Earth’s Energy and Mineral Resources

Before You Read

Preview the chapter including section titles and the section headings. Complete the chart by listing at least one idea for each of the three sections in each column.

<table>
<thead>
<tr>
<th>K</th>
<th>What I know</th>
</tr>
</thead>
<tbody>
<tr>
<td>W</td>
<td>What I want to find out</td>
</tr>
</tbody>
</table>

Construct the Foldable as directed at the beginning of this chapter.

Science Journal

Write three ways electricity may be generated at a power plant.

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Earth’s Energy and Mineral Resources
Section 1 Nonrenewable Energy Resources

Scan Section 1 of your book, using the checklist below.

☐ Read all section titles.
☐ Read all boldface words.
☐ Look at all of the pictures.
☐ Think about what you already know about nonrenewable resources.

Write three facts that you discovered about nonrenewable resources as you scanned this section.

1. ________________________________________________
2. ________________________________________________
3. ________________________________________________

Review Vocabulary

Define fuel.

fuel

New Vocabulary

Use your book or a dictionary to define the vocabulary terms.

resource

nonrenewable resource

conservation

Academic Vocabulary

Use a dictionary to define extract.

extract
Complete the paragraph below to describe resources and energy.

A _________ is any material used to satisfy a need. Most energy resources used to generate electricity are _________.

Nonrenewable resources are ____________________________

Organize information about fossil fuels by completing the outline.

I. Fossil Fuels
   A. Made of ____________________________
   B. Formed over _____________ of years
   C. Include:
      1. ____________________________
      2. ____________________________
      3. ____________________________
   D. Used to:
      1. Make gasoline for _____________
      2. Heat _____________
      3. Generate _____________

Complete the chart describing the stages of coal formation. Then identify the change in the amount of energy contained in the fuel.

**Formation of Coal**

<table>
<thead>
<tr>
<th>Stage</th>
<th>Material</th>
<th>Energy Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>peat</td>
<td>contains _______ energy</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td>contains _______ energy</td>
</tr>
</tbody>
</table>
Main Idea

Fossil Fuels
I found this information on page __________.

Remove Fossil Fuels from the Ground and Fossil Fuel Reserves
I found this information on page __________.

Energy from Atoms
I found this information on page __________.

Details

Compare oil and natural gas by completing the Venn diagram with at least nine facts.

Create a graphic organizer to identify the ways fossil fuels are removed from the ground. Then complete the sentence below.

Fossil fuel __________ are the useable and cost-effective part of existing fossil fuel __________.

Sequence the steps in a nuclear chain reaction.

______ are fired at fuel rods containing _________. Neutrons hit ________ atoms. The atoms split apart, releasing ________ and ________.

More ________ atoms split, releasing more ________ and more ________.
Earth’s Energy and Mineral Resources
Section 2 Renewable Energy Resources

Predict three things that might be discussed in Section 2 as you read the headings.

1. ___________________________________________________________

2. ___________________________________________________________

3. ___________________________________________________________

Define the scientific term energy using your book or a dictionary.

energy

New Vocabulary

Use your book or a dictionary to define the vocabulary terms.

renewable resource

geothermal energy

biomass energy

Academic Vocabulary

Use a dictionary to define derive.

derive
Section 2 Renewable Energy Resources (continued)

Main Idea

Renewable Energy Resources

I found this information on page __________.

Details

Contrast passive and active solar energy by providing examples.

An example of passive solar energy is ______________________

______________________________

An example of active solar energy is ______________________

______________________________

Compare the advantages and disadvantages of generating electricity from wind energy.

Wind Energy as Source of Electricity

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Model a hydroelectric power plant. Use the figure in your book.
Main Idea

Renewable Energy Resources

I found this information on page __________.

Other Renewable Energy Resources

I found this information on page __________.

Details

Identify three problems associated with geothermal power.
1. ____________________________________________
2. ____________________________________________
3. ____________________________________________

Compare these examples of biomass that can be used to generate energy. List the advantages and disadvantages of each.

<table>
<thead>
<tr>
<th>Biomass Energy</th>
<th>Material</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Garbage</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Skim through Section 3 of your book. Read the headings and look at the illustrations. Write three questions that come to mind.

1. 
2. 
3. 

Define metal using your book or a dictionary.

metal

1. 
2. 
3. 

Use your book or a dictionary to define the vocabulary terms.

mineral resources

1. 
2. 
3. 

ore

1. 
2. 
3. 

recycling

1. 
2. 
3. 

Use a dictionary to define obtain.

obtain

1. 
2. 
3. 
List the three things that are required for a mineral deposit to be considered an ore.

A mineral deposit is considered an ore when:

1. 
2. 
3. 

Sequence the steps in separating a useful mineral from its ore by completing the graphic organizer below. Then define smelting.

Ore

\[ \text{Concentrating: } \]
\[ \text{Gangue} \]

\[ \text{Refining: } \]

\[ \text{Useful ore} \]

Smelting: 

Metallic Mineral Resources

I found this information on page _________.

Earth’s Energy and Mineral Resources
Main Idea

Connect It

Nonmetallic Mineral Resources

I found this information on page ___________.

Recycling Mineral Resources

I found this information on page ___________.

Details

Classify mineral resources and building materials by completing the Venn diagram with at least seven materials.

Recycling Mineral Resources

Create a graphic organizer to identify three ways to conserve mineral resources.

CONNECT IT

Describe specific ways you could practice each of the three ways to conserve mineral resources in your home.

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Evaluate Energy Resources

Identify which alternative energy resource you think could best serve your community. Write a report explaining why you believe it would be the best choice. Discuss advantages and disadvantages for your community of using the alternative energy resource.

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