

**Elements and the Periodic Table** ▪ *Guided Reading and Study*

## Nonmetals and Metalloids

*This section describes the properties of the elements in the periodic table that are not metals.*

### Use Target Reading Skills

*Before you read, write what you know about nonmetals and metalloids in the top box. As you read, write what you learn in the bottom box.*

What You Know
1. Nonmetals are not shiny.
2.
3.
4.
5.

What You Learned
1.
2.
3.
4.
5.

### Properties of Nonmetals

1. The elements that lack most of the properties of metals are called \_\_\_\_\_.

2. Where are the nonmetals located on the periodic table?

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**Nonmetals and Metalloids** *(continued)*

3. Is the following sentence true or false? Several of the nonmetals are gases at room temperature. \_\_\_\_\_
4. Circle the letter of each sentence that is true about the physical properties of nonmetals.
  - a. Solid nonmetals are brittle.
  - b. They usually have lower densities than metals.
  - c. Most are shiny.
  - d. They are good conductors of both heat and electricity.
5. Except for the Group 18 elements, most nonmetals readily form \_\_\_\_\_.

**Families of Nonmetals**

6. Circle the letter of the number of electrons that an atom in the carbon family can gain, lose, or share.
 

a. 1	b. 4
c. 5	d. 6
7. All living things contain what kind of compounds?  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
8. Circle the letter of the number of electrons that an atom in the nitrogen family usually gains or shares.
 

a. 2	b. 7
c. 5	d. 3
9. The atmosphere is almost 80 percent \_\_\_\_\_.
10. A molecule composed of two identical atoms is called a(n) \_\_\_\_\_.
11. Circle the letter of the number of electrons that an atom in the oxygen family usually gains or shares.
 

a. 6	b. 7
c. 5	d. 2
12. Circle the letter of each sentence that is true about oxygen.
  - a. The oxygen you breathe is a diatomic molecule.
  - b. Oxygen rarely combines with other elements.
  - c. Oxygen is the most abundant element in Earth's crust.
  - d. Ozone (O<sub>3</sub>) collects in a layer in the upper atmosphere.

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13. Circle the letter of the number of electrons that an atom in the halogen family usually gains or shares.
- a. 4
  - b. 1
  - c. 6
  - d. 3
14. Is the following sentence true or false? Uncombined halogens are dangerous to humans. \_\_\_\_\_.
15. Circle the letter of each sentence that is true about the noble gases.
- a. They exist in large amounts in the atmosphere.
  - b. They are chemically unreactive.
  - c. They readily gain, lose, or share electrons.
  - d. They are used in glowing electric lights.
16. Complete the table about families of nonmetals.

**Nonmetals**

Family	Group Number	Nonmetals in Family
a. Carbon family		
b. Nitrogen family		
c. Oxygen family		
d. Halogen family		
e. Noble gases		

17. How many protons and electrons does a hydrogen atom have?

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18. Why can't hydrogen be grouped in a family?

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**Nonmetals and Metalloids** *(continued)*

**The Metalloids**

19. What are metalloids?

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20. What is the most common metalloid? \_\_\_\_\_

21. What is the most useful property of the metalloids?

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22. What are semiconductors?

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