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

Monday 18 May 2020

Morning (Time: 1 hour 10 minutes) | Paper Reference **4GE1/01R**

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.

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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 the meaning of the term **river regime**.

(1)

☐	**A** variation in river discharge throughout the year
☐	**B** variation in river discharge over a day
☐	**C** variation in river discharge over a month
☐	**D** variation in river discharge throughout the week

(b) (i) Identify the definition of the **hydrological cycle**.

(1)

☐	**A** an open system made up of stores and transfers
☐	**B** a closed system made up of only stores
☐	**C** a closed system made up of stores and transfers
☐	**D** an open system made up of only transfers

(ii) State **one** feature of a drainage basin.

(1)

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(iii) Explain **one** way urbanisation can affect river discharge.

(2)

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

Suggest how **two** physical factors can affect the hydrological cycle.

(4)

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(d) Explain **one** way that river channel shape changes along the course of a river.

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

Identify the river landform at X.

(1)

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(f) Explain the formation of a waterfall.

(4)

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(g) Study Figures 1c and 1d in the Resource Booklet.

Analyse the positive and negative aspects of the river management scheme.

(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 abiotic characteristic of a coastal ecosystem.

(1)

☒	**A** seaweed
☒	**B** zooplankton
☒	**C** rock type
☒	**D** marine fish

(b) (i) Identify the definition of a **saltmarsh**.

(1)

☒	**A** vegetation flooded by freshwater
☒	**B** vegetation on a sandy beach
☒	**C** vegetation on a stony beach
☒	**D** vegetation flooded and drained by tidal water

(ii) State **one** factor affecting the distribution of mangrove ecosystems.

(1)

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(iii) Explain **one** way constructive waves can affect beach gradient.

(2)

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

Suggest **two** physical factors that influence coastal landforms.

(4)

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(d) Explain **one** way coastal ecosystems are threatened by human activity.

(3)

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

Identify the coastal feature at X.

(1)

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(f) Explain the process of beach formation.

(4)

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

Analyse the benefits and threats in the development of coral reef ecosystems.

(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 longer-term response to a hazardous event.

(1)

☒	**A** emergency medical aid
☒	**B** provision of bottled water
☒	**C** food parcels
☒	**D** rebuilding settlements

(b) (i) Identify **one** physical impact of a tropical cyclone.

(1)

☒	**A** buildings damaged
☒	**B** family separation
☒	**C** lack of food
☒	**D** ground shaking

(ii) State **one** method of measuring the scale of tropical cyclones.

(1)

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(iii) Explain **one** way short-term relief helps reduce the impact of earthquakes.

(2)

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

Suggest **two** physical reasons why people live in areas at risk from volcanic eruptions.

(4)

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(d) Explain **one** longer-term impact of a tropical cyclone.

(3)

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

Identify the feature at X.

(1)

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(f) Explain the formation of destructive plate boundaries.

(4)

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(g) Study Figures 3c and 3d in the Resource Booklet.

Analyse the differences between the earthquake events.

(8)

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(Total for Question 3 = 25 marks)

TOTAL FOR SECTION A = 50 MARKS

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

A group of students has undertaken a geographical enquiry exploring changes in a river channel.

(a) (i) State **one** risk that the students might identify when undertaking this enquiry.

(1)

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.....

(ii) State **one** way of managing the risk identified in 4(a)(i).

(1)

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Study Figure 4a in the Resource Booklet. It shows river channel characteristics at three sites.

(iii) Use the data in Figure 4a to find the mean depth of the river at Site 3.

Give your answer to one decimal place.

You must show all your workings in the space below.

(2)

..... cm

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(iv) Use the data in Figure 4a to plot the data for sampling points at Site 2 to complete the graph.

(2)

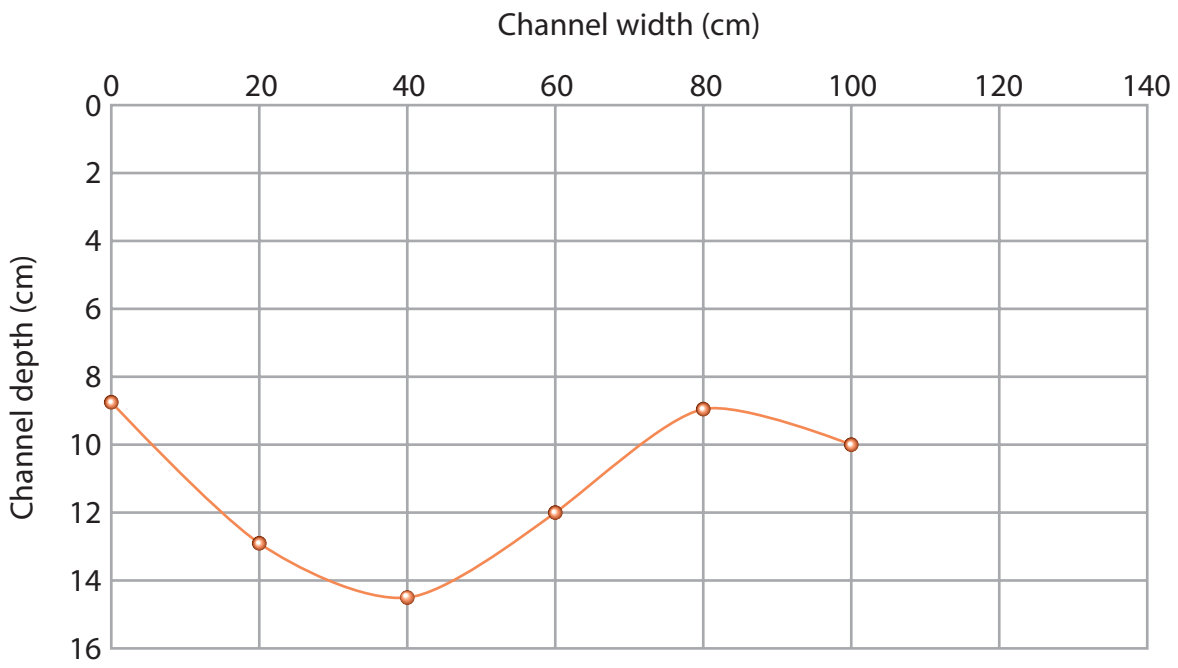

Figure 4b

River cross section at Site 2

(v) The three sites (1–3) were selected randomly along the river.

Suggest **one** reason why the students chose random sampling for the selection of the three sites.

(2)

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(b) The students used annotated field sketches as part of their data collection.

Suggest **one** advantage and **one** disadvantage of this technique.

(4)

Advantage

Disadvantage

You have studied river processes as part of your own geographical enquiry.

(c) Evaluate the effectiveness of the data analysis techniques you used.

(8)

Enquiry question

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(Total for Question 4 = 20 marks)

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

5 Investigating coastal environments

A group of students has undertaken a geographical enquiry exploring the effectiveness of coastal management techniques along a section of coastline.

(a) (i) State **one** risk that the students might identify when undertaking this enquiry.

(1)

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(ii) State **one** way of managing the risk identified in 5(a)(i).

(1)

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Study Figure 5a in the Resource Booklet. It shows the data collected for their investigation into beach sediment.

(iii) Use the data in Figure 5a to find the mean depth from the top of the groyne to the sand on the **South** side of Groyne 4.

Give your answer to one decimal place.

You must show all your workings in the space below.

(2)

South side ..... cm

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(iv) Use the data in Figure 5a to plot the mean depth data for Groyne 2 (both North and South) to complete the graph.

(2)

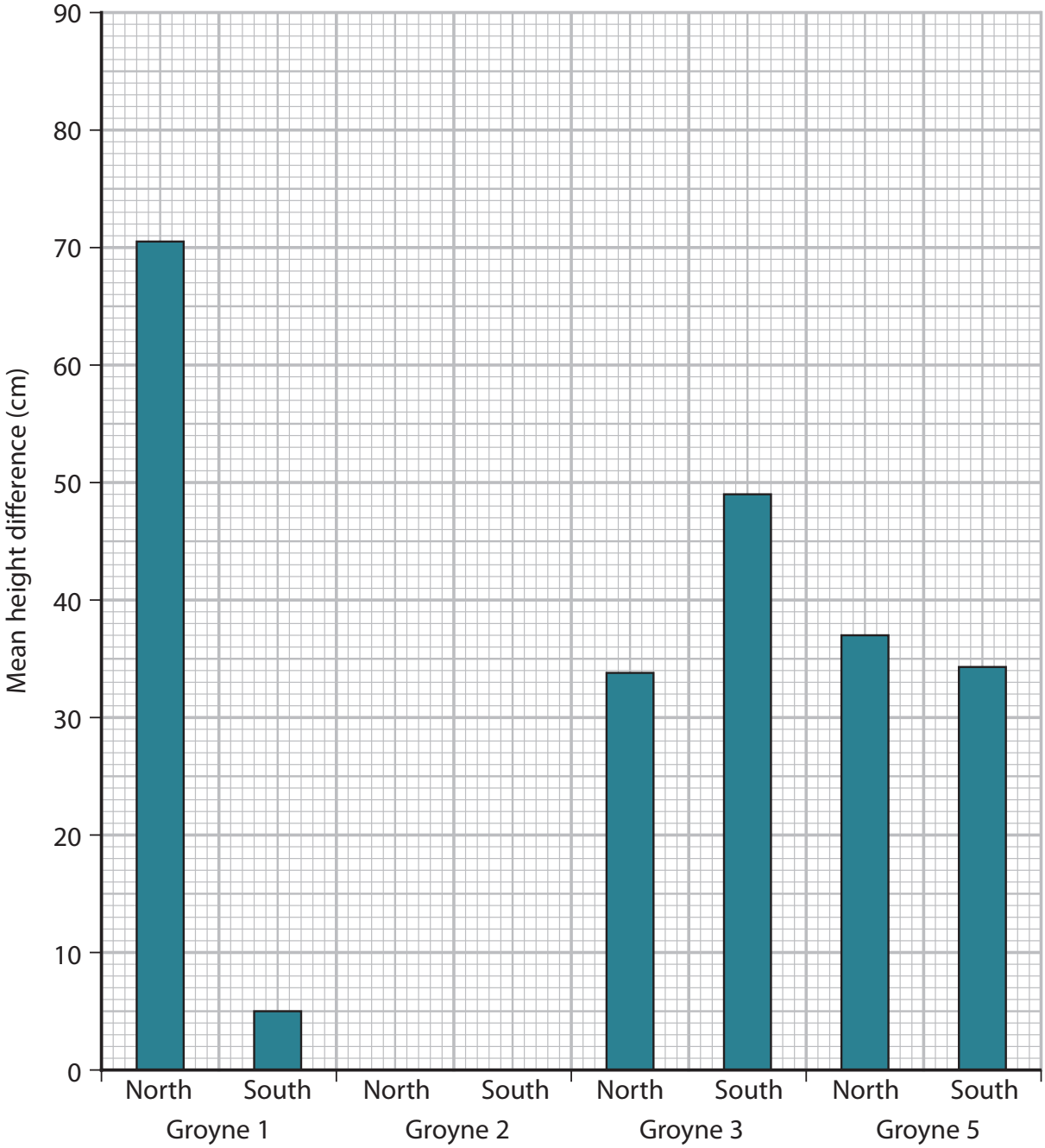

Figure 5b

Mean height difference between the top of selected groynes and the surface of the sand (cm)

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(v) The groynes (1–5) were selected randomly along the section of coast.

Suggest **one** reason why the students chose random sampling for the selection of the five sites.

(2)

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(b) The students used annotated field sketches as part of their data collection.

Suggest **one** advantage and **one** disadvantage of this technique.

(4)

Advantage

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Disadvantage

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You have studied a coastal environment as part of your own geographical enquiry.

(c) Evaluate the effectiveness of the data analysis techniques you used.

(8)

Enquiry question

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(Total for Question 5 = 20 marks)

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

6 Investigating hazardous environments

A group of students has undertaken a geographical enquiry exploring temperature variation as part of their studies into extreme weather events.

(a) (i) State **one** risk that the students might identify when undertaking this enquiry.

(1)

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(ii) State **one** way of managing the risk identified in 6(a)(i).

(1)

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Study Figure 6a in the Resource Booklet. It shows temperature variations across five sites during an extreme weather event.

(iii) Using the data in Figure 6a calculate the mean lowest temperature.

Give your answer to one decimal place.

You must show all your workings in the space below.

(2)

..... °C

(iv) Use the data in Figure 6a to plot the data for Sites 4 and 5 to complete the graph.

(2)

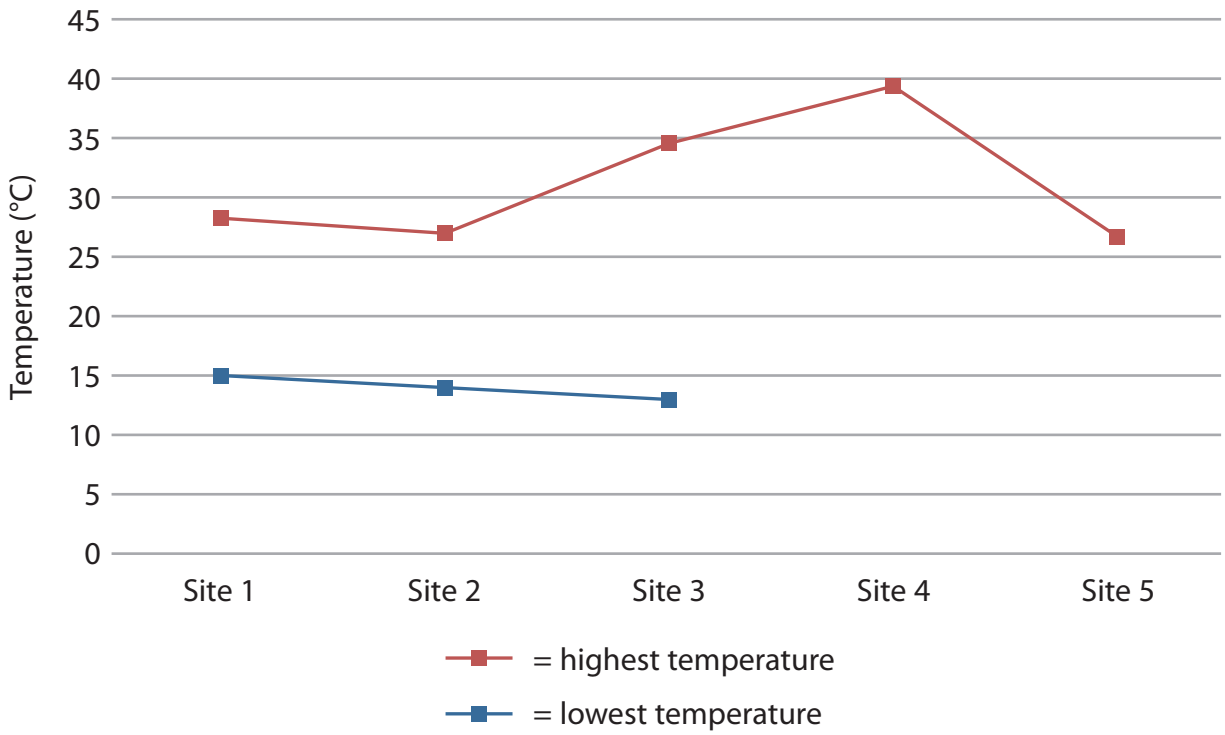

Figure 6b

Temperature variation during an extreme weather event

(v) The five sites (1–5) were selected randomly to take temperature readings.

Suggest **one** reason why the students chose random sampling for the selection of the five sites.

(2)

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(b) The students used annotated field sketches as part of their data collection.

Suggest **one** advantage and **one** disadvantage of this technique.

(4)

Advantage

Disadvantage

You have studied a hazardous environment as part of your own geographical enquiry.

(c) Evaluate the effectiveness of the data analysis techniques you used.

(8)

Enquiry question

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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)

Monday 18 May 2020

Morning (Time: 1 hour 10 minutes) | Paper Reference **4GE1/01R**

Geography

Paper 1: Physical Geography

Resource Booklet

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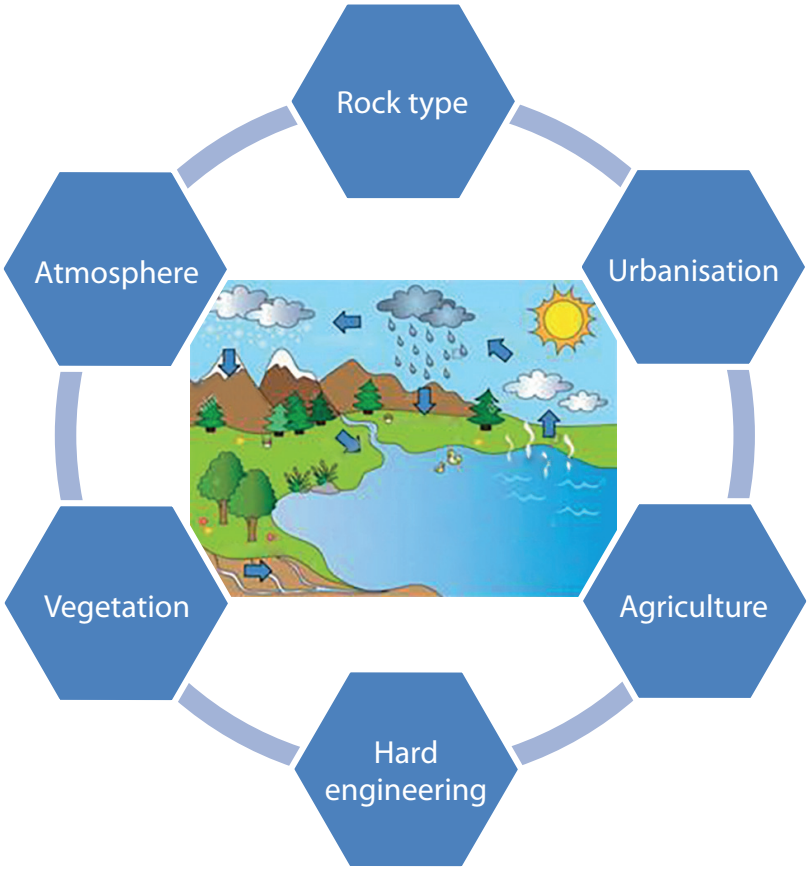

Figure 1a

Factors affecting the hydrological cycle

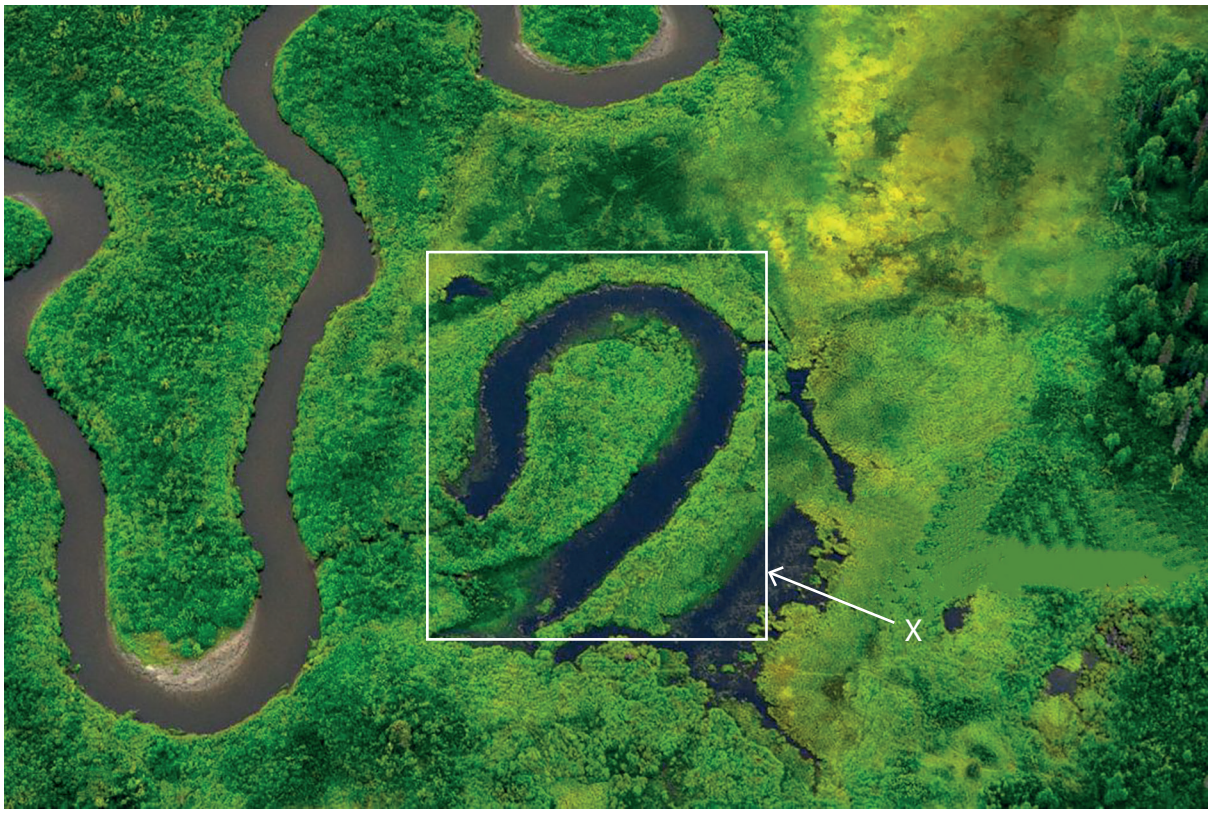

Figure 1b

Aerial view of river, Denali National Park, Alaska, USA

Key:

= dam

= river

------ = state boundaries

• = town/settlement

'Narmada Valley Project'

- Will build six very large dams and thousands of smaller ones, displacing 1.5 million people
- Work started in 1987
- Known as the 'Lifeline of the Gujarat region' because it could irrigate many areas
- High level of HEP provision for Gujarat, Maharashtra and Madhya Pradesh.

Figure 1c

The Narmada Valley Project location and background

Government – 'This scheme will supply water to 30 million people and provide irrigation to crops to feed 20 million. The project will also bring power to 9000 villages.'

Environmental activist – 'This project will have a devastating effect on the environment. We will lose important species such as the tiger. Building these dams could trigger earthquakes.'

Villager 1 – 'The scheme will be good for us because we suffer from drought and flooding. It will allow us to produce more food.'

Villager 2 – 'I don't want this, I will have to move as my fields will be submerged underwater. I will have nowhere to go and no money.'

Figure 1d

Different viewpoints on the Narmada Valley Project

Figure 2a

Factors affecting coastal landforms

Figure 2b

A coastal feature in Scotland

Pressures

500 million people rely on food from coral reefs

Looked after by less than 100 countries

More than 25% of marine life supported

Benefits

850 million people live within 100 km

Provide food

Potential medicines

Protect from tsunamis

Provide jobs in fishing and tourism

Threats

85% of coral reefs are threatened

Destructive fishing

Pollution

Overdevelopment

Climate change

Tourism

Figure 2c

People and coral reefs

Figure 3a

Living in volcanic zones

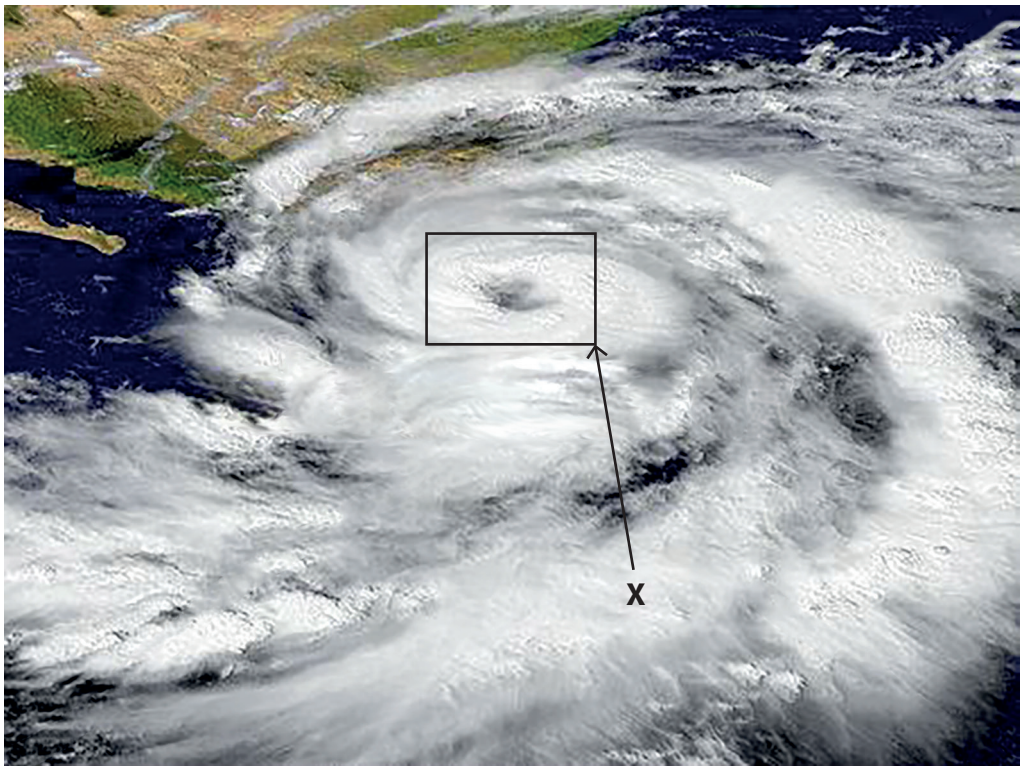

Figure 3b

Hurricane Patricia over the Pacific

Earthquake	Haiti	Japan
Date	2010	2011
Death toll/Injuries	230,000	28,000
GNI per capita (measure of development)	760	38,550
Aftershocks	52	200+
Level of preparedness	None	1 min warning signal
Level of urbanisation	Low	High
Cost billion US$	14	309

Figure 3c

Information about two different earthquake events

The earthquake off the east coast of Honshu, Japan's largest island, was the fifth-largest ever recorded.

Seismic energy:
Each step on the magnitude scale is 10 times more powerful than the previous step. Circles represent the seismic energy to scale.

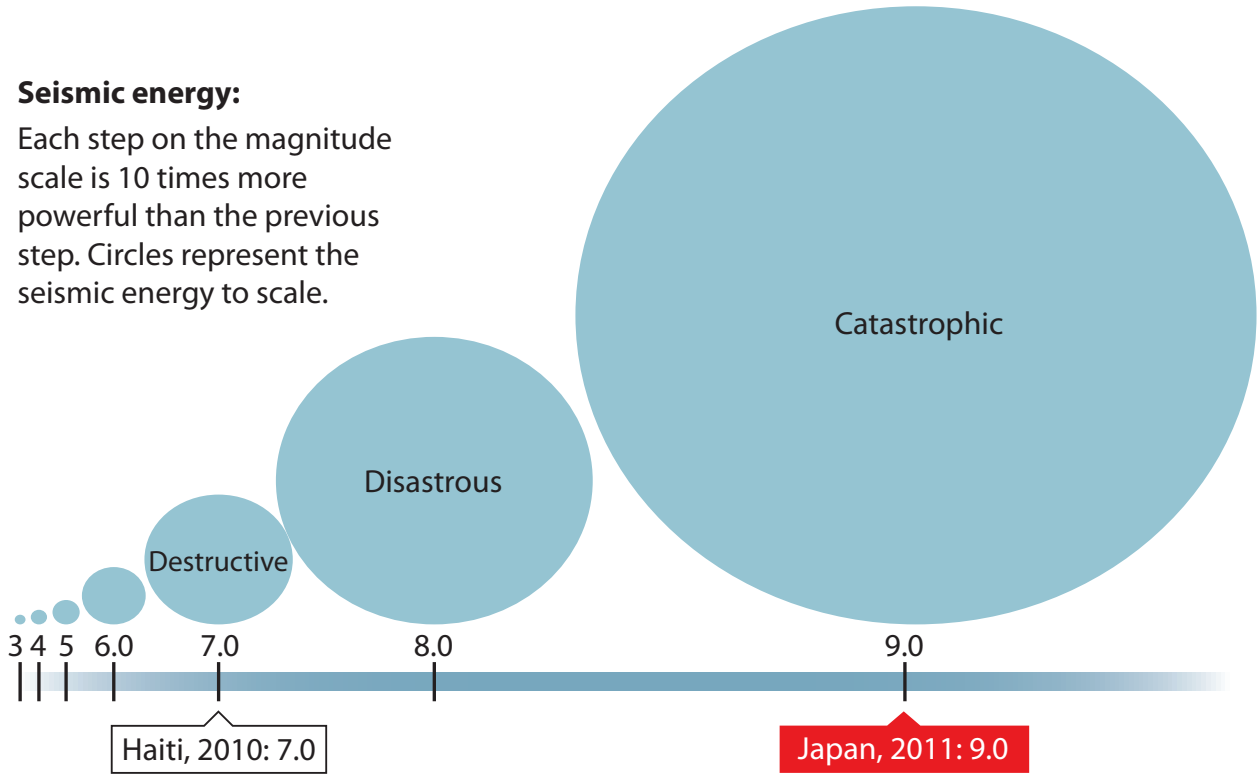

Figure 3d

Earthquake magnitude and location

	Site 1 – Furthest upstream		Site 2		Site 3 – Furthest downstream	
Sampling point	**Distance from bank (cm)**	**Depth (cm)**	**Distance from bank (cm)**	**Depth (cm)**	**Distance from bank (cm)**	**Depth (cm)**
1	0	2.0	0	8.8	0	41.1
2	20	1.3	20	13.0	50	60.5
3	40	4.0	40	14.5	100	78.5
4	60	6.5	60	12.0	150	85.1
5	80	5.0	80	9.0	200	92.3
6	100	4.0	100	10.0	250	95.6
7	120	3.5	120	9.0	300	60.4
8	140	0.6	140	9.5	350	45.3
Mean depth		3.36		10.7		?

Figure 4a

River data collected by a group of students

	Height difference from top of groyne to surface of sand (cm)									
Distance from cliff line (m)	**Groyne 1**		**Groyne 2**		**Groyne 3**		**Groyne 4**		**Groyne 5**	
	North	**South**	**North**	**South**	**North**	**South**	**North**	**South**	**North**	**South**
0	0	0	0	0	0	0	0	0	0	0
10	93	5	120	15	44	81	102	74	50	43
20	94	1	113	10	40	70	80	45	80	40
30	94	14	93	96	51	45	50	122	17	54
Mean depth	70.3	5.0	81.5	30.3	33.8	49.0	58.0	?	36.8	34.3

Figure 5a

Coastal data collected by a group of students measuring beach profile: the height difference from the top of the groyne to the surface of the sand

Temperature data (°C)			
	Average annual temperature	**Highest temperature during extreme weather event**	**Lowest temperature during extreme weather event**
Site 1	26.4	28.2	15.1
Site 2	24.3	27.1	14.4
Site 3	26.8	34.8	13.7
Site 4	27.1	39.5	7.5
Site 5	26.3	26.8	13.6
Mean across sites	26.18	31.28	?

Figure 6a

Temperature data collected by a group of students during an extreme weather event

Figure 1a sourced from: © milena moiola/Alamy Stock Photo
Figure 1b sourced from: © Sarah Ann Loreth/Aurora Photos/Getty Images
Figure 1c sourced from: International River Network © Eureka Cartography, Berkeley, CA
Figure 2a sourced from: © GagliardiPhotography/Shutterstock
Figure 2b sourced from: © Fotimageon/Shutterstock
Figure 2c sourced from: © astudio/Shutterstock
Figure 3a sourced from: © Butcherboy/Shutterstock
Figure 3b sourced from: © Harvepino/Shutterstock