

**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?

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

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3. What factor might be contributing to global warming?

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

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

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**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?

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

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**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?

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

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

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

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

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## Skills Worksheet

**Active Reading****Section: Nuclear Energy**

Read the passage below and answer the questions that follow.

Inside a nuclear reactor, metal fuel rods that contain solid uranium pellets are bombarded with neutrons. The chain reaction that results releases energy and produces more neutrons. The reactor core contains control rods, which are made of a material such as boron or cadmium, that absorb the neutrons to prevent an uncontrolled chain reaction. When the control rods are lowered between the fuel rods, they slow the fission reactions. If the control rods are lowered completely, they prevent fission and shut down the reactor.

The heat released during nuclear reactions is used to generate electricity in the same way that power plants burn fossil fuels to generate electricity. In a nuclear power plant, energy released from the fission reactions heats a closed loop of water that heats another body of water. As the water boils, it produces steam that drives a steam turbine, which is used to generate electricity.

**IDENTIFYING MAIN IDEAS**

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

1. What must metal fuel rods inside a nuclear reactor be bombarded with in order to start a chain reaction?

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2. List two materials that can absorb neutrons.

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**RECOGNIZING CAUSE AND EFFECT**

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

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

3. How can a chain reaction be controlled?

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4. What happens when the control rods in a reactor core are completely lowered between the fuel rods?

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**Active Reading** *continued*

**SEQUENCING INFORMATION**

One reading skill is the ability to sequence information, or to logically place items or events in the order in which they occur.

**Sequence the statements below to show the steps in the process of how nuclear energy generates electricity. Write "1" on the line in front of the first step, "2" on the line in front of the second step, and so on.**

- \_\_\_\_\_ 5. Control rods are lowered between fuel rods.
- \_\_\_\_\_ 6. The closed loop of water heats another body of water.
- \_\_\_\_\_ 7. A chain reaction results that releases energy and produces more neutrons.
- \_\_\_\_\_ 8. The body of water boils.
- \_\_\_\_\_ 9. Energy released from the fission reaction heats a closed loop of water.
- \_\_\_\_\_ 10. The boiling water produces steam.
- \_\_\_\_\_ 11. Metal fuel rods containing uranium pellets are bombarded with neutrons.
- \_\_\_\_\_ 12. The turbine generates electricity.
- \_\_\_\_\_ 13. The steam drives a steam turbine.
- \_\_\_\_\_ 14. The fission reactions are slowed.

**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.**

**15.** How are nuclear power plants like other power plants?

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**16.** How are nuclear power plants different from other power plants?

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