

Chapter Review

USING VOCABULARY

- _____ 1. **Academic Vocabulary** In the sentence “The constituent elements of water are hydrogen and oxygen,” what does the word *constituent* mean?
- empowered to elect
 - component
 - two
 - only

Complete each of the following sentences by choosing the correct term from the word bank.

compound	element	solution
solute	nonmetal	metal

2. A(n) _____ has a definite ratio of components.
3. A(n) _____ is a pure substance that cannot be broken down into simpler substances by chemical means.
4. A(n) _____ is an element that is brittle and dull.
5. The _____ is the substance that dissolves to form a solution.

UNDERSTANDING CONCEPTS

Multiple Choice

- _____ 6. Which of the following statements describes elements?
- All of the particles in the same element are different.
 - Elements can be broken down into simpler substances.
 - Elements have unique sets of properties.
 - Elements cannot be joined in chemical reactions.
- _____ 7. Which of the following best describes chicken noodle soup?
- | | |
|------------|-------------|
| a. element | c. compound |
| b. mixture | d. solution |
- _____ 8. An element that conducts thermal energy well and is easily shaped is a
- | | |
|---------------|----------------------|
| a. metal. | c. nonmetal. |
| b. metalloid. | d. None of the above |

Chapter Review *continued*

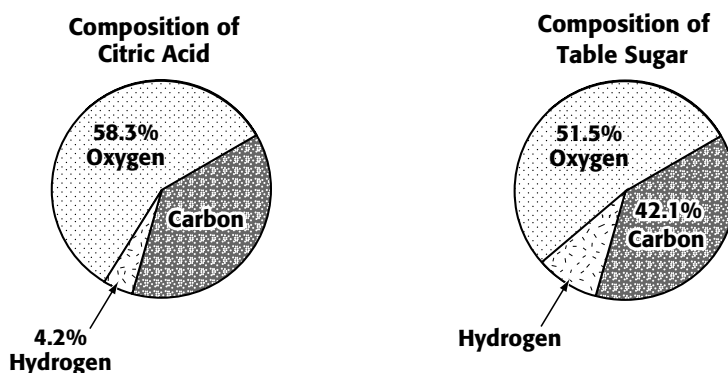
- _____ **9.** Which of the following substances can be separated into simpler substances only by chemical means?
- a. sodium
 - b. salt water
 - c. water
 - d. gold

Short Answer

INTERPRETING GRAPHICS

The pie graphs below show the composition of citric acid and table sugar by element (percentage by mass).

Use the pie graphs to answer the next three questions.



- 10. Analyzing** What is the percentage by mass of carbon found in citric acid?

- 11. Identifying** What is the difference between the percentage of hydrogen in citric acid and the percentage of hydrogen in table sugar?

- 12. Comparing** Citric acid and table sugar are compounds. How can you tell from the pie graphs that citric acid and table sugar are not the same compound? Explain your reasoning.

- 13. Comparing** What is the difference between an element and a compound?

Chapter Review *continued*

14. Evaluating When nail polish is dissolved in acetone, which substance is the solute, and which is the solvent?

15. Evaluating Many gold rings are made out of 14-karat gold, which is an alloy of gold, silver, and copper. Is 14-karat gold a pure substance?

WRITING SKILLS

16. Communicating Concepts On a separate sheet of paper, write an essay that could clearly explain to a third grade student the difference between elements, compounds, and mixtures. Your essay should have a thesis statement and include examples that support your ideas. Finally, make sure that your essay has a conclusion sentence.

Chapter Review *continued*

CRITICAL THINKING

17. Concept Mapping Use the following terms to create a concept map: *matter, element, compound, mixture, and solution.*

18. Making Inferences A light green powder is heated in a test tube. A gas is given off, and the powder becomes a black solid. In which classification of matter does the green powder belong? Explain your reasoning.

Chapter Review *continued*

19. Applying Concepts Explain two properties of mixtures using a fruit salad as an example of a mixture.

20. Forming Hypotheses Temperature affects the solubility of substances. Gases become less soluble as temperature increases. To keep the “fizz” in carbonated beverages after they have been opened, should you store them in a refrigerator or in a cabinet? Explain.

21. Analyzing Ideas Both carbon monoxide and carbon dioxide are made of carbon and oxygen, but they are not the same compound. Explain why these compounds differ from each other.

Chapter Review *continued*

22. Applying Concepts When hydrogen and oxygen react to form water, what happens to the atoms of the hydrogen and oxygen?

INTERPRETING GRAPHICS

Dr. Sol Vent did an experiment to find the solubility of a compound. The data below were collected using 100 mL samples of water.

Use the table below to answer the next two questions.

Temperature (°C)	10	25	40	60	95
Dissolved solute (g)	150	70	34	25	15

23. Forming Hypotheses Use a computer or graph paper to construct a graph of Dr. Vent's results. Examine the graph. To increase the solubility, would you increase or decrease the temperature? Explain.

24. Predicting Consequences If 200 mL samples of water were used instead of 100 mL samples, how many grams of the compound would dissolve at 40°C?
