

Living Green: Green Transportation



Dictionary: Click or tap and hold on the selected word. Then select the Dictionary option from the **Quick Menu** to see the word’s definition.

Glossary: There is a glossary on pages 60–61. Terms defined in the glossary are in bold type on their first appearance on any spread.

Find the answers to the Matching exercise using the Glossary.

MATCHING: Match the word to the meaning.

| Answers: | Word: |
|----------|---------------------------|
| | 1. Cap and trade |
| | 2. Biofuels |
| | 3. Catalytic converter |
| | 4. Zero emissions vehicle |
| | 5. Fossil fuels |
| | 6. Smog |
| | 7. Fuel cell |
| | 8. Particulate |
| | 9. Hybrid |
| | 10. Global warming |

| Meaning: | |
|----------|--|
| A. | A brown, hazy mixture of gases and particulates caused by exhaust gases released by automobiles and other users of fossil fuels. |
| B. | A vehicle that produces no emissions. |
| C. | The gradual warming of Earth’s surface, believed to be caused by a build-up of greenhouse gases in the atmosphere. |
| D. | An energy-producing device in which a chemical reaction takes place between hydrogen and oxygen, producing energy and water. |
| E. | A device found in cars that reduces emissions from engine exhaust. |
| F. | A vehicle in which power can be produced by either batteries or by a gasoline-powered engine. |
| G. | A liquid fuel made from plant matter, animal waste, and other biological sources. |
| H. | A tiny piece of solid material that floats in the air. |
| I. | Underground deposits that were formed millions of years ago from the remains of plants and animals. |
| J. | A system that creates a market in pollution credits. |

MULTIPLE CHOICE: (Circle the correct answer.)

11. Read the chapter **TRANSPORTATION: A BASIC HUMAN NEED.**

Because supplies of fossil fuels are dwindling and will eventually run out, they can be described as:

- a. Hybrid resources
- b. Nonrenewable resources
- c. Solar resources
- d. Sustainable resources

12. Read the chapter **AUTOMOBILES.**

What is the biggest problem with the internal-combustion engine used in most cars?

- a. About 75 percent of the available energy is wasted.
- b. It is heavy and bulky.
- c. It is highly combustible.
- d. It makes solar cells at half the rate of other engines.

13. Read the chapter **ELECTRIC CARS AND HYBRIDS.**

The process of capturing energy from normal braking to recharge batteries is known as:

- a. Retrofitting
- b. Brake subsidization
- c. Regenerative braking
- d. Catalytic conversion

14. Read the chapter **ALTERNATIVE VEHICLES.**

Cars that are powered by an internal-combustion engine but run on natural gases instead of gasoline are known as:

- a. Fossil fuel vehicles
- b. Green technology vehicles
- c. Ethanol fuel vehicles
- d. Natural gas vehicles

15. Read the chapter **MOTORCYCLE ALTERNATIVES.**

Which of the following forms of transportation is the most fuel efficient or “greenest”?

- a. Electric bicycle
- b. Motor scooter
- c. Bicycle
- d. Personal transporter



COMPREHENSION QUESTIONS:

16. Read the chapter **TRUCKS** .

Read **THE DIESEL ENGINE** section and watch the video .

Explain the difference between a diesel engine and a gasoline-powered engine.

17. Read the chapter **TRAINS**.

Read the **TRANSPORTING PEOPLE** section.

Why are passenger trains better for the environment than individual cars?

18. Watch the video on maglev trains , and then answer this question:

What forces make the maglev train float?

19. Read the chapter **SHIPS AND BOATS** and watch the video , then answer this question:

Why are diesel ship emissions harmful to the environment even though a diesel ship engine is much more efficient than a gasoline-powered engine in a car or truck?

20. In the chapter **BIODIESEL POWER**, read the **EARTHTRACE** section, and then answer this question:

How is the *Earthrace* design different from most boat designs?



ANSWERS

Answer:

Vocabulary:

- J 1. Cap and trade
- G 2. Biofuels
- E 3. Catalytic converter
- B 4. Zero emissions vehicle
- I 5. Fossil fuels

Answer:

Vocabulary:

- A 6. Smog
- D 7. Fuel cell
- H 8. Particulate
- F 9. Hybrid
- C 10. Global warming

- 11. b. Nonrenewable resources
- 12. a. About 75 percent of the available energy is wasted
- 13. c. Regenerative braking
- 14. d. Natural gas vehicles
- 15. c. Bicycle
- 16. Both the diesel engine and the gas-powered engine use the four-stroke combustion cycle, but the diesel engine burns fuel without spark plugs, using intense pressure instead.
- 17. Every car has its own engine and outputs emissions. A typical passenger train has one engine transporting hundreds of people. Passenger trains also help minimize traffic congestion by reducing the numbers of cars on roads and highways.
- 18. Magnetic forces.
- 19. Ship diesel emissions include many harmful pollutants, such as carbon dioxide, nitrogen oxides, sulphur dioxide, particulates, and other substances.
- 20. Most boats have one hull—the outer body of a ship. Earthrace, however, is a multihulled boat consisting of one central hull and two outlying hulls, all connected by crossbeams.

EXTENSION QUESTION

a. An old used car.

Used cars can often be cheap but many older cars are not particularly fuel-efficient, and they all use gasoline, which creates pollution and greenhouse gases when burned. Even old cars with good fuel efficiency would still force Bill to pay more in gasoline costs than his other transportation options.

b. A new hybrid car.

Hybrid cars are more expensive than many other cars. They also use some gasoline, which causes harmful pollution. But they use significantly less gasoline than other cars, and so cause less pollution. Bill would also spend less money on gasoline with a hybrid car than with an old, used car.

c. A motor scooter.

Motor scooters come in a variety of shapes and sizes. Most are smaller and more fuel-efficient than cars. Some scooters are even powered by rechargeable batteries, and so do not cause pollution from burning gasoline. But driving a scooter in bad weather might be difficult for Bill.

d. A bike.

A bike is the greenest and the cheapest option for Bill. Bikes cause no pollution at all. A bike would also help Bill get some exercise. But Bill may have trouble cycling to work in bad weather.

