Pearson Edexcel

# INTERNATIONAL GCSE

## Geography (9-1)

EXEMPLARS WITH EXAMINER COMMENTARIES

PAPER 1

Pearson Edexcel International GCSE in Geography (4GE1)

# Contents

# Introduction

## 1. About this booklet

This booklet has been produced to support teachers delivering the Pearson Edexcel International GCSE in Geography specification. The Paper 1 exemplar materials will enable teachers to guide their students in the application of knowledge and skills required to successfully complete this course. The booklet looks at questions 1, 2, 3 and 4 from the June 2019 examination series, showing real candidate responses to questions and how examiners have applied the mark schemes to demonstrate how student responses should be marked.

## 2. How to use this booklet

Each example covered in this booklet contains:

- Question
- Mark scheme
- Exemplar responses for the selected question
- Example of the marker grading decision based on the mark scheme, accompanied by examiner commentary including the rationale for the decision and where relevant, guidance on how the answer can be improved to earn more marks.

The examples highlight the achievement of the assessment objectives at lower to higher levels of candidate responses.

Centres should use this content to support their internal assessment of students and incorporate examination skills into the delivery of the specification.

## 3. Further support

A range of materials is available from the Pearson qualifications website to support you in planning and delivering this specification.

Centres may find it beneficial to review this document in conjunction with the Examiner's Report and other assessment and support materials available on the Pearson Qualifications website.

## 4. Assessment objectives

This document references the assessment objectives, which are as follows:

| | | % in International GCSE |
|---|---|---|
| **AO1** | Demonstrate knowledge of locations, places, processes, environments and different scale. | 15–16 |
| **AO2** | Demonstrate geographical understanding of:<br>• concepts and how they are used in relation to places, environments and processes<br>• the interrelationships between places, environments and processes. | 25–26 |
| **AO3** | Apply knowledge and understanding to interpret, analyse and evaluate geographical information and issues and to make judgements. | 34–35 (approx. 13% applied to fieldwork context(s)) |
| **AO4** | Select, adapt and use a variety of skills and techniques to investigate questions and issues and communicate findings. | 24–25 (approx. 10% used to respond to fieldwork data and context(s)) |

# Question 1(b)(iii)

(iii) Explain **one** way water is stored in the hydrological cycle.

**(2)**

## Mark scheme

| Question number | Answer | Mark |
|---|---|---|
| 1(b)(iii) | **AO1 (1 mark)/AO2 (1 mark)**<br><br>Award 1mark (AO1) for a point about how the water is stored and 1 mark (AO2) for further explanation<br><br>**Ideas from glaciers, oceans, clouds, aquifer, groundwater, surface store, vegetation, ponds**<br><br>Water is stored in a pond (1) because the water doesn't drain away because of the underlying non-porous rock (1)<br><br>Water is stored in the soil (1) because it cannot not percolate through the bedrock (1)<br><br>Do not accept 'ice' or 'water vapour', unless reference to a store e.g. 'cloud' or 'glacier'.<br><br>Accept any other appropriate response. | **(2)** |

## Exemplar response A

Surface run-off is intercepted by the ground, it is then further absorbed via percolation. This then goes into the ground-water flow, that ends in a ground-water store.

**Examiner's comments:**

**This response was given 2 marks.**

The candidate scores clear two marks here by identifying the store (groundwater) and extending the response by identifying how the water gets there.

## Exemplar response B

water is stored in the hydrological cycle through the water cycle management which is composed of Evaporation, precipitation, Reservoirs, water treatment plant, water tanks, water desalination plant, Domestic use.

**Examiner's comments:**

**This response was given 0 marks.**

In this example, the candidate does not score any marks as they have confused the idea of water management. In addition, the methods identified are only listed so this response does not demonstrate that the candidate has a clear enough understanding. The candidate does demonstrate some understanding of transfers and flows but then moves into human aspects of water management storage, which unfortunately is not what the question is asking for.
In this response, the candidate needed to identify a way in which water is stored in the hydrological cycle such as 'water is stored in glaciers (1) because it is frozen as ice due to colder temperatures (1)'.

# Question 1(c)

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

Suggest **two** ways people manage water supply.

**(4)**

## Mark scheme

| Question number | Answer | Mark |
|---|---|---|
| 1(c) | **AO2 (2 marks)/AO3 (2 marks)**<br><br>Award 1 mark (AO2) for a way in which people manage water and a further 1 mark (AO3) for how this helps respond to different levels of water needed/supply, up to a maximum of 2 marks each.<br><br>• Humans build reservoirs/dam to store water (1) the water is fed into the water supply as and when it is need through careful management (1)<br><br>• Dirty or used water is taken into the treatment plant either through water collection or directly from sewage (1) where it is treated and cleaned before being ready for use again (1)<br><br>• Desalination plants take water from the ocean (1) where it is treated and salt removed (1)<br><br>Accept any other appropriate response. | **(4)** |

## Exemplar response A

1 People manage water supply by treating the water to make it clean. This prevents water going to waste as all of it can be used when clean.

2 People also manage water supply by storing it in water tanks. If an emergency arrives then there is a lot of water to deal with it or to help

**Examiner's comments:**

**This response was given 4 marks.**

In this example, the candidate has scored the full four marks available. In the first part, the candidate has identified the fact that water is treated (AO2) and then expanded the point further to outline how this makes the water clean so it can be reused (AO3).

In the second point, the candidate identifies that water can be managed through storage (AO2) and then extends the response to explain that this water can then be used when it is needed (AO3).

## Exemplar response B

1 Domestic use - Water is used for cooking, bathing, washing, laundering, drinking; for human consumption or use.

2 Evaporation - This is the gaseous state of water. The water in the earth moves to the atmosphere (store) by the process known as evaporation for a short / long period of time.

**Examiner's comments:**

**This response was given 1 mark.**

In this example, the candidate has made a weak response, which identifies domestic use (AO2) from the resource and then makes a further weak expansion (AO3) which does not go into enough depth to access the second mark. The candidate does not really talk about management of water.

No marks are awarded for the second part as the candidate is outlining elements of the hydrological cycle. To improve the answer, the candidate needs to identify a feature from the resource to gain credit for AO2 and then outline how that feature can be used to manage water to access the AO3 mark.

# Question 1(d)

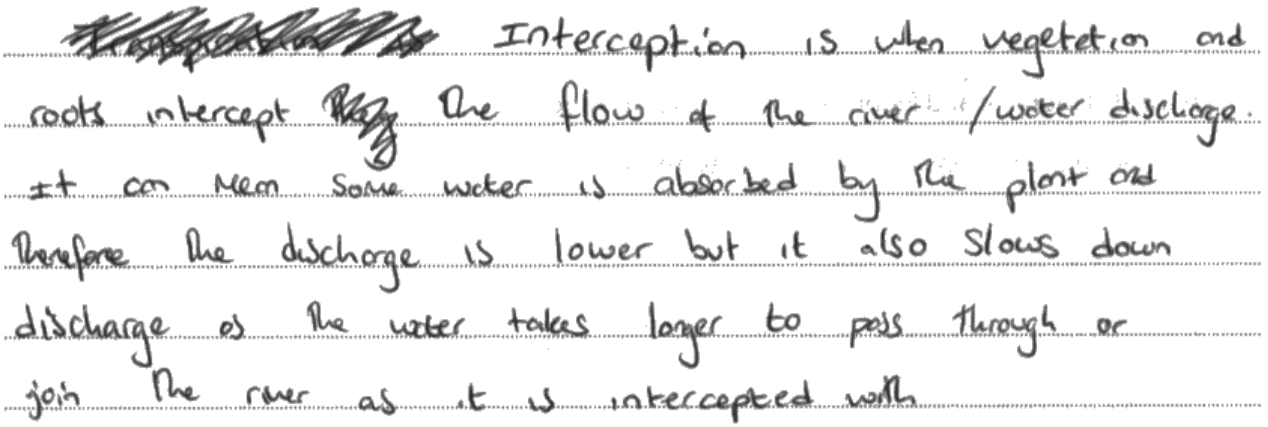
(d) Explain **one** way vegetation can affect river discharge.

**(3)**

## Mark scheme

| Question number | Answer | Mark |
|---|---|---|
| 1(d) | **AO2 (3 marks)**<br><br>Award 1 mark for identification of a way vegetation affects discharge, a second mark explaining 'why' this has an effect, and a third mark for a link to the overall impact of discharge / lag time.<br><br>• A lack of vegetation exposes bare rock and soil (1) reducing the time taken for water to be soaked up/ overland flow (1) resulting in a shortening of the lag time / increase in discharge (1)<br><br>• Trees and other plants intercept rainfall (1) this delays the rain water reaching the ground (1) resulting in a lengthening of lag time / reducing discharge (1)<br><br>Accept any other appropriate response. | **(3)** |

## Exemplar response A




**Examiner's comments:**

**This response was given 3 marks.**

Here, the candidate scores the full three marks with a detailed explanation which is not quite right in the way it has been developed but does touch on the key points that the question is asking for. In this example, the marks were awarded for:

water is absorbed (1); this means that the discharge is slowed down (1) as the water takes longer to pass through (1).

The candidate gets nothing for the first two lines as they are talking about river flow.

The candidate has the idea of evapotranspiration and whilst not developed fully, this gave the three marks.

## Exemplar response B

Vegetation decreases the amount of discharge a river has. This is because trees or bushes for example, have roots that such up wathor in the ground and use it. This means that the river has a smaller discharge because it has less water.

**Examiner's comments:**

**This response was given 2 marks.**

This candidate scores two marks but is not awarded the third mark as the response does not develop the idea further from the idea of absorption and reduced discharge. The candidate could have gained additional credit if they had outlined how changes in discharge affect lag time as a further extension. In these type of responses, candidates should look to develop their answers fully.

# Question 1(f)

(f) Explain the formation of a river meander.

(4)

## Mark scheme

| Question number | Answer | Mark |
|---|---|---|
| 1(f) | **AO1 (1 mark) AO2 (3 mark)**<br><br>Award 1 mark for initial point (AO1), and 3 further marks (AO2) for the extension of this point up to maximum of 4 marks.<br><br>Needs to identify stages in the development of landform<br>Marks can be awarded for description of stages<br>River flows fastest on the outside bend (1)<br>River flows slowest on the inside bend (1)<br>On the inner bend deposition occurs (1) because there is more friction here (1)<br>Outer bend erosion occurs (1) because hydraulic action occurs here (1)<br>River erodes and deposits laterally (1)<br><br>Accept any other appropriate response. | **(4)** |

## Exemplar response A

the Current of the water is faster in one part than another and so the faster part of the river erodes more, therefore creating a river cliff. Sediment is deposited on the inside of the bend due to the slower Current. This therefore Creates a meander over time.

**Examiner's comments:**

**This response was given 3 marks.**

Although this response does not score full marks, the candidate has a fair understanding of the process and has identified the idea of erosion creating a river cliff, sediment deposition and the general concept of the river flowing faster on the outside bend as opposed to on the inside.

## Exemplar response B

A meander is form when the Softer rocks falls off from the harder rocks, or it is the seperating of the Softer rocks and the harder rocks to halle a meander in the rivers this is also were the river discharges.

**Examiner's comments:**

**This response was given 0 marks.**

In this example, the candidate does not gain any credit as they have not understood the question. The candidate can gain credit on this question by identifying stages of the process of meander formation. This can relate to river flow fastest/outside of the bend (1) or slowest on the inside of the bend (1) or through identifying deposition taking place in the inside of the bend (1) and erosion on the outside of the bend (1). Candidates can also gain credit for talking about lateral erosion and deposition and how this shapes the meander.

# Question 1(g)

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

Analyse the reasons for variations in water quality.

(8)

## Mark scheme

| Question number | Answer indicative content |
|---|---|
| 1(g) | **AO3 (4 marks) AO4 (4 marks)**<br><br>**Marking instructions**<br>Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the level based mark scheme below.<br><br>**Indicative content guidance**<br>The indicative content below is not prescriptive and candidates are not required to include all of it. Other relevant material not suggested below must also be credited.<br><br>This question is about investigating the issue of human impact on water quality, candidates should break down the response into components – in this case the factors identified in Fig. 1c and how they might impact on water quality across Europe. Candidates should relate the factors to the map.<br><br>To access level 3, both Figures 1c and 1d need to be used.<br><br>**AO3**<br>Human intervention can have a negative effect on water quality for example:<br><br>Agricultural waste products caused by surface run off be washed into streams and rivers causing pollution of the river ecosystem – this can damage plant and animal life<br>Pesticides and fertilizers from farms can get into the ecosystem this can progress through the food chain and damage fish and plant life deformed fish etc.<br>Industrial spillage can pollute beaches and harm wildlife<br>Warm water from power stations can upset the natural balance of the water causing algae etc.<br>Sewage from domestic use can block beaches<br>Humans can also affect water quality in a positive way through treatment plants/clean-up operations or conservation and local pressure groups<br>**AO4**<br>Fig 1c shows that there are a number of factors that can affect water<br>quality both in a positive way and a negative way<br>Fig 1c shows that there are a variety of pollution sources<br>Fig 1c shows water quality can impact on health<br>Fig 1d shows that water quality varies across geographies<br>Fig 1d shows that water quality over much of Europe is variable |

| Level | Mark | Descriptor |
|---|---|---|
| | **0** | No rewardable material. |
| **Level 1** | **1–3** | • Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements that are supported by limited evidence. (AO3)<br>• Uses some geographical skills to obtain information with limited relevance and accuracy, which supports few aspects of the argument. (AO4) |
| **Level 2** | **4–6** | • Applies understanding to deconstruct information and provide some logical connections between concepts. An imbalanced argument that synthesises mostly relevant understanding, but not entirely coherently, leading to judgements that are supported by evidence occasionally. (AO3)<br>• Uses geographical skills to obtain accurate information that supports some aspects of the argument. (AO4) |
| **Level 3** | **7–8** | • Applies understanding to deconstruct information and provide logical connections between concepts throughout. A balanced, well-developed argument that synthesises relevant understanding coherently, leading to judgements that are supported by evidence throughout. (AO3)<br>• Uses geographical skills to obtain accurate information that supports all aspects of the argument. (AO4) |

## Exemplar response A

Countries with higher incomes have more money and therefore have access to water treatment facilities. As they can do this very little of their population drinks poor quality water. Eg. Canada, a high income country, has less than 1% of its population drinking untreated water. As a HIC they can also do research into how to better treat water and therefore where quality increases.

MEDCs have a medium gross income and can afford some quality water, however this normally goes to the richer people as the poor can not afford running water. Eg. Peru - is a developing country and therefore does not have all the money it requires to develope facilities for clean water.

LICs such as Kenya and Niger have a very small percentage of its population with clean drinking water. More than 20% of its population must drink water contaminated by pollutive sources and domestic sewage. As LICs are so poor they can not afford treatment facilities that increase the quality of Drinking water. People therefor drink dirty water and catch illnesses and die, which can lead to further water contamination.

Figure 1C shows us that Sewage and pollutive sources such as industrial waste and fertilizers can heavily effect water quality. The quality is lowered the more pollution is in it and it effects those who drink it, decreasing their health.

water treatment with chemicals such as Chlorine can improve water quality substantially as it kills bacteria. It increases health and well being of the people who drink it. HICs can afford water treatment facilities and they therefore have a higher percentage of healthy citizens and a lower percentage of those drinking in clean water.

**Examiner's comments:**

**This response was given 6 marks.**

The candidate produces a good response here and demonstrates a high level of understanding. However, in this instance the candidate is held at the top of level 2. Whilst the candidate does make use of both resources, the response is largely focused on the world map and reasons why water quality varies. Level 3 would have been achieved if the candidate had made more direct links between Fig.1c and Fig.1d.

## Exemplar response B

~~Industrial use~~ Water pollution can be caused by industries, this is done when spillages occur for example from oil refineries. Water can also be contaminated due to domestic reasons - this is ~~done when~~ caused by untreated sewage water flowing into water bodies. Agriculture is also a source of water pollution. This occurs when pestisides and fertilizers seep into water bodies like rivers due to rainfall. However in some places water is treated this is done ~~by~~ in 3 steps; collection, treatment and delievery.

**Examiner's comments:**

**This response was given 3 marks.**

In this response, the candidate produces a level 1 response which gives some ideas about variation on water quality. There are some simple ideas around water being contaminated due to domestic reasons. However, none of the ideas are developed in enough depth to lift the response to level 2. In order to improve this answer and access level 2, the candidate needs to specifically take evidence from the resources available and show some linkage about how those factors can affect water quality around the world. In the second example, we can see this is what the candidate has attempted to do in relating the water quality to MEDC's and LEDC's.

# Question 2(b)(iii)

(iii) Explain **one** type of mechanical weathering that occurs at the coast.

**(2)**

## Mark scheme

| Question number | Answer | Mark |
|---|---|---|
| 2(b)(iii) | **AO1 (1 mark)/AO2 (1 mark)**<br><br>Award 1 mark (AO1) for a point about physical weathering and 1 mark (AO2) for further explanation, up to a maximum of 2 marks.<br>• Freeze thaw (1) moisture in rock surfaces freezes and expands causing rock to break off (1)<br>• Onion-skin weathering / exfoliation (1)<br>• Wetting and drying (1)<br><br>Accept any other appropriate response | **(2)** |

## Exemplar response A

The growth of vegetation is a type of mechanical weathering. The longer a certain coastal ~~landscape~~ landform has existed the higher will be the chance of it being colonised by vegetation

**Examiner's comments:**

**This response was given 0 marks.**

In this example, the candidate did not score any marks as they have described biological weathering rather than mechanical weathering. The candidate could have gained credit on this question if they had clearly identified a mechanical form of weathering such as freeze thaw (1) or offered a further explanation which would look at the mechanics of the weathering process, e.g. the fact that water freezes in cracks and expands causing the rock to break. (1).

## Exemplar response B

Freeze thaw is a type of mechanical weathering. It is when water gets into cracks in cliffs. The water freezes overnight and as it does so it expands, hence causing the cracks to get larger.

**Examiner's comments:**

**This response was given 2 marks.**

In this example, the candidate scores both marks - they have identified the type of mechanical (AO1) and then developed a full explanation (AO2). A good answer that was typical of candidates who understood the question fully.

# Question 2(c)

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

Suggest **two** ways changes in sea level have created coastal landforms.

**(4)**

## Mark scheme

| Question number | Answer | Mark |
|---|---|---|
| 2(c) | **AO2 (2 mark)/AO3 (2 mark)**<br><br>Award 1 mark (AO2) for a way changes in sea level could have created a coastal landform and a further mark (AO3) for further development, shown on Figure 2a, up to a maximum of 2 marks each.<br><br>Through the reduction in sea level (1) a raised beach has been created (1).<br><br>Changes in sea level have left behind raised beaches (1) and over time this new beach feature becomes vegetated. (1)<br><br>Creation of wave cut notch (1) by marine erosion due to a reduction in sea level there is an<br><br>Due to a fall in sea level (1) old sea caves caves have been created (1)<br><br>Changes in sea level have left behind old sea caves (1) with fossilised remains of sea creatures (1)<br><br>wave action from previous sea level has eroded cliff (1) to expose fossilised remains / left behind old relic wave cut notches (1)<br><br>Due to an increase in sea level (1) landforms such as rias / fjords have been created (1)<br><br>Accept any other appropriate response | **(4)** |

## Exemplar response A

1 From figure 2a we can see that due to the changes in sea levels an old sea cave has formed this could be because of the waves hitting the cliff which over time created a cave

2 Another thing that we can see from figure 2a there is now a vegetated beach it previously had beach material on it from longshore drift could have brought in this beach material.

**Examiner's comments:**

**This response was given 3 marks.**

In this example, the candidate makes a good attempt. In the first part, the candidate identifies the features from Fig. 2a, i.e. the sea cave (AO2), and then develops the answer further to suggest how the cave was formed (AO3).

In the second part, the candidate identifies a feature (AO2), i.e. the raised beach, but is unable to give a suitable expansion to gain the additional mark for AO3.

## Exemplar response B

1 In Figure 2a the sea level has decreased. Has the sea has been lowered the former beach no longer gets hit by the sea allowing it too become vegetated.

2 In Figure 2a the sea level has got lower. In doing so the sea has created a new cliff line and beach.

**Examiner's comments:**

**This response was given 4 marks.**

In this example, the candidate has scored efficient four marks. In the first part, the candidate has identified that the sea level has lowered (AO2) and that this has resulted in the beach no longer being subject to wave action, enabling it to become vegetated (AO3). This is adequate development to get two marks for the first part.

In the second part, the candidate has again identified sea level lowering (AO2) and then further developed the idea of new beach creation (AO3). Although this may seem a little generous in this instance, the candidate has met the requirements of the mark scheme to achieve full marks.

# Question 2(d)

(d) Explain **one** physical factor that influences the distribution of mangrove ecosystems.

(3)

## Mark scheme

| Question number | Answer | Mark |
|---|---|---|
| 2(d) | **AO2 (3 marks)**<br><br>Award 1 mark for identification of a way and 2 marks for development and further explanation, up to a maximum of 3 marks.<br><br>Temperature, light, water depth, salinity, wind direction, level of shelter.<br><br>For example: Coastal mangroves need a high level of rainfall (1) of between 1500 and 3000 mm per annum (1) this can be obtained from rainfall or moisture in the air making tropical climates ideal (1)<br><br>Mangroves need a high temperature (1) around 27 degrees (1) otherwise they will not grow (1)<br><br>Mangroves need a shallow water (1) between 0.5 to 2.5 meters depth (1) but can survive where tidal ranges go slightly above or below this level (1)<br><br>Mangroves need high levels of humidity (1) between 75 and 80% (1) to enable them to grow (1)<br><br>Accept any other appropriate response | **(3)** |

## Exemplar response A

Mangroves are only able to grow in the intertidal zone. This means they only grow in areas of shallow water. They therefore can't grow on land (as they need lots of water) and can't grow in water too deep as it drowns them.

**Examiner's comments:**

**This response was given 3 marks.**

In this response, the candidate scores the full three marks. Firstly, they have identified the factor that influences the distribution of Mangrove swamps and they have further exemplified this to gain additional two marks.

## Exemplar response B

Humans have a ~~affect~~ effect on ~~the mangroves as we~~ the distribution of mangroves as we chop many down for resources. ~~Better~~.

**Examiner's comments:**

**This response was given 0 marks.**

Here, the candidate does not score any marks as they are describing human impact on mangrove distribution. To access marks on this question, candidates needed to identify a physical factor that influences the distribution of mangrove swamps such as temperature (1). Further development through identification of a suitable temperature (1) and a further expansion around the effects of very high or low temperature would be sufficient to access all marks.

# Question 2(f)

(f) Explain the formation of a headland.

**(4)**

## Mark scheme

| Question number | Answer | Mark |
|---|---|---|
| 2(f) | **AO1 (1 mark)/AO2 (3 mark)**<br><br>Award 1 mark for initial point (AO1), and 3 further marks (AO2) for the extension of this point up to maximum of 4 marks.<br><br>Headlands are formed along discordant coastlines (1) where there are bands of hard and soft rock at right angles to the coastline (1) which means that the soft rock gets eroded faster than hard rock (1) due to hydraulic action / creating a bay and a protruding headland (1)<br><br>A Headland forms when waves attach a section of coastline (1) During the wave action soft rock erodes (1) more quickly than hard rock (1) over time this means that sections of hard rock are left protruding further out to see as the rest of the coastline retreats (1)<br><br>Accept any other appropriate response | **(4)** |

## Exemplar response A

The sea would erode the main & land causing it to slowly break away. The main land eventually creates a cliff as the sea has been hitting against the land ~~wh~~ which creates a headland.

**Examiner's comments:**

**This response was given 0 marks.**

In this response, the candidate has not been able to explain the formation of the headland and although they have some limited idea of erosion (slowly breaks away), they do not develop the point enough to earn any reward. To gain credit, the candidate needed to identify a difference between hard and soft rock along the coastline (1), and then go on to identify the fact that hard rock erodes at a slower rate (1) than soft rock (1) and as time goes on, the hard rock is left exposed forming a headland (1).

## Exemplar response B

A headland ~~has~~ forms on a discordant coastline
that are which
where the varying bands of geology are
subject to differentiated rates of erosion.
Soft rock such as clays are easily eroded
and form bays. Headlands form when the more
resistant rock provides into the
sea, such as ~~chalk~~ chalk or limestone. Foreland Head
An example of a headland is ~~Headland~~ Head
in Dorset.

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

**Examiner's comments:**

**This response was given 4 marks.**

In this example, the candidate has produced a very good answer. Having made an initial point (AO1) about discordant coastlines, the candidate goes on to explain how different rock types are eroded at different rates leading to the formation of headlands and bays.

# Question 2(g)

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

Analyse the reasons for the choice of different soft engineering strategies shown.

**(8)**

## Mark scheme

| Question number | Answer indicative content |
|---|---|
| 2(g) | **AO3 (4 marks) AO4 (4 marks)**<br><br>**Marking instructions**<br>Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the level based mark scheme below.<br><br>**Indicative content guidance**<br>The indicative content below is not prescriptive and candidates are not required to include all of it. Other relevant material not suggested below must also be credited.<br>This question is about investigating the issue of why different soft engineering techniques have been used. Candidates should be exploring cost, maintenance and suitability based on the map/resource evidence and their own knowledge.<br><br>To access level 3, both Figures 2c and 2d need to be used.<br><br>**AO3**<br>• Soft management techniques such as beach replenishment, building bars, cliff regrading<br>• Managed retreat – abandoning certain areas of coastal defence and allowing nature to take its course<br>• Candidates should be able to look at costs and benefits – this could be around cost/impact on the environment/local perception<br>• Coastal defences create visual pollution in the area<br>• Candidates may relate the type of technique used with the land use at the cost, they may also relate this to overall cost.<br>**AO4**<br>• Fig 2C shows different techniques have been used in different places<br>• Fig 2C shows the offshore breakwater has been positioned to limit the effects of the prevailing wind and dissipate the effect of the prevailing wind<br>• Fig 2C shows the positioning beach nourishment to help lessen the effects of erosion<br>• Fig 2D shows the type of soft engineering methods<br>• Fig 2D demonstrates that cost/maintenance of the method of soft engineering methods<br>• Fig 2D shows the relationship between soft engineering techniques and different land use types on the coast |

| Level | Mark | Descriptor |
|---|---|---|
| | **0** | No rewardable material. |
| **Level 1** | **1–3** | • Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements that are supported by limited evidence. (AO3)<br>• Uses some geographical skills to obtain information with limited relevance and accuracy, which supports few aspects of the argument. (AO4) |
| **Level 2** | **4–6** | • Applies understanding to deconstruct information and provide some logical connections between concepts. An imbalanced argument that synthesises mostly relevant understanding, but not entirely coherently, leading to judgements that are supported by evidence occasionally. (AO3)<br>• Uses geographical skills to obtain accurate information that supports some aspects of the argument. (AO4) |
| **Level 3** | **7–8** | • Applies understanding to deconstruct information and provide logical connections between concepts throughout. A balanced, well-developed argument that synthesises relevant understanding coherently, leading to judgements that are supported by evidence throughout. (AO3)<br>• Uses geographical skills to obtain accurate information that supports all aspects of the argument. (AO4) |

## Exemplar response A

In Photo 2 the choice of soft management is beach replenishment and this is done in areas such as Headlands in order to maintain beaches or areas that are tourist hotspots or close to a settlement. As the shoreline in photo 2 is close to a settlement they are trying to preserve the beach in order to stop the settlement from falling into the sea.

In photo 3 the development of groynes allows for the erosion of the coast to be less drastic as longshore drift still occurs material along the coast causing for the sand bars to build up as they are being broken down. They chose this technique as it did not damage the landscape or scar it with the introduction of a sea wall allowing for the settlement to still be attractive to tourists and residents.

In Photo 4 the managed retreat of the farmland may been chosen as the land has no real value to anyone other than those who own the land. The cost of this depends upon the compensation that has to be paid to the farmer but as the land has no occupants it can be slowly left to erode.

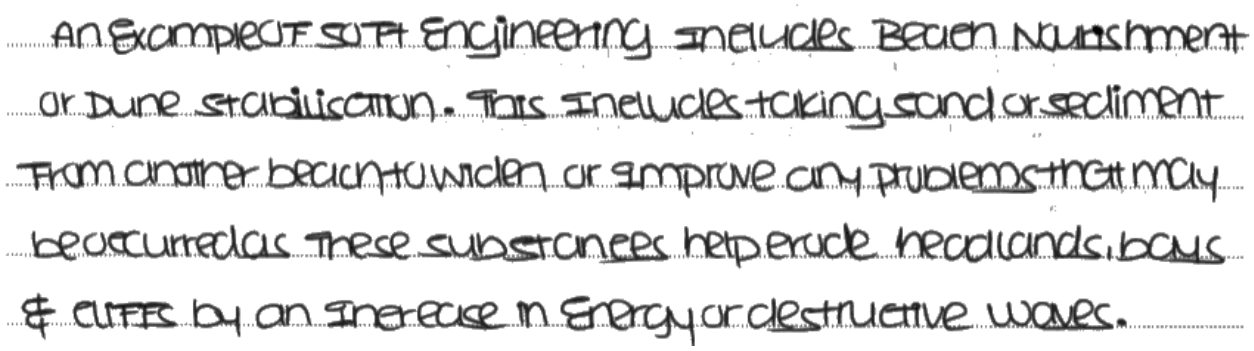
In photo 1 the cliff regrading may been chosen in order to prevent a settlement from being greatly damaged by falling off a cliff this expensive form of management has been chosen in order to stop this from happening.

**Examiner's comments:**

**This response was given 6 marks.**

In this example, the candidate has secured a top of level 2 response with six marks. The candidate has examined each photo in turn, allowing them to access AO4 marks effectively. Most of these comments are taken from Fig. 2d. The candidate has also demonstrated some understanding of why certain techniques have been selected.
Had the candidate used references from Fig. 2c, they would have just tipped into the level 3 criteria.

## Exemplar response B




**Examiner's comments:**

**This response was given 1 mark.**

This candidate produced a basic level 1 response, gaining credit for basic identification of soft engineering techniques (AO3).To improve this response, the candidate needed to expand this point to explain the choice of soft engineering technique and then relate it to why the technique had been used in a particular coastal area. To access further marks, the candidate needed to do this for a number of the techniques use. In these types of questions, candidates should be encouraged to use all resources available to them. In this way, they will give themselves the greatest chance of accessing the marks available.

# Question 3(c)

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

Suggest a factor that influences the cause and another factor that influences the direction of tropical cyclones.

**(4)**

## Mark scheme

| Question number | Answer | Mark |
|---|---|---|
| 3(c) | **AO2 (2 mark)/AO3 (2 mark)**<br><br>Award 1 mark (AO2) for the identification of an idea from the map in fig 3a and a further mark (AO3) for further development, shown on Figure 3a, Candidates should respond with one cause and one direction.<br><br>Cause<br><br>Warm sea temperatures (1) Tropical cyclones tend to develop where temperatures are above 27 degrees (1)<br><br>Low air pressure (1) which pulls water high as the cyclone gathers speed (1)<br><br>Direction<br><br>Tropical cyclones move in the direction of the prevailing wind (1) these are common wind directions caused by convection currents / earth's rotation / Coriolis Effect / Trade Winds (1)<br><br>Accept any other appropriate response. | **(4)** |

## Exemplar response A

Cause:

Tropical cyclones are caused in areas where the sea temperature is over 27°c. The high temperature creates the energy needed in order to set the cyclone in motion and allow the air to rise.

Direction:

Tropical cyclones occur in the direction of prevailing wind towards the coastline. They are created in the sea and gather energy once they hit land. They lose

**Examiner's comments:**

**This response was given 3 marks.**

In this response for part 1, the candidate made a well-developed point on cause of tropical cyclones, identifying and developing a point around temperature.

In the second point, the candidate scored 1 mark for the identification of prevailing winds as a factor affecting direction of tropical cyclones (AO2) but did not develop the point further to gain a second mark.

## Exemplar response B

Cause:

Rapid change in sea temperature, ~~or~~ especiall ~~if~~ the is an increase in temperature will lead to a tropical cyclone.

Direction:

The speed and strength at which the winds are traveling will affect the direction in which the tropical cyclone travels.

**Examiner's comments:**

**This response was given 1 mark.**

In this example, the candidate scored one mark for identification of temperature as a factor causing tropical cyclones. The point was not developed enough to gain any more credit. To gain further credit on the first point, the candidate needed to develop the point to identify the key temperature associated with the development of tropical cyclones.

In the second point, no credit was given as the candidate response was too vague in terms of the identification of prevailing winds. In the second part, the candidate could have accessed one mark by saying the cyclone would travel in the direction of the prevailing wind. In these type of questions, candidates need to make sure they make use of the resources available.

# Question 3(d)

(d) Explain **one** way earthquakes can form tsunamis.

**(3)**

## Mark scheme

| Question number | Answer | Mark |
|---|---|---|
| 3(d) | **AO2 (3 marks)**<br><br>Award 1 mark for identification of a way and 2 marks for development and further explanation, up to a maximum of 3 marks.<br><br>Earthquakes under the sea bed form shock waves (1) this forms a wave which splits (1). The wave then gets bigger (amplifying) and hits the shore (1)<br><br>Tectonic plate movement can trigger an underwater earthquake (1) which causes tremors under water causing waves (1) the waves can increase in height over a large distance (1)<br><br>Accept any other appropriate response | **(3)** |

## Exemplar response A

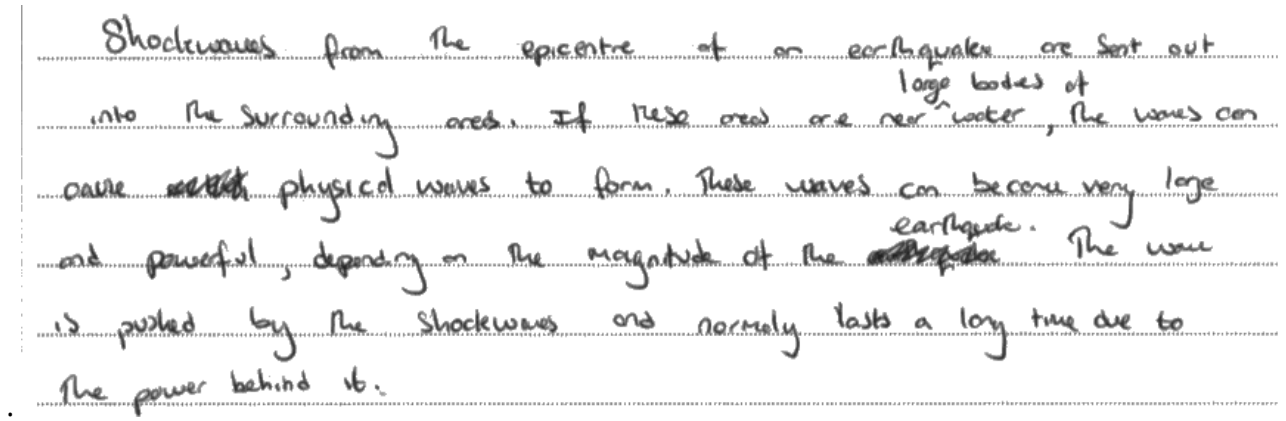
When an earthquake forms underwater (submarine earthquake) the pressure pushed up through the water making is highly unstable and leading to a tsunami.

**Examiner's comments:**

**This response was given 2 marks.**

In this example, the candidate scores two marks: one mark for the initial point about earthquakes underwater and then a further mark for the idea of pressure creating a tsunami. Although this response is a little confused, it does enough to gain credit for the 2 marks. The candidate could have improved this response by being clearer in the way they described the formation of the tsunami, for example: the water does not become unstable but waves are created from shock waves under the water (1), the waves can increase in height over long distances (1).

## Exemplar response B


Shockwaves from the epicentre of an earthquake are sent out into the surrounding areas. If these areas are near large bodies of water, the waves can cause physical waves to form. These waves can become very large and powerful, depending on the magnitude of the earthquake. The wave is pushed by the shockwaves and normally lasts a long time due to the power behind it.

**Examiner's comments:**

**This response was given 3 marks.**

This candidate produces a good response and gains all three marks. The initial point around shockwaves is developed, outlining how the shock waves cause waves to form which are large and powerful, dependent on the magnitude of the earthquake. Again, whilst not that clear, the candidate does demonstrate a developed understanding.

# Question 3(f)

(f) Explain why some countries are more vulnerable than others to the impacts of natural hazards.

**(4)**

## Mark scheme

| Question number | Answer | Mark |
|---|---|---|
| 3(f) | **AO1 (1 mark)/AO2 (3 mark)**<br><br>Award 1 mark for initial point (AO1), and 3 further marks (AO2) for the extension of this point up to maximum of 4 marks.<br><br>1+1+1+1<br>2+2<br>3+1<br><br>Lack of education (1) meaning people don't know what to do (1).<br>Lack of emergency planning (1) meaning when the event occurs there is little or no response in a short period of time (1)<br><br>Low level of economic development (1) meaning there is no resource available to respond (1) resulting in chaos and panic when the event occurs (1) and a lack of resource to rebuild (1)<br><br>Some countries experience a high frequency of natural hazards (1) which means that they do not have enough time / money to respond sufficiently (1) so additional money needs to be spent on recovery (1) which limits opportunity for increasing the level of development (1)<br><br>Accept any other appropriate response. | **(4)** |

## Exemplar response A

Some countries are more vulnerable to natural hazards as they are less developed. LIC's won't have the spending to buy defenses or stronger materials than HIC's, so they will not be able to prevent as much damage. Also, some countries will be more at risk to cyclones if they are on the coast compared to landlocked countries such as Central African Republic.

**Examiner's comments:**

**This response was given 4 marks.**

In this question, candidates are able to gain credit in a number of ways. In this example, the candidate has made one developed point and a further simplistic point. The first point identifies the idea that less developed countries do not have enough money (AO1) to invest in hazard prevention compared with more developed countries (AO2). This is further developed around the idea of not being able to prevent damage. The second point is made around the idea of some countries having a higher risk because of their geographical location (AO1).

## Exemplar response B

Because some countries are located on ~~top~~ the edge of a tectonic plate- which makes earthquakes more possible. Also most countries have volcano's that are active which would make eruptions more regular.

**Examiner's comments:**

**This response was given 1 mark.**

This candidate scores one mark for a basic point about location and how this might make certain countries more vulnerable to hazards (AO1). The second statement is not developed in enough detail to access the second mark. The candidate could have added further detail in a range of areas. The most common response here was for candidates to identify lack of education (1) or low level of economic development (1). In this response, candidates could gain credit by making a number of individual statements or developing them further. For example, if the candidate had stated lack of education (1), they could develop it by stating that the lack of education leads to people not knowing what to do if an earthquake occurs (1).

# Question 4(a)(iii)

Study Figure 4a in the Resource Booklet. It shows sample data on velocity from one site on a river. A cork float was used to measure the time taken to travel between two points, A and B.

(iii) Calculate the mean time taken for the cork float to travel between points A and B.

Give your answer to **one** decimal place.

You must show all your workings in the space below.

**(2)**

## Mark scheme

| Question number | Answer | Mark |
|---|---|---|
| 4(a)(iii) | **AO4 (2 mark)**<br><br>Correct method of working, showing addition, and then division by 5 (1) and one mark for the correct mean, written to one decimal place, 20.2 (1) | **(2)** |

## Exemplar response A

$$\frac{21.1 + 16.0 + 14.1 + 15.0 + 35.0}{5}$$

20.2 seconds

**Examiner's comments:**

**This response was given 2 marks.**

The candidate scores both marks in this example as they have demonstrated the correct method of working out the mean, and then gained the second mark by rounding the response to one decimal place.

## Exemplar response B

~~15 + 14 + 35 = 64~~

~~64 / 3 = 21.3~~

21.1 + 16.0 + 14.1 + 15.0 + 35.

$= \frac{101.2}{5} = 20.24$

20.24

~~20~~

~~21.3~~ seconds

**Examiner's comments:**

**This response was given 1 mark.**

In this example, the candidate gains one mark for the correct method but does not get reward for the second mark as they do not round the final answer to one decimal place. In this type of question, it is important for candidates to ensure that they read exactly what the question is asking for so that they can access all of the marks available.

# Question 4(a)(iv)

(iv) Using the data in Figure 4a (in the Resource Booklet), complete Figure 4b below for measurements 1 and 4.

(2)

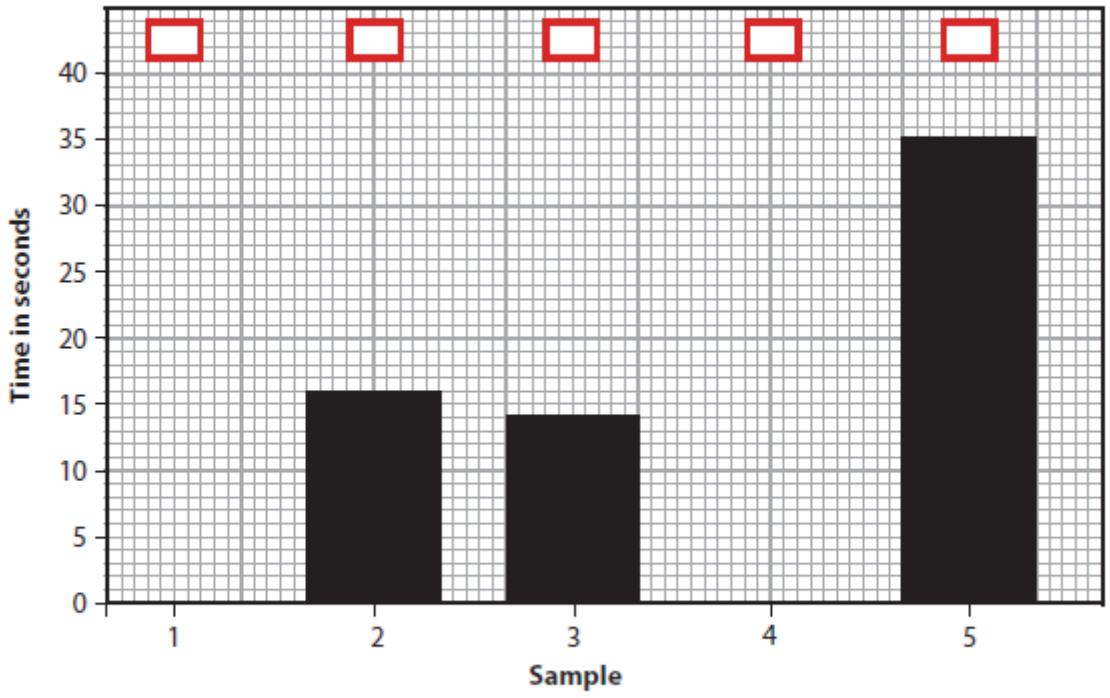


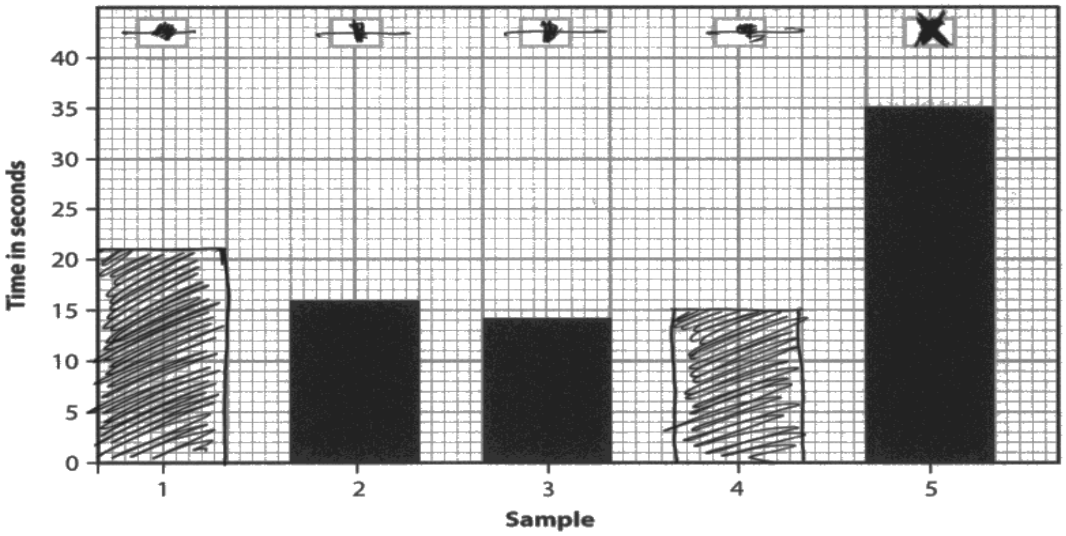

**Figure 4b**

**Measurement times taken for float to travel between points A and B at one site**

## Mark scheme

| Question number | Answer | Mark |
|---|---|---|
| 4(a)(iv) | **AO4 (2 mark)**<br>Award 1 mark for each correct bar.<br>To be awarded the mark for the first bar, line must be drawn between 21-22. The second bar needs to be right on the line.<br>Shading is not required. | **(2)** |

## Exemplar response A

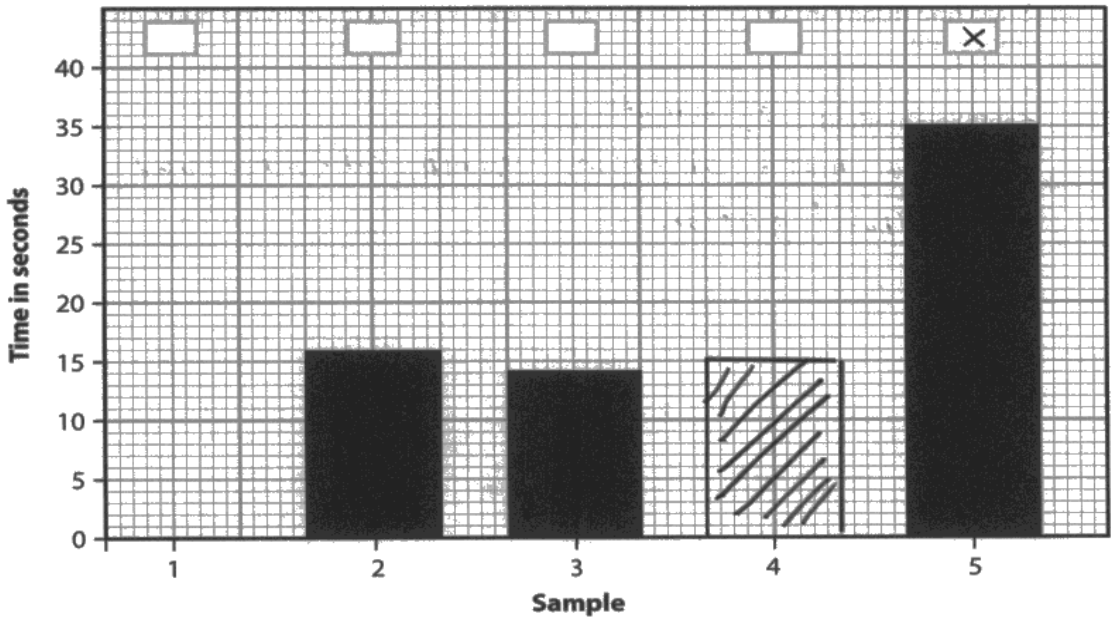



**Examiner's comments:**

**This response was given 2 marks.**

In this example, the candidate gains both marks for correctly completing the graph. Although the response is not drawn with a ruler, it does meet the requirement for both bars.

## Exemplar response B




**Examiner's comments:**

**This response was given 1 mark.**

In this example, only one mark is given as only one bar is completed.

# Question 4(b)

(b) To extend the river study, students were asked to use **one** other primary data method.

Explain **one** other primary data method they might have used.

**(3)**

## Mark scheme

| Question number | Answer | Mark |
|---|---|---|
| 4(b) | **AO3 (3 mark)**<br>Award 1 mark for identification of primary data method and award 2 further marks for development of explanation<br>Candidates could identify a number of sources of primary data to help them extend their study including:<br>(Annotated) field sketches (1) to show features of the river valley / channel (1) to help establish landforms and features on the river profile (1)<br>River depth – tape measure is stretched across the river (1) measure the depth of the water at 25 cm intervals (1) using a meter rule and then record the results. (1)<br>All of the ideas below are relevant:<br>• Use of hydroprop i.e. other methods to measure velocity (other than cork float)<br>• Width<br>• Sediment shape and shape<br>• Gradient<br>• Wetted perimeter<br>Accept any other appropriate response | **(3)** |

## Exemplar response A

They might have people around the area where the river is located this students could interview them for some extra information.

**Examiner's comments:**

**This response was given 1 mark.**

The candidate gets one mark for identifying a primary data collection technique. To access the other marks available, the candidate needs to explain how they used the method of data collection. So, in this example the candidate could have explained the types of data they might have collected and what information it would give them in relation to their study.

They could have measure the channel depth by placing a tape measure along the river channel width ways. Making sure the tape measure is the same level all the way along. Then with a meter rule your measure the depth at 10cm intervals along the width of the river.

**Examiner's comments:**

**This response was given 3 marks.**

In this example, the candidate correctly identifies river depth as a primary method of data they could collect. The candidate gets a further two marks for an accurate explanation of how they would do this as per the mark scheme.

# Question 4(c)

You have studied river environments for your geographical enquiry.

(c) Evaluate how successful your chosen data analysis methods were in answering your geographical enquiry question.

**(8)**

## Mark scheme

| Question number | Answer indicative content |
|---|---|
| **4(c)** | AO3 (4 marks) AO4 (4 marks)<br><br>Marking instructions<br>Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the level based mark scheme below.<br>Indicative content guidance<br>The indicative content below is not prescriptive and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. Relevant points may include the following.<br><br>**AO3**<br>• Accuracy is about making judgements about how close conclusions are to the actual changes occurring in the river environment where the fieldwork was carried out. |

| | |
|---|---|
| | • Recognition of the extent to which there were equipment errors, e.g. faulty or uncalibrated equipment, and/or operator errors, e.g. misinterpreting the data being recorded, and how this might have affected that might have affected whether they were able to answer their enquiry questions.<br>• Recognition of whether there were issues with the design of the data collection and/or sampling methodologies, which may be flawed in terms of the location/number of sites (spatial), the time of year (temporal), or the equipment chosen.<br><br>**AO4**<br><br>• There is evidence of using different skills and techniques to measure changes in a river channel.<br><br>• There is evidence of using different skills and techniques to reach conclusions about changes occurring in a river channel.<br><br>• There is evidence of using different skills and techniques to evaluate conclusions about changes occurring in a river channel.<br><br>• There is evidence of own fieldwork conclusions, i.e. reference to field data collected by the student.<br><br>If he enquiry question isn't present do not penalise<br><br>This question is about the candidates making a judgement of the success of their data analysis techniques. Candidates are expected to make a judgement. Candidates should identify strengths, weaknesses, alternative ways of analysing the data<br><br>In this response there would be an expectation for the candidates to evaluate a number of different data analysis techniques.<br><br>Candidates should look to identify the appropriateness of data analysis techniques.<br>A view should be given on how successful or unsuccessful the data analysis techniques were and how they could be improved to help candidates understand the data collected more effectively<br>For level 2 responses the candidate response will need to link to the evaluation to their study directly.<br>For level 3 response there should be a greater depth of evaluation.<br>Recognition of whether or not the data analysis was less successful because of the way it was designed/technique used.<br>How far data analysis helped draw a significant conclusion for the study<br>An evaluation of how far the outcomes can be trusted (or repeated to obtain the same results). |

| Level | Mark | Descriptor |
|---|---|---|
| | **0** | No rewardable material. |
| **Level 1** | **1–3** | • Attempts to apply understanding to deconstruct information but understanding and connections are flawed. An unbalanced or incomplete argument that provides limited synthesis of understanding. Judgements that are supported by limited evidence. (AO3)<br>• Uses some geographical skills to obtain information with limited relevance and accuracy, which supports few aspects of the argument. (AO4) |
| **Level 2** | **4–6** | • Applies understanding to deconstruct information and provide some logical connections between concepts. An imbalanced argument that synthesises mostly relevant understanding, but not entirely coherently, leading to judgements that are supported by evidence occasionally. (AO3)<br>• Uses geographical skills to obtain accurate information that supports some aspects of the argument. (AO4) |
| **Level 3** | **7–8** | • Applies understanding to deconstruct information and provide logical connections between concepts throughout. A balanced, well-developed argument that synthesises relevant understanding coherently, leading to judgements that are supported by evidence throughout. (AO3)<br>• Uses geographical skills to obtain accurate information that supports all aspects of the argument. (AO4) |

## Exemplar response A

our geographical enquiry was not very accurate due to our results being limited to a small area and only in the upper course so their was luck of evidence. Many of our methods had many things which could have gone wrong such as human error with both the sub velocity and surface velocity as we used stopped watches also impeller could have rested over time with each measurement and dog biscuits could have been obstructed by rocks.

our calculating for wetted perimeter could have gone wrong as water picks up slack from the tape measure as not all was covered by rocks, depth would have also been unreliable as we didn't check if there were rocks and we were unsure if we were hitting the river bed

Sediment size was unreliable as their were only 5 examples on check sheet so not much to compare and Sampling Strategy was random this means low validity

**Examiner's comments:**

**This response was given 0 marks.**

In this example, the candidate does not gain any credit. This is because they have just described the data collection techniques. This was quite common amongst candidates whilst the question clearly asks the candidates to evaluate their data analysis techniques in reaching their conclusions. The expectation on this question was that as a level 1 response, candidates would evaluate the use of what was shown and discovered through data presentation, e.g. any trends that were shown in basic graphs or Spearman rank.

## Exemplar response B

How do river characteristics change downstream in river Tordera, Barcelona.

Our results were very accurate when comparing them to data. However there were limitations.

First of all, our results were compared to the Bradshaw model. The Bradshaw model shows how a river changes downstream. It states that the river should get wider, and deeper and water flows faster. When presenting our data on a line graph our results clearly matched the trend of the Bradshaw model. However, we made the graph on paper, meaning it is prone to human error. Had we done it on a computer program. It would have been more accurate and unprone to human error.

We also made a bar graph of the size of rocks gathered. However a bar graph isn't the ~~most~~ best graph. This is because if we want to find the size of a rock that we haven't collected, we can't assume its size from the graph because there is no line of best fit, in a bar graph.

Therefore our data analysis methods were accurate however, changing the graphs made would make it easier to present ~~se~~ ~~ear~~ successfully.

**Examiner's comments:**

**This response was given 4 marks.**

In this example, the candidate produced a response which was just into level 2. They evaluated how their basic line graphs and bar graphs had different strengths and weaknesses and how they may have been affected by human error. Although this is quite a low-level response, because some evaluation has taken place, it just meets the criteria for level 2 and so four marks were given. To access the higher marks in level 2, the candidate would need to evaluate a range of data analysis techniques that they had used during their enquiry. They would also need to attempt to relate the evaluation to helping them answer their enquiry question. At the top of level 2, this would be underdeveloped. To access level 3, candidates would need to fully evaluate their techniques and also establish how they helped or did not help them answer their enquiry question. They may have also identified how far data analysis helped draw a significant conclusion for the study or evaluated how far the outcomes can be trusted (or repeated to obtain the same results).

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