

Contents

■ CHAPTER 1 Scientific investigation	xx
1.1 Planning investigations	xx
1.2 Conducting investigations	xx
1.3 Data collection and quality	xx
1.4 Data analysis and presentation	xx
1.5 Conclusion and evaluation	xx
1.6 Reporting investigations	xx

Unit 1 How is energy useful to society?

■ AREA OF STUDY 1

How are light and heat explained?

■ CHAPTER 2 Waves and electromagnetic radiation	xx
2.1 Longitudinal and transverse waves	xx
2.2 Measuring waves	xx
2.3 The electromagnetic spectrum	xx
Chapter 2 Review	xx
■ CHAPTER 3 Light	xx
3.1 Reflection and refraction	xx
3.2 Dispersion and polarisation	xx
Chapter 3 Review	xx
■ CHAPTER 4 Thermal energy	xx
4.1 Heat and temperature	xx
4.2 Specific heat capacity	xx
4.3 Latent heat	xx
4.4 Conduction, convection and radiation	xx
Chapter 4 Review	xx
■ CHAPTER 5 Interaction of thermal energy and electromagnetic radiation	xx
5.1 Wien's law and black-body radiation	xx
5.2 Radiation and the enhanced greenhouse effect	xx
Chapter 5 Review	xx
Area of Study 1 • Review questions	xx

■ AREA OF STUDY 2

How is energy from the nucleus utilised?

■ CHAPTER 6 Radiation from the nucleus	xx
6.1 Atoms, isotopes and radioisotopes	xx
6.2 Radioactivity	xx
6.3 Half-life and decay series	xx
6.4 Radiation and the human body	xx
Chapter 6 Review	xx

■ CHAPTER 7 Nuclear energy	XX
7.1 Energy from mass	XX
7.2 Fission, fusion and the future of nuclear energy in Australia	XX
Chapter 7 Review	XX

Area of Study 2 • Review questions XX

■ **AREA OF STUDY 3**

How can electricity be used to transfer energy?

■ CHAPTER 8 Electrical physics	XX
8.1 Behaviour of charged particles	XX
8.2 Electric current and circuits	XX
8.3 Energy in electric circuits	XX
8.4 Resistance	XX
Chapter 8 Review	XX

■ CHAPTER 9 Electric circuits	XX
9.1 Series and parallel circuits	XX
9.2 Using electricity	XX
9.3 Electrical safety	XX
Chapter 9 Review	XX

Area of Study 3 • Review questions XX

Unit 2 How does physics help us to understand the world?

■ **AREA OF STUDY 1**

How is motion understood?

■ CHAPTER 10 Scalars and vectors	XX
10.1 Scalars and vectors	XX
10.2 Adding and subtracting vectors in one and two dimensions	XX
10.3 Vector components	XX
Chapter 10 Review	XX

■ CHAPTER 11 Linear motion	XX
11.1 Displacement, speed and velocity	XX
11.2 Acceleration	
11.3 Graphing position, velocity and acceleration over time	XX
11.4 Equations for uniform acceleration	XX
11.5 Vertical motion	XX
Chapter 11 Review	XX

■ CHAPTER 12 Momentum and force	XX
12.1 Newton's first law	XX
12.2 Newton's second law	XX
12.3 Newton's third law	XX
12.4 Momentum and conservation of momentum	XX
12.5 Momentum transfer	XX
12.6 Momentum and net force	XX
Chapter 12 Review	XX
■ CHAPTER 13 Energy and motion	XX
13.1 Work	XX
13.2 Mechanical energy	XX
13.3 Using energy: power and efficiency	XX
Chapter 13 Review	XX
■ CHAPTER 14 Forces and equilibrium	XX
14.1 Torque	XX
14.2 Translational equilibrium	XX
14.3 Static equilibrium	XX
Chapter 14 Review	XX
Area of Study 1 • Review questions	XX
<hr/>	
AREA OF STUDY 2	
<i>Heinemann Physics 11</i> 5th edition includes a comprehensive set of resources to support Area of Study 2 via your Pearson Places bookshelf.	
AREA OF STUDY 3	
<i>Heinemann Physics 11</i> 5th edition includes a comprehensive set of resources to support Area of Study 3 via your Pearson Places bookshelf.	
ANSWERS	XX
GLOSSARY	XX
INDEX	XX
ATTRIBUTIONS	XX