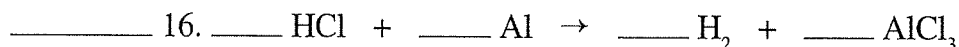
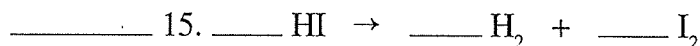
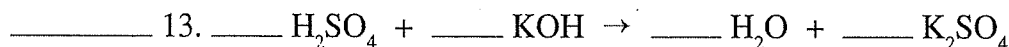
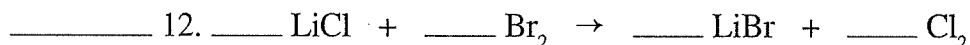
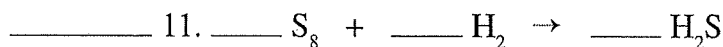
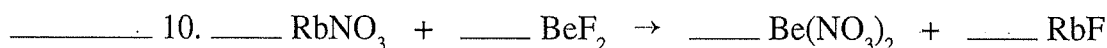
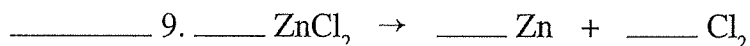
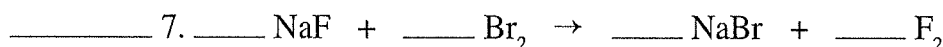
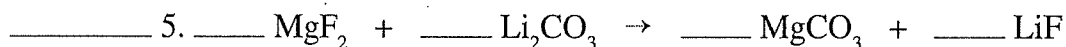
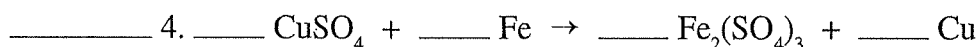
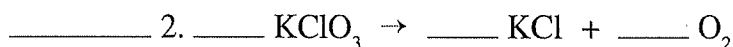


Use with textbook pages 256–267.

## Classifying chemical reactions

**Classify** each of the following reactions as synthesis (S), decomposition (D), single replacement (SR), double replacement (DR), neutralization (N), or combustion (C). Place the correct letter representing the reaction type in the space provided. Then **balance** the chemical equation by placing the correct coefficients in the equation.



Use with textbook pages 256–267.

## Types of chemical reactions—Word equations

**Classify** each of the following chemical reactions as synthesis (S), decomposition (D), single replacement (SR), double replacement (DR), or neutralization (N). Then **write a balanced equation** for each word equation.

\_\_\_\_\_ 1. magnesium + sulphur → magnesium sulphide

\_\_\_\_\_

\_\_\_\_\_ 2. potassium hydroxide + sulphuric acid → water + potassium sulphate

\_\_\_\_\_

\_\_\_\_\_ 3. chlorine + potassium iodide → potassium chloride + iodide

\_\_\_\_\_

\_\_\_\_\_ 4. aluminum chloride + sodium hydroxide → aluminum hydroxide + sodium chloride

\_\_\_\_\_

\_\_\_\_\_ 5. lead(II) oxide → lead + oxygen

\_\_\_\_\_

\_\_\_\_\_ 6. magnesium + silver nitrate → silver + magnesium nitrate

\_\_\_\_\_

\_\_\_\_\_ 7. cadmium(II) nitrate + ammonium sulphide → cadmium(II) sulphide + ammonium nitrate

\_\_\_\_\_

\_\_\_\_\_ 8. tin(IV) hydroxide + hydrogen bromide → water + tin(IV) bromide

\_\_\_\_\_

\_\_\_\_\_ 9. sodium + oxygen → sodium oxide

\_\_\_\_\_

\_\_\_\_\_ 10. sodium nitride → sodium + nitrogen

\_\_\_\_\_

Use with textbook pages 256–267.

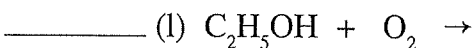
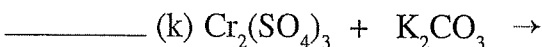
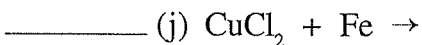
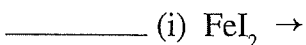
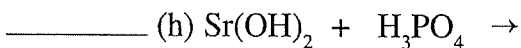
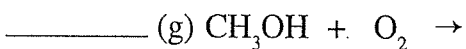
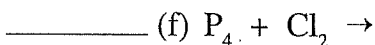
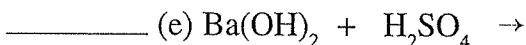
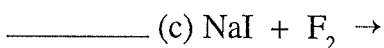
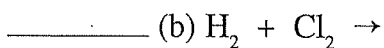
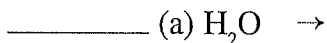
## Predicting the products

1. For each of the following:

I. predict the products

II. classify the reaction as synthesis (S), decomposition (D), single replacement (SR), double replacement (DR), neutralization (N), or combustion (C)

III. write a balanced equation



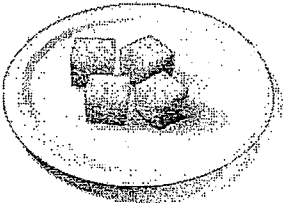
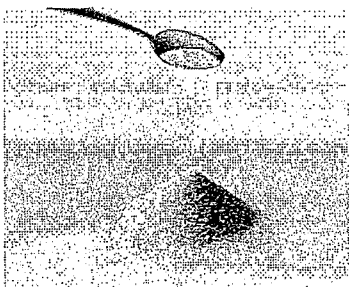
Use with textbook pages 272–277.

## Different rates of reactions

1. Indicate whether each of the following would increase or decrease the rate of reaction.

- (a) adding heat \_\_\_\_\_
- (b) removing heat \_\_\_\_\_
- (c) adding a catalyst \_\_\_\_\_
- (d) diluting a solution \_\_\_\_\_
- (e) removing an enzyme \_\_\_\_\_
- (f) lowering the temperature \_\_\_\_\_
- (g) increasing the temperature \_\_\_\_\_
- (h) decreasing the surface area \_\_\_\_\_
- (i) increasing the concentration of a solution  
\_\_\_\_\_
- (j) breaking a reactant down into smaller pieces  
\_\_\_\_\_

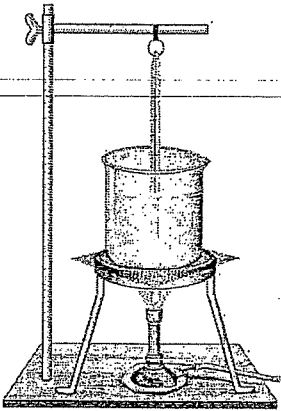
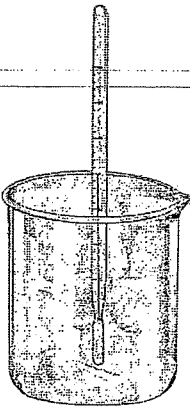
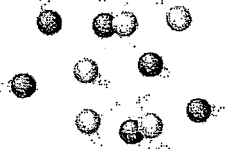
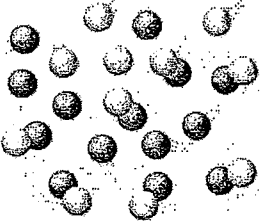
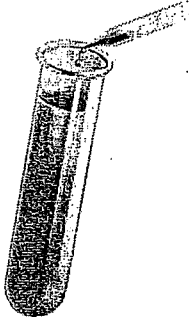

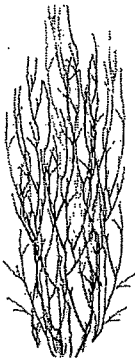
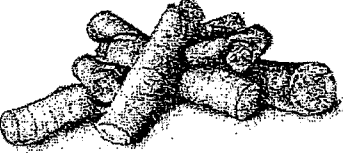
2. Identify which situation would have a higher reaction rate. Then state the factor that affected the rate of reaction in each situation.

	Situation X	Situation Y	Situation with a higher reaction rate (X or Y)	Factor affecting the rate of reaction
(a)	1 g of sugar (cubes) 	1 g of sugar (grains) 		

Name \_\_\_\_\_

Date \_\_\_\_\_

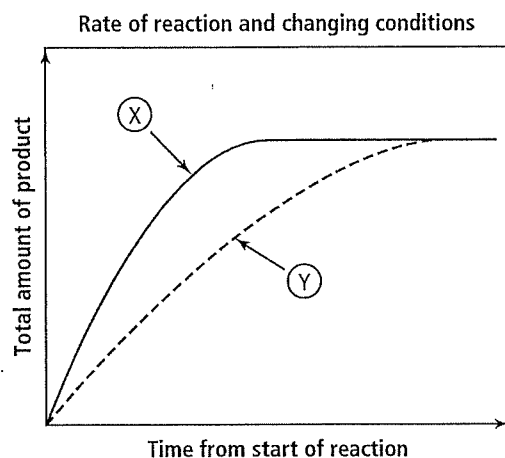
**Comprehension****Section 6.2**

(b)	50 °C 	0 °C 		
(c)	low number of particles = few collisions 	high number of particles = more collisions 		
(d)	enzyme added 	no enzyme added 		
(e)	twigs 	logs 		

Use with textbook pages 272–277.

## Four factors affecting the rate of reactions

Use the following graph to answer question 1.



- The graph above shows the differences in the rate of reaction at different temperatures, concentrations, surface area, and the presence or absence of a catalyst. A steeper line represents a greater rate of reaction. Indicate which line (X or Y) each of the following are associated with.
  - lower temperature \_\_\_\_\_
  - higher temperature \_\_\_\_\_
  - lower concentration \_\_\_\_\_
  - higher concentration \_\_\_\_\_
  - absence of a catalyst \_\_\_\_\_
  - presence of a catalyst \_\_\_\_\_
  - larger pieces (small surface area) \_\_\_\_\_
  - smaller pieces (large surface area) \_\_\_\_\_
- Which of the four factors affecting reaction rate is most important in each of the following examples? Choose from concentration, temperature, surface area, and catalyst.
  - Raw carrots are cut into thin slices for cooking. \_\_\_\_\_
  - Protein is broken down in the stomach by the enzyme pepsin. \_\_\_\_\_
  - A woolly mammoth is found, perfectly preserved, near the Arctic. \_\_\_\_\_
  - More bubbles appear when a concentrated solution of hydrochloric acid is added to a magnesium strip than when a dilute solution of the acid is added. \_\_\_\_\_