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)

Tuesday 14 November 2023

Morning (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.*
- 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.*
- Calculators may be used.

Advice

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

Turn over ▶

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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** type of data shown on a flood hydrograph.

(1)

☒ **A** cloud cover

☒ **B** discharge

☒ **C** temperature

☒ **D** wind strength

(b) (i) Identify the best definition of water abstraction.

(1)

☒ **A** Holding back water behind a wall

☒ **B** Improving water quality to make it acceptable for use

☒ **C** The storage of rainwater for reuse

☒ **D** The removal of water from surface or underground stores

(ii) State **one** reason why the hydrological cycle is a closed system.

(1)

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(iii) Explain **one** reason river depth changes along the long profile.

(2)

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

Suggest **two** reasons for differences in water usage between developed and developing/emerging countries.

(4)

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

Identify the drainage basin feature labelled **X** on Figure 1b.

(1)

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(e) Explain **two** physical factors that affect river discharge.

(4)

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(f) Explain **one** way to predict river flooding.

(3)

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

Analyse the different impacts of managing water supply.

Refer to the resource in your answer.

(8)

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(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 swash.

(1)

- ☒ **A** Distance between two wave crests
- ☒ **B** Friction between wind and water surface
- ☒ **C** Movement of water down the beach
- ☒ **D** Movement of water up the beach

(b) (i) Identify the best definition of mass movement.

(1)

- ☒ **A** The breakdown and decay of rocks by natural forces
- ☒ **B** The dropping of material being carried by waves
- ☒ **C** The movement of material along the shore by waves
- ☒ **D** The movement of material down a slope due to gravity

(ii) Name **one** landform created by coastal erosion.

(1)

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(iii) Explain **one** influence geology can have on rates of coastal erosion.

(2)

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

Explain **one** advantage and **one** disadvantage of managed retreat as a form of coastal management.

(4)

Advantage

Disadvantage

(d) Explain **one** way education can reduce the impact of coastal flooding.

(3)

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

Identify the coastal ecosystem shown in Figure 2b.

(1)

(f) Explain **two** reasons why coral reef ecosystems are under threat.

(4)

1

2

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

Analyse the impact of human activity on mangrove ecosystems.

Refer to the resource in your answer.

(8)

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(Total for Question 2 = 25 marks)

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

3 Hazardous environments

(a) Identify the feature of an earthquake.

(1)

- ☒ **A** cone
- ☒ **B** crater
- ☒ **C** epicentre
- ☒ **D** eye

(b) (i) Identify the best definition of Coriolis force.

(1)

- ☒ **A** The wall of cloud that surrounds the eye
- ☒ **B** The deflection of air due to the Earth's rotation
- ☒ **C** The force placed on the surface by the air above
- ☒ **D** The region of calm weather in the centre

(ii) State **one** impact of a volcanic eruption.

(1)

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(iii) Explain **one** way risk assessments can be used to manage earthquake hazards.

(2)

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(c) Explain **one** way an earthquake can be measured.

(3)

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

Explain **two** characteristics of a tropical cyclone.

(4)

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2

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

Identify the feature of the volcano labelled '**X**' in Figure 3b.

(1)

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(f) Explain **one** physical factor and **one** social factor that increase a country's vulnerability to the impact of tropical cyclones.

(4)

Physical

Social

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

Analyse the influence plate margin type has on the scale of tectonic hazards.

Refer to the resource in your answer.

(8)

(Total for Question 3 = 25 marks)

TOTAL FOR SECTION A = 50 MARKS

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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 geographical enquiry

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(a) Describe **one** of your data presentation techniques.

(2)

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(b) Explain **one** limitation of a secondary data source used in your investigation.

(3)

Secondary data source

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(c) Explain **two** ways you could have improved a primary data collection method to increase its accuracy.

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(d) Explain **one** pattern you found in your primary data.

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(e) Study the data in Figure 4a in the Resource Booklet. It shows some information about the results and conclusion from the students' investigation.

> The aim was to investigate how the width and velocity change along a river.

Evaluate the reliability of the students' conclusions.

(8)

(Total for Question 4 = 20 marks)

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 geographical enquiry

(a) Describe **one** of your data presentation techniques.

(2)

(b) Explain **one** limitation of a secondary data source used in your investigation.

(3)

Secondary data source

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(c) Explain **two** ways you could have improved a primary data collection method to increase its accuracy.

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(d) Explain **one** pattern you found in your primary data.

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(e) Study the data in Figure 5a in the Resource Booklet. It shows some information about the results and conclusion from the students' investigation.

> The aim was to investigate how the sediment size and shape change along a stretch of coastline.

Evaluate the reliability of the students' conclusions.

(8)

(Total for Question 5 = 20 marks)

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 geographical enquiry

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(a) Describe **one** of your data presentation techniques.

(2)

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(b) Explain **one** limitation of a secondary data source used in your investigation.

(3)

Secondary data source

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(c) Explain **two** ways you could have improved a primary data collection method to increase its accuracy.

(4)

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(d) Explain **one** pattern you found in your primary data.

(3)

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(e) Study the data in Figure 6a in the Resource Booklet. It shows some information about the results and conclusion from the students' investigation.

> The aim was to investigate how air pressure and rainfall vary in a location at risk of tropical cyclones.

Evaluate the reliability of the students' conclusions.

(8)

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(Total for Question 6 = 20 marks)

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

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Pearson Edexcel International GCSE (9–1)

Tuesday 14 November 2023

Morning (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.

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Figure 1a

Information about water usage in developed and developing/emerging countries

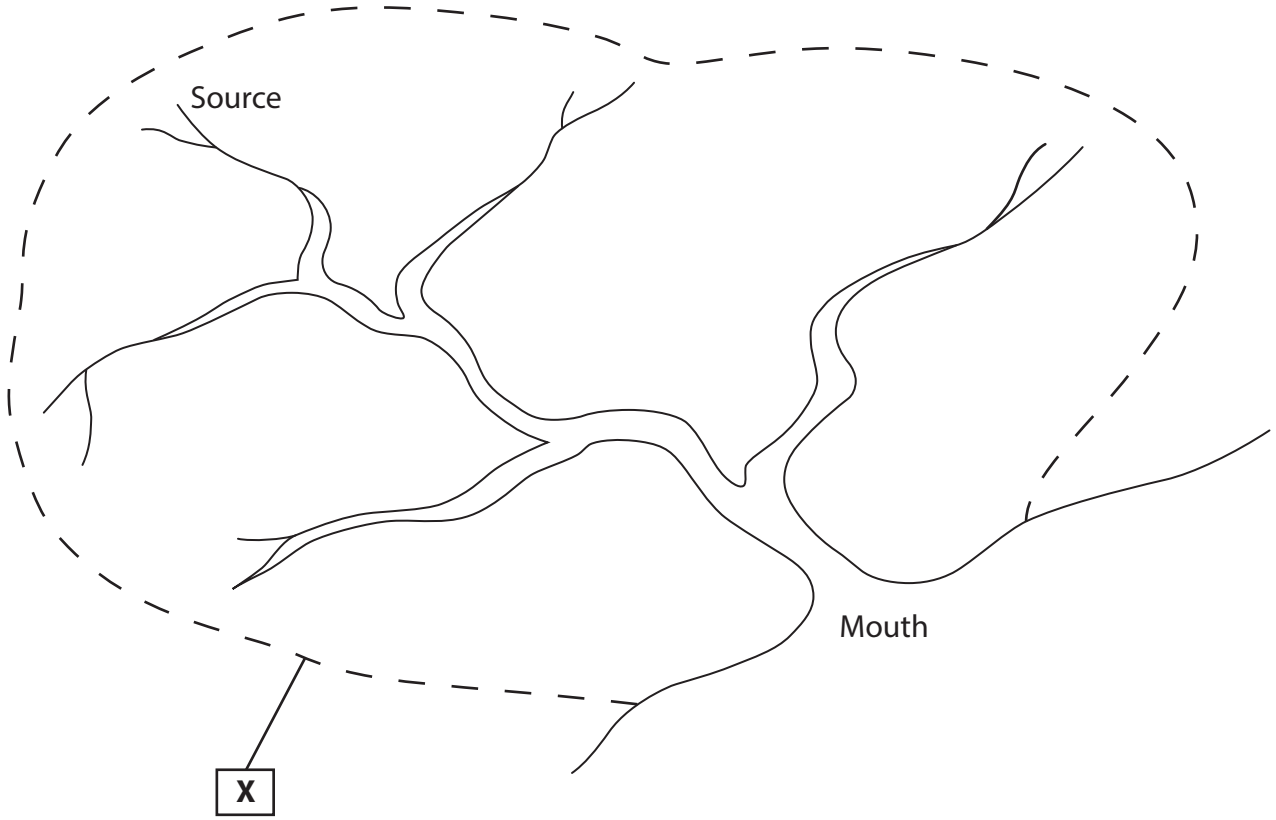
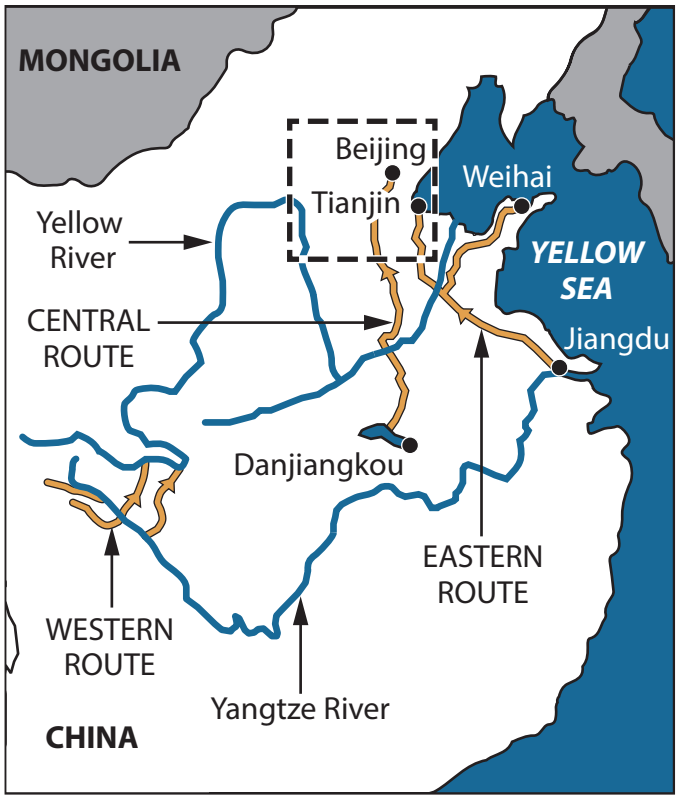


Figure 1b

Diagram of a drainage basin

Impacts on northern regions: over 200 million population

- Will bring 4 billion cubic metres of water to the north
- Less groundwater abstraction reducing subsidence
- Maintains farming in China's breadbasket
- Reduces impact from droughts



Key

Pipelines and canals

Area of large wheat crop production (breadbasket)

Impacts on southern regions:

- Displaced hundreds of thousands of people
- Droughts experienced in south
- Increased pollution from factories
- Loss of wildlife

Figure 1c

Diagram of China's south-north water transfer (pipeline and canal) and selected impacts

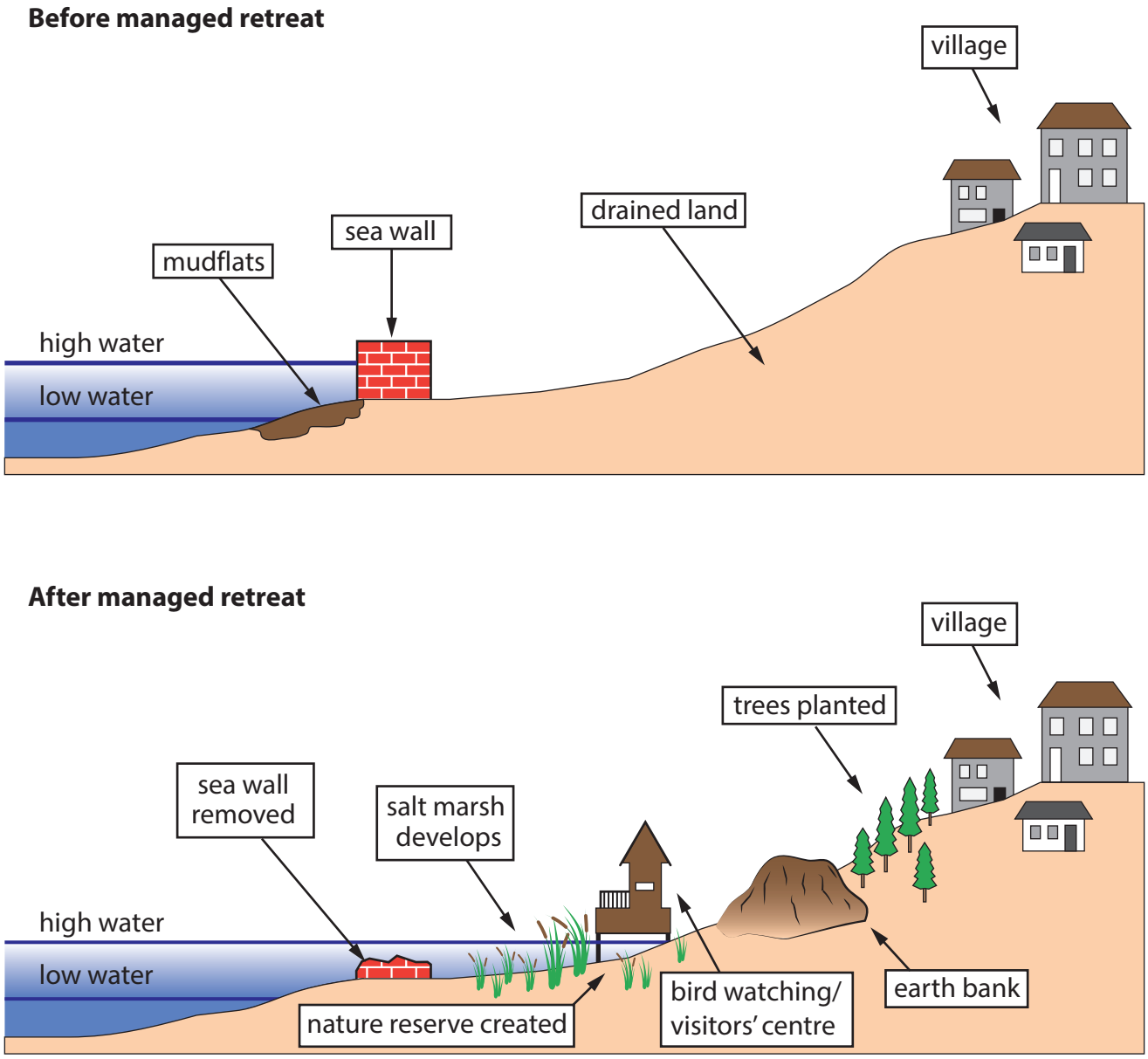


Figure 2a

A diagram showing coastal environment before and after managed retreat

Figure 2b

Coastal ecosystem

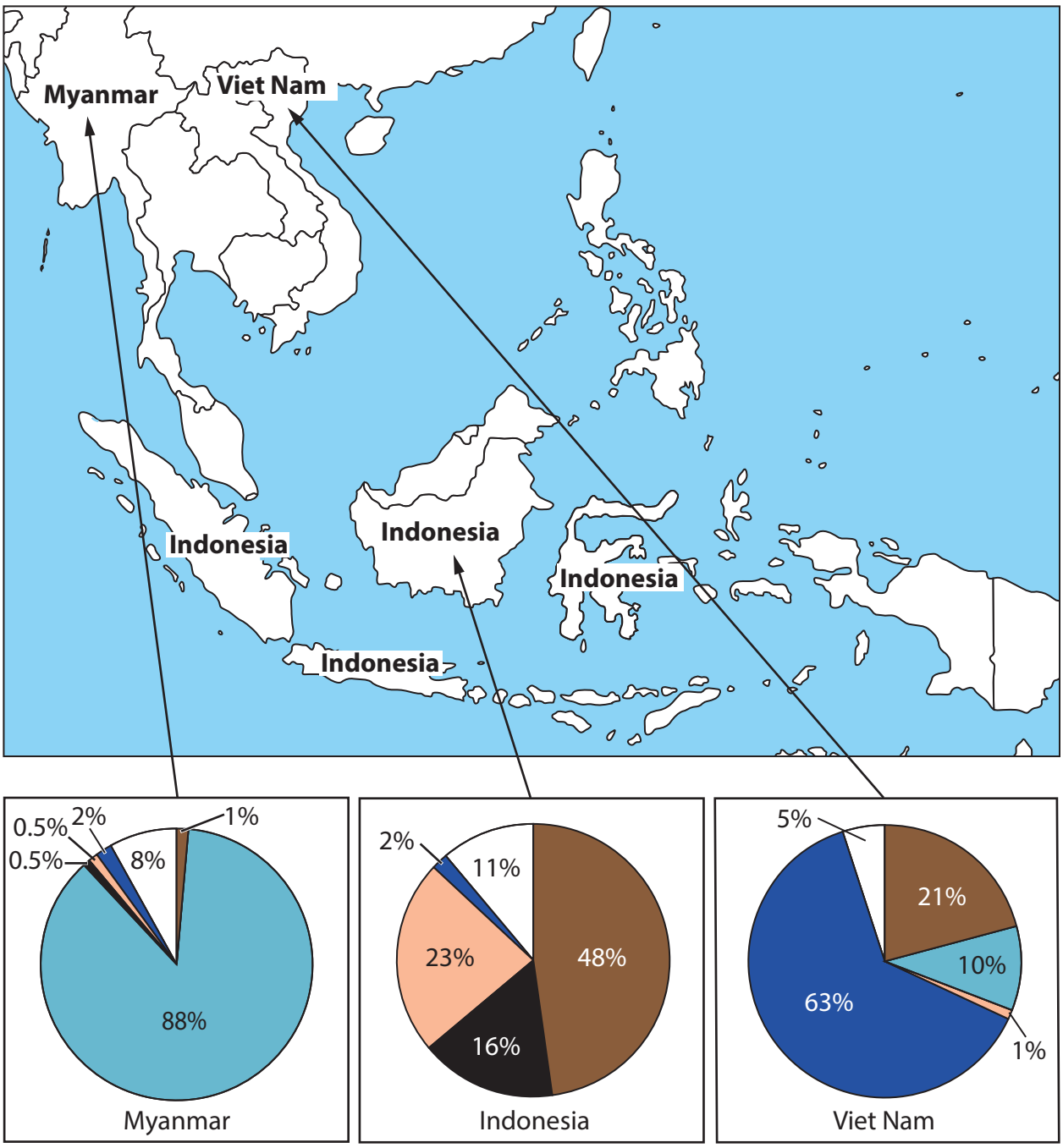


Figure 2c

Rates of mangrove destruction and regrowth (mainly planted), in south-east Asia

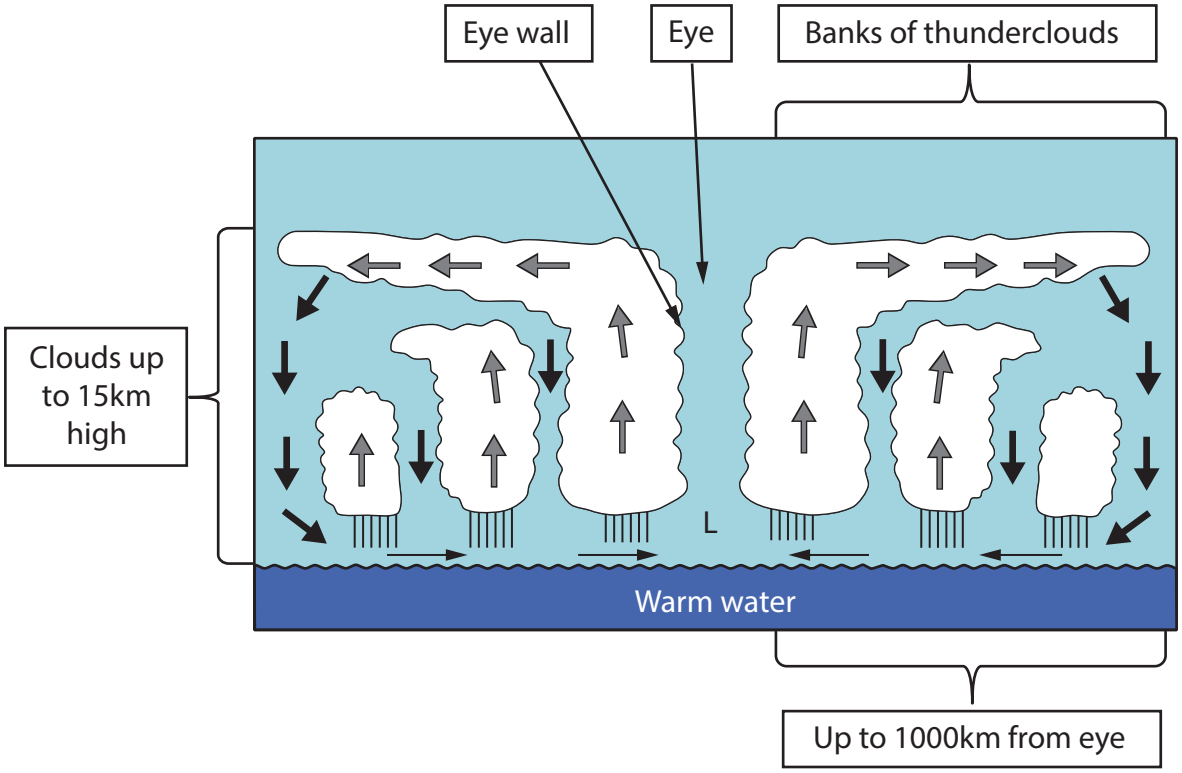


Figure 3a

The structure of tropical cyclones

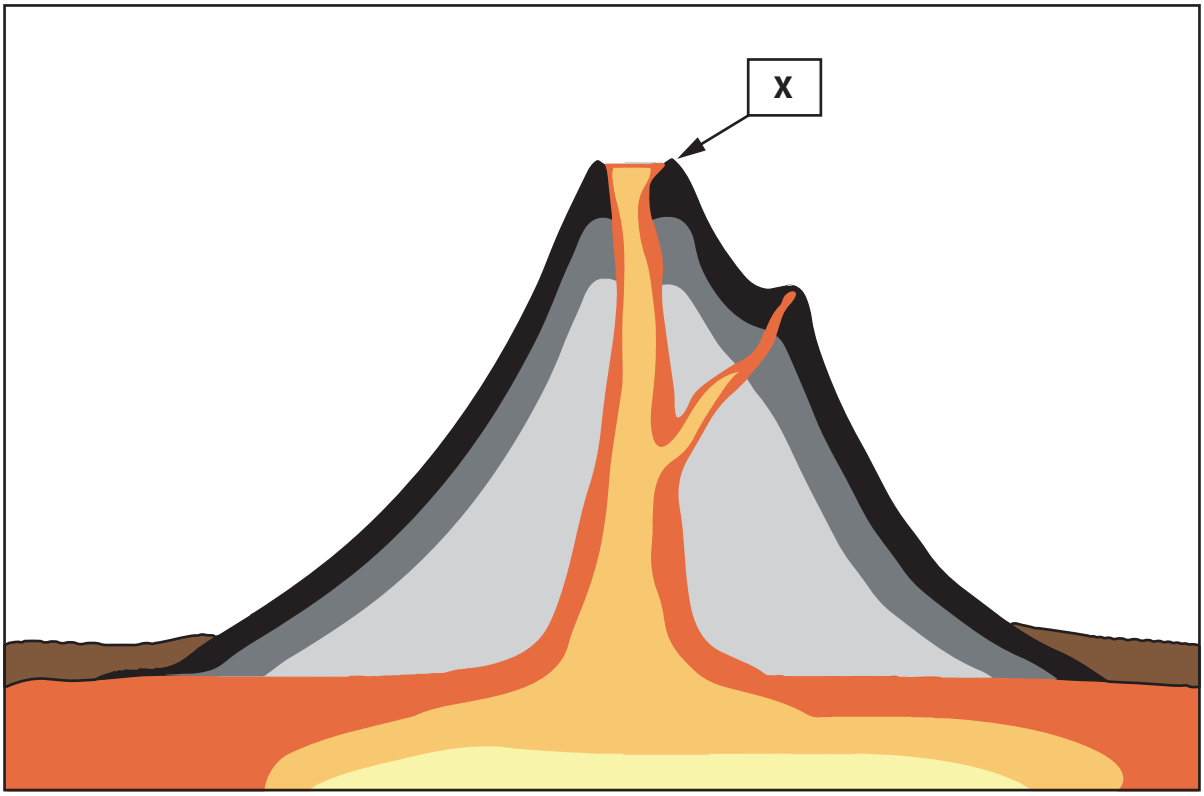


Figure 3b

Structure of a volcano

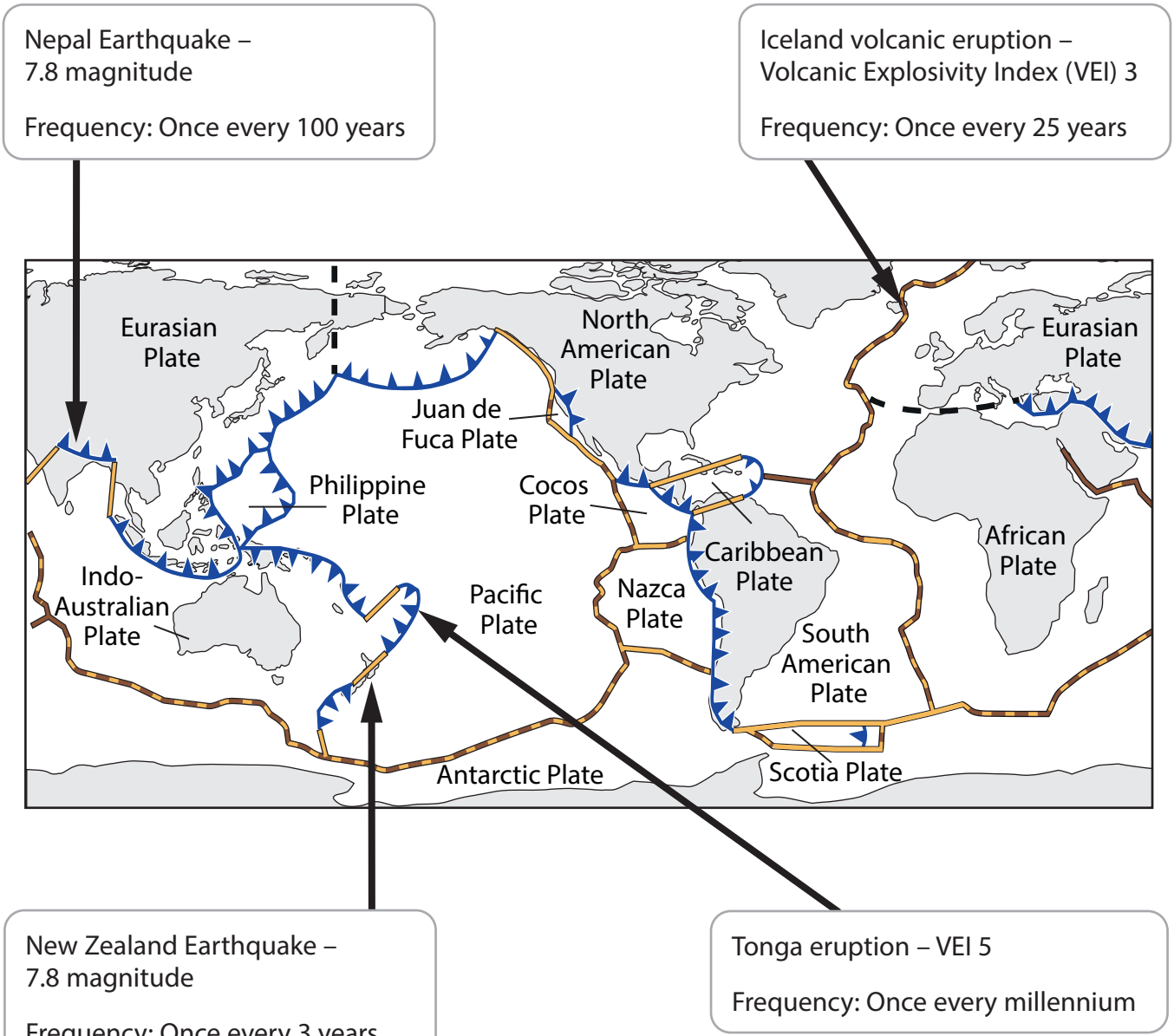
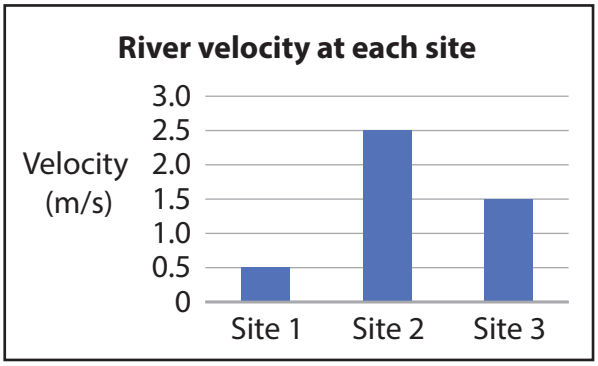
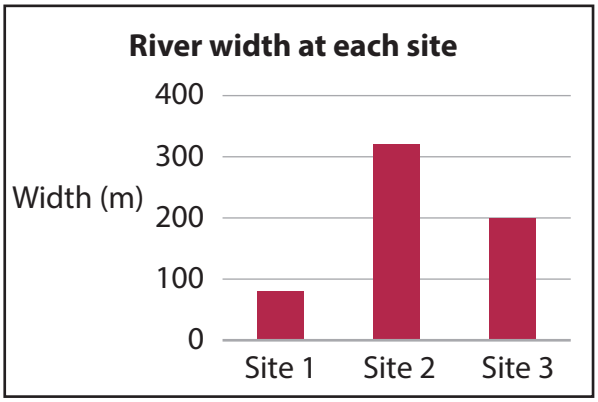
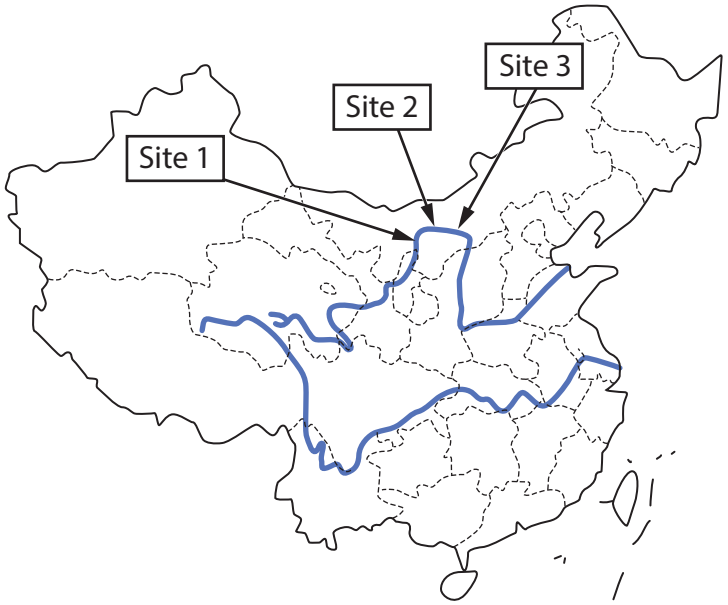


Figure 3c

Types of plate margins and scale of tectonic hazards







A group of students carried out an investigation into how river width and velocity change along a river.

Sampling strategy: They chose random sampling to select the three sites where data was collected.

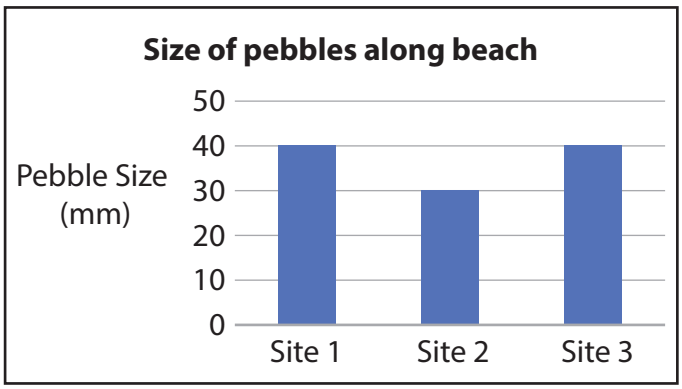
Time of year: The data was collected during one morning in March.

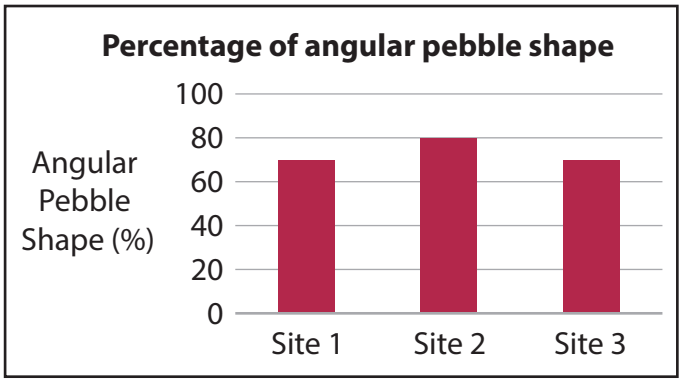
Frequency: To collect their width and velocity data the students recorded one set of data at each site.

Conclusion: The students concluded that river width and velocity do not always increase along a river.

Figure 4a

Details of the students' river investigation





A group of students carried out an investigation into how sediment size and shape change along a stretch of coastline.

Sampling strategy: They chose random sampling to select the three sites where data was collected.

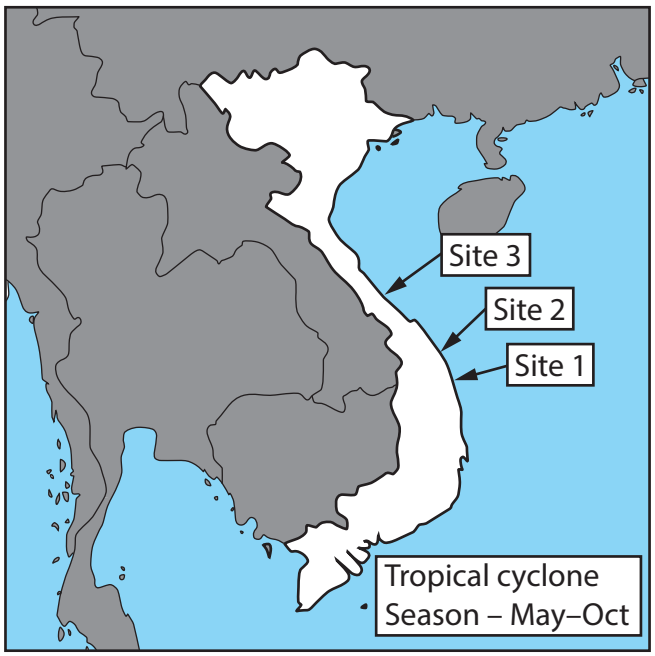
Time of year: The data was collected during one morning in March.

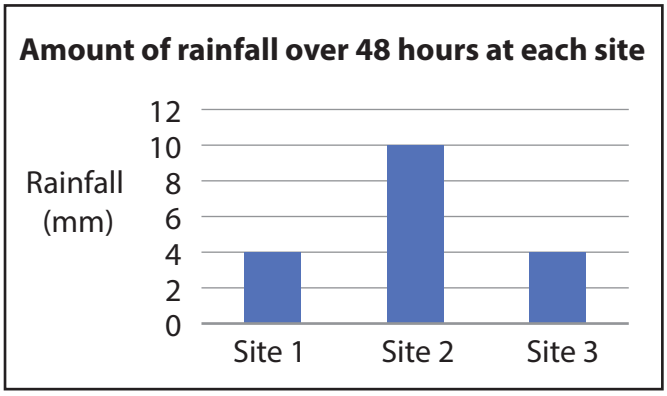
Frequency: To collect their pebble size and shape data the students recorded one set of data at each site. Different students recorded the shape data at each site.

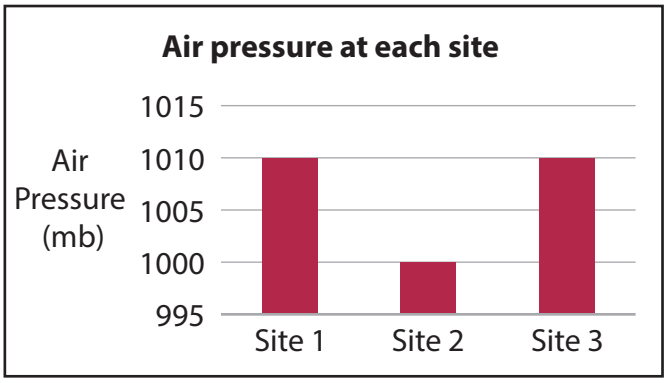
Conclusion: The students concluded that pebble size stays the same along a stretch of coastline and pebble shape is mainly angular.

Figure 5a

Details of the students' coastal investigation







A group of students carried out an investigation into how air pressure and rainfall vary in a location at risk from tropical cyclones.

Sampling strategy: They chose random sampling to select the three sites where data was collected.

Time of year: The data was collected during one morning in March.

Frequency: To collect their rainfall and air pressure data the students recorded one set of data at each site. They measured the total rainfall after 48 hours at each site.

Conclusion: The students concluded that areas with lower air pressure experience more rainfall.

Figure 6a

Details of the students' extreme weather event investigation

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Acknowledgements

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

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Figure 2b: ©BrianScantlebury/Shutterstock
Figure 3b: © Designua/Shutterstock
Figure 3c: https://www.nps.gov