Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

Pearson Edexcel International GCSE (9–1)

Monday 22 May 2023

Afternoon (Time: 1 hour 10 minutes)

Paper reference **4GE1/01**

Geography

PAPER 1: Physical Geography

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.
- In Section A, answer **two** questions from Questions 1, 2 **and** 3.
- In Section B, answer **one** question from Questions 4, 5 **and** 6.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- Calculators may be used.
- Where asked you must **show all your working out with your answer clearly identified** at the **end of your solution**.

Information

- The total mark for this paper is 70.
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*

Advice

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

Turn over

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

P 7 1 1 9 4 A 0 1 2 8

Pearson

SECTION A

Answer TWO questions from this section.

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 ☒.

If you answer Question 1, put a cross in the box ☐ .

1 River environments

(a) Identify **one** physical factor that affects river regimes.

(1)

☐ **A** amount of rainfall

☐ **B** building a reservoir

☐ **C** building a football stadium

☐ **D** size of river mouth

(b) (i) Identify the best definition of a meander.

(1)

☐ **A** where two rivers meet

☐ **B** a bend in a river

☐ **C** the starting point of a river

☐ **D** where a river meets the sea

(ii) State **one** type of erosion that takes place in a river.

(1)

.....

(c) Explain **one** way human activity affects water quality.

(2)

.....

.....

.....

.....

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

(d) Study Figure 1a in the Resource Booklet.

Explain **two** ways in which a river changes along its course.

(4)

1 .....

.....

.....

.....

2 .....

.....

.....

.....

(e) Explain how deposition leads to the formation of levees.

(3)

.....

.....

.....

.....

.....

.....

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

(f) Study Figure 1b in the Resource Booklet.

Identify the river feature at **X**.

(1)

.....

(g) Explain **two** causes of river flooding.

(4)

1 .....

.....

.....

.....

2 .....

.....

.....

.....

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

(h) Study Figure 1c and Figure 1d in the Resource Booklet.

Analyse reasons why water management in the 21st century can be challenging.

Refer to the resources in your answer.

(8)

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

(Total for Question 1 = 25 marks)

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

If you answer Question 2, put a cross in the box ☒ .

2 Coastal environments

(a) Identify the coastal landform created by deposition.

(1)

☒ **A** cave

☒ **B** cliff

☒ **C** spit

☒ **D** wave-cut platform

(b) (i) Identify the best definition of hydraulic action.

(1)

☒ **A** where waves pick up stones and they hit the cliffs

☒ **B** waves hit the cliffs forcing pockets of air into cracks

☒ **C** waves carry material along the coast

☒ **D** where rocks are dissolved by sea water

(ii) State **one** type of weathering process.

(1)

.....

(c) Explain **one** way human activity can threaten coastal ecosystems.

(2)

.....

.....

.....

.....

(d) Study Figure 2a in the Resource Booklet.

Explain **two** factors that could influence landforms on this coastline.

(4)

1 .....

.....

.....

.....

2 .....

.....

.....

.....

(e) Explain the process of longshore drift.

(3)

.....

.....

.....

.....

.....

.....

(f) Study Figure 2b in the Resource Booklet.

Identify the coastal management strategy shown.

(1)

.....

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

(g) Explain **one** advantage and **one** disadvantage of soft engineering strategies.

(4)

Advantage

.....

.....

.....

.....

Disadvantage

.....

.....

.....

.....

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

(h) Study Figure 2c and Figure 2d in the Resource Booklet.

Analyse the effectiveness of the coastal flood prevention strategies shown.

Refer to the resources in your answer.

(8)

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

.....

.....

.....

.....

.....

(Total for Question 2 = 25 marks)

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

If you answer Question 3, put a cross in the box ☒ .

3 Hazardous environments

(a) Identify the hazard often associated with earthquakes.

(1)

☒ **A** landslide

☒ **B** volcanic bombs

☒ **C** heavy rain

☒ **D** high wind speeds

(b) (i) Identify the statement that best defines a constructive plate margin.

(1)

☒ **A** tectonic plates collide

☒ **B** tectonic plates move towards each other

☒ **C** tectonic plates pull apart

☒ **D** tectonic plates move alongside each other

(ii) Define the term **hot spot**.

(1)

.....

.....

(c) Explain **one** way people can prepare for earthquakes.

(2)

.....

.....

.....

.....

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

(d) Study Figure 3a in the Resource Booklet.

Suggest **two** reasons why tropical cyclones can cause damage.

(4)

1 .....

.....

.....

.....

2 .....

.....

.....

.....

(e) Explain **one** reason why emergency aid can be important for responding to earthquake events.

(3)

.....

.....

.....

.....

.....

.....

(f) Study Figure 3b in the Resource Booklet.

Identify the feature shown at **X**.

(1)

.....

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

(g) Explain **two** hazards associated with volcanic eruptions.

(4)

1 .....

.....

.....

.....

2 .....

.....

.....

.....

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

(h) Study Figure 3c and Figure 3d in the Resource Booklet.

Analyse possible reasons why some countries are more vulnerable to the impact of earthquakes.

Refer to the resources in your answer.

(8)

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

(Total for Question 3 = 25 marks)

TOTAL FOR SECTION A = 50 MARKS

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

SECTION B

Geographical enquiry

Answer ONE question from this section.

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 ☒.

If you answer Question 4, put a cross in the box ☐ .

4 Investigating river environments

You have carried out a geographical enquiry as part of your work on river environments.

Title of your geographical enquiry

.....

.....

(a) Describe **one** way you managed a risk that you identified during your enquiry.

(2)

.....

.....

.....

.....

(b) Explain **one** way you decided on your sites for data collection.

(3)

.....

.....

.....

.....

.....

.....

(c) Describe **two** types of data collection method you used during your enquiry.

(4)

1 .....

.....

.....

.....

2 .....

.....

.....

.....

(d) Explain **one** technique you used to analyse your data.

(3)

.....

.....

.....

.....

.....

.....

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

(e) Study Figure 4a and Figure 4b in the Resource Booklet. They show some information about data presentation from a student's enquiry.

> The aim of the student's enquiry was to investigate changes in river characteristics. The student made field sketches of the data collection sites, and collected data on river velocity, river discharge and bedload size.

Evaluate the effectiveness of the data presentation techniques used by the student.

(8)

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

(Total for Question 4 = 20 marks)

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

If you answer Question 5, put a cross in the box ☒ .

5 Investigating coastal environments

You have carried out a geographical enquiry as part of your work on coastal environments.

Title of your geographical enquiry

.....

.....

(a) Describe **one** way you managed a risk that you identified during your enquiry.

(2)

.....

.....

.....

.....

(b) Explain **one** way you decided on the sites for your data collection.

(3)

.....

.....

.....

.....

.....

.....

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

(c) Describe **two** types of data collection method you used during your enquiry.

(4)

1 .....

.....

.....

.....

2 .....

.....

.....

.....

(d) Explain **one** technique you used to analyse your data.

(3)

.....

.....

.....

.....

.....

.....

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

(e) Study Figure 5a and Figure 5b in the Resource Booklet. They show some information about data presentation from a student's enquiry.

> The aim of the student's enquiry was to investigate changes in coastal features. The student made field sketches of the data collection sites, and collected data on beach profiles and sediment size.

Evaluate the effectiveness of the data presentation techniques used by the student.

(8)

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

(Total for Question 5 = 20 marks)

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

If you answer Question 6, put a cross in the box ☒ .

6 Investigating hazardous environments

You have carried out a geographical enquiry as part of your work on hazardous environments.

Title of your geographical enquiry

.....

.....

(a) Describe **one** way you managed a risk that you identified during your enquiry.

(2)

.....

.....

.....

.....

(b) Explain **one** way you decided on the sites for your data collection.

(3)

.....

.....

.....

.....

.....

.....

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

(c) Describe **two** types of data collection method you used during your enquiry.

(4)

1 .....

.....

.....

.....

2 .....

.....

.....

.....

(d) Explain **one** technique you used to analyse your data.

(3)

.....

.....

.....

.....

.....

.....

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

(e) Study Figure 6a and Figure 6b in the Resource Booklet. They show some information about data presentation from a student's enquiry.

> The aim of the student's enquiry was to investigate changes in weather features. The student made field sketches of the data collection sites, and collected data on wind speed, temperature and rainfall.

Evaluate the effectiveness of the data presentation techniques used by the student.

(8)

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

.....

.....

.....

.....

.....

.....

.....

.....

(Total for Question 6 = 20 marks)

TOTAL FOR SECTION B = 20 MARKS
TOTAL FOR PAPER = 70 MARKS

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

Pearson Edexcel International GCSE (9–1)

Monday 22 May 2023

Afternoon (Time: 1 hour 10 minutes)

Paper reference **4GE1/01**

Geography

PAPER 1: Physical geography

Resource Booklet

Do not return this Booklet with the question paper.

Turn over

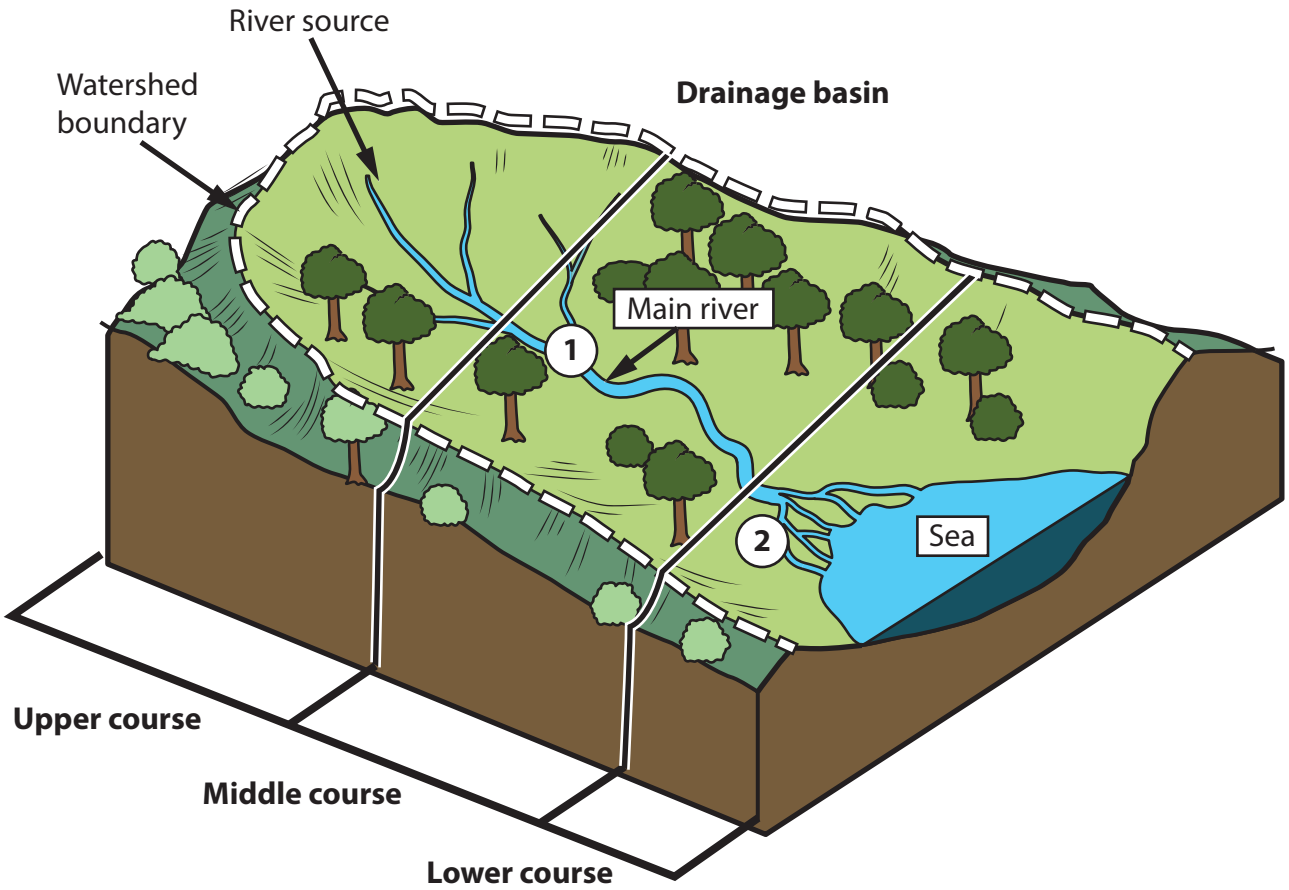
P71194A

©2023 Pearson Education Ltd.

N:1/1/1/1/1/1/1/1/1

P 7 1 1 9 4 A

Pearson



Key

1 Confluence

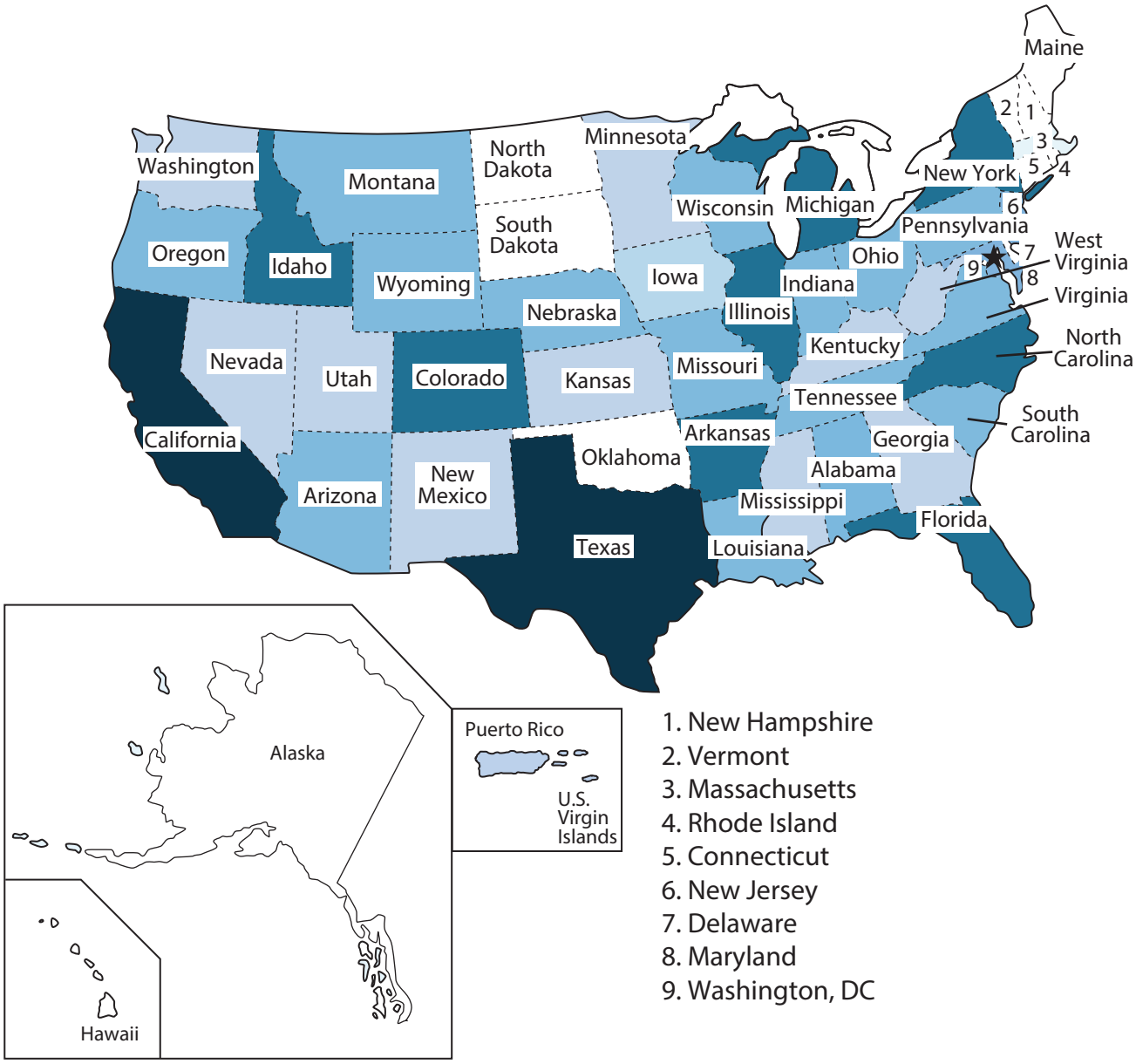
2 Delta

Figure 1a

Diagram of a drainage basin

Figure 1b

Umgeni river, South Africa



1. New Hampshire
2. Vermont
3. Massachusetts
4. Rhode Island
5. Connecticut
6. New Jersey
7. Delaware
8. Maryland
9. Washington, DC

Key
Water withdrawals,
in million gallons per day

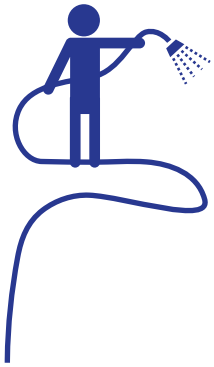
- 0 to 2,000
- 2,001 to 5,000
- 5,001 to 10,000
- 10,001 to 20,000
- 20,001 to 28,800

Note: 1 gallon of water is 4.5 litres

Figure 1c

Map of water use in the USA

America has a huge demand for water.



The average household in the USA goes through

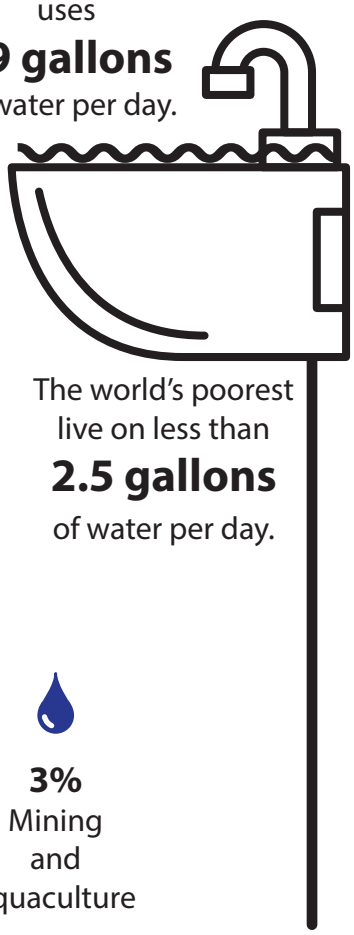
350 gallons

of water per day.

The average American uses

99 gallons

of water per day.



The world's poorest live on less than

2.5 gallons

of water per day.

Power, farming and the public are top consumers.

American water use

49% Power

32% Irrigation and livestock

12% Public and domestic supply

4% Industrial

3% Mining and aquaculture

1 gallon of water is 4.5 litres

Figure 1d

Information on water use in a developed country, USA

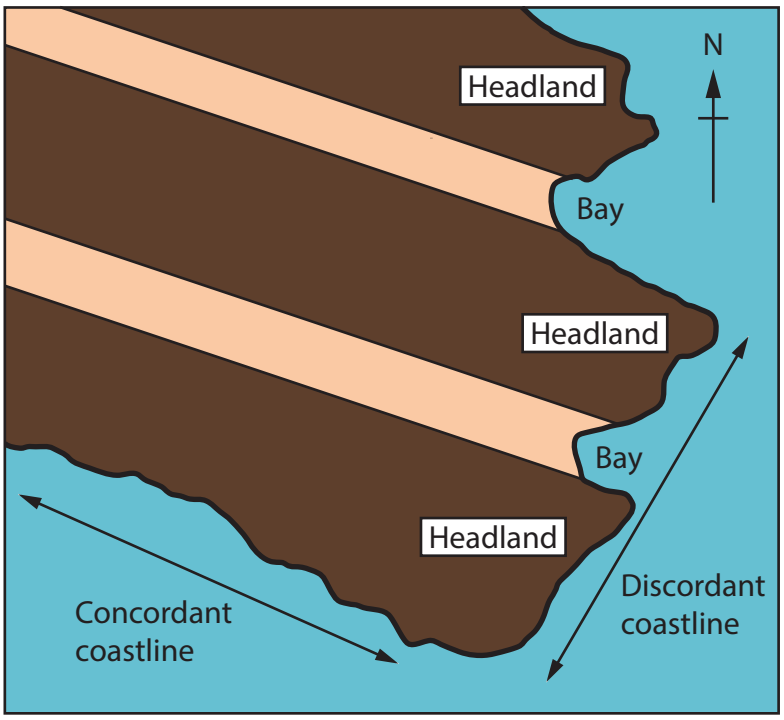
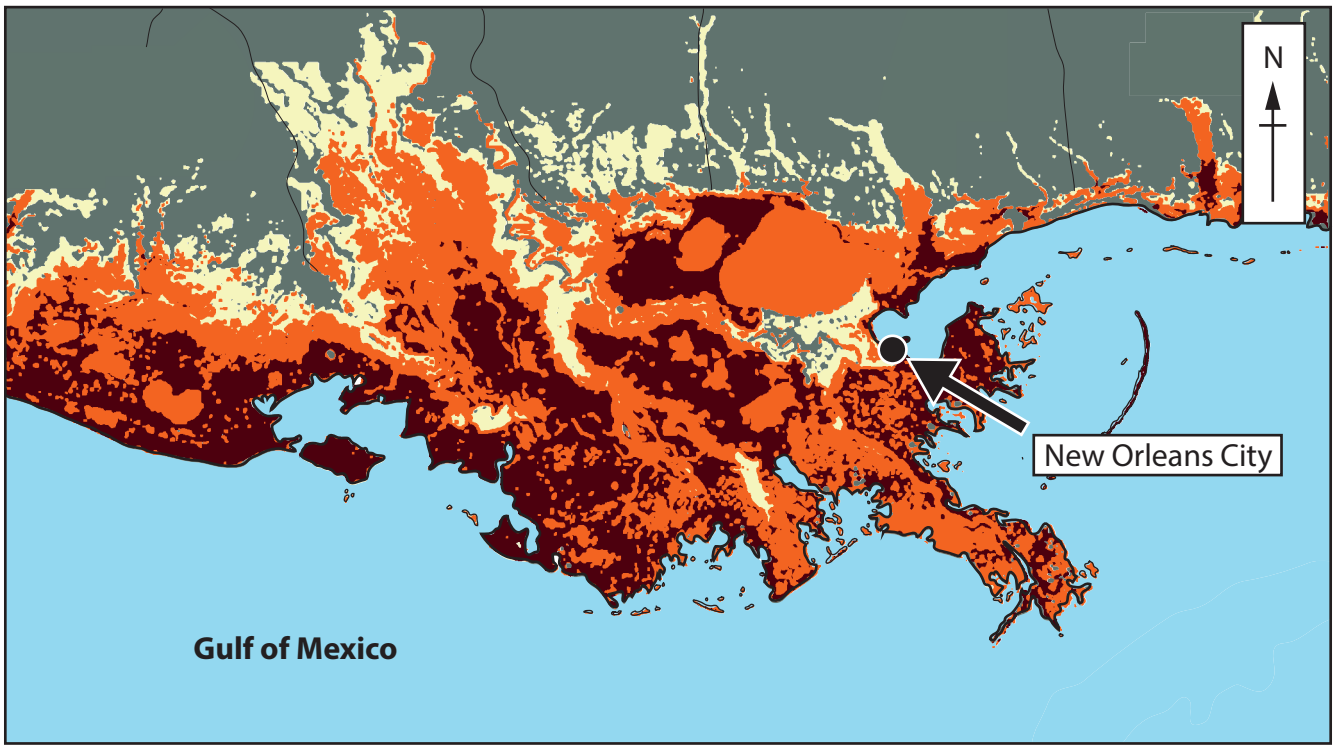


Figure 2a

Diagram of coastline

Figure 2b

Coastal management strategy

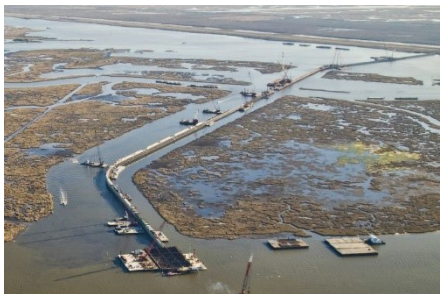


Key

- High risk
- Medium risk
- Low risk
- No data

Figure 2c

Coastal flood risk in New Orleans, USA



Flood walls
(new walls completed in 2018)

Water pump stations
(completed in 2017)

Flood gate
(completed in 2012)

Information about Hurricane Katrina, 2005:

- 1,000 people died.
- 200,000 homes and businesses destroyed.
- 800,000 people forced to leave.
- 50 flood walls and levees failed due to poor maintenance and lack of investment.

Information about flood prevention in 2021:

- After Hurricane Katrina US$14 billion network of levees and flood walls were built to protect New Orleans. There are reports that this protection may only last a few more years due to rising sea levels and shrinking levees.
- During Hurricane Ida in 2021 no levee or flood wall was broken or flooded.

Note: Water pump stations remove water from the area in a flood event

Figure 2d

Information about coastal flood protection in New Orleans, USA

Saffir-Simpson hurricane wind scale

Category 1	Category 2	Category 3	Category 4	Category 5
Minimal damage	Moderate damage	Extensive damage	Extreme damage	Catastrophic damage
Winds **119–153 kph**	Winds **154–177 kph**	Winds **178–208 kph**	Winds **209–251 kph**	Winds **252 kph and more**

Figure 3a

Diagrams of tropical cyclone damage

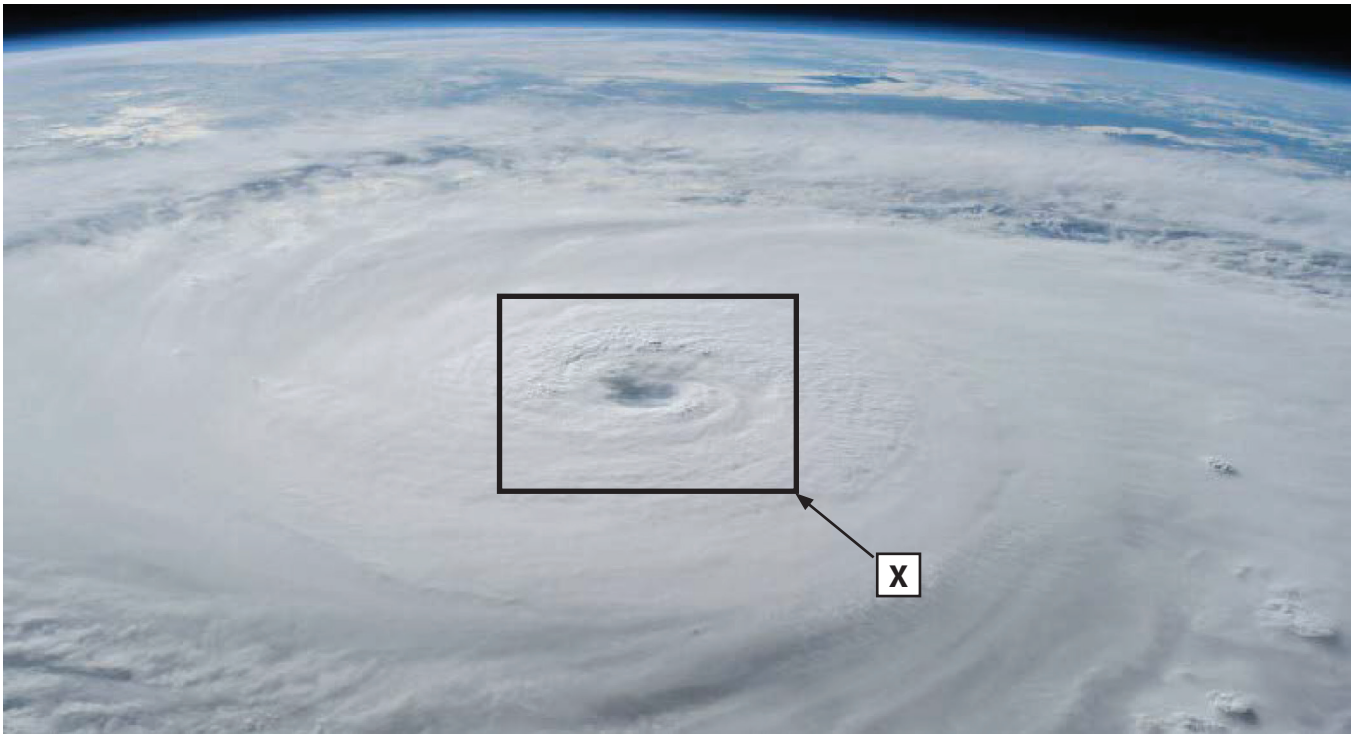
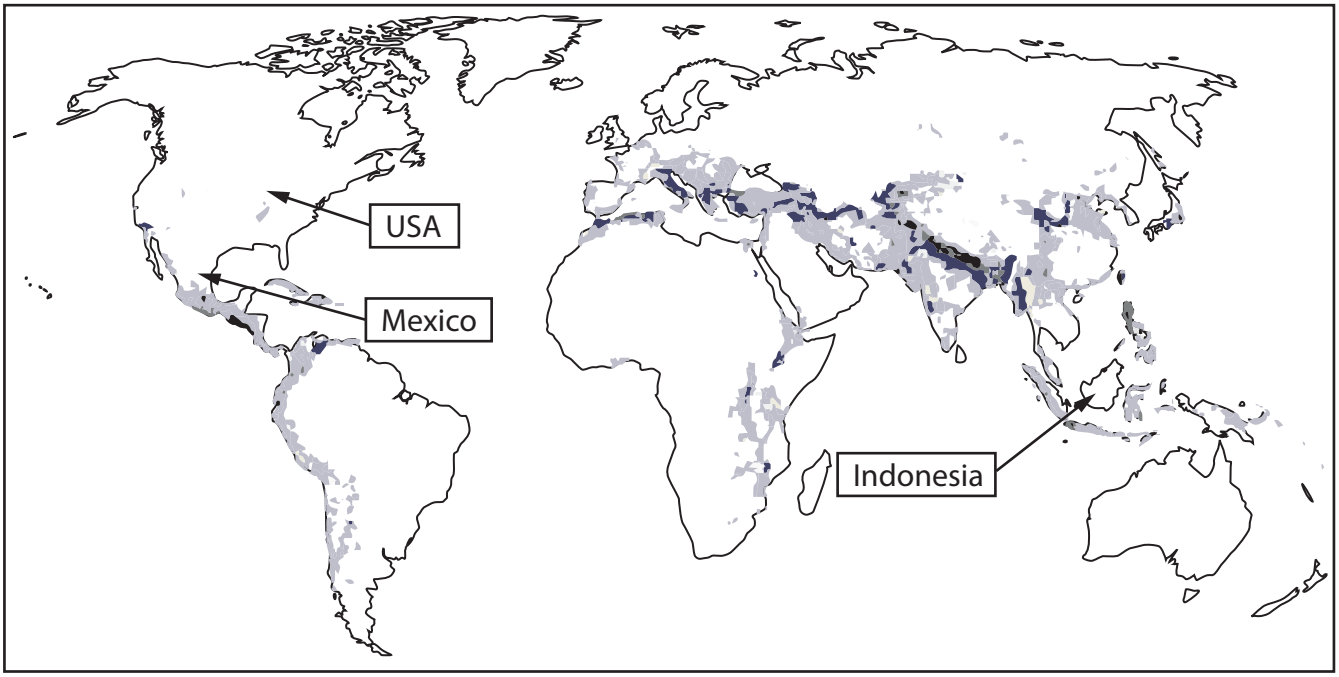


Figure 3b

Image of a tropical cyclone

Map shows the average annual number of people killed by seismic hazards 2010–2020



Key

Average annual number of fatalities

Figure 3c

Distribution of people killed by seismic hazard 2010–2020

Earthquake event	Mexico, Mexico City	United States, California	Indonesia, Sulawesi
Year	2017	2019	2021
Magnitude	7.1	6.4	6.2
GDP per capita (US$)	9,287	65,297	4,450
Deaths	370	1	105
Injuries	6,011	20	3,369
Doctors per 1,000 people	2.4	2.9	0.4
Corruption Perception Index Score (higher score is less perceived corruption)	31	67	37
Other details	Epicentre was near Atecingo, around 120 km from Mexico city.	Epicentre was in a remote region in the Mojave desert.	Epicentre was around 70 km from town of Bukittinggi in West Sumatra.

Figure 3d

Information on selected earthquake events 2017–2021

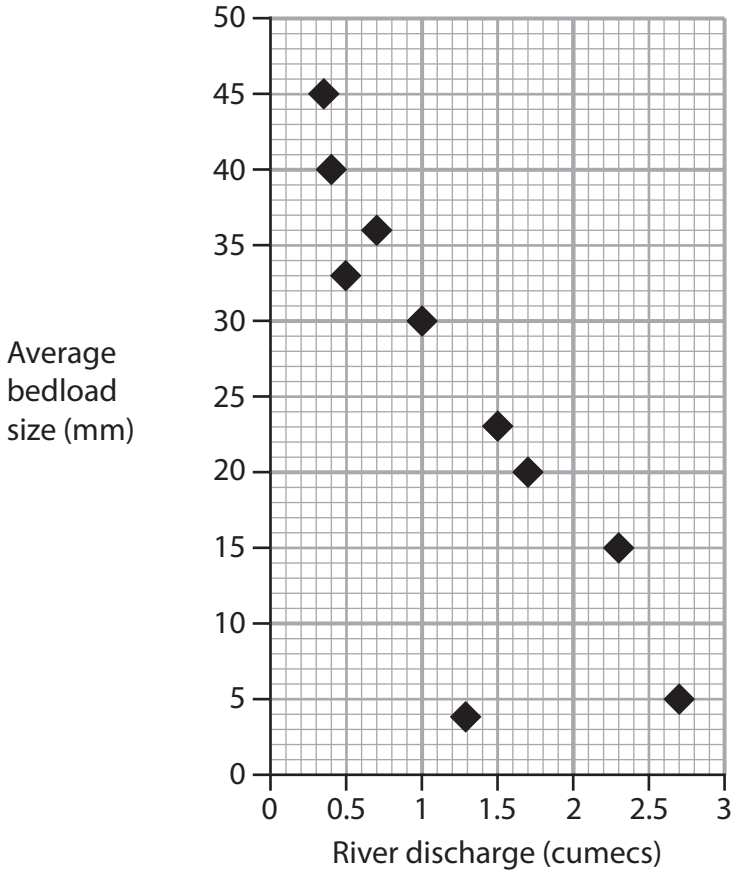


Figure 4a

Extract from student's data presentation

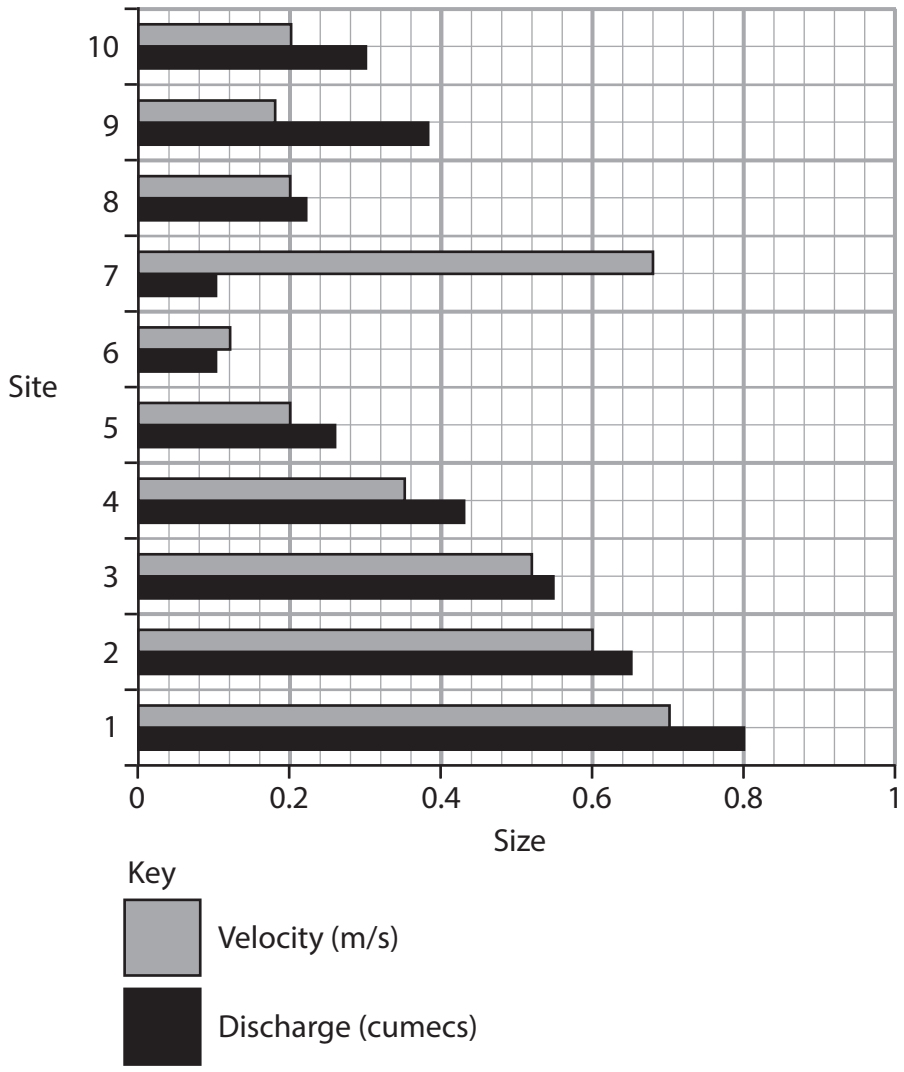


Figure 4b

Extract from student's data presentation

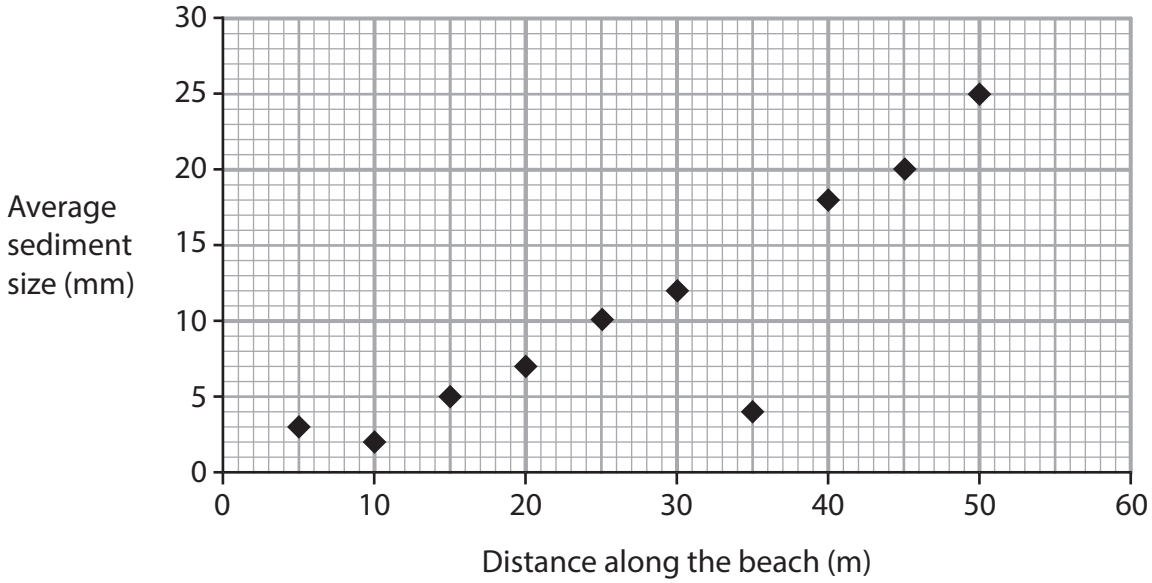


Figure 5a

Extract from student's data presentation

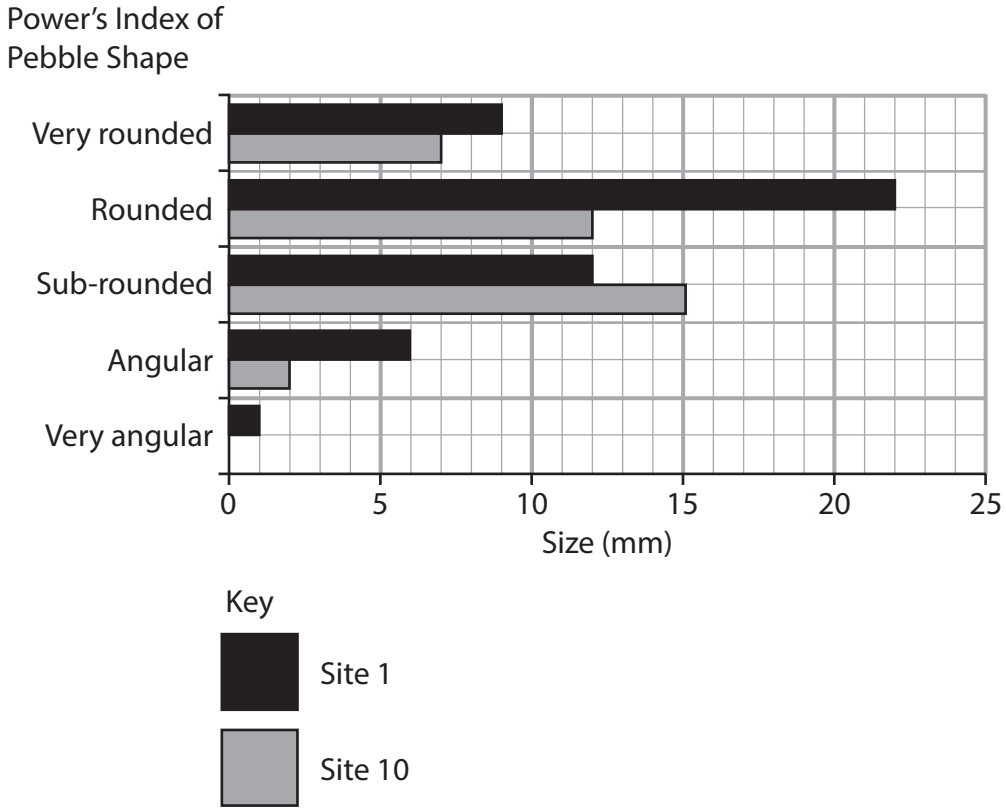


Figure 5b

Extract from student's data presentation

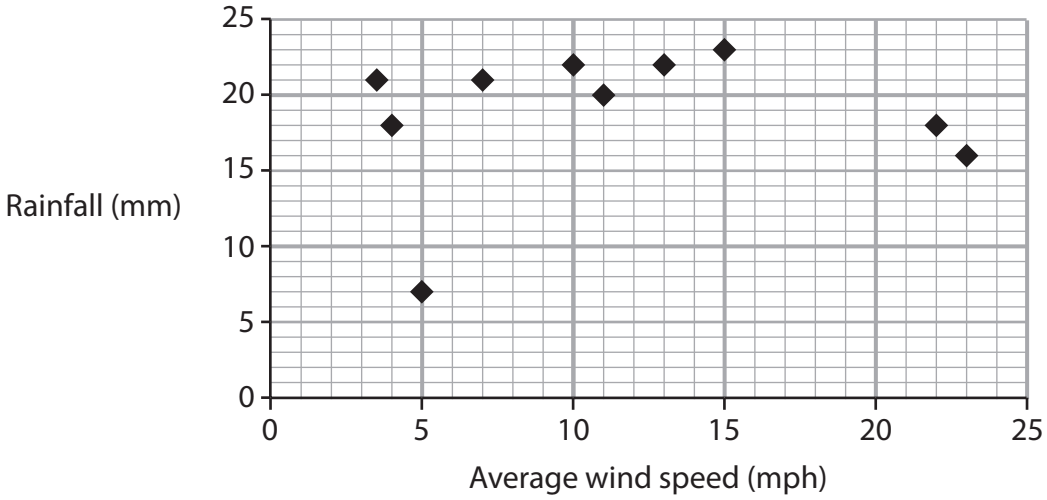


Figure 6a

Extract from student's data presentation

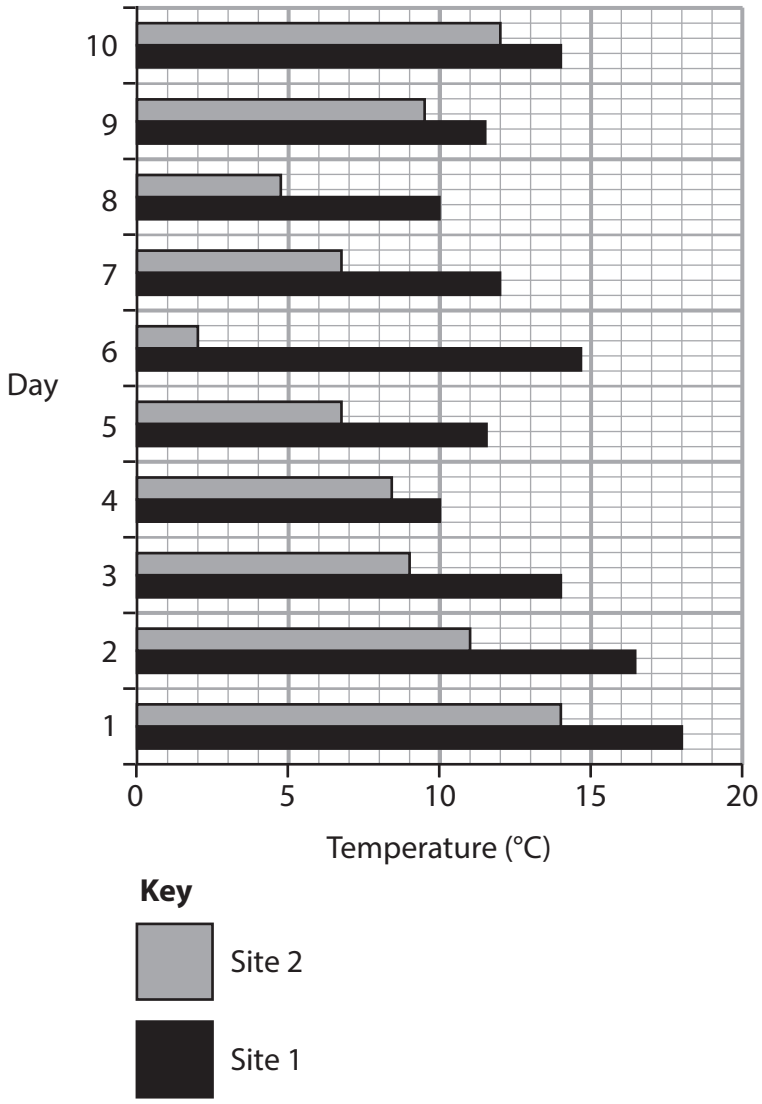


Figure 6b

Extract from student's data presentation

BLANK PAGE

BLANK PAGE

BLANK PAGE

Acknowledgements:

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

Figure 1a has been adapted from: https://slideplayer.com/slide/6353692/
Figure 1c has been adapted from: https://www.epa.gov/watersense/how-we-use-water
Figure 2b has been adapted from: © L S Wilson
Figure 2c image 1 has been adapted from: © National Oceanic and Atmospheric Administration, U.S. Department of Commerce
Figure 2c image 2 has been adapted from: © Ray Devlin
Figure 2c image 3 has been adapted from: https://www.flickr.com/photos/usacehq/5350247185
Figure 2c map is adapted from: https://coast.noaa.gov/floodexposure/#-10090786,3505213,8z/eyJiIjoic3RyZWV0IiwiciI6dHJ1ZX0=
Figure 3b adapted from: © NASA

Pearson

Erratum Notice

4GE1_01
Pearson Edexcel International GCSE Geography
Paper 1: Physical Geography

Exam date: Monday 22nd May 2023

Instructions for the Examinations Officer

Please be advised that there is an error in the Pearson Edexcel International GCSE Geography, Paper 1: Physical Geography, Resource Booklet, page 12, Figure 3c.

The sequence in the resource booklet currently reads:

<5, 5-24, 24-50, 50>

It should read:

<5, 5-24, 24-50, **>50**

Before the start of the examination please ask students to amend their resource booklet.

Please accept our apologies for any confusion caused.

International Science Team

E71194A

E 7 1 1 9 4 A

P71194EA

P 7 1 1 9 4 E A