

# 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  
properties

physical  
substance

Matter is anything with **(1)** \_\_\_\_\_ and volume. A **(2)** \_\_\_\_\_ is a form of matter with a uniform and unchanging composition. Substances have specific, unchanging **(3)** \_\_\_\_\_ that can be observed. Substances have both physical and chemical properties. **(4)** \_\_\_\_\_ properties can be observed without changing a substance’s chemical composition. Color, hardness, and **(5)** \_\_\_\_\_ are examples. Other properties cannot be observed without changing the composition of a substance. These are called **(6)** \_\_\_\_\_ properties. An example is the tendency of iron to form rust when exposed to air.

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

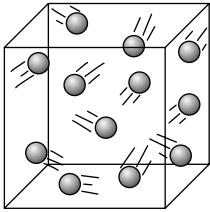
- \_\_\_\_\_ 7. Chemical formula H<sub>2</sub>O
- \_\_\_\_\_ 8. Forms green carbonate when exposed to moist air
- \_\_\_\_\_ 9. Remains unchanged when in the presence of nitrogen
- \_\_\_\_\_ 10. Colorless
- \_\_\_\_\_ 11. Solid at normal temperatures and pressures
- \_\_\_\_\_ 12. Ability to combine with another substance
- \_\_\_\_\_ 13. Melting point
- \_\_\_\_\_ 14. Liquid at normal temperatures and pressures
- \_\_\_\_\_ 15. Boiling point is 100°C
- \_\_\_\_\_ 16. Conducts electricity
- \_\_\_\_\_ 17. Density is  $\frac{1\text{g}}{\text{cm}^3}$

**Section 3.1** *continued*

In your textbook, read about states of matter.

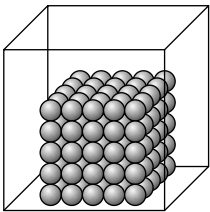
Label each drawing with one of these words: *solid, liquid, gas*.

18.



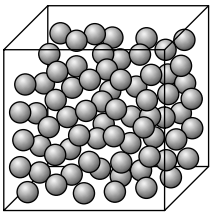
\_\_\_\_\_

19.



\_\_\_\_\_

20.



\_\_\_\_\_

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

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