

1 The Earth's biomes

Reading, vocabulary

Read the text about biomes. Look up the words in bold in a bilingual dictionary.

THE EARTH'S BIOMES

Biomes

Within the biosphere, ecosystems can be grouped into very large habitats called biomes, which differ according to the different geographical and climactic areas they represent. In each of these biomes different species of plants and animals have adapted to the unique conditions of their environment. The first broad division of biomes is between aquatic biomes and terrestrial biomes.

Aquatic biomes

Aquatic biomes are divided into **freshwater** regions, made up of ponds and lakes, as well as streams and rivers, and **marine** regions which are areas of salt water.

Marine regions cover about three-quarters of the Earth's surface and include seas and oceans, **coral reefs** and **estuaries**. The marine biome is divided into two zones, according to the depth of the water. The **euphotic zone** has shallow water, up to 200 metres deep and is penetrated by sunlight. The **aphotic zone** is very deep water where no sunlight reaches. The majority of organisms live in the euphotic zone. Some of the strangest creatures in the sea are found in the deep waters beyond the sunlight.

Sea animals are divided into three broad groups: **plankton** (organisms freely carried by water and currents), **nekton** (fish and swimming organisms), and **bentos** (organisms living on the sea floor). Plankton are the first organisms in the food chain and are an important source of food for many fish in the sea. Some mammals such as dolphins, whales and seals also live in the marine environment.

Terrestrial biomes

The terrestrial biomes can be broadly divided into six main groups: types of forest—**tropical rainforest**, **temperate deciduous forest**, **taiga**, (or **coniferous forest**) and **tundra**, **grasslands**, and **desert**.

Tropical rainforests

Tropical rainforests are located along the **equator** and are filled with millions of plants and animals. Scientists estimate that the rainforests have a greater **diversity** of animals and plants than all the other terrestrial biomes combined. Because the rainforests are located near the equator the temperature is consistent, between 20–35 °C, with lots of rain all year round.

The forest is divided up into three **layers**:

- 1 The **forest floor** which is covered with **foliage** and **roots** and is where **ground-dwelling** animals live.
- 2 The **understorey** where small plants, trees and many animals live.
- 3 The **canopy**, which is created by the large **treetops**, and which is where most of the birds and animals live.

Rainforests are home to many types of birds, monkeys, cat-like mammals, reptiles, insects, diverse flowers, and hardwood trees. Rainforests are also sometimes called "the world's pharmacy" because so many medicinal plants are found there.

Temperate deciduous forests

This type of forest is common in parts of America, Europe and Asia where the climate is mild and the winters are fairly short. The leaves on the trees change according to the season; they grow in spring and summer and fall off in autumn. In winter the trees have no leaves. Some small animals **hibernate** during the winter season.

Taiga

Taiga or coniferous forest is the world's largest biome and can be found all over the colder parts of the northern **hemisphere**. It has a harsh climate and the trees, which grow close together, have adapted to life in the winter. They are tolerant of the cold and their shallow roots can survive in the thin soil. The trees do not lose their leaves and are able to **conserve** water. Deer and wolves live in the taiga forests.

Tundra

The Tundra is the name given to the areas of land that surround the **north pole** and **south pole**. It has an extremely cold climate with a limited number of different plants and animal **species**.

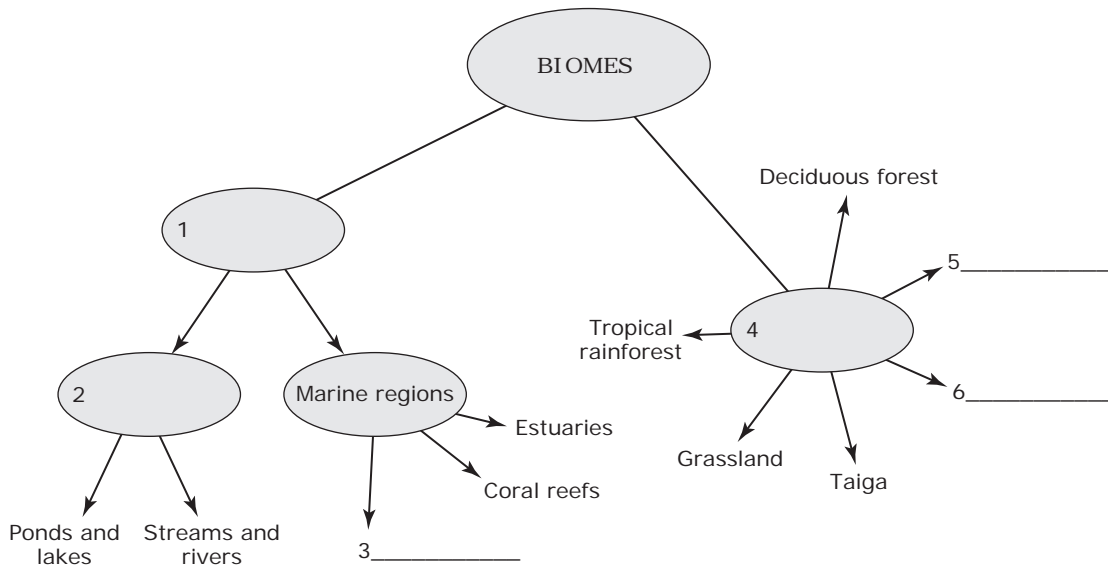
Grasslands

Grasslands are dominated by grass and do not have many trees and bushes. Grasslands found in hot countries such as Kenya and Zambia in central Africa, South America and Australia are often known as **savannah** or tropical grasslands. Grasslands are also found in more temperate climates such as the USA, South Africa and Argentina. These types of grasslands have local names.

Desert

The driest areas of the world are desert. The largest expanse of desert is the Sahara in North Africa. This biome is the fastest growing biome on Earth. The average temperatures range from -5 degrees to 30 degrees Celsius and deserts get very little rain each year. Deserts have the least biodiversity of all the terrestrial habitats which means there are few species of plants and animals living there. Deserts get very hot during the day time but at night they are very cold.

Complete the concept map.



Complete the sentences with the correct words.

The two main divisions of biomes are the aquatic and (1) _____ biomes.

The aquatic biome can be divided into (2) _____ regions such as lakes, streams and rivers, and (3) _____ regions which include seas, oceans, coral reefs and (4) _____.

The marine biome is divided into the (5) _____ zone and euphotic zone, depending on the depth of the water and whether (6) _____ penetrates it.

There are six main divisions of terrestrial biomes. Three of these are types of (7) _____ and the others are tundra, taiga and (8) _____.

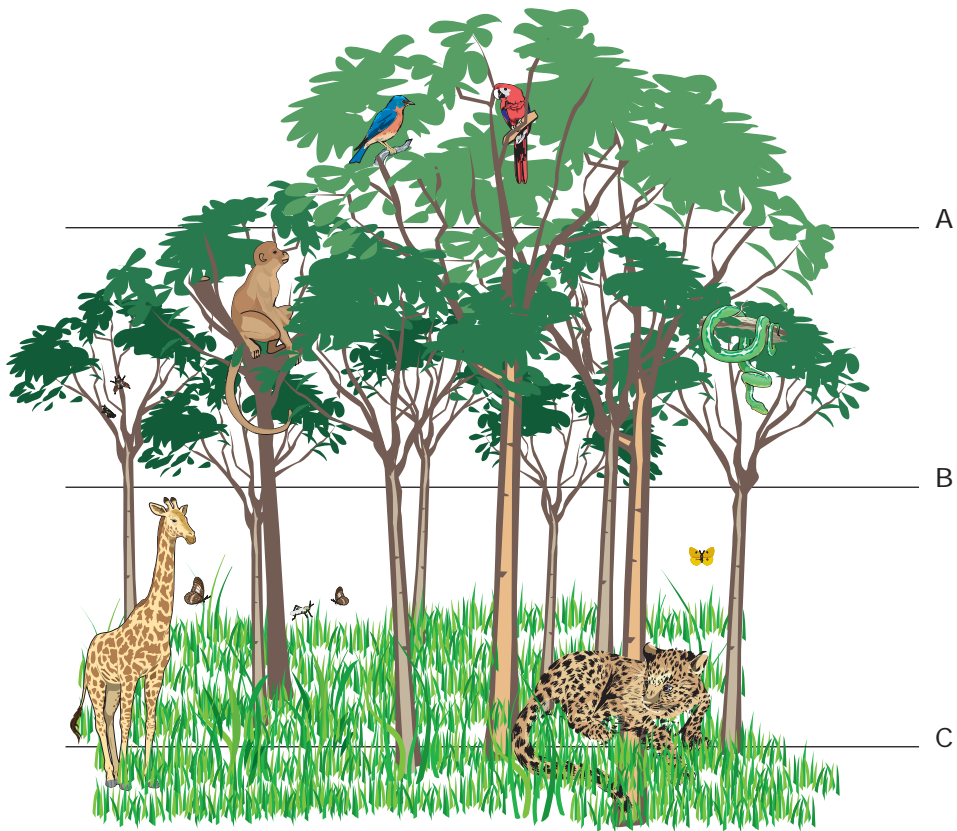
(9) _____ rainforests are the type of biome that scientists believe maintains most (10) _____ of animals and plants.

(11) Forests and _____ can both be found in either hot or (12) _____ climates.

4 Layers of the rainforest

Vocabulary

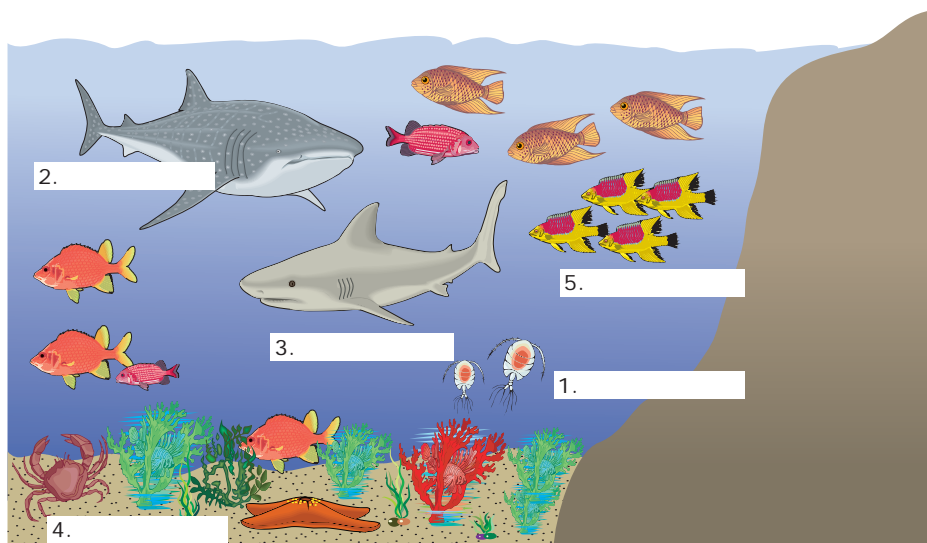
Label the picture with the correct words.



5 Life in the marine biome

Vocabulary

Label the picture with the correct words.



The Earth's Biomes**Aim**

To learn about the different biomes on Earth and how they differ according to different geographical areas and climates.

Type of class

Individual, pairs

Language focus

Vocabulary, technical and geographical terms

Skills focus

Activity 1 Reading and vocabulary

Activity 2 information transfer from text to diagram

Activity 3 complete the sentences

Activity 4 information transfer from text; label illustration

Activity 5 information transfer from text; label illustration

Preparation

Photocopy one set of the worksheets for each student.

Time

20–30 minutes

Procedure**1 The Earth's Biomes****Reading, vocabulary**

Ask students to read the text about biomes they have been given and look up the words in bold in a bilingual dictionary.

When they have read the text, go through the text with whole class, focusing on the new information and paying attention to the pronunciation of new and difficult words.

2 Biome Mind Map**Vocabulary**

Ask students to work in pairs to complete the concept map.

Answer Key

1 Aquatic biomes, 2 Freshwater regions, 3 Seas and oceans, 4 Terrestrial biomes,
5 Tundra, 6 Desert

3 Divisions of Biomes**Reading, vocabulary**

Ask students to complete the sentences with the correct words. They should use the text and the concept map to help. Ask students to work in pairs and check their answers.

Answer Key

1 terrestrial 2 marine 3 freshwater 4 estuaries 5 aphotic 6 sunlight
7 forest 8 desert 9 Tropical 10 diversity 11 grasslands 12 temperate

4 Layers of the rainforest**Vocabulary**

Ask students to label the picture with the correct words. Check answers with whole class. Then ask students to work in pairs and name the animals, insects and plants in the picture. As an extension, brainstorm as many animals and plants they can think of that live in the rainforest. Elicit their ideas with whole class and make a list on the board.

Answer Key

A – canopy
B – understory
C – forest floor

5 Life in the marine biome**Vocabulary**

Ask students to label the picture with the correct word. See if they can remember the words from the passage. If they can't, allow them to refer to the reading passage to help them.

Answer Key

Numbered pictures are of the following creatures:

- 1 plankton
- 2 whale/(mammal)
- 3 shark/(B nekton)
- 4 crab/(C bentos)
- 5 fish/(B nekton)