

Active Reading

Section: Energy Resources and Fossil Fuels

Read the passage below and answer the questions that follow.

When petroleum fuels are burned, they release pollutants. Internal combustion engines in vehicles that burn gasoline pollute the air in many cities. These pollutants contribute to the formation of smog and cause health problems. Emissions regulations and technology such as catalytic converters have reduced air pollution in many areas. However, in developing countries, cars are generally older, and the gasoline that they burn contains significantly more sulfur, a pollutant that contributes to acid precipitation. Many scientists also think that the carbon dioxide released from burning petroleum fuels contributes to global warming.

Oil spills are another potential environmental problem of oil use. In recent years, new measures have been taken to prevent oil spills from tankers. These measures include requiring that new tankers be double-hulled so that puncturing the outer hull does not allow the oil to leak out. Also, response times to clean up oil spills have improved. While oil spills are dramatic, much more oil pollution comes from everyday sources, such as leaking cars. However, measures to reduce everyday contamination of our waterways from oil lag far behind the efforts made to prevent large spills.

IDENTIFYING MAIN IDEAS

One reading skill is the ability to identify the main idea of a passage. The main idea is the main focus or key idea. Frequently, a main idea is accompanied by supporting information that offers detailed facts about the main idea.

Read each question and write the answer in the space provided.

1. What are two potential hazards associated with oil use?

2. What is one reason the air in cities is often polluted?

3. What factor might be contributing to global warming?

4. What measures have been taken to prevent oil spills from tankers?

5. What does the author note about oil spill cleanup?

Active Reading *continued*

RECOGNIZING SIMILARITIES AND DIFFERENCES

One reading skill is the ability to recognize similarities and differences between two phrases, ideas, or things. This is sometimes known as comparing and contrasting.

Read each question and write the answer in the space provided.

6. What is the difference between cars in developed countries and cars in developing countries?

7. Which spills more oil: oil spills from tankers or oil leaks from cars? Why?

RECOGNIZING CAUSE AND EFFECT

One reading skill is the ability to recognize cause and effect.

Read each question and write the answer in the space provided.

8. What negative effects do pollutants from vehicles cause in cities?

9. What problem does the burning of gasoline with sulfur contribute to?

10. Name two things that have reduced air pollution in many areas.

11. How is a double-hulled oil tanker safer than one that is not double-hulled?

12. What does the author suggest will reduce the negative effects of using oil?

Answer Key

Concept Review

MATCHING

- | | |
|------|-------|
| 1. c | 6. g |
| 2. f | 7. e |
| 3. d | 8. a |
| 4. h | 9. j |
| 5. b | 10. i |

MULTIPLE CHOICE

- | | |
|-------|-------|
| 11. d | 18. d |
| 12. a | 19. b |
| 13. a | 20. c |
| 14. d | 21. c |
| 15. c | 22. a |
| 16. c | 23. d |
| 17. a | |

Critical Thinking

ANALOGIES

- | | |
|------|------|
| 1. a | 5. c |
| 2. c | 6. d |
| 3. b | 7. a |
| 4. d | 8. d |

INTERPRETING OBSERVATIONS

9. Accept all reasonable answers. Sample answer: The most significant natural shortage would be the decline of oil reserves that is predicted to occur during this century. Because the shortage would not be as sudden as the one created by the embargo, societies that are heavier users of petroleum products would have a longer time to deal with the situation, whether in the adoption of new technologies, economic strategies, or political alliances.
10. Accept all reasonable answers. Sample answer: Yes, this was a necessary step so that the economy of the United States would not have to rely so strongly on energy purchased from other countries.

AGREE OR DISAGREE

11. Accept any thoughtful answer. Sample answer: Agree. All current forms of generating electricity harm the environment in one form or another. For

example, burning fossil fuels releases harmful air pollutants, and nuclear fission creates radioactive solid wastes.

12. Accept any thoughtful answer. Sample answer: Agree. People don't want to pay more money for electricity, so they will learn to conserve it.
13. Accept any thoughtful answer. Sample answer: Disagree. Although clean-burning technology is used in the United States, the widespread use of coal in the United States and in places like China still creates sulfur, a product of coal burning that is a major source of pollution. Even if only high-grade, low-sulfur coal were burned with adequate pollution controls, certain coal-mining practices would still be a cause for concern.

REFINING CONCEPTS

14. The amount of energy used per person in the United States is much higher than in most other countries in the world. In fact, only Canada and the United Arab Emirates use more energy per person.
15. By the year 2015, the cost of extracting oil will increase to the point that it will no longer be cost efficient. Therefore oil extraction will begin to dwindle.
16. Accept all reasonable answers. Sample answer: Nuclear energy will not be a viable source of energy for the United States in the future because of the increasing cost of building, operating, and maintaining nuclear reactors.

Active Reading

SECTION: ENERGY RESOURCES AND FOSSIL FUELS

- air pollution and oil spills
- Vehicles in cities burn gasoline that pollutes the air.
- carbon dioxide released from burning petroleum fuels
- those that require new tankers be double-hulled
- Response times have improved.

6. Cars in developing countries are often older and burn gasoline that contains more sulfur. Cars in developed countries are generally newer, have catalytic converters that reduce air pollution, and burn a cleaner gasoline.
7. Oil leaks from cars spill more oil; there are more of them and their oil leaks are unregulated.
8. the formation of smog and health problems
9. acid precipitation
10. emissions regulations and catalytic converters
11. If the outer hull is punctured, the oil does not leak out.
12. measures to reduce everyday contamination of waterways from oil

SECTION: NUCLEAR ENERGY

1. neutrons
2. boron and cadmium
3. Control rods containing boron or cadmium to absorb neutrons are lowered between the fuel rods of a reactor core to slow fission reactions.
4. Fission is prevented, and the reactor is shut down.
5. 1
6. 6
7. 3
8. 7
9. 5
10. 8
11. 2
12. 10
13. 9
14. 4
15. They both produce electricity using steam.
16. They do not burn fossil fuels.

Map Skills

1. South Island
2. Wellington
3. some distance away
4. Answers may vary but should give examples referring to subsurface, longwall, or surface coal mining.

Quiz

SECTION: ENERGY RESOURCES AND FOSSIL FUELS

Matching

- | | |
|------|------|
| 1. d | 4. a |
| 2. b | 5. e |
| 3. f | 6. c |

Multiple Choice

- | | |
|------|-------|
| 7. b | 9. d |
| 8. d | 10. c |

SECTION: NUCLEAR ENERGY

Matching

- | | |
|------|------|
| 1. b | 4. a |
| 2. d | 5. e |
| 3. f | 6. c |

Multiple Choice

- | | |
|------|-------|
| 7. b | 9. a |
| 8. c | 10. c |

Chapter Test General

MATCHING

- | | |
|------|-------|
| 1. e | 6. g |
| 2. i | 7. d |
| 3. j | 8. c |
| 4. b | 9. h |
| 5. a | 10. f |

MULTIPLE CHOICE

- | | |
|-------|-------|
| 11. c | 16. b |
| 12. d | 17. a |
| 13. b | 18. a |
| 14. c | 19. a |
| 15. c | 20. d |

Chapter Test Advanced

MATCHING

- | | |
|------|------|
| 1. d | 4. b |
| 2. f | 5. c |
| 3. a | 6. e |

MULTIPLE CHOICE

- | | |
|-------|-------|
| 7. c | 11. d |
| 8. d | 12. c |
| 9. a | 13. a |
| 10. c | 14. a |

SHORT ANSWER

15. Answers may vary. Sample answer: It takes millions of years for fossil fuels to form. At the rate we are now using