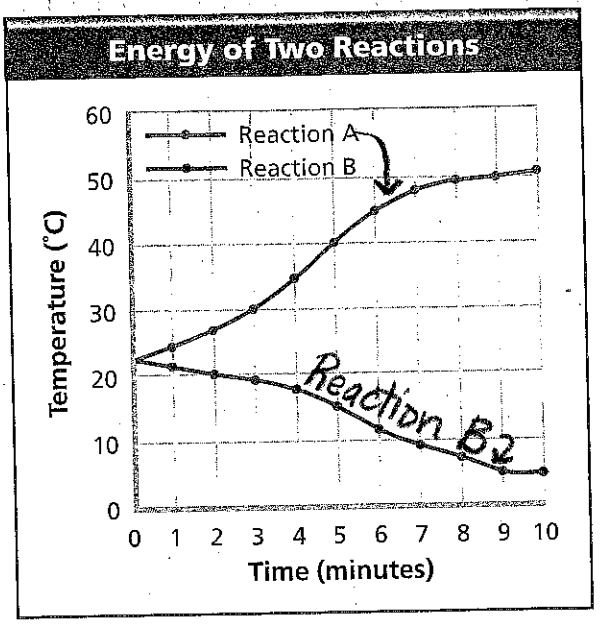
Math Analyzing Data

Comparing Energy Changes

A student observes two different chemical reactions, one in beaker A and the other in beaker B. The student measures the temperature of each reaction every minute. The student then plots the time and temperature data and creates the following graph.

1. **Reading Graphs** What do the numbers on the *x*-axis tell you about the length of the experiment?
2. **Comparing and Contrasting** How did the change in temperature in beaker B differ from that in beaker A?
3. **Interpreting Data** Which reaction is exothermic? Explain your reasoning.
4. **Calculating** Which reaction results in a greater change in temperature over time?



Section 3 Assessment

Target Reading Skill

Relating Cause and Effect Refer to your graphic organizer about chemical change to help you answer Question 2 below.

Reviewing Key Concepts

1. a. **Listing** Identify three different kinds of physical change that could happen to a plastic spoon.
   b. **Making Judgments** Which of the following processes is not a physical change: drying wet clothes, cutting snowflakes out of paper, lighting a match from a matchbook?
2. a. **Defining** What evidence would you look for to determine whether a chemical change has occurred?
   b. **Applying Concepts** Why is the electrolysis of water classified as a chemical change but the freezing of water is not?
   c. **Problem Solving** Explain why the mass of a rusted nail would be greater than the mass of the nail before it rusted. Assume that all the rust is still attached to the nail. (*Hint:* The nail rusts when exposed to the air.)
3. a. **Reviewing** What is thermal energy?
   b. **Explaining** How can you tell whether one glass of water has more thermal energy than another, identical glass of water?
   c. **Inferring** How might you cause an endothermic chemical change to begin and keep going?

Writing in Science

Persuasive Letter Write a letter to persuade a friend that a change in temperature does not necessarily mean that a chemical change has occurred.