

## Matter—Properties and Changes

### Section 3.1 Properties of Matter

In your textbook, read about *physical properties* and *chemical properties* of matter.

Use each of the terms below just once to complete the passage.

chemical density	mass	physical substance
properties		

Matter is anything with (1) \_\_\_\_\_ mass \_\_\_\_\_ and volume. A

(2) \_\_\_\_\_ substance \_\_\_\_\_ is a form of matter with a uniform and unchanging composition.

Substances have specific, unchanging (3) \_\_\_\_\_ properties \_\_\_\_\_ that can be observed.

Substances have both physical and chemical properties. (4) \_\_\_\_\_ Physical \_\_\_\_\_

properties can be observed without changing a substance's chemical composition. Color,

hardness, and (5) \_\_\_\_\_ density \_\_\_\_\_ are examples. Other properties cannot be

observed without changing the composition of a substance. These are called

(6) \_\_\_\_\_ chemical \_\_\_\_\_ properties. An example is the tendency of iron to form

rust when exposed to air.

Label each property as either *physical* or *chemical*.

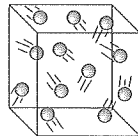
- \_\_\_\_\_ physical \_\_\_\_\_ 7. Chemical formula  $H_2O$
- \_\_\_\_\_ chemical \_\_\_\_\_ 8. Forms green carbonate when exposed to moist air
- \_\_\_\_\_ chemical \_\_\_\_\_ 9. Remains unchanged when in the presence of nitrogen
- \_\_\_\_\_ physical \_\_\_\_\_ 10. Colorless
- \_\_\_\_\_ physical \_\_\_\_\_ 11. Solid at normal temperatures and pressures
- \_\_\_\_\_ chemical \_\_\_\_\_ 12. Ability to combine with another substance
- \_\_\_\_\_ physical \_\_\_\_\_ 13. Melting point
- \_\_\_\_\_ physical \_\_\_\_\_ 14. Liquid at normal temperatures and pressures
- \_\_\_\_\_ physical \_\_\_\_\_ 15. Boiling point is  $100^\circ C$
- \_\_\_\_\_ physical \_\_\_\_\_ 16. Conducts electricity
- \_\_\_\_\_ physical \_\_\_\_\_ 17. Density is  $\frac{1g}{cm^3}$

### Section 3.1 continued

In your textbook, read about states of matter.

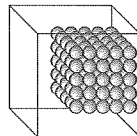
Label each drawing with one of these words: *solid*, *liquid*, *gas*.

18.



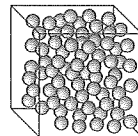
gas

19.



solid

20.



liquid

For each statement below, write *true* or *false*.

- \_\_\_\_\_ true \_\_\_\_\_ 21. All matter that we encounter in everyday life exists in one of three physical forms.
- \_\_\_\_\_ true \_\_\_\_\_ 22. A solid has definite shape and volume.
- \_\_\_\_\_ false \_\_\_\_\_ 23. A liquid has a definite shape and takes on the volume of its container.
- \_\_\_\_\_ true \_\_\_\_\_ 24. A gas has both the shape and the volume of its container.
- \_\_\_\_\_ false \_\_\_\_\_ 25. The particles in a gas cannot be compressed into a smaller volume.
- \_\_\_\_\_ false \_\_\_\_\_ 26. Liquids tend to contract when heated.
- \_\_\_\_\_ false \_\_\_\_\_ 27. The particles in a solid are spaced far apart.
- \_\_\_\_\_ false \_\_\_\_\_ 28. The words *gas* and *vapor* can be used interchangeably.