

**Directed Reading A****Section: Elements**

- \_\_\_\_\_ 1. Which of the following is NOT a physical or chemical change?
- a. crushing
  - b. weighing
  - c. melting
  - d. passing electric current

**ELEMENTS, THE SIMPLEST SUBSTANCES**

2. A pure substance that cannot be separated into simpler substances by physical or chemical means is a(n) \_\_\_\_\_.
3. A substance that contains only one type of particle is a(n) \_\_\_\_\_.

**PROPERTIES OF ELEMENTS**

4. The amount of an element present does not affect the element's \_\_\_\_\_.
5. Why does a helium-filled balloon float up when it is released?
- \_\_\_\_\_
- \_\_\_\_\_

Look at each property listed below. If it is a characteristic property of elements, write CP on the line. If it is not a characteristic property, write N.

- |                        |                                |
|------------------------|--------------------------------|
| _____ 6. size          | _____ 12. color                |
| _____ 7. melting point | _____ 13. hardness             |
| _____ 8. density       | _____ 14. flammability         |
| _____ 9. shape         | _____ 15. weight               |
| _____ 10. mass         | _____ 16. reactivity with acid |
| _____ 11. volume       |                                |

**Directed Reading A *continued***

**CLASSIFYING ELEMENTS BY THEIR PROPERTIES**

**17.** What are two common properties that most terriers share?

\_\_\_\_\_

\_\_\_\_\_

**18.** All elements can be classified as metals, metalloids, or

\_\_\_\_\_.

**19.** An element that is shiny and that conducts heat and electric current well is

a(n) \_\_\_\_\_.

**20.** An element that conducts heat and electric current poorly, and can be a solid,

liquid, or gas is a(n) \_\_\_\_\_.

**21.** Elements that have properties of both metals and nonmetals

are \_\_\_\_\_.

**Indicate whether the description applies to a metal, a nonmetal, or a metalloid.  
Write the correct letter in the space provided.**

\_\_\_\_\_ **22.** are malleable

**a.** metalloids

\_\_\_\_\_ **23.** are dull or shiny

**b.** nonmetals

\_\_\_\_\_ **24.** are poor conductors

**c.** metals

\_\_\_\_\_ **25.** tend to be brittle and unmalleable as solids

\_\_\_\_\_ **26.** are always shiny

\_\_\_\_\_ **27.** are also called semiconductors

\_\_\_\_\_ **28.** are always dull

\_\_\_\_\_ **29.** are somewhat ductile

\_\_\_\_\_ **30.** include boron, silicon, antimony

\_\_\_\_\_ **31.** include lead, tin, copper

\_\_\_\_\_ **32.** include sulfur, iodine, neon

## Skills Worksheet

**Directed Reading A****Section: Compounds**

1. List three examples of compounds you encounter every day.

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**COMPOUNDS: MADE OF ELEMENTS**

- \_\_\_\_\_ 2. Which of the following is NOT true about compounds?
- a. Compounds are combinations of elements that join in specific ratios according to their masses.
  - b. The mass ratio of a specific compound is always the same.
  - c. Compounds are random combinations of elements.
  - d. Different mass ratios mean different compounds.
3. When two or more elements are joined by chemical bonds to form a new pure substance, we call that new substance a(n) \_\_\_\_\_.
4. A compound is different from the \_\_\_\_\_ that reacted to form it.

**PROPERTIES OF COMPOUNDS**

- \_\_\_\_\_ 5. Which of the following statements is true about the properties of compounds?
- a. A property of all compounds is to react with acid.
  - b. Each compound has its own physical properties.
  - c. Compounds cannot be identified by their chemical properties.
  - d. A compound has the same properties as the elements that form it.
6. Sodium and chlorine can be extremely dangerous in their elemental form. How is it possible that we can eat them in a compound?

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### Directed Reading A *continued*

**Match the correct description with the correct term. Write the letter in the space provided.**

- |   |                           |
|---|---------------------------|
| _____ 7. a poisonous, greenish yellow gas                             | <b>a. sodium chloride</b> |
| _____ 8. table salt   | <b>b. chlorine</b>        |
| _____ 9. a soft, silvery white metal that reacts violently with water | <b>c. sodium</b>          |

### BREAKING DOWN COMPOUNDS

**10.** What compound helps give carbonated beverages their "fizz"? \_\_\_\_\_

**11.** Which elements make up the compound that helps give carbonated beverages their "fizz"? \_\_\_\_\_

**12.** The only way to break down a compound is through  
a(n) \_\_\_\_\_ change.

### COMPOUNDS IN YOUR WORLD

**13.** Aluminum is produced by breaking down the compound  
\_\_\_\_\_.

**14.** Plants use the compound \_\_\_\_\_ in photosynthesis to make carbohydrates.

## Skills Worksheet

**Directed Reading A****Section: Mixtures**

1. A pizza is a(n) \_\_\_\_\_.

**PROPERTIES OF MIXTURES**

2. A combination of two or more substances that are not chemically combined is a(n) \_\_\_\_\_.

3. When two or more materials combine chemically, they form a(n) \_\_\_\_\_.

4. How can you tell that a pizza is a mixture?
- \_\_\_\_\_
- \_\_\_\_\_

5. Mixtures are separated through \_\_\_\_\_ changes.

**Match the correct method of separation with the each substance. Write the letter in the space provided. Each method may be used only once.**

- |   |                 |
|---|-----------------|
| _____ 6. crude oil                      | a. distillation |
| _____ 7. a mixture of aluminum and iron | b. magnet       |
| _____ 8. parts of blood                 | c. filter       |
| _____ 9. sulfur and salt                | d. centrifuge   |

10. Granite can be pink or black, depending on the \_\_\_\_\_ of feldspar, mica, and quartz.

**SOLUTIONS**

- \_\_\_\_\_ 11. Which of the following is NOT true of solutions?
- a. They contain a dissolved substance called a solute.
  - b. They are composed of two or more evenly distributed substances.
  - c. They contain a substance called a solvent, in which another substance is dissolved.
  - d. They appear to be more than one substance.
12. The process in which particles of substances separate and spread evenly through a mixture is known as \_\_\_\_\_.

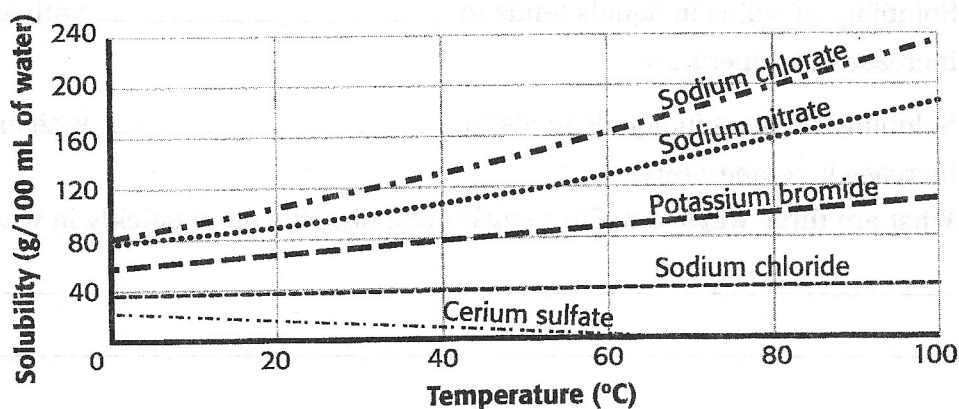
# **Directed Reading A *continued***

13. In a solution, the \_\_\_\_\_ is the substance that is dissolved, and the \_\_\_\_\_ is the substance in which it is dissolved.
14. Salt is \_\_\_\_\_ in water because it dissolves in water.
15. When two gases or two liquids form a solution, the substance that is present in the largest amount is the \_\_\_\_\_.
16. A solid solution of metals or nonmetals dissolved in metals is a(n) \_\_\_\_\_.
17. What can particles in solution NOT do because they are so small?  
\_\_\_\_\_  
\_\_\_\_\_

## **CONCENTRATION OF SOLUTIONS**

18. A measure of the amount of solute dissolved in a solvent is called \_\_\_\_\_.  
\_\_\_\_\_
19. What is the difference between a dilute solution and a concentrated solution?  
\_\_\_\_\_  
\_\_\_\_\_
20. The ability of a solute to dissolve in a solvent at a certain temperature and pressure is called \_\_\_\_\_.  
\_\_\_\_\_

# Directed Reading A *continued*



21. Look at the graph. Which solid is less soluble at higher temperatures than at lower temperatures?
- sodium chloride
  - sodium nitrate
  - potassium bromide
  - cerium sulfate
22. Look at the graph. Which compound's solubility is least affected by temperature changes?
- sodium chloride
  - sodium nitrate
  - potassium bromide
  - cerium sulfate

**Directed Reading A *continued***

- 23.** Solubility of solids in liquids tends to \_\_\_\_\_ with an increase in temperature.
- 24.** Solubility of gases in liquids tends to \_\_\_\_\_ with an increase in temperature.
- 25.** What are three ways to make a sugar cube dissolve more quickly in water?

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**SUSPENSIONS**

- \_\_\_\_\_ **26.** Which of the following does NOT describe a suspension?
- a. Particles are soluble.
  - b. Particles settle out over time.
  - c. Particles can block light.
  - d. Particles scatter light.
- 27.** Why are the particles in a snow globe considered a suspension?

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**COLLOIDS**

- 28.** What do gelatin, milk, and stick deodorant have in common?

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**Match the correct description with the correct term. Write the letter in the space provided.**

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|--|----------------------|
| _____ <b>29.</b> a mixture of two or more uniformly dispersed substances   | <b>a.</b> colloid    |
|  | <b>b.</b> solution   |
| _____ <b>30.</b> a mixture in which particles of a material are more or less evenly dispersed throughout a liquid or gas | <b>c.</b> suspension |
| _____ <b>31.</b> a mixture of particles that are large enough to scatter light but are not heavy enough to settle out    |                      |