

Overview

The material in this module can be used for secondary school students studying biology, ecology or geography. The first activity introduces students to the topic by asking them to describe a green area with which they are familiar. There are two reading texts: one focuses on habitats and environments; the other examines the food chains and food webs within an ecosystem. Each reading is followed by a variety of vocabulary and speaking activities that build students' knowledge of the subject and confidence with ecosystems terminology.

Learning objectives

- Learning the concept of ecosystems and how human beings can affect it
- Learning the concept of habitat and the feeding relationships between animals and plants
- Observing and interpreting information
- Working effectively in groups

Key concepts

- Our world is composed of living and non-living things. The living part is called the biosphere.
- All living things depend upon each other.
- An ecosystem is a small part of the biosphere.
- A habitat is where an organism lives.
- The environment is the sum of the living and non-living factors that surround an organism.
- Each environment has biotic and abiotic factors.
- Populations are organisms of the same species living in the same environment.
- Populations co-existing in the same habitat are called communities.
- In order to analyse habitats scientists use sampling, these are small examples of the habitats you want to study.
- Food is a source of energy for all organisms.
- The path of this energy is called the food chain.
- In each ecosystem the components of a food chain are divided into three groups: producers, consumers and decomposers.
- If we link the food chains together we obtain a food web.

Useful websites

http://www.ducks.ca/resource/students/lesson_plans/middle.html

<http://www.enfo.ie>

<http://www.naturenet.com/Pre%20and%20Post/ecosystem%20mid.htm>

http://www.bbc.co.uk/schools/gcsebitesize/science/add_aqa/foodchains/foodchains4.shtml

Introducing Ecosystems

Skills focus: speaking

- Ask students to find a picture of a green area that they have seen during a holiday or in their hometown. They can bring in a photo or find a picture from the internet.
- Students work in pairs or small groups. They choose one picture for their group and prepare a short presentation to the class explaining what is in the picture.
- Ask them to focus on plants, animals, seasons, etc. Is there a large variety of species in their picture? Is the area in good condition? Is it endangered by anything? Is it well-kept? Do they think that it will remain this way?
- Hand out the 'Useful language' box to help students describe their picture or write the guidance out on the whiteboard.

Ecosystems, habitats and environments

Skills focus: reading, completing a diagram, speaking, identifying and classifying, vocabulary

- Students read the text underlining any vocabulary they don't know. Help students with any unfamiliar words. (There is a glossary at the end of the text.)
- In pairs, students complete the concept map referring back to the information in the text. Then students describe the relationship between the biosphere, ecosystems, etc. using the 'Useful language' phrases.

Useful language

How to describe a picture

1 Say what your picture shows.

This is a picture of... a wood / a park / a field / a forest / a beach.

2 Say what is in your picture e.g. people, animals, plants, objects. Use There's... / there are ...

There's a large tree in the middle of the picture.

There are some pebbles on the beach.

There are many different types of plants and flowers in the picture.

3 Are there any actions in your picture? Describe them using the present continuous.

There are some children in the picture. They're playing on the beach.

There's a dog in the picture. The dog is barking.

4 Make a comment on your picture. Use expressions such as probably, possibly, maybe and modal verbs such as could, may and might.

There aren't any leaves on the trees – probably because it's winter.

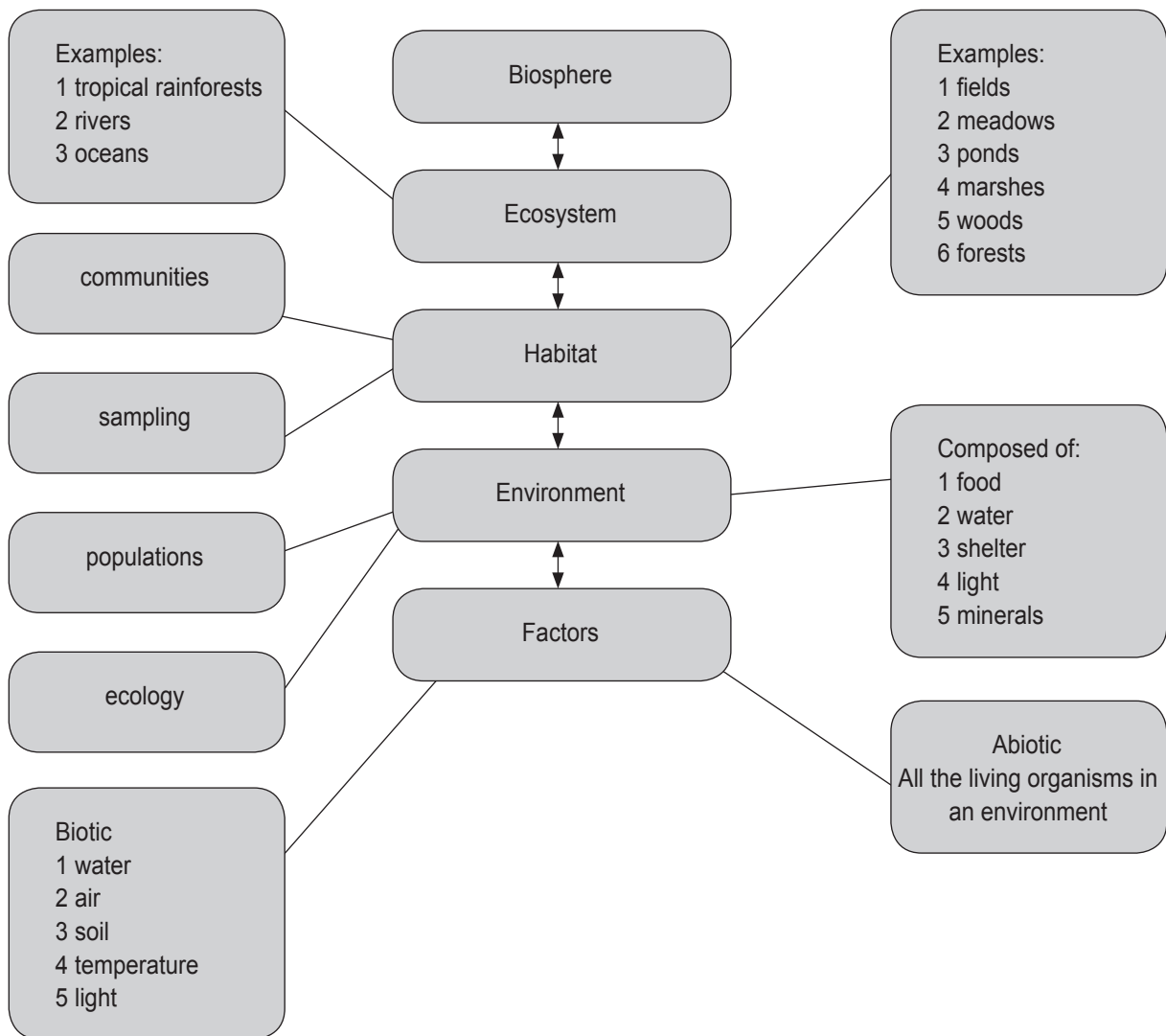
There are lots of people in the park. Possibly it's summer and everyone's on holiday.

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Exercise 1



Key:

- In pairs or individually students complete the vocabulary exercises. They can use a bilingual dictionary to help them or their Macmillan Schools Dictionary.

Exercise 5 Key: a) true; b) true; c) false

Exercise 6 Key: a) habitat; b) environment; c) biosphere; d) ecosystem; e) field; f) meadow; g) pond; h) soil

Ecosystems, food chains and food webs

Skills focus: reading, completing a diagram, speaking, identifying and classifying, vocabulary

- Students read the text underlining any vocabulary they don't know. Help students with any unfamiliar words. (There is a glossary at the end of the text.)
- Students identify the animals and plants then label the pictures. Check answers as a class before allowing students to move on to exercise 2.

Exercise 2 Key:

- a caterpillar. It is a primary consumer. Primary consumers are animals that feed on producers.
 - a bird. It is a secondary consumer. Secondary consumers are animals that feed on primary consumers.
 - a tree. It is a producer. Producers are living beings that provide food for consumers.
 - a fox. It is a tertiary consumer. Tertiary consumers are animals that feed on secondary consumers.
- After students complete exercise 2 suggest other animals/plants to the class and ask them to decide in pairs or small groups whether they are primary consumers, secondary consumers, producers or decomposers.

Exercise 3 Key:

- predator; b) first organisms; c) direction of energy flow; d) animals/herbivores;
- animals/carnivores; f) secondary consumers (and) omnivores; g) break down; h) lost

Exercise 4 Key:

tertiary consumers. Example: humans.
 secondary consumers. Examples: bird of prey, humans.
 primary consumers. Examples: sheep, mice, humans.
 producers. Example: plants.
 decomposers. Examples: fungi, bacteria, insects.

Exercise 5 Key:

- Incorrect – food is a source of energy necessary for survival.
- Correct.
- Incorrect – the path of this energy is called the food chain.
- Incorrect – plants are called producers.
- Incorrect – consumers can be carnivores, herbivores or omnivores.
- Correct.