

Examiners' Report  
June 2012

GCSE Geography 5GA2H 01

## Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications come from Pearson, the world's leading learning company. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at [www.edexcel.com](http://www.edexcel.com) or [www.btec.co.uk](http://www.btec.co.uk) for our BTEC qualifications.

Alternatively, you can get in touch with us using the details on our contact us page at [www.edexcel.com/contactus](http://www.edexcel.com/contactus).

If you have any subject specific questions about this specification that require the help of a subject specialist, you can speak directly to the subject team at Pearson.

Their contact details can be found on this link: [www.edexcel.com/teachingservices](http://www.edexcel.com/teachingservices).

You can also use our online Ask the Expert service at [www.edexcel.com/ask](http://www.edexcel.com/ask). You will need an Edexcel username and password to access this service. See the ResultsPlus section below on how to get these details if you don't have them already.



### Get more from your exam results

#### ...and now your mock results too!

ResultsPlus is Edexcel's free online service giving instant and detailed analysis of your students' exam and mock performance, helping you to help them more effectively.

- See your students' scores for every exam question
- Spot topics, skills and types of question where they need to improve their learning
- Understand how your students' performance compares with Edexcel national averages
- Track progress against target grades and focus revision more effectively with NEW Mock Analysis

For more information on ResultsPlus, or to log in, visit [www.edexcel.com/resultsplus](http://www.edexcel.com/resultsplus). To set up your ResultsPlus account, call us using the details on our contact us page at [www.edexcel.com/contactus](http://www.edexcel.com/contactus).

### Pearson: helping people progress, everywhere

Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for raising achievement through innovation in education. Find out more about how we can help you and your students at: [www.pearson.com/uk](http://www.pearson.com/uk).

June 2012

Publications Code UG032282

All the material in this publication is copyright  
© Pearson Education Ltd 2012

## Introduction

The Natural Environment paper (Higher Tier) requires the candidate to answer one question on a physical geography topic (Coastal, River, Glacial or Tectonic Landscapes) and one question on an applied topic of either Wasteful or Watery worlds.

In this series the paper was well received by centres and there were minimal enquiries on the day of the exam, which was pleasing considering the new format of the exam, without a resource booklet. The question popularity followed the pattern of previous series, with Coastal and Tectonic Landscapes proving to be the most popular options in Section A. Both River Landscapes and Glacial Landscapes saw an increase in candidates attempting them, but this may coincide with an overall increase in the numbers sitting the exam in this series. Glacial landscapes was unfortunately still the least popular Section A topic, which does not reflect the attainment of those who did attempt those questions. The popularity of Section B continues to be similar to previous series.

The overall performance on the paper showed Question 3 scoring the highest mean mark (18.74) in Section A and Watery World scoring the highest mean mark in Section B (17.02). The more popular Coasts and Tectonics scored 16.2 and 15.4 averages respectively. Overall the average scores on Section A were lower than those of Section B.

## Question 1 (a) (i)

Unlike the other resource based questions in Section A this question proved a challenge for some candidates. Many chose to describe the process of *slumping*, even though it was in the following question, or *explained a form* of coastal erosion. For those who addressed the question carefully it offered an accessible 3 marks.

(i) Describe the effects of coastal erosion near Brook Green.

You should only use evidence from Figure 1a.

(3)

Near Brook Green the cliff has slumped causing a coastal path to be lost and barriers had to be put in at the cost of the council. Also the slumping has caused the road to be reduced to one lane and the council has had to pay for this. Overall it has cost the council a lot.



**ResultsPlus**

**Examiner Comments**

This candidate scores 3 marks by following the demands of the question and by lifting material from the resource. Too many candidates tried to overthink their answers or include effects which were not in the resource.



**ResultsPlus**

**Examiner Tip**

For resource based questions, follow the command of the question carefully. Perhaps highlight relevant parts of the resource that you may wish to use in your answer.

## Question 1 (a) (ii)

The identification of slumping as a process was recognised by the vast majority of candidates and the outline of the process was infinitely better than in previous series, with good reference to clay based surfaces, saturation of the ground and movement along a slip plane. There is a fine line between soil creep and slumping if all the candidate describes is saturation (principally the speed of movement) so candidates should be careful to fully outline the process.

(ii) A type of mass movement is shown in Figure 1a.

(1)

1. The type of mass movement is Slumping

2. Outline the process of this type of mass movement.

(2)

Slumping is when a ~~rock~~ rock gets saturated with water and the gravitational pull, pulls the rock in chunks to the base of the cliff as it can't hold its weight under the pressure.



### ResultsPlus Examiner Comments

This is a typical good answer which makes excellent reference to saturation, the effect of gravitational pull, but most importantly (which sets it aside from soil creep) is the mechanism of chunks moving.



### ResultsPlus Examiner Tip

Ensure you are able to clearly differentiate between soil creep and slumping.

### Question 1 (a) (iii)

Although a minority of candidates referred to weathering and erosion as factors and their answers were as such self limiting, this was generally very well answered. The main difference between candidates was that the lower scoring answers tended to describe the features e.g. longer fetch leads to more recession, without giving any development suggesting why. Good answers made reference to all three factors as outlined in the specification, geology, fetch and management. For some who referred to these there was some confusion, especially with fetch i.e. the longer the fetch the less erosion. The examiners were pleased to see that relative strengths of geology are now being taught, and that limestone is no longer a softer rock.

(iii) Explain the factors which affect the rate of coastal recession. (4)

(geology)

The type of rock can affect the rate of recession. If the rock is softer, than it will be eroded quicker than harder rock e.g. granite causing the rate of recession to happen faster. Also due to the geology of limestone rock it can come under the effects of chemical weathering, meaning that this process will help the limestone to dissolve quicker. The fetch, wind speed, and the time the wind has been blowing for all affect the strength and size of a wave which gives it greater energy to erode the coastline quicker. Having a beach in front of a cliff or management techniques also slow down rate of erosion as they dissipate the waves energy.

(clay)



#### ResultsPlus Examiner Comments

This is an excellent example scoring 4 marks. It makes detailed reference to geology and fetch, and also adds in a bit of management.



#### ResultsPlus Examiner Tip

Understand the difference between explain and describe. Think of how each factor that you have named causes more or less erosion.

### Question 1 (b) (i)

Once again students struggled to *describe* a landform, as in other series they often explained its formation instead. Many students explained how longshore drift led to the spit, relatively few scored full marks, with many simply identifying the direction of the spit in a southerly orientation. It was pleasing to see that a minority of candidates used the scale to describe the length, most commonly, or the width. Candidates clearly need to practise describing landforms.

(i) Describe the spit shown in Box 1.  
You should only use evidence from Figure 1b. (2)

The spit is growing from the North, to the south and is 2.2km long, stretching out to the sea. It is ~~the~~ parallel to the coastline too.



#### ResultsPlus Examiner Comments

A simple but very effective answer, with 3 clear descriptive statements.



#### ResultsPlus Examiner Tip

Practise describing landforms. Remember that "describe" does not mean "explain the formation".

### Question 1 (b) (ii)

This was fairly well answered by the majority of candidates. One small issue was that although many excellent diagrams were produced, many candidates limited themselves to 2 marks for not including the direction of longshore drift. Candidates should also ensure they understand the difference between label and annotate, as some wrote unnecessarily weighty responses next to their diagrams.

### **Question 1 (c)**

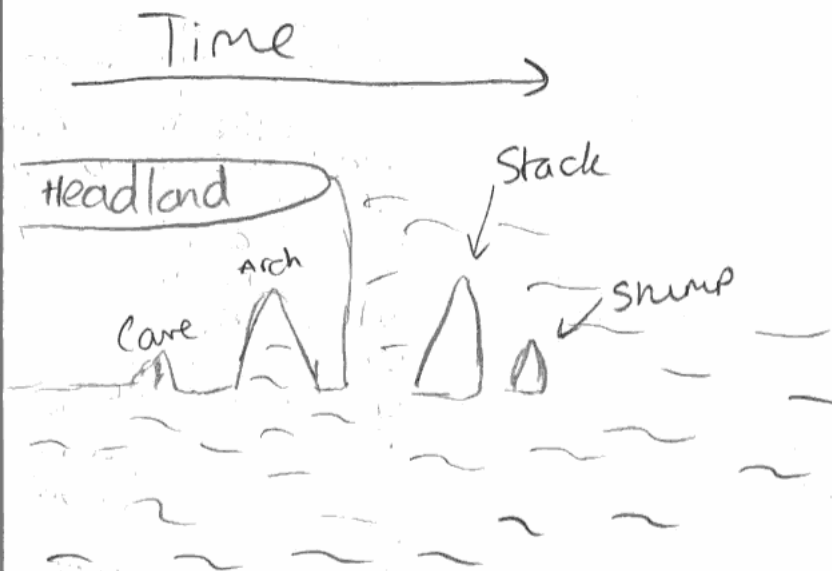
Candidate understanding of a stack formation was predictably good, however many responses were limited by describing the sequence of formation and not explaining. It was pleasing to see that some centres had taught candidates to explain the processes (as suggested in previous examiners' reports), and many explained the action of gravity in collapsing the arch. Many candidates used diagrams, and although they varied in quality, many helped formulate sequence. Centres must be aware, that to score full marks on a landform question, candidates must fully explain, give a full sequence, and name a process.



(c) Explain the formation of a stack.

You may use a diagram(s) in your answer.

(4)



A stack is formed originally from a headland. A headland is a piece of land left jutting out into the sea after erosion has occurred along a discordant coastline ~~with~~ <sup>with</sup> alternating geology. This headland despite being formed of resistant rock is still vulnerable to erosion and over time the sea erodes away at the headland. Processes such as abrasion and hydraulic action occur as the waves bend around the headland attacking it from both sides. Any points of weakness in the headland become eroded, eventually forming caves from cracks and crevices in the rock. These caves become continually eroded by high energy, high frequency destructive waves and eventually caves at the two sides of the headland join. This then forms an arch. This arch is then continually eroded however the top of the arch is also weakened through processes such as acid rain and salt crystal growth. This leaves the arch top very vulnerable and increased pressure means the arch roof collapses leaving an isolated stack in the sea. This is how a stack is formed and continual erosion of a stack leads to a shump, undercut by wave erosion, only

**ResultsPlus**  
Examiner Comments

This is an outstanding response, which perhaps belongs at A Level rather than GCSE. However it shows clear explanation, referring to refraction, the various processes and the development of the sequence. Using this as a template would be sound advice for many centres, especially for candidates who have the potential to achieve A\*.



**ResultsPlus**  
Examiner Tip

Remember to offer explanation, the easiest way to do this is to explain process.

### **Question 1 (d)**

With Walton-on-the-Naze, Holderness, Swanage and Happisburgh the main case studies used, it seemed candidates would be well armed to answer this question. However, many spent too much time outlining why the scheme was needed rather than focusing on how the area was actually being managed. Therefore many answers lacked the necessary explanation focusing on management and were held at Level 2. It is important to remember that when including specific points they should be focused on the question. Therefore in this example references to cost of defences, year of installation, dimensions of defences were all relevant, however names of roads and hotels affected by erosion were not.

(d) Choose an area of coastline you have studied.

Explain how this area of coastline is being managed.

(6)

Chosen area of coastline Walton-on-the-Naze

Walton-on-the-Naze has a ~~pop~~ population of 12000 and is being eroded at 15m a year. This has meant steps have been taken to protect part of the coastline. In 1977 groynes, breakwater and a recurved seawall were installed to protect the southern part of the coastline where the majority of the population lived. The groynes keep the beach in place which is good for tourism and also they break up some of the energy of the wave. Breakwater breaks up the waves before they can erode the cliff and the seawall protects the easily eroded London Clay which the cliff are made from. Further steps were taken in 1998 when the council paid £67,000 for 300 tonnes of Lezester granite to be placed in front of the cliffs at the Northern part of the coastline to protect a Grade II listed Tower which is only 35m from the cliff edge. The following year sand was ~~dredged~~ dredged from Herwich Harbour and used to replenish the beach to maintain the tourism in the area - however by 2003 most of this had been removed as a result of longshore drift. The cliff has also been regraded to give it a gentler slope and reduce the impact of slumping. Special drainage channels were also installed to allow water to flow through the cliff. Finally, plants and vegetation such as nettles were planted to prevent people from trampling the unstable cliff edge.



**ResultsPlus**  
Examiner Comments

This answer scored full marks and covered a range of types of defence and included clear, specific data - cost of rip rap, dates of installation of defences - related to the question. The candidate also clearly explains the management.



**ResultsPlus**  
Examiner Tip

Ensure that you do not learn a case study by rote, instead that you need to select the relevant pieces of information from the example to answer the question.

## Question 2 (a) (i)

The quality of response by candidates seemed to reflect the practice they had undertaken in describing patterns from a map. As in question 1(ai) many candidates struggled with this. Some simply described all flooded areas on the map without focusing on severely flooded regions; others found it difficult to articulate their ideas. Good answers were more focused by referring to the close proximity to the main channel (of the River Indus) or identified the confluence areas along the river. Some candidates understood that the sea, southwest of Karachi, was a severely flooded area.

(i) Describe the distribution of severely flooded areas shown in Figure 2a.

(3)

The distribution of severely flooded areas are in a linear pattern ~~along~~ <sup>proximity</sup> the river. Flooding is greatest concentrated at the ~~confluence~~ <sup>confluence of 2</sup> rivers e.g. where the River Indus ~~meets~~ <sup>meets</sup> the ~~main~~ <sup>main</sup> R. Jhelum and R. Chenab, or indeed the confluence is the R. Jhelum and River Chenab. The severely flooded areas are most common in the middle to lower course of the river as the ~~area~~ <sup>width of the</sup> ~~area~~ <sup>river increases</sup> due to the ~~increase~~ <sup>increase</sup> in human activity in the river as well as the flat land ~~where~~ <sup>the</sup> river makes ~~its~~ <sup>its</sup> course.

(ii) State the main cause of this flood



### ResultsPlus Examiner Comments

This response was typical of a full answer which scored 3 marks. It identifies the linear pattern of the severe flooding, the proximity to the rivers and the confluences whilst also making clear place reference.



### ResultsPlus Examiner Tip

Remember, when describing maps, to refer to place names and try to summarise the main patterns without giving a blow by blow account of every flooded area on the map

## Question 2 (a) (ii)

Many candidates identified 'over 200mm of rainfall in a 24hour period' as the correct answer.

## Question 2 (a) (iii)

Although many candidates were able to achieve some credit on this question many only scored 1 mark. Many simply described a death or destruction by drowning scenario without developing their answer for the second mark. Good answers referred to how the floods could break the current crop, and then saturate the ground preventing future harvests.

## Question 2 (a) (iv)

Although many candidates were able to identify types of soft engineering, many simply described what they did rather than explained how they reduce the effects of flooding. Common references included afforestation and flood warning systems (often citing the River Nene case study), while better answers attempted to explain floodplain zoning and washlands.

(iv) Suggest how soft engineering methods can reduce the effects of flooding. (4)

Soft engineering processes work with the river to reduce the effects of flooding. For instance, afforestation plants trees so that their roots can intercept rain water. Flood plain zoning prohibits buildings from being built at the floodplain, which leaves the earth free to soak up water and increase the time takes for run off to happen and reducing the water volume that reaches the river. Warning systems alert people living nearby and allow them to prepare for flooding. Creating a washland allows the river to flood while reducing the impact on people living nearby.



### ResultsPlus Examiner Comments

Although this response is not easy to read, the candidate makes concise reference to a number of types of soft engineering and for each makes the link to reducing the effects of flooding. The part on floodplain zoning is particularly good.



### ResultsPlus Examiner Tip

Ensure you are able to explain at least two types of hard and two types of soft engineering and be sure to describe how they reduce flooding rather than just state what they are.

### **Question 2 (b) (i)**

Many candidates struggled to identify the arrows as the thalweg (fastest flow), instead many simply opted for the direction of water, which was a surprise.

### **Question 2 (b) (ii)**

Most candidates correctly identified deposition as the correct process on the inside of a meander bend.

### **Question 2 (b) (iii)**

The majority of candidates coped well, developing the meander into a later stage in the diagram with many opting to draw an ox-bow lake formation. Some candidates limited themselves by not including labels, though this was a minority. Some candidates were confused by the question and simply redrew box 1 or took the meander to an earlier stage. Practice at drawing and labelling river landforms will clearly help candidates in the future.

(b) Study Figure 2b.

It is a meander.

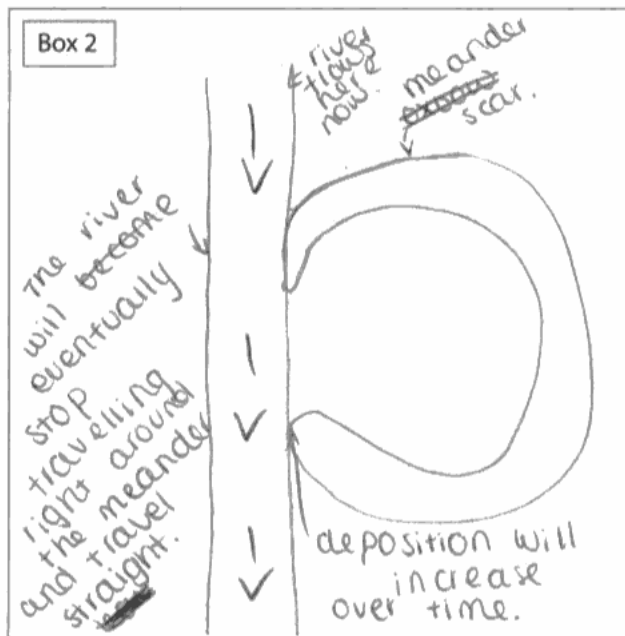
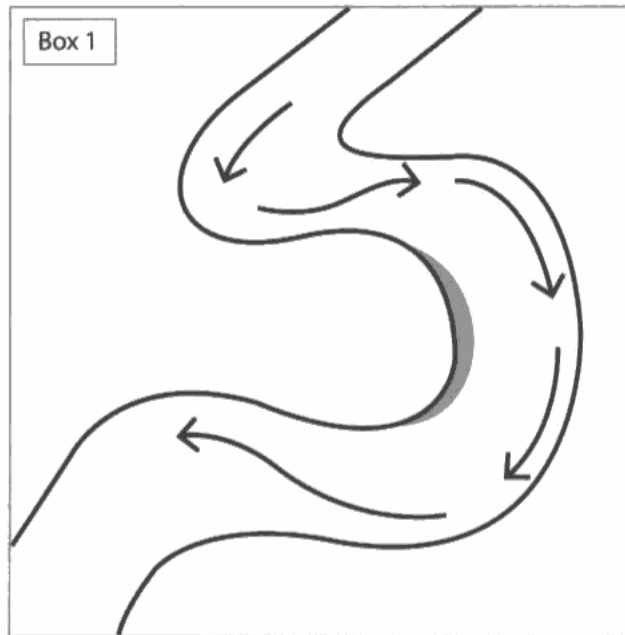


Figure 2b



**ResultsPlus**  
Examiner Comments

This was typical of a response scoring full marks with clear development in the picture and a series of labels.



**ResultsPlus**  
Examiner Tip

Practise drawing, labelling and annotating river landforms to improve your familiarity with them.

### **Question 2 (b) (iv)**

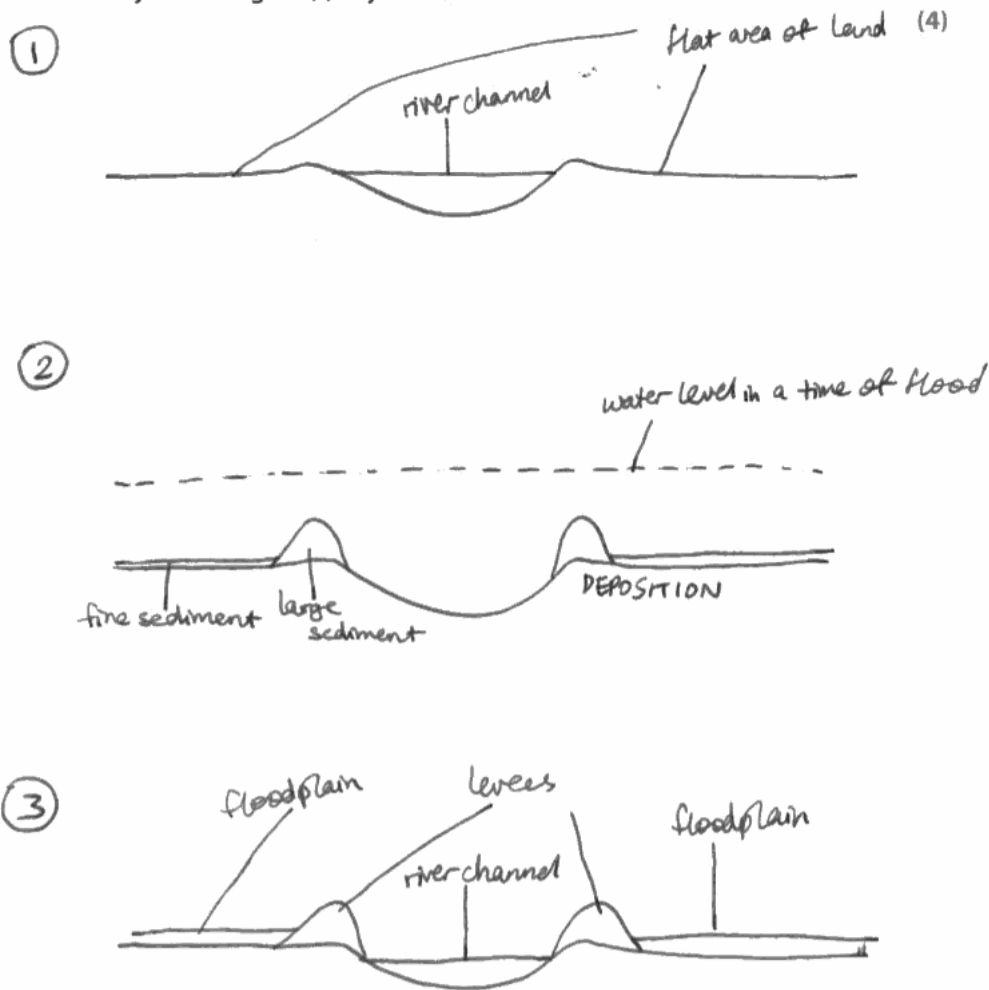
This question produced mainly descriptive answers as many candidates struggled to develop any explanation in their answer. Higher scoring candidates were also often limited to 3 marks as they commonly only addressed the formation of levees and not floodplains (although these were often labelled onto the diagrams). Outstanding answers not only addressed all aspects but were able to explain sequential deposition, and meander migration as a form of floodplain formation.

Many candidates used diagrams in support of their answers, though better answers often had a temporal sequencing in their diagrams.



(iv) Explain the formation of a floodplain and levees.

You may use a diagram(s) in your answer.



The river channel has flat land on either side of it (1). When the river floods, there is too much water for the river channel to hold and so some goes on to the flat plains. As the water spreads out, it loses energy and so deposits its material, heaviest first, forming high ridges on either side of the channel. The finer sediment is deposited on the flat areas of land. Over time, this sediment builds up (3) forming fertile floodplains covered in fine sediments and levees on either side of the river that are made up of the larger sediment, forming natural barriers.



### ResultsPlus

Examiner Comments

This candidate achieved 4 marks. S/he describes clearly and has a good set of diagrams to show the sequence of formation. S/he also explains sequential deposition and links the series of floods to floodplains.



### ResultsPlus

Examiner Tip

Ensure that, with all landforms, you are able to offer clear sequence in the formation, a named process and some clear explanation.

## **Question 2 (c)**

There were a range of answers, and the most popular case studies included the River Nene, Blandford Forum and the River Mississippi. Although many responses reached level 2, some could have been improved by not simply listing the different techniques employed along the managed area. Good answers had clear focus on *how* that technique reduced flooding, e.g. embankments which increased channel capacity. It may be a good idea for candidates to learn to clearly distinguish between *what* the method is and *how* it reduces flooding.

References to the River Nene often included abundant examples and specific data, many including details of the scheme such as dimensions of the flood defence, cost of implementation and different named areas along the river where methods were employed (as shown in example).

(c) Choose a river that you have studied.

Explain how this river is being managed.

(6)

Chosen river River Nene

On April 9<sup>th</sup> 1998, two people were killed in a Northampton flood and so in order to prevent future floods many river management schemes were developed. In Weedon during 2002, a 450m flood embankment was built at 6.8m high providing a habitat for flora and fauna as well as preventing bank erosion and storing water during peak rainfall so as to reduce risk of floods. This cost £2 million. In 2003 the flood warning system was updated and tested in Far Cotton, aiming to give at least two hours notice of floods so that people can evacuate if they are at risk. A floodwater retention reservoir was built at Billing near the aquadrome to hold excess water during floods so as to reduce flood damage and new housing at Upton Square was built above the floodplain so as to reduce its risk. In Foot Meadow, 4m flood walls were built to protect housing, industry and the Castle Inn. Debris was also cleared from the river's channel so water would be carried away more rapidly, meaning less risk for the settlement nearby. Also in Upton, Sixfields, £8 million was spent raising all main roads up to 6m higher on embankments, protecting them in flood times, and floodgates holding up to 1.2 million m<sup>3</sup> of water

(Total for Question 2 = 25 marks)



### ResultsPlus Examiner Comments

This is a full answer with clear reference to specific detail throughout the answer. The candidate is also able to address how the methods reduce flooding, hence full marks.



### ResultsPlus Examiner Tip

Ensure that candidates are able to apply a couple of specific facts which are relevant to their answers as well as to explain. The river Nene case study is particularly effective in this respect.

### Question 3 (a) (i)

Many candidates were able to use the resource to ascertain why Iceland was a suitable location for hydro-electric power in Iceland. Those that stuck to the resource tended to fare better than those who did not.

- (i) How do the glaciated landscapes in Figure 3a provide a suitable location for hydro-electric power stations in Iceland?

(3)

They form mountainous ~~region~~ areas that are necessary to hold a body of water and have a strong flow of water. They are remote, far from urbanisation there is plenty of snowfall, rainfall and glacial meltwater to provide water that is needed. There are differences in height which are needed for the water to turn the turbines.



#### ResultsPlus Examiner Comments

This candidate reaches 3 marks easily as they use the resource effectively. Link to mountainous areas, remoteness, and supply of glacial meltwater were all relevant points.



#### ResultsPlus Examiner Tip

When asked to use a resource ensure that you include references to it in your answer. Try to highlight in the resource relevant sections which may help you.

### Question 3 (a) (ii)

Many candidates were able to score at least 2 marks for relevant descriptions of uses. Some mis-interpreted the question and gave further examples of energy production. However many simply did not give examples to support their uses as required by the question. Examples of glacial uses should be more specific than a country location and should look to give a region or a specific named place, for example tourism at Jokulsarlon in Iceland or hiking up Mt. Snowdon.

(ii) Energy production is one way people use glaciated areas.

Suggest other ways people use glaciated areas.

Use examples in your answer.

(4)

The Nant Ffrancon Valley is protected by the National Trust to preserve the Valley for tourism and farming. The Valley has a Youth Hostel in the Ogwen Cottage. It also encourages tourist activities such as hiking and watersports. At the valley floor is cattle farming. There is also a slate mine to the North, producing job opportunities.



**ResultsPlus**  
Examiner Comments

Albeit a simple answer, this includes a couple of located places and a series of different uses of glaciated (post-glaciated in this case) areas.



**ResultsPlus**  
Examiner Tip

Ensure you are able to associate uses with named places. Ultimately this will improve your geographical understanding of place.

### Question 3 (a) (iii)

Identification of moraine has certainly improved compared to previous series. The vast majority of candidates identified a relevant type and most were able to offer some outline of formation. The types of moraine best outlined were medial and lateral. Those who chose terminal often did not relate it to its location which was often the deciding factor for the second mark.

(iii) The area circled on Figure 3a is moraine.

(3)

1. Name **one** type of moraine.

Medial Lateral.

2. Outline how it is formed.

It is formed when rocks fall from the valley sides due to freeze-thaw, then fall on the glacier and help the process of abrasion where rocks from the valley side are eroded, these rocks then fall work their way down the valley and are either dropped when the ice melts or by lodgements leaving lateral moraine.



**ResultsPlus**  
Examiner Comments

Clear recognition of moraine and a precise outline of how it was formed for 3 marks in total.



**ResultsPlus**  
Examiner Tip

Ensure that candidates clearly understand the relative locations of moraine types, not just a generic description associated with deposition.

### Question 3 (b) (i)

The vast majority named abrasion or plucking as a type of glacial erosion.

### Question 3 (b) (ii)

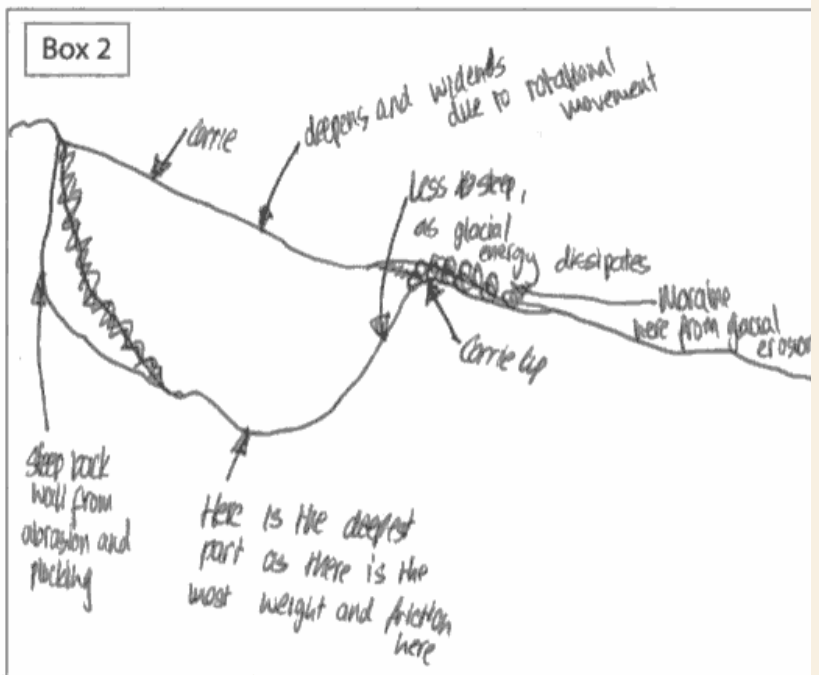
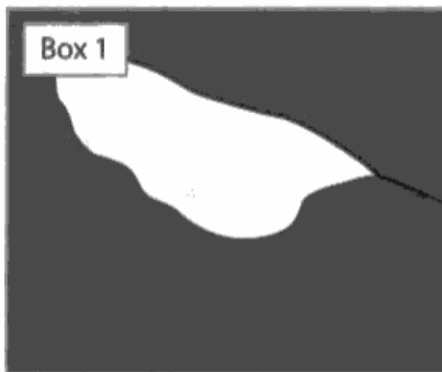
The vast majority of candidates recognised freeze thaw weathering as a named type of weathering in glaciated areas.

### Question 3 (b) (iii)

This was a well answered question, with many candidates scoring full marks. Scaled diagrams of the corrie and inclusion of features such as steep backwalls often set candidates off on the right track. Some excellent labelling of rotating ice, freeze thaw weathering and the movement of the glacier outside the corrie were also impressive. Some candidates also opted to take a post-glacial stance reducing the size of the glacier and including a tarn. On the whole this was better answered than the counterpart questions on Q1, Q2 and Q4.

(b) Study Figure 3b.

It shows a corrie glacier.



**ResultsPlus**  
Examiner Comments

A simple but effective diagram with a series of good labels highlighting a range of features, easily scoring this candidate full marks.



**ResultsPlus**  
Examiner Tip

Candidates should practise drawing and labelling different glacial landforms so that they are able to interpret them in the exam.

### **Question 3 (b) (iv)**

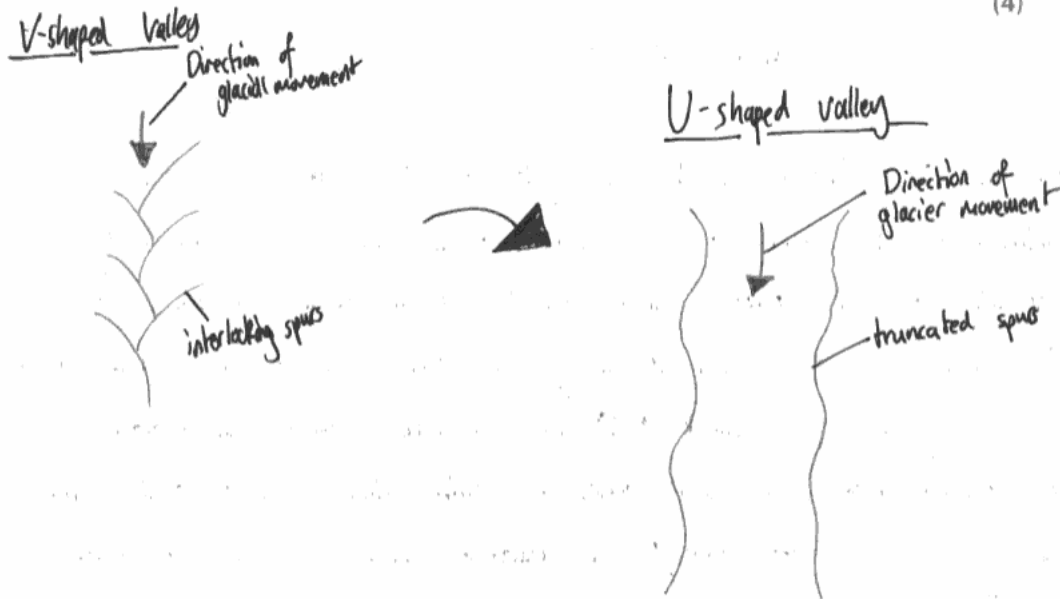
This was the worst answered question on the glaciers section with evidence of poor understanding of truncated spurs. Candidate performance could be grouped into one of three categories; those who had little knowledge of truncated spurs; those who could simplistically describe U-shaped valleys and labelled truncated spurs seemingly as an after thought; and finally those who understood the link between interlocking and truncated spurs but were unable to offer detailed explanation beyond 3 marks. A full 4 mark answer was a rarity. This is one landform that needs a higher profile in candidates' learning.



(iv) Explain the formation of truncated spurs.

You may use a diagram(s) in your answer.

(4)



As the glacier moves down-hill due to gravity it pushes rock material out of its way by bulldozing the interlocking spurs. A combination of bulldozing and abrasion erode the interlocking spurs, forming truncated spurs as the valley goes from V-shaped to U-shaped. By the formation of truncated spurs a flat base and steeper valley sides are made - a U-shaped valley. As the glacier advances, frost-shattering of the valley sides breaks off rock fragments which are deposited on the glacier, contributing to truncated spur-production.



### ResultsPlus Examiner Comments

This is one of the few responses which could be awarded full marks. The diagram shows a clear progression from interlocking spurs to a U-shaped valley, with labelled truncated spurs. However the explanation is very good. There is a clear link to why the glacier bulldozes through the valley, and at the end a useful explanation of process to take it to 4 marks.



### ResultsPlus Examiner Tip

For all landforms ensure that you are able to give a full sequence, name a process and fully explain the landform formation. Explanation is the area on glaciers that candidates most often struggle with.

### **Question 3 (c)**

This question required candidates to focus on both the causes and effects of the avalanche studied, and rarely were we let down. Many candidates referred to Galtur, and many gave a detailed account, often supported by specific facts, of both the causes and effects. Although for many there was an imbalance in their answer, good candidates referred to the anomalous weather conditions in forming a 'melt crust', while, on effects, there were often good responses to the economic impact on the areas affected. Many candidates achieved top Level 2 or Level 3 answers and the mean mark was an impressive 4.8.

(c) Choose an avalanche you have studied.

Explain the cause and effects of this avalanche.

(6)

Chosen avalanche Galtür, Austria

The causes of the avalanche were very strong snow fall. Galtür experienced about 4 weeks of heavy snow fall leaving fresh layers of it. The weather also changed drastically, going from cold, to warm, then cold again. This left a special layer of snow that was very hard, as the snow had melted, then re-froze. Galtür also experienced strong winds which brought over many snow clouds. It also spread the snow out. The effects of the avalanche were huge as they had to close the ski resort for weeks, losing them £7,500,000 from the tourist industry. 31 people also died, which 5 of them were locals and 26 tourists, and 11 people were severely injured. The ski village and the village where locals lived was completely destroyed, leaving houses, possessions and cars completely crushed. They also had to shut the roads off so people couldn't enter nor leave Galtür by car. Rescue workers came in by helicopter, and locals also helped search for bodies. It has also had a positive effect as Galtür now set off many more precautions for the risk of avalanches such as setting controlled ones by bombs.



### ResultsPlus Examiner Comments

A typical Level 3 answer scoring full marks. The candidate has an explanation and a specific point in reference to both causes and effects which was necessary for maximum marks.



### ResultsPlus Examiner Tip

Ensure you learn specific points for both causes and effects when studying avalanches so that you can produce balanced answers in the exam.

## Question 4 (a) (i)

Many candidates were able to use the resource to correctly identify at least 3 causes shown in Figure 4(a). Some candidates quoted figures, e.g. 70,000 but did not state their significance, while others did not gain credit as they generalised their responses, e.g. 'many died, others were homeless'. To get full marks here it was enough to use the material in the resource.

(i) Describe the effects of the earthquake shown in Figure 4a.

(3)

The earthquake caused 307 deaths. made 70'000 people homeless and the damage cost €4 billion. The picture shows that many buildings had been badly damaged.



### ResultsPlus Examiner Comments

A typical response from a good candidate, who selects the appropriate facts from the resource. This response scores full marks.



### ResultsPlus Examiner Tip

Ensure that, if asked to use a resource, you quote directly from it.

### Question 4 (a) (ii)

The majority of candidates recognised the collision of the two plates, the Eurasian and African, as the cause of the earthquake. Some candidates, who failed to score marks, gave a generic answer. Here the question related to the earthquake from the resource not earthquakes in general.

### Question 4 (a) (iii)

Many candidates scored only 1 mark as they noted how the Richter scale measured the magnitude of an earthquake. Many then proceeded to incorrectly outline how the Richter scale measured shaking, the job of a seismometer. Some higher scoring candidates were aware of how the scale worked, i.e. it was logarithmic.

(iii) Outline what the Richter scale measures. (2)

The Richter scale measure the magnitude of that earthquakes produced. (the magnitude is the force/vibrations caused by the focus of the earthquake).



**ResultsPlus**  
Examiner Comments

This was a typical 1 mark response which linked the Richter scale to representing magnitude. Candidates must be able to distinguish between the scale and the instruments used to gather data.



**ResultsPlus**  
Examiner Tip

Ensure you can clearly distinguish between what is shown by the Richter scale, the Mercalli scale and a seismometer.

## Question 4 (b)

A range of reasons were offered by candidates, many of which contained explanation. However, many candidates only scored 3 marks as they did not use examples in their answer. At this level examples should be place orientated and should be more than just the country, i.e. the volcanic region or name of a particular volcano. There were some good answers making reference to olive and wine growing on Mt. Vesuvius and some interesting references to spiritual beliefs associated with Mt. Merapi and Mt Mayon. Some lower scoring responses were purely descriptive, though some included examples. Such answers could not usually be awarded more than 2 marks.

(b) Explain why people continue to live in areas affected by volcanoes.

Use examples in your answer.

(4)

People continue to live in areas affected by volcanoes because, the housing is cheaper and they may not be able to afford to move, their family has lived there for generations so they don't want to move, crops stay well fertilised because of the volcano, so it is good for business and tourists visit the volcano, so they are making money living in the area.



### ResultsPlus Examiner Comments

This was a typical response scoring 3 marks, which did not include examples. All of the points made are relevant to living near volcanic regions, yet none is supported.



### ResultsPlus Examiner Tip

When learning reasons why people live near areas affected by volcanoes or earthquakes, try to link them to named regions. Alternatively, next time there is a volcanic eruption on the news research your own reasons.

## Question 4 (c) (i)

Although worth only one mark this question discriminated well, as a significant number of candidates were confused by the direction of the plate, and appeared not to have studied hotspots in great detail. The plate has to move west in this case to generate the chain of islands shown.

### **Question 4 (c) (ii)**

Again a 1 mark question which was a good discriminator. Many did not read the question carefully and tried to link their answer to a plate boundary. Those who used the resource well often scored the mark.

### **Question 4 (c) (iii)**

For those candidates unfamiliar with hotspots this question proved to be difficult. Some simply copied box 1, others drew a plan view of the 3 islands as a volcanic chain. Those with a clear understanding of hotspots often added extra cones, eroded the existing cones, and in the labelling changed the eruption status of cone 2 to extinct. A wide variety of responses here, a clear discriminator and evidence that candidates need to practise drawing labelled diagrams of different tectonic landforms.

(c) Study Figure 4b.

It shows hotspot volcanoes.

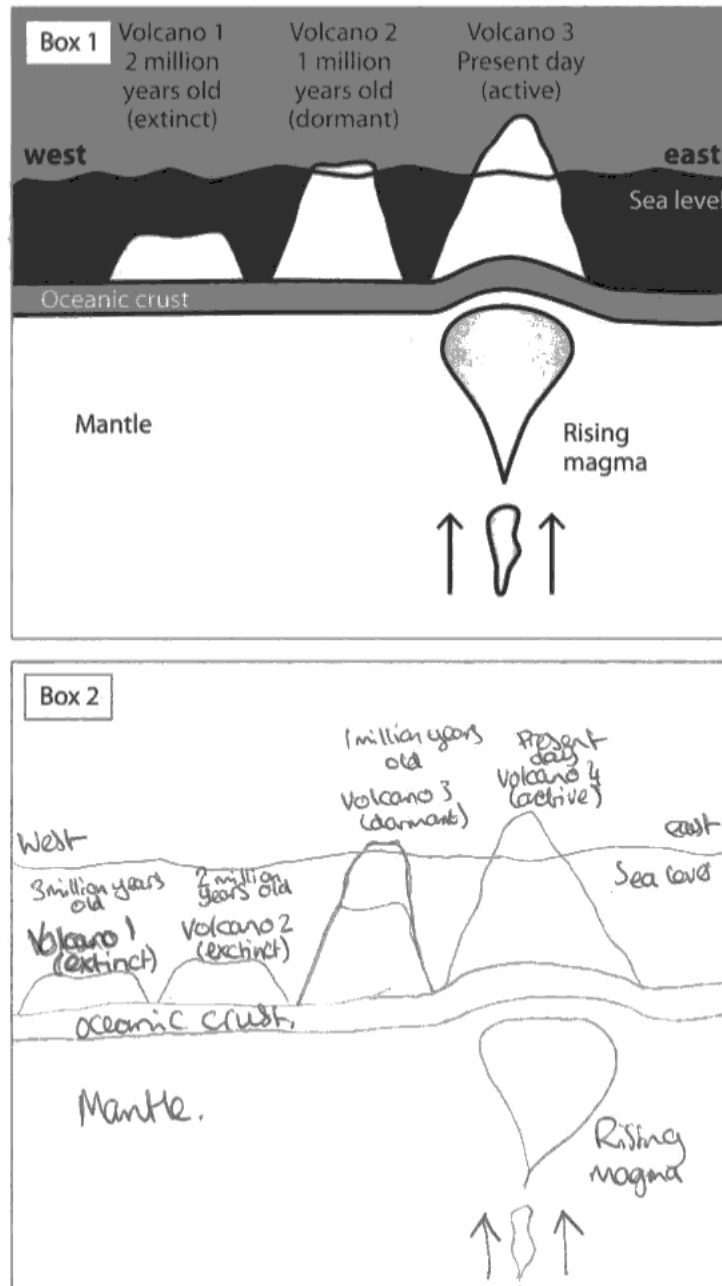


Figure 4b



**ResultsPlus**  
Examiner Comments

This was a good example of a candidate scoring full marks. Clear development of box 1, with erosion of cone 2 and 3, a newly formed cone 4 and both cones 1 and 2 labelled "extinct".



**ResultsPlus**  
Examiner Tip

Practise drawing, labelling and annotating a variety of tectonic landforms so that you are comfortable with them in the exam.



### **Question 4 (d)**

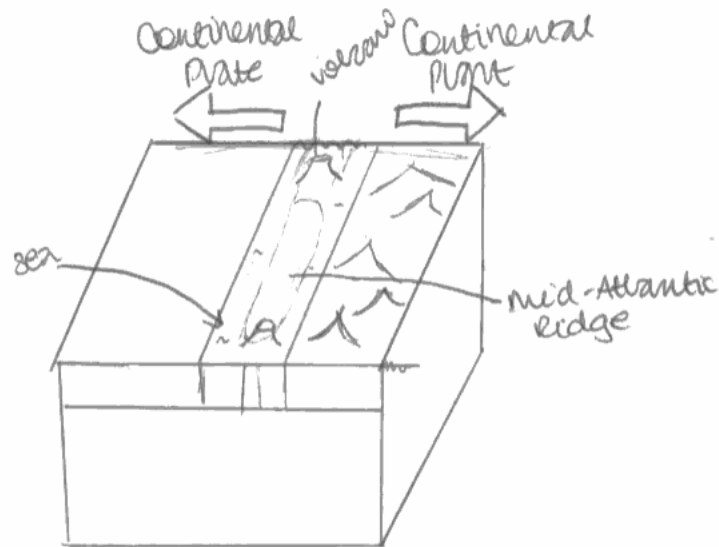
It was clear from marking this question that candidates often fail to differentiate between the formation of volcanoes at different tectonic settings and the explanation of different characteristic features at the plate boundaries. With a mean mark of 2.2 it was clear that most candidates simply described the features at a divergent plate boundary and were unable to offer any explanation for their existence. Some candidates confused divergent with destructive and their response failed to score.

Many of the responses which scored higher than 2 marks achieved this by explaining the eruption of magma due to rising magma associated with convection. Few commented on the effusive nature of the eruptions, or explained the type of volcanic cones found, nor did they comment on the shallow and low magnitude earthquakes found here. An alarming number of students felt that there was no earthquake activity found on the plate boundaries. Candidates may benefit from drawing a series of cross-sectional annotated diagrams to cover the features at each plate boundary.

(d) Explain the characteristic features of a divergent plate boundary.

You may use a diagram(s) in your answer.

(4)



At a divergent, or constructive, plate boundary two continental plates move away from each other. Between the two plates volcanoes or a mid-Atlantic ridge will form. As the plates move apart there may be earthquakes. The volcanoes are not as explosive as at destructive ~~and~~ boundaries and the earthquakes are gentler because there is no build up of friction between the plates as they are pulling away.



### ResultsPlus Examiner Comments

This was a relatively rare but very good example of the type of response to reach full marks. The candidate uses the diagram to highlight some of the features and to show an understanding of plate movement. S/he then clearly describes features specifically associated at a divergent boundary, and the explanation of non explosive volcanism and low intensity earthquakes is sound.



### ResultsPlus Examiner Tip

Prepare an annotated cross sectional diagram with 3 - 4 features of each plate boundary. Ensure also that you can explain the formation of volcanoes as well as the characteristic features of each plate boundary.

### **Question 4 (e)**

This was another potentially challenging question especially as candidates were unsure about what 'forecasting' earthquakes meant. The specification states that candidates must be able to explain how building design, forecasting, education and planning help reduce the impacts of tectonic activity. Although there are no successfully proven methods to forecast earthquakes (as noted by some perceptive candidates), there are a series of methods used to give short term notice. These must be differentiated from how authorities plan for tectonic events. As such we accepted answers in reference to escaping radon gas, use of seismometers to monitor stress in the crust and the behaviour of animals.

Many candidates found it relatively easy to access the top of Level 2 with very good explanations of different building designs, including counter weights, shatter-proof glass and cross-bracing which were often related to examples of buildings. However, candidates need to improve their understanding of our ability (or not) to forecast in the light of specification requirements.

(e) Explain how the effects of earthquakes can be reduced through forecasting and building design.

Use examples in your answer.

(6)

Building designs can reduce the effects of an earthquake. This can happen by building deeper foundations, ~~adding~~ <sup>reinforcing</sup> steel bars into the walls and ceilings, having counter weights on the roof and building them so they sway a little during the earthquake. Building deeper foundations means the buildings have a more secure base and are less likely to fall down or collapse.

Reinforcing steel bars gives buildings a sturdier frame so the walls and ceilings won't cave in during an earthquake. It also helps the building to stay upright during the quake to support higher levels. ~~Can~~

Counter weights on top of buildings balance out the movement from the plates, this makes the building steadier. Also, building the buildings so they sway a bit during an earthquake gives them a little flexibility to move with the quake so it's not as rigid. Doing this means it has a lesser chance of falling down. They've done ~~this~~ all these in ~~the~~ countries like Japan.

Predicting earthquakes is hard but it can be done. You could look at the history of earthquakes to see if there's a pattern for when there will next be one, or you could look at the plate activity. Looking at the plate activity will give you a clear idea as to when there will be an earthquake.



### ResultsPlus Examiner Comments

Although an unbalanced answer, the candidate gives clear explanatory detail on building design, and makes reference to hazard mapping as a form of forecasting. Named methods were deemed acceptable as specific examples in this question.



### ResultsPlus Examiner Tip

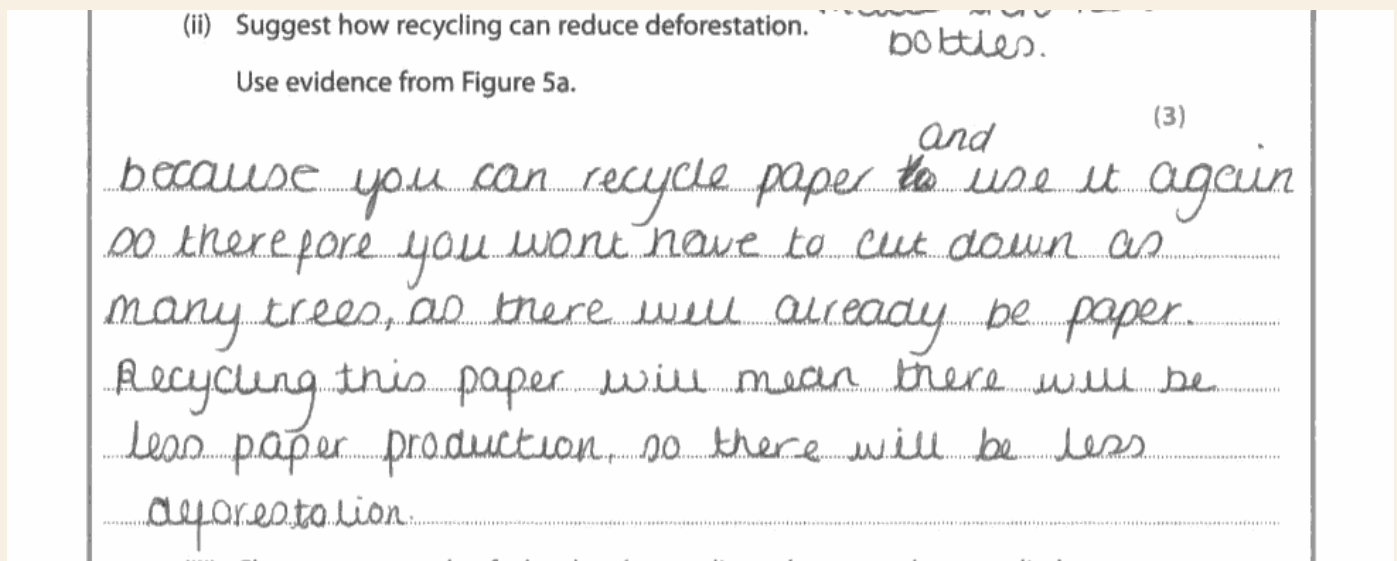
Ensure that the candidates can differentiate between planning and forecasting of earthquakes.

### Question 5 (a) (i)

Many candidates were able to use the resource to identify ways in which products can be recycled. Those that did not score full marks often defined recycling or gave reference to products not shown in Figure 5(a).

### Question 5 (a) (ii)

Many responses were held at 2 marks here as they did not make explicit reference to evidence from Figure 5(a). Many were able to outline how re-using a product would lead to fewer trees being cut down, but, without reference to the resource, answers were self limiting. The most common references included 'less paper production', 'fewer items sent to landfill' and use of the 'hydrapulper' to undertake the recycling.



#### ResultsPlus Examiner Comments

Here the candidate makes clear reference to re-using paper resulting in fewer trees being cut down; but towards the end they mention less paper production, which is specifically linked to Figure 5(a) and the response scores 3 marks.



#### ResultsPlus Examiner Tip

If asked to give evidence from the resource, try to make it obvious, for example 'Figure 5(a) shows....'

### Question 5 (a) (iii)

Candidates were well prepared for this question, since many were able to make reference to schemes brimming with local detail on recycling. However, many answers were purely descriptive, simply telling the story of the journey of a recycled object. Without explanation, candidates' responses were limited to 2 marks, and it is clear that candidates need to develop the explanations of their examples. Good explanations included why schemes were employed, or included part of the recycling/reprocessing process. Some lower scoring candidates made reference to national schemes.

(iii) Choose an example of a local scale recycling scheme you have studied.

Explain how its waste material is recycled.

(4)

Chosen local recycling scheme Re3 scheme

Brockwell Forest Council in Berkshire has teamed up with Reading and Wokingham City Council to ~~to~~ recycle waste properly. Paper is ~~sent~~ sorted and baled in Maidenhead and then sent to St Regis Paper mill to be made into new packaging material. Plastics are recycled by the Biffa recycling group at their plant in Keynasham near Bristol. Plastic is sorted and turned into new products such as fleece jackets or plastic bottles. Cans are ~~first~~ first sorted then turned into more cans or even cars. Glass is recycled in Yorkshire and is crushed and then mixed with ~~the~~ sand or limestone to make new glass. Also there is a recycling bin service in the three Councils which collects other waste.



#### ResultsPlus Examiner Comments

This candidate makes reference to the popular Re3 scheme and includes plenty of specific detail. They give a hint of explanation for the cause of the scheme and a thorough account of how products are reprocessed, thereby scoring 4 marks.



#### ResultsPlus Examiner Tip

There is a risk of responding to this question with description only and therefore you have to make the explanation clear. You might do this by explaining the objectives of a recycling scheme or by developing your explanation of how a product is recycled.

### **Question 5 (b) (i)**

Many candidates find the description of distribution a challenge and this question was no different. With a mean score of 2.3 candidates often told a story or gave a 'Cook's Tour' of the continents' energy use. Fewer candidates could identify a pattern/trend, then give variations and anomalies. Therefore it seems that this is an area in which candidates would benefit from further practice. This question did not give an obvious trend; however some candidates recognised that most places near to the equator had low energy use except Australasia, while others noted that all HICs had high energy use, except Europe. Some candidates did not use data and therefore their responses were self limiting; others did not recognise the areas of the world with most/least.

On an administrative note, no key was given here as the values for energy use were complicated and deemed to detract from the actual values, even though it is good geography to use a key.

(b) Study Figure 5b.

It shows energy use per person in different regions.

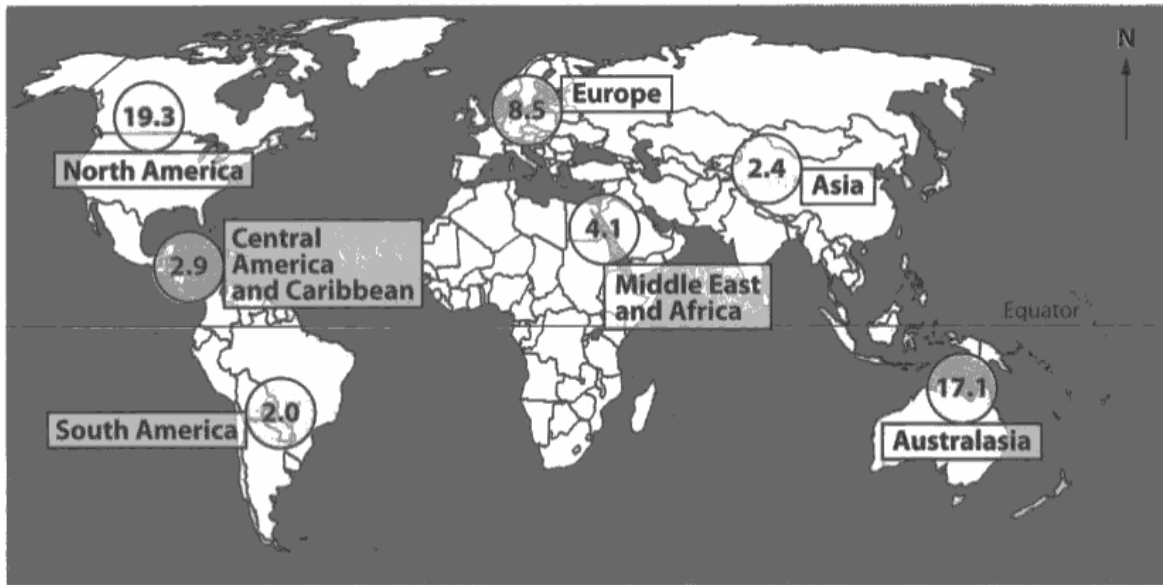


Figure 5b

(i) Describe the distribution of energy use per person.

Use energy use data in your answer.

(4)

The most energy use per person is in North America at 19.3, the Australasia at 17.1. Even though Europe is full of HIC's it only has 8.5. All the Areas of Low income countries only use 2.0-4.1 per person. I think that North America and Australasia use the most because they are big land masses & quite isolated so to go on holiday or travel, a lot of energy is used.



### ResultsPlus Examiner Comments

This candidate recognises a clear trend, gives the exception to it (Europe) and uses data throughout. They also recognise the highest energy user. All of this in 5 lines, and that is without crediting the explanation on the final 3 lines. A good concise response.



### ResultsPlus Examiner Tip

Ensure, when describing distribution, that you refer to data, identify the main pattern, the variations within the pattern and anomalies to it.



### Question 5 (b) (ii)

The majority of candidates were able to define non-renewable energy to score full marks. Many identified the finite nature of the resource and many referred to an example.

### Question 5 (b) (iii)

Although fairly well answered by many, too many candidates chose to describe rather than explain and their responses were therefore limited to 2 marks. However, many had a good grasp of points and many could relate to types of renewable energy. Candidates should try to relate to specific types of renewable energy as it makes the points made more specific.

(iii) Explain the advantages and disadvantages of renewable energy.

(4)

The advantages of renewable energy are that it is going to last forever, or a long to everlasting, it will never run out and most often than not, completely unpolluting and unhamful to the environment however, such sources as wind power mean wind turbines, which are massive, these are expensive to build, buy and put up. Also there is the case of sight pollution, for example hills get a lot of wind, but these are often areas of natural beauty, which causes a problem.



**ResultsPlus**  
Examiner Comments

This candidate only focused on wind power, which was acceptable, but did not explain the advantage and therefore gained 3 marks of the 4 available.



**ResultsPlus**  
Examiner Tip

If asked to explain advantages and disadvantages be sure to give a balanced answer with clear explanation of both aspects. Relating what you say to a named type of energy e.g. solar power, often gives the answer more focus.

## Question 5 (c)

This was a well answered question, as candidates focused on different methods to reduce energy wastage in the home and as such were able to access at least top Level 2 with good explanation. However some candidates did not give specific data to support their answer, such as percentage of heat loss or cost of energy reduction methods. Some candidates unfortunately focused on recycling, even though it had been addressed in 5(aiii), and therefore scored 0.

\*(c) Explain how energy wastage in the home (domestic) can be reduced.

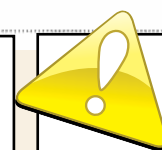
(6)

Energy in the home can be reduced in the home on many occasions. Insulation of the walls and loft can reduce it drastically. 35% of heat is lost through the roof and the insulation can cut that down massively. Another way is to have double glazed windows this will stop energy from escaping and also cut down noise. Also to reduce the energy being lost is to install draft excluders which will cover up the holes around the doors and windows. Creating your own energy can reduce the wastage. Now homes are encouraged to have solar panels on their roofs and some may even have a wind turbine producing energy. Using a water butt instead of needing new, clean water to ~~have~~ wash the car with or use in the toilet too.



### ResultsPlus Examiner Comments

Although this candidate makes one specific point (35% of heat lost through roof) and gives some explanation there was no credit for reference to solar panels and this response could not reach more than top Level 2.



### ResultsPlus Examiner Tip

When learning about reducing energy wastage in the home ensure that you are able to quote specific points to support your answer.

### **Question 6 (a) (i)**

A generally well answered question by many candidates. Marks were obtained a by a very methodical interpretation of each cartoon and or by applying knowledge and understanding of the problems associated with water supply in LICs. The better answers focused their comments on the major water supply problems, clearly indicating why what was portrayed in the cartoons constituted a serious issue for those living in such countries.

### **Question 6 (a) (ii)**

The vast majority of candidates were able to score full marks for recognising water borne diseases. Common answers included cholera and dysentery.

### **Question 6 (a) (iii)**

With a mean mark of 2.48 this question was handled more effectively by candidates than in past series. Good understanding of different types of appropriate technology as well as a grasp of the cost, scale and specifics of methods helped higher scoring candidates to gain marks. However a tendency to be descriptive and not concentrate on how the method improved water supply limited some. Equally, reference to just one type of technology limited good answers to 3 marks as they failed to include a range of examples.

(iii) Explain how appropriate technology can improve water supply in small communities in LICs.

Use examples in your answer.

(4)

Appropriate technology such as hand-dug wells, tubewells, gravity-fed schemes and rainwater harvesting can be used in LICs to supply water to small communities. These methods are mostly all inexpensive, environmentally sustainable, and easy to build or maintain, which makes them perfect for small communities in LICs. LICs like Bangalore and India are also developing water recycling schemes so that they don't run out of water - Bangalore has announced plans to supply 600 million litres of recycled water to its citizens for drinking.

\* Hand-dug wells and tubewells both supply water being brought up from the ground, although hand-dug wells are usually wider and shallower. Gravity-fed schemes only apply in hilly areas, where a high-up water source can be dammed, protected, then piped down to the village. This requires lots of maintenance, as does rainwater harvesting where a roof is cleared to gather rain as it falls, which then runs down the gutter and is stored in tanks.



**ResultsPlus**

**Examiner Comments**

Although not a typical response, this candidate shows a clear understanding of a range of methods and gives explicit reasons for their use. A good 4 mark answer.



**ResultsPlus**

**Examiner Tip**

Ensure that when asked for examples you are able to focus on more than one type of appropriate technology. Equally, reference to specific places can often give the answer more substance.

## Question 6 (b) (i)

The vast majority of candidates identified Murcia as the city located in a high water deficit region.

## Question 6 (b) (ii)

As in Q5 candidates found this the most challenging part of Q6. The ability to describe distribution is often a good discriminator and a challenging task, and this question was once again proof that candidates benefit from regular practice of this skill. Recognising the overall trend, the variation within the trend and an exception to the trend act as a good model for tackling these questions. In addition, the use of map evidence or data will also secure a mark. In this question the East/West general trend was identified by most. Within that trend some recognised that higher surplus areas were either further north or north west, while higher deficit areas were further south east. The exceptions were often recognised as Madrid, a surplus area in the centre of the country or Barcelona, a deficit area, to the north.

Overall, candidates returned a better score than for the comparative item on question 5 but there are still lessons to be learnt.

(ii) Describe the distribution of water surplus and deficit shown in Figure 6b.

Use evidence from Figure 6b in your answer.

(4)

In the South of Spain, especially the South East coast there is high water deficit and in the East coast it has water deficit. In Central and Northern Spain there is high water surplus and water surplus except in Barcelona in the North East coast which has water deficit. Places such as Madrid and León are in high water surplus.



### ResultsPlus Examiner Comments

This candidate scored 4 marks by identifying in the first two sentences the pattern, as well as differentiating between those areas of high water surplus and those of surplus. The recognition of Barcelona as an exception and the use of named areas as map evidence helped this answer to score full marks.



### ResultsPlus Examiner Tip

Remember, when describing distribution, to give the overall pattern, variation within the pattern, anomalies to the pattern and either map evidence or data.

## Question 6 (b) (iii)

Candidates often easily scored 2 marks for describing the demands of leisure and tourism without then explaining how they lead to water shortage. Higher scoring responses often focused on the plight of the local populations discriminated against by the local authorities in favour of the affluent tourists, or gave an account of how seasonal variability of rainfall coincided with higher summer demands. Few lower scoring candidates focused on LIC examples. Those that focused on the Spanish Costas often accessed the higher scores.

(iii) Explain how the demands of the leisure and tourism industry can lead to water shortages in HICs.

(4)

In the UK since 1990 to 2004 603 new golf courses were built meaning that they will need extra water supplies to fulfil the needs of customers and therefore this has increased the pressure of water <sup>supply</sup> in the UK. In Spain, holidaymakers expect hotels and resorts to already have swimming pools provided for them. ~~for~~ <sup>This increased pressure</sup> ~~on the facilities~~ and in the great expansion boom of Murcia in 2008 farmers were protesting that there wasn't enough water for their crops which led to a black market in selling water like gold dug from <sup>many</sup> illegally wells.



**ResultsPlus**

**Examiner Comments**

This candidate focuses on a couple of examples to highlight their point. They give good detail on water usage by the tourism industry and also comment on the impact of water shortages.



**ResultsPlus**

**Examiner Tip**

Reference to specific examples can often give an answer more focus. The Spanish Costas are often referred to by candidates and constitute an excellent example.

### **Question 6 (c)**

A range of examples were used in reference to water management schemes including the popular 3 Gorges Dam, Kielder Water, schemes on the River Colorado, the GAP project and the Aswan Dam, among other examples. Candidates often showed excellent factual recall of their case studies, though some tended to describe the scheme rather than focus on the impacts on the people. The best answers came from those using the 3 Gorges Dam example, many of which reached Level 3. To achieve this candidates were required to explain and give specific data on both the positive and the negative impacts. Some were only limited by their inability to do this, or because they focused on environmental impacts rather than those on people. That said, this question returned a mean score of 3.95 which was impressive.

\*(c) Choose a water management scheme you have studied.

Explain the positive and negative effects (impacts) of this scheme on people.

(6)

Chosen scheme Three Gorges Dam

The Three Gorges Dam started construction in 1994 in China. It was finished in 2010 costing £15 billion. There were many negative and positive impacts of the Dam, these include the extinction of the Yangtze river dolphin due to the river being blocked off because of the Dam they were all killed. On the positive side the Dam is used as a hydro-electric plant and is said to be able to produce 10% of China's electrical needs but due to major increases in Chinese demand it ~~only~~ produces about 5% now which saves loads of tonnes of oil and coal. There were negative social effects such as the fact 1.24 million people had to be relocated as the Dam's reservoir needed 39.3 km<sup>3</sup> to fill so everyone in this area was relocated. On the plus side most were moved to better accommodation with some having electricity for the first time. There were positive economic reasons ~~like~~ such as the 20,000 jobs created building the Dam and money was saved on shipping due to the better shipping lanes created during the Dam's build ~~energy saving to be saved as the~~



### ResultsPlus

Examiner Comments

This was a typical response which scored full marks. The references to positive and negative are clear and there is ample specific data used throughout.



### ResultsPlus

Examiner Tip

Ensure that your answer focuses on the correct impacts, i.e. if asked for impacts on people avoid references to the environment.



## Paper Summary

Candidate performance on the paper was in line with that of the last two series and it is pleasing to see evidence that centres are following the advice given in previous examiners' reports.

The following comments may lead to improved performance by all candidates:

- i) Candidates will benefit from regular practice in drawing labelled or indeed annotated diagrams of landforms to familiarise themselves with their appearance and to be able to show and explain their formation.
- ii) Use of a sequence of diagrams in landform questions will enhance the understanding of landform development.
- iii) Candidates will benefit from using places in questions asking for examples. Many candidates are unable to relate some excellent points to named areas/regions.
- iv) It is useful to learn the processes outlined in the specification as a series of definitions so that candidates can apply them in the examination.
- v) Candidates will benefit from regular practice of describing distribution from maps - focusing on giving an overall trend, variations within the trend and exceptions to it.

As a final administrative point, as requested in previous examiners' reports, if candidates are going to write outside the allocated area, or indeed on a different page, they should clearly signal this to the examiner with more than just an asterisk or arrow.

Overall the examiners were pleased with the candidates' performance and would like to congratulate them for their achievements in this series.

## **Grade Boundaries**

Grade boundaries for this, and all other papers, can be found on the website on this link:

<http://www.edexcel.com/iwantto/Pages/grade-boundaries.aspx>



Further copies of this publication are available from  
Edexcel Publications, Adamsway, Mansfield, Notts, NG18 4FN

Telephone 01623 467467

Fax 01623 450481

Email [publication.orders@edexcel.com](mailto:publication.orders@edexcel.com)

Order Code UG032282 June 2012

For more information on Edexcel qualifications, please visit

[www.edexcel.com/quals](http://www.edexcel.com/quals)

Pearson Education Limited. Registered company number 872828  
with its registered office at Edinburgh Gate, Harlow, Essex CM20 2JE

Ofqual  
.....



Llywodraeth Cynulliad Cymru  
Welsh Assembly Government

