Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

Pearson Edexcel Level 1/Level 2 GCSE (9–1)

Friday 16 June 2023

Afternoon (Time: 1 hour 30 minutes)

Paper reference **1GB0/03**

Geography B

PAPER 3: People and Environmental Issues
Making Geographical Decisions

You must have:
Resource Booklet (enclosed)
Calculator

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*

Information

- The total mark for this paper is 64.
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*
- The marks available for spelling, punctuation and grammar are clearly indicated.

Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over

©2023 Pearson Education Ltd.
N:1/1/1/1/1

P 7 2 5 7 1 A 0 1 2 0

Pearson

SECTION A

People and the Biosphere

Answer ALL questions. Write your answers in the spaces provided.

Some questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

1 Use Section A (pages 2, 3 and 4) in the Resource Booklet to answer this question.

(a) Study Figure 1.

(i) Name the ecosystem which covers the largest area of land in Figure 1.

(1)

.....

(ii) Identify **two** statements which correctly describe the past distribution of forest on the map in Figure 1.

(2)

☐ **A** The forest was fairly evenly distributed

☐ **B** Forests grew mainly in central areas of Iceland

☐ **C** Forests grew mainly near the edges of the land

☐ **D** More forest was in the south-east of Iceland

☐ **E** More forest was in the south-west of Iceland

(b) Using your own knowledge, name **one** forest biome that is **not** present in Iceland.

(1)

.....

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

(c) Using evidence from Figures 1 and 2, suggest **two** ways in which Iceland's physical geography influences the distribution of its ecosystems.

(4)

1 .....

.....

.....

.....

2 .....

.....

.....

.....

(Total for Question 1 = 8 marks)

TOTAL FOR SECTION A = 8 MARKS

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

SECTION B

Forests Under Threat

Answer ALL questions. Write your answers in the spaces provided.

Some questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

2 Use Section B (page 5) in the Resource Booklet to answer this question.

(a) Study Figure 3.

(i) Which **one** of the following is the best definition of biodiversity?

(1)

☐ **A** The percentage of forest which has been removed

☐ **B** The different forests found in a country

☐ **C** The rate of nutrient cycling in an ecosystem

☐ **D** The number of plant and animal species

(ii) Using Figure 3 and your own knowledge, explain **one human** reason and **one physical** reason why very little of Iceland's forest remains.

(4)

Human reason

.....

.....

.....

.....

Physical reason

.....

.....

.....

.....

DO NOT WRITE IN THIS AREA DO NOT WRITE IN THIS AREA DO NOT WRITE IN THIS AREA

(b) Study Figure 4.

Using Figure 4 and your own knowledge, explain **one** possible impact of replanting forests on Iceland's economy.

(2)

.....

.....

.....

.....

(c) Using your own knowledge, explain **one** way in which trees in the taiga biome are adapted to the climate.

(2)

.....

.....

.....

.....

(Total for Question 2 = 9 marks)

TOTAL FOR SECTION B = 9 MARKS

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

SECTION C

Consuming Energy Resources

Answer ALL questions. Write your answers in the spaces provided.

Some questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

3 Use Section C (pages 6 to 10) in the Resource Booklet to answer this question.

(a) Study Figure 5.

(i) Identify the sector which employs most people.

(1)

.....

(ii) Identify the sector which is **most clearly** shown as being threatened by climate change.

(1)

.....

(b) Study Figure 6.

(i) Calculate the value of **X** in the table.

(1)

☐ **A** 78

☐ **B** 61

☐ **C** 19

☐ **D** 13

(ii) Using your own knowledge, state **one** possible **political** cause of a large global oil price increase.

(1)

.....

.....

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

(c) A country's 'energy mix' is the range of different energy sources used by its people and industries.

Using evidence from Figures 5 and 6, explain **two** reasons why the people of Iceland need a diverse energy mix.

(4)

1 .....

.....

.....

.....

2 .....

.....

.....

.....

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

(d) Study Figure 7.

Identify the interquartile range of the data.

(1)

- ☒ **A** 76 – 7
- ☒ **B** 75 – 17
- ☒ **C** 53 – 15
- ☒ **D** 33 – 16

(e) Using your own knowledge, explain **one physical** and **one political** reason why some countries produce little renewable energy.

(4)

Physical reason

.....

.....

.....

.....

Political reason

.....

.....

.....

.....

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

(f) Study Figure 8.

Using evidence from Figure 8, assess the **environmental** impacts of renewable energy use in Iceland.

(8)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

(g) Study Figure 9.

(i) Identify the year when Iceland's annual average temperature was highest.

(1)

.....

(ii) Using Figure 9, identify **one** reason why climate change leads to the loss of Arctic fish species.

(1)

.....

.....

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

(h) Study Figure 10.

Assess the value of Iceland's Climate Action Plan as a strategy that **other countries** could also use.

(8)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

(Total for Question 3 = 31 marks)

TOTAL FOR SECTION C = 31 MARKS

SECTION D

Making a Geographical Decision

Answer Question 4. Write your answers in the space provided.

In this question, up to four additional marks will be awarded for your spelling, punctuation, grammar and your use of specialist terminology.

4 Study the three options below for Iceland's government to manage the country's natural environment and resources more sustainably.

Option 1: Make new laws to limit the harm done by aluminium production.

Option 2: Increased planting of new trees to replace Iceland's lost taiga forest.

Option 3: Take action to reduce fossil fuel use by transport in Iceland.

Select the option you think Iceland's government ought to focus on **first**.

Justify your choice.

Use information from the Resource Booklet and knowledge and understanding from the rest of your geography course to support your answer.

(12)

Chosen option

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

DO NOT WRITE IN THIS AREA DO NOT WRITE IN THIS AREA DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

(Spelling, punctuation, grammar and use of specialist terminology = 4 marks)
(Total for Question 4 = 16 marks)

TOTAL FOR SECTION D = 16 MARKS
TOTAL FOR PAPER = 64 MARKS

BLANK PAGE

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

BLANK PAGE

BLANK PAGE

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Pearson Edexcel Level 1/Level 2 GCSE (9–1)

Friday 16 June 2023

Afternoon (Time: 1 hour 30 minutes)

Paper reference **1GB0/03**

Geography B

PAPER 3: People and Environmental Issues
Making Geographical Decisions

Resource Booklet

Do not return this Booklet with the question paper.

Turn over

P72571A

©2023 Pearson Education Ltd.

N:1/1/1/1/1

P 7 2 5 7 1 A

Pearson

SECTION A

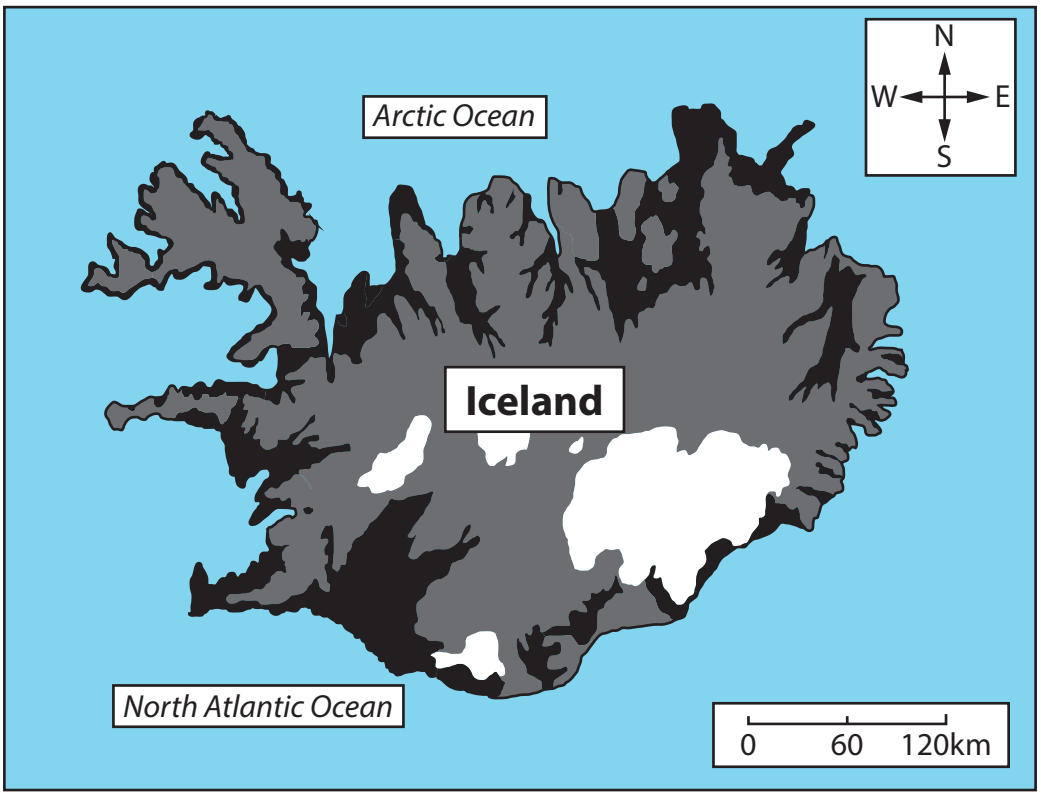
People and the Biosphere

The issue: **a sustainable future for Iceland**.

- The European country of Iceland is a volcanic island in the North Atlantic Ocean. Large areas of Iceland are an uninhabited wilderness.
- In 2019, Iceland's 350,000 citizens had an average life expectancy of 84 and a very high Gross Domestic Product (GDP) per capita of 55,000 US$.
- Environmental impacts of Iceland's past economic growth include deforestation, soil erosion and pollution. The environment is now threatened by climate change.
- How can Iceland's government ensure a sustainable future not only for its people but also for Iceland's physical environment?

Introduction

- Iceland lies on a boundary between two tectonic plates. Volcanic activity has created a dramatic mountainous landscape which attracts tourists. Glaciers cover many of the island's high mountains and volcanoes.
- This environment provides plentiful renewable energy. Firstly, seasonal meltwater from glacial ice is used to create hydroelectric power (HEP). Secondly, volcanic activity generates ground heat that can be a power source – this is called geothermal energy.
- Some transnational corporations (TNCs) have been attracted to Iceland by its cheap electricity. These TNCs make aluminium and provide jobs but also have an environmental and climate impact.
- Carbon dioxide is also produced by Iceland's many large fishing boats and the tourist aeroplanes on which its economy depends.
- The carbon footprint of Iceland's citizens is one of the world's largest. An Icelandic politician recently admitted: "If everybody lived like Icelanders, we would need six planets."



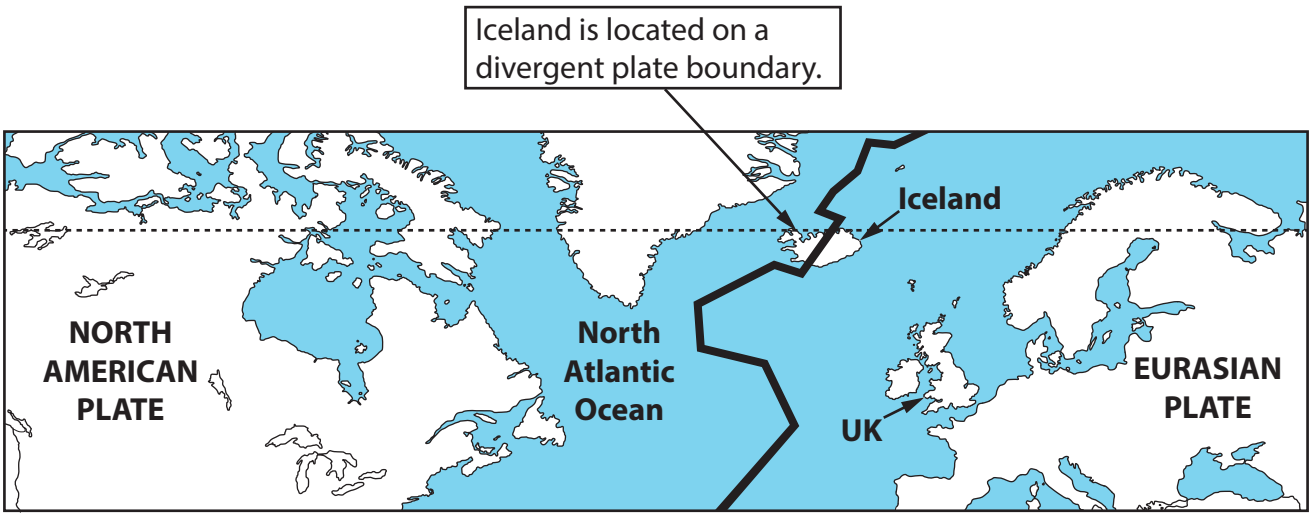
Key

- Tundra
- Glaciers
- Taiga forest

- Parts of Iceland were originally covered with a type of taiga (boreal) forest composed of birch, pine, and spruce trees.
- 1,100 years ago, when humans first sailed to Iceland from mainland Europe, around 25 per cent (%) of Iceland was still forested. Tundra vegetation or glaciers covered other areas.

Figure 1

Iceland's ecosystems before humans first arrived 1,100 years ago



Key

Mid-Atlantic Ridge (a tectonic plate boundary)

Arctic Circle

Some highland areas in central Iceland are covered with ice.

Iceland is an active volcanic hotspot.

Figure 2

The location and physical geography of Iceland

SECTION B

Forests Under Threat

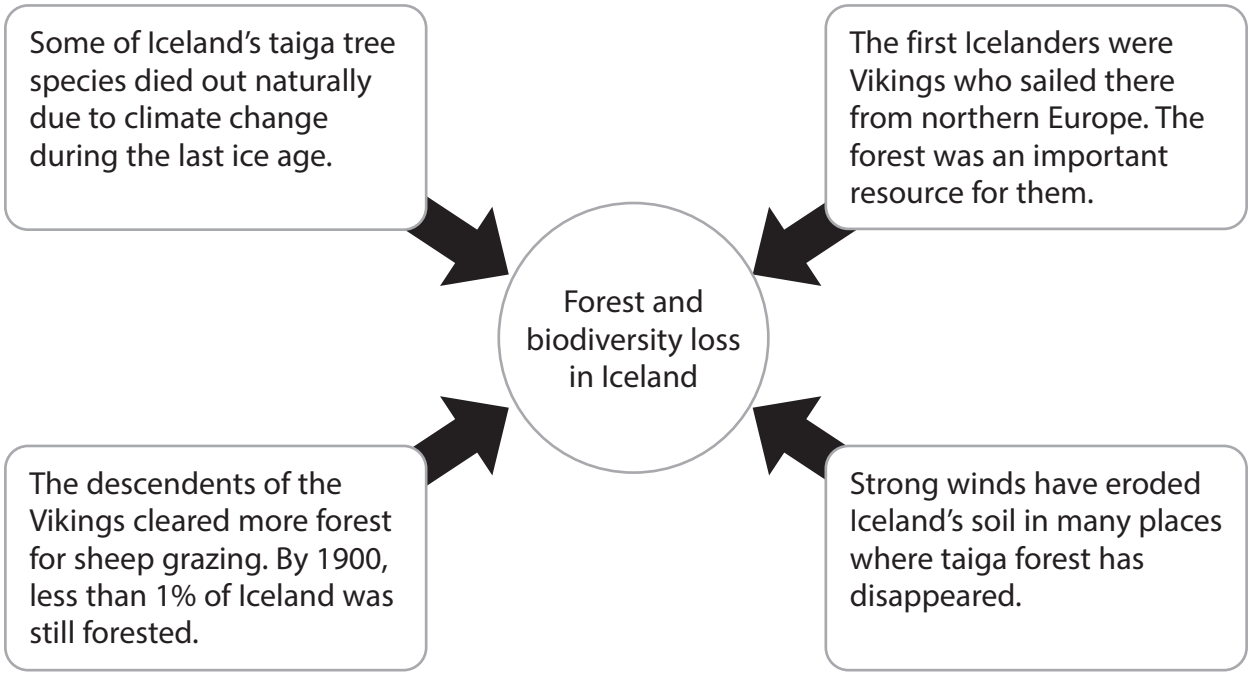


Figure 3

Causes of forest and biodiversity loss in Iceland

Economic benefits	Environmental benefits	Social benefits
• Wood production • Forestry work	• Biodiversity gains • Soil protection • Carbon storage	• Recreation • Flood risk reduction

- Iceland's government plans to replant half of Iceland's lost taiga forest by 2100. 3 million fast-growing pine trees are planted each year.
- Not everyone supports forest replanting because it changes the landscape that international tourists want to see. New forest can create many benefits though.

Figure 4

Replanting Iceland's forest

SECTION C

Consuming Energy Resources

Sector	% of Iceland's earnings	Characteristics of sector (2018 data)	Threats to sector
Fishing & food	27	• 5,000 people work on fishing vessels. • 20,000 people work in food processing or support roles like ship repairs.	• Marine ecosystem health is threatened by rising ocean temperatures. • Some species may vanish altogether.
Tourism	33	• 27,000 people work in air travel, hotels, coaches and visitor attractions. • 3 million tourists visited in 2018.	• Almost all tourists arrive by air. • Volcanic eruptions and major global events can affect air travel.
Aluminium manufacturing	36	• 4,000 people work in aluminium metal production. • The factories are mainly owned by foreign TNCs.	• TNCs might relocate elsewhere if costs in Iceland rise. • Demand is linked to global economic growth.

Figure 5

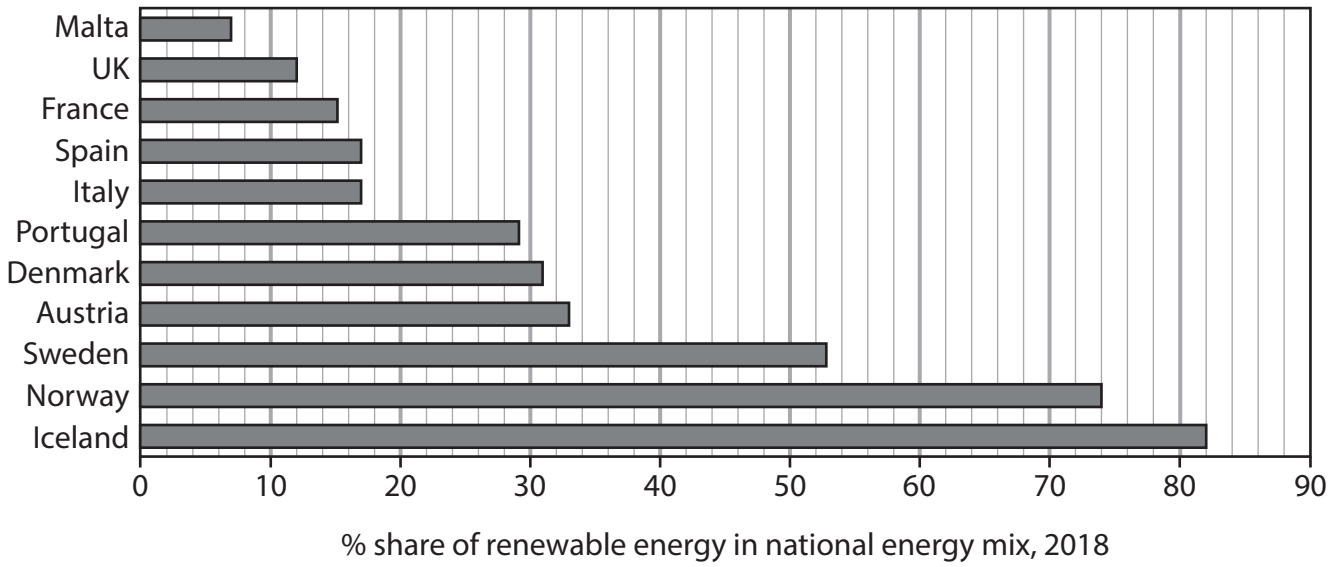
Information about Iceland's three main economic sectors and its capital city, Reykjavik

	% contribution to Iceland's energy mix			
YEAR	**Hydroelectric power**	**Geothermal energy**	**Imported oil**	**Imported coal**
2005	18	56	23	3
2010	19	66	**X**	2
2018	20	62	16	2

- A country's 'energy mix' is the range of different energy sources that are used.
- Fossil fuel use for making electricity has fallen as renewable energy sources have increased. However, oil is still needed for shipping, aeroplanes and road vehicles.
- Renewable energy was developed rapidly in the 1970s when Iceland could not afford to import the oil it needed because of a large global price increase.
- Hydroelectric power (HEP) was developed by building large dams and reservoirs.
- Geothermal energy was developed by drilling into rock and drawing up hot water. Electricity can be generated using steam from this water. 90% of Icelandic houses are now heated using geothermal energy.

Figure 6

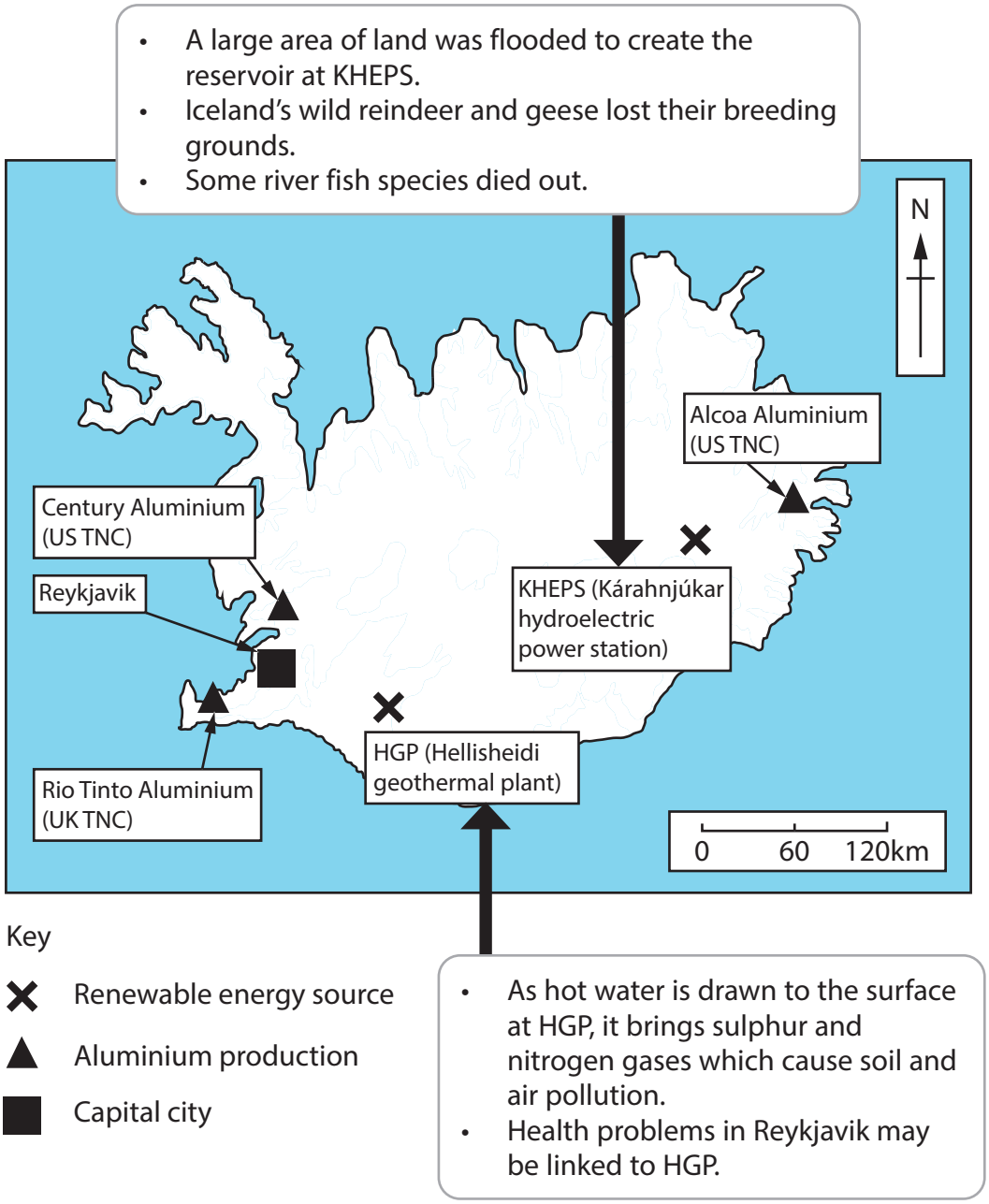
An energy profile of Iceland



The United Nations has described Iceland's use of renewable energy as:
"A model for the world."

Figure 7

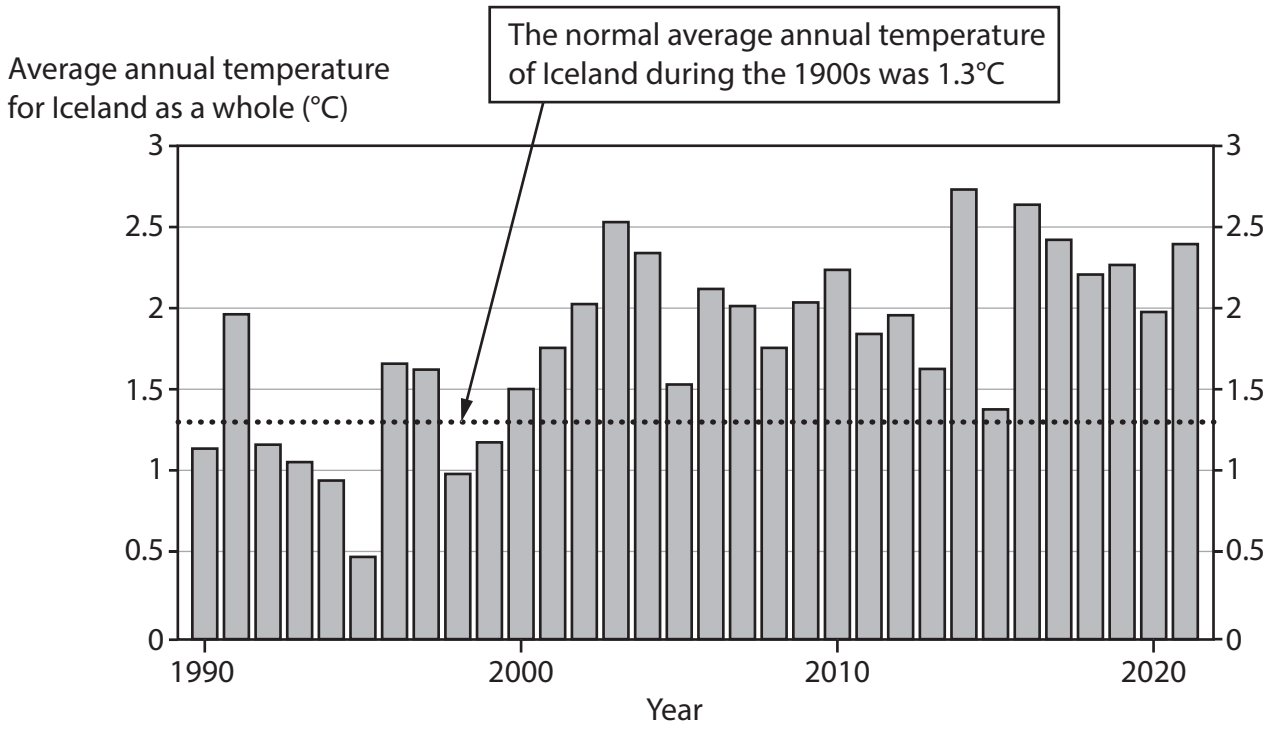
Renewable energy use by selected European countries, 2018



- TNCs produce aluminium at coastal sites close to power stations. Rocks containing a mineral called bauxite are shipped to Iceland where they are processed to make aluminium. Three-quarters of all Iceland's electricity is used in this process.
- Aluminium is Iceland's most valuable export. It is used to make cars, aeroplanes and phones. Very few countries produce more aluminium than Iceland.
- The TNCs are attracted by low taxes and low energy prices set by Iceland's government.

Figure 8

Information about renewable energy and aluminium production in Iceland



- Climate change is causing the temperature to rise even faster in Arctic areas than in many other parts of the world.
- Changes in ocean water temperature mean that Arctic fish species such as cod may vanish due to habitat loss.

Figure 9

Temperature rises in Iceland and other Arctic regions, 1990–2021

		Category	Climate Action Plan goals
1		Roads & shipping	• Reduce emissions from road traffic by 20% and from shipping by 40%. • Ban new petrol and diesel vehicles after 2030.
2		Aircraft & industry	• Join global efforts to reduce aircraft emissions. • Develop carbon capture and storage (CCS) technology. • Reduce emissions by 43% in line with European Union (EU) targets.
3		Energy production	• Promote and support renewable energy. • Reduce emissions from energy production by 43%. • Encourage citizens to conserve energy.
4		Forestry & land use	• Replanting enough new taiga trees to increase carbon storage by 500%.
Although Iceland's overall emissions have fallen by one-third since 1970, the average carbon footprint size of an Icelandic citizen remains almost double that of a UK citizen. As a result, new Climate Action Plan goals for 2030 have been introduced.			

Figure 10

New Climate Action Plan goals introduced by Iceland's government in 2020

BLANK PAGE

BLANK PAGE

Acknowledgements

Pearson Education Ltd. gratefully acknowledges all the following sources used in the preparation of this paper:

Figure 1 adapted from https://www.cbd.int/doc/world/is/is-nr-01-en.pdf

Figure 2 © tomasfreyr/500px/Getty Images
© fogcatcher/Shutterstock

Figure 5 © Christopher Kane/Shutterstock

Figure 7 based on: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Share_of_energy_from_renewable_sources_2018_infograph.jpg

Figure 8 adapted from: https://www.savingiceland.org/2017/08/icelands-troubled-environment/

Figure 9 adapted from: https://tradingeconomics.com/iceland/temperature

Figure 10 adapted from https://www.government.is/library/01-Ministries/Ministry-for-The-Environment/201004%20Umhverfisraduneytid%20Adgerdaaaetlun%20EN%20V2.pdf