OXFORD
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INTERNATIONAL GCSE

GEOGRAPHY

9230/1

Paper 1 Living with the Physical Environment

Mark scheme

November 2021

Version: 1.0 Final Mark Scheme

21BY9230/1/MS

Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this mark scheme are available from oxfordaqaexams.org.uk

Level of response marking instructions

Level of response mark schemes are broken down into levels, each of which has a descriptor. The descriptor for the level shows the average performance for the level. There are marks in each level.

Before you apply the mark scheme to a student's answer read through the answer and annotate it (as instructed) to show the qualities that are being looked for. You can then apply the mark scheme.

Step 1 Determine a level

Start at the lowest level of the mark scheme and use it as a ladder to see whether the answer meets the descriptor for that level. The descriptor for the level indicates the different qualities that might be seen in the student's answer for that level. If it meets the lowest level then go to the next one and decide if it meets this level, and so on, until you have a match between the level descriptor and the answer. With practice and familiarity you will find that for better answers you will be able to quickly skip through the lower levels of the mark scheme.

When assigning a level you should look at the overall quality of the answer and not look to pick holes in small and specific parts of the answer where the student has not performed quite as well as the rest. If the answer covers different aspects of different levels of the mark scheme you should use a best fit approach for defining the level and then use the variability of the response to help decide the mark within the level, ie if the response is predominantly level 3 with a small amount of level 4 material it would be placed in level 3 but be awarded a mark near the top of the level because of the level 4 content.

Step 2 Determine a mark

Once you have assigned a level you need to decide on the mark. The descriptors on how to allocate marks can help with this. The exemplar materials used during standardisation will help. There will be an answer in the standardising materials which will correspond with each level of the mark scheme. This answer will have been awarded a mark by the Lead Examiner. You can compare the student's answer with the example to determine if it is the same standard, better or worse than the example. You can then use this to allocate a mark for the answer based on the Lead Examiner's mark on the example.

You may well need to read back through the answer as you apply the mark scheme to clarify points and assure yourself that the level and the mark are appropriate.

Indicative content in the mark scheme is provided as a guide for examiners. It is not intended to be exhaustive and you must credit other valid points. Students do not have to cover all of the points mentioned in the Indicative content to reach the highest level of the mark scheme.

An answer which contains nothing of relevance to the question must be awarded no marks.

Section A

Question 1 The challenge of natural hazards

Qu	Part	Marking guidance	Total marks
01	1	**State the direction of plate movement at X.** South east/east south east.	**1 mark** **AO4=1**
01	2	**Identify the type of plate margin at Y.** Destructive	**1 mark** **AO1=2**
01	3	**The North American plate and the Eurasian plate move apart 6 cm per year. Calculate how many years it will take for the plates to move 60 m apart. Show your working.** 6000 / 6 = 1000 years Allow 1 for showing appropriate working out and one mark for overall answer.	**2 marks** **AO4=2**
01	4	**What are the latitude and longitude coordinates for this volcano? Shade in one circle only.** C	**1 mark** **AO4=1**

01	5	**Volcanos only occur at plate margins. To what extent do you agree with this statement? Use evidence from Figure 1 and Figure 2.** Level 2 (Clear) – 3–4 marks – Clear links between plate margin map and distribution of volcanoes. Provides evidence to support but also against the statement- this is likely to be imbalanced. Clear assessment of to what extent, supported by evidence included – a coherent case is presented. Level 1 (Basic) – 1–2 marks – Separate description of plate margins or, more likely, distribution of volcanoes. Possibly occasional links. Provides evidence to support the statement. Simple assessment of to what extent, if present. 0 – No relevant content. **Indicative content** There is clearly evidence to support the statement with volcanoes occurring at the plate margins down the west side of the Americas, along the boundary of the Indo-Australian and the Eurasian Plate around southern Asia and Indonesia and the western area of the Pacific Ocean where the Pacific Plate meets the Philippines Plate and the Eurasian Plate (Japan). There are other areas where plate margins coincide with volcanoes such as more sporadically along the Antarctic Plate and Scotia Plate and down the middle of the Atlantic Ocean – with North and South American Plates meeting the Eurasian and African Plates. However, volcanoes do occur away from plate boundaries shown on Figure 1. There are a number in eastern Africa apparently within this plate and volcanoes within the Pacific Ocean. So although volcanoes mainly occur at plate boundaries, this is clearly not always the case.	**4 marks** **AO2=2** **AO3=2**

01	6	**Outline why volcanos do not occur at conservative plate margins.** Plates slide past each other at conservative margins (1). There is no melting of rock (1) and so there is no source of magma (1). There is no 'gap' between plates (1) from where magma can escape (1)	**2 marks** **AO1=2**

01	7	**Use Figure 3 to identify one likely risk to people living near the eruption.** Any risk such as ash, gases, smoke, lava flow, lahar (1)	**1 mark** **AO4=1**

01	8	**Explain why people continue to live in areas at risk from volcanic activity.** **Indicative content** People may live in areas of volcanic activity due to opportunities offered- such as with regard to farming where fertile soils are provided which is rich in minerals; tourism where visitors generate an income in areas such as Iceland, New Zealand, Indonesia; geothermal power is a renewable alternative and mining of things such as sulphur in Indonesia. Such opportunities offer benefits that outweigh risks of lahars, lava flows and ash clouds. This is especially the case where residents do not necessarily understand the risks; feel that it is out of their control - and determined by other forces; believe that it won't happen as it hasn't so far and so people lack the awareness so just disregard the risk and continue with everyday life. Conversely, people living in some areas believe that warnings can be issued and preparations can be made to overcome any danger – with the eruption of Mt Pinatubo being a case in point and the many thousands that live in the shadow of Vesuvius in the Naples area.	**6 marks** **AO1=3** **AO2=3**

Level 3 (Detailed)	5–6 marks	Specific, detailed use of own knowledge of reasons people continue to live in areas of volcanic activity, despite the risks. Statements are developed and linked, logically ordered with clear links to the risk and the reason for remaining.
Level 2 (Clear)	3–4 marks	Some specific use of own knowledge of reasons people continue to live in areas of volcanic activity, despite the risks. Some statements are developed and linked, logically ordered with clear links to the risk and the reason for remaining.
Level 1 (Basic)	1–2 marks	Simple, separate statements describing reasons or the risks. Order may be random.
	0	No relevant content.

01	9	**Calculate the predicted percentage change in China's use of coal shown in Figure 4.** 42% or 41.66% or 41.67%	**1 mark** **AO4=1**

01	10	**Outline changes to China's energy mix shown in Figure 4.** The reduction in coal is the greatest change with 25% decrease (1) Gas has doubled in its importance (1), while nuclear has increased 3 and a half times/by 5% (1). The biggest increase is in renewables with a 6 fold increase/15% increase (1). HEP and oil show minimal changes of +/- 1% (1).	**2 marks** **AO4=2**

01	11	**'International agreements are a vital mitigation strategy in effectively managing climate change.' To what extent do you agree? Use Figure 5 and your own knowledge.**	**9 marks** **AO1=3** **AO2=3** **AO3=3**

Level 3 (Detailed)	7–9 marks	Mitigation strategies, including international agreements and their role in climate change are addressed specifically. Statements are developed and linked, logically ordered with reference to mitigation strategies and climate change. There is explicit comment on to what extent, which is likely to include comments throughout the answer as well as a concluding statement. A coherent case is put forward.
Level 2 (Clear)	4–6 marks	Mitigation strategies, including some reference to international agreements and their role in climate change are addressed. Some statements are developed and linked, logically ordered with reference to mitigation strategies and climate change. There is some comment on to what extent, which may include comments throughout the answer and/or a concluding statement. There are some points made in putting forward a case.
Level 1 (Basic)	1–3 marks	Mitigation strategies and /or climate change are addressed. Simple, separate statements, possibly in a random order. There may be a basic attempt to address 'to what extent' with simple points noted. .
	0	No relevant content.

01	11 cont	**Indicative content** There should be reference to at least two mitigation strategies, including international agreements. The specification refers to alternative energy sources, carbon capture and planting trees as well as international agreements, but measures linked to transport in cities in terms of reducing car use where fuelled by diesel/petrol are also valid linked to managing environmental issues of air pollution and traffic congestion. Content should link the selected strategy/ies to the reduction of carbon dioxide in the atmosphere via using alternative energy sources which do not produce greenhouse gases, including nuclear energy; by extracting carbon from electricity production before it gets into the atmosphere and by planting trees to act as carbon sinks, extracting carbon dioxide from the atmosphere. These have their own merits as do getting people on public transport, encouraging cycling/walking and switching to electric cars so that the source of greenhouse gases is lessened. International agreements encompass all these as they are means of achieving targets that are set and agreed upon. Many, albeit not all countries, have signed up and the USA – a major producer of greenhouse gases has withdrawn from Paris Agreement (although doesn't actually take place till end of 2020) The command is 'to what extent' and the level of discussion and evaluative words and conclusion will drive the levels. Any decision and assessment is valid as long as it reflects the evidence. It is difficult to envisage a rejection of the statement entirely although the degree of agreement may vary with a recognition of the individual strategies being adopted by individual countries but the nature of transfer of greenhouse gases in the atmosphere requires that all countries must contribute and so international agreements do have a key role to play as they drive this forward.	

Section B

Question 2 The Living World

02	1	**Which one of these is a producer in an ecosystem? Shade in one circle only.** C	**1 mark** **AO1=1**

02	2	**Explain how a food chain is different from a food web.** A food chain show the simple links in an ecosystem/in a single line (1) showing what eats what and what it is eaten by (1); a food web is much more complex (1) showing a range of species eating different producers/consumers through the different levels (1). 2 x 1 mark for basic ideas, 1 +1 for a developed idea.	**2 marks** **AO2=2**

02	3	**Use Figure 6 to state two different facts about nutrient cycling.** Any valid fact such as nutrients are returned to where they begin (1) eg from plant to litter to soil to plant (1); nutrients are held in the vegetation/biomass, litter and soil (1) litter is from the leaves/vegetation (1); *decomposition puts nutrients in the soil;* trees take up the nutrients from the soil (1). 2 x 1 for each stated fact	**2 marks** **AO4=2**

02	4	**Outline what is meant by desertification.** Desertification is the process where the quality of the land worsens/degrades (1) to the point where it is not able to be productive/nothing or very little can be grown or reared on it (1). The soil/land becomes drier (1). Accept idea of desert expanding outwards (1). 2 x 1 mark for basic fact; 1 + 1 for developed point	**2 marks** **AO1=2**

02	5	**Suggest how overgrazing can lead to desertification. Use Figure 7 and your own understanding.** **Indicative content** There should be an awareness of what overgrazing is and how it leads to desertification. 'Reference to Figure 7 may be implied via reference to features visible – do not need to specify Figure 7 shows'. Overgrazing is having too many cattle on an area of land so that it cannot cope/carrying capacity is exceeded. The cattle eat the vegetation/grass too near to the roots. The vegetation dies – as is shown in the image here vegetation cover is patchy and there are many cattle present in a small area. As a result, the soil is exposed to wing and rain. This leads to soil erosion and then nothing can grow which leads to desertification.	**4 marks** **AO2=2** **AO3=2**

Level 2 (Clear)	3–4 marks	Some reference to both Figure 7 and own understanding. Explanation is clear with sequence linking overgrazing to desertification. Statements are linked showing understanding.
Level 1 (Basic)	1–2 marks	Some reference to either Figure 7 and/or own understanding. Partial explanation is with some aspects of sequence linking overgrazing to desertification. Statements are simple and separate.
	0	No relevant content.

<table>
<tr>
<td>02</td>
<td>6</td>
<td>
Explain how plants and animals adapt to the physical conditions (such as climate soils) in the tropical rainforest. Use Figure 8 and your own knowledge.
<table>
<tr><td>Level 3 (Detailed)</td><td>7–9 marks</td><td>Plants and animals are both addressed in greater balance.
Statements are developed and linked, logically ordered with reference to the adaptation and the relevant physical feature.
There is specific explanation of features and the conditions indicating for example how flexible bases mean leaves can turn to sunlight to maximise photosynthesis.
A coherent account is put forward, with reference to Figure 8 and own understanding.</td></tr>
<tr><td>Level 2 (Clear)</td><td>4–6 marks</td><td>Plants and animals are both addressed but there may be a clear imbalance.
Some statements are developed and linked, with some reference to the adaptation and the relevant physical feature.
There is some clear explanation of features and the conditions indicating for example how flexible bases mean leaves can turn to sunlight/ how leaves can turn to sunlight to maximise photosynthesis.
Figure 8 and/or own understanding is/are present.</td></tr>
<tr><td>Level 1 (Basic)</td><td>1–3 marks</td><td>Plants and/or animals are addressed.
Simple, separate statements, possibly in a random order.
There may be a basic explanation of features linked to conditions such as trees growing tall to reach sunlight.
Figure 8 or own understanding is present.</td></tr>
<tr><td></td><td>0</td><td>No relevant content.</td></tr>
</table>
</td>
<td>9 marks
AO1=3
AO2=3
AO3=3</td>
</tr>
</table>

02	6 Cont.	**Indicative content** The command is 'explain' and so there should be reference to specific characteristics of plants and animals and an awareness of how these represent adaptations to climate and/or soils. The linking of the two elements is critical to progress through the levels as is addressing both elements – of plants and animals. 'Reference to Figure 8 may be implied via reference to features visible – do not need to specify Figure 8 shows'. Plants adapt in a variety of ways linked to accessing sunlight via layers, emergents with minimal branches low down, epiphytes which grow high up on trees and lianas which climb up them to reach sunlight, leaves that have flexible bases so they can turn to face sunlight; to dealing with a lot of water via drip tip leaves, waxy surface and thin, smooth bark to facilitate runoff of water; to root network which is spread out at the surface to obtain the nutrients as they are decomposed from litter before they are washed away, with limited deep roots for stability and buttress roots above the surface to ensure the tall trees are upright. The lack of lower branches, lianas, pointed and large leaves are visible on the photograph. Animals adapt by living in specific layers – with birds in the canopy using nectar from flowers within this and toucans and parrots developing strong beaks to crack nuts; howler monkeys/orangutans also live within the canopy using strong limbs to climb and swing between the trees; others adapt to live on the forest floor where anteaters adapt to the limited amount of light by developing hearing and smell to seek food, whilst others are nocturnal and emerge at night when the heat of the day has past such as sloths.	

Section C

Question 3 Physical Landscapes
Coastal Landscapes

03	1	**Outline the process of abrasion.** Abrasion occurs where material such as pebbles and boulders (1) is hurled into cliff face/base (1) causing it to weaken (1) and over time parts falling off (1). 2 x 1	**2 marks** **AO1=2**

03	2	**Complete the table by calculating the range of sediment size at Transect B.** Range is 4.25	**1 mark** **AO4=1**

03	3	**Contrast the sediment size at Transect A with that further north at Transect B.** The sediment reduces in size northward (1) as shown by the mean being about 3.5 cm less (1). The sediment is larger nearer to the groynes (1). It also varies more in size (1) as shown by the larger range – 4cm bigger. (1) 2 x 1 mark for basic ideas, 1 +1 for a developed idea.	**2 marks** **AO4=2**

<table>
<tr>
<td>03</td>
<td>4</td>
<td>
Explain the role of deposition in the formation of a split. Use Figure 9 and your own understanding.
<table>
<tr><td>Level 2 (Clear)</td><td>3–4 marks</td><td>Developed and linked statements, logically ordered.
More complete explanation that addresses aspects of sequence and is aware of the role of deposition in sand spit formation. Will be aware of other processes like longshore drift.</td></tr>
<tr><td>Level 1 (Basic)</td><td>1–2 marks</td><td>Simple, separate statements possibly in a random order.
Partial explanation focusing on either sequence or process of sand spit formation –with some reference to deposition.</td></tr>
<tr><td></td><td>0</td><td>No relevant content.</td></tr>
</table>
Indicative content

Beach formation links to the dominance of constructive waves with a strong swash and weak backwash, often in relatively sheltered areas such as bays where there is little exposure to the wind. Thus, sand is left behind by the waves and the beach is built up – so deposition is important in this initial stage. The sand is carried along the coast via longshore drift. On the map, this will shift material northward as the swash moves up the beach in a north east direction driven by the south westerly wind and the backwash comes directly back down due to gravity. In this way, the material is moved north.

Where a river estuary is found in the north, the sand continues to be deposited and extend part way across it, forming a spit, as in the northern section of the map. The spit will extend over time in a northerly direction. The deposition is the end product leading to the building of the spit following movement via longshore drift.
</td>
<td>4 marks
AO2=2
AO3=2</td>
</tr>
</table>

<table>
<tr>
<td>03</td>
<td>5</td>
<td>
‘The benefits of hard engineering are greater than the costs.’ To what extent do you agree with this statement?
<table>
<tr><td>Level 3 (Detailed)</td><td>5–6 marks</td><td>Has detailed knowledge of costs and benefits of hard engineering strategies.
Links ideas and refers to costs and benefits and throughout making a coherent case.
Assessment is explicit and supported by content included.</td></tr>
<tr><td>Level 2 (Clear)</td><td>3–4 marks</td><td>Has clear knowledge of costs and benefits of hard engineering strategies.
Links some ideas and refers to costs and benefits with some imbalance likely throughout making a coherent case.
Assessment is present (maybe implicit) and is partly supported by content included.</td></tr>
<tr><td>Level 1 (Basic)</td><td>1–2 marks</td><td>Has some knowledge of costs and benefits.
Is able to give simple explanation of how strategies work to protect the coast.
May make simple points about whether costs outweigh benefits.</td></tr>
<tr><td></td><td>0</td><td>No relevant content.</td></tr>
</table>
Indicative content

There is a need to use the content to come to a decision regarding the extent to which the statement is agreed with, or otherwise. Will refer to specific hard engineering strategies – sea walls, rock armour, gabions and groynes are named in specification. Some may refer to hard engineering overall – responses likely to be more general in this context.

Benefits refer to level of protection from flooding and erosion; their reliability; help with tourism in keeping the beach in place, providing the base for a promenade, vary in cost – some are relatively cheap such as rock armour. Costs relate to the fact they are often expensive , especially sea walls and have high maintenance costs to repair them to ensure they are effective; that they can be unsightly; can interfere with coastal processes and have unwanted impacts further down the coast as groynes starve areas of material.
</td>
<td>6 marks
AO2=3
AO3=2</td>
</tr>
</table>

Question 4 Desert Landscapes

04	1	**Draw a line to join the correct definition to the transportation process.** Saltation — hopping movement of medium sized material/sand Surface creep — rolling of large material/pebbles on the ground Suspension — fine material carried in the air	**2 marks** **AO1=2**

04	2	**Identify the features of sand dunes labelled at X, Y and Z in Figure 10.** Possible labels include – X –crest/ridge top Y – shorter slope/side of dune/steeper slope of dune Z – ripples on sand/parallel lines on sand 3 x 1 mark per appropriate label.	**3 marks** **AO4=3**

04	3	**Explain the role of the wind in the formation of sand dunes in a hot desert landscape. Use Figure 10 and your own understanding.** Level 2 (Clear) — 3–4 marks — Developed and linked statements, logically ordered. More complete explanation that addresses aspects of sequence and process – with processes appropriately named and an explicit awareness of the role of the wind. Level 1 (Basic) — 1–2 marks — Simple, separate statements possibly in a random order. Partial explanation focusing on either sequence or process, with partial understanding of the role of the wind. 0 — No relevant content. **Indicative content** Dunes form due to the transportation and deposition of sand particles by the wind. There may be an obstacle perhaps an outcrop of rock around which sand being carried by the wind is dropped. The sand is being carried via saltation and surface creep on the windward side of the dune in the direction of the prevailing wind, creating the gentle slope shown. At the crest, the slope steepens on the leeward/sheltered side as is shown in the image due to the eddying of the wind and the sand falling down the steeper slope. Some (barchans) may extend in a crescent shape as the sand is blown at the sides/horns where there is less material.	**4 marks** **AO2=2** **AO3=2**

04	4	**Explain how hot desert environments are managed to provide opportunities for farming. Use Figure 11 and your own understanding.**	**6 marks** **AO2=3** **AO3=3**

Level 3 (Detailed)	5–6 marks	Detailed, developed and linked statements, logically ordered which show an awareness of how opportunities are provided for farming. There is some explicit reference to challenge linked to lack of water or poor soils. Developed and linked statements, logically ordered. Uses Figure 11 and own understanding.
Level 2 (Clear)	3–4 marks	Clear, linked statements which show some awareness of how opportunities are provided for farming. There is some (implied) reference to challenge linked to lack of water or poor soils. Developed and linked statements, logically ordered. Uses either Figure 11 and/or own understanding.
Level 1 (Basic)	1–2 marks	Simple, separate and random points relating to opportunity/ies for farming in a hot desert environment. There may be some reference to challenge of limited water. Uses either Figure 11 or own understanding.
	0	No relevant content.

Indicative content

There are limited opportunities for farming in hot desert environments. This is challenging due to the limited and unreliable nature of the rainfall. Thus, there is a need to overcome this constraint. Figure 11 indicates that this can be done in a number of ways – where crops are changed to be able to deal with the conditions better such as coping with salt or more local/native crops are grown so that they have adapted to the conditions; where water supply is increased via drip and sprinkle irrigation which is targeted on plants growing rather than spread everywhere and irrigation channels are lined with concrete which stops water being lost through seepage into the soil.

04	4 Cont	Large scale irrigation in the Thar Desert occurred with the building of the Indira Ghandi Canal in 1958 which opened up large areas to crop growing, including wheat and cotton, as a result of providing a water source to allow growth to occur in the high temperatures. Some schemes are more forward looking – using skyscrapers in Qatar to house fields of crops, with water provided by taking the salt out of sea water and developing modern techniques which do not involve soil but a water supply via irrigation and overcome the problems of poor soil quality and limited quantity in the hot deserts.	

Question 5 River Landscapes

05	1	**Draw a line to join the correct definition to the transportation process.** Saltation — hopping movement of medium sized sand on the river bed Traction — rolling of large pebbles on the river bed Suspension — fine material carried in river/water	**2 marks** **AO1=2**

05	2	**Identify the features of river landscape labelled at X, Y and Z in Figure 12.** Possible labels include – X – slip-off slope/river beach/deposition Y – neck of meander/narrow gap between river bend Z – flat area of land/flood plain # 3 x 1 mark per appropriate label.	**3 marks** **AO4=3**

05	3	**Explain the role of erosion and deposition in the formation of meanders. Use Figure 12 and your own understanding.** Level 2 (Clear) — 3–4 marks — Developed and linked statements, logically ordered. More complete explanation that addresses aspects of sequence and process – with an awareness of the role played by different processes of erosion and deposition. Level 1 (Basic) — 1–2 marks — Simple, separate statements possibly in a random order. Partial explanation focusing on either sequence or process, but with partial understanding of either erosion or deposition. 0 — No relevant content. **Indicative content** There should be reference to the river flowing relatively straight with the development of alternating shallow and deep areas known as riffles and pools. The current shifts to one side as the shallow part is passed over leading to erosion on the outside bend where the fastest flow occurs and deposition on the inside bend – which is clearly visible at X on the photo. This leads to the river flowing along a more and more exaggerated curve as can be seen at Y and the development of a distinct asymmetrical cross section with a gentle slip off slope on the inside bend as a result of deposition and a river cliff on the outside bend due to erosion via abrasion and hydraulic action.	**4 marks** **AO2=2** **AO3=2**

05	4	**Explain how soft engineering strategies can reduce the impacts of flooding. Use Figure 13 and your own understanding.**	**6 marks AO2=3 AO3=3**

Level 3 (Detailed)	5–6 marks	There is explicit assessment of the effectiveness of soft engineering strategies in managing impacts of flooding– likely to have integrated and overall assessment. Detailed, developed and linked statements, logically ordered which show an awareness of how soft engineering reduces impacts of flooding. Developed and linked statements, logically ordered. Uses Figure 13 and own understanding.
Level 2 (Clear)	3–4 marks	There is some assessment of the effectiveness of soft engineering strategies in managing impacts of flooding. Clear, linked statements which show some awareness of how soft engineering reduces impacts of flooding. Developed and linked statements, logically ordered. Uses either Figure 13 and/or own understanding.
Level 1 (Basic)	1–2 marks	Simple, separate and random points relating to soft engineering strategy/ies. There may be some reference to impacts of flooding. Uses either Figure 13 or own understanding.
	0	No relevant content.

Indicative content

Soft engineering strategies referred to in the specification are flood warnings and preparation, flood plain zoning, planting trees and river restoration. Flood warnings are issued due to river levels being monitored and advice given regarding what action to take, such as moving possessions upstairs or evacuating completely. The flood will still occur so the risk is not reduced, but the impacts are lessened. This is true of some other soft engineering strategies shown in Figure 13.

Houses and other buildings are built away from the flood plain on higher ground (flood plain zoning) so that they are less likely to flood, whilst farmland or wetland will be next to the river where limited losses result. Planting trees will increase interception and slow down the rate at which water reaches the ground, making infiltration more likely and reducing surface runoff – a fast transfer to the river; some water will be taken up by the tree roots. This will reduce the impacts of flooding – in the long term but the trees will need to grow and mature first.

05	4 Cont	River restoration involves allowing a river to revert back to its initial course so that any straightening of meanders is reversed and the river will flow more slowly taking longer to reach areas downstream and potentially reduce the impacts of flooding downstream. Overall, some strategies are more effective than others – with tree planting having some long term impact but many reduce the impact rather than the risk of flooding itself such as warnings and preparation – so floods still occur but the impacts are reduced.	