

4 Biodiversity

Aims: Describing a process | Using the active and passive voice
Signposting a sequence of events | Using the language of cause and effect
Overviewing the academic style

Part 1: Vocabulary



1 Match the pictures 1–6 above with the natural habitats a–f.

- | | | |
|-----------|------------------|--------------|
| a estuary | c mangrove swamp | e grasslands |
| b forest | d desert | f rainforest |

2 The expressions a–g below describe sources of damage to the environment. Complete the sentences 1–7 using these expressions. The first one has been done for you.

- | | | |
|----------------------------|-------------|------------------|
| a oil spills | d logging | f overgrazing |
| b <i>intensive farming</i> | e acid rain | g global warming |
| c strip mining | | |

- 1 *Intensive farming* in wheat-growing countries like Canada has led to the loss of natural grasslands.
- 2 _____ causes damage to forests as well as limestone monuments.
- 3 Indiscriminate _____ of tropical hardwoods has contributed to the destruction of rainforests.
- 4 _____ of grasslands by cattle and sheep is associated with soil erosion and desertification.
- 5 Off-shore _____ frequently result in damage to mangrove swamps and the unique species that live there.
- 6 The thinning of the arctic icecap has been attributed to _____.
- 7 _____ for minerals near river banks is linked to soil erosion and degradation of estuaries.

- 3 Look again at sentences 1–7 in exercise 2 and answer the questions 1–3.
- 1 Which sentences express a cause-and-effect relationship?
 - 2 Which sentences express an association (possibly, but not necessarily, cause-and-effect)?
 - 3 How is *contribute to* different from *cause*?

- 4 Cause-and-effect relationships can also be expressed using a number of different words and expressions:

because + dependant clause

Because mangrove swamps have been damaged, many unique species are now endangered.
Many unique species are now endangered because mangrove swamps have been damaged.

because of + noun phrase

Because of damage to mangrove swamps, many unique species are now endangered.

due to

Many unique species are now endangered due to damage to mangrove swamps.

therefore/consequently/as a result + clause

Mangrove swamps have been damaged; therefore, many unique species are now endangered.

so

Mangrove swamps have been damaged, so many unique species are now endangered.

so + that + clause

Mangrove swamps have been so damaged that many unique species are now endangered.

Re-write the sentences 1–4 below using the words in brackets. Make any other changes necessary.

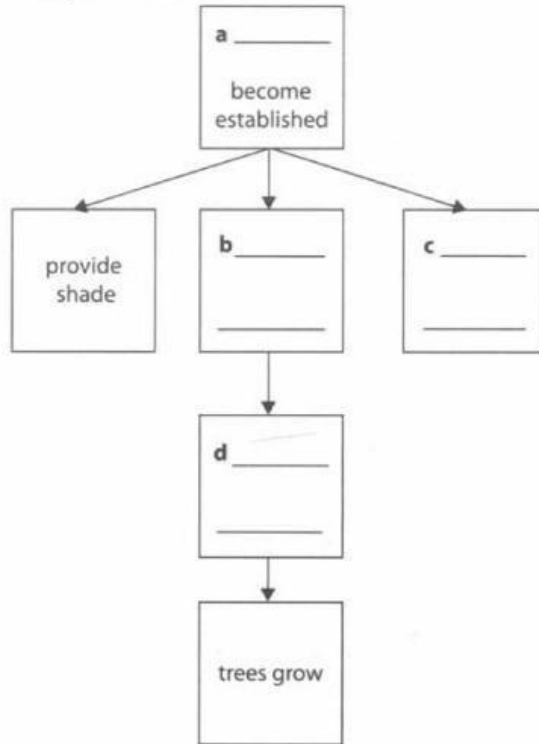
- 1 Land has been farmed so intensively that there has been a significant decline in biodiversity. (contributed to)
Intensive farming _____
- 2 Loss of vegetation has caused a decline in the insect population. (consequently)
Vegetation _____
- 3 Because there are fewer insects, the small animals that feed on them have moved elsewhere. (so)
There are _____
- 4 The disappearance of prey species has resulted in a marked reduction in numbers of predators such as wild cats and owls. (because of)
There has been _____

- 5 Each pair of words or phrases in italics in the sentences 1–5 below expresses a similar meaning. Underline the word which makes the sentence more moderate.

- 1 Acid rain has *damaged/destroyed* acres of forest.
- 2 As a result, many woodland species *have become extinct/are endangered*.
- 3 The *loss/disappearance* of predator species has caused an increase in numbers of prey species.
- 4 Many forests can no longer be *used/exploited* for commercial purposes.
- 5 Governments should *ban/limit* the burning of fossil fuels, which causes acid rain.

Part 2: Practice exercises: Task 1

- 1 Read the two process descriptions below. Use information from the second description to complete the flowchart.



Clear cutting

The flow chart illustrates the process of clear cutting, a logging practice which involves the complete removal of trees from a given area.

Firstly, access roads to the area are cut. Secondly, the entire crop of standing trees is felled by mechanized harvesters. The trees are then 'extracted', or brought to the road side.

Once the trees have been extracted, they are processed by chain saw. The limbs and tree tops are removed. The stems are 'bucked', that is cut into logs of a specified length. The logs are then sorted by size and loaded onto logging trucks for transport to the sawmill.

In the final stage, the land is prepared for future harvests. The remaining scrub is gathered into large piles and burnt. The area is then re-planted.

Forest re-growth

The flowchart illustrates the process of forest re-growth following a period of widespread deforestation.

The first plants to grow are 'pioneer' plants, which can survive in harsh conditions. They provide shade, gather moisture, and return organic material to the soil. They therefore create the conditions for other plants to thrive.

In the second phase of re-growth, shrubs emerge. They quickly cover the ground, crowding out the pioneers. However, they too eventually die off as young trees push through the brush. Within ten years, trees finally take over, preventing light from reaching the forest floor.

Now look at options i and ii and decide in each case whether you would normally use the active or the passive voice.

- i when the process is natural
- ii when there is a human agent

- 2 The descriptions on page 34 contain examples of how several stages of a process can be combined in one sentence. Read the descriptions again and notice how the groups of sentences 1–5 below have been combined. Study the examples and then join each group of sentences without looking at the model texts. The first one has been done for you.

Example: *The first plants to grow are pioneer plants. Pioneer plants can survive in harsh conditions.*

The first plants to grow are pioneer plants, which can survive in harsh conditions.

- 1 Pioneer plants provide shade. Pioneer plants gather moisture. Pioneer plants return organic material to the soil.
-

- 2 Shrubs quickly cover the ground. Shrubs crowd out the pioneers.
-

- 3 However, shrubs too eventually die off. Young trees push through the brush.
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- 4 The logs are sorted by size. The logs are loaded onto logging trucks. They are transported to the sawmill.
-

- 5 The trees have been extracted. The trees are processed by chain saw.
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- 3 The descriptions in Exercise 1 also contain examples of **signposting** language, which mark the stages of the process. Find examples from the texts in Exercise 1 that signpost the following stages:

beginning stages: *Firstly*

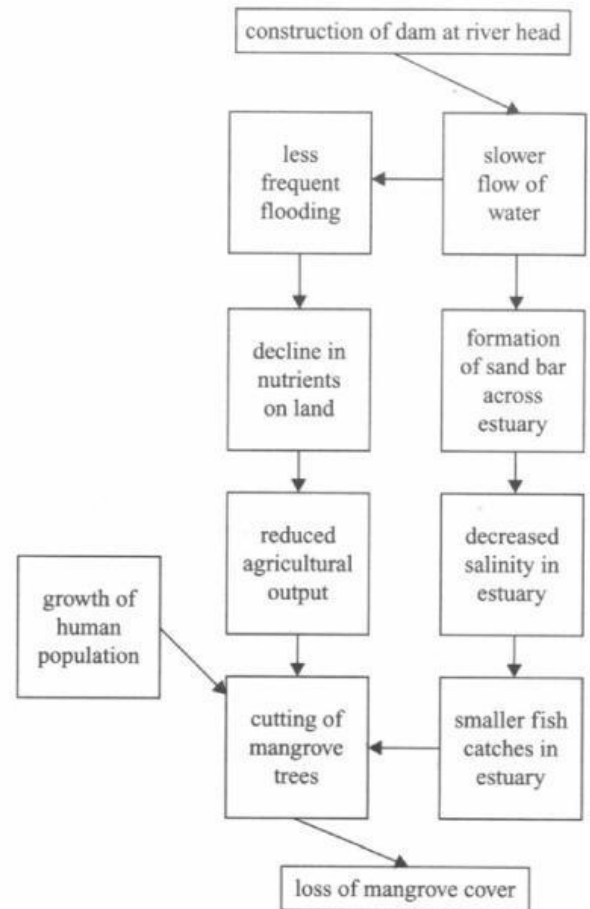
middle stages:

end stages:

Exam tip: Do not overuse signposting expressions. One signposting expression at the start, one or two in the middle and one at the end are sufficient in most cases. In process descriptions, the most frequently used signpost is the adverb *then*. It is normally placed between the subject and verb (*Precipitation then increases*) or between the auxiliary verb and the main verb (*The trees are then extracted*).

- 4 The process diagram below includes both man-made and natural phenomena. Complete the sentences 1–10 using an active or passive verb form. The first one has been done for you.

- 1 A dam *is constructed* at the river head.
- 2 The flow of water _____ down.
- 3 Flooding _____ less frequent.
- 4 A sand bar _____ across the estuary.
- 5 The quantity of nutrients on land declines and agricultural output _____.
- 6 Salinity in the estuary _____.
- 7 The human population _____.
- 8 Fewer fish _____.
- 9 Mangrove trees _____.
- 10 Mangrove cover in the estuary _____.



- 5 Join each pair of sentences a–f below using the structure, word or expression in brackets. Make any other necessary changes. Then rewrite the sentences as a passage, adding any signposting expressions from Exercise 3 that you think are suitable.

- a 1 and 2 (-ing clause) Example: *A dam is constructed at the river head, slowing the flow of water.*
- b 3 and 5 (because) _____
- c 4 and 6 (as a result) _____
- d 6 and 8 (as) _____
- e 7, 8 and 9 (due to) _____
- f 9 and 10 (once) _____

Part 2: Practice exercises: Task 2

- 6 Compare the introductions and first body paragraphs of two responses to the Task 2 question below. Underline the differences and then answer questions 1–2.

Many species of plants and animals have come and gone throughout the history of the Earth. From this perspective, extinction can be seen as part of a natural process. Some people have argued that we should not, therefore, make heroic efforts to preserve the natural habitats of endangered plants and animals when doing so would conflict with human interests.

To what extent do you agree with this view?

Response 1

If you look at it that way, it's true that humans and animals have conflicting interests. People have always exploited animals for food and clothing, and farmers have brought bigger and bigger areas of land under cultivation. But should we keep on doing this?

In regions of the world where the population is growing, and there aren't enough resources, the conflict between humans and animals is really bad. If you go to Africa, for example, you can see large nature reserves alongside really poor human settlements. I love the idea of elephants and lions living in the wild. But often it's the poor farmer living nearby who's got to pay the cost in terms of land and lost earnings.

Response 2

Looked at from a broad historical perspective, it is true that humans and animals have conflicting interests. People have always exploited animals for food and clothing, whilst farmers have brought ever-increasing areas of land under cultivation. Whether this process should continue is a question that requires careful consideration.

In regions of the world where the population is growing, and resources are scarce, the conflict between humans and animals is particularly problematic. This can be seen in parts of Africa, for example, where large nature reserves sit alongside very poor human settlements. People living thousands of miles away may value the idea of elephants and lions living in the wild. However, often it is the poor farmer living nearby who must pay the cost in terms of land and lost earnings.

- 1 What is the main difference between these two responses?
- 2 What are the main characteristics of the style of the second response?

- 7 The table on page 38 outlines four characteristics of academic style. Complete the table with examples from the texts in Exercise 6.

Exam tip: If writing in an academic style is new to you, make sure that you do not write in an overly complicated way. Above all, your writing should be clear and easy to read. Avoid writing more than one subordinate clause in each complex sentence. Do not write in a way that is so impersonal that your message is obscured. Do not use a lot of words to express an idea when a few words would be sufficient.

Characteristics of academic style	Examples from Responses 1 and 2	
	Informal style	Academic style
Academic style is impersonal. Avoid overusing personal pronouns (e.g. <i>I, you, we</i>) and addressing the reader directly.	<i>If you look at it that way, ...</i>	<i>Looked at from a broad historical perspective, ...</i>
Academic style is not emotional. Avoid absolute statements and exaggeration (e.g. <i>totally, perfect</i>), emotive words (e.g. <i>terrible, adore</i>) and words that express value judgments (e.g. <i>immoral</i>).	<i>bad</i>	<i>problematic</i>
Academic style uses fewer conjunctions (<i>and, but</i>) and more subordinators (<i>whereas, because</i>) and sentence linkers (<i>nevertheless, therefore</i>).	<i>and farmers</i>	<i>whilst farmers</i>
Academic style uses different vocabulary. Avoid colloquial expressions, phrasal verbs (e.g. <i>take up, break out</i>), double comparatives (e.g. <i>more and more</i>), contracted forms (e.g. <i>isn't, won't</i>) and the words <i>get, a lot of</i> and <i>really</i> .	<i>It's</i>	<i>It is</i>

8 Re-write the second half of the essay below in the academic style.

But if you think about plants, the advantages of conservation are more apparent. You have to remember that wild plants aren't just things of beauty; they're also a really valuable resource. Wild plants have been used throughout history to make medicines. Take aspirin, for example. And if certain varieties of crops are prone to disease, you could use wild plants to develop new varieties. There are lots of plants that we haven't even discovered yet, so you never know what they might be useful for.

All in all, I'd say it's worth trying to preserve natural habitats because wild animals and plants are really special and they could be life savers. But we've got to remember that people's basic needs have to be met too. So, we have to do it in a fair way.

9 Re-write the sentences 1–2 below to make them clearer and easier to read. Remove unnecessary words and divide long sentences if required.

Example: *The desirability of avoiding environmental degradation is an idea that most people probably agree with.*

Most people do not want to damage the environment.

- 1 It could be argued, though the opposite view might be equally true, that the tendency that many people have to acquire riches and material wealth is one of several possible factors that may encourage people to exploit the natural environment excessively.
- 2 It is possible that some people may believe that environmental degradation is a process that cannot be avoided in the long term because the countries of the world do not have a way or means of enforcing environmental agreements which their leaders may have committed themselves to, possibly for the wrong reasons, for instance simply to create a favourable impression in the mass media and television.

Part 3: Exam practice

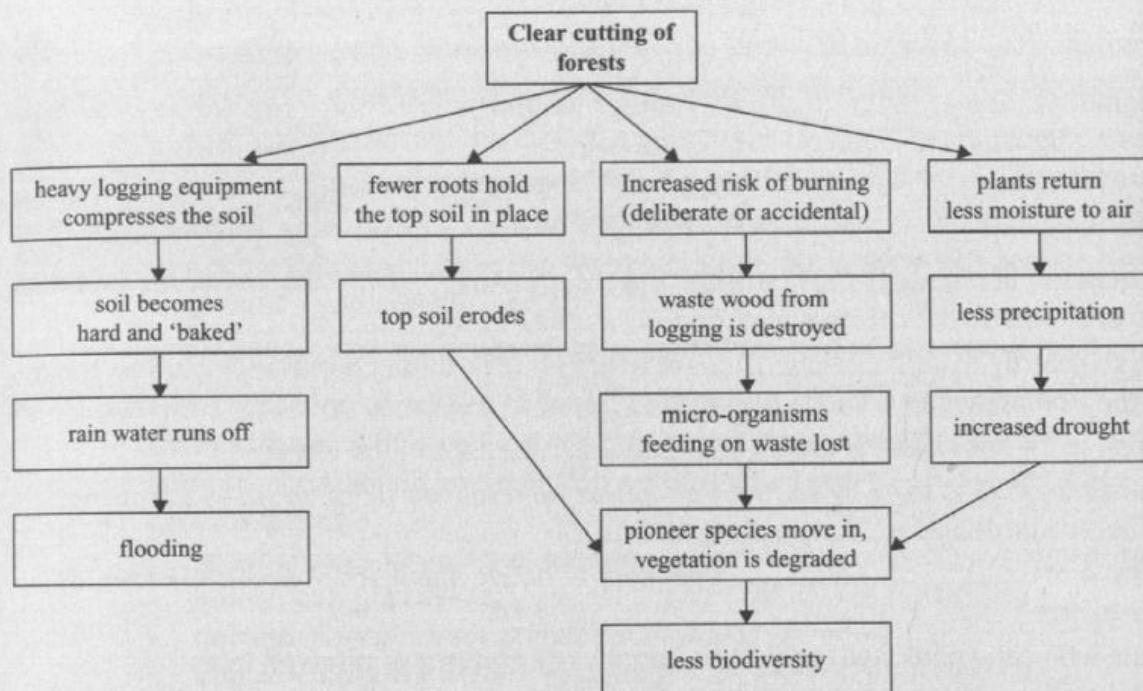
WRITING TASK 1

You should spend about 20 minutes on this task.

The flow chart illustrates the consequences of deforestation.

Summarise the information by selecting and reporting the main features.

Write at least 150 words.



WRITING TASK 2

You should spend about 40 minutes on this task.

Write about the following topic:

The importance of biodiversity is being more widely recognised as increasing numbers of species come under threat.

What can be done to maintain biodiversity?

Give reasons for your answer and include any relevant examples from your own knowledge or experience.

Write at least 250 words.