

## Section 5.3 Organic Compounds

### Cloze Activity

#### Organic chemistry

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1. organic compounds; organic chemistry
2. inorganic compounds
3. carbon
4. hydrocarbons
5. methane
6. ethane
7. propane
8. butane
9. alcohol; oxygen
10. solvent
11. ethanol

### Comprehension

#### Recognizing organic and inorganic compounds

##### Page 99

1. inorganic
2. organic
3. inorganic
4. inorganic
5. inorganic
6. inorganic
7. organic
8. organic
9. organic
10. organic
11. inorganic
12. inorganic
13. organic
14. inorganic
15. organic
16. organic
17. inorganic
18. organic
19. inorganic
20. inorganic
21. inorganic
22. inorganic
23. organic
24. inorganic
25. organic
26. organic
27. organic
28. organic

29. organic

30. organic

### Applying Knowledge

#### Organic compounds versus inorganic compounds

##### Page 100

1. organic
2. organic
3. inorganic
4. organic
5. organic
6. organic
7. inorganic
8. organic

### Assessment

#### Organic compounds

##### Page 101

1. B 2. A 3. D 4. C 5. A 6. D 7. D 8. A

## Chapter 6 Chemical reactions occur in predictable ways.

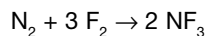
### Section 6.1 Types of Chemical Reactions

#### Comprehension

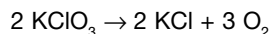
#### Classifying chemical reactions

##### Page 105

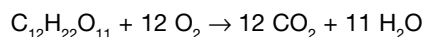
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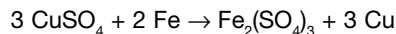
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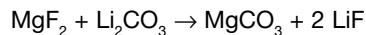
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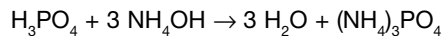
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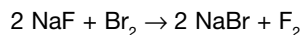
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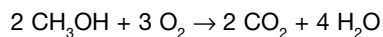
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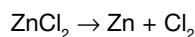
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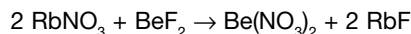
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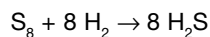
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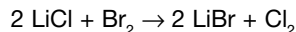
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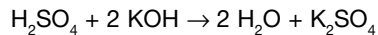
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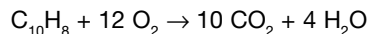
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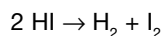
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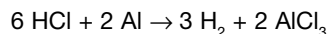
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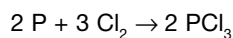
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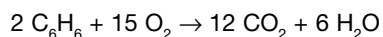
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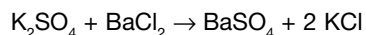
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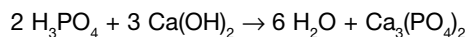
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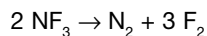
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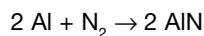
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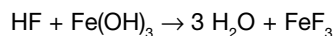
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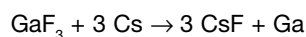
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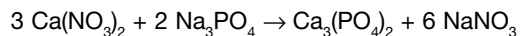
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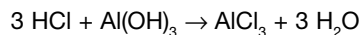
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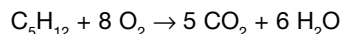
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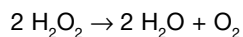
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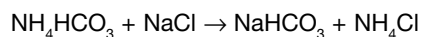
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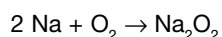
28. D



29. DR



30. S

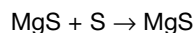


### Applying Knowledge

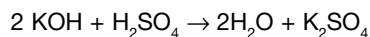
#### Types of chemical reactions — Word equations

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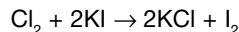
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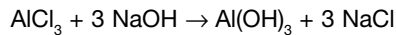
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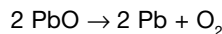
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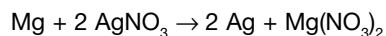
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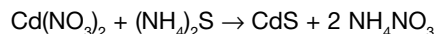
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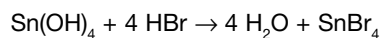
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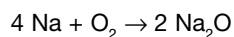
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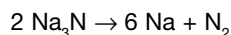
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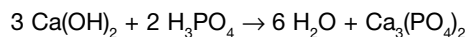
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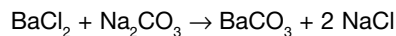
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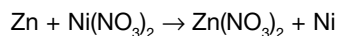
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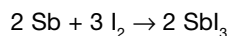
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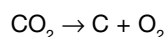
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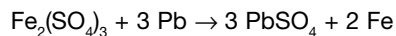
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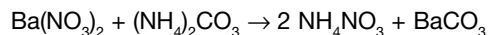
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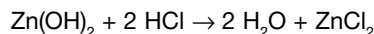
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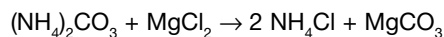
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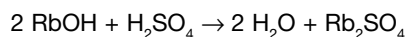
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19. DR



20. N

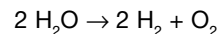


### Applying Knowledge

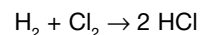
#### Predicting the products

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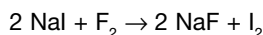
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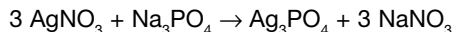
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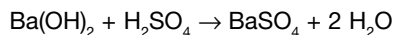
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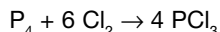
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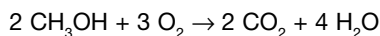
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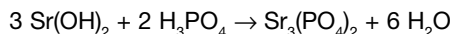
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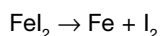
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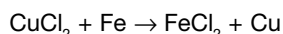
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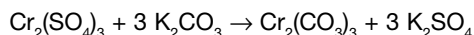
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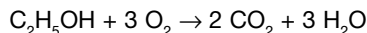
(j) SR



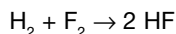
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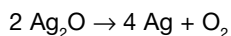
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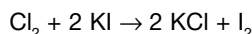
(m) S



(n) D

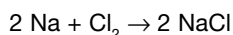


(o) SR



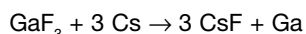
2. (a) S

sodium + chlorine → sodium chloride



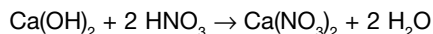
(b) SR

gallium fluoride + cesium →  
cesium fluoride + gallium



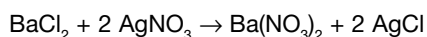
(c) N

calcium hydroxide + nitric acid →  
calcium nitrate + water



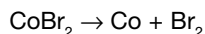
(d) DR

barium chloride + silver nitrate →  
barium nitrate + silver chloride



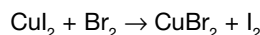
(e) D

cobalt(II) bromide → cobalt + bromine



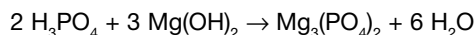
(f) SR

copper(II) iodide + bromine → copper(II) bromide  
+ iodine



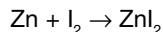
(g) N

phosphoric acid + magnesium hydroxide →  
magnesium phosphate + water



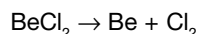
(h) S

zinc + iodine → zinc iodide



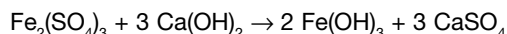
(i) D

beryllium chloride → beryllium + chlorine



(j) DR

iron(III) sulphate + calcium hydroxide →  
iron(III) hydroxide + calcium sulphate



## Assessment

### Types of chemical reactions

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1. D 2. A 3. C 4. B 5. E 6. F 7. A 8. D 9. B 10. D 11. D  
12. D 13. A 14. D 15. C 16. C 17. C 18. A

## Section 6.2 Factors Affecting the Rate of Chemical Reactions

### Cloze Activity

#### Rate of chemical reactions

##### Page 115

1. rate of reaction
2. heat; energy
3. temperature
4. concentration; collisions
5. dilute
6. surface area
7. catalyst
8. catalytic converter

### Comprehension

#### Different rates of reaction

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1. (a) increases rate of reaction  
(b) decreases rate of reaction  
(c) increases rate of reaction  
(d) decreases rate of reaction  
(e) decreases rate of reaction

- (f) decreases rate of reaction
- (g) increases rate of reaction
- (h) decreases rate of reaction
- (i) increases rate of reaction
- (j) increases rate of reaction

2.

	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 gram of sugar (grains)	Y	surface area
(b)	50°C	0°C	X	temperature
(c)	low number of particles = few collisions	high number of particles = more collisions	Y	concentration
(d)	enzyme added	no enzyme added	X	catalyst
(e)	twigs	logs	X	surface area

### Applying Knowledge

#### Four factors affecting the rate of reactions

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1. (a) line Y  
(b) line X  
(c) line Y  
(d) line X  
(e) line Y  
(f) line X  
(g) line Y  
(h) line X
2. (a) surface area  
(b) catalyst  
(c) temperature  
(d) concentration

### Assessment

#### Factors affecting the rate of chemical reactions

##### Page 119

1. D 2. C 3. A 4. B 5. E 6. F 7. D 8. B 9. D 10. B

## Chapter 7 The atomic theory explains radioactivity.

### Section 7.1 Atomic Theory Isotopes, and Radioactive Decay

#### Applying Knowledge

##### Isotopes

##### Page 123

1. different atoms of a particular element that have the same number of protons but different numbers of neutrons
2. mass number
3. mass number
4. number of neutrons
5. "13" represents the mass number; "5" represents the atomic number
6. boron-13 or B-13
7. (a) 5  
(b) 5  
(c) 8
8. (a) neon with 11 neutrons  
(b) sulphur with 16 neutrons  
(c) actinium with 141 neutrons  
(d) thorium with 144 neutrons
- 9.

Isotope	Standard atomic notation	Atomic number	Mass number	Number of protons	Number of neutrons
carbon-14	${}^{14}_6\text{C}$	6	14	6	8
cobalt-52	${}^{52}_{27}\text{Co}$	27	52	27	25
nickel-60	${}^{60}_{28}\text{Ni}$	28	60	28	32
nitrogen-14	${}^{14}_7\text{N}$	7	14	7	7
thallium-201	${}^{201}_{81}\text{Tl}$	81	201	81	120
radium-226	${}^{226}_{88}\text{Ra}$	88	226	88	138
lead-208	${}^{208}_{82}\text{Pb}$	82	208	82	126

### Comprehension

#### Alpha, beta, and gamma radiation

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1. diagram labelling: alpha particle (on the first line); beta particle (on the second line); gamma ray (on the third line)
2. (a) gamma ray  
(b) beta particle  
(c) alpha particle  
(d) gamma ray