

Unit 5 Stepping back in time

Starting off

- 1 Work in small groups. Complete the captions to the photos with words from the box. Use each word only once.

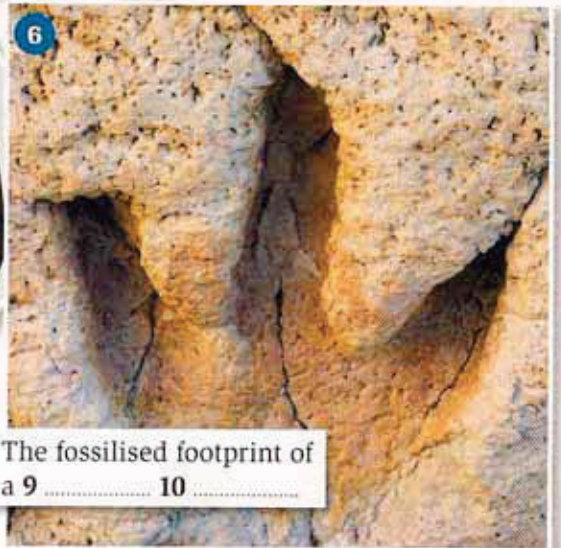
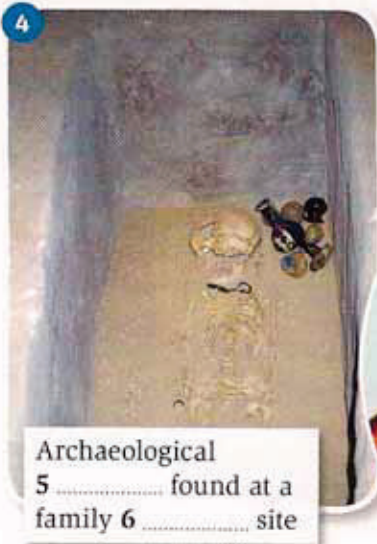
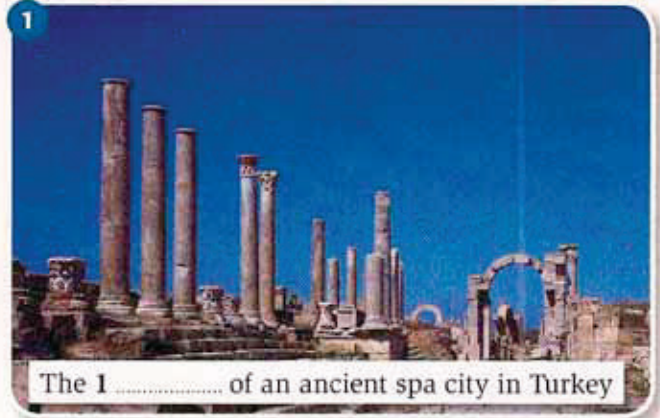
amber artefacts burial creature pots
prehistoric preserved remains ruins shipwreck

- 2 Who do you think made each of these discoveries, and what questions might they have asked about them?

Listening Section 3

- 1 Work in pairs. You are going to hear two students discussing a talk by a palaeontologist (a fossil expert). First, discuss these questions.

- 1 Have you ever seen or found a fossil? If so, where?
- 2 How do you think fossils form?



- 2 Look at Questions 1–5 and underline the key ideas in the questions (not the options).

Questions 1–5

Choose the correct letter, A, B or C.

- Why did Milton miss the talk on fossils?
 - He attended a different lecture.
 - He had to catch up on some work.
 - He was not interested in the subject.
- What started Mr Brand's interest in fossils?
 - a trip to America
 - a chance discovery
 - a film he saw as a child
- What do schoolchildren say they most enjoy about the fossil hunts?
 - looking for fossils in the rocks
 - having their photo taken with a fossil
 - being able to take the fossils home
- During a fossil hunt, the main thing children learn is that
 - history is all around them.
 - it is important to be careful.
 - patience leads to rewards.
- What do Juni and Milton agree to do?
 - persuade Mr Brand to run a fossil hunt for them
 - use the Internet to book a place on a fossil hunt
 - talk to some people who have been on a fossil hunt

- 3 Now listen and answer Questions 1–5.

Exam advice Multiple choice

- Underline key ideas in the questions and use them to help you follow the conversation.
- Listen carefully to everything the speakers say in relation to the key idea before you choose your answer.
- Although you may hear the words in the options, the speaker may be expressing the opposite idea.
- Listen for synonyms or paraphrases of the words in the question.

- 4 Work in pairs. Look at Questions 6–10.

- 1 What is happening at each stage in the diagram?
- 2 What type of information do you need to complete each gap?

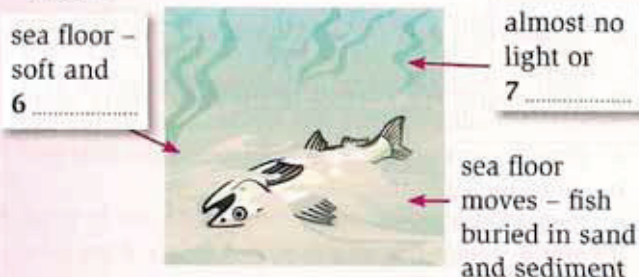
Questions 6–10

Complete the diagrams.

Write **ONE WORD ONLY** for each answer.

Formation of marine fossils

Stage 1



Stage 2



Stage 3



- 5 Now listen and answer Questions 6–10.

Exam advice Labelling a diagram

- Read the title to know what you are going to be listening about.
- If there is more than one diagram, compare the features in each one.
- Decide what information you need for each gap.

6 The speakers use a number of sequencers to describe the stages in the development of a fossil. Match the phrases in *italics* (1–7) with one or two of the meanings (a–g). Use the recording script on page 155 to help you.

- 1 ... *as soon as* a fish dies, ... c, g
- 2 ... the fish *gradually* gets covered over ...
- 3 ... so *once* the fish gets buried ...
- 4 ... it gets heavier and heavier *until* it becomes hard rock ...
- 5 ... *during that time*, the bone in the skeleton is replaced ...
- 6 ... the rock may lift and *eventually* be above sea level.
- 7 *Meanwhile*, the surface of the rock wears away?

- a slowly, over a period of time
- b up to the time that
- c from the moment when
- d while something else is happening
- e over that period
- f in the end, especially after a long time
- g immediately after

▶ page 121 Using sequencers when describing processes

7 Choose the correct opinion in *italics* to complete these paragraphs about underwater archaeology.

Underwater archaeology is most successful in areas where the currents are not strong enough to move a shipwreck. 1 *Once / Until* the depth of the water has been measured, a site plan can be drawn up. 2 *Whilst / As* doing this, divers swim around the shipwreck locating artefacts. 3 *Meanwhile / Gradually*, they also assess the site for ease of access and potential hazards.

In the next stage, divers use special tools to 4 *gradually / once* remove silt and sediment from the area of investigation. It is a long process, but 5 *eventually / during that time* the artefacts are ready to be taken up to the surface and transported to laboratories, where they will be carefully examined, but not 6 *as soon as / until* all the water has been removed.

8 Work in small groups.

Should people be allowed to keep ancient artefacts that they find, or should the artefacts be put in museums as part of the nation's heritage? Why?

Reading Section 2

1 Work in small groups. You are going to read a passage that describes some of the findings archaeologists have made about human species. Before you read, discuss these questions.

- 1 What do you think the work of an archaeologist involves?
- 2 What skills and abilities do you think an archaeologist needs?
- 3 Why might someone decide to become an archaeologist?

2 Work in pairs.

- 1 Read the title and subheading and discuss how they are connected.
- 2 Skim the passage, then say which of these statements best summarises the content.
 - a How Homo sapiens eliminated other human species
 - b Why Homo sapiens survived when other species died out

Last man standing

Some 50,000 years ago, Homo sapiens beat other hominids to become the only surviving species. Kate Ravilious reveals how we did it.

A Today, there are over seven billion people living on Earth. No other species has exerted as much influence over the planet as us. But turn the clock back 80,000 years and we were one of a number of species roaming the Earth. Our own species, Homo sapiens (Latin for 'wise man'), was most successful in Africa. In western Eurasia, the Neanderthals dominated, while Homo erectus may have lived in Indonesia. Meanwhile, an unusual finger bone and tooth, discovered in Denisova cave in Siberia in 2008, have led scientists to believe that yet another human population – the Denisovans – may also have been widespread across Asia. Somewhere along the line, these other human species died out, leaving Homo sapiens as the sole survivor. So what made us the winners in the battle for survival?



B Some 74,000 years ago, the Toba 'supervolcano' on the Indonesian island of Sumatra erupted. The scale of the event was so great that ash from the eruption was flung as far as eastern India, more than 2,000 kilometres away. Oxford archaeologist Mike Petraglia and his team have uncovered thousands of stone tools buried underneath the Toba ash. The mix of hand axes and spear tips have led Petraglia to speculate that Homo sapiens and Homo erectus were both living in eastern India prior to the Toba eruption. Based on careful examination of the tools and dating of the sediment layers where they were found, Petraglia and his team suggest that Homo sapiens arrived in eastern India around 78,000 years ago, migrating out of Africa and across Arabia during a favourable climate period. After their arrival, the simple tools belonging to Homo erectus seemed to lessen in number and eventually disappear completely. 'We think that Homo sapiens had a more efficient hunting technology, which could have given them the edge,' says Petraglia. 'Whether the eruption of Toba also played a role in the extinction of the Homo erectus-like species is unclear to us.'

C Some 45,000 years later, another fight for survival took place. This time, the location was Europe and the protagonists were another species, the Neanderthals. They were a highly successful species that dominated the European landscape for 300,000 years. Yet within just a few thousand years of the arrival of Homo sapiens, their numbers plummeted. They eventually disappeared from the landscape around 30,000 years ago, with their last known refuge being southern Iberia, including Gibraltar. Initially, Homo sapiens and Neanderthals lived alongside each other and had no reason to compete. But then Europe's climate swung into a cold, inhospitable, dry phase. 'Neanderthal and Homo sapiens populations had to retreat to refugia [pockets of habitable land]. This heightened competition between the two groups,' explains Chris Stringer, anthropologist at the Natural History Museum in London.

D Both species were strong and stockier than the average human today, but Neanderthals were particularly robust. 'Their skeletons show that they had broad shoulders and thick necks,' says Stringer. 'Homo sapiens, on the other hand, had longer forearms, which undoubtedly enabled them to throw a spear from some distance, with less danger and using relatively little energy,' explains Stringer. This long-range ability may have given Homo sapiens an advantage in hunting. When it came to keeping warm, Homo sapiens had another skill: weaving and sewing. Archaeologists have uncovered simple needles fashioned from ivory and bone alongside Homo sapiens, dating as

far back as 35,000 years ago. 'Using this technology, we could use animal skins to make ourselves tents, warm clothes and fur boots,' says Stringer. In contrast, Neanderthals never seemed to master sewing skills, instead relying on pinning skins together with thorns.

E A thirst for exploration provided Homo sapiens with another significant advantage over Neanderthals. Objects such as shell beads and flint tools, discovered many miles from their source, show that our ancestors travelled over large distances, in order to barter and exchange useful materials, and share ideas and knowledge. By contrast, Neanderthals tended to keep themselves to themselves, living in small groups. They misdirected their energies by only gathering resources from their immediate surroundings and perhaps failing to discover new technologies outside their territory.

F Some of these differences in behaviour may have emerged because the two species thought in different ways. By comparing skull shapes, archaeologists have shown that Homo sapiens had a more developed temporal lobe – the regions at the side of the brain, associated with listening, language and long-term memory. 'We think that Homo sapiens had a significantly more complex language than Neanderthals and were able to comprehend and discuss concepts such as the distant past and future,' says Stringer. Penny Spikins, an archaeologist at the University of York, has recently suggested that Homo sapiens may also have had a greater diversity of brain types than Neanderthals. 'Our research indicates that high-precision tools, new hunting technologies and the development of symbolic communication may all have come about because they were willing to include people with "different" minds and specialised roles in their society,' she explains. 'We see similar kinds of injuries on male and female Neanderthal skeletons, implying there was no such division of labour,' says Spikins.

G Thus by around 30,000 years ago, many talents and traits were well established in Homo sapiens societies but still absent from Neanderthal communities. Stringer thinks that the Neanderthals were just living in the wrong place at the wrong time. 'They had to compete with Homo sapiens during a phase of very unstable climate across Europe. During each rapid climate fluctuation, they may have suffered greater losses of people than Homo sapiens, and thus were slowly worn down,' he says. 'If the climate had remained stable throughout, they might still be here.'

adapted from Focus Magazine

- 3 Work in pairs. Read Questions 1–5 and underline the key ideas that tell you what information you need to read for.

Questions 1–5

The Reading passage has seven paragraphs, A–G.

Which paragraph contains the following information?

- 1 a comparison of a range of physical features of Neanderthals and Homo sapiens
- 2 reference to items that were once used for trade
- 3 mention of evidence for the existence of a previously unknown human species
- 4 mention of the part played by ill fortune in the downfall of Neanderthal society
- 5 reference to the final geographical location of Neanderthals

- 4 Now answer Questions 1–5 by reading each paragraph of the article carefully to see whether it contains the information for any of the five questions.

Exam advice Matching information

- Underline the key ideas in each question.
- Start with Paragraph A and decide if it contains information which matches a question. If there is no match, go on to the next paragraph.

- 5 Work in pairs.

- 1 Read Questions 6–9 below and quickly check what information you need.
- 2 Underline words in the questions which will help you to find the right place in the passage.
- 3 Answer Questions 6–9.

Questions 6–9

Complete the sentences below. Choose **NO MORE THAN THREE WORDS** from the passage for each answer.

- 6 Analysis of stone tools and has enabled Petraglia's team to put forward an arrival date for Homo sapiens in eastern India.

- 7 Homo sapiens used both to make sewing implements.
- 8 The territorial nature of Neanderthals may have limited their ability to acquire resources and
- 9 Archaeologists examined in order to get an insight into Neanderthal and Homo sapiens' capacity for language and thought.

Exam advice Sentence completion

- Underline the key ideas in each question and scan the passage for the right place.
- Read that section of the passage carefully and choose your answer.

- 6 Look at Questions 10–13.

- 1 Underline the key ideas in the questions.
- 2 Scan the passage for the name of each researcher and underline it.
- 3 Answer Questions 10–13 by reading around each name to decide whether what the researcher said at that point matches any of the statements.

Questions 10–13

Look at the following statements and the list of researchers, A–C, below.

Match each statement with the correct researcher.

- 10 No evidence can be found to suggest that Neanderthal communities allocated tasks to different members.
- 11 Homo sapiens may have been able to plan ahead.
- 12 Scientists cannot be sure whether a sudden natural disaster contributed to the loss of a human species.
- 13 Environmental conditions restricted the areas where Homo sapiens and Neanderthals could live.

List of Researchers

- A Mike Petraglia
- B Chris Stringer
- C Penny Spikins

Exam advice Matching features

- Underline the key ideas in the statements.
- Scan the passage for the options (A, B, C, etc.) and underline every reference to them. (They are always in the same order in the passage as they are in the box.)
- Read around each option carefully and match it to the statement(s). If there are fewer options than statements, you will need to use some of them more than once. If there are more options than statements, do not use all the options.

7 Work in pairs.

- 1 What factors might affect the future survival of the human species?
- 2 How do you think the human species might change or develop in the future?

Vocabulary

Word formation – negative affixes

1 Complete each of these sentences from the passage by writing the correct form of the word in brackets in the gap.

- 1 After their arrival, the simple tools belonging to Homo erectus seemed to lessen in number and eventually completely. (*appear*)
- 2 But then Europe's climate swung into a cold,, dry phase. (*hospitable*)
- 3 They their energies by only gathering resources from their immediate surroundings ... (*direct*)
- 4 They had to compete with Homo sapiens during a phase of very climate across Europe. (*stable*)

▶ page 114 *Negative affixes*

2 Complete these sentences by adding an affix to the word in brackets and, where necessary, putting the word in the correct form.

- 1 Unfortunately, the researchers felt that the audience had ~~misinterpreted~~ their results. (*interpret*)
- 2 You cannot be if you work in the field of archaeology, as everything must be carefully categorised. (*organise*)
- 3 Although the coins looked valuable, they turned out to be (*worth*)
- 4 Some artefacts are so precious that if you lose them, they are (*replace*)

- 5 The speaker's sentences contradicted one another, making his overall statement (*logic*)
- 6 Eventually, the diggers had to agree that their chances of finding any artefacts were (*exist*)
- 7 The team was exhausted and had clearly the difficulties of working long hours in the desert. (*estimate*)
- 8 It is dangerous and for many people to view a burial site at the same time. (*practical*)
- 9 The soil in the local area had been by intensive farming practices. (*grade*)
- 10 The term '.....' is used to describe people who cannot read or write. (*literate*)

3 Work in pairs. Complete these sentences in any way you like using one of the words with a negative affix from Exercise 2. You may need to add or change the suffix of the word.

- 1 One of the purposes of education is to ...
... *eradicate illiteracy*.
- 2 Many experiments fail because ...
- 3 Despite the demand for pills and creams that aim to make people look younger, ...
- 4 Although many scientists have brilliant minds, ...
- 5 Museums require expensive security systems, as ...

Speaking Parts 2 and 3

1 Look at this Speaking Part 2 task and Tibah's notes on page 58.

- 1 What do her notes consist of, how are they organised, and how will they help her do the task?
- 2 Take one minute to make your own notes for the task.

Describe something old that you or your family own and that you feel is important.

You should say:

what the item is and what it looks like

where it came from

what it is/was used for

and explain why you feel the item is important.

necklace - inheritance, Gran, 95

attic

market India

ancient/antique

blue beads, chipped

unfashionable

not eye-catching

my children

family treasure



- 2 Listen to Tibah. How has she used her notes?
- 3 Listen again to Tibah doing the task in Exercise 1. She uses several strategies to help her keep going. As you listen, complete the extracts below by writing two or three words in each gap.

strategy	extract
Gives a full introduction	Actually, there are 1 <i>a number of</i> objects that I could talk about ...
Picks the point she can say the most about first	First, I think I'll 2 where it came from.
Speculates on the origins of the necklace	As 3 I know, she'd been given it ...
Includes a saying or quote	But as 4 says, you can't ...
Says what the item is not	I 5 that it's strikingly beautiful ...
Compares the item to others that she has	... not as 6 as the gold necklace that I got for my 21 st birthday!
Makes a concession	... I don't really like beads, but, 7 that, I'll always keep them.

page 60 Key grammar: *Speaking hypothetically*

- 4 Work alone and think how you can use the phrases you noted down in Exercise 2 in your talk.

Then work in pairs and, using your notes from Exercise 1, take turns to give your talks.

Exam advice Speaking Part 2

- Use a range of strategies – such as giving reasons and examples, talking about the point you can say most about first, quoting someone else, referring back to something you have already mentioned, etc. – to help you speak for the full two minutes.
- Use a range of advanced grammatical structures to raise your score.

- 5 Work in pairs. Discuss how you could answer this Part 3 question related to the Part 2 topic in Exercise 1. Make notes as you do this.

Why do you think some people like to keep old things, while others don't have any interest in doing this?

- 6 Now look at Kenny's answer.



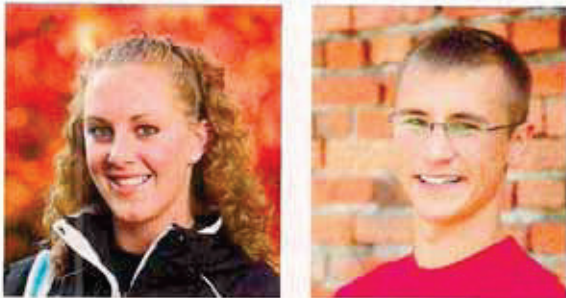
Well, old things are full of memories, and I think that's the main reason why people keep them. Perhaps the most obvious example of this is photographs. I mean, although people often get rid of the ones that they don't like themselves in, they often keep others because they remind them of a special person or event.

- 1 What reason does Kenny give, and how does he illustrate it?
- 2 What words does he use to introduce the reason and example? Write them in this table.

reasons	examples
<i>I think that's the main reason why ...</i>	



- 7 29 Listen to two students, Margarete and Johannes, answering the same question.



- 1 Add the words/phrases that they use to introduce reasons and examples to the table in Exercise 6.
 - 2 Is one answer better than the other? Why?
- 8 Look at the notes you made in Exercise 5, then take turns to ask and answer the question.
- ▶ Pronunciation: *Sentence stress 2*
- 9 Look at the Part 3 questions below.
- 1 List some possible ideas and vocabulary for answers.
 - 2 Think of some reasons and examples you could include.
 - 3 Work in pairs and take turns to ask and answer the questions.

Ancient objects

- What features distinguish modern-day objects from ancient ones?
- Why do some items increase in value as they get older, while others don't?
- What present-day items might be interesting to archaeologists in the future?

Our historical past

- Apart from keeping old objects, how else can we keep in touch with our past?
- How important is it for human beings to maintain their links with the past?
- In what ways can the events of the past help us to understand our future?

Exam advice *Speaking Part 3*

- Listen carefully to the questions and try to give reasons and examples in your answer.
- Use stress to highlight important information.

Pronunciation

Sentence stress 2

Speakers use stress to emphasise certain elements in their speech, for example to:

- a highlight a reference
- b emphasise an aspect of their answer
- c make a contrast.

Sometimes you need to stress a whole phrase to draw particular attention to it.

- 1 Work in pairs. Look at Johannes's answer from Speaking Exercise 7. Why does he stress the words in bold? Choose from the reasons a-c above.

Example: must - (b) to emphasise this aspect of his answer (personality)

I think it **must** be a question of personality ... and by **that** I mean, well, **some** people are **really** sentimental, so they don't like to throw away things like cards or presents - **even though** they don't want them any more. I guess, you know, **were** they to throw them away, they'd feel a sense of **loss**. Whereas **other** people, maybe, don't care that much - **they're** just happy just to focus on the **present**.

- 2 30 Listen to Kenny's answer from Speaking Exercise 6.

Well, old things are full of memories, and I think that's the main reason why people keep them. Perhaps the most obvious example is photographs. I mean, although people might get rid of the ones that they don't like themselves in, they often keep others because they remind them of a special person or event.

- 1 Underline the words he stresses.
- 2 Why do you think he stresses these words?
- 3 Take turns to read Kenny's answer using the same stress.

- 3 Write your answer to one of these questions, underlining the words you would like to stress.

- 1 Has the type of item people keep changed over the past 20 years?
- 2 Should people be discouraged from keeping old things? Why?

- 4 Work in pairs. Take turns to read your answers aloud to each other.

Key grammar

Speaking hypothetically

1 Complete these sentences from Tibah's talk by writing one word in each space. Then check your answers in the recording script on page 156.

- 1 I'd know its origins for certain I'd asked her.
- 2 You wouldn't realise how old it was you examined it closely.
- 3 If I to throw the beads out, I wouldn't be able to forgive myself.
- 4 It's funny to think, but if it hadn't been my granny's aunt, I wouldn't inherited that necklace.

2 Look at the sentences in Exercise 1 again. Which sentences refer to:

- a the present or future?
- b the past?
- c the past and the present?

▶ page 118 *Speaking hypothetically*

3 Complete these sentences by putting the verb in brackets into the correct conditional form.

- 1 Children were allowed to view the fossils provided that they them. (*not touch*)
- 2 The climbers knew that if the rocks were, someone could get hurt. (*fall*)
- 3 Had there not been a storm, the divers the shipwreck. (*reach*)
- 4 If we a good scientist on the committee, we might not have made so many mistakes. (*have*)
- 5 Were it not for the aerial photos they took, they the ancient city's remains. (*never find*)
- 6 The site to the public on condition that visitor numbers were restricted. (*open*)
- 7 I wouldn't have walked around the ruins unless I it was safe! (*know*)
- 8 The walkers wouldn't have spotted the fossil had it for the exceptionally low tide. (*not be*)

4 Work in small groups. Complete these sentences.

- 1 Were it not for the bad weather, ...
- 2 Wouldn't it be amazing if ...
- 3 If I were to change my career plans, ...
- 4 Had it not been for my parents, ...
- 5 Provided that I save some money, ...
- 6 As a young teenager, I knew I wouldn't be allowed to go out unless ...

Writing Task 1

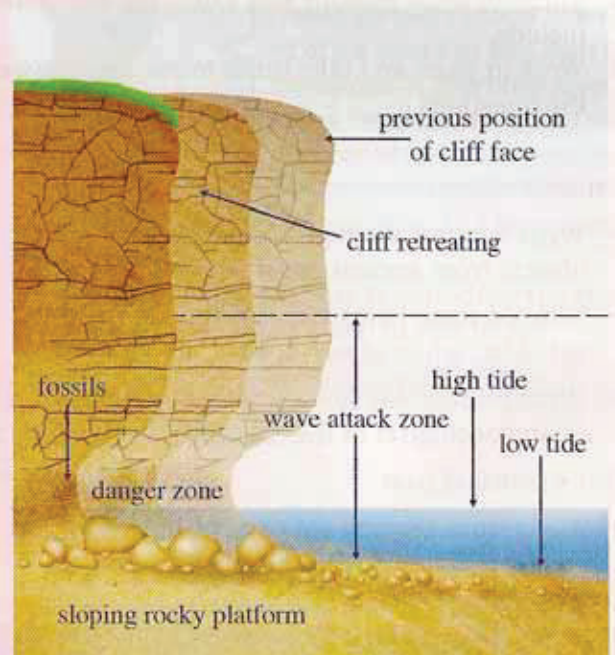
1 Work in pairs. Look at the diagram in the Writing task below.

- 1 In one sentence, say what the diagram shows, using your own words.
- 2 Decide on the following:
 - a the key stages in the process
 - b the changes in the process, and how they could be compared
 - c some useful vocabulary for the introduction and the description of the diagram.
- 3 Discuss how you would organise your answer into paragraphs.
- 4 Decide what you would write in your overview.

The diagram below illustrates how fossils were exposed beneath a cliff as a result of coastal erosion.

Summarise the information by selecting and reporting the main features, and make comparisons where relevant.

Cliff erosion and fossil exposure



2 Re-order the sentences on page 61 so that they produce a sample answer for the task in Exercise 1. Then divide the answer into paragraphs.

- a Conversely, at high tide, the waves sometimes reached half-way up the cliff wall, beating on it with some force.
- b Meanwhile, the overhanging cliff at the top cracked, creating a dangerous area beneath it.
- c This meant that stones and boulders fell into the sea, and the cliff slowly retreated, exposing previously buried rock at low tide.
- d Clearly, the fossils would have remained buried and the coastline unchanged if it had not been for the action of the sea.
- e The diagram shows the changes that took place in a cliff face as a result of coastal erosion, and how this led to the discovery of fossils.
- f As the waves hit the lower part of the cliff more frequently, this area eroded more quickly and became a hollow in the cliff wall where fossils could be found.
- g Eventually, the power of these waves loosened and wore away the rock.
- h At one time, the cliff stood much further out and, at low tide, the sea water did not touch the base of the rock.

3 Underline the words and phrases in Exercise 2 that the writer uses to:

- a mark the stages in the process
- b compare aspects of the process.

4 The writer uses participle clauses to express consequences. This is useful when describing processes and also helps build more complex sentences.

... the waves sometimes reached half-way up the cliff wall, **beating on it with some force.**

- 1 What is the subject of *beating*?
- 2 What do you notice about the punctuation?
- 3 Underline two more examples of this use in the sample answer. What is the subject of the *-ing* verb forms in these sentences?

▶ page 121 *Using participle clauses to express consequences*

5 Use participle clauses to link these pairs of sentences.

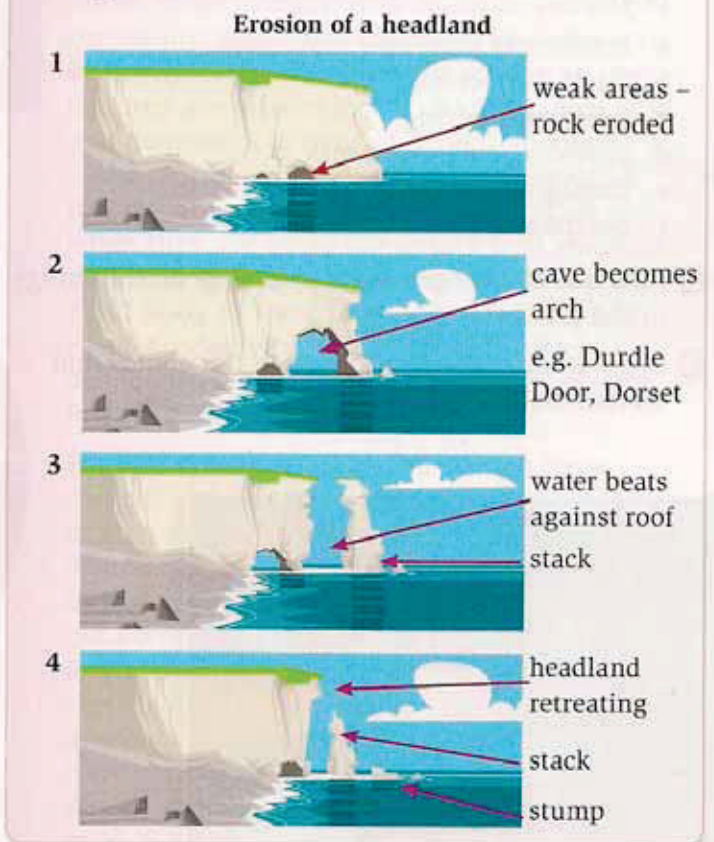
- 1 Archaeology has become a highly computerised science. This has transformed our ability to analyse findings.
- 2 Fossil specimens can be CT-scanned. This reveals how creatures moved and walked.
- 3 The fossil could not be removed from the rock. This makes it hard to analyse it.

- 4 The wind will travel across the beach. This carries the sand to different parts of the coast.
- 5 Large rocks are thrown against the cliff wall. This produces a bed of pebbles and small stones.

6 Work in pairs. Look at this Writing task. Quickly note down some vocabulary you could use to describe the key stages.

The diagrams below show the stages in the erosion of a headland.

Summarise the information by selecting and reporting the main features, and make comparisons where relevant.



7 Write your answer to the task in at least 150 words.

Exam advice Writing Task 1

- Describe key stages in the process in a logical order, making comparisons where appropriate.
- Use suitable words and phrases to structure and link the process clearly.
- Remember to include an overview summarising the main features of the process.
- Vary your vocabulary and use your own words as far as possible (e.g. do not lift long phrases from the task instructions).