

Examiners' Report

June 2025

Int GCSE Geography 4GE1 01

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June 2025

Publications Code 4GE1_01_2506_ER

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Introduction

The first sitting of this specification for Pearson Edexcel International GCSE Geography took place in 2019. This Examiner's report is intended to provide an insight into performance on Paper 1 Physical Geography, in particular, analysing the majority of questions in terms of what went well and where common mistakes and underperformance were evident.

This paper consists of two sections from which candidates answer two 25 mark questions from Section A and one 20 mark question from Section B, the total marks on the paper are 70.

The exam includes multiple-choice questions, short, open response, calculations and extended response questions. The exam command words which are used in the paper are defined in the specification. Each of the questions is mapped to one or more of the Assessment Objectives (AOs).

In section A river environments, coastal environments and hazardous environments are covered. Candidates are required to select two out of three questions.

In section B candidates choose one out of three fieldwork related questions relating to river environments, coastal environments and hazardous environments.

It is important that candidates focus on the requirements for each command word and the Assessment Objective (AO) distribution, particularly for the longer response 8-mark questions, to ensure they access the full range of marks available.

Question 1(b)ii

Question 1(c)

A significant proportion of candidates were able to achieve 2 marks on this question, however, on occasion some responses merely described a type of river flood prevention strategy rather than explain how it reduces the risk of flooding.

(c) Explain **one** flood prevention method used in river environments.

(2)

~~set~~ filtrate the water to let
people use it for themselves



0 marks No relevant flood prevention strategy explained.

(c) Explain **one** flood prevention method used in river environments.

(2)

Construction of dams to regulate and control the high river discharge during heavy rainfalls as to prevent the bursting of the river banks and cause flooding to the nearby areas



2 marks. Construction of a dam (1) to control the high discharge during heavy rain (1).

(c) Explain **one** flood prevention method used in river environments.

(2)

Harder Engineering. This way refers to build
a sustainable dam in a middle course of the
river to prevent flooding.



1 mark. Build a dam (1) There is no explanation of how a dam works to prevent flooding which is required for the second mark.

Question 1(d)

This question required candidates to use a resource (Figure 1a) showing a diagram of causes of variation in water quality. The first mark was awarded for identification of a relevant piece of evidence, which went beyond simply direct lifting from the resource, with the second mark awarded for the impact this may have on the water quality.

A large proportion of candidates were able to achieve 4 marks, the most common responses were focused on the impact of fertilisers and sewage on water quality.

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

Suggest **two** ways people can affect water quality.

You **must** refer to the resource in your answer.

(4)

- 1 Figure 1a ~~shows~~ depicts how ~~agricultural industries~~ farmers in agriculture may use fertilisers. This can cause leaching of these fertilisers into ~~the~~ bodies of water which could contaminate the water with ~~chemicals~~ artificial chemicals, and can further ^{increase} ~~encourage~~ the growth of algae, ^{this} ~~the~~ decreasing the quality of the water.
- 2 Figure 1a shows sewage treatment facilities near bodies of water. ~~That the~~ ~~pipes that~~ ~~if~~ ~~an~~ ~~are~~ people who manage these facilities connect the pipes to bodies of water, typically rivers, which could decrease the ~~of~~ water quality through contamination of faeces and waste, which could cause sickness to people if drunk.



4 marks. Farmers use fertilisers which build up in the water (1) leading to the growth of algae (1). Sewage treatment near water have pipes connected to water (1) which contaminates the water with faeces (1).

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

Suggest **two** ways people can affect water quality.

You **must** refer to the resource in your answer.

(4)

1 Due to the surrounding of animals ~~at~~ from farm, animals can start to leave there waste in the water. This has affects on the water quality as it cannot filtrate. ~~the water~~

2 Factors and Primary sectors where infrastructure appears, when resources are being produced from factories the water can affect the climate.

1 mark. Farm animals leave their waste in the water (1). The second point is too vague for credit as an impact on water quality.

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

Suggest **two** ways people can affect water quality.

You **must** refer to the resource in your answer.

(4)

- 1 in figure 1a we see that fertilisers are used for agriculture this gets washed into the river by rain and causes it to become polluted
- 2 in figure 1a we see that the factories release all their dirt into the water this includes ~~whob~~ water from cooling machines and dirty water from cleaning which pollutes the water



2 marks. Fertilisers are washed into the river by rain (1). Factories release all their dirty water into the water (1).

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

Suggest **two** ways people can affect water quality.

You **must** refer to the resource in your answer.

(4)

- 1 Pesticides ~~may be use~~ for agricultural purposes,
^{those} ~~does~~ pesticides enter the ground, to later on
being carried to the river, ~~entering~~ affecting the
water quality
- 2 Factories may use the river's water as a cooling
system, to later drop it back at a higher temperature
killing ecosystem, affecting the water quality



3 marks. Pesticides are carried to the river (1). Factories use water in cooling system and replace water at a higher temperature (1) killing the ecosystem (1).

Question 1(e)

The vast majority of candidates achieved the mark for this question, a few candidates stated a water store.

Question 1(f)

This question required candidates to identify a correct lowland river landform and provide a basic explanation of its formation. In previous examination series there have been explain the formation of 'floodplains' as 4-mark questions. There is now the requirement for more scaffold in these types of 4-mark questions and therefore, there was no requirement for the full sequence of landform formation to be explained. There just needed to be an accurate step in the landform formation explained for the second mark to be awarded.

Where candidates did not achieve full marks this was usually because they had written about an upland river landform which was not the focus of this question.

(f) Explain the formation of **two** lowland river landforms.

(4)

landform 1

Oxbow lake, created by a turn in a river being cut away, usually because a quicker path has been made

landform 2

Lake, usually at the end of a river, created by the pooling of all the water

1 mark for Oxbow lake (1) - there is no clear explanation which is required for the second mark. Lake was not credited as a lowland river landform.

(f) Explain the formation of **two** lowland river landforms.

(4)

landform 1

Meanders, it is when there is more deposition on one side of the river due to ~~more~~ slower flow and more erosion on the other side of the river due to faster flow. This causes the river to bend and form meanders.

landform 2

Levee, when river floods, material gets carried by the overflow. Bigger sediments get deposited closer to the river and fine sediments deposit further away from the river. Over time, many floods occur and sediment build up to form levees.

4 marks. Meanders (1), more deposition on one side due to slower flow (1) - as there is only 2 marks for each landform the second mark is awarded for a correct step in the formation process of the landform, the full formation process is not required. Levee (1), bigger sediments get deposited closer to the river (1) - for the development mark for levee candidates were required to have the idea linked to largest/heaviest sediment being deposited first to distinguish this landform from the explanation of a floodplain landform.

(f) Explain the formation of **two** lowland river landforms.

(4)

landform 1

A meander is formed when the path that the channel is trying to take is unable to be crossed. This causes the channel to find another route, trying on trying over the rock.

landform 2

A waterfall is formed when there is hard rock on top of soft rock. The soft rock erodes, causing an overhang of hard rock. This will eventually collapse, leaving a plunge pool.

2 marks for Meander (1) the channel is unable to be eroded (1) - although this is slightly more relevant to interlocking spurs the idea of a change in path due to a relevant physical process was just awarded for the second mark. Again, as the full steps in the formation process are not required for 2 mark questions. The second landform (waterfall) was not awarded credit as not a lowland river landform.

(f) Explain the formation of **two** lowland river landforms.

(4)

landform 1

The precipitation or snow and ice from mountains melting and with overland flow water gets trapped in crevasses in a ground the mountains and erosion creates river landforms

landform 2



0 marks here. There is no landform identified in this response and the focus is on upland river landscapes rather than lowland and therefore just mentioning the word erosion is not accurately linked to the focus of the exam question.

Question 1(g)

For this question candidates were required to explain one reason for the rising demand for water. It is often these 3-mark questions which candidates find most demanding as they often find it challenging developing one point in sufficient depth to be awarded 3-marks. Some candidates found it challenging to gain the third mark as the question stem had already stated the demand had increased and so no mark was awarded for simply stating demand had risen/increased/grown.

(g) Explain **one** reason for the rising demand for water.

(3)

One reason is population growth. More people means ^{more} food. Food production needs a lot of water. Farmers need to water their fields to grow their food. That rises the demand. But in general more people means more water. People need water and they don't share it if ^{more} ~~another~~ people come. They need their own water.

3 marks for Population growth (1) means more food (1) food production means more water for fields (1).

(g) Explain **one** reason for the rising demand for water.

(3)

demand = offer which means that the more water we waste the more water we need meaning prices go up. Also the more water we waste the less water is left on the planet which will also rise the price.



0 marks. This response is not linked to the question posed and focuses more on the challenges of water supply with generic statements about price and availability rather than demand.

(g) Explain **one** reason for the rising demand for water.

(3)

Increased ~~birth~~ population creates a higher demand for water as there is more people that need to drink, wash and more that require water. This creates an increased demand that some countries can't handle.

2 marks. Increased population (1) as more water is needed domestically (1) - there is no credit for stating 'creates an increase in demand' as this was in the question stem.

(g) Explain **one** reason for the rising demand for water.

(3)

One reason is because of the increasing and growing population. This is because due to this there's a lack of water for everyone due to the amount that's needed. Due to this lack of water for everyone its demand has risen as it's more valued.



1 mark. Increasing population (1) - the rest of the response is focused on supply rather than demand.

Question 1(h)

With these 8-mark extended writing questions candidates are required to blend their use of the resource (AO4) with their own knowledge and understanding of the issue presented (AO3), therefore they are not case study questions, rather they require the candidates to apply their geographical understanding to the context shown in the resource.

Many candidates clearly used the resource to describe the differences in discharge between the two river regimes and used the information in the textboxes to explain the reasons for the differences.

Some candidates used the information from the resource and made clear links to the cause for the difference in river regime going beyond simply describing differences for the hydrograph. This was pleasing as historically candidates have found it challenging to explain river regimes and not simply storm hydrographs. Some candidates were also able to make links to the difference in latitude and the influence this has on climate.

To access the higher marks candidates needed to go beyond simply describing what is shown in the resources, but provide several clear developed reasons for the differences in the river regimes shown. The command word 'analyse' needs to be addressed to achieve full marks and often candidates found this demanding as there was often minimal judgement demonstrated in candidate responses.

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

Analyse the reasons for differences in river regimes.

You **must** refer to the resource in your answer.

(8)

Different rainfall and temperature

0 marks. This response is too vague to gain credit for a basic AO4 reference to the resource mark.

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

Analyse the reasons for differences in river regimes. ~~discharge of the river~~

You **must** refer to the resource in your answer.

(8)

One reason for the differences in discharge of the river is the average rainfall.

In ~~River Volta~~ ~~Agnes~~ South West Africa, River Volta has an average rainfall of 1000mm whereas in South West Europe around Grance, ~~Mount~~ River Rhone has an average rainfall of 825mm. This means that River Volta has 175mm more average rainfall than River Rhone.

This means that River Volta will experience a higher input of discharge in contrast to River Rhone not experiencing as much discharge.



Level 1 - 2 marks. This response demonstrates some engagement with the resource which goes beyond direct lift, with the specific location of France in Europe and the difference in average rainfall between the two locations to gain AO4 credit and a basic AO3 idea stating that the River Volta has a higher discharge as a result of the difference in rainfall.

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

Analyse the reasons for differences in river regimes.

You **must** refer to the resource in your answer.

(8)

The first factor that affects river regimes is the amount of precipitation because when it rains the discharge is a delayed increase because all of the water runs into the river ~~run~~ ~~run~~ during surface run-off. A factor that increases surface run-off is deforestation because there is nothing to absorb the rainfall and also ~~run~~ concrete because it cannot absorb water so the water runs straight off it. Another factor that affects river regime is ~~water~~ natural and man-made water stores such as lakes and reservoirs because these ~~become~~ usually steady ~~run~~ or increase the river flow depending on the amount of rainfall and ~~the~~ for a reservoir it depends on the amount of water is decided on being released so if it is a dry year the water companies will try to not let out ~~water~~ as little water as possible to save it in case of a drought. River discharge is also affected by the time of year so

For example there is usually more rain in the autumn
and winter in the UK and finally the catchment
area also is an effect because the catchment area for
the River Volga is 390000 km^2 which is a huge
area for a river and there is more run-off from

Level 1 - 3 marks. This response has stronger AO3 than AO4 there are two basic ideas linked to permeability of rock/land and number of water stores with a link to the resource at the end of the response to move to the top of level 1.

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

Analyse the reasons for differences in river regimes.

You **must** refer to the resource in your answer.

(8)

In fig 1c one difference between the river regime in River Volba and River Rhone is that River Volba ~~will~~ side that the geology is permeable rocks and ~~it covers~~ the ~~now~~ water can't seep in therefore there is an increase of speed run off and a high discharge whereas River Rhone is that there is grasses and bushes on either sides which absorbs the water and therefore there is ~~another~~ lower discharge.

Another difference in fig 1c is that River Volba the average rainfall is 1400mm and when there is a ~~high~~ high rainfall it doesn't have a chance of seeping into the ground causing it for a high discharge although River Rhone has a much lower rainfall of 825mm and it allows it to seep in therefore it's a lower discharge.

lastly there is another difference between River Volba and River Rhone is that River Volba the temp is 29°C this



Level 2 - 4 marks. This response reaches the bottom of level 2 as there is a better balance between the AO3 and AO4. Each paragraph has a reference to the resource, in the first paragraph this is the geology and link the vegetation shown in the photograph with a basic explanation of permeable surfaces allowing water to soak in. The second paragraph has some repetition of the idea of permeability but links this to the rainfall amounts with a third unfinished sentence linked to temperature.

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

Analyse the reasons for differences in river regimes.

You **must** refer to the resource in your answer.

(8)

The river regime is the amount of ~~wat~~ discharge a river has over a period of time, most of the times a year. Figure 1c shows how the river Volta has an inconsistent amount of discharge through the year, but in August reaches $4,500\text{m}^3/\text{s}$, having a big difference between the peak discharge and the lowest discharge month. ~~This star~~ On the other hand, the river Rhone stays more constant and there's an increase in discharge at the hotter months of the year. This may be caused by the snowmelt in the mountain as, Figure 1c, ~~shows an environment w~~ shows ~~a~~ → mountains near the river. The average rainfall in the river Volta is 1000mm and in the Rhone 825, and the Volta also has a bigger catchment area, however its temperature average is quite high, meaning lots of evaporation will take place, as it's located in a dry region of Africa, as in the first months of the year the river is completely 'dry'. The permeable rock is presence in both, meaning the water will take more time to reach the river. Finally the amount of water being removed in the

Rhone is double the one of the Volta, meaning the river Rhone could have a higher discharge overall discharge if the amount of water removed was smaller.



Level 2 - 5 marks. This response has a balance between AO3 and AO4 using the resource accurately to support each idea made. There is an idea linked to climate (snowmelt and temperature), catchment size and permeability with some understanding of the influence on drainage basin processes. This response also contains some basic analysis language (however, on the other hand, big difference) to meet the demands of the level 2 descriptors.

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

Analyse the reasons for differences in river regimes.

You **must** refer to the resource in your answer.

relationship of

(8)

Figure 1c, shows, discharge and months in River Volta and River Rhone. Figure 1c also shows ^{the} geology of the two rivers. 1c also shows the climate and rainfall of both rivers. Figure 1c ~~also~~ indicates the geographic location of River Volta and River Rhone. Figure 1c indicates that the discharge of River Volta ^{is} ~~has~~ much more significant than River Rhone. This is because the average rainfall for River Volta is 1000mm, River Rhone is only 825mm. River regime is the discharge over a period of time. The excessive rainfall in River Volta increases its river water volume. Compare to River Rhone's water volume, River Volta has much larger volume due to higher precipitation. Thus, causing more discharge. Another factor affecting the river regime of River Volta is vegetation. In the source, we can see that there is way less vegetation in Volta. And more in River Rhone. Vegetation helps to intercept rain water ~~the~~. Surface run off also decrease due to infiltration into the soil, which is then absorbed by roots and evaporated due to transpiration. More vegetation equals to less surface run off which leads to less river volume which results in less discharge. There is no water discharge in J, M, M in River Volta, but there is constant discharge in River Rhone. This is because ~~it is~~ the temperature way hotter in River Volta which means more water is ~~discharge~~ evaporated into the atmosphere, causing less volume of water in the river.

there might also be no rainfall during summer, causing no discharge.

River Rhone's river regime can be also affected by impermeable rocks and surfaces. This is because River Rhone is located

in mountain regime, which has more hard rocks than grassland

(River valley). Impermeable rocks causes more surface run off,

as water cannot infiltrate and percolate downwards. This increases

river volume and discharge throughout the year.

(Total for Question 1 = 25 marks)



Level 2 - 6 marks. This response works through ideas linked to rainfall, vegetation, temperature, permeability with clear links to the resource for each point made. The candidate shows secure knowledge of drainage basin processes to explain the reason for the difference shown in the river regimes. The analysis is too weak to move this response into level 3 as there is simply analysis in some places 'much more significant than the River Rhone' to just reach the top of level 2.

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

Analyse the reasons for differences in river regimes.

You **must** refer to the resource in your answer.

(8)

River regime is the changes to river discharge throughout the year. Reasons for the difference in river regimes include the difference in landscape, weather and levels of human use.

The most significant reason for the different river regimes is the difference in landscape. As shown in Figure 1c the River Rhone is in a mountainous region, which means that during the winter there would be snow and ice and when temperature increases in spring the snow and ice melt causing large surges of water down the mountains which enter the river quickly, which causes a increase in the river discharge in the spring and summer. This is also shown in Figure 1c as from March the river discharge increases and is highest at $2,000 \text{ m}^3/\text{s}$ in June, July and August. Figure 1c also shows the different landscape of the River Volta which is a savanna and grassland which has a flat landscape compared to the River Rhone. This means that the River Volta has less steep sides so water reaches river slower as shown in Figure 1c the geology of the River Volta is sandstone which is permeable and allows water to infiltrate through decreasing surface runoff. This is shown in Figure 1c as the discharge from January to May is very low as $0 \text{ m}^3/\text{s}$ showing how slow water enters the river.

Another significant reason for the difference in river regime is the different weather conditions. Figure 1c shows that the River Volta has a higher average temperature at 29°C this affects the river discharge as in summer when temperature is highest the air throughout the year more water is being evaporated from the river explaining the low average discharge. Figure 1c also shows that the River Volta

has a higher precipitation average at 1,000mm, this is due to it being in the tropics which Figure 1c also shows meaning that in the rainy season in summer causes the grounds to become saturated and increasing surface runoff so water enters rivers quicker and increasing discharge. This explains the increase in discharge in the summer of the river being shown in 1c. Figure 1c shows that the river has a lower temperature and average rainfall average explaining the more constant river regime.

↓ continuation of question

(Total for Question 1 = 25 marks)

Another The least significant reason for the difference in river regime is the difference in human use. Figure 1b shows the River Rhone having a higher amount of water removed for human use at 6 billion m³. This is higher than the use in the River Ucker this is because the River Rhone is found in a more developed area where water use is higher due to more advanced technology. This means a decreased level of discharge from the river throughout the year.

In conclusion the most significant reason for the difference is landscape as the two rivers have opposing landscape which result in different levels of surface runoff. Another significant reason is the difference in regional temperature which affects evaporation rates. Whilst the least significant is human use as River Rhone as a greater volume of water removed.



Level 3 - 8 marks. This response has clear analysis throughout their response using the resource effectively to support their points. They work through a detailed reason linked to landscape and a second linked to climate and a third linked to human extraction in some depth to demonstrate a detailed understanding of factors affecting river regimes. There is then a detailed conclusion at the end of the response linked to surface runoff and evaporation processes to reach the top of level 3.

Question 2(b)ii

In this question candidates were required to state one cause of coastal flooding. Most candidates were awarded the mark for this question with the most common responses being storm surge or tsunami.

Question 2(b)iii

In this question candidates were required to explain one type of hard engineering used in coastal management. Generally, this question was answered well by candidates, they have a clear understanding of what hard engineering strategies are and most can explain how they work to reduce erosion and/or flooding. Where candidates were not awarded full marks this was usually because they simply describe a type of hard engineering rather than explaining how it works. On rare occasions some candidates identified a soft engineering strategy and were not awarded credit.

(iii) Explain **one** type of hard engineering used in coastal management.

(2)

Sea walls, building large concrete walls
on coast, usually soft rock cliffs.



1 mark for Sea wall (1) - the develop simply describes a sea wall rather than explain how it works to manage the coast.

(iii) Explain **one** type of hard engineering used in coastal management.

(2)

Sea wall is used to deflect the waves energy



2 marks here Sea wall (1) deflects the waves energy (1).

(iii) Explain **one** type of hard engineering used in coastal management.

(2)

Constructing coasts is an example of
hard engineering and it can protect
high value land from being eroded.



0 marks. This response provides a reason for using hard engineering rather than explaining a hard engineering strategy.

Question 2(c)

This question required candidates to use a resource, Figure 2a, showing an aerial photograph before and after soft engineering had been established. The first mark was awarded for identifying a feature shown on the resource that could cause conflict and the second mark was awarded for the development of this point. Candidates generally engaged with the resource well and identified a feature which would be likely to cause conflict. Many candidates identified specific key groups who would be at conflict (which was not required for this question to gain credit, as no key groups were shown/implied from the resource) demonstrated their secure understanding of conflict in coastal environments.

Where candidates did not gain full marks this was most often due to not having identified a conflict based on evidence shown in the resource. In a minority of responses the candidates had misinterpreted the resource as though the after image was the before image and stated the sand dunes had been destroyed and this would be a source of conflict which was an incorrect interpretation for the resource.

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

Suggest **two** reasons why this coastal management strategy could cause conflict between different users.

You **must** refer to the resource in your answer.

(4)

- 1 ~~Conservationists - could argue that the sea wall is at harmful harmful to marine life~~
Surfers - could argue that the managed retreat method could effect tide movements, effecting their sport.
- 2 Employees that might work near the coast could find the ~~the~~ parking lot necessary for their work, and without it would have to find other places to park more further away.



2 marks. The first point is not clearly linked to evidence in the resource and so not awarded credit. The second point is awarded 2 marks: Employees find the parking lot necessary (1) which means they would need to find other places to park further away (1).

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

Suggest **two** reasons why this coastal management strategy could cause conflict between different users.

You **must** refer to the resource in your answer.

(4)

1 Tourists would argue that ~~because~~ they need.

2



0 marks. There is no credit for just naming a group who use the coastline.

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

Suggest **two** reasons why this coastal management strategy could cause conflict between different users.

You **must** refer to the resource in your answer.

(4)

1 the council, who own the car parks might ~~decrease~~ earn less income due to them now being sand dunes, which could reduce funding for other local projects, leaving citizens unhappy too.

2 tourists might complain about there being less accessibility to the beach as the road is replaced which might discourage them from returning or others from coming, which would ~~be~~ cause ^{a negative} impact on local business owners who rely on tourism industry.

4 marks. The council who own the car park earn less income (1) which would reduce funding for other local projects (1) - the initial point is awarded credit even though it is not explicitly stated that some of the car park is lost but clearly infers there is a change to the car park which is correct evidence from the resource. Tourists complain about there being less accessibility as the road is replaced (1) discouraging them from returning (1).

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

Suggest **two** reasons why this coastal management strategy could cause conflict between different users.

You **must** refer to the resource in your answer.

(4)

- 1 One reason is because one part of the coastline is being sacrificed in order to let the other part coastline to be material creating a conflict.
- 2 Another reason is the car park has been replaced by sand dunes creating disagreements.



1 mark. The first point, although a correct statement for managed retreat generally is not credited as it is not fully accurate for the evidence shown in the resource at this location. The second point is awarded a mark for: 'the car park has been replaced (1)'.

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

Suggest **two** reasons why this coastal management strategy could cause conflict between different users.

You **must** refer to the resource in your answer.

(4)

- 1 In Figure 2a, it shows a car park and road replaced with the beach and dunes, this could anger the people that work around the area as they have lost parking areas. The stakeholders that live there would have restricted access.
- 2 In Figure 2a, contrasting, a cyclist would like the beach management as the once eroded bike path has been replenished and able to use again. As the car park has moved the path is much bigger, encouraging people to ride not drive.



3 marks for Car park replaced (1) which will anger employees that work 'nearby' as they cannot park there (1). The second point is an advantage rather than focused on a conflict but there is a correct second piece of evidence from the resource not mentioned in their first point so they are awarded the AO4 credit for: 'the cycle path is much bigger (1)'.

Question 2(d)

For this question candidates were required to explain one reason for the distribution of coral reef ecosystems. It is often these 3-mark questions which candidates find most demanding as they often find it challenging developing one point in sufficient depth to be awarded 3-marks. Most candidates were able to gain at least 2-marks by identifying the temperature required and link this to the location found between the Tropics. Fewer candidates were awarded the third mark which required further explanation. Where the third mark was awarded this was most often for the explanation of the reason coral reefs are distributed in shallow water (needing access to sunlight to photosynthesise).

(d) Explain **one** reason for the distribution of coral reef ecosystems.

(3)

Coral reefs require water temperature to be over 18°C and under 26°C. This is typically found around the equator and inbetween the tropics. Therefore, coral reefs are usually found in these areas, such as Australia.



2 marks. Coral reefs require water between 18-26 degrees (1) which is found in between the Tropics (1). There is no credit awarded for naming a country where they are found.

(d) Explain **one** reason for the distribution of coral reef ecosystems.

(3)

Coral reef ecosystems are distributed as an offshore barrier that protects the coast and mainland from tsunamis and storms. It does so by absorbing the energy of the waves which reduces its speed and the impact it has on collision.

0 marks. This response focuses on the advantages of coral reef ecosystems as a flood barrier rather than explaining a reason for their distribution and so is not awarded credit.

(d) Explain **one** reason for the distribution of coral reef ecosystems.

(3)

Coral reef ecosystems are generally found fairly close to the coastline. This is because they require shallow waters (usually a maximum depth of 60-70m). This is so that the zooxanthellae can photosynthesise using light from the sun, and provide the coral with the energy that it needs.



3 marks. Coral reefs are found close to the coast in shallow waters (1) so the Zooxanthellae can photosynthesise (1) using light from the sun (1).

(d) Explain **one** reason for the distribution of coral reef ecosystems.

(3)
Shallow sea depth is required (around maximum 25m) because the coral need to be close enough to the surface to absorb light for photosynthesis, otherwise they bleach and die.



3 marks for Shallow water (1) to absorb light (1) to photosynthesise (1).

(d) Explain **one** reason for the distribution of coral reef ecosystems.

(3)

They need shallow waters and warm waters so they
only are able to grow in certain areas of the world
that meet those conditions



1 mark. They need shallow water (1) OR They need warm water (1). These are two separate points and neither are developed so only gain one mark max.

(d) Explain **one** reason for the distribution of coral reef ecosystems.

to break the waves before they reach land,⁽³⁾
saving as a natural sea wall to reduce erosion



0 marks here as this response focuses on how they act as a coastal defence rather than explaining a reason for their distribution.

Question 2(e)

The majority of candidates correctly identified an abiotic characteristic shown on the resource. A few candidates identified a biotic characteristic, historically questions focusing on abiotic characteristics have been a challenge for candidates but this was not the case this series. Very occasionally candidates identified an abiotic factor not shown in the resource and were not awarded credit.

Question 2(f)

This item required candidates to explain one industrial and one agricultural threat to a coastal ecosystem. Generally, this question was answered well by candidates and although 'such as salt marshes' was stated in the question responses about any coastal ecosystem were credited. The most common responses were toxic chemicals and fertilisers. Some candidates found it challenging to develop their initial point, for example some stated an industrial and agricultural threat but did not go on to explain the impact of this threat on the ecosystem. Other candidates stated the impact of the threat eg reduces biodiversity but did not identify a specific industrial/agricultural threat. This question required candidates to go beyond just stating industry/factories/agriculture/farming as the threat as this was provided for them on the question paper, a more specific threat was required to gain credit.

(f) Explain **one** industrial and **one** agricultural threat to a coastal ecosystem, such as salt marshes.

(4)

industrial

the salt marshes take up space, which means less space for industrial production (factories).

agricultural

A good use of land as it creates a habitat for some fish and flamingoes (in Spain), which helps not pollute the environment.



0 marks. This response has focused on a reason why industry is reduced and an advantage of having salt marshes which is not relevant to the question posed.

(f) Explain **one** industrial and **one** agricultural threat to a coastal ecosystem, such as salt marshes.

(4)

industrial

agricultural

leaching and eutrophication: of chemicals
meaning habitat destruction ~~if~~ and
water pollution

2 marks. Leaching of chemicals (1) causing habitat destruction (1).

(f) Explain **one** industrial and **one** agricultural threat to a coastal ecosystem, such as salt marshes.

(4)

industrial

chemicals produced from factories are
dumped into rivers ~~that~~ lead to salt marshes

agricultural

1 mark for chemicals are dumped in the river by factories (1) - there is no impact this has on the coastal ecosystem which is required for the second mark.

- (f) Explain **one** industrial and **one** agricultural threat to a coastal ecosystem, such as salt marshes.

(4)

industrial

Industrial wastage can be poured into salt marshes with the hopes it will be taken by the sea. This can leach ^{toxic} chemicals into ground, destroying salt marsh plant species. ~~or leading to eutrophication~~

agricultural

Fertiliser runoff might lead to eutrophication, blocking out light to aquatic plants in an algal bloom, causing aquatic life to perish.



4 marks. Industrial waste leach toxic chemicals (1) destroying plant species (1) - there is no credit for stating industrial waste on its own as industrial is provided in the question stem. Fertilisers runoff (1) leading to eutrophication blocking sunlight to plants (1).

Question 2(g)

With these 8-mark extended writing questions candidates are required to blend their use of the resource (AO4) with their own knowledge and understanding of the issue presented (AO3), therefore they are not case study questions, rather they require the candidates to apply their geographical understanding to the context shown in the resource.

In this instance candidates were required to study Figure 2c, a topographical map, photograph and fact file of a coastal location in France.

Some candidates used the information from the resource and made links to the relevant physical processes responsible for the landforms shown along the stretch of coastline. Candidates understanding of physical processes, particularly erosion/transport/deposition is strong and many were able to link these to the information provided in the resource. A number of candidates were also able to accurately discuss the role of, the correct, sub-aerial processes involved in the formation of the coastal landscape shown.

The command word 'analyse' needs to be addressed to achieve full marks; a proportion of candidates demonstrated making a simplistic judgement but fewer demonstrated the analyse required to reach Level 3.

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

Analyse the effect of physical processes on this coastline.

You **must** refer to the resource in your answer.

(8)

In ~~the~~ Figure 2c you can see the coastline characteristics of Étretat. The physical processes on this coastline are erosion through destructive waves. These waves are strong through a long fetch and strong winds. The geology of the cliffs is chalk. Although it is hard chalk it erodes pretty quick. High cliffs and the other factors are main factors for fast erosion. The coastline is getting pushed back super fast.



Level 1 - 2 marks. This response uses relevant evidence from the resource to gain basic AO4 credit and a simple AO3 idea linked to causing erosion which is a relevant physical process involved in the formation of this coastline.

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

Analyse the effect of physical processes on this coastline.

You **must** refer to the resource in your answer.

(8)
- The rock is chalk which is quite a permeable rock, making it easier for it to be eroded.

- The dominant wave type is destructive, meaning it has a strong surch, therefore when it collides into the rock it will have more power when it crashes into the rock, which means it is easier for hydraulic action and abrasion to take place.

- Along with this the prevailing wind direction is from the ~~west~~ ^{west} meaning that it will be pushing the waves into the direction of the cliff.

- The high rainfall as well combined with the softer rock ~~that~~ means that the rain will also be eroding some of that softer chalk, especially if it gets into the cracks.



Level 1 - 3 marks. There are links to the resource in each paragraph considering geology, wave type and rainfall with some basic AO3 ideas. The better AO3 detail is contained in the paragraph linked to the dominant wave type which is detailed enough to move to the top of level 1.

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

Analyse the effect of physical processes on this coastline.

You **must** refer to the resource in your answer.

(8)

One effect as seen in figure 2c is that the ground coastline is made of chalk. Chalk dissolves relatively easily in water. Therefore the hydraulic action of the destructive waves will quite rapidly wear away the cliff.

Another effect is seen in how the base of the cliffs are a harder chalk than at the top. This can be seen in the stack shown in the photo in figure 2c. A stack is formed when the softer layer left from an arch collapses and only the hard layer remains.

A final effect is that there aren't really any beaches along the coastline. This is because, as seen in figure 2c, the waves are destructive. Meaning the backwash is larger than the swash. Therefore more sediment from the erosion is taken away from the coast rather than dropped off.



Level 2 - 4 marks. There is a balance between AO3 and AO4 in this response which is sufficient to move it to the bottom of level 2. The candidate works through three ideas linked to specific evidence in the resource and begins to explain this correctly for the coastline shown, including an attempt to explain the formation process of the stack shown.

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

Analyse the effect of physical processes on this coastline.

You **must** refer to the resource in your answer.

(8)

There are many effects of physical processes I will explore some below.

In figure 2c I can see ^{on the photograph} that ~~there is a headland at the coastline~~ ^{and there is a stack} ~~these coastal processes are an effect of~~ this is because at the headland there is destructive waves ^{are extremely powerful and} as suggested in figure 1c, which ^{are extremely powerful and} have a weak wash but a strong backwash eroding the cliff extremely fast by processes of hydraulic action and abrasion this widens the fault in the coastline forming ^{a cave} ~~an arch~~ when an arch forms on both sides it is likely to form an arch when they meet the sea's water then again undercuts ^{which processes of hydraulic action & abrasion} the bottom of the arch and due to gravity the arch collapses then then forms a stack which slowly gets eroded by forming a stump only visible at low tide. ~~thus so the physical processes such as hydraulic action and abrasion cause the landforms to shape of landforms~~ affects the shape of landforms and have a major effect

Another physical process affecting the coastline is mass movement. Figure 1c suggests that in the weather varies

over the months this helps in causing mass movement to happen as in the warmer months the rock contracts and cracks land in the colder months the figure 4c suggests that there is 1,16 mm of rainfall which goes into the cracks and saturate them and due to gravity the rocks will slip down the cliff leaving behind a curved surface. ~~this~~
So the physical process of mass (Total for Question 2 = 25 marks)

movement ~~lead~~ affect the shape of the coastline

In conclusion ^{there are many processes affecting the coastline} processes such as hydraulic action & abrasion ~~form~~ ~~a~~ shape the landforms and mass movement ~~shape the coast~~ curve the coastline.



Level 2 - 6 marks. This response has a detailed explanation of the role erosion plays in the formation of the coastal landforms shown in the resource and also gives a second point about the likely influence of mass movement which increases the breadth of this response. There is frequent evidence from the resource accurately linked to their explanation along with a simple concluding statement at the end to reach the top of level 2.

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

Analyse the effect of physical processes on this coastline.

You **must** refer to the resource in your answer.

(8)

Figure 2c shows that Étretat is a headland as it is protruding protruding, or sticking out from the land. As the base of the cliff is made up of hard chalk, there is less erosion as hard rock requires more force to erode. Due to destructive waves being the main wave, there are many mostly erosional processes such as hydraulic action and abrasion, which are exploiting cracks and joints in the rock causing it to retreat. The emergent coastline leads to raised beaches and cliffs which get eroded to form caves before being undercut at the wave-cut notch to form a stack such as Étretat Needle. These marine processes are very important as they shape the majority of the coastline. They ~~are~~

The gradient of the cliff is not very steep as the rock is harder at the bottom which decreases the chance of a wave-cut notch and platform forming. Therefore sub-aerial processes such as ~~rock fall~~ mass movement may not have as much of an effect. Rockfall will be a lot less common however landslides may be more common due to the sloping nature of the cliff which is a result of softer rocks at the top being eroded faster.

Additionally, there may be freeze-thaw weathering when temperatures are cooler e.g. 4°C and salt weathering when they are around 22°C . ~~However~~ This will contribute to forming arches and stacks, and also cause it to retreat from the Étretat Needle.

To conclude, I believe, that the (Total for Question 2 = 25 marks)

Marine processes have a larger effect on the retreat of the cliff than the sub-aerial ones. ~~because~~ Whilst every ~~marine process possible at the~~ erosional process at the coast is carried out due to ~~the~~ destructive waves only some sub-aerial processes e.g. biological and mechanical weathering are carried out. Although they all ~~carry~~ carry out the same process: erosion. Marine processes have a larger effect.



Level 3 - 7 marks. This response has 3 ideas with two detailed paragraphs on the first page clearly demonstrating their understanding of coastal processes on the landforms shown in the figure with a briefer third idea linked to the possibility of freeze-thaw weathering. This response has a more substantiated conclusion making a judgement about the significance of marine processes over sub-aerial processes to move this response into level 3.

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

Analyse the effect of physical processes on this coastline.

You **must** refer to the resource in your answer.

(8)

The physical processes on this coastline were from mechanical weathering. There had been mechanical weathering because the destructive waves meant it had a stronger backwash than wash, meaning it would have been eroding the coast gradually, taking sediment away. The fact that the river gets in 95 km meant that the waves had lots of force but also the fact that the sediments had been carried away a lot. The destructive waves would have undergone hydraulic action, where water is forced into cracks of the ~~original~~ original cliff face. As more water + air is forced into cracks, larger areas of the surface would have begun to crack into a cave. Abrasion would also have meant that rocks were hurled at the cliff face, potentially eroding it very slowly. Due to chalk being a hard rock, the erosion would have been slow because hard rocks are more resistant to erosion. ~~When the weathering continued,~~ As the weathering continued, there would have been a more cut-out in the inter-tidal zone ~~area~~. This means there would have been a more cut platform which was overhanging. This means that because there is a layer of soft chalk

hanging on top, it would have collapsed into the sea, forming a tall ~~stack~~ chalk cliff we see today.

The rocks would have been eroded into a cone, then to a rock, and then when the connecting beam broke down, there would have been a stack forming, like the one in Figure 2c. Soon it will then erode to a stump, which is smaller.

(Total for Question 2 = 25 marks)

The fact that ~~off~~ vegetation is growing on the cliff means it will cause biological weathering too, as roots of plants will be forced into cracks of rocks, so when it will break rocks apart slowly, and then after some time, the coastline would erode even more.

Chemical weathering ~~is also~~ is also a thing to keep in mind - the ~~average~~ average annual precipitation is 1110 mm, and because France has mild pollution, acid rain could form, ~~dissolving~~ dissolving chalk. Chalk is calcium carbonate and can react with water/acid to form carbonic acid. Therefore it could have also been eroded in this manner.

In conclusion, the most important ~~of~~ physical process which has had an effect on the coastline is the mechanical weathering, because it is much more constant and violent compared to the other factors - it could happen 24/7, whilst acid rain really only existed after ~~start~~ industrialisation and biological weathering is a much lengthier process.



Level 3 - 8 marks. This response has detailed AO3 knowledge applied to the landforms shown in the resource linking this to the sequence of formation and the role of the geology, destructive waves and erosion in the formation of the landforms. There is a further idea linking the vegetation shown in the resource with the correct type of weathering (biological) and a link to the amount of precipitation and chemical weathering caused due to chalk being the dominant rock type. The response has a judgement at the end which has some clear justification. The depth of AO3 and range of AO4 used in this response is sufficient to reach the top of level 3.

Question 3(b)ii

In this question candidates were required to state one hazard caused by a volcanic eruption. Most candidates were awarded credit, however, some candidates confused impact with hazard, for these types of questions the physical hazard from the volcano is required rather than buildings destroyed. The mark was awarded for the hazard responsible for the building destruction eg ashfall.

Question 3(b)iii

Candidates were required to explain one reason why volcanoes are found at hotspots. This question required a response specific to hotspot volcano formation and not generic points linked to any volcano formation. Therefore, responses simply stating 'magma rises', although true for all volcanoes, generally was not awarded credit as an explanation for the formation of hotspot volcanoes.

(iii) Explain **one** reason why volcanoes are formed at hotspots.

(2)

because when there's an tectonic movement
activity on the plate boundary the magma
rises from the earth crust



0 marks. This response is too vague to be awarded credit as the response needs to be specific to hotspot volcanoes and not just relevant to any volcano.

(iii) Explain **one** reason why volcanoes are formed at hotspots.

(2)

Due to plumes of magma at the surface, a fault causes the high pressure magma to erupt.

1 mark for plumes of magma (1) - the development needs to be linked to the idea of a thinner/weaker area of crust melting allowing the magma to escape for the development mark to be specific to hotspot volcano formation.

(iii) Explain **one** reason why volcanoes are formed at hotspots.

(2)

Hotspots are away from plate boundaries, they form due to magma plumes being close to the surface which will melt weak crust, the magma will then ~~burst~~ burst out and erupt as a volcano.



2 marks here for magma plumes (1) melt weak crust (1).

Question 3(c)

This item required candidates to use Figure 3a, which is a resource showing a map of Montserrat with key information about the impacts of the volcanic eruption. Candidates generally coped well with this question and were able to engage with the resource accurately. Some candidates found the focus of the question on long-term impacts more challenging meaning they were awarded the marks for evidence from the resource but their development was not a long term impact. Although, the term long-term is subjective in these questions it is important candidates are able to explain an impact which lasts for a prolonged period of time.

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

Suggest **two** long-term impacts of the volcanic eruption on people.

You **must** refer to the resource in your answer.

(4)

- 1 Permanent out-migration to safer areas.
There're 10 settlements around the volcano that have been destroyed.
This leads to people becoming homeless and unemployed. This displacement causes them to want to move somewhere else (eg. the Northern zone).
- 2 Economic decline in the Exclusion zone. Most of settlements has been destroyed. Including the Blackburne Airport shutting down.
The damage to transport links and businesses unable further economic development in that area. As it has to recover first.



4 marks. 10 settlements have been destroyed (1) this causes them to be homeless and move to the Northern zone (1). Economic decline in the Exclusion zone (1) as damage to transport led to businesses unable to 'grow' (1).

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

Suggest **two** long-term impacts of the volcanic eruption on people.

You **must** refer to the resource in your answer.

(4)

1 People might lose their homes and ~~to~~ not have a place to go,

2

1 mark. People may lose their homes (1).

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



Suggest **two** long-term impacts of the volcanic eruption on people.

You **must** refer to the resource in your answer.

(4)

1 Destroying of settlements and houses in Figure 3a, all settlements closest to volcano are destroyed or abandoned.

2 Closing of facilities and jobs in figure 3a. Airport closest to volcano is closed.



2 marks. Destroyed houses (1) - the development just repeats the initial point so is not awarded further credit. Airport closest to the volcano closed (1) - The development needs to be clearly linked to a definite long-term impact on people which requires more than just 'closing of jobs'.

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

Suggest **two** long-term impacts of the volcanic eruption on people.

You **must** refer to the resource in your answer.

(4)

1 Houses destroyed: lava would burn or melt any houses in its path, resulting in thousands being left homeless and unable to rebuild.

2 Pyroclastic flows are clouds of hot gas and ash which are fatal to people. This is what happened in Pompeii, which is still uninhabitable now.

2 marks. Houses destroyed (1) resulting in people being made homeless and unable to rebuild (1) - the idea of taking a long time or unable to build/find a home was credited as a long-term impact on people of buildings being destroyed. The second point is not relevant to the resource shown as there is no evidence of people being killed or pyroclastic flows and so no credit is awarded for this point.

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

Suggest **two** long-term impacts of the volcanic eruption on people.

You **must** refer to the resource in your answer.

(4)

- 1 One Impact is all the area 5km to each side of the volcano has become uninhabitable. This means that houses, airports and even the capital city had to be moved to the safer North zone
- 2 Another impact is existing settlements becoming more crowded as people move from the uninhabitable south to the safer north, communities become more crowded and hence more fragile.



3 marks. 5 km each side of the volcano became uninhabitable (1) which meant capital city had to be moved to the safer Northern zone (1) - this development is sufficient to demonstrate a long-term impact on people. Existing settlements becoming more crowded as people move from the south (1) the link to the resource is duplicated here 'south is uninhabitable' meaning it could not be double credited limiting this second point to 1 mark.

Question 3(d)

Most candidates were able to correctly identify the country at risk from the tropical cyclone shown in the resource.

Question 3(e)

This item required candidates to explain two causes of tropical cyclones. Historically, candidates have found it more challenging to explain the causes of a cyclone rather than the factors responsible for their distribution. This was evident in this question, where some candidates had described the distribution rather than explain a causal factor. However, many candidates were able to explain two causal factors and there was an improvement in their explanation of both wind shear and Coriolis force this series.

(e) Explain **two** causes of tropical cyclones.

- (4)
- 1 Warm seas of at least 27°C as these tropical cyclones need the warmth for energy to keep moisture to keep the cyclone moving.
 - 2 ~~Low wind shear~~ Tropical cyclones need extremely high wind speeds of at least ~~120 mph~~ 90 mph and they all have to be in the same direction.

1 mark. Warm seas of at least 20 degrees (1) - warm moisture is not specific enough to give the idea of evaporation or rising air which is required to be awarded the develop mark for this point. The second point is too poorly expressed for credit as they cause high winds but do not need high winds to form.

(e) Explain **two** causes of tropical cyclones.

(4)

1 ~~the~~ Temperature. If the temperature of the sea are higher than 26/27 °C. The tropical cyclones can happen.

2 ~~the ITCZ at the~~ The wind shear. If not there is not or little bit wind shear, tropical cyclone can happen.

2 marks. Temperature of the sea higher than 27 degrees (1) - there is no explanation of why this water temperature can cause a cyclone. Little wind shear (1) - again there is no explanation for why this can lead to the formation of a cyclone.

(e) Explain **two** causes of tropical cyclones.

(4)

- 1 High wind-speed may cause tropical cyclones as the energy from the high intensity of the wind speed creates hurricanes.
- 2 Storm surges will provide enough heavy rainfall for tropical cyclones to occur.

0 marks. This response focuses on hazards caused by a tropical cyclone and not factors causing tropical cyclones and so was not awarded credit.

(e) Explain **two** causes of tropical cyclones.

(4)

- 1 When sea temperatures exceed 26°C , it causes warm air to rise generating low pressure which triggers the start of a cyclone. Hot water vapour rises, making clouds which develops into a storm.
- 2 When the level of wind shear is just right it causes a cyclone to start spinning and moving down to the Earth's Coriolis effect (spinning).

3 marks. Sea temperatures exceeding 26 degrees (1) causes warm air to rise (leading to low pressure) (1). Moving due to Earth's Coriolis force (1) - the initial point about wind shear is too vague for credit and is a separate causal factor, the development of Coriolis effect is not detailed enough for the second mark.

(e) Explain **two** causes of tropical cyclones. ^U

- 1 Tropical cyclones may form ^{in seas above 26.5°C (4)} when there is a thick layer of warm moist air as this causes the air to rise rapidly and leave an area of low pressure.
- 2 Tropical cyclones also form due to the Coriolis force which is due to the Earth's rotation and so states the rotation of the small storm events to form a large storm event with strong wind speeds.



4 marks. Seas above 26.5 degrees (1) causes the warm, moist air to rise (1). Coriolis force (1) due to the Earth's rotation (1).

Question 3(f)

Candidates were required to explain one reason why people live in areas at risk from tropical cyclones.

It is often these 3-mark questions which students find most demanding as they often find it challenging developing one point in sufficient depth to be awarded 3-marks. Historically, candidates have performed well on questions focused on reasons why people live near hazards. Where candidates did not achieve full marks this was because they explained a reason clearly linked to volcanic hazards rather than tropical cyclones. Or because they wrote about poverty which was credited but is more challenging to develop sufficiently to gain the third mark as poverty and 'don't have enough money/can't afford to move' are the same idea and cannot be double credited.

(f) Explain **one** reason why people live in areas at risk from tropical cyclones.

(3)
one reason could be optimistic thinking.
they think that the hazard won't happen
to me.



1 mark. Optimistic thinking/think it won't happen (1)

(f) Explain **one** reason why people live in areas at risk from tropical cyclones.

(3)

Because of the education the people have. If people are trained and know what to do when a tropical cyclone occurs then this will decrease the deaths and injuries as people now have safe places and strategies to be ~~safe~~ safe.



3 marks. Education of people (1) means they are trained and so know what to do when a cyclone occurs (1) which decreases injuries as there are strategies to keep people safe (1).

(f) Explain **one** reason why people live in areas at risk from tropical cyclones.

(3)

One reason people do this is because
many people don't believe that something
like that would happen to them so
they just ignore any warnings.



2 marks. People don't believe that something like that will happen (1) and so ignore any warnings (1).

Question 3(g)

These 8-mark extended writing questions candidates are required to blend their use of the resource (AO4) with their own knowledge and understanding of the issue presented (AO3), therefore they are not case study questions, rather they require the candidates to apply their geographical understanding to the context shown in the resource.

In this instance candidates were required to study Figure 3c, a map showing the location of the epicentre and severity of ground shaking for earthquakes in two different countries and a fact file of physical factors and impacts.

Candidates were able to access Figure 3c and describe the contrast between the two examples. The focus of this question was on the influence of physical factors on vulnerability and some candidates were able to formulate strong arguments for why the impacts were less despite 'worse' physical factors.

The command word 'analyse' needs to be addressed to achieve full marks and many candidates found this challenging as there was often minimal judgement demonstrated in candidate responses as they often remained descriptive.

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

Analyse the impact physical factors have on a country's vulnerability to earthquakes.

You **must** refer to the resource in your answer.

(8)

Figure 3c shows the characteristics of two earthquakes and selected impacts of contrasting countries. Figure 1c shows that Japan's Earthquake, which took place on the 1st of January 2024, had a magnitude of 7.5 whilst Morocco's earthquake, which took place on the 8th of September 2023, had a magnitude of 6.9. Figure 3c shows that Japan's earthquake had a focus depth of 10km ~~or~~ while Morocco's earthquake had a focus depth of 19km. In Figure 1c, it is shown that Japan's earthquake had resulted in 300 deaths whilst Morocco earthquake resulted in 3000 deaths.

0 marks. Although, this candidate has made an attempt to engage with the resource they have simply lifted the text with no alterations and credit is not awarded for purely direct lifts from the resource.

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

Analyse the impact physical factors have on a country's vulnerability to earthquakes.

You **must** refer to the resource in your answer.

(8)

- Figure 3c Shows that ~~Japan~~ after earthquake occurred in Japan there were 500 deaths.
- According to figure 3c after earthquake occurred in Morocco September 8 2023 there was a death of 3,000 people
- In Figure 3c Japan's earthquake in 1 January 2024 it had lower people displaced of 62,000 compared to Morocco's earthquake having 500,000 people displaced
- Japan in Japan after the earthquake took place it had a total cost of damage of 17.6 billion ~~don~~ US dollars.
- In the Case Study it shows that there were a lot of impact of physical factor of people losing their homes losing family

and friends losing their house due to an
earthquake.

1 mark. This response gains a basic AO4 mark as most of the response is direct lift with the exception of 'it had a lower people displaced compared to Morocco'.

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

Analyse the impact physical factors have on a country's vulnerability to earthquakes.

You **must** refer to the resource in your answer.

(8)

We can see that ~~in~~ between the two country the big difference ~~of~~ of vulnerability and access to safety. We know in Japan earthquake is likely to happen ~~at~~ anytime which make them be prepared if one happens. However in Morocco is a developping country that is rarely gonna have a earthquake so they are less prepared. Japan earthquake in 2024 made 500 death, 4,500 houses destroyed, 62,000 people displayed at an area of very strong earthquake, practerely next to the epicenter where it severe. However Morocco in 8023 had 3,000 death. 2500 more than Japan, 39,700 house destroyed, 55200 more than Japan. lastely 500,000 people were displaced, 438000

more than Japan when the earthquake hit ~~Mara~~ Marrakech was Moderate so less stronger than Japan. So we can say that Japan was prepared with special building, specific protocol, receiving aid quicker than Morocco. With less damage but near the epicenter but Morocco more damage ~~with less~~ but far away from the epicenter so we can say that Morocco wasn't prepared and didn't educate enough people and also so the economic had less resources.

3 marks. This response works through the data for Japan and then Morocco with an idea linked to level of preparation/development at the start and repeated at the end to demonstrate stronger AO4 and a basic AO3 idea to reach the top of level 1.

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

Analyse the impact physical factors have on a country's vulnerability to earthquakes.

You **must** refer to the resource in your answer.

(8)

Figure 3c shows how the earthquake in Japan had a higher magnitude of the earthquake but a lower impact compared to Morocco. Figure 3c shows how the earthquake in Japan happened next to the coast, and not in the center. This would reduce the damage as ^{the number of} people at the coast is less compared to the center. Whereas, the earthquake in Morocco was ~~not~~ within the country where one might find a high population. Japan's earthquake was from a destructive plate boundary, which is when a plate of higher density subducts underneath the less dense one. The figure would indicate that this had a lower impact compared to the conservative plate boundary earthquake. The epicenter of Japan's earthquake was next to the coast which is why a tsunami formed. Tsunamis form when the aftermath of an earthquake occurs. As the epicenter of the Moroccan earthquake was inside no tsunami formed. The time also matters as Japan's earthquake was almost midday, meaning people could evacuate easily whereas, Morocco's earthquake was at night meaning people were sleeping and not aware; increasing the casualties.

Level 2 - 4 marks. This response focuses more on the physical factors which is the focus of the question and demonstrates some secure understanding of the role of plate boundaries and time of day in influencing the vulnerability. A wider range of factors needs to be considered to move higher into level 2.

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

Analyse the impact physical factors have on a country's vulnerability to earthquakes.

You **must** refer to the resource in your answer.

(8)

Figure 3c shows 2 different earthquakes as well as their characteristics and impacts.

One physical factor affecting a ~~country's~~ country's vulnerability is the distance of the earthquake from main cities. In both countries, 2 main cities were affected as the earthquake occurred relatively close to them. This can increase the country's vulnerability as in the cities, population is concentrated, increasing the risk of people dying like shown in the figure.

Another factor would be the type of ~~plate~~ ^{boundary} that caused it. In Japan, the earthquake originated in a destructive boundary while in Morocco it originated in a conservative boundary. Normally, destructive boundaries are more ~~likely~~

dangerous as the oceanic plate is denser than continental plates, allowing it to build more pressure and produce a ~~stronger~~ stronger earthquake. This is shown in figure 3c as Japan's earthquake had a 7.5 magnitude unlike Morocco's which had a 6.9 magnitude.

Another factor would be infrastructure. Japan is one of the most developed countries and is able to afford high quality technology and materials to reinforce their homes and protect them as well as building bunkers for people. This reduces a lot the amount of buildings destroyed and victims. This is shown as although they had the stronger earthquake, they have less victims and homes destroyed ~~than~~ than Morocco who isn't able to afford these (Total for Question 3 = 25 marks)

defences due to being underdeveloped. **TOTAL FOR SECTION A = 50 MARKS**

Level 2 - 5 marks This response has three ideas to suggest why vulnerability is higher/lower linked to the type of plate boundary, the proximity to a city and the type of infrastructure. There is a simple judgement at the end of the response identifying that although Japan had the higher magnitude it did not have the most severe impacts. There are links to the resource throughout the response showing some balance between AO3 and AO4. To reach the top of the level more depth of understanding would be required.

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

Analyse the impact physical factors have on a country's vulnerability to earthquakes.

You **must** refer to the resource in your answer.

(8)

Figure 3c displays the varying impacts that physical factors (such as plate boundaries and earthquake strength) has on the vulnerability of both Japan and Morocco.

One physical factor that Figure 3c displays is that Japan is situated on a destructive plate boundary, whilst Morocco is situated on a conservative plate margin. ~~A destructive~~ These plate boundaries commonly cause earthquakes, therefore increasing the vulnerability of the countries located on them. Figure 3c also displays the number of houses destroyed for each country, with Japan having 4500 destroyed, whilst Morocco has 59,700 destroyed. This is due to the epicentre of the Moroccan earthquake is located on the land, whilst most of the Japanese earthquake affects the coast rather than the land.

SS, 200
Therefore, more houses were destroyed in Morocco.

~~Another physical factor is~~ Another physical factor shown in Figure 3c is the fact that the Japanese earthquake resulted in a ~~tsunami~~ tsunami, whereas the Moroccan earthquake didn't.

In theory, this should cause more damage to Japan, because tsunamis increase in ~~the~~ height nearer the shore, flooding low lying land in particular. However, this tsunami didn't have as much of an impact because Japan is a ~~developing country~~ developed country that will have a more advanced evacuation system and flood defences in place in comparison to Morocco.

One other physical factor

(Total for Question 3 = 25 marks)

that impacts a country's vulnerability is the ~~major~~

TOTAL FOR SECTION A = 50 MARKS

distance between the epicentre and a large city. For instance, Figure 3c shows that the Moroccan earthquake is 72 km from Marrakesh, whilst the Japanese earthquake is 30 km from Wajima. This is important because the closer the proximity of the earthquake, the higher the exposure + therefore vulnerability. This is exemplified by the total cost of damage in Japan, which Figure 3c displays is \$17.6 billion, because it is only 30 km away from a city, therefore damaging more infrastructure.

In conclusion, I believe that physical factors such as plate boundaries, tsunamis and epicentres have the most impact on a country's vulnerability to earthquakes.



Level 3 - 8 marks. This response works through three different factors which can influence vulnerability and links these to accurately selected evidence from the resource. Each factor has a depth to its explanation and there is a clear judgement in the language used throughout the response and in their concluding statement which is sufficient to reach the top of level 3.

Question 4(a)

Please note that the comments made on Q.4 also apply to Q.5 and Q.6 as the questions are in parallel and the resources very similar. Section B contained short answer questions on familiar fieldwork and the extended 8-mark response on unfamiliar fieldwork this series.

For this question candidates needed to describe one sampling strategy they used during their data collection. Most candidates were able to correctly identify a sampling strategy. Some candidates developed their response by giving an advantage of the strategy eg less bias rather than meeting the demand of the command word and describe how they carried out the strategy. A minority of candidates stated a sampling strategy and then developed this by describing a different sampling strategy for example 'stratified by collecting data every 10 m'. It is important candidates know the different command word demands to ensure they write a response to the question posed.

4 Investigating river environments

You have carried out a geographical enquiry as part of your work on river environments.

Title of geographical enquiry

Investigating river bogathi's depth and speed
which is located in Nairobi-Kenya near in Nairobi west.

(a) Describe **one** sampling strategy used to select your sites for data collection.

(2)

Systematic Sampling strategy is where people are allocated according to the system in order so that they can get true and fair result by using systematic sampling because groups are places according to the system.



1 mark .Systematic sampling (1) - the development is an explanation of an advantage of carrying out this type of sampling rather than describing how the strategy was carried out.

4 Investigating river environments

You have carried out a geographical enquiry as part of your work on river environments.

Title of geographical enquiry

Change in velocity through the ~~the~~ rivers
on course.

(a) Describe **one** sampling strategy used to select your sites for data collection.

(2)

Systematic sampling was used, we picked a ~~site~~
site, then picked the next ones 200m from the
first.



2 marks. Systematic (1) used to pick a site 200 m from the first (1).

Question 4(b)

Please note that the comments made on Q.4 also apply to Q.5 and Q.6 as the questions are in parallel and the resources very similar. Section B contained questions on both familiar and unfamiliar contexts this series.

This item required candidates to explain one quantitative method they chose for their data collection. Most candidates gained at least 2 marks for this question, as they identified a variable and correctly outlined how they carried out the method. To meet the explain command word candidates needed to go beyond describing the method and clarify a reason why they were collecting this data in this way. Less candidates were awarded the 3rd mark as they often only described the data collection method. A very small number of candidates wrote a response linked to a qualitative data collection method and these were not awarded credit.

(b) Explain **one** quantitative method you chose for your data collection.

(3)

Bar charts, scattergraph, line graphs were used to visualise the river. Line graphs help us view the river channel and its width and depth. Other graphs help us find a mean and pick out anomalies in our analysis.



0 marks. This response is answering a question on a different part of the enquiry process rather than explaining a quantitative data collection method and so was not awarded credit.

(b) Explain **one** quantitative method you chose for your data collection.

(3)

We used Spearman's rank to create a mathematical link with our data. Which provided us a 99% chance that ~~we~~ our results ~~had~~ were accurate.



0 marks. Although it is pleasing to see candidates' knowledge going beyond the specification and having awareness of more complex statistical techniques this is a different part of the enquiry process than is being assessed in this question and so was not awarded credit.

(b) Explain **one** quantitative method you chose for your data collection.

(3)

We measured ~~width~~ width at bankful using a tape measure that measured in cm.



1 mark. Measured width at bankful (1) - there is no credit for just stating a piece of equipment used to carry out the data collection technique.

(b) Explain **one** quantitative method you chose for your data collection.

(3)

We used ^a quantitative method for collecting velocity of the river water.
We used a meter rule, a stopwatch and an orange to find the
velocity of the river in m/s. We timed the orange from a starting
point to a point 5m away in order to find the distance per
time period.



2 marks. Velocity of river (1) by timing how long it took the orange to travel 5 m (1) - this response does not have the explanation for why this was done which is required for the third mark.

(b) Explain one ^{number} quantitative method you chose for your data collection.

(3)

one quantitative method we used was collecting the depth of the river. We did this by placing a metre stick perpendicular to the direction of flow on the river bed 5x and averaging our results. This was useful because it allowed us to see if depth had any effect on discharge.



3 marks. Depth of river (1) by using a metre stick to measure the depth at 5 points and averaging (1) this was useful as it allowed us to see if depth had any effect on discharge (1).

Question 4(c)

Please note that the comments made on Q.4 also apply to Q.5 and Q.6 as the questions are in parallel and the resources very similar. Section B contained questions on both familiar and unfamiliar contexts this series.

Candidates were required to explain why two of their data presentation techniques were appropriate for their data collected. Candidates need to be clear on the difference between why a data presentation technique is appropriate and an advantage of the generic data presentation strategy. The focus of this question was on why a line graph is appropriate for the data being presented not simply that a line graph shows a trend/pattern. Candidates were awarded a mark for identifying the variable being presented on the data presentation technique identified, as this is required to determine whether the technique is correct for the data being shown and then a development of this. Candidates were not awarded credit for simply identifying a data presentation technique.

On some occasions candidate responses focused on data analysis techniques such as working out a mean. These were not awarded credit as they were responses focusing on a different stage of the enquiry process.

(c) Explain why **two** different named data presentation techniques were appropriate for your collected data.

(4)

Name of data presentation technique 1

pie charts

technique 1

we presented specific information on pie charts, this was appropriate because it allowed us to see things as a whole instead of just numbers.

Name of data presentation technique 2

line graphs

technique 2

using line graphs allowed us to compare 2 pieces of number data.

0 marks. This response names two data presentation techniques and gives an advantage of each but you are unable to determine whether they were appropriate for the data being presented as no variables are identified. The focus of this question is not on benefits of the type of data presentation but whether it was appropriate for the data the candidate collected in their own enquiry.

- (c) Explain why **two** different named data presentation techniques were appropriate for your collected data.

(4)

Name of data presentation technique 1

~~we used~~ annotated pictures

technique 1

annotated pictures were appropriate because I could assess the roundness of rocks around the river, also, I could have a clearer visual aid understanding of

Name of data presentation technique 2

~~line graph~~ spearmans rank

technique 2

~~a line graph was suitable for the depth~~ spearmans rank is suitable because I could see the direct correlation between the plots.

1 mark. Annotated pictures were appropriate because I could assess roundness of rocks around the river to give a visual understanding (1) - this question did not specify whether the presentation technique had to be for quantitative or qualitative data and so qualitative data presentation techniques were awarded credit. However, there is no credit for stating a type of data presentation technique, so this point was awarded one mark for a basic idea that the images were appropriate as it provided a visual representation of the rocks around the river. The second point is not relevant to this question as it is about data analysis and not data presentation.

(c) Explain why **two** different named data presentation techniques were appropriate for your collected data.

(4)

Name of data presentation technique 1 ^{width}

Bar graph: Depth and ~~shallow~~ width of the River

technique 1

Bar graph, with bar graph it is easier for one to be able to understand how maybe depth and shallow width the river is, the data is accurate

Name of data presentation technique 2

Line graph: Velocity of the River

technique 2

line graph allowed us to present the velocity of the river, with this it allowed us to give more information of the velocity and the

2 marks. Bar graph to show width and depth (1) - easy to understand is too vague for the development mark which should explain why this type of graph was appropriate for the data being shown. Line graph to show river velocity (1) - the development is too vague for credit as a reason why this technique is appropriate.

(c) Explain why **two** different named data presentation techniques were appropriate for your collected data.

(4)

Name of data presentation technique 1

Box and whisker diagram

technique 1

The box and whisker diagram holds a lot of data and presents it clearly with the median and range easily accessible. This was ^{appropriate} ~~used~~ as ^{we} ~~we~~ used it for sediment size when we gathered a lot of data for.

Name of data presentation technique 2

the mirrored bar graph

technique 2

The mirrored bar graph was used for sediment shape and it was appropriate as it is easily comparable ^{to others} and shows the skew of results clearly.



4 marks - the key with this response is both variables are being presented on the correct type of graph for the data. Box and whisker diagram to present sediment size (1) which was appropriate as it allows the median/range in the data to easily be seen (1). Mirrored bar graph to present sediment shape (1) which is appropriate as it does not skew the data and can be easily computed to others (1).

Question 4(d)

Please note that the comments made on Q.4 also apply to Q.5 and Q.6 as the questions are in parallel and the resources very similar. Section B contained questions on both familiar and unfamiliar contexts this series.

For this question candidates were required to explain one reason why collecting more data can make their investigation more reliable. Candidates coped well with the demands of this question. Where candidates were not awarded full marks it was most often a result of them repeating what was already stated in the question stem which already stated collecting more data is more reliable.

(d) Explain **one** reason collecting more data can make your investigation more reliable.

(3)

By collecting more data you can find averages and rule out anomalies in your results as there are more results to compare therefore trends become clearer as well.



3 marks. Find averages (1) and rule out anomalies (1) as you can compare more data making trends clearer (1).

(d) Explain **one** reason collecting more data can make your investigation more reliable.

(3)

Because when you collect more data, the average that you produce from the data has been collected more times, reducing the risk of anomalies or skewing the data.



2 marks. The average you produce has been collected more times (1) reducing the risk of anomalies (1) - the 'collected more times' is not given the third mark as the question stem asks about more data.

(d) Explain **one** reason collecting more data can make your investigation more reliable.

(3)

Eoto Collecting more data makes the results more reliable because there are less anomalies.



1 mark. There are less anomalies (1) - the rest of the response is a repeat of the question stem.

(d) Explain **one** reason collecting more data can make your investigation more reliable.

(3)

Collecting more data will allow you us
to make our evidence more reliable since
we will have more information to tackle
any outcome of the investigation.



0 marks. This response simply repeats the question stem in two different ways without adding any further detail as to why more data makes your investigation more reliable and so was not awarded credit.

Question 4(e)

Please note that the comments made on Q.4 also apply to Q.5 and Q.6 as the questions are in parallel and the resources very similar. Section B contained questions on both familiar and unfamiliar contexts this series.

It is important to remind candidates to write their responses under the correct enquiry context, a proportion of candidates wrote coastal enquiry responses in the river enquiry and hazardous environments enquiry questions. This limited their responses as only generic statements plausible to the enquiry context being answered could be credited.

In these 8-mark extended writing questions candidates are required to blend their use of the resource (AO4) with their own knowledge and understanding of the geographical enquiry stage presented (AO3), therefore, they require the candidates to apply their geographical understanding to the context shown in the resource.

In this instance candidates were required to study Figure 4/5/6a, an annotated map showing the location of their geographical enquiry as a secondary data source for the candidates enquiry and some information about the enquiry and the enquiry question and hypothesis suggested by the students prior to carrying out their primary data collection.

The focus of this question required an evaluation of the hypothesis reached by the students in helping them to answer their enquiry question. This is the first time this stage of the enquiry process has been assessed as an 8-mark unfamiliar enquiry question. Candidates generally coped well with the demands of this question with many being able to identify clear limitations in the secondary data shown and make some level of judgement as to whether the hypothesis would be helpful in answering the enquiry question. It was the depth and breadth of the response and judgement which distinguished candidates between Level 2 and 3 responses.

Candidates are provided space to provide their geographical enquiry title. They do not receive marks for this, but it provides context for the response that follows.

To gain level 3 credit the command word 'evaluate' needs to be met which requires a concluding statement at the end of a response for full marks. Although, simply having a concluding statement does not automatically move a response into Level 3, there needs to be a range of ideas in sufficient depth to meet the demands of the level descriptors.

- (e) Study the data in Figure 4 in the Resource Booklet. It shows secondary data collected for background research to help produce a hypothesis.

Students' hypothesis: **As river depth and width increase downstream velocity will increase.**

Note: A hypothesis is a prediction or guess about what is going to happen in the students' fieldwork.

Evaluate how suitable the hypothesis reached by the students is in helping to answer their enquiry question.

You **must** refer to the resource in your answer.

(8)

~~There~~ The hypothesis reached is suitable, as it is not only her data (Primary research) but also secondary (Someone else's) meaning she has based her ~~thesis~~ off a more realistic hypothesis as it has been said ~~in~~ before.

Level 1 - 1 mark. Basic statement stating the hypothesis is suitable as it's based on secondary data.

- (e) Study the data in Figure 4 in the Resource Booklet. It shows secondary data collected for background research to help produce a hypothesis.

Students' ^{guess} hypothesis: **As river depth and width increase downstream velocity will increase.**

Note: A hypothesis is a prediction or guess about what is going to happen in the students' fieldwork.

Evaluate how suitable the hypothesis reached by the students is in helping to answer their enquiry question.

You **must** refer to the resource in your answer.

(8)

The hypothesis is a guess, so won't help in the students' fieldwork. A hypothesis isn't reliable and the students shouldn't refer to it.

Secondary data could be outdated ~~and~~ which would affect their reliability of the enquiry.

The secondary data was taken in March, which means it only represented a particular time of the year → affecting their results.

Level 1 - 2 marks. Two basic ideas linked to evidence in the resource in the second and third paragraphs which is enough to again basic AO3 and AO4 credit to move to the middle of level 1.

- (e) Study the data in Figure 4 in the Resource Booklet. It shows secondary data collected for background research to help produce a hypothesis.

Students' hypothesis: **As river depth and width increase downstream velocity will increase.**

Note: A hypothesis is a prediction or guess about what is going to happen in the students' fieldwork.

Evaluate how suitable the hypothesis reached by the students is in helping to answer their enquiry question.

You **must** refer to the resource in your answer.

(8)

The hypothesis is seen to help in answering the question. This is because ~~velocity~~ is ~~irrelevant~~ when ~~answering their enquiry question~~ does ~~a~~ not. Velocity was not shown ~~as~~ in the secondary data collection provided.

The hypothesis is ineffective as depth and ~~not~~ width of the river cannot be used to ~~calculate~~ calculate velocity. The students need to conduct a ~~diff~~ different investigation on velocity or find any secondary data collection that shows the velocity.



Level 1 - 3 marks. There is one idea with some basic development as to why having velocity in the hypothesis but not having any secondary data shown for the velocity makes the hypothesis proposed unhelpful in answering the enquiry question demonstrating sufficient AO3 and AO4 to reach the top of level 1.

- (e) Study the data in Figure 4 in the Resource Booklet. It shows secondary data collected for background research to help produce a hypothesis.

Students' hypothesis: **As river depth and width increase downstream velocity will increase.**

Note: A hypothesis is a prediction or guess about what is going to happen in the students' fieldwork.

Evaluate how suitable the hypothesis reached by the students is in helping to answer their enquiry question.

You **must** refer to the resource in your answer.

(8)

Why The hypothesis reached by the students is quite suitable as as river velocity increases it means there will be a higher level of erosion for example abrasion, attrition and hydraulic action therefore the width will increase as the faster the velocity the higher level of hydraulic action and abrasion therefore eroding the river bed and banks even more showing that river depth and width increases as well causing velocity to increase. In Figure 4 it also shows higher up the river the average depth was 0.6 m and width at 11.8 m and at the mouth it had a depth of 1 m and a much larger width of 26.9 which can be due to higher velocities. However their hypothesis also

wasn't suitable as other factors like
amount of precipitation geo geology type
will affect ~~river~~ depth and width
which ~~would be~~ river velocity not just
how large the width or depth is.



Level 2 - 4 marks. This response has one well developed idea showing some depth to their understanding of the influence of river processes on the width and depth of a river and therefore, influencing the velocity. There is a second more basic point linked to precipitation and velocity at the end of the response. There is clear evidence from the resource used throughout. There is enough depth of AO3 and frequency of AO4 to reach the bottom of level 2, a second point explained/evaluated in more detail would be required to move higher into level 2.

- (e) Study the data in Figure 4 in the Resource Booklet. It shows secondary data collected for background research to help produce a hypothesis.

Students' hypothesis: **As river depth and width increase downstream velocity will increase.**

Note: A hypothesis is a prediction or guess about what is going to happen in the students' fieldwork.

Evaluate how suitable the hypothesis reached by the students is in helping to answer their enquiry question.

You **must** refer to the resource in your answer.

(8)

*Secondary data is data collected from other sources, not by yourself.

The hypothesis reached by the student is helpful as it relates to the enquiry question which in Figure 4 is 'Does width, depth, and velocity increase downstream?' therefore it is focused on the question.

However the hypothesis was reached from secondary data, as shown in Figure 4 to be a ^{topographical} map of Romal River. Therefore the hypothesis may be less accurate as the map only shows statistics in March, and therefore does not take into account any events such as extreme rainfall that may have effect width and depth, which in Figure 4 is shown to be 0.6m² at the source and 11.8m² and 1.0m and 26.0m at the mouth.

Additionally the map used to reach the hypothesis does not show velocity, which is ~~pe~~ there is only one map used, the information on it may be incorrect as it could have been measured wrong. To improve the hypothesis the student could have used more maps from different sites, or aerial photographs or OS maps to ensure the data shown is reliable. Additionally, the student has not collected any evidence that velocity will increase downstream. There could be dams or reservoirs or other interferences in the river that could affect this. To improve, they could have ~~carried out~~ ~~priner~~ looked at newspaper articles to see if anything would affect velocity (Total for Question 4 = 20 marks)

However the hypothesis aligns with the topographic map, so it ~~is~~ is accurate based off of the map's data.

The map in Figure 4 shows a very gradual change in depth from 196m to 187m above sea level so this may not be a long enough area to sample from as this does not show much change.



Level 3 - 7 marks There are three ideas discussed in this response to evaluate the usefulness of the hypothesis posed by the students. An idea linked to a limitation of secondary data a second idea linked to only using March data which is supported by evidence from the resource. A third point linked to the fact no velocity data was collected and the issue with this variable being included in the hypothesis and a suggested improvement to the secondary data to increase the usefulness of the hypothesis proposed. There is then a judgement at the end of the response. This response has sufficient range and evaluation to reach the bottom of level 3.

- (e) Study the data in Figure 4 in the Resource Booklet. It shows secondary data collected for background research to help produce a hypothesis.

Students' hypothesis: **As river depth and width increase downstream velocity will increase.**

Note: A hypothesis is a prediction or guess about what is going to happen in the students' fieldwork.

Evaluate how suitable the hypothesis reached by the students is in helping to answer their enquiry question.

You **must** refer to the resource in your answer.

(8)

The student used multiple different sampling strategies to answer their enquiry question however not all were as suitable for their hypothesis as others.

River The ^{hypothesis is} ~~test~~ suitable due to the evaluation of all the key information needed in the question: depth, width and velocity. They saw that the river ~~velocity~~ depth and width increased down the river and how at the source the river depth was 0.6m ^{and} ~~but~~ the river width was 11.8m but at the mouth the river depth was 1m and river width was 26.9m. This suitably concurs that the river width and depth do increase downstream justifying half the enquiry question.

However the group did not research the river velocity. They assumed that if the depth and width increased and the slope of the topography decreased from 196m above sea level to 187m above sea level, that velocity would also increase. This is not necessarily the case as it did not measure the velocity or altitude of the middle course of the river. It could have become flatter which would

decrease the river velocity. Not measuring one key aspect of the enquiry question creates an invalid and unsuitable hypothesis as it is nearly an assumption having no valid evidence to support it.

Finally ~~the~~ the use of secondary data causes an invalid and unsuitable justification as they did not personally record the data. How can they make sure it was fairly and ^{repeatable} tested. There was no authority from the secondary source. It was not from a well known organisation or university deeming it futile. As we don't know if averages were obtained or if it was just one result. Furthermore the river splits in two and is affected by human interference like a water park and golf course. This could affect the velocity of the river and cause the hypothesis to be incorrect. The lack of suitable valid data really causes a weak ~~hypothesis~~. Please look below: (Total for Question 4 = 20 marks)

All in all this hypothesis is very weak and based more on theory than hard evidence and data. No suitable data for velocity was collected and the other data was secondary from an unknown source. This causes a very unsuitable justification for their hypothesis however would fit the Bradshaw model and follow most other river regimes however this can not be assumed



Level 3 - 8 marks. This response engages with the resource well to evaluate the different strands of evidence included and excluded from the candidates' secondary data. There is a detailed evaluation of the width and depth data and a judgement that this makes half the hypothesis helpful whilst not providing evidence on velocity and a discussion about why this is a limitation that weakens the hypothesis created. The second to last paragraph is a detailed evaluation of the limits of the secondary data more generally in terms of not knowing the source, date the data was collected bringing into question the reliability of the data used. There is a strongly argued conclusion clearly demonstrating why the candidate feels the hypothesis is weak.

Question 5(a)

Question 5(b)

Question 5(c)

Question 5(d)

Question 5(e)

Question 6(a)

Question 6(b)

Question 6(c)

Question 6(d)

Question 6(e)

Paper Summary

Areas for focus for next series.

Based on their performance on this paper, candidates are offered the following advice:

- Ensure candidates make specific reference to the resource shown for 4-mark questions in Section A.
- Candidates need to be confident in evaluating different stages in the geographical enquiry process not just fieldwork methods.
- Candidates need to be aware of the difference between data presentation and data collection methods.
- Candidates need to be able to explain why a particular data presentation technique is appropriate for the data being presented.
- When answering the 8-mark longer response questions candidates need to be clear on the demands of the command word 'analyse'. This requires candidates to investigate an issue by breaking it down into different components and making logical, evidence-based connections between these components. There is an expectation that judgement is made, although, this does not need to be in the form of an evaluation statement at the end of the response.
- Candidates need to recognise that the longer response 8-mark question is dominated by the AO distribution (4 marks for AO3 and 4 marks for AO4). Therefore, responses that are unbalanced or focus on one AO will be limited to a Level 1 response.
- Candidates who just lift text directly from a resource will not gain credit.
- In questions where candidates are asked to develop a single reason, it is important to ensure that the appropriate number of links in the explanatory chain are developed. The number of marks should be used as a guide. These questions usually have the command word, 'suggest' or 'explain', but may differ in depth depending on the expectation of the question.
- Candidates need to ensure they complete the correct fieldwork question; there were a number of candidates answering questions based on a coasts enquiry in both the river and hazard enquiry questions. This limited responses as marks could only be awarded for generic ideas plausible for the enquiry context being answered.
- Some candidates do not follow the instructions on the front of the exam paper and attempt to answer all questions which often results in the candidate running out of time. It would be useful to spend time with candidates to ensure they are familiar with the structure of the paper to avoid rubric infringements as there was an increase in this during this series.

Grade boundaries

Grade boundaries for this, and all other papers, can be found on the website on this link:
<https://qualifications.pearson.com/en/support/support-topics/results-certification/grade-boundaries.html>

