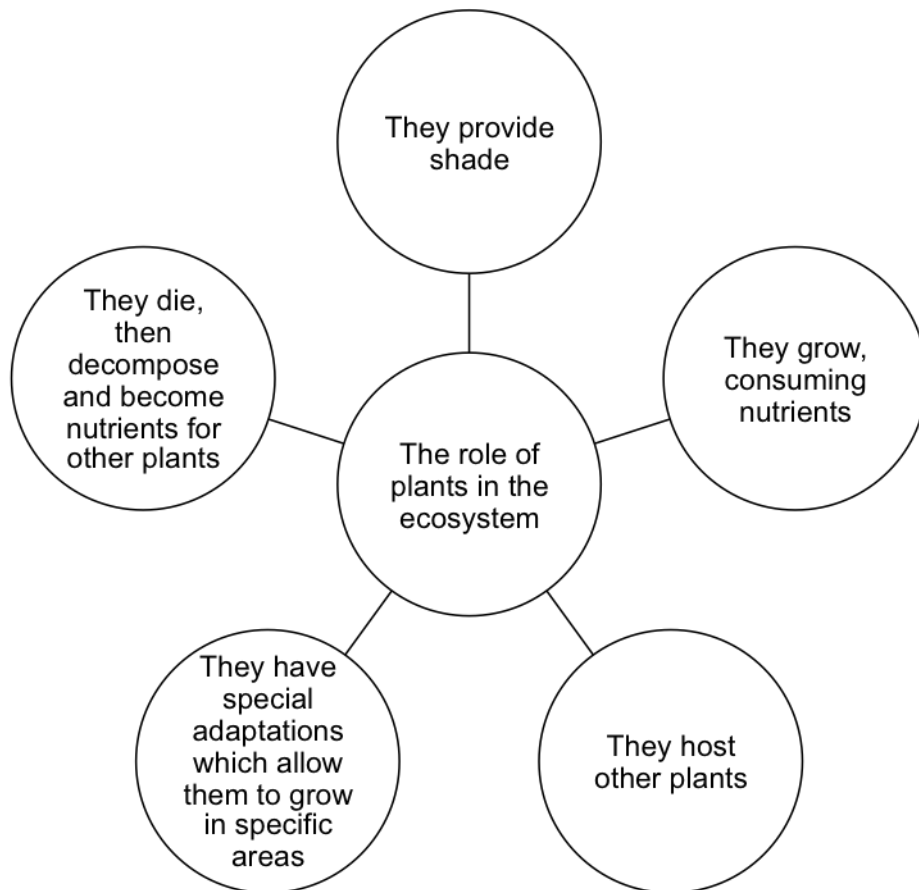




TEACHER RESOURCE PACKAGE

Chapter 1 Understanding ecosystems – Suggested textbook responses

## Developing your understanding 1.1





## Developing your understanding 1.2

- 1 The colonisers establish an environment that will allow other plants to grow. The colonisers help break down the rock into soil, and when they die, they provide plant nutrients for a later group of plants.
- 2 There could be an excess of decayed and rotting matter that is not consumed. This could lead to the development of diseases.
- 3 Students need to select one element of their diet and create a food chain based on this. For example, sunlight – grass – cattle – humans.



## Developing your understanding 1.3

1 As the Tasmanian tiger is a natural predator, a number of smaller mammal species would have increased in numbers when it became extinct.

2 If the Tasmanian tiger were reintroduced, it could be detrimental to a number of smaller species that have not been accustomed to having a predator species within their ecosystem.

3 Student responses may vary. An example response is:

Conservationists have successfully lobbied for stronger environmental regulation and enforcement of the protection of endangered species, especially within developed countries. There are also effective breeding programs in zoos around the world to protect and increase the numbers of endangered species. The use of technology to monitor and track poachers has also been effective: in Africa, for example, conservationists are using drone planes to monitor and track poachers of the rhinoceros.

4 Examples could include:

- Lord Howe Stick Insect
- Painted Frog
- Terror Skink
- New Zealand Storm Petrel
- Bangai Crow.



## Developing your understanding 1.4

### 1 Impacts that humans have had on the environment:

- Increased population – greater demand for food and the clearing of land to provide food for the growing population.
- Dam construction – alters the flow of rivers and interrupts their natural biodiversity
- Farming practices – ineffective farming practices have damaged vast areas of land throughout the world, especially in Australia.
- Industrial Revolution – greater demand for manufactured goods meant large volumes of raw materials were needed to power and provide supplies for industries.

### 2 Animals that have had a negative impact on an ecosystem include rabbits, foxes, cane toads, buffalo and brumbies.

### 3 Humans have had a positive impact on the environment, especially with the development of national parks and wildlife sanctuaries, which then protect areas from human development. The global body (UNESCO) protects significant sites of history or environmental grandeur and is crucial in the management and protection of sites around the world.

### 4 Determining whether or not an area should be protected can be very difficult because there are different levels of government that have to approve or pass judgement on it. In some cases it can be UNESCO that has to approve the area. This system can provide many challenges in terms of making sure that the area meets the criteria of each of the relevant regulations. At the global scale there are a number of sites that would be considered more significant than others. For example, the Great Pyramids of Giza would be considered more significant than a small local site. The pyramids have historical and engineering significance, as well as age and global recognition, so they would be considered significant.



## End-of-chapter questions

### Short-answer questions

- 5 The sun affects an ecosystem daily as sunlight is needed for photosynthesis to occur, and photosynthesis is critical for plant function and growth.
- 6 The sun affects an ecosystem annually because as we go through the seasons each year, the amount and intensity of sunlight change. Ecosystems have to be able manage these variances in the amount of sunlight received.
- 7 The food chain is the sequence of feeding arrangements in an ecosystem in which each member may be food for a higher member of the chain.
- 8 The biotic parts of an ecosystem rely on certain features of the abiotic environment, such as soil, to provide them with a place to grow. The abiotic environment relies on the biotic environment to provide nutrients, in the form of organic matter, to the soil, which in turn allows plants to grow.
- 9 Humans have had both positive and negative impacts on ecosystems:
  - Negative impacts include increased population, which means greater demand for food and more clearing of land to provide food. Dam construction, farming practices and the Industrial Revolution have had these sorts of negative impacts as well as their positive impacts.
  - Positive impacts include the development of national parks and wildlife sanctuaries, which protect areas from human development. The development of a global body (UNESCO) to protect significant sites of history or environmental grandeur is crucial in the management and protection of sites around the world.



**TEACHER RESOURCE PACKAGE**

**Chapter 1 Understanding ecosystems – Suggested textbook responses**

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**Extended-response question**

Students are to present their findings in a short report. Responses should consider the following:

- arid ecosystems
- limited rainfall
- high amounts of sunlight
- formation of the wave rock through wind and water
- how ecosystems develop in small crevasses and depressions in the rock
- the impact of weathering that is evident in each picture.