Name _____ Date _____ Class _____

Elements and the Periodic Table *Guided Reading and Study*

Nonmetals and Metalloids

Properties of Nonmetals (p 129-130)

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

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

_____

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 (p 130-134)

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_3) collects in a layer in the upper atmosphere.

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?

_____

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

_____

_____

The Metalloids (p 135)

19. What are metalloids?

_____

_____

20. What is the most common metalloid? _____

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

_____

_____

22. What are semiconductors?

_____

_____

_____

Name _____ Date _____ Class _____

Nonmetals and Metalloids

Understanding Main Ideas

Complete the following table. Use a periodic table for reference.

Element	Metal, Metalloid, or Nonmetal	Family Name
Arsenic	1.	
Sulfur	2.	
Tin	3.	
Neon	4.	
Chlorine	5.	
Silicon	6.	

Answer the following questions on a separate sheet of paper.

7. Where in the periodic table are the nonmetals located? Where are the metalloids?
8. What element is not grouped with others in a family? What is its usual atomic structure?

Building Vocabulary

Match each term with its definition by writing the letter of the correct definition on the line beside the term.

____ 9. diatomic molecule
____ 10. halogen
____ 11. metalloid
____ 12. noble gases
____ 13. nonmetal
____ 14. semiconductor

a. a type of element that has some of the characteristics of metals and some of nonmetals
b. a family of unreactive elements whose atoms do not gain, lose, or share valence electrons
c. formed of two atoms
d. a substance that carries electricity under certain circumstances, but not under other circumstances
e. a type of element whose physical properties are generally opposite to that of metals
f. a family of very reactive elements whose atoms gain or share one electron