

WJEC

GCSE



# WORKBOOK

## Geography

Support for WJEC GCSE Geography and Eduqas GCSE (9–1) Geography A

Practise your exam skills • Answer questions confidently • Improve your grade

Andy Owen

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Throughout this book, you will find questions and guidance relevant to both the WJEC specification for Wales and the Eduqas specification for England. At some points however, you may need to be aware of different things for your exam depending on whether you are sitting the Eduqas exam or the WJEC exam. You will find boxes explaining this that look like this:

### WJEC

This box shows information specifically for the WJEC exam in Wales.

### Eduqas

This box shows information specifically for the Eduqas exam in England.

Chapter 4 is about your fieldwork assessment. This is assessed differently depending on whether you are studying the WJEC specification in Wales or the Eduqas specification in England.

For information in Chapter 4 that is only relevant to the WJEC specification, you will see a red bar running alongside the information on the page, like the one on the left of this paragraph.

For information in Chapter 4 that is only relevant to the Eduqas specification, you will see a green bar running alongside the information on the page, like the one on the left of this paragraph.

Anything in Chapter 4 that has no coloured bar alongside is relevant to **both** specifications.

# Introduction: What is assessed in each exam paper?

**Figure 1** shows what is assessed on each of the exam papers. There are some options in Paper 1 and Paper 2. Make sure you know which ones you covered.

Paper 1 Changing physical and human landscapes			Time allowed: 1 hour 30 minutes
Section	Marks	What are questions about?	
<b>A</b>	28 (Wales) 34 (England)	1. Landscapes and physical processes	Answer <b>all</b> questions
	31 (Wales) 38 (England)	2. Rural–urban links	Answer <b>all</b> questions
<b>B</b>	24 (Wales) 16 (England)	OPTION THEMES	Answer <b>all</b> questions in <b>one</b> theme
		3. Tectonic landscapes and hazards	
		4. Coastal hazards and their management	

Tick **one** theme you studied.

Paper 2 Environmental and development issues			Time allowed: 1 hour 30 minutes
Section	Marks	What are questions about?	
<b>A</b>	28 (Wales) 34 (England)	1. Weather, climate and ecosystems	Answer <b>all</b> questions
	31 (Wales) 38 (England)	2. Development and resource issues	Answer <b>all</b> questions
<b>B</b>	24 (Wales) 16 (England)	OPTION THEMES	Answer <b>all</b> questions in <b>one</b> theme
		3. Social development issues	
		4. Environmental challenges	

Tick **one** theme you studied.

**Figure 1** What each exam paper assesses

## WJEC

In Wales, fieldwork is assessed in an open book test called the NEA (or Unit 3). This happens in the autumn term before you take your other geography exams. See pages 89–91 for some advice on questions about your own fieldwork.

## Eduqas

In England, fieldwork is examined in Paper 3. For more details see Chapter 4.

# Chapter 1 How Geography is assessed in Papers 1 and 2

This chapter is about how GCSE Geography is assessed in Papers 1 and 2. It will cover:

- what the exam questions mean
- how to tackle questions that test your:
  - ability to use graphs and maps
  - knowledge by asking you to describe
  - understanding by asking you to give reasons or explain
  - ability to make a decision, evaluate or analyse evidence – including photos.

## Understanding exam questions

Papers 1 and 2 have a variety of questions designed to test your ability as a geographer. It's important you understand what each question is asking you to do:

- The **Assessment Objective (AO)** is what the examiner is looking for in your response. There are four AOs. They are described in **Figure 2**. Each exam question assesses **one** AO. This means that, in some questions, the examiner wants you to remember geographical facts so you need to describe in detail. In other questions the examiner wants you to evaluate. If so, you must evaluate – describing facts and figures would be a waste of time. You need to read each question carefully to understand what the examiner is looking for.
- **Command words** are words such as *describe* or *explain*. The command word tells you what you must do when you write your response. Common command words used in Paper 1 and Paper 2 are given in **Figure 3**.
- The **tariff** is the number of marks that are available for each question. These are shown at the end of the space where you put your answer. Use the number of lines printed on the exam paper as a guide to how much you should write.

In Paper 1 and Paper 2 you have about one minute for each mark. Spend about ten minutes on an 8-mark question. **Don't** write a lot for a question worth 1 or 2 marks.

**Figure 2 The Assessment Objectives (AOs)**

AO	What the examiner is looking for	Wales: marks in each paper	England: marks in each paper
Knowledge (K)	Your ability to remember geographical facts.	15	18
Understanding (U)	Whether you understand geographical concepts and processes.	20	24
Application (A)	Your ability to evaluate or use evidence to make a decision.	25	24
Skills (S)	Your skill when you use maps and graphs or make calculations.	20	18

## Read the question carefully

It is essential to do what the command word asks you to do. **Figure 3** lists common command words and explains what they mean. The hardest questions in Papers 1 and 2 are worth 8 marks.

### WJEC

In Wales, the 8-mark questions could assess understanding or application. There is **one** in each theme.

If you understand the command word then you can tell which AO is being assessed. Study **Figure 3** and do what the command word tells you.

### Eduqas

In England, the 8-mark questions always assess application. There is **one** of these questions at the end of each theme.



Figure 3 Command words that could be used in Paper 1 and Paper 2

AO	Command word	What you need to do	Example question
K	Describe	Show your geographical knowledge by giving a brief account of something.	Describe the process of attrition. [3]
	Give	Make a short, simple statement.	Give one push factor. [1]
	Complete	Use words from a list to fill in the missing words in a passage.	Complete the sentences by selecting the correct word from the box below. Use each word only once. [3]
	Define	Give the meaning of a geographical term.	Define the term counter-urbanisation. Tick (✓) one box below. [1]
U	Give one reason	Make a point and then explain it. Use the connective 'so' to link your point and explanation.	Give one reason why tropical regions have high temperatures throughout the year. [2] Give two reasons why people migrate to global cities. [4]
	Explain	Show your understanding by giving reasons. A great answer develops a chain of reasoning.	Explain why the informal economy is good for people and the economy of cities in LICs. [6]
A	Suggest	Propose a possible solution, reason, or consequence. Your suggestion should be based on geographical evidence.	Suggest the economic impacts of this hurricane. Use evidence from the photograph. [4]
	Evaluate	Consider strengths and weaknesses. Make sure you do both so your answer has some balance.	Evaluate one strategy for reducing the risk of flooding. Use evidence from the Fact Box. [8]
	Analyse	Examine geographical evidence carefully to find and explain connections or patterns.	Analyse the factors that increase the risk of flooding in this drainage basin. Use evidence from the OS map. [8]
	To what extent	Make a judgement by weighing up the arguments for and against. Make sure you give reasons for your decision.	All new housing in the UK should be built on brownfield sites. To what extent do you agree with the statement? Make use of evidence from the photograph and Fact Box. [8]
S	Calculate	Work out the value of something.	Study the table below. Calculate the mean of the values. Show your working. [2]
	Describe	Give a brief account of a pattern on a map or a trend on a graph.	Study the map below. Describe the location of Mumbai. [2]
	Give	Make a simple point.	Give two ways in which the graph could be adapted to make it easier to understand. [2]

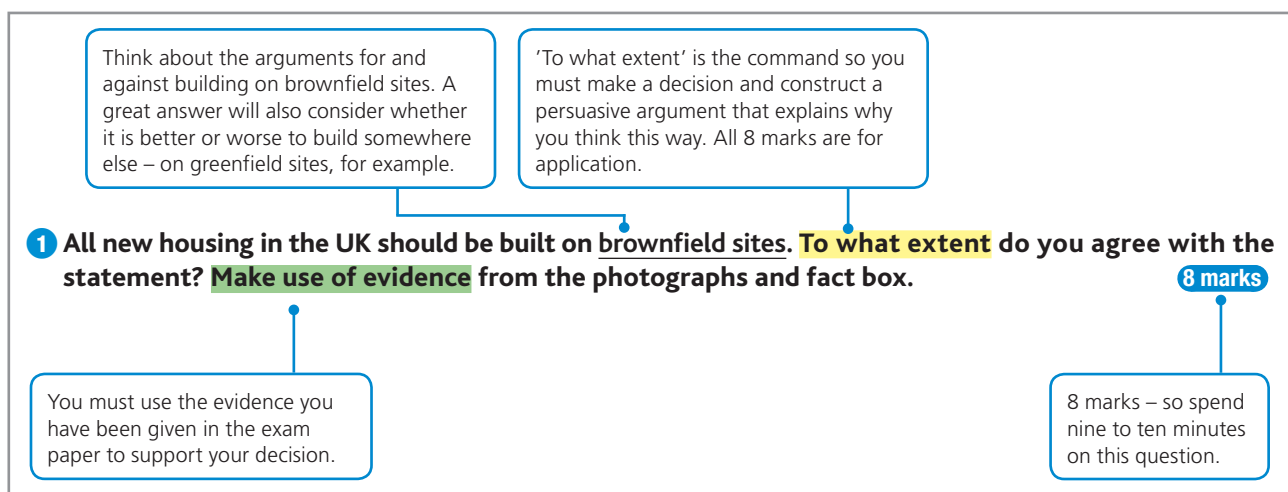
**WJEC**  
An application question with 4 marks could only be used in Wales.

## Dealing with complex questions

Some questions seem to be very long and wordy. Don't panic. Break the questions down into parts to understand what the examiner wants you to do. In each question, look for the following:

- The command. This is usually (but not always) the first word in the question – look again at the examples in **Figure 3**.
- Instructions to use a figure. This will be a photo, map, graph or some text in the exam paper that contains useful clues. You **must** refer to the evidence provided.
- Whether you need to write about more than one thing. For example, a question could be about economic **and** social reasons for migration. Sometimes students do the first part (economic, in this example) and forget to do the second (social) so they don't finish the question.

Use a highlighter pen or underline key words in each complex question in your exam paper. It's a great way to check that you understand the question before you start to answer it. An example is shown in **Figure 4**.



**Figure 4** How to break down a complex question into its parts

**HUG** the question! Sometimes candidates seem to write everything they know about a subject, without actually answering the question! To avoid this, **HUG** the question:

**Highlight** the command word.

**Underline** other important instructions.

**Glance** back at the question to make sure you are actually answering it!

## Writing with accuracy

One 8-mark question in each paper has extra marks (3 in Wales, 4 in England) for writing with accuracy in your spelling, punctuation and grammar (SPaG).

It's worth taking a little extra time and care over this question. You should:

- write in full sentences (not bullet points)
- use paragraphs to give your answer a structure
- break up longer sentences using commas
- make sure you start each sentence with a capital letter
- check your spelling and correct it if necessary.

## Knowledge questions

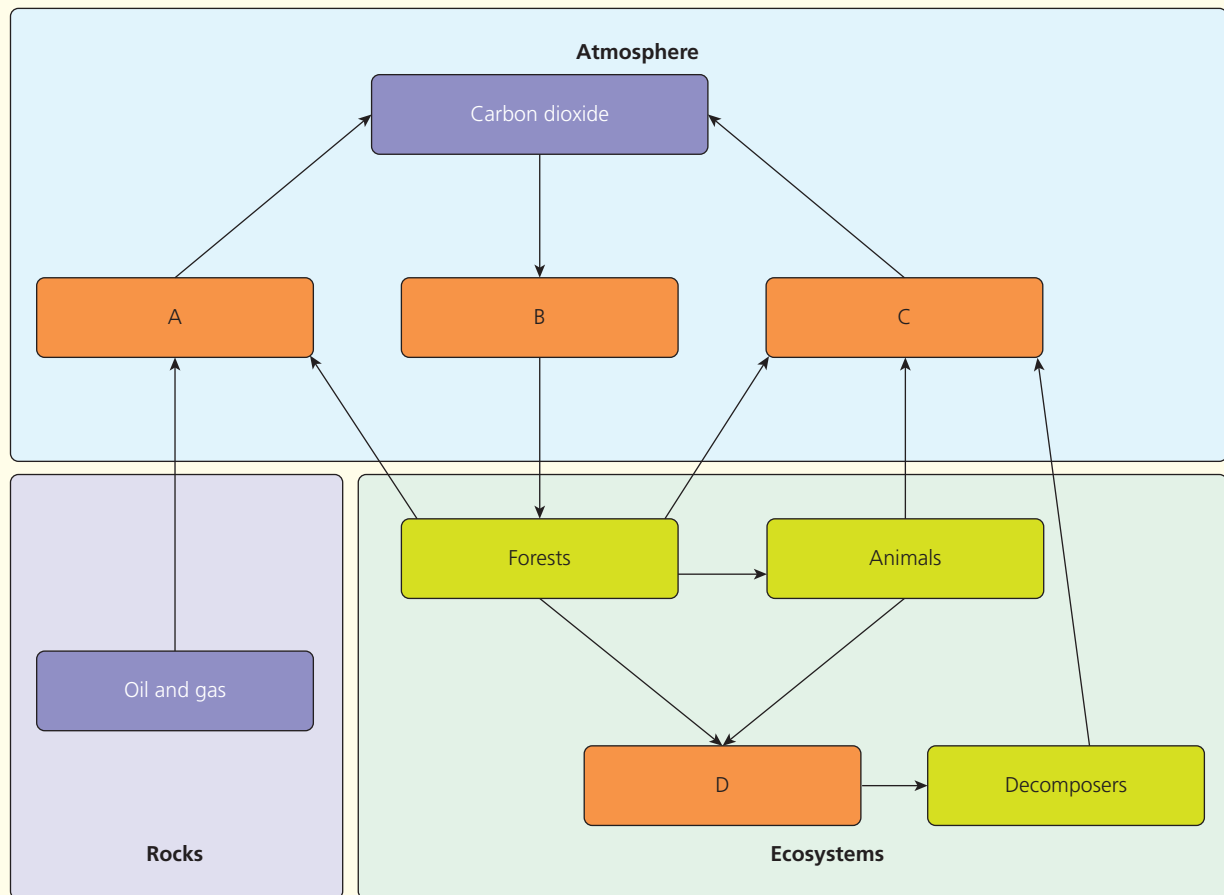
Questions that test your **knowledge** of geography have 1, 2, 3 or 4 marks. Answers are point-marked. This means the examiner gives 1 mark for each correct point that you make.

## Fill-in-the-gaps questions

**Figure 5** shows an example of one of these questions. It's worth 4 marks so, if you need it, you can spend up to four minutes studying the diagram. There is no need to rush. You can revise for these kinds of questions by:

- matching geographical terms to their definitions
- practising drawing and labelling diagrams of geographical processes.

**Figure 5** An example of a 'fill-in-the-gaps' knowledge question



**1** Match each letter in the diagram to the correct process in the carbon cycle.

**4 marks**

Letter	Process
	Decomposition
	Burning
	Respiration
	Photosynthesis

Add the letters to the table **neatly**. If you make a mistake, don't panic. Cross out your answer and write the correct answer next to it.

## ‘Describe’ questions

Questions that have the command ‘Describe’ are usually worth 2, 3 or 4 marks. These questions also test your **knowledge** of geography. Answering a ‘Describe’ question is simple – make the same number of points as there are marks. If there are 3 marks, make three points. **Figure 6** shows an example of a question and mark scheme.

The command means you need to write a short, factual statement.

3 marks – so make three correct points.

**2 Describe the process of attrition.**

**3 marks**

Attrition is one of four processes of erosion found in a river. Make sure you know the meaning of key terms.

Question: Describe the process of attrition. [3]	When to give marks	Example answers
	Give 1 mark for each correct statement.	Stones rub against / knock into each other (1) Bits are broken off / worn away / eroded (1) Stones get smaller / reduced (1) Stones get smoother / less angular / more rounded (1)

**Figure 6** An example of a ‘Describe’ question and mark scheme

There is more than one way of writing this first statement. The slash shows that either way is worth 1 mark.

The mark scheme identifies four correct statements. You only need to make three to get full marks.

Keep your answers short like the example answers in the mark scheme. Don't give reasons – you won't get any extra marks by trying to explain.

- 2** Think about the question and mark scheme below. Tick **three** statements in the mark scheme that are worth 1 mark each. Put a cross next to the incorrect statements.

Question: Describe the process of hydraulic action. [3]	When to give marks	Example answers
	Give 1 mark for each correct statement.	<div style="display: flex; justify-content: space-between;"> <div>Water is thrown with force at the river bank</div> <div><input type="checkbox"/></div> </div> <div style="display: flex; justify-content: space-between;"> <div>It is a process like using sand paper</div> <div><input type="checkbox"/></div> </div> <div style="display: flex; justify-content: space-between;"> <div>Stones / pebbles bash against each other</div> <div><input type="checkbox"/></div> </div> <div style="display: flex; justify-content: space-between;"> <div>Air is trapped / forced into cracks / crevices in the bank</div> <div><input type="checkbox"/></div> </div> <div style="display: flex; justify-content: space-between;"> <div>Stones / pebbles are carried by the force of water</div> <div><input type="checkbox"/></div> </div> <div style="display: flex; justify-content: space-between;"> <div>The bank is eroded / worn away</div> <div><input type="checkbox"/></div> </div>



## Understanding questions

Questions that test your **understanding** of geography usually have 2, 4, or 6 marks. Only a few commands are used:

Give **one** reason

Give **two** reasons

Explain **why**

### WJEC

In Wales, the maximum mark for an understanding question is 8 marks.

## Give one/two reasons

The simplest understanding questions use the command 'Give one reason'. This question is usually worth 2 marks. To answer it you need to make a point (P) and then explain (E) it. The examiner will give 1 mark for a correct point plus 1 mark for its explanation. Look at the example of a question and the student responses in **Figure 7**.

### Eduqas

In England, the maximum mark for an understanding question is 6 marks.

**3** Give one reason why people in the UK leave large cities to live in the countryside.

**2 marks**

### Student response 1

People move from large

cities because of **the large**

**amount of traffic** **because**

**people waste a lot of time**

**and money sitting in**

**traffic jams on the way to**

**work.**

One correct point is worth 1 mark. All places have some traffic so it was a good idea to add *large amount*.

*Because* is a useful **connective** word. It tells the examiner you are going to add a reason.

The words highlighted in green are the explanation – this **explains** why people don't want to live in places that have traffic jams. This answer would get 2 marks.

### Student response 2

People move from large

cities because of the

**traffic, the air pollution**

**and the noise.**

This student has made three points but none of them is explained. This answer would get 1 mark.

Figure 7 An example of a 'Give one reason' question and student responses

## 'Explain why' questions

The 'Explain why' questions test your understanding – whether you can give detailed reasons. To answer them you need to make connections, for example, by linking a cause with its effects. 'Explain why' questions worth over 4 marks are marked in a banded mark scheme rather than by individual points.

You can start by making a simple point (P) and then add an explanation (E) just like with a 2-mark question. However, you need to develop higher quality answers that show a **depth** of understanding when you answer a question worth 6 marks in England or 8 in Wales. The use of **connectives** will help you to link ideas together and write better answers that go into more depth. The easiest connective to use is '**so**'. To illustrate this, let's think about how to answer the question shown in **Figure 8**.

### WJEC

In Wales, 'Explain why' questions could be worth 4, 6 or 8 marks.

### Eduqas

In England, 'Explain why' questions are worth 4 or 6 marks.

Explain is the **command** so you must make links between urban growth and its consequences. A great answer will develop a **chain of reasoning**.

### 4 Explain why rapid urban growth in LICs and NICs creates social and economic challenges. 6 marks

Band	Marks	Description
3	5–6	Detailed explanation effectively links rapid urban growth to social <b>and</b> economic challenges in LICs/NICs.
2	3–4	Explanation makes some links between rapid urban growth and social <b>and/or</b> economic challenges in LICs/NICs.
1	1–2	Valid statements show limited understanding of social or economic challenges in LICs/NICs.

Your answer needs two parts – social challenges, such as lack of proper housing, and economic challenges, such as unemployment. You must tackle both parts to get into Band 3.

### Student response

Rapid urban growth in Mumbai

The first sentence introduces the answer. It's description so it won't get any marks – so keep this part short.

has led to the development of

slum areas of housing like

Dharavi. **Rapid growth creates**

The part highlighted in yellow links the growth of the city to a challenge. It's a valid point and begins to answer the question.

**a challenge for poorer people**

**whose houses are not connected**

The word 'so' is a useful **connective** word. It's used twice here – the answer is linking ideas together to build a chain of reasoning.

**to sewers so** they cannot

dispose of human waste safely

**so** human waste pollutes open

sewers. **This is bad for human**

The words highlighted in blue create a link between what has gone before and why this is a challenge for three specific groups of people.

**health because** germs breed

quickly and it is very dangerous

for the health of the very

young, sick or elderly people.

This is a great way to finish the paragraph – it links the answer back to the wording used in the question. The student now needs to write a second paragraph about an economic challenge.

**This is a social challenge.**

Figure 8 An example of an 'Explain why...' question, mark scheme and students response

## Developing chains of reasoning

To develop an extended answer you should make a point and then ask yourself the question, 'So what?' This technique forces you to explain the consequences of the simple statement, creating longer sentences that show you fully understand something. Study the first row of **Figure 9**. Notice how the connective 'so' has been used to link ideas together. A great answer develops these chains of reasoning.

Asking yourself 'So what?' is a simple trick that will help you to improve your answers. It forces you to add explanation. Do it every time you make a simple point until you have created a chain of reasoning.

- 5** Explain why rapid urban growth in LICs and NICs creates social and economic challenges.

**6 marks**

In **Figure 9**, a student has made a list of simple points that could help to answer the question. Use your understanding of the issues facing cities in LICs and NICs to complete each of the explanations in **Figure 9**.

Developing a chain of reasoning 

Point	Explanation	Further explanation
1 Houses are often badly built without proper foundations...	...so houses built on a slope are at risk of collapse during the rainy season...	...so people are at risk of losing their homes and all their possessions.
2 The houses are made of recycled materials like corrugated tin...	...so they leak water during the monsoon season...	
3 There is a lot of rubbish left lying around...	...so rats could be attracted...	
4 There are too few jobs in the formal sector...		
5 There aren't enough teachers in the secondary school...		
6 There isn't enough street lighting...		

**Figure 9** Use the connective 'so' to turn simple statements into a chain of reasoning

# Chapter 2 Preparing for Paper 1

## Theme 1 Landscapes and physical processes

Theme 1 is a core theme so you **must** revise it. It is examined in Paper 1, Question 1.

### Distinctive landscapes

Each **landscape** in Wales and the UK has its own special character. Factors that make landscapes distinctive are **geology** (rocks), **relief** (shape of the landscape), **land use**, **vegetation** and **culture** (the history of people who have lived there).



It's difficult to see **geology** – unless you can see a cliff – but it's an important part of the landscape. It is usually the hardest rocks that form our mountains. Softer rocks, like clay, often form valleys.

Figure 1 Aerial photo of Monmouth, Wales



People make a **cultural** impact on the landscape. For example, by using different building materials and distinct styles of architecture in different parts of the UK.

Figure 2 Aerial photo of Wylfa Nuclear Power Station, Anglesey, North Wales



- 1** Study **Figure 1** and **Figure 2**. Make notes about what makes these landscapes distinctive using the table below.

	Figure 1	Figure 2
Relief	.....	
Land use; e.g. type of farms and size of fields	.....	
Culture, e.g. towns and buildings	.....	
Vegetation, e.g. woodland	.....	

- 2** Use your notes to **compare** these landscapes. Make three different points.

If you are asked to **compare** you must make some direct links between the two things – in this case two landscapes. It isn't good enough to describe one landscape and then the other one. Use words like *whereas* or *similarly* to connect sentences. Also use words like *smaller*, *steeper* or *higher* to make comparisons.

## Managing landscapes

Some landscapes have a lot of visitors. These landscapes are called **honeypot sites**. They need to be carefully managed. One way to do this is by giving them status as **Areas of Outstanding Natural Beauty (AONBs)**.

- 3 Which key geography term is being described here? Underline one term.

**Definition:** A place that attracts so many visitors that it may be damaged.

honeypot site

brownfield site

greenfield site

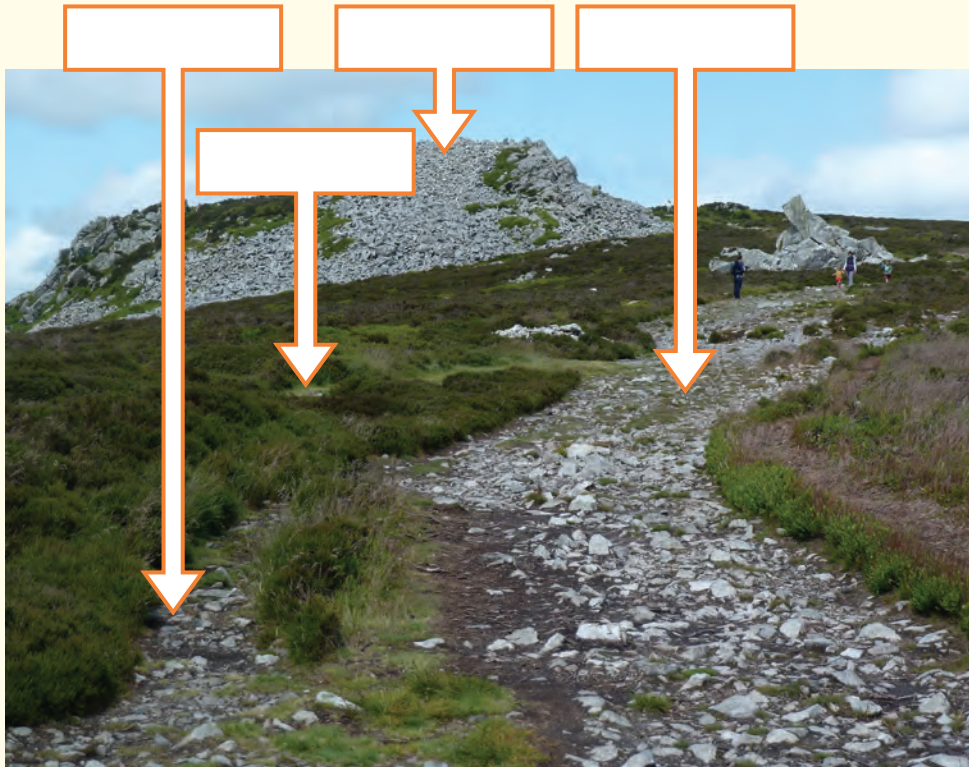


Figure 3 Visitors to this upland landscape have eroded a footpath

- 4 Study Figure 3 and the phrases below.

- |  |  |
|--|--|
| A Plant roots hold the soil together.    | F Soil is eroded by rainwater.             |
| B Trampling kills plants.                | G The path gets wider.                     |
| C People walk to the summit.             | H Wet soil sticks to the boots of walkers. |
| D Leaves intercept rainwater.            | I Undamaged plants.                        |
| E People avoid walking on uneven stones. |  |

- a Put each of the letters A–I in the correct boxes on Figure 3. You can put more than one letter in each box.

- b Use the photo and phrases to make a **chain of reasoning** that answers the **explain** question below:

Explain why footpaths are eroded at honeypot sites.

Use the 'So what?' technique to help you make a chain of reasoning that uses as many of the phrases as possible. See page 10-11.

.....

.....

.....

.....

## River and coastal landforms

The processes of **erosion**, **transportation** and **deposition** cause landforms to change over time. Make sure you can:

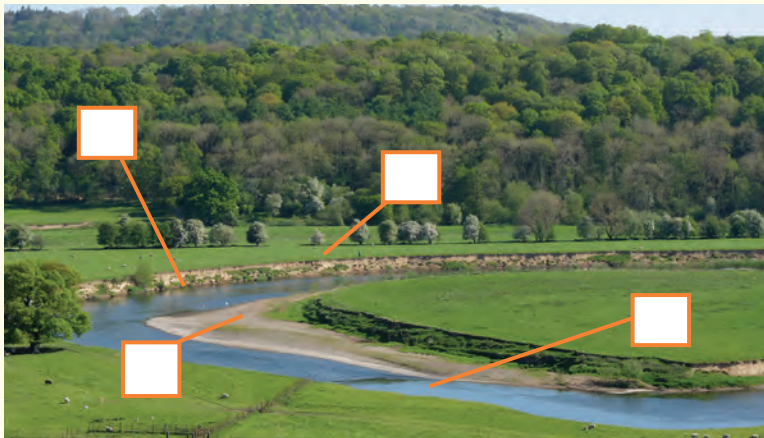
- use the correct technical terms
- explain how each process causes the landform to change.

**5** There are many geographical terms to learn for this theme. These terms describe river processes.

- a Circle **one** word that is an erosion process.
- b Underline **one** word that is a transportation process.
- c Match **three** of the terms to the correct definition.

**abrasion      hydraulic action      lateral erosion      vertical erosion      traction**

Process	Description
	When pebbles are rolled along the bed of a stream by the force of the water flowing in the river.
	The sweeping motion of the water in a river which widens each meander sideways.
	When stones are thrown against the banks of the river causing some of the bank to be worn away.



Study **Figure 4** and the phrases in the box below.

**6** Label the following features on **Figure 4**.

- A slip-off slope
- B river cliff
- C floodplain
- D river channel

**Figure 4** A large meander on the River Severn

water flows slowly      the channel is deep      less energy      the channel is shallow  
 water flows quickly      unable to transport sediment      lots of energy  
 more friction between the water and the river bed      the channel is efficient

**7** Use the photo and phrases to make a **chain of reasoning** that answers the **explain** questions:

a Explain why rivers erode on the outside bend of a meander. ....

.....

.....

.....

.....

b Explain why rivers deposit sediment on the inside bend of a meander. ....

.....

.....

.....

8 The following terms describe coastal processes.

- a Circle **one** word that is an erosion process.
- b Underline **one** word that is a transportation process.
- c Match **three** of the terms to the correct definition.

longshore drift   solution   attrition   hydraulic power   slumping

Use the 'So what?' technique to help you make a chain of reasoning that uses as many of the phrases as possible.

Process	Description
	A sudden movement of soil and unconsolidated (loose) rocks down a cliff face.
	When pebbles bang into each other making them smaller and more rounded.
	When waves forcefully throw water against a cliff face causing some of the cliff to be worn away.

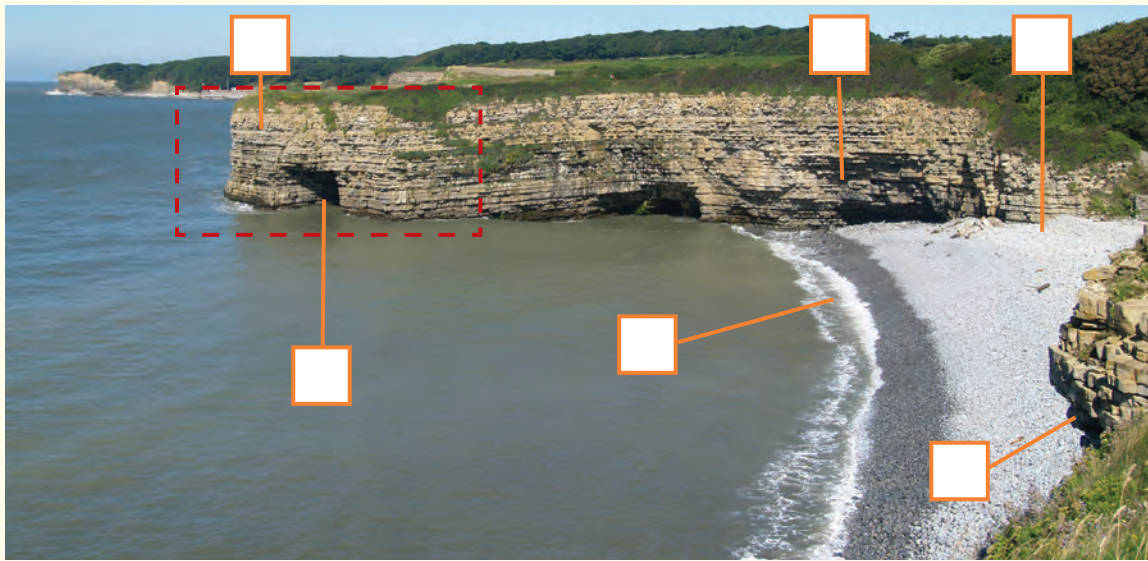


Figure 5 A coastal landscape in Glamorgan

9 Put each of the letters A–F in the correct box on Figure 5.

- A beach      B bedding planes      C headland      D cave
- E overhang      F swash/backwash

10 Suggest how the landform inside the red dotted box may change over time.

.....

.....

.....

.....

.....

.....

Make sure you use geographical terms when you answer this type of question. Process terms like *abrasion*, *hydraulic action* and *rock fall* or *recession* could be useful. You should also use terms for features such as *bedding planes*, *arches* or *wave-cut platforms*.



## Landform rates of change

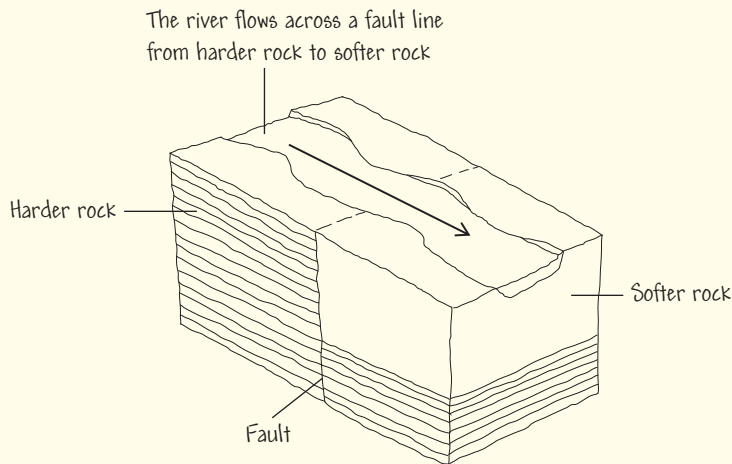
All landforms change shape. For example, **erosion** causes cliffs to collapse so the coastline **recedes**. Landforms usually change very slowly, but sometimes change can be rapid. Factors that affect the rate of landform change are **geology** (rocks), **weather and climate** and **human activity**.

### Geology

Unconsolidated (loose) rocks like clay erode more easily than solid rocks like limestone or granite which are harder (more **resistant**). If a river flows from a harder rock onto a softer rock it will begin to erode more rapidly, forming a waterfall and gorge. The rate of change of the coastline also depends on geology. Resistant rocks make headlands that retreat slowly. Softer rocks make bays that retreat more rapidly.

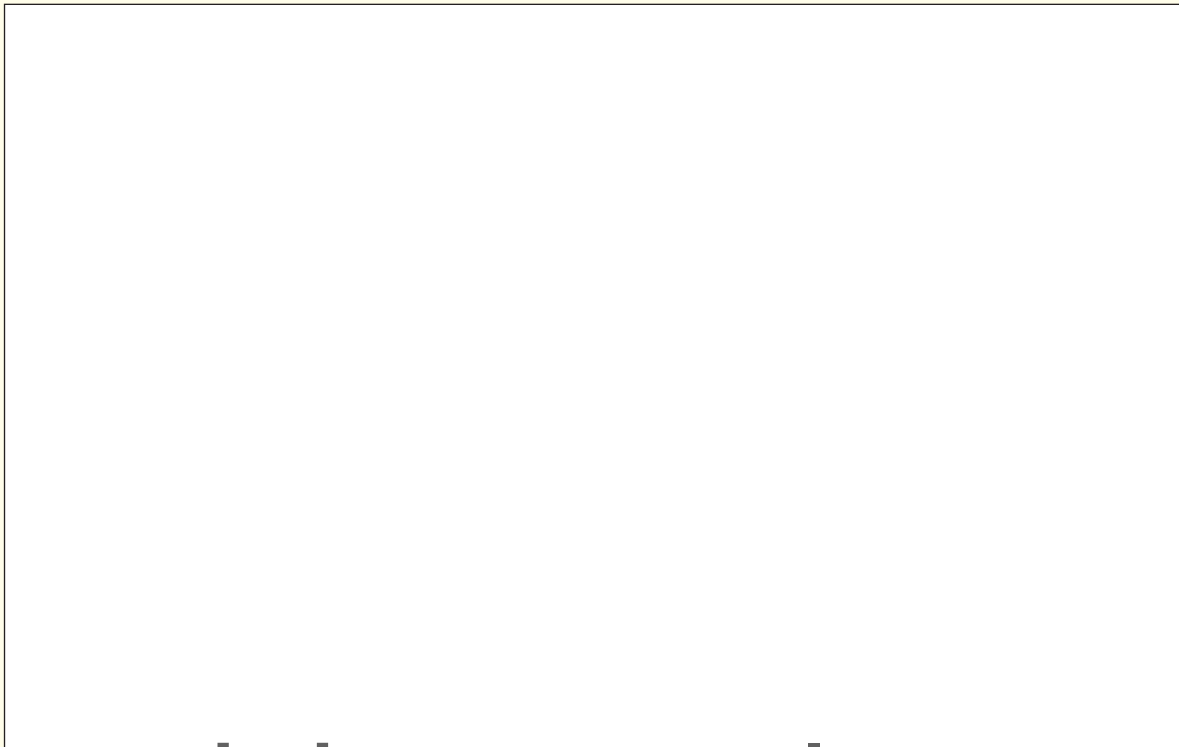
It's better to describe rocks as harder rocks and softer rocks rather than hard and soft. Even better, describe rocks as resistant to erosion and less resistant to erosion.

- 11** Draw a diagram to show what happens when rivers flow from harder to softer rocks. Imagine **Figure 6** is the first drawing in a cartoon. Show how you expect the River Mellte has changed. Label your diagram with at least **three** key terms to describe important features and processes.



If the exam question is about a landform, you can include a sketch as part of your answer. The best sketches are carefully labelled to explain how geographical processes change the landform over time.

**Figure 6** What the Afon (River) Mellte used to look like



## Weather and climate

Storms caused by low pressure create strong winds and larger waves. These conditions may cause cliffs to collapse.

- 12** Match six key terms to the correct definition below. Two terms are not needed.

**fetch**

**prevailing wind**

**storm surge**

**longshore drift**

**cliff recession**

**discharge**

**low pressure**

**high pressure**

Term	Definition
	A weather system that causes strong winds.
	Erosion which causes the coastline to retreat.
	The direction from which the wind often blows.
	Large waves and high sea levels caused by low air pressure.
	A measure of the distance that has been travelled by the wind across a sea or ocean.
	Extra-large waves and high sea levels caused by low air pressure.
	A measure of the amount and speed of water flowing in a river.



Study **Figure 7** and the phrases below.

**discharge is greater**  
**the channel is deeper**  
**more energy**  
**larger pebbles can be transported**  
**river cliffs collapse**  
**more sediment falls into the river**  
**more force**  
**more traction**

**Figure 7** Evidence of slumping as soft soils of the floodplain fall into the river

- 13** Use the photo and phrases to make a **chain of reasoning** that answers the **explain** questions below:

- a** Explain why a river is able to carry more pebbles after a period of heavy rainfall.

.....

.....

.....

.....

- b** Explain why more erosion occurs in a river after heavy rainfall.

.....

.....

.....

.....

Use the 'So what?' technique to help you make a chain of reasoning that uses as many of the phrases as possible.

## Human activity

Sometimes river or coastal management, which is meant to reduce flooding or erosion, causes problems elsewhere. These are called **unintended consequences**.

- 14** Link each point to one effect and one unintended consequence using an arrow to make three simple chains of reasoning.

Point	Effect	Unintended consequence
When a river is straightened	...water moves with less friction and has more energy	...so further along the coast the beaches are thinner and offer less protection to the cliffs.
When a river has smooth concrete embankments	...sediment is prevented from moving along the coast	...so the river channel further downstream is more likely to suffer erosion.
When groynes are built on the coast	...water takes less time to travel downstream	...so places downstream can be affected by flooding.



**Figure 8** A large rock groyne at Mappleton on the Holderness coast of Yorkshire

- 15** Add annotations to each box on **Figure 8**. Use your annotations to:
- a** describe the coastal processes on either side of the groyne
  - b** explain why the groyne has had unintended consequences.

## Flooding

As water moves through a **drainage basin** its speed of flow depends on a number of factors such as **climate**, **vegetation** and **geology**. In some situations, the flow of water causes river **flooding**. People manage flooding through **hard engineering**, **soft engineering** and **land use zoning** of the floodplain.

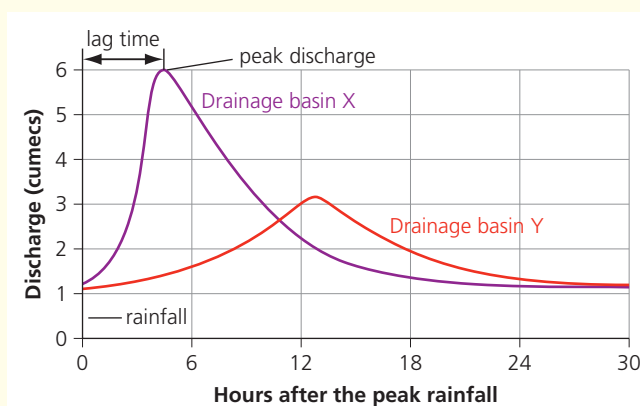
**16** Match four key terms to the correct definition below. Two terms are not needed.

**discharge**    **infiltration**    **interception**    **throughflow**    **evaporation**    **impermeable**

Term	Definition
	Materials such as clay and tarmac that prevent water passing through.
	Flows of water from the surface of the soil into the ground.
	Movement of water down a slope through the soil.
	Stores of water on the leaves of plants and canopies of trees.

**17** Each description (A–F) below describes a different drainage basin. Decide whether each drainage basin would have a hydrograph like X or Y. Copy each letter into the correct column of the table below.

- A** Impermeable rocks like clay
- B** Lots of urban areas
- C** Lots of woodland
- D** Porous rocks like sandstone
- E** Hardly any urban areas
- F** Hardly any woodland



**Figure 9** Hydrographs for two contrasting drainage basins

Drainage basin X	Drainage basin Y

## Example of a flood

Use the table below to summarise **one** example of a flood you have studied. Use bullet points to list key facts.

River:	Place that flooded:
Cause of the flood, e.g. heavy rainfall or snow melt	
Effects of the flood, e.g. on people, business or transport	



Figure 10. Flood management strategies used in the city of York



Use evidence in the photo – three points have been given to you. What can you infer? Ask yourself 'What might?' or 'What ought?' questions.

**18 Evaluate** the **costs and benefits** of the **flood management strategies** shown in the photo.

This command means you need to weigh up the advantages and disadvantages.

A good answer will be **balanced** between costs and benefits.

The question uses a plural – so you need to explain **more than one** strategy.

Make a **point**

Provide some **evidence**

Make an **inference**

Build a **chain** of reasoning