Properties of Atoms and the Periodic Table
Section 1 Structure of the Atom

Scan Section 1 and write down three things you might learn from this section.

1. 

2. 

3. 

Review Vocabulary

Define element to show its scientific meaning.

New Vocabulary

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

atom
nucleus
proton
neutron
electron
quark
electron cloud

Academic Vocabulary

Use a dictionary to define neutral as it might be used in this section.

neutral
Section 1 Structure of the Atom (continued)

Main Idea

Scientific Shorthand
I found this information on page ________

Details

Identify some of the elements and their symbols by filling in the table. Reference a periodic table to help you.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pt</td>
<td>tungsten</td>
</tr>
<tr>
<td>Rn</td>
<td>iodine</td>
</tr>
<tr>
<td>B</td>
<td>lithium</td>
</tr>
<tr>
<td>Cu</td>
<td>cesium</td>
</tr>
<tr>
<td>Ni</td>
<td>lead</td>
</tr>
<tr>
<td>Es</td>
<td>helium</td>
</tr>
</tbody>
</table>

Subatomic Particles
I found this information on page ________

Complete the diagram showing how the parts of an atom are related.

atom  proton  nucleus
electron cloud  neutron  quark

(No charge)  (1+ charge)
Section 1 Structure of the Atom (continued)

Main Idea
I found this information on page

Details
Summarize key ideas about quarks.

<table>
<thead>
<tr>
<th>Theories about Quarks</th>
<th>Finding Quarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detecting Quarks</td>
<td>Sixth Quark</td>
</tr>
</tbody>
</table>

Models—Tools for Scientists
I found this information on page

Create a time line of the changes that have occurred in modeling the atomic structure since the 1800s. Sketch and label each model.

Dalton

Rutherford

Thomson

Bohr

Electron Cloud

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Properties of Atoms and the Periodic Table
Section 2. Masses of Atoms

Preview Section 2 of your book, using the checklist below.
- Read all section titles.
- Read all boldfaced words.
- Read all charts and graphs.
- Look at all the pictures and read their captions.
- Think about what you already know about masses of atoms.

Write three facts you learned.
1. 
2. 
3. 

Review Vocabulary

mass

Define mass to show its scientific meaning.

New Vocabulary

atomic number

Use your book or dictionary to define the following key terms.

mass number

isotope

average atomic mass

Academic Vocabulary

define

Use a dictionary to find the scientific meaning of define.
Section 2 Masses of Atoms (continued)

Main Idea

Atomic Mass
I found this information on page

Details

Organize the information on atomic mass to complete the outline.

Atomic Mass

A. Nucleus of atom
1. 
2. 
3. 

B. Atomic mass unit
1. 
2. 
3. 

C. Protons
1. 
2. 
3. 
4. 

D. Mass number
1. 
2. 

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Section 2 Masses of Atoms (continued)

Main Idea

Isotopes

I found this information on page

Details

Model carbon-12 and carbon-14 by sketching each atom.

- Remember that carbon's atomic number is 6.
- Label each atom's protons, neutrons, and electrons.
- Show the charges of the particles.

[Blank diagrams for Carbon-12 and Carbon-14]

Analyze how you would determine which isotope of an element is the most abundant if you know the element's average atomic mass.

[Blank spaces for analysis]

CONNECT IT

While exploring on your grandfather's farm, you come across what appears to be ancient Native American artifacts, arrowheads, and tools. Explain how you could find out the age of these pieces and if they are, in fact, an archeological find.
Section 3 The Periodic Table

Skim Section 3 and write three questions based on your brief preview.

1.

2.

3.

Review Vocabulary

Define chemical property to show its scientific meaning.

chemical property

New Vocabulary

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

periodic table

period

group

electron dot diagram

Academic Vocabulary

Use a dictionary to define similar to show its scientific meaning.

similar
Main Idea

Organizing the Elements

I found this information on page __________.

Section 3 The Periodic Table (continued)

Details

Compare Mendeleev’s early periodic table to that of today by completing the Venn diagram.

Mendeleev

Today (Moseley)

Both

The Atom and the Periodic Table

I found this information on page __________.

Sequence the energy levels in the electron cloud diagram and write the maximum number of electrons that can be contained in each level.

Properties of Atoms and the Periodic Table
Section 3 The Periodic Table (continued)

**Main Idea**

I found this information on page __________

**Details**

*Analyze how electron dot diagrams show similarities between elements within a group.*

Classify the regions of the periodic table as metals, nonmetals, or metalloids.

- Shade the regions on the blank periodic table.
- Label each region and write its characteristics.

**SYNTHESIZE IT**

Write a paragraph showing the relationship between chemistry and physics based on what you’ve learned from the periodic table.

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