

## 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.

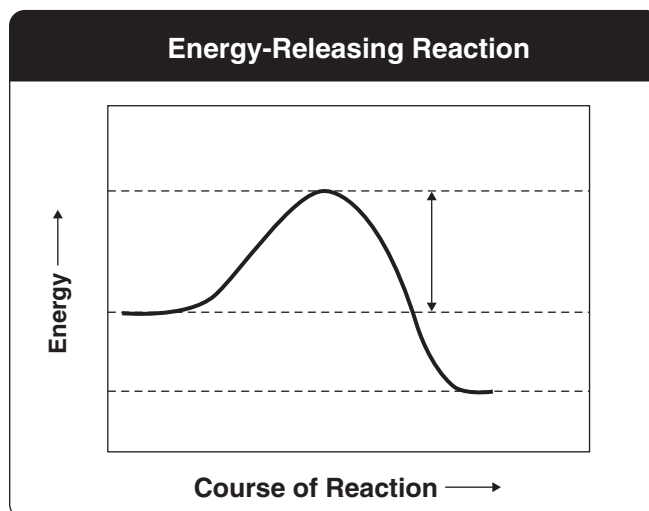
**CHEMICALS IN A CHEMICAL REACTION**

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? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_