

**Chemical Reactions** ▪ *Reading/Notetaking Guide***Observing Chemical Change** (pp. 214–221)

*This section describes how a chemical change differs from a physical change. It explains what happens to chemical bonds during a chemical change. It also describes how you can tell when a chemical change in matter has occurred.*

**Use Target Reading Skills**

*Before you read, preview the photographs in Figure 2 in your textbook. Then, complete the graphic organizer by writing two questions about the figure. As you read, answer your questions.*

**Changes in Matter**

Q: What are some examples of physical changes?
A:
Q:
A:

**Introduction** (p. 214)

1. What is matter?

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2. The study of matter and how matter changes is called \_\_\_\_\_.

**Matter and Change** (pp. 215–217)

3. Complete the following table about physical and chemical properties of matter.

Type of Property	How It Can Be Observed	Example
a.	Without changing one substance into another	Color
Chemical	b.	Ability to burn

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4. Is the following sentence true or false? A physical change never alters the form or appearance of a substance. \_\_\_\_\_
5. Circle the letter of each choice that is a physical change in matter.
  - a. bending a straw
  - b. boiling water
  - c. burning wood
  - d. braiding hair
6. A change in matter that produces one or more new substances is a(n) \_\_\_\_\_.
7. What happens to the bonds between atoms when chemical changes occur?

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**Evidence for Chemical Reactions** (pp. 218–221)

8. List the two main kinds of changes that you can observe when chemical reactions occur.
9. If you detect a change in the color of a material, why does this indicate that a chemical reaction might have occurred?

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10. A solid that forms during a chemical reaction is called a(n) \_\_\_\_\_.
11. Suppose you mix two clear liquids together and bubbles form. What type of change might this indicate? Explain your answer.

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**Observing Chemical Change** *(continued)*

12. Is the following sentence true or false? A change in energy occurs during a chemical reaction. \_\_\_\_\_

13. Why does a change in temperature indicate that a chemical reaction may have occurred?

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14. Is the following sentence true or false? Endothermic reactions always result in a decrease in temperature. \_\_\_\_\_

15. Complete the table about changes in energy in chemical reactions.

Type of Reaction	Energy Change	Example
Endothermic	a.	Mixing baking soda and vinegar
b.	Energy is released	Burning wood