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 **4GE1/01**

# Geography

## Paper 1: Physical Geography

**You must have:**
Resource Booklet (enclosed), calculator

Total Marks

## Instructions

- Use **black** ink or **black** 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* ▶

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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 discharge**.

**(1)**

| | |
|---|---|
| ☒ | **A** the average speed of water in a river at one place at any one time |
| ☒ | **B** the volume of water in a river at one place at any one time |
| ☒ | **C** the average depth of a river at one place |
| ☒ | **D** the average width of a river at one place |

(b) (i) Identify the meaning of the term **drainage basin**.

**(1)**

| | |
|---|---|
| ☒ | **A** an area of land where water is stored |
| ☒ | **B** an area of land where water levels vary |
| ☒ | **C** an area of land where flooding occurs |
| ☒ | **D** an area of land drained by a river |

(ii) State **one** physical factor that affects river discharge.

**(1)**

.....

(iii) Explain the term **lag time**.

**(2)**

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

Suggest how **two** human factors can affect water transfers in the hydrological cycle.

**(4)**

1 .....

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2 .....

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

**(3)**

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

Identify the river valley landform at X.

**(1)**

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(f) Explain the formation of a flood plain.

**(4)**

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

Analyse the impacts of this flood prevention scheme.

**(8)**

**(Total for Question 1 = 25 marks)**

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

## 2 Coastal environments

(a) Identify the biotic characteristic of a coastal ecosystem.

**(1)**

| | |
|---|---|
| ☒ | **A** eroded rock |
| ☒ | **B** salt water |
| ☒ | **C** minerals and nutrients |
| ☒ | **D** marine plants |

(b) (i) Identify the definition of the term **biomass**.

**(1)**

| | |
|---|---|
| ☒ | **A** the amount of living matter in an ecosystem |
| ☒ | **B** the amount of non-living matter in an ecosystem |
| ☒ | **C** the amount of living and non-living matter in an ecosystem |
| ☒ | **D** the amount of leaf litter in an ecosystem |

(ii) State **one** feature of a sand dune.

**(1)**

.....

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

**(2)**

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

Suggest **one** reason for each of these different approaches to coastal management.

**(4)**

Approach 1 .....

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Approach 2 .....

.....

.....

.....

(d) Explain **one** cause of coastal flooding.

**(3)**

.....

.....

.....

.....

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.....

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

Identify the coastal landform at X.

**(1)**

.....

(f) Explain the formation of a spit.

**(4)**

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

Analyse the different benefits mangrove ecosystems bring to coastal communities in India.

**(8)**

**(Total for Question 2 = 25 marks)**

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

## 3 Hazardous environments

(a) Identify the short-term response to a natural hazard.

**(1)**

| | |
|---|---|
| ☒ | **A** emergency aid |
| ☒ | **B** risk assessment |
| ☒ | **C** hazard mapping |
| ☒ | **D** rebuilding programmes |

(b) (i) Identify **one** social impact of a hazardous event.

**(1)**

| | |
|---|---|
| ☒ | **A** roads damaged |
| ☒ | **B** buildings damaged |
| ☒ | **C** families separated |
| ☒ | **D** crops destroyed |

(ii) State **one** method of measuring the magnitude of a natural hazard.

**(1)**

.....

(iii) Explain **one** way longer-term relief can reduce the impact of natural hazards.

**(2)**

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

Suggest **two** reasons why people live in areas at risk from tropical cyclones.

**(4)**

1 .....

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2 .....

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(d) Explain **one** way in which government can help prepare the population for earthquake events.

**(3)**

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

Identify X.

**(1)**

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(f) Explain the causes of an earthquake.

**(4)**

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

Analyse the differences between the tropical cyclone hazards and impacts.

**(8)**

**(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** secondary data source that the students might have used when undertaking this enquiry.

**(1)**

.....

.....

(ii) Identify **one** possible disadvantage of the secondary data source identified in 4(a)(i).

**(1)**

.....

.....

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 2.

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 7 and 8 to complete the graph.

**(2)**

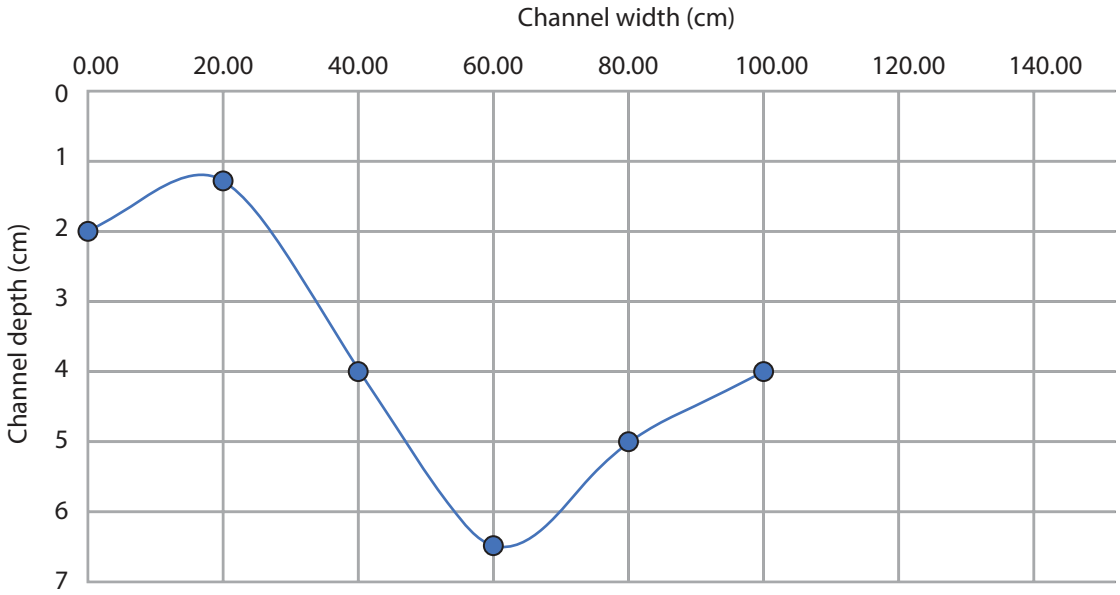


**Figure 4b**

**River cross section at Site 1**

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

Suggest **one** reason why an alternative sampling method might be chosen to select the sites.

**(2)**

Sampling method .....

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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 presentation methods you used.

**(8)**

Enquiry question

**(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 changes along a section of coastline.

(a) (i) State **one** secondary data source that the students might have used when undertaking this enquiry.

**(1)**

.....

.....

(ii) Identify **one** possible disadvantage of the secondary data source identified in 5(a)(i).

**(1)**

.....

.....

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 height of the sand accumulations on the **North** side of Groyne 3.

Give your answer to one decimal place.

You must show all your workings in the space below.

**(2)**

North side ..... cm

(iv) Use the data in Figure 5a to plot the data for Groyne 2 (both North and South) on Figure 5b.

**(2)**

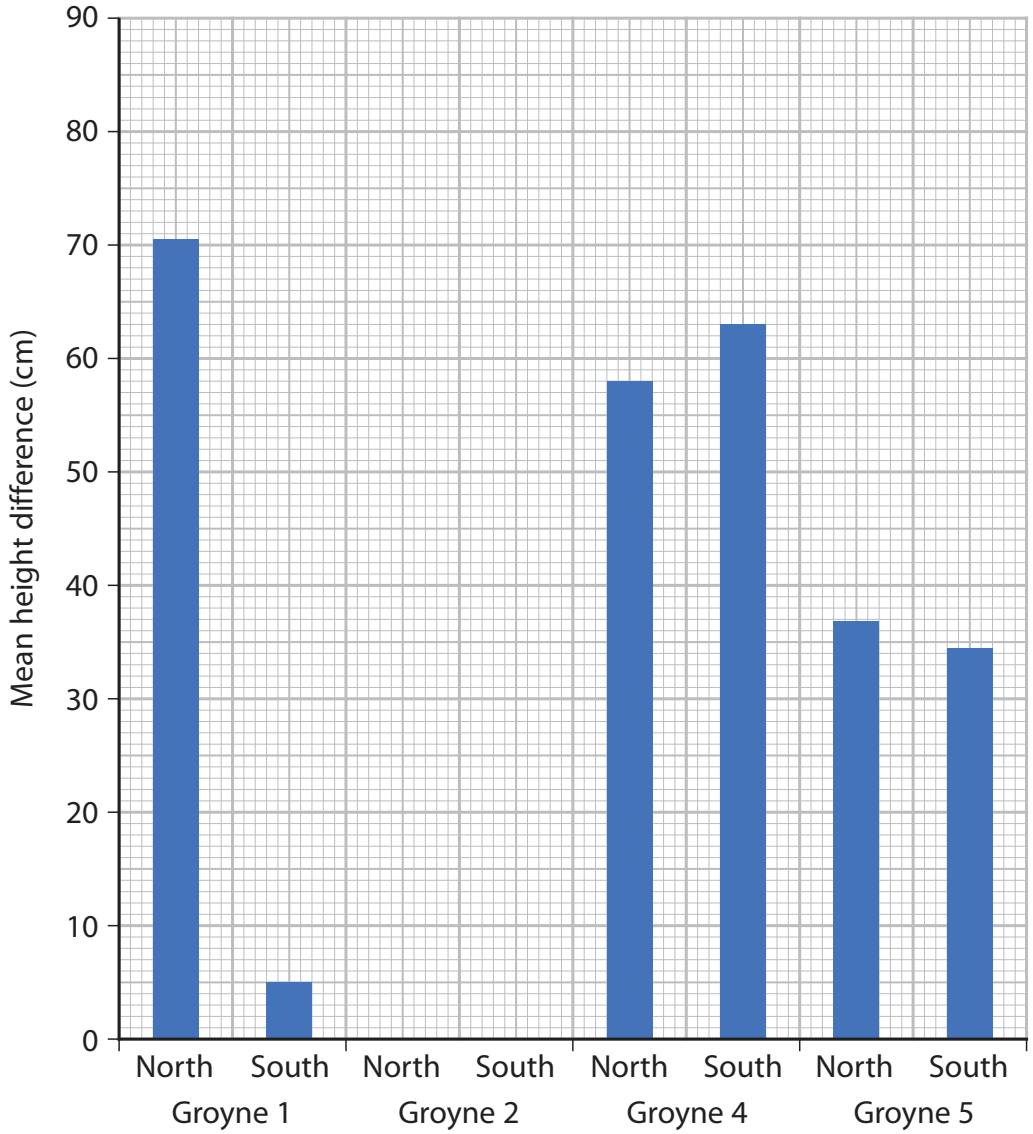


**Figure 5b**

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

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

Suggest **one** reason why an alternative sampling method might be chosen to select the groynes.

**(2)**

Sampling method .....

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

Explain **one** advantage and **one** disadvantage of this type of technique.

**(4)**

Advantage

Disadvantage

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

(c) Evaluate the effectiveness of the data presentation methods you used.

**(8)**

Enquiry question

**(Total for Question 5 = 20 marks)**

**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** secondary data source that the students might have used when undertaking this enquiry.

**(1)**

.....

.....

(ii) Identify **one** possible disadvantage of the secondary data source identified in 6(a)(i).

**(1)**

.....

.....

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 highest temperature.

Give your answer to one decimal place.

You must show all your workings in the space below.

**(2)**

..... °C

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(iv) Use the data in Figure 6a to plot the data for Sites 3 and 4 on Figure 6b to complete the graph.

**(2)**

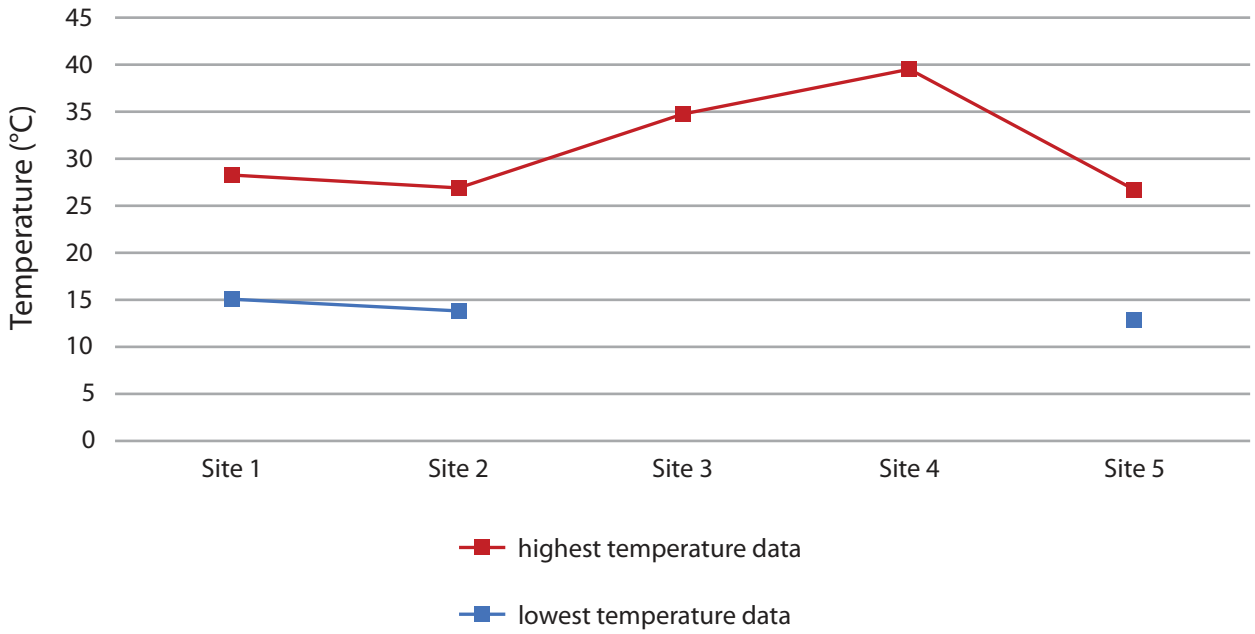


**Figure 6b**

**Temperature variation during an extreme weather event**

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

Suggest **one** reason why an alternative sampling method might be chosen to select the sites.

**(2)**

Sampling method .....

.....

.....

.....

.....

(b) The students used annotated field sketches as part of their data collection to record information before and after the tropical cyclone.

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 presentation methods you used.

**(8)**

Enquiry question

**(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 **4GE1/01**

# Geography

## Paper 1: Physical Geography

**Resource Booklet**

**Do not return this Resource Booklet with the question paper.**

*Turn over* ▶

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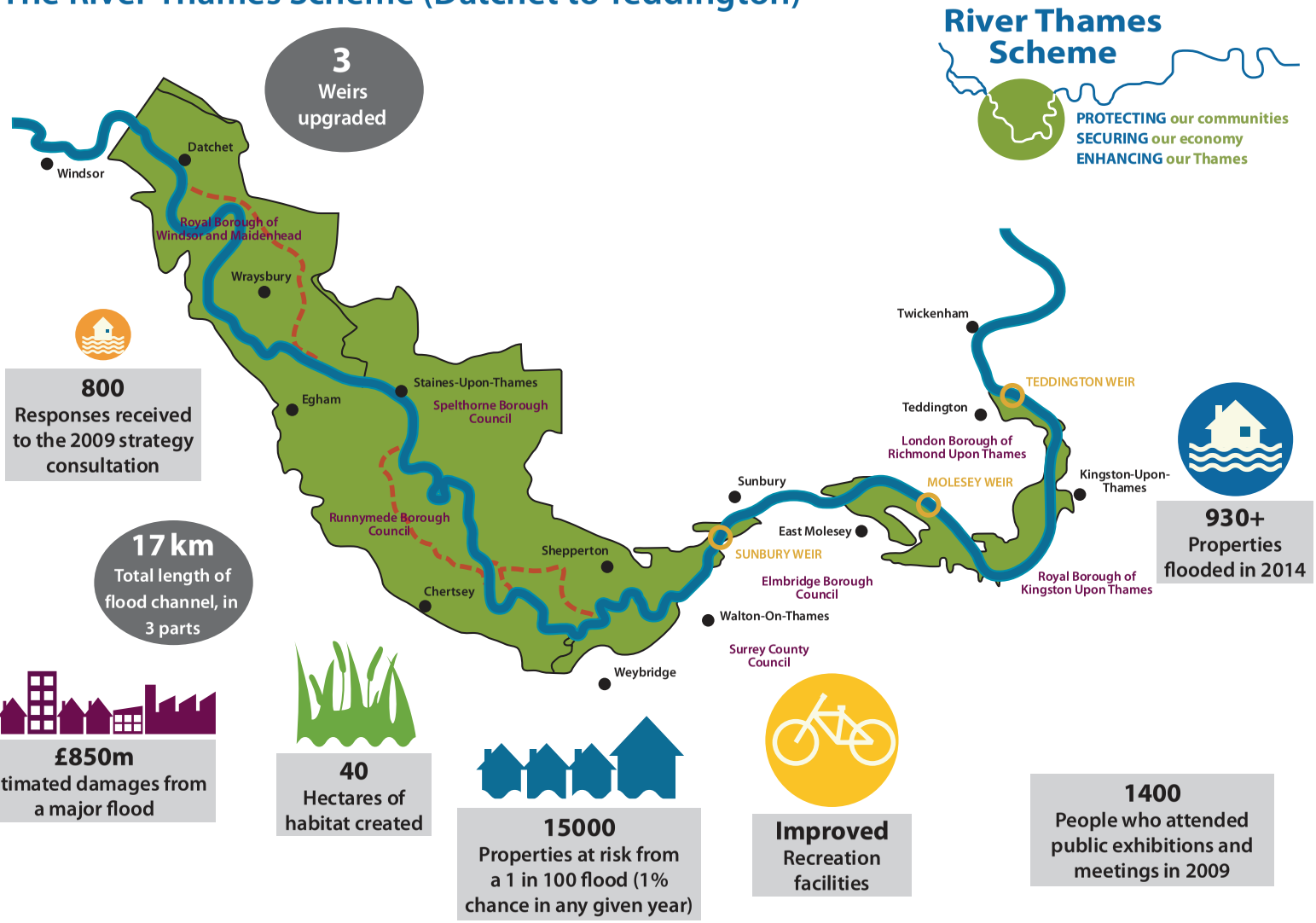
**Figure 1a**

**Factors impacting the hydrological cycle**


**Figure 1b**

**River landforms in the south west of the UK**

# The River Thames Scheme (Datchet to Teddington)




| Resident views |
|---|
| The scheme has cost lots of money and the floods don't affect me. |
| The scheme is taking too long to complete. |
| The work is disrupting traffic and causing chaos. |
| Other services such as schools are not being invested in. |

**Figure 1c**

**Information on flood impact costs and benefits from the River Thames Scheme**

**Figure 2a**

**Coastal management approaches**

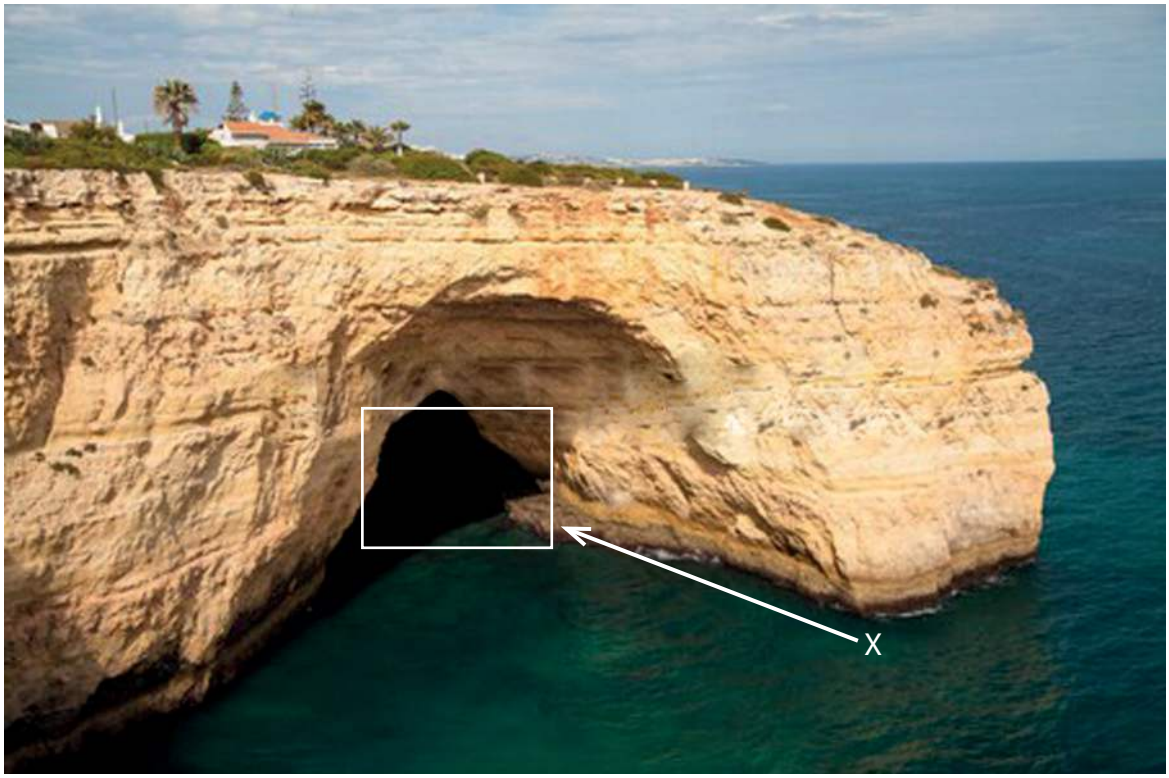
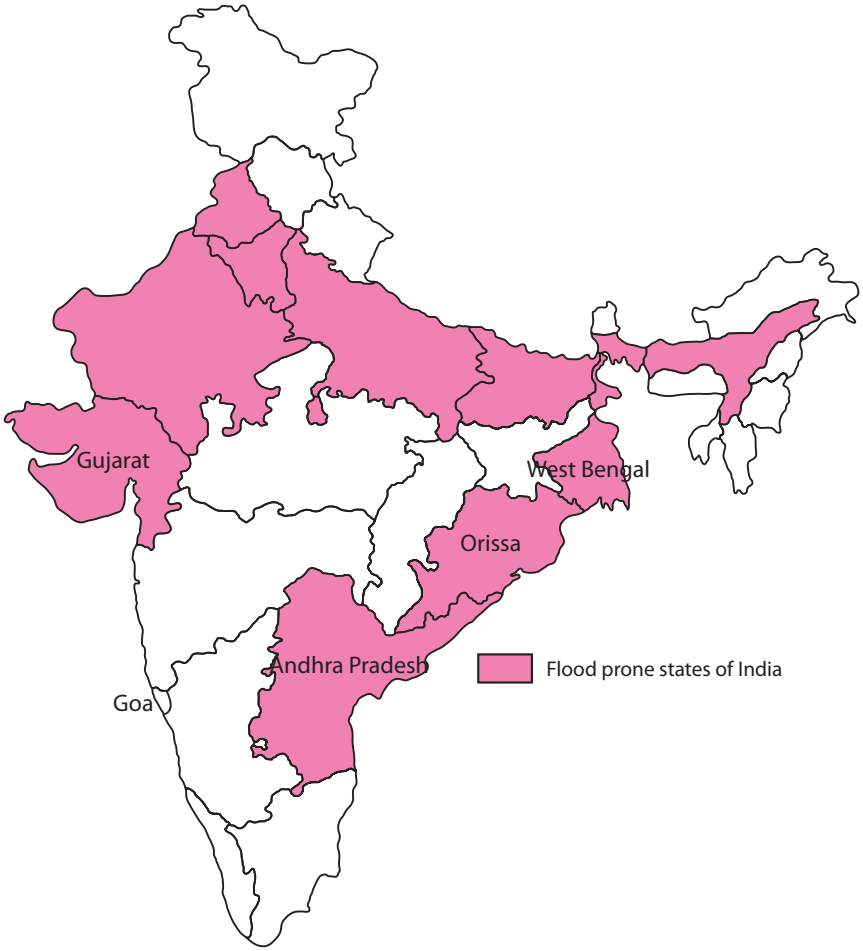



**Figure 2b**

**A coastal landform in the Algarve, Portugal**




| Benefits of mangrove ecosystems in coastal areas |
|---|
| Income generation for shoreline communities |
| A varied habitat for many rare and endangered species |
| Acts as protection from storms |
| Helps water quality by filtering pollution |
| Provides timber for buildings |
| Provides fodder for animals |

| Coastal environments in India |
|---|
| 250 million people live within 50 miles of the coast |
| 3600 fishing villages provide a vital source of food |
| 12 major ports to support trade |
| Certain areas such as Goa are important for tourism |

**Figure 2c**

**Mangrove developments and risk of flooding in India**

**Figure 3a**

**Living in areas prone to tropical cyclones**

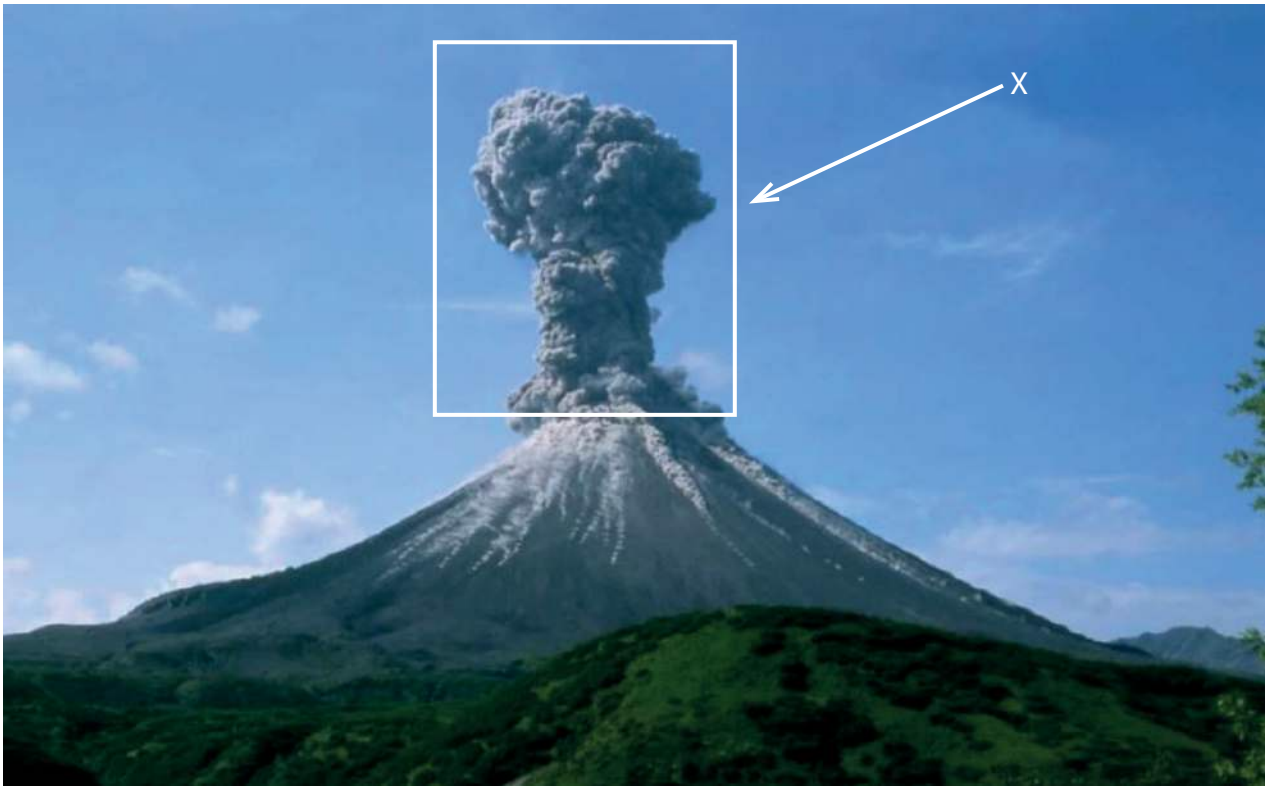



**Figure 3b**

**A volcanic eruption**

| |  |  |
|---|---|---|
| **Name of cyclone** | **Yasi** | **Sandy** |
| **Country** | Australia | USA |
| **Date** | 2011 | 2012 |
| **Death toll/ injuries** | 1 | 100+ |
| **Wind speed max** | 290 kph | 155 kph |
| **Size of storm** | 600 km wide | 1500 km wide |
| **Level of urbanisation** | Low | High |
| **Cost US$** | 3.6 billion | 70.2 billion |

**Figure 3c**

**Information about two different tropical cyclones**

| | Site 1 – furthest upstream | | Site 2 | | Site 3 – furthest downstream | |
|---|---|---|---|---|---|---|
| **Sampling point** | **Channel width (cm)** | **Depth (cm)** | **Channel width (cm)** | **Depth (cm)** | **Channel width (cm)** | **Depth (cm)** |
| 1 | 0 | 2.0 | 0 | 8.8 | 0 | 20.1 |
| 2 | 20 | 1.3 | 20 | 13.0 | 50 | 30.4 |
| 3 | 40 | 4.0 | 40 | 14.5 | 100 | 40.8 |
| 4 | 60 | 6.5 | 60 | 12.0 | 150 | 42.2 |
| 5 | 80 | 5.0 | 80 | 9.0 | 200 | 45.1 |
| 6 | 100 | 4.0 | 100 | 10.0 | 250 | 47.8 |
| 7 | 120 | 3.5 | 120 | 9.0 | 300 | 50.4 |
| 8 | 140 | 0.6 | 140 | 9.5 | 350 | 60.3 |
| **Mean depth** | | 3.4 | | ? | | 42.1 |

**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 height (cm)** | 70.3 | 5.0 | 81.5 | 30.3 | ? | 49.0 | 58.0 | 60.3 | 36.8 | 34.3 |

**Figure 5a**

**Coastal data collected by a group of students**

| | Temperature data (°C) | | |
|---|---|---|---|
| | **Mean annual temperature** | **Highest temperature at each site** | **Lowest temperature at each site** |
| **Site 1** | 26.4 | 28.2 | 15.1 |
| **Site 2** | 24.3 | 27.1 | 14.6 |
| **Site 3** | 26.8 | 34.8 | 13.3 |
| **Site 4** | 27.1 | 39.5 | 7.2 |
| **Site 5** | 26.3 | 26.8 | 13.1 |
| **Mean temperature across all sites** | 26.2 | ? | 12.7 |

**Figure 6a**

**Hazardous environment data collected by a group of students**