# Contents

### Introduction

Section 1: The challenge of natural hazards	8
Chapter 1: Tectonic hazards	
1.1 What is the Earth made of?	10
1.2 What are the different types of plate margins	
and their resulting landforms?	12
1.3 Why is volcanic activity found near plate margins?	14
1.4 Volcanic hazards	16
1.5 Why do people live near areas of volcanic activity?	18
1.6 Why do earthquakes occur near plate margins?	20
1.7 What is the impact of earthquakes on people	
and places?	22
1.8 How can the earthquake risk be reduced?	24
EXAMPLE: The Tohoku earthquake, Japan, 2011	26
EXAMPLE: The Gorkha earthquake, Nepal, 2015	28
1.9 Issue evaluation: Predicting seismic activity in China	30
Chapter 2: Weather hazards – tropical storms	
2.1 The general model of global atmospheric circulation	34
2.2 Where do tropical storms develop?	36
2.3 How might climate change affect tropical storms?	38
2.4 What are the effects of tropical storms?	40
2.5 How can the effects of tropical storms be reduced?	42
EXAMPLE: Typhoon Haiyan 2013	44
Chapter 3: Extreme weather in the UK	
3.1 What extreme weather events affect the UK?	46
3.2 What are the effects of extreme weather?	48
3.3 Is the weather in the UK becoming more extreme?	50
EXAMPLE: 2013 UK winter storms	52
Chapter 4: Climate change	
4.1 What is the evidence for climate change?	54
4.2 What are the causes of climate change?	56
4.3 What are the effects of climate change	
and how do we manage them?	58
ipter tot reconnees	
Section 2: The living world	60
Ecosystems – an overview	61
Chapter 5: Tropical rainforests	
5.1 What are the distinctive characteristics of tropical	
F 2 What are the reinforcest layers?	66
5.2 What are the rainforest layers:	68
of tropical rainforest?	70
5.4 What are the impacts of deforestation?	72
5.5 Why is sustainable rainforest management important?	74
CASE STUDY: The Chocó rainforest	76
5.6 Issue evaluation: Hydroelectric power generation in	.0
Madagascar's tropical rainforest	78

Cha	apter 6: Hot deserts	
6.1	What are the distinctive characteristics of hot desert	
	ecosystems?	82
6.2	What is the hot desert ecosystem like?	84
6.3	What development opportunities are found in hot	
	deserts?	86
6.4	What are the challenges of developing hot desert	
	environments?	88
6.5	What are the causes and impacts of desertification?	90
6.6	What strategies can be used to reduce the risk	
	of desertification?	92
	CASE STUDY: The hot desert environment of Qatar	94
Cha	apter 7: Cold environments	
7.1	What are the distinctive characteristics	
	of cold environments?	96
7.2	How are plants and animals adapted to cold	
	environments?	98
7.3	What are the challenges of developing cold	
	environments?	100
	CASE STUDY: Development opportunities and	
	challenges in Alaska	102
	CASE STUDY: The North Slope region, Alaska	104
7.4	How can cold environments be protected?	106
Sec	tion 3: Physical landscapes in the UK	108
Phy	sical landscapes in the UK – an overview	109
Cha	opter 8: Coastal landscapes in the UK	,
8.1	What happens when waves reach the coastline?	114
8.2	How do physical processes affect the coast?	118
8.3	What landforms are associated with coastal	
	erosion?	120
8.4	What landforms are created by coastal	120
	deposition?	122
	EXAMPLE: The Holderness coast. Yorkshire	123
8.5	Protecting coastlines from the effects of physical	120
261	processes	126
8.6	Protecting coastlines from the effects of physical	120
0.00	processes – soft engineering	128
	EXAMPLE: Coastal management scheme Ventnor to	120
	Bonchurch, Isle of Wight	130
		100
Cha	pter 9: River landscapes in the UK	
9.1	How do river valleys change as rivers flow	
	downstream?	132
9.2	What are the processes that affect river valleys?	134
9.3	Distinctive landforms resulting from different	
	physical processes	136
9.4	Assessing and managing flood risk	140
	EXAMPLE: Responding to a flood	
	event – the Boscastle Flood 2004	142

### GCSE Geography for AQA

Chant	er 10: Glacial landscapes in the UK	
10.1	Why do glacial landforms exist in the UK?	146
10.2	What are glaciers?	148
10.3	How do glacial processes shape the	
	landscape?	149
10.4	What landforms result from glacial erosion	150
	in upland areas?	152
10.5	What landforms result from glacial erosion	154
	in lowland areas?	154
10.6	What landforms result from glacial deposition?	155
10.7	What economic opportunities do glacial	157
	landscapes provide?	157
10.8	Why do we need strategies for managing glacian	157
	landscapes?	158
	EXAMPLE: The Lake District National Park	160
	EXAMPLE: The Lake District National Fark	100
	Line Cold envirgaments	111
Sect	ion 4: Urban issues and challenges	104
Chap	oter 11: Changing urban areas	
11.1	Living in an increasingly urban world	166
11.2	What are the causes of urbanisation in LICs	410
	and NEEs?	168
11.3	The growth of megacities	170
	CASE STUDY: Mumbai – a city of national and	172
	international importance	172
	CASE STUDY: Opportunities and challenges	174
	of urban growth in Mumbai	176
11 1	The UK's urban landscape	178
11.4	CASE STUDY: Birmingham – national and	
	international links	180
	CASE STUDY: How urban change has created	
	opportunities in Birmingham	182
	CASE STUDY: How urban change has created	
	challenges for Birmingham	184
	EXAMPLE: Urban regeneration in Birmingham	186
11.5	5 Sustainable urban living	188
11.6	Managing traffic congestion in cities	190
11.7	Issue evaluation: City centre regeneration:	
	Birmingham, UK	192
Sec	ction 5: The changing economic world	196
Cha	apter 12: The development gap	
12.1	How do we measure levels of development?	198
12.	2 Classifying countries according to their level of	
	development	200
12.	3 What are development indicators?	200
12.4	4 What are the limitations of development	
	indicators?	202
12.	5 What is the Demographic Transition Model?	204
12.	6 Why is development uneven?	206
12.	7 What are the economic causes of uneven	19
	development?	208

development?	
	. 210
129 What strategies exist to reduce the global	
development gap?	212
FXAMPLE: How tourism in Tanzania is redu	ucing its
development gap	216
CASE STUDY: Rapid economic developme	nt in
Malaysia	218
CASE STUDY: How the manufacturing indu	ustry can
stimulate economic development in Malay	sia 220
CASE STUDY: International aid and Malays	sia 222
resulting landforms?	
Chapter 13: Economic futures in the UK	
13.1 What are the causes of economic change	224
in the UK?	224
13.2 How has industry in the UK changed?	220
13.3 How has UK infrastructure changed?	230
EXAMPLE: Teesside: impacts of industry c	on the
physical environment	233
13.4 Social and economic changes in rural area	S MAXE 234
13.5 What strategies have been used to resolve	224
regional differences in the UK?	230
13.6 The place of the UK in the wider world	230
13.7 Issue evaluation: Expansion of an industria	240
estate in Bournemouth	240
Section 4: The challenge of resource	
Section 6. The chanenge of resource	244
management	245
Resource management – an overview	
14.1 How is the demand and provision of food	
14.1 How is the demand and provision of room	250
resources in the or changing.	and total C.C.
14.7 How bas the domand for Water chanded (	253
14.2 How has the demand for water changed ?	253 deficit
<ul><li>14.2 How has the demand for water changed?</li><li>14.3 Matching supply and demand – areas of a conditional demand areas of a conditional demand and a conditional demand and a conditional demand and a conditional demand and a conditional demand area of a conditional demand and a conditional demand area of a conditional demand and a conditional demand area of a conditity area of a conditional demand area of a co</li></ul>	253 deficit 254
<ul> <li>14.2 How has the demand for water changed?</li> <li>14.3 Matching supply and demand – areas of and surplus</li> <li>14.4 The shapping operation mix</li> </ul>	253 deficit 254 256
<ul> <li>14.2 How has the demand for water changed?</li> <li>14.3 Matching supply and demand – areas of and surplus</li> <li>14.4 The changing energy mix</li> <li>14.5 What is the future of energy in the UK?</li> </ul>	253 deficit 254 256 258
<ul> <li>14.2 How has the demand for water changed?</li> <li>14.3 Matching supply and demand – areas of a and surplus</li> <li>14.4 The changing energy mix</li> <li>14.5 What is the future of energy in the UK?</li> <li>14.6 Issue evaluation: Opencast coal mining in</li> </ul>	253 deficit 254 256 258
<ul> <li>14.2 How has the demand for water changed?</li> <li>14.3 Matching supply and demand – areas of a and surplus</li> <li>14.4 The changing energy mix</li> <li>14.5 What is the future of energy in the UK?</li> <li>14.6 Issue evaluation: Opencast coal mining in Northumberland</li> </ul>	253 deficit 254 256 258 260
<ul> <li>14.2 How has the demand for water changed?</li> <li>14.3 Matching supply and demand – areas of a and surplus</li> <li>14.4 The changing energy mix</li> <li>14.5 What is the future of energy in the UK?</li> <li>14.6 Issue evaluation: Opencast coal mining in Northumberland</li> </ul>	253 deficit 254 256 258 260
<ul> <li>14.2 How has the demand for water changed?</li> <li>14.3 Matching supply and demand – areas of a and surplus</li> <li>14.4 The changing energy mix</li> <li>14.5 What is the future of energy in the UK?</li> <li>14.6 Issue evaluation: Opencast coal mining in Northumberland</li> <li>Chapter 15: Food resources</li> </ul>	253 deficit 254 256 258 260
<ul> <li>14.2 How has the demand for water changed?</li> <li>14.3 Matching supply and demand – areas of a and surplus</li> <li>14.4 The changing energy mix</li> <li>14.5 What is the future of energy in the UK?</li> <li>14.6 Issue evaluation: Opencast coal mining in Northumberland</li> <li>Chapter 15: Food resources</li> <li>15.1 Where does our food supply come from?</li> </ul>	253 deficit 254 256 258 260 264
<ul> <li>14.2 How has the demand for water changed?</li> <li>14.3 Matching supply and demand – areas of a and surplus</li> <li>14.4 The changing energy mix</li> <li>14.5 What is the future of energy in the UK?</li> <li>14.6 Issue evaluation: Opencast coal mining in Northumberland</li> <li>Chapter 15: Food resources</li> <li>15.1 Where does our food supply come from?</li> <li>15.2 Food security</li> </ul>	253 deficit 254 256 258 260 264 264
<ul> <li>14.2 How has the demand for water changed?</li> <li>14.3 Matching supply and demand – areas of a and surplus</li> <li>14.4 The changing energy mix</li> <li>14.5 What is the future of energy in the UK?</li> <li>14.6 Issue evaluation: Opencast coal mining in Northumberland</li> <li>Chapter 15: Food resources</li> <li>15.1 Where does our food supply come from?</li> <li>15.2 Food security</li> <li>15.3 Where are the world's food resources contained in the security</li> </ul>	253 deficit 254 256 258 260 260 264 265 nsumed? 266
<ul> <li>14.2 How has the demand for water changed?</li> <li>14.3 Matching supply and demand – areas of a and surplus</li> <li>14.4 The changing energy mix</li> <li>14.5 What is the future of energy in the UK?</li> <li>14.6 Issue evaluation: Opencast coal mining in Northumberland</li> <li>Chapter 15: Food resources</li> <li>15.1 Where does our food supply come from?</li> <li>15.2 Food security</li> <li>15.3 Where are the world's food resources contact of the securities of the</li></ul>	253 deficit 254 256 258 260 260 265 nsumed? 266 268
<ul> <li>14.2 How has the demand for water changed?</li> <li>14.3 Matching supply and demand – areas of a and surplus</li> <li>14.4 The changing energy mix</li> <li>14.5 What is the future of energy in the UK?</li> <li>14.6 Issue evaluation: Opencast coal mining in Northumberland</li> <li>Chapter 15: Food resources</li> <li>15.1 Where does our food supply come from?</li> <li>15.2 Food security</li> <li>15.3 Where are the world's food resources con</li> <li>15.4 Is there enough food?</li> <li>15.5 What factors affect food supply?</li> </ul>	253 deficit 254 256 258 260 260 264 265 nsumed? 266 268 270
<ul> <li>14.2 How has the demand for water changed?</li> <li>14.3 Matching supply and demand – areas of a and surplus</li> <li>14.4 The changing energy mix</li> <li>14.5 What is the future of energy in the UK?</li> <li>14.6 Issue evaluation: Opencast coal mining in Northumberland</li> <li>Chapter 15: Food resources</li> <li>15.1 Where does our food supply come from?</li> <li>15.2 Food security</li> <li>15.3 Where are the world's food resources con</li> <li>15.4 Is there enough food?</li> <li>15.5 What factors affect food supply?</li> <li>15.6 What are the impacts of food insecurity?</li> </ul>	253 deficit 254 256 258 260 264 265 268 268 270 272
<ul> <li>14.2 How has the demand for water changed?</li> <li>14.3 Matching supply and demand – areas of a and surplus</li> <li>14.4 The changing energy mix</li> <li>14.5 What is the future of energy in the UK?</li> <li>14.6 Issue evaluation: Opencast coal mining in Northumberland</li> <li>Chapter 15: Food resources</li> <li>15.1 Where does our food supply come from?</li> <li>15.2 Food security</li> <li>15.3 Where are the world's food resources con</li> <li>15.4 Is there enough food?</li> <li>15.5 What factors affect food supply?</li> <li>15.6 What are the impacts of food insecurity?</li> <li>15.7 What strategies can be used to increase</li> </ul>	253 deficit 254 256 258 260 264 265 nsumed? 266 268 270 272
<ul> <li>14.2 How has the demand for water changed?</li> <li>14.3 Matching supply and demand – areas of a and surplus</li> <li>14.4 The changing energy mix</li> <li>14.5 What is the future of energy in the UK?</li> <li>14.6 Issue evaluation: Opencast coal mining in Northumberland</li> <li>Chapter 15: Food resources</li> <li>15.1 Where does our food supply come from?</li> <li>15.2 Food security</li> <li>15.3 Where are the world's food resources con</li> <li>15.4 Is there enough food?</li> <li>15.5 What factors affect food supply?</li> <li>15.6 What are the impacts of food insecurity?</li> <li>15.7 What strategies can be used to increase food supply?</li> </ul>	253 deficit 254 256 258 260 264 265 264 265 268 270 272 274
<ul> <li>14.2 How has the demand for water changed?</li> <li>14.3 Matching supply and demand – areas of a and surplus</li> <li>14.4 The changing energy mix</li> <li>14.5 What is the future of energy in the UK?</li> <li>14.6 Issue evaluation: Opencast coal mining in Northumberland</li> <li>Chapter 15: Food resources</li> <li>15.1 Where does our food supply come from?</li> <li>15.2 Food security</li> <li>15.3 Where are the world's food resources con</li> <li>15.4 Is there enough food?</li> <li>15.5 What factors affect food supply?</li> <li>15.6 What are the impacts of food insecurity?</li> <li>15.7 What strategies can be used to increase food supply? EXAMPLE: Large-scale agricultural devel</li> </ul>	253 deficit 254 256 258 260 264 265 266 268 270 272 274 lopment
<ul> <li>14.2 How has the demand for water changed?</li> <li>14.3 Matching supply and demand – areas of a and surplus</li> <li>14.4 The changing energy mix</li> <li>14.5 What is the future of energy in the UK?</li> <li>14.6 Issue evaluation: Opencast coal mining in Northumberland</li> <li>Chapter 15: Food resources</li> <li>15.1 Where does our food supply come from?</li> <li>15.2 Food security</li> <li>15.3 Where are the world's food resources con</li> <li>15.4 Is there enough food?</li> <li>15.5 What factors affect food supply?</li> <li>15.6 What are the impacts of food insecurity?</li> <li>15.7 What strategies can be used to increase food supply? EXAMPLE: Large-scale agricultural devel in Kilombero Valley, Tanzania</li> </ul>	253 deficit 254 256 258 260 260 264 265 268 270 272 274 274 274
<ul> <li>14.2 How has the demand for water changed?</li> <li>14.3 Matching supply and demand – areas of a and surplus</li> <li>14.4 The changing energy mix</li> <li>14.5 What is the future of energy in the UK?</li> <li>14.6 Issue evaluation: Opencast coal mining in Northumberland</li> <li>Chapter 15: Food resources</li> <li>15.1 Where does our food supply come from?</li> <li>15.2 Food security</li> <li>15.3 Where are the world's food resources con</li> <li>15.4 Is there enough food?</li> <li>15.5 What factors affect food supply?</li> <li>15.6 What are the impacts of food insecurity?</li> <li>15.7 What strategies can be used to increase food supply?</li> <li>EXAMPLE: Large-scale agricultural devel in Kilombero Valley, Tanzania</li> <li>15.8 How can food supply be increased sustain</li> </ul>	253 deficit 254 256 258 260 260 264 265 268 270 272 274 lopment 276 inably? 278
<ul> <li>14.2 How has the demand for water changed?</li> <li>14.3 Matching supply and demand – areas of a and surplus</li> <li>14.4 The changing energy mix</li> <li>14.5 What is the future of energy in the UK?</li> <li>14.6 Issue evaluation: Opencast coal mining in Northumberland</li> <li>Chapter 15: Food resources</li> <li>15.1 Where does our food supply come from?</li> <li>15.2 Food security</li> <li>15.3 Where are the world's food resources con</li> <li>15.4 Is there enough food?</li> <li>15.5 What factors affect food supply?</li> <li>15.6 What are the impacts of food insecurity?</li> <li>15.7 What strategies can be used to increase food supply?</li> <li>EXAMPLE: Large-scale agricultural devel in Kilombero Valley, Tanzania</li> <li>15.8 How can food supply be increased sustai EXAMPLE: Sustainable food production</li> </ul>	253 deficit 254 256 258 260 264 265 268 270 272 274 lopment 276 inably? 278 in

$\sim$	n	$\mathbf{t}$	(n)	
100				
-		66		
${\color{black}{\smile}}$		cc.		

#### Chapter 16: Water resources

Where do our water resources come from?	282
Global patterns of water surplus and deficit	283
What is water used for?	284
What are the reasons for increasing water	
consumption?	285
Water stress and deficit	288
Is there enough water for everyone?	288
What are the impacts of water insecurity?	290
What strategies can be used to increase water	
supply?	292
EXAMPLE: The South-to-North Water Transfer	
Project, China	294
How can we move towards a sustainable water	
resource future?	296
EXAMPLE: The Kyeni Kya Thwake water	
conservation scheme in Kenva	298
	<ul> <li>Where do our water resources come from?</li> <li>Global patterns of water surplus and deficit</li> <li>What is water used for?</li> <li>What are the reasons for increasing water consumption?</li> <li>Water stress and deficit</li> <li>Is there enough water for everyone?</li> <li>What are the impacts of water insecurity?</li> <li>What strategies can be used to increase water supply?</li> <li>EXAMPLE: The South-to-North Water Transfer Project, China</li> <li>How can we move towards a sustainable water resource future?</li> <li>EXAMPLE: The Kyeni Kya Thwake water conservation scheme in Kenya</li> </ul>

#### Chapter 17: Energy resources

17.1	Where does our energy come from?	300
17.2	How are energy consumption and economic	
	development linked?	304
17.3	Why are there areas of energy surplus and deficit?	306
17.4	What factors affect energy supply?	308
17.5	What are the impacts of energy insecurity?	310
17.6	What strategies can be used to increase energy	
	supply?	312
	EXAMPLE: The Gannet oilfield in the North Sea	314
17.7	How can we use energy more sustainably?	316
	EXAMPLE: The Solar Mini Grid Scheme in Melela,	
	Tanzania	318

## Section 7: Fieldwork, skills and assessment preparation

Chapt	er 18: Fieldwork	
18.1	What is a fieldwork enquiry?	322
18.2	Methods of collecting data	324

18.3	Methods of presenting data	326
18.4	Describing, analysing and explaining data	327
Chapt	ter 19: Skills practice	
19.1	Graphical skills – graphs and charts	330
19.2	Graphical skills – population pyramids,	
	choropleth maps	334
19.3	Numerical skills – number, area, scale	336
19.4	Numerical skills – ratio, proportion, sampling	338
19.5	Statistical skills – central tendency, percentage	
	increase and decrease	340
19.6	Statistical skills – how do we find relationships	
	between data?	344
19.7	Cartographic skills – gradients, contours	346
19.8	Cartographic skills – cross-sections, transects	348
19.9	Cartographic skills – coordinates	350
19.10	Cartographic skills – GIS	352
19.11	Atlas skills	354
Chapt	ter 20: Preparing for an assessment	
20.1	Structure of the GCSE Geography exams	356
20.2	Types of questions	357
20.3	Answering questions	358
20.4	Approaching extended response questions	360
	Assess to progress question bank	362

### Glossary

320

Index

374

366

378

### Acknowledgements

You can lind out what they mean in Key tarms box and also in the Glossery at the back of the book

Skills links show where there are opportunities to oractice geographical skills. For help on developing these skills, see Chapter 19 Skills practice.

Fieldwork boxes show where there are opportunities or fieldwork. For help on carrying out fieldwork, see Chapter 18 Fieldwork.