

Chapter 1 section 2—Introduction to Matter /35

Section: Physical Properties

PHYSICAL PROPERTIES

_____ 1. A characteristic of matter that can be observed or measured without changing the identity of the matter is a

- a. matter property.
- b. physical property.
- c. chemical property.
- d. volume property.

_____ 2. Some examples of physical properties are

- a. color, odor, and age.
- b. color, odor, and speed.
- c. color, odor, and magnetism.
- d. color, odor, and anger.

Match the correct example with the correct physical property. Write the letter in the space provided.

_____ 3. Aluminum can be flattened into sheets of foil.

a. state

b. solubility

_____ 4. An ice cube floats in a glass of water.

c. thermal conductivity

_____ 5. Copper can be pulled into thin wires.

d. malleability

e. odor

_____ 6. Plastic foam protects you from hot liquid.

f. ductility

_____ 7. Flavored drink mix dissolves in water.

g. density

_____ 8. An onion gives off a very distinctive smell.

_____ 9. A golf ball has more mass than a table tennis ball.

10. Density is the _____ that describes the relationship between mass and volume.

11. Objects such as a cotton ball and a small tomato can occupy similar volumes but vary greatly in _____.

12. If you pour different liquids into a graduated cylinder, the liquids will form layers based upon differences in the _____ of each liquid.

13. Which layer of liquid would settle on the bottom?

Directed Reading A *continued*

14. Where will the least dense liquid be found?

15. Why would 1 kg of lead be less awkward to carry around than 1 kg of feathers?

16. What will happen to a solid object made from matter with a greater density than water when it is dropped into water?

17. How will knowing the density of a substance help you determine whether an object made from that material will float in water.

18. What is the equation for density?

19. What do D , V , and m stand for in the equation for density?

3pts

20. The units for density take the form of a mass unit divided by a(n)

_____ unit.

21. What are two reasons why density is a useful property for identifying substances?

2pts

Directed Reading A *continued*

PHYSICAL CHANGES DO NOT FORM NEW SUBSTANCES

22. A change that only affects the physical properties of a substance is known as a(n) _____.

23. What kind of changes are melting and freezing?

Identify which of the following activities represent physical changes by writing PC in the space provided, if they cause only physical changes. Put an X beside any that do not.

_____ **24.** sanding a piece of wood

_____ **25.** baking bread

_____ **26.** crushing an aluminum can

_____ **27.** melting an ice cube

_____ **28.** dissolving sugar in water

_____ **29.** molding a piece of silver

MATTER AND PHYSICAL CHANGES

30. When a substance undergoes a physical change,

its _____ does not change.

31. What is changed when matter undergoes a physical change? Give an example to explain your answer.

2pts

Directed Reading A *continued*

CHEMICAL CHANGES AND NEW SUBSTANCES

- _____ **9.** Chemical changes are the process by which substances
- a.** move from place to place.
 - b.** change into new substances.
 - c.** change in their physical properties.
 - d.** become greater in mass.

- _____ **10.** Which of the following would NOT be considered an example of a chemical change?
- a.** the bubbling action of effervescent tablets
 - b.** the green coating on copper statues
 - c.** the melting of a Popsicle
 - d.** the burning of rocket fuel

- 11.** How do you know that baking a cake involves chemical changes?

- 12.** List some signs or clues that show that a change you are observing is a chemical change.

5pts

- 13.** Because _____ change the identity of the substances involved, they are hard to reverse.

- 14.** How could some chemical changes be reversed? Give an example.

Directed Reading A *continued*

PHYSICAL VERSUS CHEMICAL CHANGES

- _____ **15.** What is the most important question to ask to determine whether a change is physical or chemical?
- a.** Was there a color change?
 - b.** Did the composition change?
 - c.** Was there a change in size?
 - d.** Did the change involve a change in state?
- _____ **16.** What is the name of the process by which water is broken down into hydrogen and oxygen using an electric current?
- a.** electrolysis
 - b.** decomposition
 - c.** reactivity
 - d.** reversibility
- 17.** During _____, the composition of a substance does not change.

Identify whether the following changes are physical changes or chemical changes. Label each change either PC for physical change or CC for chemical change.

- _____ **18.** Mixing vinegar and baking soda
- _____ **19.** Grinding baking soda into a powder
- _____ **20.** Souring milk
- _____ **21.** Melting an ice cream bar
- _____ **22.** Burning a wooden match
- _____ **23.** Shooting off fireworks
- _____ **24.** Mixing drink mix into water
- _____ **25.** Bending an iron nail

Activity

Vocabulary Activity**18****Search for Matter**

After you finish reading the chapter, try this puzzle! Complete each statement by filling in the blanks with the correct word. Then, find the words in the puzzle. Words can be spelled forward or backward and can be vertical, horizontal, or diagonal. Some words may be used more than once.

1. The tendency of an object to resist any change in motion is called _____.
 2. When water is in a container, the surface of the water is curved. This curve is called the _____.
 3. The amount of space taken up or occupied by an object is its _____.
 4. A measure of the amount of matter in an object is its _____. The SI unit for expressing this quantity is the _____.
- 2pts
5. The force which keeps objects from floating off into space is known as the _____ force.
 6. The measure of how much gravitational force is exerted on an object is called its _____. The SI unit for expressing this force is the _____.
- 2pts
7. Anything that has mass and occupies space is called _____.
 8. The amount of matter in a given volume of space is its _____. Units for this quantity are commonly expressed as a(n) _____ unit divided by a(n) _____ unit.
- 3pts
9. A property of matter that can be observed and measured, without changing its identity is known as a(n) _____.
 10. A change in matter from one form to another without a change in its chemical properties is called a(n) _____.

Vocabulary Activity *continued*

11. The ability of matter to change into new matter with completely new properties is called a(n) _____.
12. The process by which matter actually changes into new substances is called a(n) _____.
13. A property of matter that is always the same, no matter what size the sample, is a(n) _____ property. Scientists often use these properties to help them identify substances.
14. The _____ of an object is the type of matter that makes up the object and the way that the matter is arranged.

Now see if you can find the vocabulary words in the word search puzzle. Some terms may be used more than once.

D	Y	B	G	R	A	V	I	T	I	O	N	A	L	P	W	R	T
X	T	A	R	F	G	E	X	J	O	L	M	E	W	K	M	I	J
B	R	V	Q	U	I	T	E	M	U	L	O	V	E	W	T	O	N
F	E	P	H	Y	S	I	C	A	L	P	R	O	P	E	R	T	Y
K	P	C	J	H	W	N	D	S	K	I	L	O	G	R	A	M	T
V	O	L	U	M	E	E	I	S	P	O	D	N	I	I	C	N	I
J	R	O	K	A	I	R	A	M	T	B	A	W	E	I	W	R	S
P	P	V	O	S	G	T	V	O	L	H	T	E	G	I	N	W	N
T	L	D	T	S	H	I	M	A	C	B	H	I	D	E	E	Y	E
X	A	G	R	A	T	A	S	L	R	I	M	G	H	O	W	C	D
N	C	R	M	R	A	W	A	K	I	L	O	H	F	A	T	N	R
A	I	A	D	A	W	C	O	M	P	O	S	I	T	I	O	N	H
C	M	P	M	B	I	M	M	P	V	Q	U	A	O	N	N	M	T
I	E	P	V	M	A	T	T	E	R	G	R	A	V	I	T	E	R
S	H	L	E	R	I	T	E	L	T	R	A	W	A	I	T	O	R
Y	C	H	A	R	A	C	T	E	R	I	S	T	I	C	B	Y	C
H	C	E	G	N	A	H	C	L	A	C	I	S	Y	H	P	R	O
P	T	Z	B	C	N	M	E	N	I	S	C	U	S	R	P	O	Y

3pts
extra
credit

Chapter 2 Section 1 INTERACTIONS of MATTER /17

Section: Forming New Substances

1. The color of leaves that contain chlorophyll is _____.

2. Why are leaves red, orange, and yellow in the fall?

CHEMICAL REACTIONS

_____ 3. Which of the following names the process by which chlorophyll breaks down into new substances?

- a. chemical substance c. chemical mixture
b. chemical reaction d. chemical solution

4. A process in which one or more substances change to form new substances is called a(n) _____.

5. How do the properties of the new substances compare with the properties of the original substances after a chemical change takes place?

6. A solid substance that is formed in a solution is called a(n) _____.

Match the correct example of a chemical reaction with the correct clue. Write the letter in the space provided.

_____ 7. thermal energy produced by a fire

a. color change

_____ 8. precipitate

b. energy change

_____ 9. bubbles

c. solid formation

d. gas formation

_____ 10. white spots caused by bleach

Directed Reading A *continued*

11. What can you conclude is happening if a reaction has more than one of the signs mentioned above?

12. What is the most important sign that a chemical reaction is occurring?

2pts

13. When a gas is given off as a liquid boils, it is an example of a

_____ change, not a _____ reaction.

BONDS: HOLDING MOLECULES TOGETHER

14. What is a chemical bond?

15. What is the relationship between a chemical reaction and the making and breaking of chemical bonds?

16. What makes chemical bonds break?

17. How many atoms make up a diatomic molecule?

Chapter 2 Section 4 INTERACTIONS of MATTER /25

Section: Energy and Rates of Chemical Reactions

1. All chemical reactions either give off or absorb _____.

REACTIONS AND ENERGY

2. Why is chemical energy a part of all chemical reactions?

3. When energy is released during a chemical reaction, it is called a(n)

_____ reaction.

4. Give one example of the types of energy released in exothermic reactions.

5. When energy is taken in during a chemical reaction, it is called

a(n) _____ reaction.

6. Photosynthesis is an example of a(n) _____ process.

7. What does the law of conservation of energy state?

8. If energy can be neither created nor destroyed in a chemical reaction, what can happen to the energy?

9. What happens to the energy taken in during endothermic reactions?

Directed Reading A *continued*

RATES OF REACTIONS

10. The speed at which new particles form is called

the _____.

11. The smallest amount of energy needed to start a chemical reaction is

called _____.

12. Name one source of activation energy.

FACTORS AFFECTING RATES OF REACTIONS

13. What four factors affect how rapidly a chemical reaction takes place?

4pts

14. As temperature increases, the rate of reaction _____.

15. A measure of the amount of one substance that is dissolved in another is

called _____.

16. How does increasing concentration increase the rate of reaction?

17. The amount of exposed surface of a substance is called

_____.

18. How can you increase the surface area of a solid reactant?

19. A substance that slows down or stops a chemical reaction is called

a(n) _____.

20. Give one example of an inhibitor.

Directed Reading A *continued*

21. A substance that speeds up a reaction without being permanently changed is called a(n) _____.

22. How can the rate of a chemical reaction be increased?
