

Please check the examination details below before entering your candidate information

Candidate surname		Other names	
Pearson Edexcel International GCSE (9–1)	Centre Number	Candidate Number	
	<input type="text"/>	<input type="text"/>	
Time 1 hour 10 minutes	Paper reference	4GE1/01	
<h1>Geography</h1> <h2>PAPER 1: Physical geography</h2>			
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 62.
- 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.
- Good luck with your examination.

Turn over ►

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) (i) Identify **one** store in the hydrological cycle.

(1)

<input type="checkbox"/>	A Evaporation
<input type="checkbox"/>	B Infiltration
<input type="checkbox"/>	C Lake
<input type="checkbox"/>	D Throughflow

- (ii) Identify the statement that best defines transpiration in the hydrological cycle.

(1)

<input type="checkbox"/>	A Transfer of water from the atmosphere to land.
<input type="checkbox"/>	B Plants take up water from the soil and release it into the atmosphere as water vapour.
<input type="checkbox"/>	C Water moving through the soil as a result of gravity.
<input type="checkbox"/>	D Water vapour cooling in the atmosphere to become liquid.

- (b) (i) State **one** physical factor that influences deposition in a river.

(1)

- (ii) Explain how abrasion erodes the river channel.

(2)

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

Suggest **two** reasons for the different storm hydrograph shapes.

(4)

1

2

(d) Explain **one** way agriculture can affect water quality.

(3)

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

Identify the feature labelled **X**.

(1)

(f) Explain the formation of a waterfall.

(4)

(g) Study Figure 1c in the Resource Booklet.

Analyse the factors that can affect river flood risk.

(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

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 1 = 25 marks)

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

2 Coastal environments

(a) Identify the best definition of **mechanical weathering**.

(1)

<input type="checkbox"/>	A Where rocks are broken down by physical factors in the environment.
<input type="checkbox"/>	B Where rocks are eroded by activities of plants and animals.
<input type="checkbox"/>	C Where rocks are protected from physical processes on a coastline.
<input type="checkbox"/>	D Where the chemical composition of the rocks is changed.

(b) (i) Identify an **abiotic** factor that affects coastal ecosystems.

(1)

<input type="checkbox"/>	A Animals
<input type="checkbox"/>	B Climate
<input type="checkbox"/>	C Plants
<input type="checkbox"/>	D Fungi

(ii) Identify **one** feature of coral reef ecosystems.

(1)

(iii) Explain **one** factor that controls the distribution of coral reef ecosystems.

(2)

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

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

Suggest **two** marine processes forming these coastal landforms.

(4)

1

2

(d) Explain **one** way industry can threaten coastal ecosystems.

(3)

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

Identify the feature labelled **X**.

(1)

(f) Explain how prevention strategies can reduce the impact of coastal flooding.

(4)

(g) Study Figure 2c in the Resource Booklet.

Analyse the different viewpoints affecting the decisions on coastal management strategies.

(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

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 2 = 25 marks)

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

3 Hazardous environments

(a) Identify which of the following can be used to record earthquakes.

(1)

<input type="checkbox"/>	A Flow meter
<input type="checkbox"/>	B Hygrometer
<input type="checkbox"/>	C Richter scale
<input type="checkbox"/>	D Seismograph

(b) (i) Identify a method of measuring tropical cyclones.

(1)

<input type="checkbox"/>	A Bradshaw scale
<input type="checkbox"/>	B Pressure scale
<input type="checkbox"/>	C Saffir-Simpson scale
<input type="checkbox"/>	D Wind speed scale

(ii) State **one** factor that influences the development of tropical cyclones.

(1)

(iii) Explain **one** physical impact of a tropical cyclone hazard.

(2)

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

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

Suggest **two** reasons why some places are more vulnerable to tectonic hazards than others.

(4)

1

2

(d) Explain **one** strategy to reduce the impacts from earthquake events.

(3)

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

Identify the type of plate boundary.

(1)

(f) Explain the formation of a volcano.

(4)

(g) Study Figure 3c in the Resource Booklet.

Analyse the short- and long-term impacts of the earthquake event.

(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

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 = 25 marks)

TOTAL FOR SECTION A = 50 MARKS

SECTION B

Geographical Enquiry

Answer ONE question from this section.

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

Investigating river environments

- 4 (a) (i) Identify which of the following statements refers to systematic sampling.

(1)

<input type="checkbox"/>	A Collecting data at random sites along a river.
<input type="checkbox"/>	B Collecting data every 100m along a river.
<input type="checkbox"/>	C Collecting data from two different river catchments.
<input type="checkbox"/>	D Collecting data from three sites along a river.

- (ii) Name **one** piece of equipment you would use to measure river wetted perimeter.

(1)

- (iii) Describe **one** health and safety risk it is important to be aware of when carrying out fieldwork near rivers.

(2)

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

- (b) Study Figure 4 in the Resource Booklet. It shows information about some design, some data collection methods used, data presentation and conclusion.

The aim of the student's enquiry was to examine change in river channel shape along the course of a river.

Evaluate how far the design and the data collection methods provided reliable evidence for the student's conclusions.

(8)

DO NOT WRITE IN THIS AREA

DON'T 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 4 = 12 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

BLANK PAGE

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

Investigating coastal environments

5 (a) (i) Identify the correct definition of systematic sampling.

(1)

<input type="checkbox"/>	A Collecting data at random sites along a coastline.
<input type="checkbox"/>	B Collecting data every 100m along a coastline.
<input type="checkbox"/>	C Collecting data from two different coastlines.
<input type="checkbox"/>	D Collecting data from three sites along a coastline.

(ii) Name **one** piece of equipment you would use to measure beach gradient.

(1)

(iii) Describe **one** health and safety risk it is important to be aware of when carrying out fieldwork in a coastal environment.

(2)

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

- (b) Study Figure 5 in the Resource Booklet. It shows information about some design, some data collection methods used, data presentation and a conclusion.

The aim of the student's investigation was to examine change in beach characteristics along the stretch of coastline.

Evaluate how far the design and the data collection methods provided reliable evidence for the student's conclusions.

(8)

DO NOT WRITE IN THIS AREA

DON'T 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 5 = 12 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

BLANK PAGE

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

Investigating hazardous environments

6 (a) (i) Identify the correct definition of systematic sampling.

(1)

<input type="checkbox"/>	A Collecting rainfall data at random sites in a town.
<input type="checkbox"/>	B Collecting rainfall data every 1km away from the town centre.
<input type="checkbox"/>	C Collecting rainfall data from two different towns.
<input type="checkbox"/>	D Collecting rainfall data from three sites in a town.

(ii) Name **one** piece of equipment you would use to measure rainfall.

(1)

(iii) Describe **one** health and safety risk it is important to be aware of when carrying out fieldwork related to hazardous environments.

(2)

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

- (b) Study Figure 6 in the Resource Booklet. It shows information about some design, some data collection methods used, data presentation and a conclusion.

The aim of the student's investigation was to examine change in weather patterns using a weather diary.

Evaluate how far the design and the data collection methods provided reliable evidence for the student's conclusions.

(8)

DO NOT WRITE IN THIS AREA

(Total for Question 6 = 12 marks)

TOTAL FOR SECTION B = 12 MARKS
TOTAL FOR PAPER = 62 MARKS

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Pearson Edexcel International GCSE (9–1)

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 ►

R66578A

©2021 Pearson Education Ltd.

1/1/1/1/1/1/1



Pearson

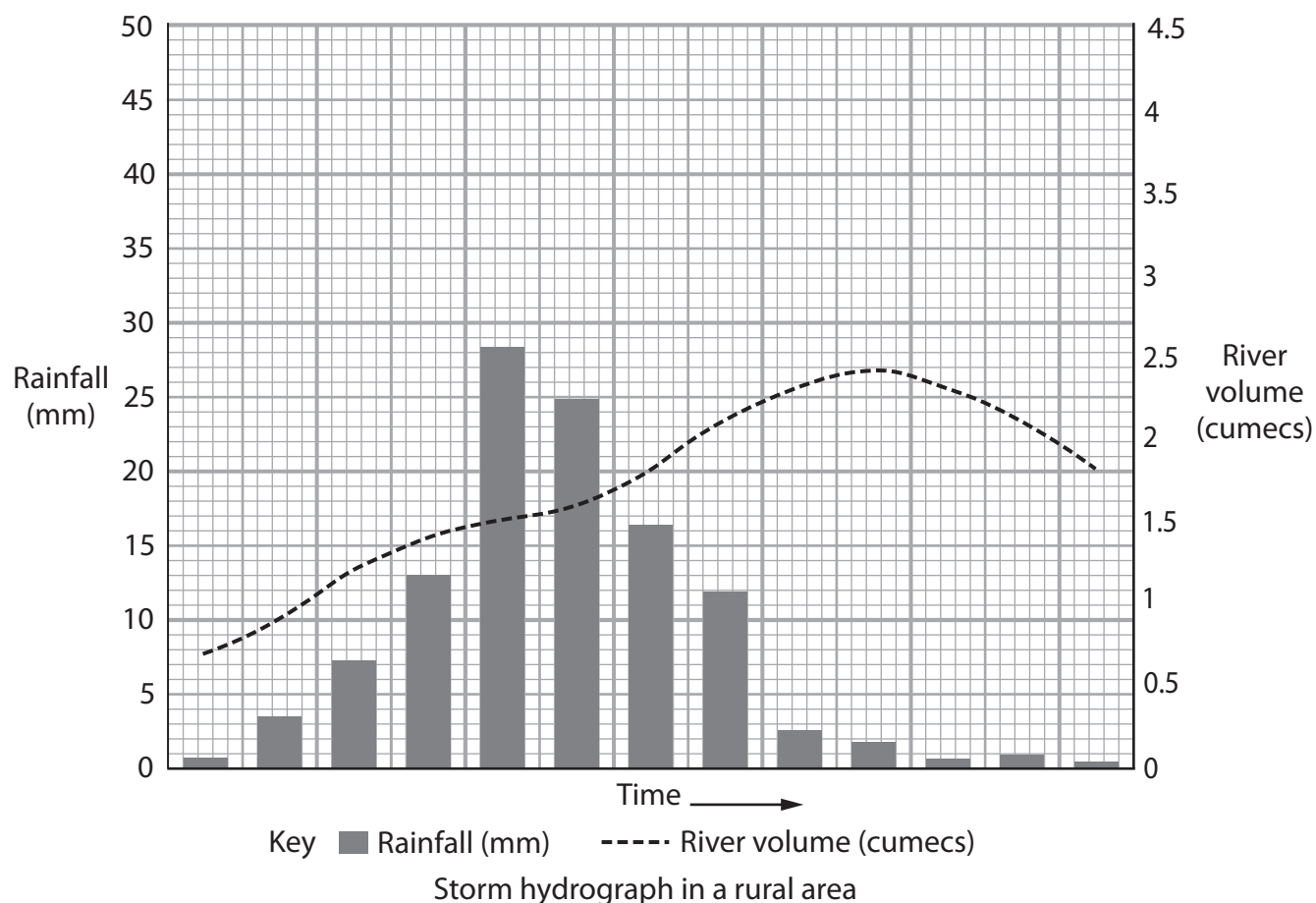
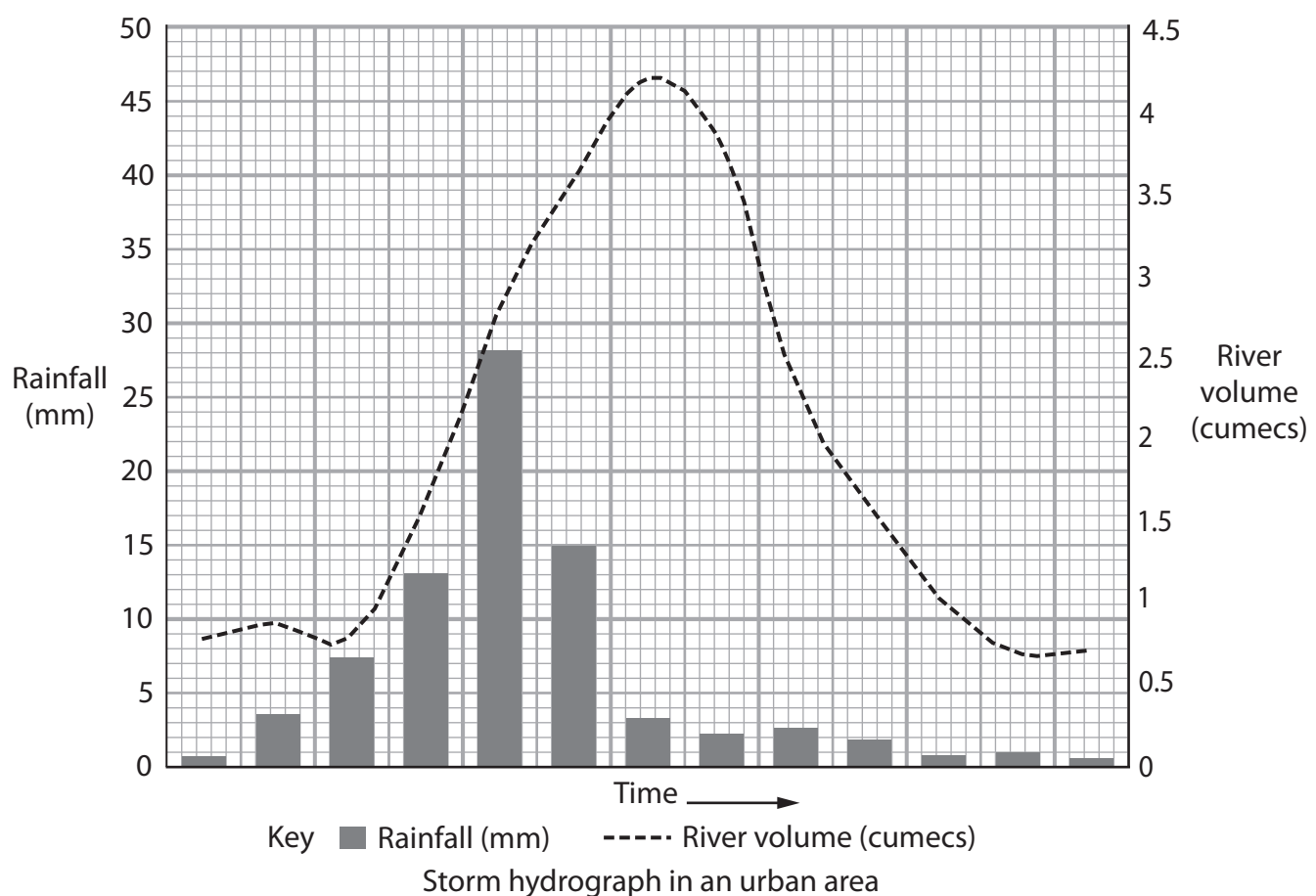


Figure 1a

Two storm hydrographs

(Click here to go to Question 1 in the Question Paper).

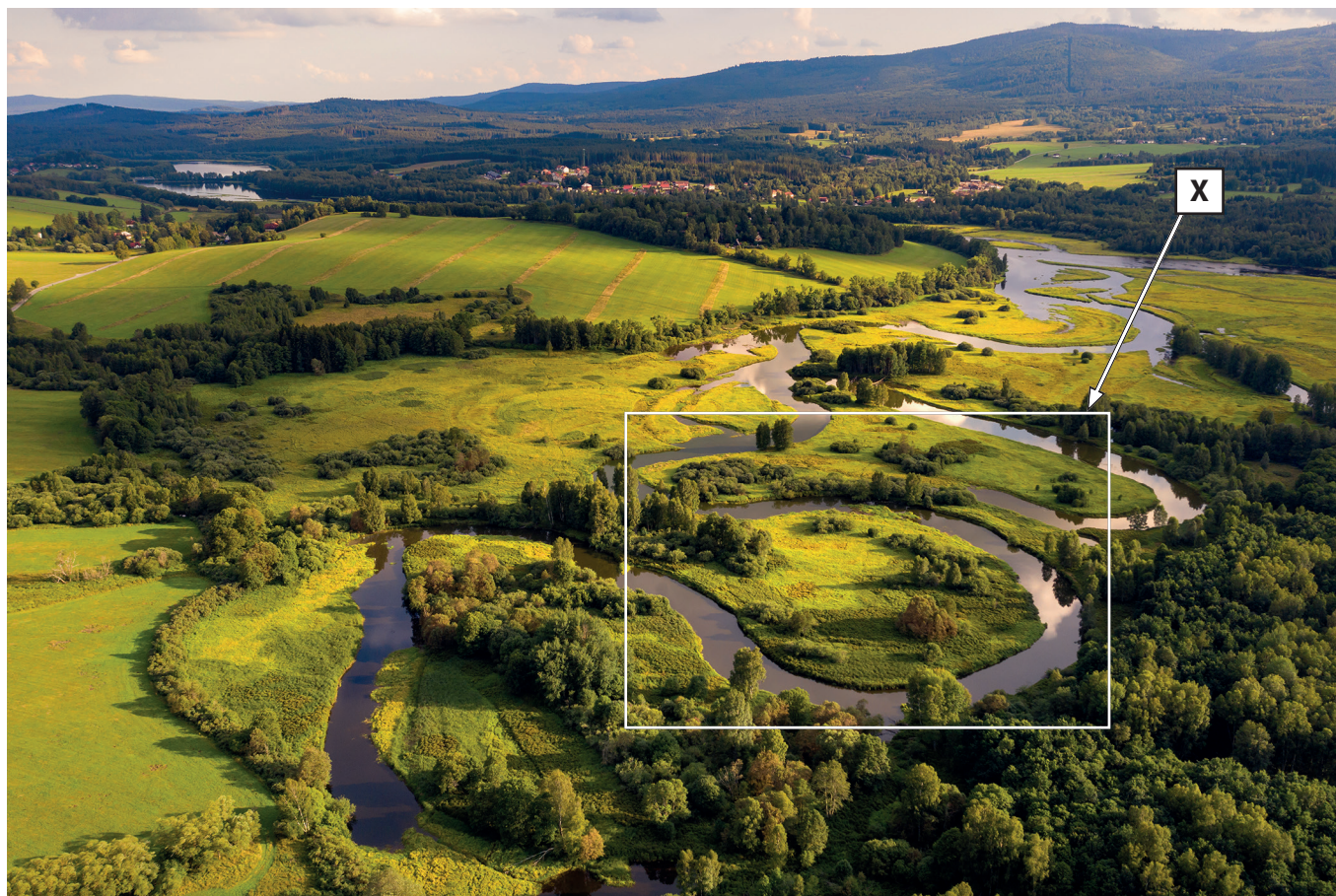
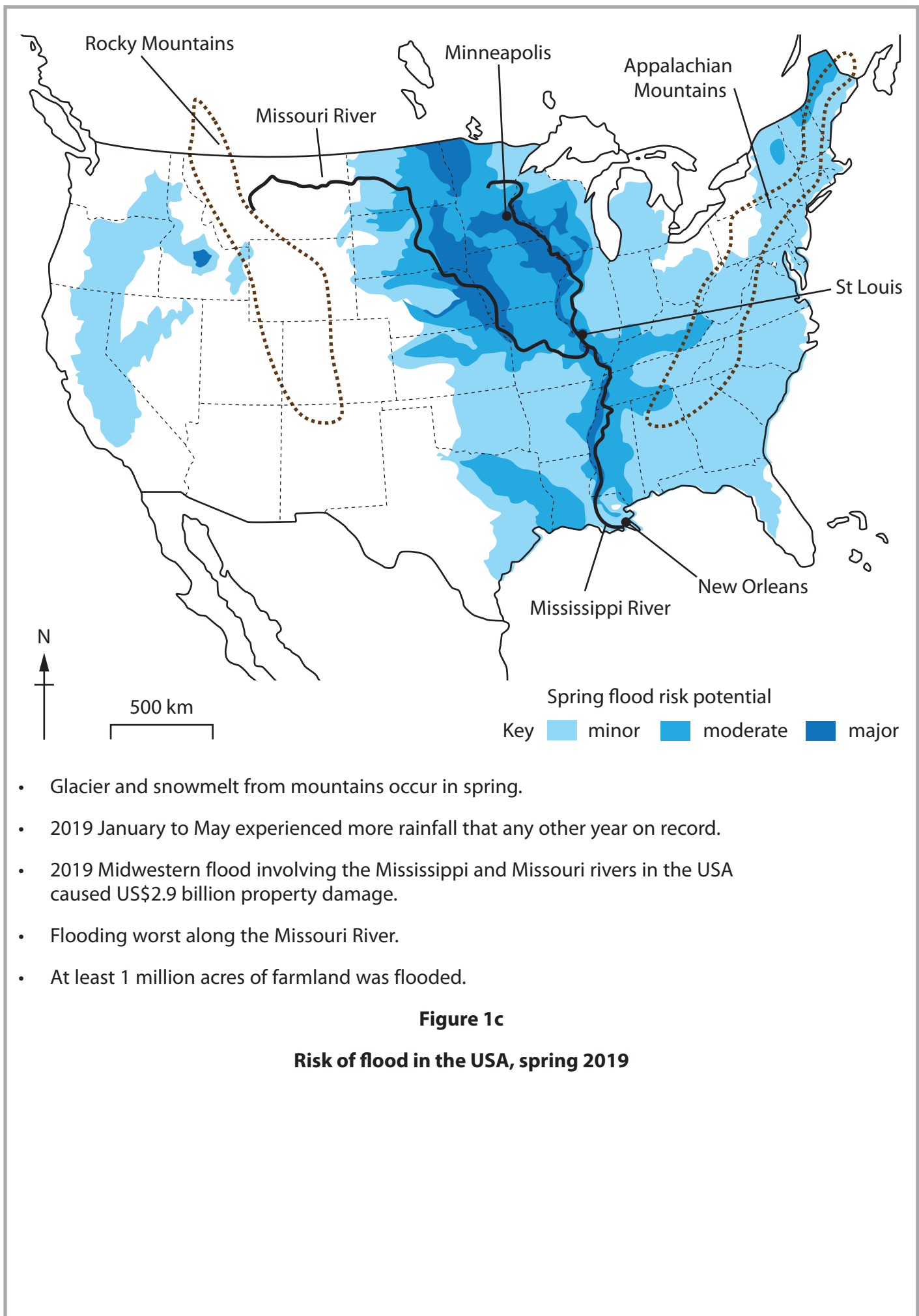


Figure 1b

Vltava River in the Czech Republic



(Click here to go to Question 2 in the Question Paper).

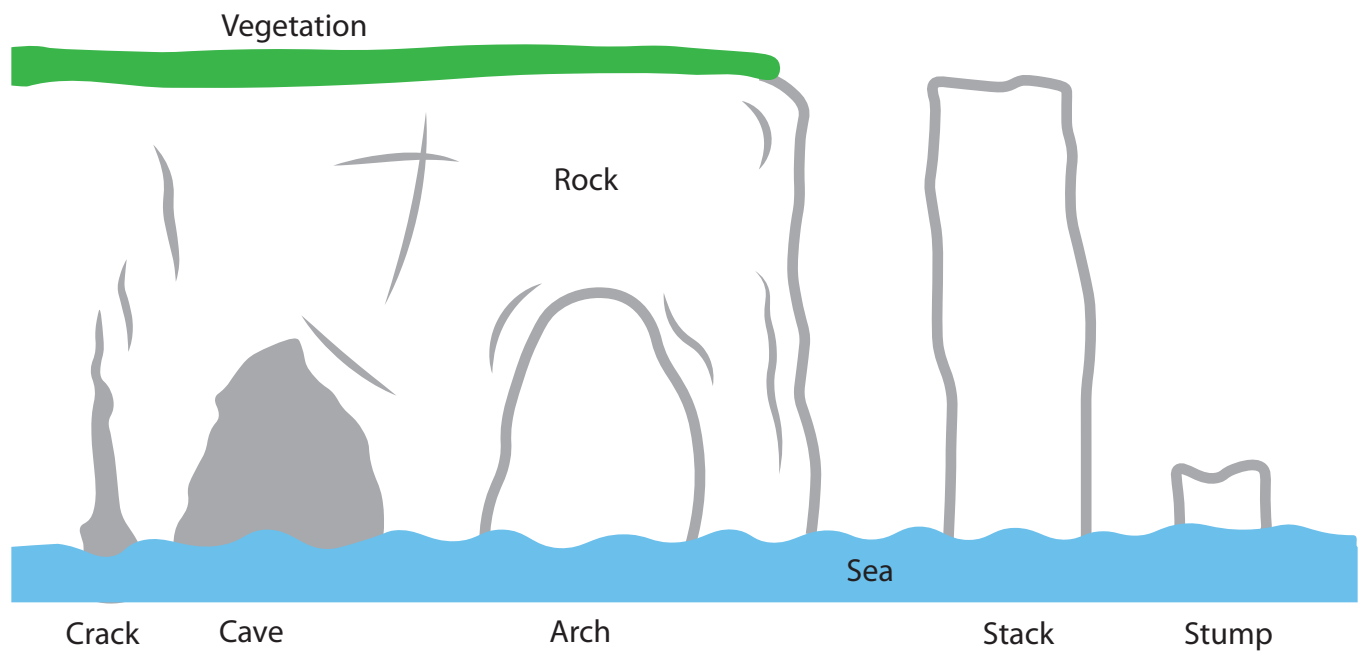


Figure 2a

Diagram of coastal landforms at a headland

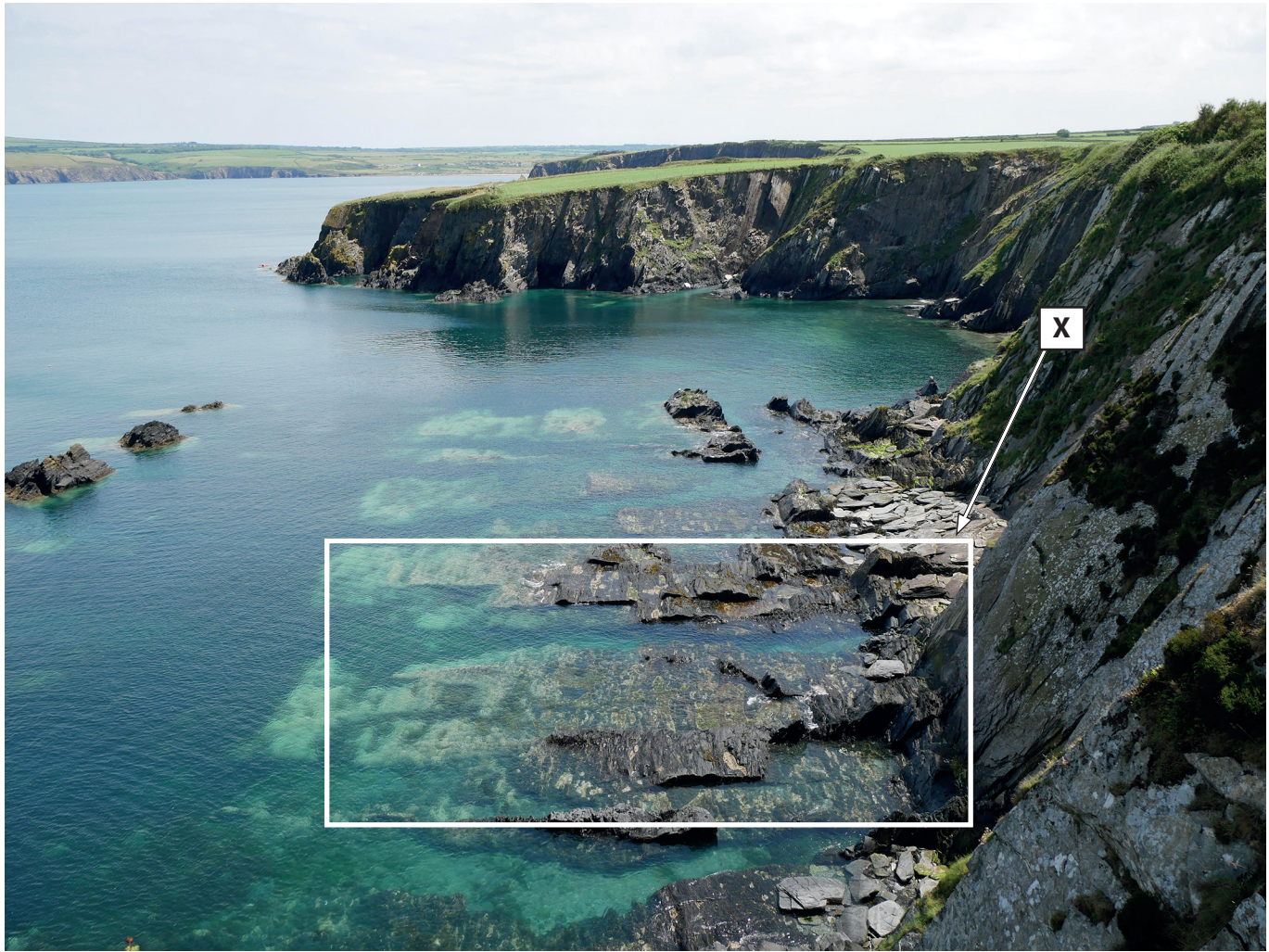


Figure 2b

Coastal landscape in Pembrokeshire, UK

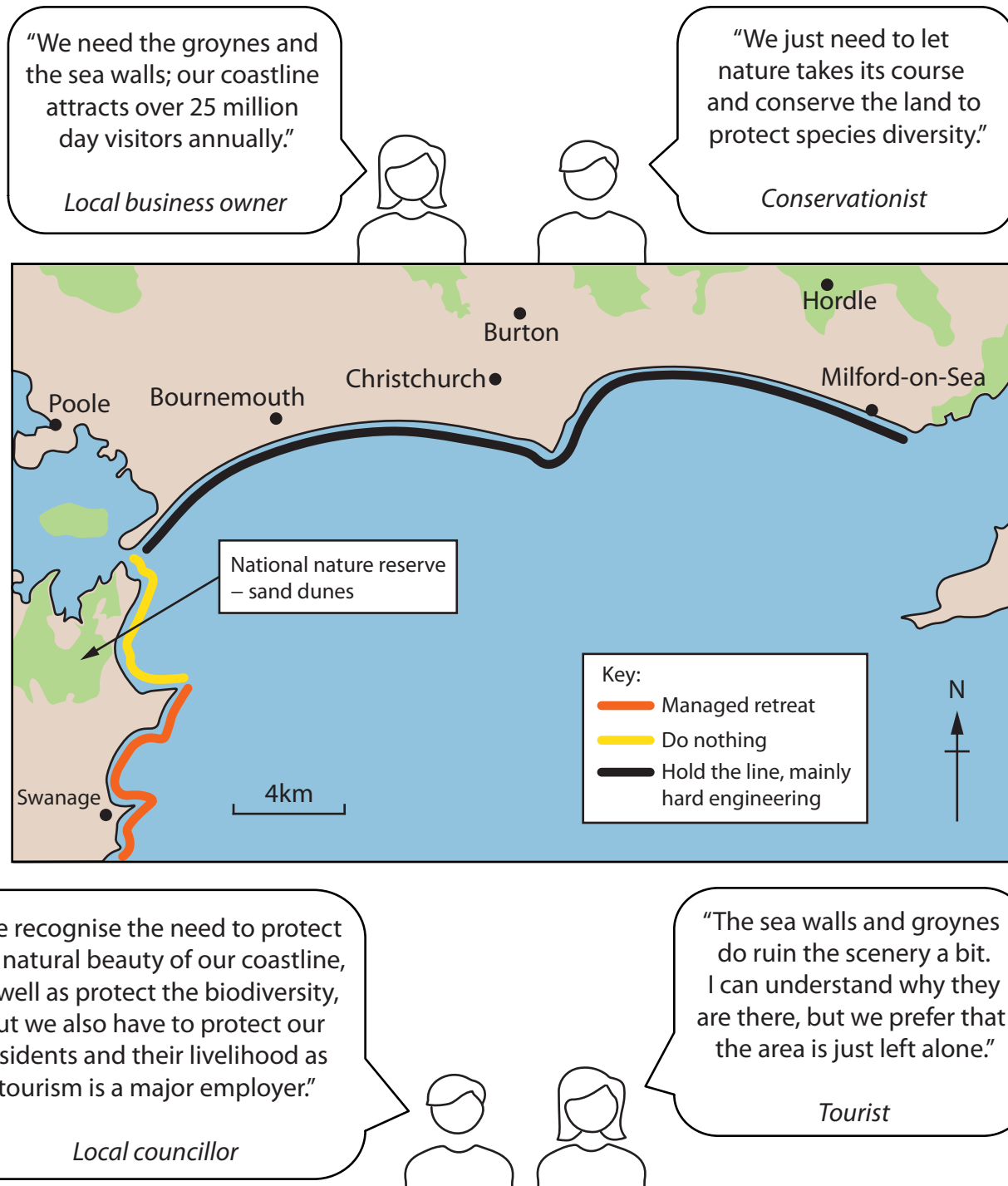


Figure 2c

Different views on coastal management strategies along the Dorset coast, UK

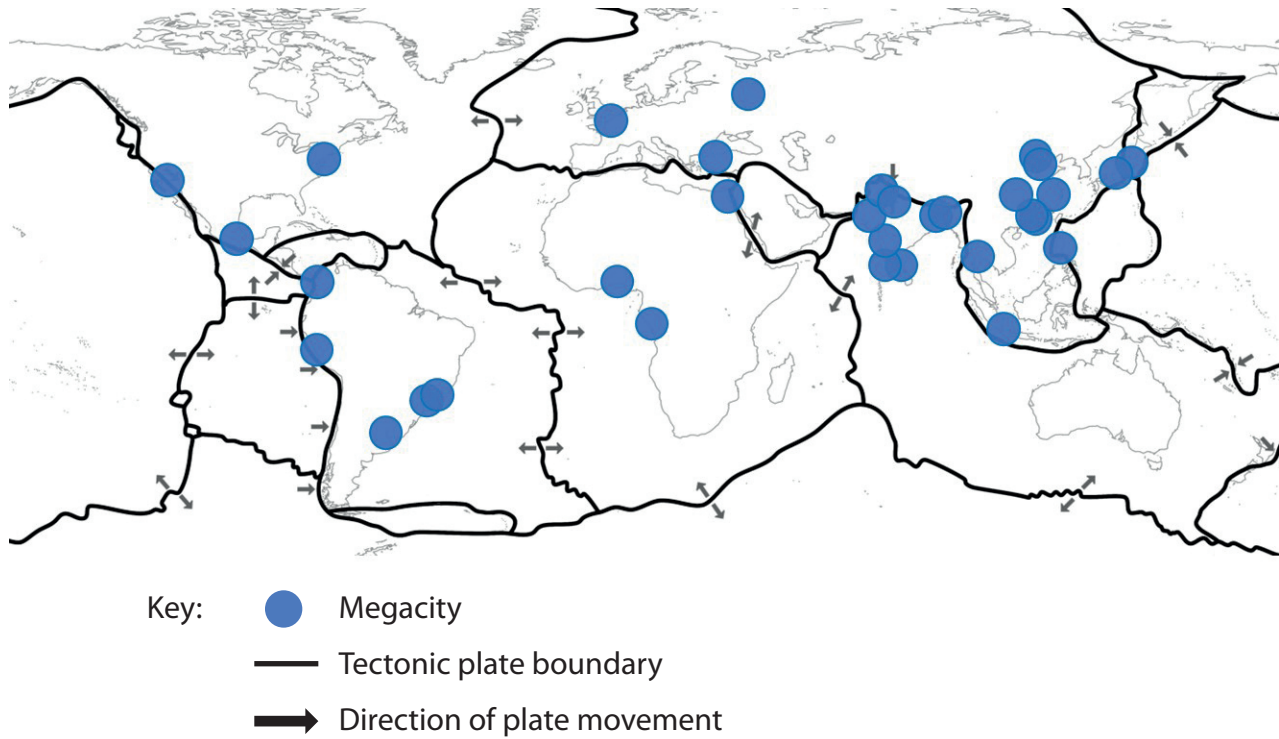


Figure 3a

Tectonic plate boundaries and megacity locations

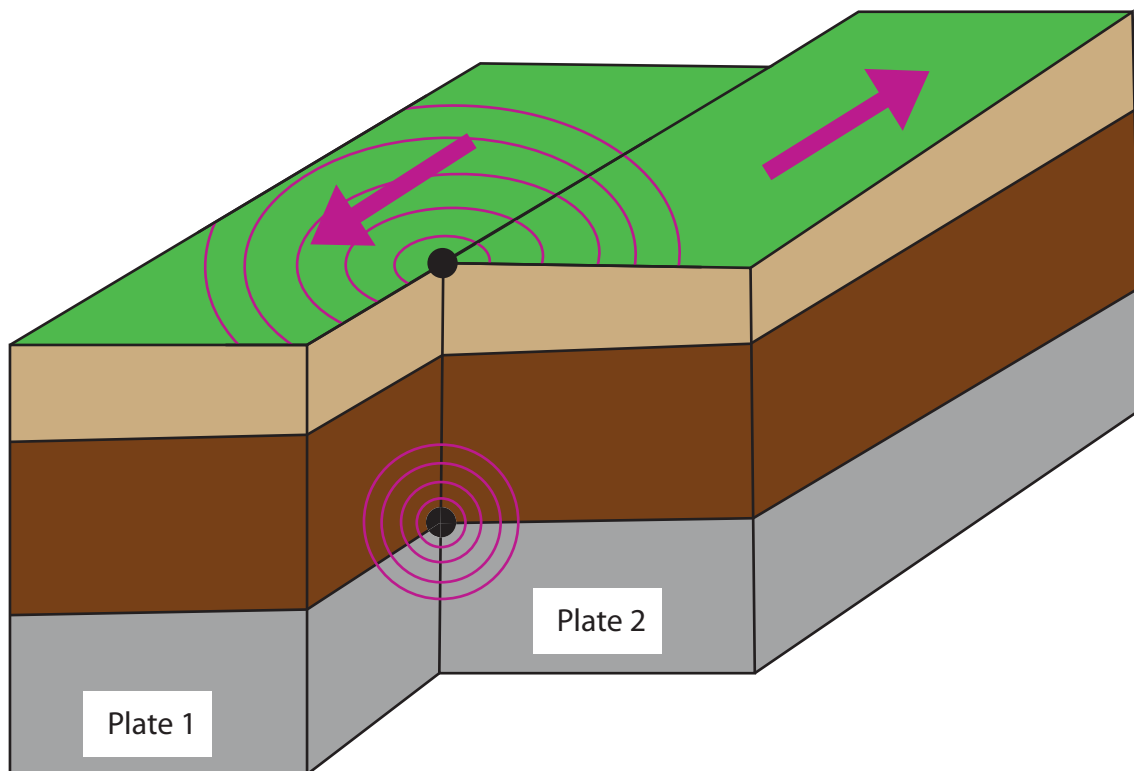
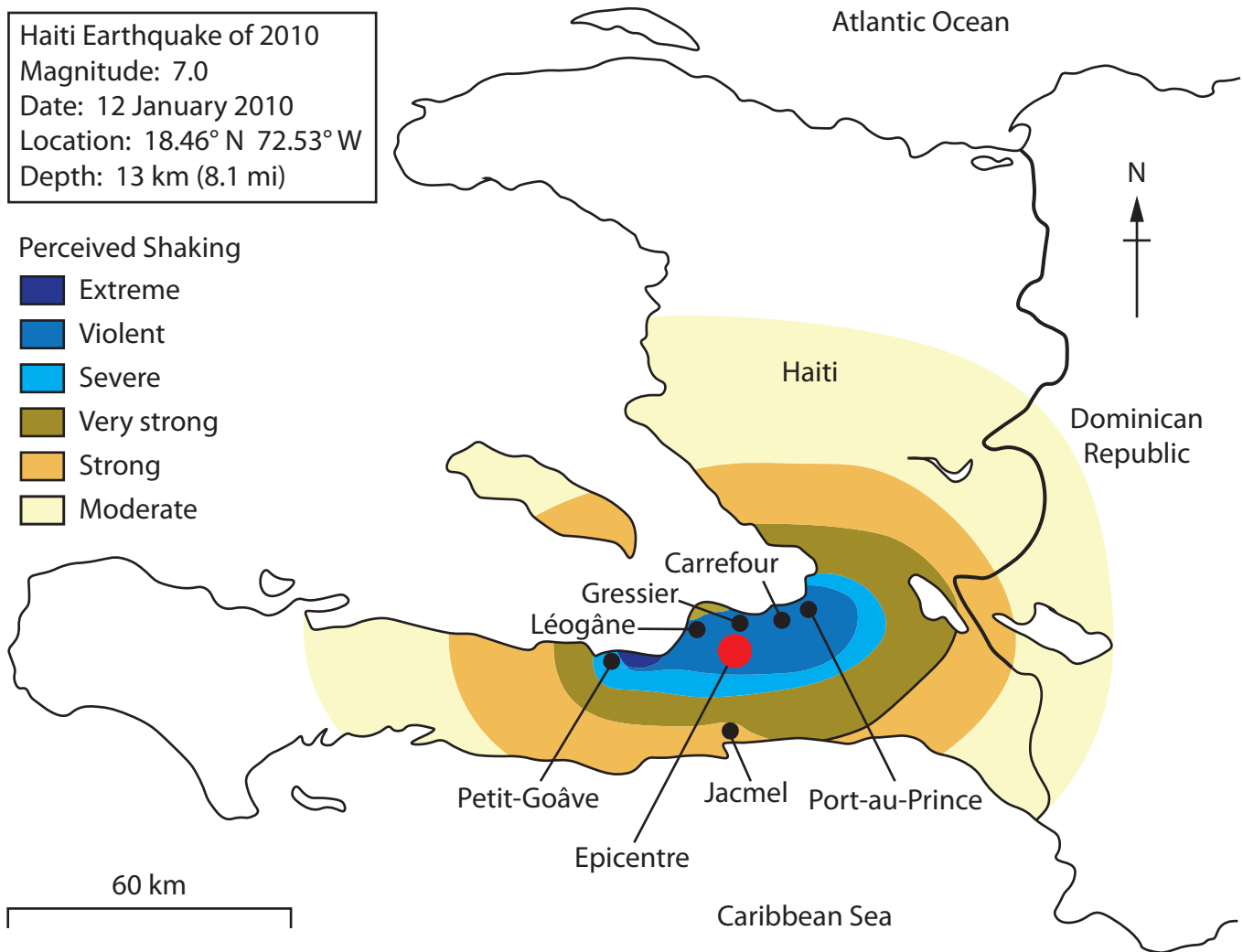


Figure 3b

Diagram of a plate boundary



Population	9.95 million
Short-term Impacts	<ul style="list-style-type: none">• 220,000 people killed• 300,000 people injured• Transport and communications disrupted, airport damaged• Shortage of aid supplies due to lack of preparation
Long-term Impacts	<ul style="list-style-type: none">• 2 million people with poor access to food and water• 1.3 million people homeless• Outbreaks of cholera• Many businesses were destroyed particularly the clothing industry

Figure 3c

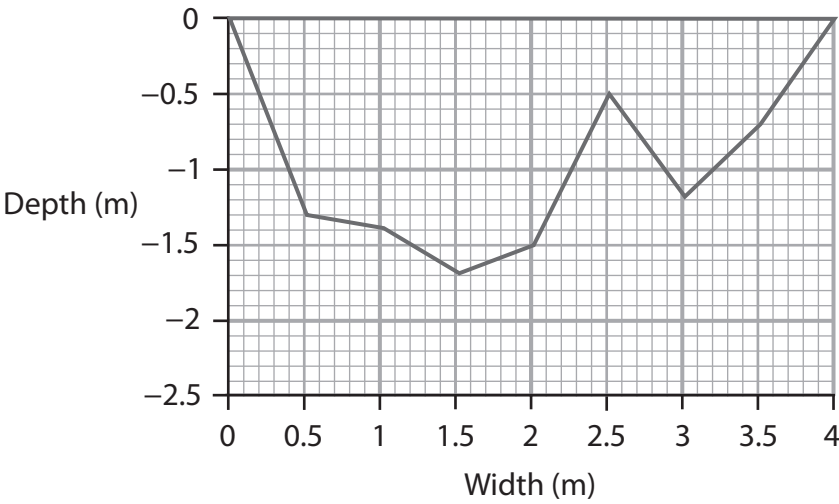
Details about an earthquake event in Haiti, a developing country in 2010

At two different sites along a river chosen at random on a map:

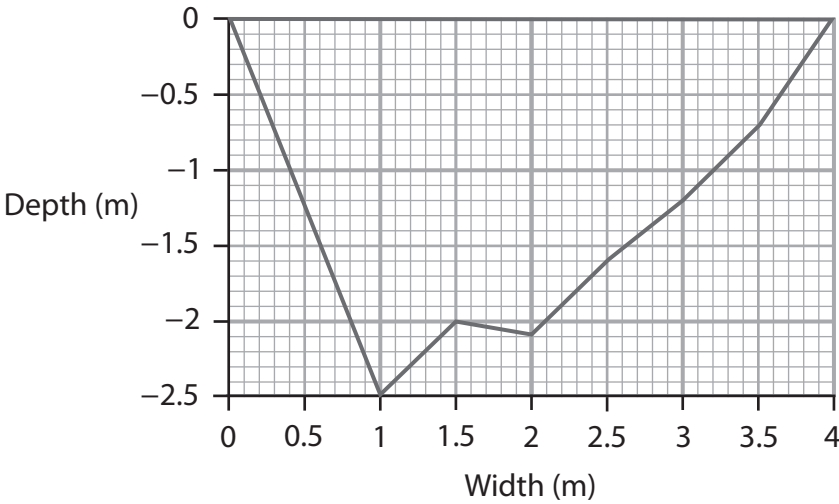
- Measure river width/depth
- Measure river wetted perimeter
- Measure river velocity

Figure 4a

Extract from data collection methods



Site 1



Site 2

Conclusions	
1	I found that the characteristics of the river changed along the course of the river.
2	Calculating river velocity at each site allowed me to find out that river velocity is fastest in the upper course of the river.
3	There was little difference between the width of the river between the fieldwork sites.

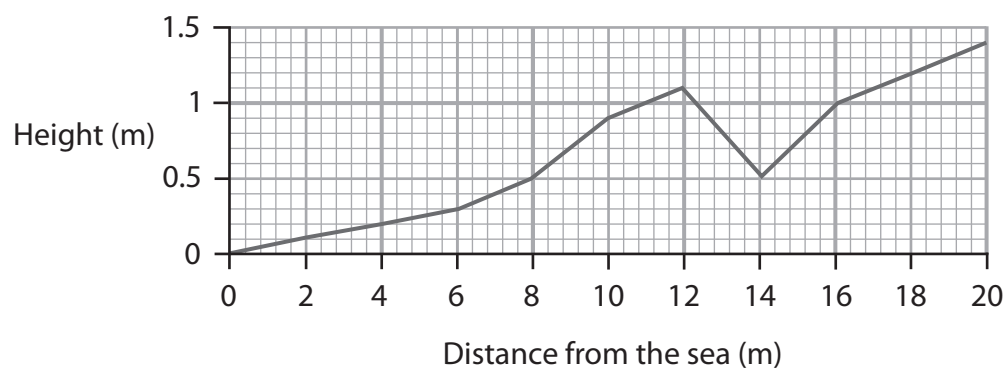
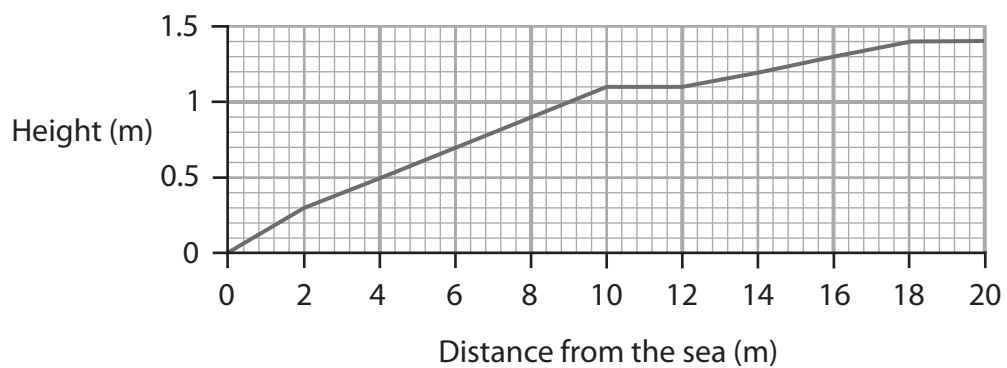
Figure 4b
Extracts from student’s data presentation and conclusion

At two different sites along a beach chosen at random on a map:

- Measure gradient of the beach at set distances
- Record sediment shape
- Measure sediment size

Figure 5a

Extract from data collection methods



Conclusions	
1	I found that the characteristics of the beach changed along the coastline.
2	Measuring the changes in the gradient of the beach allowed me to create a beach profile to show how characteristics changed along the coastline.
3	There was little difference between the sediment size along the stretch of the coastline.

Figure 5b

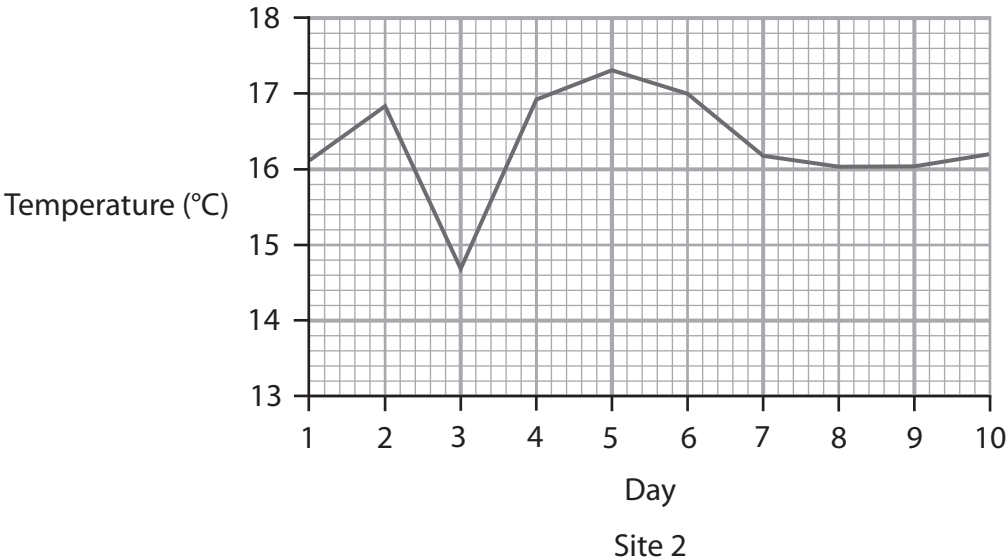
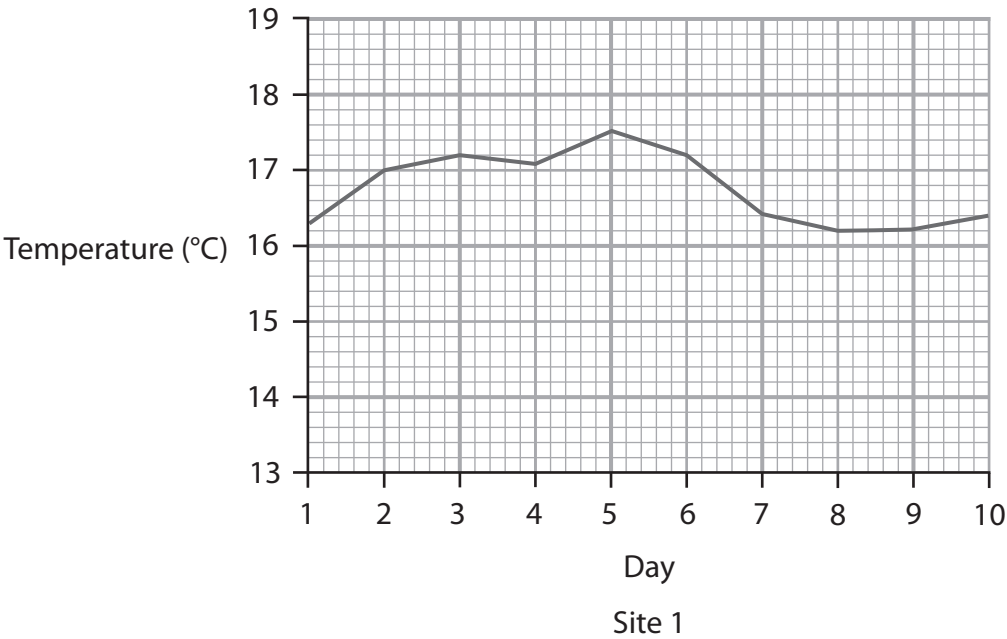
An extract from the student's data presentation and conclusion

At two different sites chosen at random on a map, data collected for a weather diary, including:

- temperature
- humidity
- rainfall

Figure 6a

Extract from data collection methods



Conclusions	
1	I found that the weather characteristics and changes in the weather were similar at both sites.
2	Changes in humidity were often linked to temperature and amount of rainfall.
3	There was little difference between the average temperatures of both sites.

Figure 6b
An extract from the student's data presentation and conclusion

BLANK PAGE

Acknowledgements

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

Figure 1b (Source: © Thomas Dekiere/Shutterstock)

Figure 1c (Source: <https://www.noaa.gov/media-release/spring-outlook-historic-widespread-flooding-to-continue-through-may>)

Figure 2b (© Alan Morris / Alamy Stock Photo)