farm produces enough electricity to power several city buildings; it also produces enough electricity for the city’s rail system.)

PAGES 18–20 Why do you think that a geothermal heat pump is only placed six to eight feet underground? (Possible response: The ground temperature would be colder and it would be harder for the pump to heat and cool homes.)
REVISIT THE BOOK

READER RESPONSE
1. Possible responses: Past: wind, firewood; Present: coal, oil, natural gas; Future: ZEH; wave power; other forms of biomass
2. Possible responses: I didn’t understand the section about biomass. I reread and reviewed the section so I could clear up my confusion. Now that I understand the biomass section of the book, I am able to understand the book better.
3. Responses will vary but students should show an understanding of at least three glossary words in their paragraph on green power.
4. Possible responses: People depend on fossil fuels every day to heat and cool homes, run appliances, and put gas in cars. These sources of energy are part of our lives and easy to use. It takes more effort to find and use renewable sources of energy.

EXTEND UNDERSTANDING Remind students that the author explains why green power is an important way to take care of Earth and live a greener lifestyle. Discuss how biomass, ZEH, and wave power could affect our future and how the future would be different from now.

ELL Students may have difficulty with the term biomass. Explain that bio means “life” and that mass means “a group or collection of something.” Then have students reread the definition of biomass in the first paragraph on page 21. Explain that the mass, or group, comes from living things. Invite students to give examples of biomass such as algae, grass, cow manure, and whale oil.

RESPONSE OPTIONS

WRITING Invite students to write a few paragraphs about what they think is the most important source of green power. Suggest that they discuss how the source affects our lives and have them give reasons to justify their responses.

SCIENCE CONNECTION
Have students research a form of renewable energy. Have them use the Internet or the library for their research. Have groups present their research findings to the class.

Skill Work

TEACH/REVIEW VOCABULARY
Have students make word cards for each of the vocabulary words. Then have them write the definitions on the back of the cards. Suggest that students quiz each other until they remember all of the definitions.

TARGET SKILL AND STRATEGY

SEQUENCE Remind students that sequence means the order in which things happen. Point out the timeline on pages 6–7. Ask students how the timeline helps them understand the information in the text. Encourage students to use the timeline to practice their sequencing skills. Ask: What happened after the first coal-fired power plant generated electricity? (The first automobiles were used. People turned to oil to fuel their cars.)

MONITOR AND CLARIFY Remind students that identifying the sequence of events is one way they can monitor what they read. Point out that if they cannot identify the proper sequence, they need to clarify their understanding by stopping and summarizing facts and details. Prompt students to practice this strategy by pausing a few times as they read to summarize the sequence of events.

ADDITIONAL SKILL INSTRUCTION

DRAW CONCLUSIONS Remind students that to draw a conclusion is to reach a decision after reading and thinking about the facts and details in the text. Encourage them to think about the facts and to ask themselves questions to help them draw a conclusion. Point out that valid conclusions are always supported by facts.
Sequence

**Directions** Use the diagram on page 14 to complete the chart below. Use the arrows in the diagram to help you sequence the events. The first event has been completed for you.

1. The wind turns the turbine blades, which are fastened to the nacelle.

2.

3.

4.

5.
Vocabulary

Directions  Unscramble the letters of each vocabulary word and write it on the line. Then write a definition of it.

Check the Words You Know

consequences  emissions  ferocious
forecasters  incubator  sustainable
turbines

1. cesrfoestar  _______________________
   _______________________

2. serfloocu  _______________________
   _______________________

3. neutsibr  _______________________
   _______________________

4. tubnroci  _______________________
   _______________________

5. ennqceusceso  _______________________
   _______________________

6. ibutsnalesas  _______________________
   _______________________

7. ssomnesii  _______________________
   _______________________

Directions  Choose three vocabulary words and write a sentence for each.

8. _______________________

9. _______________________

10. _______________________