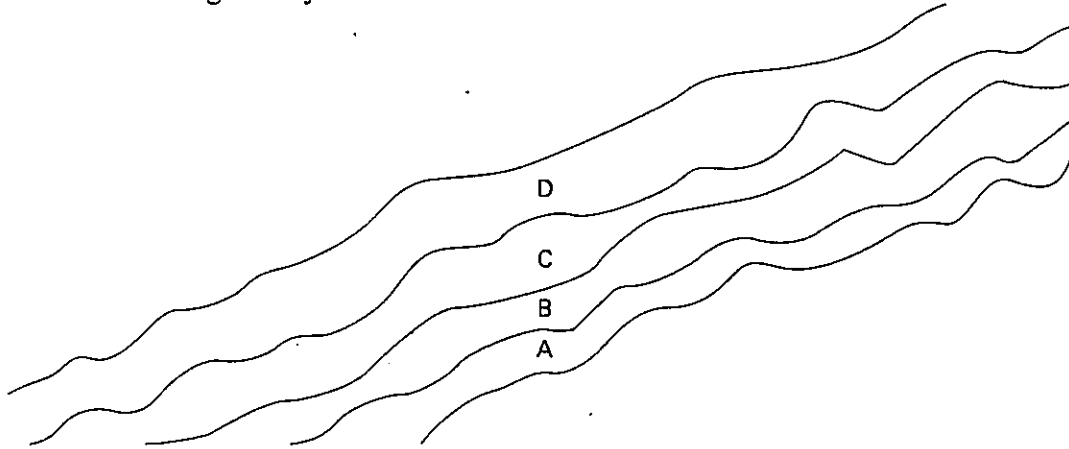


SECTION | NATURAL RESOURCES SUPPORT HUMAN ACTIVITY.

5.1 Reading Study Guide A**BIG IDEA** Society depends on natural resources for energy and materials.**KEY CONCEPT** Natural resources support human activity.**Vocabulary****natural resource** any energy source, organism, or substance found in nature that people use**renewable resource** a natural resource that can be replaced in nature at about the same rate it is used**nonrenewable resource** a natural resource that exists in a fixed amount or that is used up faster than it can be replaced in nature**fossil fuel** a nonrenewable resource made from ancient plants and animals buried in Earth's crust for millions of years**Review**

- The diagram below shows four layers of undisturbed sedimentary rock. What is the relative age of layer C?

**Take Notes**

- Natural resources provide materials and energy. (p. 147)**
- Fill in the four-square diagram for *natural resource*.

Definition:	NATURAL RESOURCE		Characteristics:
Examples:			Nonexamples:

A. Renewable Resources (p. 148)

3. What are four renewable resources?

B. Nonrenewable Resources (p. 148)

4. Ocean organisms are constantly dying, falling to the ocean floor, getting buried, and turning into natural gas or oil. Why then are these resources nonrenewable?

5. Why is it important for people to cut back on their uses of nonrenewable resources?

II. Fossil fuels supply most of society's energy. (p. 150)

6. The United States has three main sources of energy. What are they? Which one does the United States rely on the most?

A. Coal (p. 151)

7. Swamp plants decay and form _____. It is buried beneath sediments. Pressure and heat change it into _____. Eventually, this material is changed into _____.

B. Oil and Natural Gas (p. 152)

8. Oil burns at _____ temperatures, releasing usable energy. Oil is an ideal resource for use in homes because it is _____ easily. Burning oil produces waste products that react with sunlight to produce _____. Oil spills can endanger wildlife and ecosystems.

III. Fossil fuels, minerals, and plants supply materials for modern products. (p. 153)

9. Name the fossil fuel used to make plastic. List four products made from plastic.

SECTION | NATURAL RESOURCES SUPPORT HUMAN ACTIVITY.

5.1 | Reading Study Guide B**BIG IDEA** Society depends on natural resources for energy and materials.**KEY CONCEPT** Natural resources support human activity.**Review**

Life has inhabited Earth over the past 3 billion years.

Take Notes**I. Natural resources provide materials and energy. (p. 147)**

1. List some of the costs and benefits of using coal and cutting down trees for materials.

A. Renewable Resources (p. 148)

2. Fill in the content frame with information that compares renewable and nonrenewable resources.

Resource	Similarities	Differences
Renewable		
Nonrenewable		

B. Nonrenewable Resources (p. 148)

3. If deposits are abundant, why is it important to conserve nonrenewable resources?

II. Fossil fuels supply most of society's energy. (p. 150)

4. What are the three main sources of energy used in the United States? Which one supplies most of the country's energy needs?

A. Coal (p. 151)

5. Complete the outline with information about coal mining. Then list one problem associated with each method.

I. Coal is mined in two different ways.

A. _____

1. _____

B. _____

1. _____

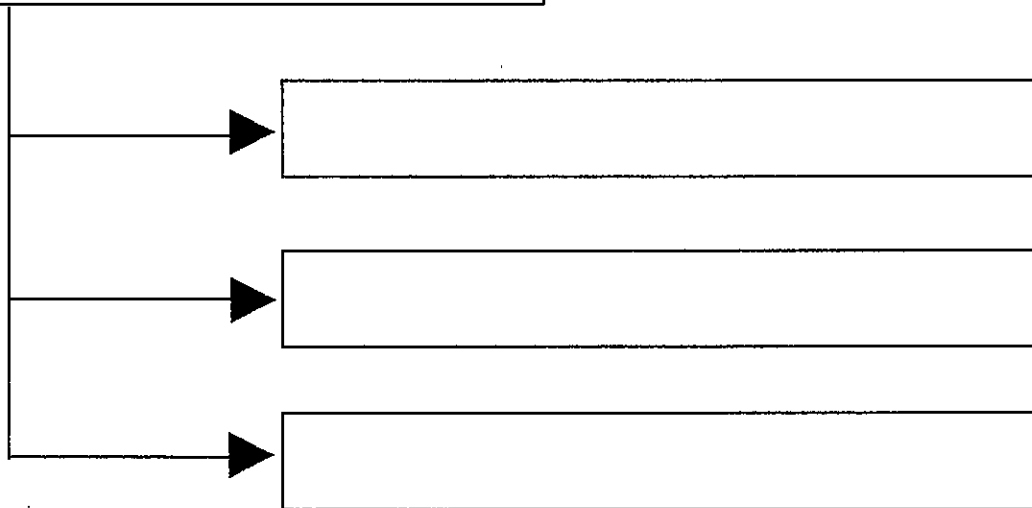
B. Oil and Natural Gas (p. 152)

6. How are oil and natural gas collected?

III. Fossil fuels, minerals, and plants supply materials for modern products. (p. 153)

7. Complete the outline for the main idea shown.

The materials used for modern products come from three main sources.



SECTION ENERGY COMES FROM OTHER NATURAL RESOURCES.

5.3 Reading Study Guide A

BIG IDEA Society depends on natural resources for energy and materials.

KEY CONCEPT Energy comes from other natural resources.

Vocabulary

nuclear fission process in which the nuclei or centers of radioactive atoms are split, forming lighter elements and releasing a huge amount of energy

hydroelectric energy electricity produced by moving water

solar cell a device that converts light energy to electricity

geothermal energy energy produced by heat within Earth's crust

biomass organic matter that can be used as fuel

hydrogen fuel cell device that combines hydrogen and oxygen to make electricity

Review

1. Describe two ways every person can help to conserve natural resources.

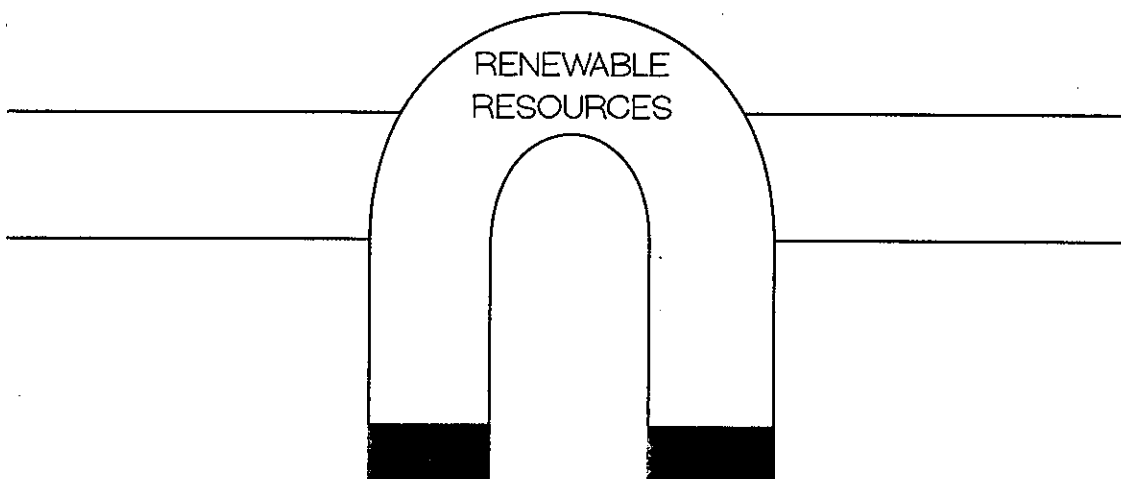
Take Notes

- I. **Nuclear power is used to produce electricity. (p. 161)**

2. How are nuclear power and fossil fuels alike? How do they differ?

- II. **Renewable resources are used to produce electricity and fuel. (p. 163)**

3. Complete the word magnet for *renewable resources*.



SECTION ENERGY COMES FROM OTHER NATURAL RESOURCES.

5.3 Reading Study Guide B**BIG IDEA** Society depends on natural resources and materials.**KEY CONCEPT** Energy comes from other natural resources.**Review**

Conservation involves reducing waste and reusing natural resources. Recycling involves recovering materials that would ordinarily be thrown away.

Take Notes**I. Nuclear power is used to produce electricity. (p. 161)**

1. Fill in the four-square diagram for *nuclear fission*.

Definition:		Characteristics:	
Examples:		Nonexamples:	

II. Renewable resources are used to produce electricity and fuel. (p. 163)

2. Why do renewable energy resources make up only a small portion of the energy used in the world?

A. Hydroelectric Energy (p. 164)

3. How does damming a river end up creating electricity?

4. What is hydroelectric energy used for? What problems are posed for the environment?

Name _____

Period _____

Date _____

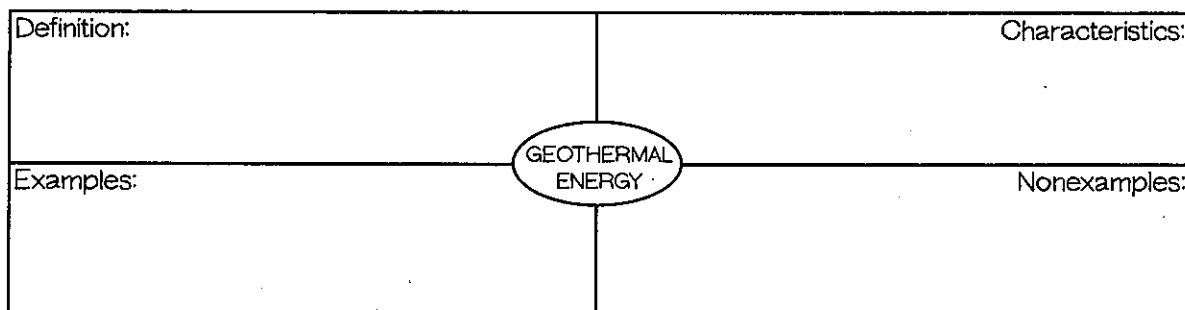
B. Solar Energy (p. 165)

5. What is a solar cell?

6. List one advantage and one disadvantage of using solar power.

C. Geothermal Energy (p. 166)

7. Fill in the four-square diagram for *geothermal energy*.

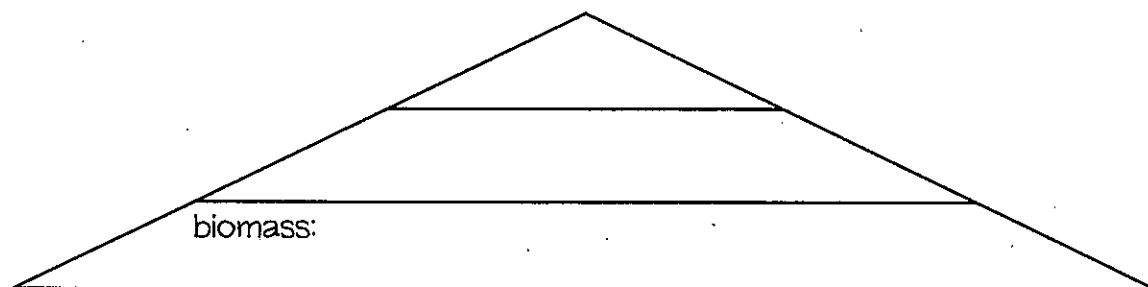


D. Wind Energy (p. 167)

8. What is required to make wind farms successful?

E. Biomass Energy (p. 168)

9. Fill in the word triangle for *biomass*.



F. Hydrogen Fuel Cells (p. 168)

10. How does a hydrogen fuel cell produce electricity? What products does it produce?

SECTION

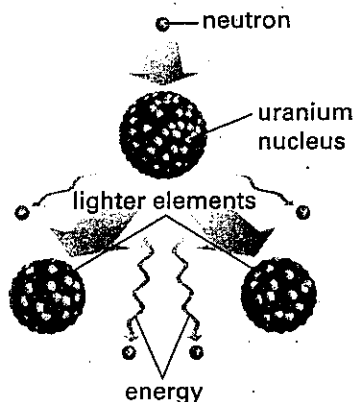
ENERGY COMES FROM OTHER NATURAL RESOURCES.

5.3 Challenge and Extension**BIG IDEA** Society depends on natural resources for energy and materials.**KEY CONCEPT** Resources can be conserved and recycled.

Nuclear Reactions To produce nuclear power, scientists use a type of uranium called uranium-235 or U-235. This type of uranium atom has 92 protons and 143 neutrons in its nucleus.

Scientists bombard these U-235 atoms with neutrons, which split the nuclei of the atoms. If you weighed the mass of a U-235 atom before and after it splits, you would find that the mass is slightly less afterwards. This is because the “missing mass” is converted into a huge amount of energy that is released in the form of heat and light.

Free neutrons are also released as the nucleus splits. These neutrons, in turn, split other atoms in a process called a chain reaction. If control rods were not used to absorb some of the free neutrons, the chain reaction would occur at a faster and faster rate. This would produce so much heat that no building would be able to contain the nuclear reaction.



1. Why is the uranium used in nuclear reactors called uranium-235?

2. Based on the text, explain why splitting the atom is often referred to as “converting matter into energy.”

3. Why would a chain reaction occur at a faster and faster rate if control rods were not used?

