Section 5.3 Representative Groups (pages 139–145)

This section discusses how the number of valence electrons affects the properties of elements. It also describes properties of elements in Groups 1A through 8A.

Reading Strategy (page 139)

Monitoring Your Understanding  As you read, record an important fact about each element listed in the table. For more information on this reading strategy, see the Reading and Study Skills in the Skills and Reference Handbook at the end of your textbook.

<table>
<thead>
<tr>
<th>Element</th>
<th>Important Fact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnesium</td>
<td>Magnesium plays a key role in the process that uses sunlight to produce sugar in plants.</td>
</tr>
<tr>
<td>Aluminum</td>
<td></td>
</tr>
<tr>
<td>Chlorine</td>
<td></td>
</tr>
</tbody>
</table>

Valence Electrons (page 139)

1. An electron that is in the highest occupied energy level of an atom is a(n) _______ electron.

2. Elements within a group have the _______ number of valence electrons.

The Alkali Metals (page 140)

3. The reactivity of alkali metals _______ from the top of Group 1A to the bottom. Circle the correct answer.

   decreases  increases  stays the same

The Alkaline Earth Metals (page 141)

Find and match two properties to each element listed.

<table>
<thead>
<tr>
<th>Alkaline Earth Metal</th>
<th>Property</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. magnesium</td>
<td>a. Helps build strong teeth and bones</td>
</tr>
<tr>
<td>5. calcium</td>
<td>b. Helps plants produce sugar</td>
</tr>
<tr>
<td></td>
<td>c. Is used to make lightweight bicycle frames</td>
</tr>
<tr>
<td></td>
<td>d. Is the main ingredient in limestone</td>
</tr>
</tbody>
</table>
Chapter 5  The Periodic Table

**The Boron Family** (page 142)
6. List the four metals in Group 3A.
   a. Aluminum  
   c.  
   d.  

**The Carbon Family** (page 142)
7. List the two metalloids in Group 4A.
   a. Silicon  
   b.  
8. Except for water, most of the compounds in your body contain  

**The Nitrogen Family** (page 143)
9. List the nonmetals in Group 5A.
   a. Nitrogen  
   b.  
10. Name two elements in the nitrogen family that are contained in fertilizer.
   a. Nitrogen  
   b.  

**The Oxygen Family** (page 143)
11. List the nonmetals in Group 6A.
   a. Oxygen  
   b.  
   c.  
12. Name the most abundant element in Earth’s crust.  

**The Halogens** (page 144)
13. List the four nonmetals in Group 7A.
   a. Fluorine  
   b.  
   c.  
   d.  
14. Halogens have similar properties but different properties. Use the words in the box to fill in the blanks.
   chemical  
   physical  
   reactive  

**The Noble Gases** (page 145)
15. Name three characteristics of noble gases.
   a. Colorless  
   b.  
   c.  

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