

Skills Worksheet

Directed Reading A

Section: What Is Matter?

MATTER

1. What characteristic do a human, hot soup, the metal wires in a toaster, and the glowing gases in a neon sign have in common?

2. What is matter?

MATTER AND VOLUME

_____ 3. What unit would you use to measure the amount of water in a lake?

- a. grams (g)
- b. liters (L)
- c. meters (m)
- d. milliliters (mL)

_____ 4. What unit would you use to measure the volume of soda in a can?

- a. centimeters (cm)
- b. grams (g)
- c. liters (L)
- d. milliliters (mL)

5. What is volume?

6. Things with _____ cannot share the same space at the same time.

7. To measure a volume of water in a graduated cylinder, you should look at the bottom of the curve at the surface of the water called

the _____.

8. The volume of solid objects is commonly expressed

in _____ units.

9. What three dimensions are needed to find the volume of a rectangular solid?

10. How could the volume of a 12-sided object be found using water and a graduated cylinder?

Directed Reading A *continued*

INERTIA

- _____ **24.** The tendency of an object to resist a change in motion is known as
- a.** mass.
 - b.** gravitation.
 - c.** inertia.
 - d.** weight.

25. What is needed in order to cause an object at rest to move, or an object in motion to change its direction or speed?

26. How does mass affect the inertia of an object?

27. Why is it harder to get a cart full of potatoes moving than one that is empty?

Directed Reading A

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 |
| _____ 4. An ice cube floats in a glass of water. | b. solubility |
| _____ 5. Copper can be pulled into thin wires. | c. thermal conductivity |
| _____ 6. Plastic foam protects you from hot liquid. | d. malleability |
| _____ 7. Flavored drink mix dissolves in water. | e. odor |
| _____ 8. An onion gives off a very distinctive smell. | f. ductility |
| _____ 9. A golf ball has more mass than a table tennis ball. | g. density |

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 of a graduated cylinder?
- _____

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?

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?

Directed Reading A *continued*

PHYSICAL CHANGES DO NOT FORM NEW SUBSTANCES

22. A change that affects only 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

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.

Directed Reading A

Section: Chemical Properties

CHEMICAL PROPERTIES

- _____ 1. The property of matter that describes its ability to change into new matter with different properties is known as a
- a. chemical change.
 - b. physical change.
 - c. chemical property.
 - d. physical property.
- _____ 2. The chemical property that describes the ability of two or more substances to combine to form new substances is called
- a. reactivity.
 - b. flammability.
 - c. density.
 - d. solubility.
- _____ 3. The ability of a substance to burn is a chemical property known as
- a. reactivity.
 - b. flammability.
 - c. density.
 - d. solubility.
- _____ 4. An iron nail is reactive with
- a. rubbing alcohol.
 - b. other iron nails.
 - c. wood in a house.
 - d. oxygen in the air.
- _____ 5. Which of the following statements is true about characteristic properties of matter?
- a. Characteristic properties depend on the size of the sample.
 - b. Characteristic properties may be either physical or chemical properties.
 - c. Characteristic properties involve only chemical properties.
 - d. Characteristic properties involve only the physical nature of the matter.
6. Describe the ways that burning changes the nature of wood.

7. A substance always has _____ properties, even though they are difficult to observe.
8. Scientists use _____ properties to help them identify and classify matter.

Directed Reading A *continued*

CHEMICAL CHANGES AND NEW SUBSTANCES

- _____ **9.** Chemical changes are the processes 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.

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