



GCSE

Geography

8035/1: Living with the physical environment

Report on the exam

Published: August 2024

Contents

The below table is interactive. You can press the control button click on the title of the question to go directly to that page.

Contents	Page
Summary	3
Point marked questions	6
Levels marked questions	12
Further support	47

Summary

Areas where students excelled

It was encouraging to see that most of the questions were accessible to students of all abilities. Students generally scored higher marks than previously, showing a full use of the 88 marks available, and a higher mean mark for the cohort. The wide range of marks indicates that differentiation was achieved within individual questions and across all sections of the paper. The time available for completion was also appropriate and there was evidence of high-quality scripts from centres across the country. This paper continued the progress made in recent years by assessing a wide range of content from the specification. The rubric regarding question choice was almost universally followed and there were very few scripts where students left questions unanswered.

- The multiple choice and cloze-type questions were generally accessible, and several of the low tariff questions produced favourable outcomes.
- Analysis of graphical material was encouraging as was interpretation of some maps and diagrams, such as Figure 1, Figure 4 and Figure 8.
- There was evidence of greater precision and perception when using information from photographs, for example in questions 1.10, 2.9, and 3.6.
- Students' knowledge of a broad range of issues was generally good. Many could competently show their knowledge of climate change, tropical storms, food webs, tropical rainforests and plant adaptations in extreme environments to great effect.
- More students introduced pertinent case study material in support of answers particularly where this was stated in the wording of the question, notably in questions 1.11, 2.6, 3.5, 4.5 and 5.5.
- It is pleasing to see that a large number of students are being well prepared by their centres to deconstruct 6- and 9-mark questions, with the majority attempting to address all the requirements of the questions, especially questions 1.11 and 2.9.
- Many students could write effectively about specific places, schemes and strategies, and showed understanding of tectonic processes. The level of knowledge that students demonstrated was better than in previous years and reflected the work centres have been investing in their curriculums.
- Many centres have continued to assist students to be able to understand that application requires them to use rather than reproduce the information supplied during the exam.
- More students were familiar with, and able to cope with, handling the wide variety of ways in which geographical data was presented to them.
- Mathematical abilities were a particular strength with most able to score well on the relevant questions such as questions 1.2 and 1.3,
- Higher-scoring students responded to the lower- and medium-tariff questions in ways that were concise and to-the-point, yet with sufficient development of explanation. They wrote well-structured answers to the 9-mark questions, some including an introduction and conclusion, and focused throughout on the central theme of the question. These students realised that the extended writing questions have an evaluative or discursive requirement, not just the need for knowledge and understanding of the topic, and that the evaluative comments should be substantiated. They made appropriate use of geographical terminology in the extended writing responses, managed their time appropriately and weighted their responses relative to the marks available.
- For less able students the questions enabled some engagement, with reasonable knowledge of geographical content and application of understanding to sources gaining respectable marks. Most were confident in addressing shorter responses. They generally found the numeracy skills-related questions straightforward.

Areas where students struggled

Responses across the paper were not entirely consistent, and some questions caused more issues or difficulty for students. Outcomes were similar for Sections A and B. Section C, landscapes in the UK, achieved lower average marks than expected, however.

- Basic map skills proved a challenge for many, including the description of relief and drainage or the description of coastal features. It is imperative that candidates are exposed to a range of skills in a range of contexts to make sure they are adequately prepared for these questions.
- Some wrote generic responses that lacked any place specific detail, particularly when answering questions that required exemplification such as questions 2.6, 3.5 and 3.5.
- Other students carefully wrote down rehearsed case study information, for example in question 1.11, without providing additional discussion (in line with assessment objectives).
- Understanding of physical processes was often confused, and recognition of landforms shown on photographs was limited, for instance in questions 3.6, 4.6 and 5.6. Students need to develop their understanding of physical processes beyond that of just learning definitions of terms. This is especially true of the coastal, river and glacial landforms identified in the specification.
- Some students still confused key command words e.g. explain, compare, suggest and discuss.
- A minority misunderstood geographical terms such as biodiversity (question 2.1), selective logging (2.7), abrasion (5.1) or managed retreat (3.1). Specific geographical detail or knowledge is often required to answer AO1 questions successfully.
- Some lower achieving students tended to ignore the resources provided or unselectively copied text stimuli without additional comment (questions 1.5 and 1.11).
- A large number failed to develop ideas using linked points to connect the development to the reason. A minority of students produced superficial answers showing only a sketchy understanding of the subject. Some wasted time repeating the stem of the question in their response.
- Many students failed to complete the straightforward graph task in question 2.5 despite the instruction being given at the start of the question. This format is now adopted in all questions requiring graph completion.
- Some students struggled to provide more than a basic response to questions requiring a judgement or evaluation, for example question 1.5, or failed to make a meaningful comment on the source. In AO2/ AO3 questions, students are being assessed on their ability to *apply* knowledge. Resources are provided to support assessment, and *application* of understanding within the answer is vital.
- Many students failed to provide a suitable geographical context and provided very generalised answers, for example when responding to questions 1.9 and 2.6.
- A large proportion fail to develop their basic answer to a 2-mark question. Only a single brief point was made, instead of a developed reason or explanation, e.g. questions 1.4 and 2.1.
- Answers to AO2 and AO1/AO2 questions which require explanation should include links between the ideas featured in the question. Many students do not progress beyond Level 1 in 6- and 9-mark questions because they can offer brief explanations of ideas that are not always explicitly linked to the question focus.

It was noted during the pre-standardisation meeting (where the mark scheme is finalised) that there was more than one possible valid response to question 4.2. This was unintentional, and steps were taken at the start of the marking window to ensure that no student was disadvantaged by this issue. It was decided to award 1 mark to all students for this question, and, for parity and fairness, to also award 1 mark to all students for the equivalent optional questions 3.2 and/or 5.2.

Point marked questions

1-, 2- and 3-mark questions are point marked, where a mark may be awarded where a student makes a single point and subsequent marks awarded (if applicable) where the student develops those points.

Levels marked questions

4-, 6- and 9-mark questions are levels marked where the response is holistically marked against the relevant assessment objectives, given a level and mark awarded within that level.

Assessment Objectives (AOs)

AO1: Demonstrate knowledge of locations, places, processes, environments, and different scales (15%).

AO2: Demonstrate Geographical understanding of concepts and how they are used in relation to places, environments and processes and interrelationships between places, environments, and processes (25%).

AO3: Apply knowledge and understanding to interpret, analyse and evaluate geographical information and issues to make judgements (35%, including 10% applied to fieldwork context(s)).

AO4: Select, adapt and use a variety of skills and techniques to investigate questions and issues and communicate findings (25%, including 5% used to respond to fieldwork data and context(s)).

Point marked questions

Multiple choice questions – MCQs

Areas of success.

Nine MCQs were set on this examination paper. Six were skills questions addressing AO4, based on a table, map or graph stimulus, and three were knowledge-based AO1 questions. The skills questions were generally answered successfully, but a significant proportion of students failed to respond to the definition-type questions accurately.

In **question 1.2**, students made good use of Figure 2 to calculate the mean volume of Arctic Sea Ice correctly.

In **question 1.7** the majority could ascertain from the map the relevant plate movements. However, a sizeable minority misinterpreted the information and thought that the plates were moving side-by-side along a conservative or passive margin.

Responses to **question 2.5** were generally correct, and even if students didn't complete the graph in 2.4, they selected the right answer in question 2.5.

There will always be a few questions that require students to perform a calculation (AO4). It is essential that they have a calculator with them. It is also important to read the question carefully.

Areas of challenge

Some of the knowledge-based questions (AO1) were answered less successfully.

In **question 3.1** a significant proportion of students couldn't select the correct definition (option A) and thought that managed retreat referred to the process of building up and restoring beaches (option D).

In **question 4.1** many students didn't realise that steep slopes are most likely to cause river levels to rise rapidly, with over 40% identifying gentle slopes or forested land as a major factor.

Question 5.1 was answered more accurately; the majority of students identified option C as the correct answer.

Centres should spend time reviewing the specification and live papers to ensure that they are familiar with key vocabulary which is being used in the questions, including geographical terms, concepts and processes.

Short answer questions – 1-, 2- and 3-mark questions

Qualities seen in more successful responses

These low tariff questions can target any of the 4 assessment objectives. Of the 18 questions in this category, one targets AO1, three AO2, two AO3, and twelve AO4. The shorter mark questions tend to test key word recognition, understanding of concepts, geographical skills and mathematical techniques.

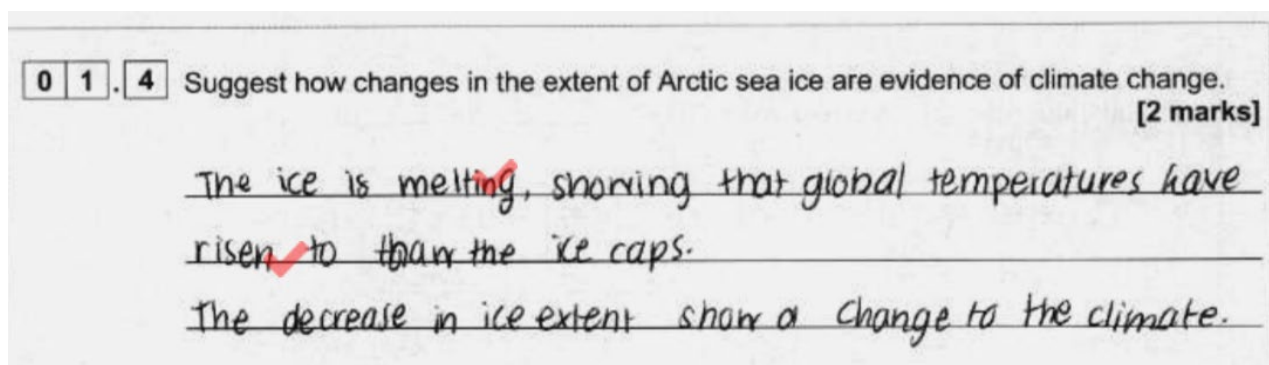
Question 2.2 (AO1) (1 mark)

This had a high facility index. The most common response, deforestation, was chosen by the vast majority of students, but a range of other answers were seen, including loss of habitat, climate change, hunting and poaching, and the effects of invasive species.

Question 1.4 (AO2) (2 marks)

This required understanding of the link between the reduced extent of ice and climate change. Some simply described the changes, rather than focusing on the reasons. However, many did indicate the rising temperatures/global warming leading to ice melting, which was creditworthy for 2 marks. Others gave far more explanation than was required, and provided other forms of evidence, such as ice cores, that were not connected to the size of the ice cap.

The majority of answers were similar to this example, making the link between global rise in temperature and melting of Arctic Sea ice. 2 marks awarded.



Many of the skills-based questions had successful outcomes, particularly those requiring mathematical calculation, photo interpretation and other types of visual stimulus.

Question 1.3 (AO4) (1 mark)

This required students to calculate the difference in volume of Arctic Sea Ice between two September dates. Some students misread the question and worked out the difference for April, despite the fact that the relevant month and years were emboldened; however, the majority completed the question correctly.

Question 1.6 (AO4) (1 mark)

This was successfully answered. Most students identified the plate margin as destructive (or similar creditable term), and some students simply copied the names of plates from the map. Some hedged their bets with terms such as 'deconstructive'. It is important to be aware of tectonic processes and characteristics of plate margins.

Question 1.8 (AO3) (1 mark)

This required application of understanding to Figure 4. Most students realised that the area Labelled Y represented a constructive margin and gave an appropriate reason for the formation of new crustal material, in terms of ridge push processes or convection currents.

In this script the student applies understanding to the map and gives a valid reason for the formation of new crust.

0 1 . 8 Using **Figure 4**, suggest **one** reason why new crust is formed at the location labelled Y. [1 mark]

Plate Margin Y is a constructive plate margin, so magma rises from the gap created and cools, forming new crust.

Question 1.10 (AO4) (2 marks) was answered successfully by the vast majority. Students were able to use the photographs effectively to identify primary effects of one of the hazards. Some gave answers that could not be deduced from the photos and a minority gave responses, which couldn't be credited.

This student was awarded 2 marks for identifying two primary effects of an earthquake, that could be deduced from Figure 6

0 1 . 1 0 Using **Figure 5** or **Figure 6**, give **two** primary effects of **either** volcanic eruptions or earthquakes. [2 marks]

1 Homes have been destroyed due to the earthquake.

2 people would've died or been injured due to the effects of the earthquake.

Question 2.3 (AO4) (3 marks)

This was a cloze procedure which most students coped with quite well. There was occasional confusion between chain and web and between consumer and producer in the first two answers.

Question 3.3 (AO4) (1 mark)

This elicited a wide range of answers, but using map evidence the majority recognised the groynes at Dawlish Warren. Similarly, most students could either identify the straightened channel or the levee/embankment in the equivalent rivers question 4.2. The great majority of students identified a feature of glaciation in response to question 5.3, most commonly, corrie, arete or corrie lake/tarn.

Limitations of less successful responses

Some of the two mark questions were only partially answered, particularly those that required a developed point.

Question 1.1 (AO4) 2 marks

Most noted the overall reduction in the extent of Arctic ice, although a minority got it the wrong way around and saw it as increasing. Many students could elaborate by describing the situation in 1981-2010 or by noting where the reduction had occurred most. The polar orientation of the map confused some who gave incorrect compass directions. A number drifted into explanation, for which there was no credit. A surprisingly large number of responses were limited to 1 mark because students failed to make use of the map to elaborate. In this type of question it is important to use the source fully, referring to specific locations or make generalisation based on map evidence. The command word was “compare” – thus, some form of difference (or similarity) between the two extents was required to achieve the 2 marks

This response just makes the basic point relating to reduction in extent of sea ice, so is awarded 1 mark.

0 1 . 1 Using Figure 1, compare the extent of Arctic sea ice in September 2020 with the average extent of Arctic sea ice in September from 1981 to 2010. [2 marks]

The arctic sea ice has decreased significantly from the 1981-2010 period compared to the 2020 period. ✓

In this second example the student recognises the reduced extent, and develops the answer using specific map evidence, so is awarded 2 marks.

0 1 . 1 Using Figure 1, compare the extent of Arctic sea ice in September 2020 with the average extent of Arctic sea ice in September from 1981 to 2010. [2 marks]

In 1981 - 2010 the ice coverage was much larger, ✓ reaching the edges of Canada and Russia. ✓ However, in September 2020, the ice coverage was a lot less, only really touching the landform of Greenland.

Question 2.1 (AO2) 2 marks

This required an understanding of one reason for high levels of biodiversity in the tropical rainforest. Some students incorrectly elected to give 2 separate reasons and others made a brief creditworthy point for 1 mark. The term biodiversity was not well understood, and some students found it difficult to explain their reasons in relation to the ecosystem. Some thought that it simply meant that there were many animals or plants. Most successful responses did relate to the nature of the climate and its impact on facilitating rapid growth, enabling the presence of many species; others looked at the layers present and the varied habitats available.

This response merits a single mark, but the explanation for high levels of biodiversity or link to a variety of species is not developed.

0 2 . 1 Outline **one** reason why there are high levels of biodiversity in the tropical rainforest. [2 marks]

The diversity can be closely tied to be humid and damp ✓ environment, perfect for many reasons.

By contrast, this response provides a reason and links the idea to high levels of biodiversity.

0 2 . 1 Outline **one** reason why there are high levels of biodiversity in the tropical rainforest. [2 marks]

Because the climate is warm ✓ and moist, providing good conditions for plants to flourish which can provide food for many animals ✓ so they may also thrive in the habitats. The high levels of rain provide water for the animals to drink and the plants to absorb.

Some basic skills were not attempted or answered poorly by a sizable number of students. This included some OS map skills.

Question 2.4 (AO4) (1 mark)

This was often left incomplete. Because students had missed some of the graph completion questions on previous papers it was decided to place the instruction above the graph this year, as indicated to centres beforehand. This was not entirely successful, as many failed to complete this straightforward task.

Question 3.4 (AO4) (2 marks)

This appeared to pose problems for a significant proportion. Most failed to use the scale to indicate the size of the coastal spit, and responses were often limited to vague descriptions such as large or wide. The better responses measured the length or width of the spit, or estimated an approximate area. Some referred to the hooked end of the spit and mentioned that it is straight on the seaward side but uneven/curved on the estuary side.

In this script the student describes both the size and shape effectively, using map evidence.

0 3 . 4 The area labelled X shows a coastal spit.

Using **Figure 14**, describe the size and shape of the spit.

[2 marks]

Size It is long ✓, at around 2.25 km long and 0.5 km wide at the widest point.

Shape Mostly straight ✓ across with a slight curve behind the spit, encasing a saltmarsh

Question 4.5 (AO4) (2 marks)

This question also showed much variation in the quality of answers. The terms relief and drainage in relation to OS maps are not clearly understood, even with the short definitions provided, and many misinterpreted what was required. Some incorrectly thought that the land was steep, despite the absence of contours, and a number thought that the channels were there for irrigation. Some drifted into description of human features. Better responses indicated that the land was flat, low-lying, with a spot height of 2 metres, and that there were several straight drainage channels, including Branston Delph.

In this example the student gains a mark for description of relief only. The second part is not relevant.

0 4 . 4 Using **Figure 16**, describe the relief and drainage shown in grid square 0870. [2 marks]

Relief (height and shape of the land) The height of the land is low and sloping but gently (not steep).

Drainage (water features) has embankments around lampath (NC)

In this second response there is credit for both parts of the question.

0 4 . 4 Using **Figure 16**, describe the relief and drainage shown in grid square 0870. [2 marks]

Relief (height and shape of the land) relatively flat land

Drainage (water features) water drains into the Branston Delph

Question 5.5 (AO4) (2 marks)

Many identified the steep sides of the valley but comparatively few referred to the flat valley floor or the U shaped valley. Some thought that they should be describing the overall longitudinal shape of the valley, rather than the cross section, and most measured the distance between X and Y, which was credited.

The student in this response describes the valley shape and measures the whole distance X-Y. This is awarded 2 marks.

0 5 . 4 Using **Figure 18**, describe the shape of the valley and measure the width of the valley floor between points X and Y. [2 marks]

Shape of valley U-shaped valley with wide, flat bottom where ribbon lake has formed in glacial trough

Width of valley floor 1400 m

Levels marked questions

4-mark questions

These questions have two levels of response and can assess a variety of combinations of assessment objectives.

In this examination, a 4-mark resource based question appeared in question 1 (addressing AO2 and AO3), and in optional questions 3, 4 and 5 (addressing AO1 and AO2).

Qualities seen in more successful responses

Question 3.5 (AO1, AO2)

The best answers focused on a specific coastal area, such as Lyme Regis, Christchurch, Minehead, Mappleton or Hornsea and considered both the positive impact of groynes for example in the process of the building up of beach sediment and the positive effect on tourism or the reduced risk to infrastructure and contrasting this with the negative impact on beaches further downdrift, often referring to terminal groyne syndrome. They could fully explain how the management scheme works to protect the coastline, but in addition considered their flaws with specific geographical support.

In contrast, a number of students failed to reference their response to an actual scheme and instead simply wrote about the general effects on hard and soft engineering. Place specific knowledge was the discriminator here between L1 & L2. Others focused on how they worked rather than their effects. In some responses the area quoted was vague, such as 'the Dorset coastline' or 'Holderness'. A few took their cue from Dawlish Warren but were not familiar with the specific impacts of coastal management here. Some answers contained misconceptions, for instance the idea that groynes prevented longshore drift rather than preventing sediment being removed by longshore drift, or the notion that that putting groynes in one location would increase longshore drift in another. A few weaker responses confused coastal management with river management and so selected an inappropriate exemplar.

Although this response names an example, the points made are limited and the effects are not stated clearly. It is awarded Level 1 2 marks.

0 3 . 5 You have studied a coastal management scheme in the UK.

Explain the effects of the scheme. [4 marks]

On the holderness coastline, Mappleton have a ~~erosion defense~~ defence coastal ~~manag~~ ~~screen~~ management scheme. Rock walls and Groynes have been put in place which reduces the amount of erosion in mappleton, however, it causes more issues and erosion further south of mappleton.

L1

By contrast, in this response, the student names an area with coastal management hard engineering strategies in place and explains the effects clearly. Clear knowledge (AO1) and understanding (AO2). The answer is awarded Level 2 4 marks.

0 3 . 5 You have studied a coastal management scheme in the UK.

Explain the effects of the scheme. **[4 marks]**

EG

In minehead, hard management engineering methods such as 0-bm high sea walls can absorb the energy of waves, ~~pre~~acting as a barrier and protection against erosion of the coastline. The addition of 4 groyne~~s~~ was also helped to stop long shore drift sediment from eroding more of the coastline by abrasion by collecting on one side of the groyne. Other hard engineering management methods include gabions and rock armour; with the rocks being able to absorb wave energy and prevent coastal erosion which could otherwise ~~add~~ endanger homes on the coastline as they are at higher risk of collapsing.

L2

Question 4.5 (AO1, AO2)

Students with a clear understanding of their place specific study were able to successfully answer this question. The best responses focused on how and why a river management scheme was needed in the context of a named exemplar, most commonly the River Tees, Jubilee flood relief, Boscastle or Banbury. Some students linked the question to the dredging of the river after the Somerset floods. There were some excellent accounts of specific schemes, showing specific geographical knowledge as well as clear understanding of the way the scheme was implemented.

However as with question 3.5, general comments about an unspecified scheme were abundant. An overview of river management strategies was provided, including both hard and soft engineering approaches, but the response was not tailored to a specific place. Some students failed to focus on the key commands and ended up discussing the effects with some even referencing their answer to a coastal management scheme, for which there was no credit.

This response names an example and attempts both parts of the question but the points made are basic. There is limited knowledge (AO1) and understanding (AO2). Level 1 2 marks.

0 4 . 5 You have studied a flood management scheme in the UK.

Explain why the scheme was needed and how it works. [4 marks]

The River Thames ^{EG} in London put up flood barriers either side of the river in order to prevent flooding. The open and close ~~an~~ when flooding occurs to protect people and buildings. It is planned to be made even taller in the next few years. The River Thames also has been straightened to stop it from ~~receding~~ bending and stay away from buildings.

This second response shows accurate geographical knowledge (AO1) and a clear geographical understanding (AO2) of the features of a flood management scheme in Carlisle, and why the scheme was needed. Explanations are developed. Level 2 - 4 marks.

0 4 . 5 You have studied a flood management scheme in the UK.

Explain why the scheme was needed and how it works. [4 marks]

The Carlisle flood management scheme was needed after the 2005 floods, where the water rose 1m above the defences built in 1968. There were 70 buses lost at a price of £3 million, so it was needed to prevent a future economical issue. 2 pumping stations were ~~even~~ built to reduce flooding, alongside 6.3 Km of embankments built to help prevent flooding from affecting ^{and damaging} the city. 2 flood basins were also built to help excess water have other places to go, and culverts were also built.

L2

Question 5.5 (AO1, AO2)

This question was a good discriminator. Some excellent answers demonstrated a clear understanding of the attractions to tourists in a named glaciated area, usually the Lake District, Snowdonia or the Cairngorms. They described the physical attractions of glaciated mountainous areas, providing opportunities for walking, climbing, mountain biking, camping, as well as striking views and physical challenges. Many also included reference to the human attractions in a balanced account of the selected area.

However, other students were limited to generic statements about the Lake District having 'beautiful landscape', where people go walking, with few place-specific details. A misconception from some was that people go to see the glaciers in the Lake District, clearly not understanding they aren't there. Some even gave detailed answers on Svalbard, or glaciated areas in France and elsewhere.

In this response the student fails to identify a glaciated upland area and just gives some general attractions that could apply to any. The answer demonstrates limited knowledge (AO1) and basic understanding (AO2) of the attractions for tourists in glaciated upland areas. Level 1 - 2 marks.

0 5 . 5 You have studied a glaciated upland area in the UK.

Explain why this area attracts tourists. [4 marks]

The mountainous landscape attracts walkers and sightseers as the remote ~~lands~~ location and amazing views are displayed on the highest peaks. The area is secluded from development and is all natural which could be an escape for people.

L1

In the following response a named example is identified and specific attractions are outlined. There is accurate geographical information about the Lake District. The student shows accurate geographical knowledge of a glaciated area used for tourism (AO1) and demonstrates clear understanding of the attractions for tourists (AO2). Level 2 - 4 marks.

0 5 . 5 You have studied a glaciated upland area in the UK.

Explain why this area attracts tourists.

[4 marks]

For example an area like the lake ^{EG} district can attract visitors with its unique activities like zip lining, paddle boarding on lake Windermere and more. In fact tourists spent £1000 million in the lake district in 2011 and there are many nature pathways to walk along to see the scenic environment. Furthermore towns like Ambleside include tourist attractions like the crystal shops and opportunities to view the vast lakes.

Extra space On top of this many can visit Beatrix Potter's house which attracts many children and families. But the majority of people **L2** travel to glaciated areas like the lake district for the scenic views and atmosphere.

Limitations of less successful responses

Question 1.5 (AO2, AO3)

The instruction was 'do you agree?', so responses tended to make a judgement about the role of international agreements in managing climate change, making use of Figure 3. Alternatively, responses could briefly explain both sides of the argument and debate the pros and cons of international agreements. Despite the resource, some struggled with the international element of the question and indeed the agreement aspect too, often perceiving that the decisions were legally binding. Aid was sometimes seen generically and not linked to climate change.

However, some had very good discussion regarding the global nature of the problem and the greater effectiveness if countries work together. A number focused on the idea that the poorest countries are affected most by climate change, even though their emissions are much lower, and they may need international support to mitigate the worst effects or to adapt to climate change. Quite a few focused on the fact that many countries have opted out from agreements and that they have been watered down. The best showed an awareness of the need for cooperation and made use of the information given, especially linked to fossil fuels, provided good support and wrote in an evaluative way.

In this basic response the student makes a judgement and gives a reason without direct use of the source. The answer shows a limited understanding of the role of international agreements (AO2) and limited application of knowledge and understanding to Figure 3 (AO3). Level 1 - 2 marks.

0 1 . 5 'International agreements are essential for managing climate change.'

Do you agree?

Explain your answer. Use **Figure 3** and your own understanding. [4 marks]

I strongly agree with this statement ~~as~~ that "international agreements are essential for managing climate change." This is because, climate change is a global issue and so by working together countries can help tackle this environmental challenge. If only one country helped fight climate change, Extra space not much difference would be made.

AO3

L1

In relation to the AO3 marks, the command "Do you agree? Explain your answer" required students to write an argument which addressed the question. It also required students to write a logical answer where the argument presented makes sense and is supported by the evidence presented. In this very thorough response, the student applies understanding to all parts of Figure 3 and develops ideas relating to each element. A balanced argument is made, and the student adds their own understanding (AO2), giving precise details about mitigation strategies and the Paris agreement. Level 2 - 4 marks.

0 1 5 'International agreements are essential for managing climate change.'

Do you agree?

Explain your answer. Use Figure 3 and your own understanding.

[4 marks]

Figure 3 shows that an agreement has been made to reduce the use of fossil fuels. As fossil fuels are a major

an excessive amount
contributor to climate change (as burning releases greenhouse gases)
leads to the enhanced greenhouse effect), using less of them would
be very beneficial, especially on a global scale as this would be
even more effective. However, some countries (i.e. LICs) may not
be able to afford expensive mitigation methods to combat climate
change despite being agreed on by other countries. ^{despite} However, this
Extra space figure 3 mentions a solution to this too as aid will
be increased to poorer countries, helping them to manage climate
change. Therefore, international agreements (like the Paris climate
conference 2015) can help to manage climate change, only if each
nation is in a viable position to do so, but there are also other
methods of mitigation which must come into play, like
alternative energy sources in place of fossil fuel

L2

In this further response, the student explains both sides of the argument and debates the pros and cons of international agreements. They assert that some of the poorest countries are affected most by climate change and will need international support to adapt to its impacts. The counterargument relating to the ineffectiveness of some agreements is stated at the end. The student demonstrates clear application of knowledge and understanding to Figure 3 in judging the critical importance of international agreements to the management of climate change (AO3). Level 2 - 4 marks.

0 1 . 5 'International agreements are essential for managing climate change.'

Do you agree?

Explain your answer. Use **Figure 3** and your own understanding.

[4 marks]

I agree with this statement because as seen ~~in~~ in figure 3, international agreements are able to

publicly broadcast any concerns about climate change and creating international deadlines and targets helps to manage climate more efficiently. These agreements are also essential as they aim to help poor countries severely impacted by climate change - this additional aid means that struggling populations are able to adapt to the impacts caused by climate change, at a quicker rate than they would without aid.

// The only downsides to international agreements are that these deadlines are not often prioritised, so are not always met, reducing effectiveness in managing climate change.

L2

6-mark questions

These questions have three levels of response and can assess a variety of combinations of assessment objectives.

In this examination, a 6-mark AO1/AO2 question was set in Section A, a 6 mark AO2/AO3 question appeared in Section B and two resource based 6 mark AO2/AO3 questions were set in Section C.

Section A The challenge of natural hazards

Question 1.9 (AO1/AO2)

The question required students to show knowledge and understanding of the reasons why people continue to live in tectonically hazardous areas. Many wrote about generic reasons, not entirely clueing in on the tectonic hazards element. These typically were simple and at times list-like. They included ideas of family links, long term habitation, employment attached to the area and inertia or reluctance to move. Some developed different perceptions of the hazards in considering why people stay with regard to aspects such as religion or cultural factors, the lack of recent eruptions or earthquakes or limited knowledge of potential hazards. Others mentioned measures implemented to offset volcanic eruptions such as evacuations or earthquakes linked to development of infrastructure.

Weaker responses gave simple explanations which could apply to most hazards, such as the idea that people have always lived there and that moving away would mean leaving friends and family. If they were to move they would have to find new jobs or that people living in poverty have other more pressing concerns. The idea that housing might be cheaper in some hazardous zones was credited, although not true in many locations.

The best answers, which accessed Level 3 marks, indicated tectonic specific elements such as fertile soil from weathered ash and farming, tourist opportunities, mining and geothermal energy – some with reference to named locations. Students who developed detailed arguments were mostly seen with reference to increased yield of crops in Indonesia or the opportunities offered by tourism on the slopes of Etna and Vesuvius or geothermal energy in California / Iceland.

In this first response, the student makes a few general points that could apply to most hazardous areas. The idea of cheaper housing is debatable, but lack of choice and insufficient funding to be able to move elsewhere are valid basic points. The student shows very basic knowledge (AO1) and limited understanding of reasons for living in areas at risk from a tectonic hazard (AO2). Level 1 - 2 marks.

0 1 . 9 Explain why people continue to live in areas that are at risk from a tectonic hazard. [6 marks]

one reason why people continue to live in areas with risks of tectonic hazard could be that the housing is cheaper. This is because the area is at risk meaning its dangerous to live there which will bring down the overall house pricing.

Another reason why people continue to live in these tectonic hazard areas is that they may not have a choice. for example if its a LIC, the people living there may not have enough money to be able to move out of these areas.

L1

This second response is clearer, and includes several reasons for continuing to live in areas at risk. The first two reasons relating to farming opportunities and geothermal energy points are developed, although the last part is more limited. The answer meets the criteria for top Level 2 4 marks, demonstrating reasonable knowledge (AO1) and clear geographical understanding of reasons why people continue to live in areas at risk of tectonic hazards (AO2).

0 1 . 9 Explain why people continue to live in areas that are at risk from a tectonic hazard. [6 marks]

Some people choose to live there because of the rich and fertile soil caused by previous volcanic eruptions. This means that because the soil is filled with minerals that ~~creates~~ farming is prosperous and earns enough money to support a family.

Others choose to live there because of the renewable energy opportunities. Hot springs form near volcanoes which means that whole villages can be run by the geothermal power meaning that the cost of living there is cheaper. The power stations for geothermal energy also need workers to run them so it creates jobs.

Others have lived there their whole life and are unaffected by tectonic hazards and don't want to move.

L2

This third response explains in detail a wider range of reasons. Explanations are thorough and well expressed. The answer is not place specific, but this is not a requirement of the question, and the student ensures that the reasons are largely linked to tectonic hazards. The answer shows thorough knowledge (AO1) and geographical understanding of reasons why people continue to live in areas at risk of tectonic hazards (AO2). Level 3 - 6 marks.

0 1 . 9 Explain why people continue to live in areas that are at risk from a tectonic hazard. [6 marks]

- **Agriculture:** Volcanic ash and volcanic material emitted from a volcano during a volcanic eruption ~~set~~ contains many nutrients. When the volcanic ash and ~~do~~ volcanic materials settles on the nearby ~~are~~, surrounding soil, it makes the soil very fertile and therefore several farmers live near to volcanoes as they can ^{earn} ~~have~~ a source of income in agriculture and farming as the crops will grow better due to the fertile ~~volcanic~~ soil.
- **Frequency:** Some areas at risk from a tectonic hazard aren't at high risk as the frequency of a tectonic hazard and likelihood of an eruption or earthquake is relatively low and therefore people don't want to sacrifice their social lives and choose to stay in an at risk area due to the good social life and livelihood.
- Extra space • **Affordability:** Some people are too poor to relocate elsewhere and have no choice but to stay in the at risk area.
- **Technology:** ~~Now~~ Monitoring (using satellites) and computer based modelling have undergone vast improvements so therefore hazards are identified earlier giving people time to prepare hence at risk areas are deemed to be relatively safer than before.

L3

Section B The Living world

Question 2.6 (AO2/AO3)

The question required students to suggest how deforestation in a named tropical rainforest area can be caused by a range of different activities. Students generally showed good knowledge but relatively few managed to access the highest marks because they did not use case studies to full effect.

In some cases, students started well, but drifted off topic into describing the environmental impacts of deforestation locally and globally. These responses were perhaps parroting answers practised previously, rather than responding to the question set. One quite common misconception was that trees are cut down to extract palm oil, rather than forest being cleared to plant one species which produces palm oil. Often a range of reasons was developed such as road construction, logging, mineral extraction and commercial ranching. However students were less able to convincingly convey a case study setting, seemingly believing that simply stating 'In the Amazon' or 'In Malaysia' was sufficient without indicating a sense of place through the scale, or naming particular minerals such as copper & bauxite or agricultural products to allow access into Level 3.

Better responses included specific examples such as clearance of land for the extraction of iron ore and bauxite in the Carajas mine in Brazil, the impact of the Trans Amazonia Highway in opening up areas for deforestation or flooding due to creation of reservoirs for HEP such as Belo Monte in Brazil. They often saw the initial development of infrastructure as a catalyst for further development. Some of the more nuanced answers focused on the fact that cattle ranching has been the main cause of deforestation followed by other types of commercial farming, whilst smaller scale activities such as shifting cultivation are much less significant. Some adopted a broad approach in answering the question, covering a wide range of different activities. Others focused on two or three, providing a more detailed explanation.

This response makes vague reference to the Amazon, but the points made could apply to any rainforest. Basic ideas relating to mining and cattle grazing are creditworthy at Level 1 and the answer is awarded 2 marks. The answer demonstrates limited understanding (AO2) and limited application of knowledge and understanding in assessing how deforestation can be caused by one or more activities(AO3).

0 2 . 6 Suggest how deforestation in the tropical rainforest can be caused by a range of different activities. Use a case study. [6 marks]

Mining can cause deforestation as the ground needs to be cleared in order to get the minerals from the soil. Farming can cause deforestation as the cattle need to feast on grass in a wide area and crops need to grow in direct sunlight not shadowed by the upper and lower canopy or emergent layer in a tropical rainforest. These examples can all be found in the Amazon.

L1 EG

When students struggled to achieve marks beyond Level 2, these responses often lacked place specific detail and explanations of the various activities in tropical rainforests were limited in scope. There were some potentially promising responses, which contained both explanation and evidence, but the lack of specific geographical support limited the credit that could be given. This response shows some clarity. A case study is identified (Malaysia), and palm oil is outlined as a form of commercial farming. Mineral extraction is mentioned as a profitable enterprise, as well as logging for timber, used for construction. A relative judgement is made at the beginning where the student states that commercial farming is the primary cause of deforestation. The answer matches the Level 2 descriptor – “Responses will have linked or elaborated statements and some accurate use of geographical terms. Outlines the different causes of tropical rainforest deforestation.” Level 2 - 4 marks.

0 2 . 6 Suggest how deforestation in the tropical rainforest can be caused by a range of different activities. Use a case study. → Malaysia [6 marks]

In Malaysian rainforests the primary cause of deforestation is farming - commercial farming. This is when companies ~~are~~ ^{cut down} vast amounts of trees in order to grow plants or rear animals. Mainly, in Malaysia, it is for the growth of palm oil. Secondly, deforestation is done for the purpose of mineral extraction. In Malaysia, there is rich minerals, which are very profitable, under the rainforest floor. Therefore, trees are ~~logged~~ ^{cut down} to allow companies to access the ground in which the minerals sit. Finally, deforestation also occurs so trees can be extra space utilised. For example, in Malaysia, a vast amount of logging is due to the usefulness of timber. It can be sold for use in construction - or even to make paper.

The following response accesses Level 3 marks because the answer is place specific and the geographical information is detailed. Reference is made to 7 activities ie subsistence and commercial farming, road building, dam construction, logging of mahogany and teak, mining activities and use of trees for pharmaceuticals. A relative statement is made at the beginning-80% of deforestation caused by cattle ranching. The answer demonstrates detailed understanding in the context of a case study (AO2) as well as thorough application of knowledge and understanding in assessing how deforestation can be caused by a range of different activities (AO3).

0 2 . 6 Suggest how deforestation in the tropical rainforest can be caused by a range of different activities. Use a case study. [6 marks]

In the Amazon, cattle ranching is the cause of 80% of deforestation. Both subsistence and commercial farming require ~~land~~ trees to be removed, as well as for crops. After 7 years, the land becomes infertile, which requires further deforestation to plant new crops. Development is also a huge cause of deforestation. Building the Trans-Amazonian Highway required lots of deforestation, and increased access to other areas of forest which were inaccessible before. Many mahogany and teak trees are deforested to be made into furniture, which further increases deforestation. Mining also increases deforestation, as the Amazon is rich in gold and other resources. With the Amazon being home to 50% of the world's plant and animal species, plants ^{and trees} are sometimes deforested to be used for pharmaceuticals.

can building rainforest too forest

Extra space

L3

Do not outside box

Section C Physical landscapes in the UK

Question 3.6 (AO2/AO3)

Answers to this question were unexpectedly variable. The question required application of knowledge and understanding in analysing the landforms shown in Figure 15. There was scope as well to include understanding of other landforms not shown in the image. The key discriminator between answers was the extent to which evidence was obtained from the resource and whether this was woven through the answer in a way that supported explanation. At Level 1, simple sequencing with focus on the landforms seen in Fig. 15 was most often seen. Level 2 was accessed by elaboration of the sequence of formation and application of processes at pertinent points in the response. At Level 3, candidates used subject language to explain landform development in detail and sometimes went beyond the stimulus to explain features of deposition as well, such as spits and bars.

Many provided a coherent account of the sequence of change over time linked to the cave-arch-stack-stump progression. However, the thrust of the question was an explanation of how these landforms are created by different processes. In order to progress through the levels, it was necessary to integrate processes such as hydraulic action and abrasion into the development of different landforms. These were often mentioned as named processes but how they worked was ignored. Credit was also given for understanding of the role of weathering and mass movement processes.

Less impressive answers noted processes of erosion in poorly ordered statements and failed to explain fully how change occurs. In some responses there was a clear misconception that soft rock is found at the base of cliffs on headlands as the start of the cave sequence. Where sequences were outlined, some steps seemed to be skipped over. Some students confused erosion and weathering, with many seeing freeze thaw as being responsible for arch and stack formation. Occasionally, students used diagrams to good effect. Others just drew unlabelled diagrams without explanation. The weakest answers were unable to name either the landforms or erosion processes, and sometimes confused stacks with spits. However, the majority of students were able to achieve lower Level 2 marks and above.

In the better scoring scripts students recognised a range of other landforms such as wave cut platforms, headlands and bays, indicating clear sequential formation. Some were aware of the alignment of resistant and softer rocks likely to result in headlands and bays along a discordant or, in the case of the area shown in the photograph, a concordant coastline, and consequent differences in rates of erosion.

When explaining the creation and development of landforms, students should aim to show understanding of specific processes and integrate the detailed explanation of process into the formation sequence using the correct terminology.

This first response is a Level 1 answer, mentioning the processes of hydraulic action and longshore drift. These are partially explained and links are made to associated landforms. The answer shows limited geographical understanding of the formation and development of landforms associated with a changing coastline (AO2) and demonstrates limited application of knowledge and understanding in analysing the changing coastline shown in Figure 15 (AO3). Level 1 - 2 marks.

03.6 Explain how coastal landscapes are formed by different processes.

Use Figure 15 and your own understanding. [6 marks]

one way in which coastal landforms are processed is by hydraulic action. This is when the sea violently attacks the cliffs of a coast. An example would be the formation of a stack. Hydraulic-

action would cause this because cliffs made from soft rock like limestone would erode quicker forming a stack or stump like old Harry.

Extra space Another process is ~~also~~ called longshore drift. This causes the formation of spits because when the prevailing wind comes in sediment is moved along the beach causing it to erode. This will then lead to the formation of a spit thanks to longshore drift.

L1

This second response meets the requirement for Level 2. The student identifies two sets of landforms depicted in the photograph (headlands and bays, arches and stacks). The sequence of formation is explained clearly, but there is only limited understanding of the processes involved. The answer matches the Level 2 descriptor-it contains linked statements showing some identification of the processes involved and understanding of the sequence of formation (AO2). Some geographical terminology is used. It shows reasonable application of knowledge and understanding in analysing the changing coastline shown in Figure 15 (AO3). Level 2 - 4 marks.

0 3 . 6 Explain how coastal landscapes are formed by different processes.

Use Figure 15 and your own understanding.

[6 marks]

Different coastal landforms are formed along coastlines like in Figure 15 due to there being more than one type of rock along a coastline (Hard & Soft). The soft rock erodes faster forming headlands and bays. Headlands are areas of land on a coastline that are made

of hard rock, these take longer to erode making them stick out to sea. Bays are formed by soft rock being more quickly eroded. With headlands we can get arches form and stacks like seen in figure 15 and at Durdle Door. This happens by a crack forming that turns into a cave which then erodes through into an arch (like at Durdle Door) the top above the arch then collapses due to weight forming a stack with also collapses due to erosion to form a stump.

L2

A significant proportion accessed Level 3 marks for this question. In this script, the student focuses on one set of coastal landforms (cliffs, arches and stumps) but fully integrates the explanation of processes and explains the sequence of landscape development (AO2). There is detailed application of understanding as the student analyses the Figure (AO3), and a thorough understanding of hydraulic action, abrasion and other processes. The student might have identified other landscape features showing changes in the coast from the image, or indeed mentioned further landforms and processes in this open-ended type of question. However, the answer was awarded Level 3 (6 marks) because of the detailed focus on one aspect of this coastal landscape.

0 3 6 Explain how coastal landscapes are formed by different processes.

Use Figure 15 and your own understanding. [6 marks]

Figure 15 shows a cliff, an arch and some stumps in the distance. Hydraulic action and abrasion caused by the sediment brought by longshore drift - erode the bottom of cliffs, as water forces into the cracks and constantly builds up and releases pressure, weakening the base of it. A wave cut notch is eventually formed, and the weight of the cliff above it eventually collapses due to gravity. Over time, these processes continue as the cliff retreats. Similarly, ^{arches} ~~stacks~~ are also formed due to hydraulic action and abrasion attacking lines of weakness in the rock. Over time this process continues until a cave is formed. An arch is formed as the other side of the cave is eroded. As the bottom of the arch becomes weaker and fails to hold the weight of rock above it, some of it collapses to form a stack, which can also collapse to form a stump.

L3

* due to mass movement

Question 4.6 (AO2/AO3)

Similar to 3.6, answers to this question depended on the clarity of the sequence and the appropriate explanation of processes of erosion and deposition. Students were required to apply understanding to the photograph and identify more than one landform to access Level 3 marks. One landform was often dominant – oxbow lakes- with a brief mention of either floodplains, levees or meanders. Most students did attempt to respond to both erosion and deposition in their answers. The quality varied hugely, ranging from random and disorganised answers to clear and comprehensive sequence, with specific processes embedded throughout.

The poorer scoring responses tended to confuse the relative speed of water on inner and outer bends of the channel when explaining meanders and oxbow lakes and considered one landform only. Although the sequence was roughly correct, processes were either not stated or added as an afterthought.

Many students managed to produce low Level 2 responses by writing about the processes involved in the formation of a meander and /or oxbow lakes and making some basic references to flow being fastest on the outside bend and slowest on the inside bend. River processes were correctly identified and there was some use of geographical language which supported process explanation.

The best answers, which accessed Level 3 marks, demonstrated understanding of the processes involved and made thorough analysis of the photograph, recognising the formation of meanders, oxbow lakes and floodplains and extending their answers to include other features not depicted in the image. There were some very good explanations of thalweg, with varying erosion and deposition on inside vs outside bend linked to slip of slopes, point bar deposits vs undercut banks and river cliffs. Some provided a balanced explanation of river landforms at different parts of the river's course, including waterfalls and gorges, interlocking spurs, levees and estuaries, with reference to the dominant processes of erosion and/or deposition.

This response is typical of a Level 1 answer, whereby the student recognises a feature shown in Figure 17, a meander, and provides little explanation of its development. Unfortunately, the answer is confused—some processes are noted, but the link to meander formation is not made. It matches the Level 1 descriptor—simple ideas or random statements with limited or partial sequence and little reference to the processes involved. Geographical terminology is also limited. Level 1 - 2 marks.

0 4 . 6 Explain how river features are created by erosion and deposition. [6 marks]

Use Figure 17 and your own understanding.

River features are created by erosion and deposition. This is shown through the formation of ~~a~~ meanders. Meanders are formed in rivers where the force of the river water clashes against the sides of the river forming a curve in the river to form creating a meander. This feature occurs through erosion and deposition. Another way rivers are formed is through erosion. This is when sediment is broken down by hydraulic action in the water causing the sides of the river to erode as the rocks are hitting against each other. This makes the river outline wider and wider creating a much bigger river to be formed.

L1

Many students managed to produce low Level 2 responses by writing about the processes involved in the formation of a meander and making some basic references to flow being fastest on the outside bend and slowest on the inside bend. To move up higher within this Level or to move into Level 3, students could analyse the photograph more fully to identify a wider range of floodplain features and use it to support their answer. In this case river processes are identified and there was some use of geographical language which supported explanation of the sequence and process. The student becomes a little confused between lateral and vertical erosion processes, and only gives a partial explanation of oxbow lakes. There is clear understanding (AO2) and reasonable application of knowledge and understanding to Figure 17 (AO3). Level 2 - 4 marks.

0 4 6 Explain how river features are created by erosion and deposition.

Use Figure 17 and your own understanding.

[6 marks]

River features such as meanders are caused by hydraulic action of the faster moving water on the outside of the river. The outside of the river will have a small river cliff ^{caused by erosion} and the inside of the river will have a gently inclining river beach caused by the deposition of sediment from the slower moving water. We studied the river Wyre, where the upper course of the river ~~is~~ erodes vertically ~~is~~ due to lateral erosion. As we moved into the lower course the river got wider due to horizontal erosion.

Extra space Oxbow lakes are caused when a meander is eroded so much that a new path for the river to flow is eroded and the meander gets cut off forming an oxbow lake.

This question did produce some detailed Level 3 responses from a large number of students. In these cases, there was a clear sequence of landform development, which accurately explained which geomorphic processes were occurring and precisely where. In this response the student explains meander formation, applying some understanding to Figure 17, and using appropriate geographical terminology eg abrasion, slip-off slope, lateral erosion. There is a further explanation of waterfall formation, focusing on processes of erosion, showing understanding of features beyond the source.

Thorough understanding of processes and sequence of formation (AO2), accompanied by detailed application of knowledge and understanding (AO3) Level 3 - 6 marks.

0 4 . 6 Explain how river features are created by erosion and deposition.

Use Figure 17 and your own understanding.

[6 marks]

River features such as ~~a~~ meanders are made when water gets pushed to the outside of the river at high speed and pressure causing it to erode the outside through abrasion, sediment is broken away and is carried by ~~the~~ the current to the ~~side~~ inside of the river where sediment is deposited and builds up due to the water being slower, this forms a slip-off slope, and sometimes a small beach. Lateral erosion keeps eroding the outside and the inside continues to build up creating bends (meanders) in the river.

Waterfalls at the end of rivers often form as the soft ~~sediment~~ ^{rock} under a band of hard rock is eroded creating a step which is eventually undercut to form a overhang. Abrasion and hydraulic action create a plunge pool and as the hard rock above is eroded eventually, the sediment erodes at the base pushing the waterfall back forming a steep gorge.

Question 5.6 (AO2/AO3)

The question elicited a wide range of responses, the weakest generally from those students who attempted all 3 optional questions. Most were able to obtain some marks for this question, providing some simple ideas about the processes involved in transportation and deposition of glacial material. The majority were able to establish from Figure 19 the variety of moraines, and many incorporated key processes such as plucking and abrasion, freeze thaw and bulldozing. Many were able to distinguish between till and outwash. Some went further and identified landforms not shown in the image, such as drumlins and erratics, focusing on the processes that led to their development.

In the poorer scoring scripts, students managed to recognise one or more features depicted in the image, but were unable to shed light on the way that they were formed. Some confused glacial and fluvial processes. Others became side-tracked into explaining formation of upland erosional landforms including corries and troughs. Very few alluded to the source of depositional material, and gave scant attention to contributing processes that help to create morainic debris and glacial till or outwash material. Greater emphasis should have been placed on the processes involved and less on the description of shape and size.

Better answers provided developed explanations with supporting detail of the transport and depositional processes involved, using correct geographical terms. Students recognised and explained the formation of lateral, medial and terminal moraines. Additional landforms not shown in Figure were considered by a sizable minority. There were some outstanding answers that explained how transport can occur below, within and on top of the ice and distinguished between material deposited directly by ice and indirectly by meltwater, with consequent differences in angularity of material and sorting of debris. As always, the best answers provided clear sequence to their answer, developed their points and incorporated processes throughout to help explain how the landscapes were formed by both transportation and deposition.

The response below illustrates the characteristics of a Level 1 answer. There is some notion of processes involved, but the answer is not fully engaged with the question and loses focus. It demonstrates very little application of knowledge and understanding in analysing the depositional features shown in Figure 19 (AO3), and only a basic idea of process (AO2). Level 1 - 2 marks.

0 5 . 6 Explain the different ways that glacial material is transported and deposited.

Use Figure 19 and your own understanding.

[6 marks]

glacial material can be transported through a way called plucking. This is the pulling of materials which get stuck to the bottoms and sides of a glacier and get deposited at the end. Another way is through a process called ^{abrasion} ~~abrasion~~. This is where sediment on the bottom of a glacier rubs against a landform and causes striations. Glacial material can also

be transported and deposited when a glacier goes down a corrie and gets split off when it gets to the end, leaving glacial material behind.

This answer shows greater clarity and meets the requirements for Level 2. Some processes are identified, although not fully explained, but the student is able to pick out landscape features such as terminal, ground and lateral moraines from the image and say how they were formed. Other relevant landscape features not shown in Figure 19, namely drumlins and erratics are selected and explained. The response merits Level 2 marks but the question really required a greater focus on the processes of transport and deposition to warrant higher marks. Level 2 4 marks Clear understanding (A02) and reasonable application of understanding to Figure 19 (A03).

0 5 6 Explain the different ways that glacial material is transported and deposited. <sup>moraine → ridges
drumlins erratics.</sup>

Use Figure 19 and your own understanding. [6 marks]

The first way, as demonstrated by Figure 19, glacial material is transported and deposited is through the altering types of **moraine**. Moraine is removed from hard resistant rock through **plucking** and **abrasion**. Terminal moraine is at the mouth of glaciers, and ends up **forming ridges** across a valley. Medial lateral moraine is transported at the **side of ~~glaciers~~**, and forms ridges at **glaciers**.

the side of valleys. Ground moraine
Extra space is found underneath glaciers and is formed into **drumlins (egg-shaped hills)** by the ice and snow. Finally, **erratics** are also sometimes transported ~~where~~ by glaciers, where different resistance rock boulders are found upon the landscape.

L2

In this third response the student combines an understanding of the processes of transport and deposition with a good grasp of a range of landscape features depicted in Figure 19. There is thorough use of geographical terminology, including an understanding of the difference between till and outwash. The student was awarded Level 3 6 marks because of an ability to show thorough geographical understanding of the ways that glacial material is transported and deposited (AO2), as well as detailed application to the source (AO3).

0 5 . 6 Explain the different ways that glacial material is transported and deposited. Use Figure 19 and your own understanding. [6 marks]

As shown in figure 19, glacial material can be deposited in moraines. Till is carried by the glacier in various ways, such as ~~the~~ ground moraine underneath the glacier, ~~or~~ lateral moraine from the outside of the glacier or medial moraine when two glaciers meet and is deposited in the middle. Glacial material can also be transported by bulldozing, when the glacier pushes material like a bulldozer until it deposits

^{in ways} it, such as erratics. Plucking is when the glacier freezes around a rock and plucks it out, and the material is then carried in the glacier. Glacial material can be deposited as outwash at the end of the glacier, when washed up sediment travels further ~~&~~ than the moraine, such as silt.

L3

9-mark questions

These questions are found in Section A and Section B and have three levels of response and always assess AO1, AO2 & AO3. The section A question each series carries 3 marks of SPaG.

Section A

Question 1.11 (AO1/AO2/AO3)

The examples of immediate and long-term responses given in Figure 7 offered almost all students an opportunity to attempt the question. Some catalogued the different responses correctly and some were able to discuss responses in relation to countries with different levels of wealth and infrastructure. Some were unsure of the appropriate groupings, not always discerning the difference, for example, between temporary shelters and improving building regulations.

Most students named an example, usually typhoon Haiyan, but there was a variety of other examples such as Katrina, Harvey, Irma, Matthew and Nargis. Many were aware of the immediate and long term responses and interrelated the example with the information on Figure 7; others showed application of understanding to the figure and then related this to the example afterwards. Most arrived at a suitable conclusion, emphasising the essential nature of immediate responses and the equally important need for long-term responses too. Some credit was given to consideration of the effects of tropical storms if these were clearly linked to subsequent responses.

Some weaker responses became confused between suitable exemplification, and wrote about earthquakes (e.g. Nepal, Chile and Haiti), and others listed effects and/or responses with little development or application to the question. It is important to ensure students read the question set and don't just recount a pre-learnt answer to a generic question they have practised.

At Level 1, there was little development beyond the Figure and or basic attempts to show which responses were most useful, usually without mention of a specific example. At Level 2, the link between a candidate's exemplar knowledge and the importance of both responses was seen to be developed with some clarity and a judgment or clear evaluative comment was often clearly seen. A purely generic answer without clear exemplification, or one that relied predominantly on the source was limited to Level 2 as was an answer that lacked an evaluative comment such as consideration of the importance of different responses.

The discussion element was often the key discriminator in leading to achieving Level 3 and progressing through it. This was in the context of a named storm to show how both immediate & long-term responses are valued to support a return to normalcy. Some had pertinent comment linked to the example of the need for both aspects; the fact that they complement each other and one significant in saving lives in the aftermath and the other on rebuilding the economy and lives to safeguard against such devastating effects happening again.

At the top end, there were some comprehensive answers that integrated example, Figure 7 and assessment within a competent, discursive mini-essay. All aspects were addressed, and evaluation and judgement were to the fore, often integrated via the use of key words throughout as both long term and immediate responses were considered. There were some very perceptive answers picking up on the idea that both are essential, but that longer term are sometimes given lower priority after initial publicity ceases. Some realised that the length of recovery period may depend on availability of resources for longer term reconstruction, available technology, communications and infrastructure.

This response mentions an example, but the answer is largely generic. There is some confusion about what constitutes immediate and long term aid, particularly the use of temporary shelters. The student makes basic use of the source but doesn't develop ideas in the context of a named example. The answer demonstrates limited knowledge (AO1) and basic understanding (AO2) of immediate and long-term responses (AO1). There is also limited assessment of the importance of different responses (AO3). Level 1 - 3 marks, SPaG 2 marks.

0 1 . 1 1 'Both immediate and long-term responses are needed after a tropical storm.'

Discuss this statement.

Use Figure 7 and an example of a tropical storm you have studied. [9 marks]
[+ 3 SPaG marks]

This statement is 100% correct when a large tropical storm appears. When typhoon ^{AO3} Haiyan ^{AO2} hit both immediate and long term responses were used. ~~for~~ People needed help to be rescued that were trapped under rubble which normally meant they needed medical support. With regards to long term responses temporary shelters? were built because homes had been destroyed. With homes being ~~destroyed~~ destroyed

that meant that they needed to be rebuilt which would take a long time meaning that it's a long term response. However not all tropical storms are big and won't cause enough damage to need any sort of help

L1

The following response makes clear use of the source and makes a number of developed points, in the context of a named example. There is some place specific detail and the student makes several evaluative comments. The mark awarded is top Level 2 marks. To access Level 3 marks the student would need to provide more specific geographical detail and to present a more thorough and balanced discussion, supported by evidence. This question also has 3 marks allocated for the assessment of spelling, punctuation, grammar and use of specialist terminology (SPaG). In this case the student was awarded 3 marks because, although there are minor errors of spelling, the grammar is generally correct, the answer is written in paragraphs, and there is good use of specialist terms. Level 2 - 6 marks.

0 1 . 1 1 'Both immediate and long-term responses are needed after a tropical storm.'

Discuss this statement.

Use Figure 7 and an example of a tropical storm you have studied. [9 marks]
[+ 3 SPaG marks]

Both immediate and long-term responses are important after a tropical storm to help people in danger and to help rebuild the damage. Immediate responses like rescuing people that are trapped or injured are very crucial. This is one of the first responses that will be carried out and it is important to help the people trapped or injured to decrease the amount of possible deaths or injuries.

DEV ~~the~~ A long-term response like repairing transport routes like roads is also very important. For example the typhoon in Haiyan caused roads to be broken and blocked with various items which had to be repaired to restore connection with other cities or rural villages. The roads being broken can also affect people trying to commute to work which can not only impact them but also their companies they work for as they may not be able to get to work.

Extra space Another important immediate response is setting up temporary shelters. This is important because in the Haiyan typhoon many people were left homeless, as their homes were destroyed, so they needed shelter until they could be reaccommodated.

L2

This response meets the requirement for a top Level 3 mark. It demonstrates detailed knowledge of a specific example (AO1), thorough understanding of the responses to a tropical storm event (AO2), as well as discussion of the importance of immediate and long term responses (AO3). The question are answered in a balanced way. It shows a secure understanding of both types of response, and the example is explored in detail, with full supporting information. The stimulus is used as a springboard from which the student adds their own interpretation and evaluation. Level 3 - 9 marks. SPaG is awarded 3 marks: accurate spelling and correct grammar; fluent expression and use of specialist terms.

1.4 ¹²⁰⁰ evaluation

0 1 . 1 1 Both immediate and long-term responses are needed after a tropical storm.

Discuss this statement.

Use Figure 7 and an example of a tropical storm you have studied. [9 marks]
[+ 3 SPaG marks]

7 ty Hyan

AO3 Immediate responses are important in the case of a tropical storm ~~not~~ in order to save lives and help people reach safety, Figure 7 states a immediate response of 'rescue people that are trapped due to the collapse of building some people may be trapped and have no supplies / severe injuries, getting help together to find them reduces unnecessary deaths, for example, in Typhoon Hyan the USS George Washington sent in ships from the USA to provide rescue and search and supply aid. Aid is also beneficial to countries after a mass tropic storm as many are left homeless without supplies and necessities, 1.4 billion were left homeless in Hyan. This is the reason why which meant medical aid was important as there were many injured people and disease can spread easily after a tropical storm, Figure 7 also states however sometimes aid can be slow to arrive, the USA ships took a week to arrive and in that time many deaths can occur, not only this but the country can grow dependant on aid and it can slow down the economic recovery of the country. Long term responses, such as, 'improved building regulations' are important as it can prevent the damaged caused if the event were to happen

3

01.11

continued: again, Typhoon Hyan also put in a programme called 'cash for work' to get people to help rebuild the damage, however, this left ~~unexperienced~~ ~~was~~ ~~people~~ ~~doing~~ ~~hard~~ ~~tasks~~ ~~which~~ ~~could~~ ~~impact~~ ~~the~~ ~~efficiency~~ ~~of~~ ~~the~~ ~~building~~. ~~Rebuilding~~ ~~better~~ ~~also~~ ~~may~~ ~~not~~ ~~benefit~~ ~~those~~ ~~who~~ ~~can~~ ~~not~~ ~~afford~~ ~~it~~.

A03

Overall immediate & long-term responses are vital if done organised and efficiently as they can save many lives. ~~63000~~ 63000 people died in ~~Hurricane~~ Typhoon Hyan so it's important to protect other lives and build back society and the economy. ~~Although it is still a~~

L3

Section B

Question 2.9. (AO1/AO2/AO3)

Answers to this question revealed clear understanding of adaptations for animals and plants in either cold and hot environments. Almost all could access level 1 by utilising and describing pertinent features of the images. Most accessed Level 2 as they made a number of clear statements linking a feature to the appropriate reason, such as long roots to reach groundwater, or storing of water in succulent plants to cope with long, dry periods. The smaller number of students that accessed Level 3 marks stood out by demonstrating understanding of how both plants and animals are adapted, referring to detailed conditions of their chosen environment. A minority were able to mention general adaptations applicable to most organisms or to explain how plants and animals not shown in the photograph, such as cacti, camels, or polar bears, had specific adaptations.

In some cases, students focused exclusively on the characteristics of animals with little or no mention of plant adaptations. Those who chose deserts often scored better as they were able to elaborate more successfully on the characteristics of the succulent plant while those who looked at cold environments struggled to identify adaptations of plants. The idea that camels store water rather than fat in their humps was a common misconception. Humps store fat which releases energy; water and carbon dioxide are then released as a by-product.

Almost all students attempted the question, often with a variety of adaptations. At the lower end these were simple and basic – looking at spines on plants as a deterrent for animals or arctic fox having white, thick fur for protection against the cold and camouflage. Students had scope in this question to incorporate knowledge and understanding of plant and animal adaptations beyond those shown in the source. They should be encouraged to use the source as a springboard to their answers but not rely on it exclusively in this type of question.

Some of the more sophisticated answers indicated how plants in the tundra or desert environment have adapted in a variety of ways, such as short life cycles, leaves with hair, waxy coating on stems and slow growth rates, before concentrating on particular species. There was no requirement to recognise particular species but many could recognise from the image for example that Arctic foxes have thick fur to keep them warm, or that they have proportionally shorter legs, shorter necks and smaller ears, which means less surface area to lose heat from, and that their white fur allows them to blend in with their snowy surroundings, keeping them from being seen by predators.

In the better answers, credit was earned for clear developments of how particular adaptations enabled better survival in the harsh environment, such as the fennec fox's ears enabling better cooling, "Many of the higher scoring responses linked the adaptation to the climatic conditions e.g. "camels have humps which store fat allowing them to be able to go without food for a very long time. It provides camels with energy to search for food because food is scarce in the extreme drought conditions in hot deserts." Or "cacti have long roots to access groundwater as the rainfall is less than 250mm per year" and "Cacti do not have leaves, which means that less water is lost through the process of transpiration, allowing the plant to stay hydrated during such hot and dry conditions".

The best answers at Level 3 included discussion of how survivability was predicated upon particular adaptations with reference to extremes of temperature, lack of precipitation or exposure to strong sunlight. Some went on to discuss the potential need adapt to climate change, forcing some animals to migrate longer distances and to forage more widely, or that because of climate change the special adaptations might in the future be less useful. As in 1.11, it was the discussion element that enabled the progress into and through Level 3.

The following response includes some basic and largely generic ideas about plant and animal adaptations. Limited use is made of Figure 12. There is some inaccuracy in the answer, but a link is made between the environmental constraints and the associated adaptations. Limited knowledge of plant and animal species (AO1), basic understanding of adaptations (AO2) and limited application of understanding (AO3). Level 1 - 3 marks.

0 2 9 'Plants and animals need to have special adaptations to cope with extreme environments.'

Discuss this statement.

Use either **Figure 12** or **Figure 13** and your own understanding. [9 marks]

Tick (✓) the box to show which environment you have chosen.

Hot desert Cold environment

Figure 12, shows a cactus and a fox. The cactus has long, green branches that hold large amounts of rainfall. This is because, the Sahara desert ~~then~~ doesn't have much rainfall (less than 250mm a year), this means that, the soil is dry and so plants have adapted to store water and to stay hydrated. Figure 12, also shows a fox. This fox has big ears to allow heat to escape through it's head. It also has big paws to prevent it from sinking in the sand. This highlights how animals have adapted to the extreme temperatures of the desert.

The following response shows an understanding of environmental constraints in cold environments and explains how animals and plants adapt. There is little specific detail about the plants and animals shown in Figure 13, but the answer matches the Level 2 descriptor- linked or elaborated statements and some use of geographical terms. Outlines some ways in which plants and animals adapt to cope with extreme environments with reference to Figure 13 and own understanding. Level 2 - 5 marks.

0 2 . 9 ^{compact, frost-prone} 'Plants and animals need to have special adaptations to cope with extreme environments.' ^{ears, eyes, feet, fur}

Discuss this statement.

Use either **Figure 12** or **Figure 13** and your own understanding. [9 marks]

Tick (✓) the box to show which environment you have chosen.

Hot desert Cold environment

In a cold environment plants are adapted to have short growing seasons. this reduces the possibility of them being overcome with extreme winters. They are also adapted to grow close together. This is done ~~as~~ as shelter from winds and icy weather conditions. ~~Plants~~ These plants are also wind pollinated and have long roots that go deeper than permafrost to ensure they are still fed the right nutrients.

Animals have adapted to cold weather conditions by having long, thick, white fur, used to keep warm and as camouflage ^{thermois} protection from predators in the snow. Animals also have padded paws to, again, feet keep warm, many animals have narrow eyes providing good eyesight and shelter from icy, and snowy, windy conditions.

In conclusion, both plants and animals need lots of special adaptations to cope with extreme environment Extra space conditions.

L2

The following response exemplifies the characteristics of a Level 3 answer. It shows detailed knowledge of a range of plant and animal adaptations (AO1), including those of the fennec fox, which is shown in Figure 12. The adaptations of cactus plants are also explained in relation to the climatic conditions, and the student discusses the need for such adaptations and alludes to long term reduced rainfall amounts, which may impinge on the ability of animals to adapt and survive (AO2). There is thorough application of understanding to Figure 12 and some discussion of the statement (AO3). The answer was awarded Level 3 8 marks. To achieve top Level 3 the student might have elaborated on the range of adaptations shown by other species or engaged in greater discussion of how climate change is affecting extreme environments.

029 'Plants and animals need to have special adaptations to cope with extreme environments.'

Discuss this statement.

Use either Figure 12 or Figure 13 and your own understanding. [9 marks]

Tick (✓) the box to show which environment you have chosen.

Hot desert Cold environment

The statement is correct in my opinion as many extreme conditions in hot deserts such as the Western Desert means adaptations of plants and animals can allow for more biodiversity. For example, as seen in figure 12, Fennec foxes ~~allow~~ have big wide ears which allows them to cool off faster than a british fox with smaller ears to stay warm. Fennec foxes also have shorter fur than the typical british fox, which allows them to cool off faster than if their fur was thicker, which would trap heat by insulation. Staying cool in extremely hot deserts are important, or else the animals may die and reduce biodiversity. Desert plants like cacti are adapted to extreme heat, by storing water inside and having only small waxy leaves which reduce transpiration. Roots of desert plants are also more branched out and go very deep to try reach the water table, which the plant in Figure 12 may have, as rainfall in deserts are less than 250mm a year, and is starting to decrease even more due to global warming; deeper roots have a higher chance of reaching water so plants can survive.

In conclusion, I agree with the statement as many plants or animals who are not adapted to extreme conditions may not survive, so the adaptations allow animals and plants to live and provide the desert with biodiversity.

End of Section B

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