

## 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***

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- 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?

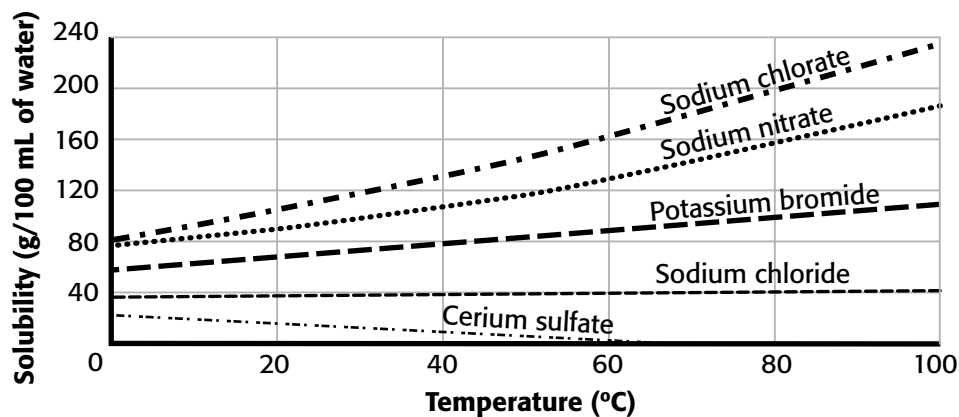
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**CONCENTRATION OF SOLUTIONS**

- 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?
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- 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***

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

# Answer Key

## Directed Reading A

### SECTION: ELEMENTS

1. B
2. element
3. pure substance
4. characteristic properties
5. A helium-filled balloon will float up when released because helium is less dense than air.
6. N
7. CP
8. CP
9. N
10. N
11. N
12. CP
13. CP
14. CP
15. N
16. CP
17. Answers may vary. Sample answer: Terriers are small, and they have short hair.
18. nonmetals
19. metal
20. nonmetal
21. metalloids
22. C
23. A
24. B
25. B
26. C
27. A
28. B
29. A
30. A
31. C
32. B

### SECTION: COMPOUNDS

1. Answers may vary. Sample answer: salt, water, and sugar
2. C
3. compound
4. elements
5. B
6. Answers may vary. Sample answer: A compound has different properties from the elements that react to form it. Although sodium and chlorine are dangerous individually, they combine to form sodium chloride, a safe substance also known as table salt.
7. B
8. A
9. C

10. carbonic acid
11. carbon, oxygen, and hydrogen
12. chemical
13. aluminum oxide
14. carbon dioxide

### SECTION: MIXTURES

1. mixture
2. mixture
3. compound
4. Answers may vary. Sample answer: You can see each component in the pizza. Each component has the same chemical makeup as it did before the pizza was made.
5. physical
6. A
7. B
8. D
9. C
10. ratio
11. D
12. dissolving
13. solute, solvent
14. soluble
15. solvent
16. alloy
17. Answers may vary. Sample answer: Particles in solution are so small that they can never settle out, cannot be removed or filtered out, and cannot scatter light.
18. concentration
19. A dilute solution contains less solute than a concentrated solution does.
20. solubility
21. D
22. A
23. increase
24. decrease
25. You can heat the solution, mix the solution by stirring or shaking it, or crush the sugar before adding it.
26. A
27. Answers may vary. Sample answer: Unless the globe is shaken, the snow particles will not stay dispersed and will settle at the bottom.
28. Gelatin, milk, and stick deodorant are all colloids.

29. B  
30. C  
31. A

## Directed Reading B

### SECTION: ELEMENTS

- |              |                |
|--------------|----------------|
| 1. B         | 11. metals     |
| 2. C         | 12. nonmetals  |
| 3. B         | 13. metalloids |
| 4. A         | 14. C          |
| 5. B         | 15. A          |
| 6. B         | 16. B          |
| 7. A         | 17. D          |
| 8. C         | 18. A          |
| 9. D         | 19. C          |
| 10. elements | 20. B          |

### SECTION: COMPOUNDS

- B
- B
- B
- B
- B
- C
- carbonic acid
- carbon dioxide
- chemical change
- B
- A
- D
- B

### SECTION: MIXTURES

- |             |                 |
|-------------|-----------------|
| 1. mixture  | 16. alloy       |
| 2. compound | 17. particles   |
| 3. identity | 18. small       |
| 4. physical | 19. B           |
| 5. A        | 20. C           |
| 6. D        | 21. solubility  |
| 7. B        | 22. temperature |
| 8. C        | 23. D           |
| 9. A        | 24. D           |
| 10. D       | 25. decreases   |
| 11. B       | 26. increases   |
| 12. A       | 27. A           |
| 13. B       | 28. A           |
| 14. soluble | 29. A           |
| 15. solvent |                 |

## Vocabulary and Section Summary

### SECTION: ELEMENTS

- element: a substance that cannot be separated or broken down into simpler substances by chemical means
- pure substance: a sample of matter, either a single element or a single compound, that has definite chemical and physical properties
- metal: an element that is shiny and that conducts heat and electric current well
- nonmetal: an element that conducts heat and electric current poorly
- metalloid: an element that has properties of both metals and nonmetals

### SECTION: COMPOUNDS

- compound: a substance made up of atoms of two or more different elements joined by chemical bonds

### SECTION: MIXTURES

- mixture: a combination of two or more substances that are not chemically combined
- solution: a homogeneous mixture of two or more substances uniformly dispersed throughout a single phase
- solute: in a solution, the substance that dissolves in the solvent
- solvent: in a solution, the substance in which the solute dissolves
- concentration: the amount of a particular substance in a given quantity of a mixture, solution, or ore
- solubility: the ability of one substance to dissolve in another at a given temperature and pressure
- suspension: a mixture in which particles of a material are more or less evenly dispersed throughout a liquid or gas
- colloid: a mixture consisting of tiny particles that are intermediate in size between those in solutions and those in suspensions and that are suspended in a liquid, solid, or gas