

Contents

Introduction	iv
What is heat?	1
Moving particles	1
Energy changes	2
Measuring energy	3
Temperature	6
Particle speeds	6
Measuring temperature	6
Temperature and animals	9
Warm-blooded animals	9
Cold-blooded animals	11
Expansion and contraction	15
Heating and cooling	15
Applications of thermal expansion	16
Specific heat capacity	20
Water's high specific heat capacity	21
Other everyday examples of specific heat capacity	22
Phase changes and latent heat	25
Phase changes	25
Heating and cooling curves	26
Latent heat	26
Conduction	32
Conductors	33
Insulators	33
Everyday examples of conductors and insulators	33
Convection	37
Why convection happens	37
Everyday examples of convection currents	37
Radiation	42
Factors affecting radiation	42
Everyday examples of radiation	44
Implications	50
Everyday examples of implications involving the science of heat	50
Practice assessment tasks	54
Answers	65
Index	73

Copy correctly

Up to 3% of a workbook

Copying or scanning from ESA workbooks is subject to the New Zealand Copyright Act which limits copying to 3% of this workbook.