

## Section 2–4 Chemical Reactions and Enzymes (pages 49–53)



**TEKS FOCUS:** 1A Safe lab practices; 1B Conserve resources; 2A Plan investigations; 2B Measure precisely; 2C Make inferences; 2D Communicate valid conclusions; 3A Analyze scientific explanations; 4B Cellular processes

*This section describes what happens to chemical bonds during chemical reactions. It also explains how energy changes affect chemical reactions and describes the importance of enzymes.*

### Chemical Reactions (page 49)

1. What is a chemical reaction? \_\_\_\_\_  
\_\_\_\_\_
2. Complete the table about chemicals in a chemical reaction.

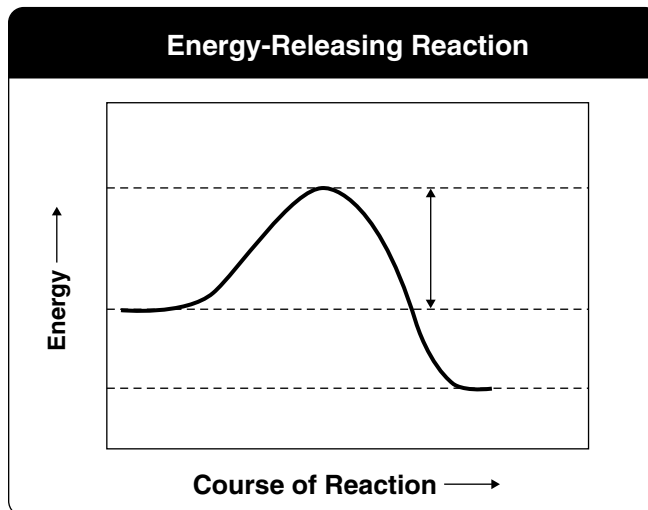
**CHEMICALS IN A CHEMICAL REACTION**

Chemicals	Definition
Reactants	
Products	

3. Chemical reactions always involve changes in chemical \_\_\_\_\_.

### Energy in Reactions (page 50)

4. What is released or absorbed whenever chemical bonds form or are broken?  
\_\_\_\_\_
5. What do chemical reactions that absorb energy need to occur? \_\_\_\_\_  
\_\_\_\_\_
6. Chemists call the energy needed to get a reaction started the \_\_\_\_\_.
7. Complete the graph of an energy-releasing reaction by adding labels to show the energy of the reactants, the energy of the products, and the activation energy.



**Enzymes** (pages 51–52)

- 8. What is a catalyst? \_\_\_\_\_  
\_\_\_\_\_
- 9. Proteins that act as biological catalysts are called \_\_\_\_\_.
- 10. What do enzymes do? \_\_\_\_\_  
\_\_\_\_\_
- 11. From what is part of an enzyme's name usually derived? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Enzyme Action** (pages 52–53)

- 12. The reactants of enzyme-catalyzed reactions are known as \_\_\_\_\_.
- 13. Why are the active site and the substrates in an enzyme-catalyzed reaction often compared to a lock and key? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- 14. The binding together of an enzyme and a substrate forms a(an) \_\_\_\_\_.
- 15. How do most cells regulate the activity of enzymes? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## WordWise

Answer the questions by writing the correct vocabulary term in the blanks.  
 Use the circled letter(s) in each term to find the hidden vocabulary word.  
 Then, write a definition for the hidden word.

### Clues

What is a negatively charged subatomic particle?

What is the basic unit of matter?

What is a large compound formed from combinations of many monomers?

What is an organic compound called that is used to store energy and forms important parts of biological membranes?

What is an element or compound called that is produced by a chemical reaction?

What is the type of mixture whose components are evenly distributed throughout?

What is an atom called that has a positive or negative charge as a result of gaining or losing electrons?

What is a monomer of nucleic acids called?

### Vocabulary Terms

— — — o — — — —

— — o —

— — — — o — — —

— — o — —

— — o — — — —

— — — o — — — — —

— — o

— — — — — — — — — o —

**Hidden Word:** \_ \_ \_ \_ \_ \_ \_ \_

**Definition:** \_\_\_\_\_  
 \_\_\_\_\_