

**Introduction to Matter** ▪ *Guided Reading and Study*

## Describing Matter

*This section describes the kinds of properties used to describe matter. It also defines elements and contrasts compounds and mixtures.*

### Use Target Reading Skills

*Write a definition of each Key Term in your own words.*

matter: \_\_\_\_\_

chemistry: \_\_\_\_\_

substance: \_\_\_\_\_

physical property: \_\_\_\_\_

chemical property: \_\_\_\_\_

element: \_\_\_\_\_

atom: \_\_\_\_\_

chemical bond: \_\_\_\_\_

molecule: \_\_\_\_\_

compound: \_\_\_\_\_

chemical formula: \_\_\_\_\_

mixture: \_\_\_\_\_

heterogeneous mixture: \_\_\_\_\_

homogeneous mixture: \_\_\_\_\_

solution: \_\_\_\_\_

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**Describing Matter** *(continued)*

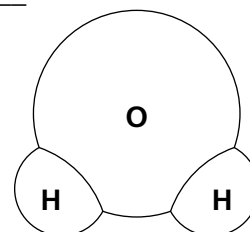
**Properties of Matter**

1. The study of the properties of matter and how matter changes is called \_\_\_\_\_.
2. Is the following sentence true or false? Table sugar and table salt are pure substances. \_\_\_\_\_
3. A(n) \_\_\_\_\_ property is a characteristic of a pure substance that can be observed without changing the substance into something else.
4. Complete the table by classifying each property as either a physical or chemical property.

Properties of Matter	
Property	Physical or Chemical?
Ability to burn	a.
Color	b.
Flexibility	c.
Ability to tarnish	d.
Ability to freeze	e.
Ability to rust	f.

**Elements**

5. A pure substance that cannot be broken down into any other substances by chemical or physical means is a(n) \_\_\_\_\_.
6. Is the following sentence true or false? The basic particle from which all elements are made is a molecule. \_\_\_\_\_
7. When atoms combine, the force of attraction that holds them together is a(n) \_\_\_\_\_.
8. How many atoms of hydrogen are in this water molecule?  
\_\_\_\_\_



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**Compounds**

9. What is a compound?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

10. What is the ratio of atoms in carbon dioxide, or CO<sub>2</sub>?

\_\_\_\_\_

11. What is the chemical formula of carbon monoxide?

\_\_\_\_\_

12. Is the following sentence true or false? When elements chemically combine, they form compounds that have properties that are similar to those of the uncombined elements. \_\_\_\_\_

**Mixtures**

13. A(n) \_\_\_\_\_ is made of two or more substances that are together in the same place but are not chemically combined.

14. What are two ways in which mixtures differ from compounds?

a. \_\_\_\_\_  
\_\_\_\_\_  
b. \_\_\_\_\_  
\_\_\_\_\_

15. Circle the letter of each mixture below that is heterogeneous.

- a. damp soil
- b. sugar water
- c. brass
- d. salad

16. Is the following sentence true or false? A solution is an example of a homogeneous mixture. \_\_\_\_\_

17. What are two ways in which mixtures differ from compounds?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_