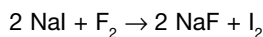
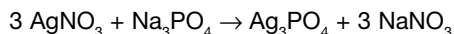


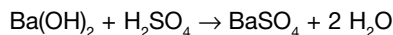
(c) SR



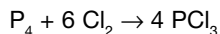
(d) DR



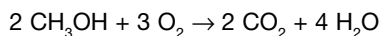
(e) N



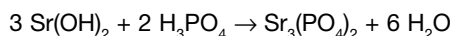
(f) S



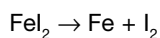
(g) C



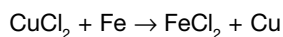
(h) N



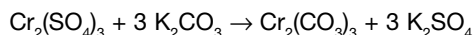
(i) D



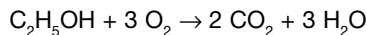
(j) SR



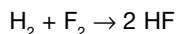
(k) DR



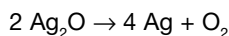
(l) C



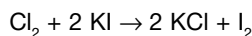
(m) S



(n) D

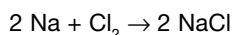


(o) SR



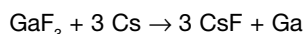
2. (a) S

sodium + chlorine → sodium chloride



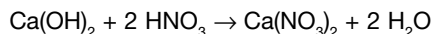
(b) SR

gallium fluoride + cesium →
cesium fluoride + gallium



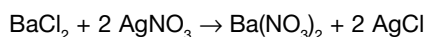
(c) N

calcium hydroxide + nitric acid →
calcium nitrate + water



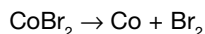
(d) DR

barium chloride + silver nitrate →
barium nitrate + silver chloride



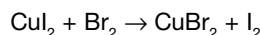
(e) D

cobalt(II) bromide → cobalt + bromine



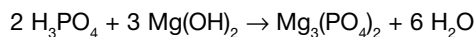
(f) SR

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



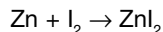
(g) N

phosphoric acid + magnesium hydroxide →
magnesium phosphate + water



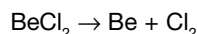
(h) S

zinc + iodine → zinc iodide



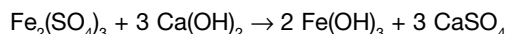
(i) D

beryllium chloride → beryllium + chlorine



(j) DR

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



Assessment

Types of chemical reactions

Page 111

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

Page 116

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

Page 118

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

Page 125

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