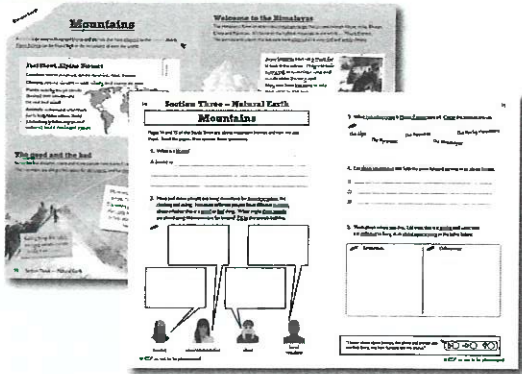


Mountains

Study Book (pages 14-15)



Activity Book (pages 14-15)

National Curriculum Aims

- Locate the world's countries, concentrating on their environmental regions and key human and physical characteristics.
- Describe and understand key aspects of physical geography, including climate zones, biomes and mountains.
- Describe and understand key aspects of human geography, including land use and economic activity.

Introduction

Alpine biomes are usually found below the snow line on mountains, but above 3000 m in altitude. They are often relatively inhospitable, with high winds and freezing temperatures. However, these areas are still home to plants, animals and humans.

This topic introduces pupils in detail to the first of ten land-based biomes in this section, focusing on the plants and animals that live there, their adaptations to the environment and human interactions with the biome.

Answers to Activity Book Questions

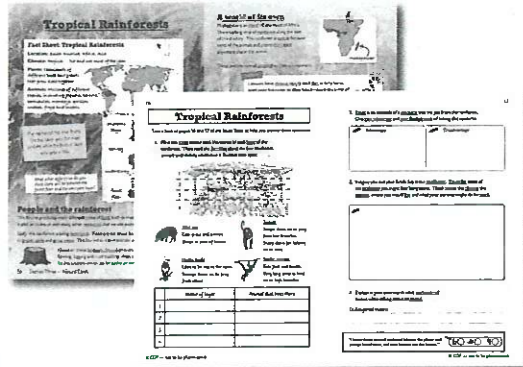
1. A *biome* is an area that contains particular plants and animals that have adapted to the climate there.
2. Pupils may answer in any way, as long as they give sensible reasons for their answers. E.g. a tourist may be against building hotels and ski slopes because it spoils the view, or be in favour because it gives her a place to stay. The environmentalist may be against mountains being used for leisure because of the damage to landscape, plants and animals caused by tourists and building tourist attractions. The skier may be glad of the ski slopes and hotels because it provides a tourist destination for her. The local resident may dislike the number of tourists visiting and damaging the landscape, or be in favour of the money it brings to the area.
3. Pupils should have circled: The Himalayas.
4. E.g. thick fur (to keep warm) / bushy tail (to keep warm) / big paws (to walk on snow).
5. Any appropriate answer. Pupils should draw on information from the Study Book. E.g. *Similarities*: In the UK and in alpine biomes there are tourist attractions / plants, animals and people live there / there are mammals, insects, birds, amphibians and reptiles. *Differences*: In alpine biomes, the weather is snowy and windy all year / there are large wild animals like snow leopards / the land is very mountainous / there aren't many tall trees.

Extra Activities

- Ask pupils to design a new creature that would be perfectly suited to living in the mountains. What is its coat like? E.g. furry or smooth. What type of feet does it have? E.g. hooves, paws or talons. What does it eat? E.g. animals, plants or both. Does it have any special qualities? Where does it find shelter?
- Ask pupils to imagine they're a climber about to tackle Mount Everest. What equipment would they need? Pupils should choose five things they think they should take with them and explain why they chose each one.
- Ask pupils to design a tourist information board for visitors to a mountain area, to tell them what plants and animals they might see. Pupils could use the information in the Study Book to focus on the Himalayas, or you could provide them with another mountain range (e.g. Alps, Andes or Rocky Mountains) to research.

Tropical Rainforests

Study Book (pages 16-17)



Activity Book (pages 16-17)

National Curriculum Aims

- Locate the world's countries, concentrating on their environmental regions and key human and physical characteristics.
- Describe and understand key aspects of physical geography, including climate zones, biomes and vegetation belts.
- Describe and understand key aspects of human geography, including land use, economic activity and the distribution of natural resources.

Introduction

This topic explores the tropical rainforest biome which is home to more species of animals and plants than any other biome on Earth.

The rainforest can be divided into four distinct layers. The emergent layer is comprised of the few trees that compete for sunlight by growing taller than most. The second highest of these layers, the canopy, is home to most of the animal species in the rainforest, including monkeys, birds and sloths. This layer is so dense that it blocks most of the light from reaching the layers below. The understory receives enough light to support small plants like shrubs. But the forest floor gets almost none, and for that reason doesn't support much plant life. Instead it's covered in leaf litter and other plant debris and is home to many insect species.

Answers to Activity Book Questions

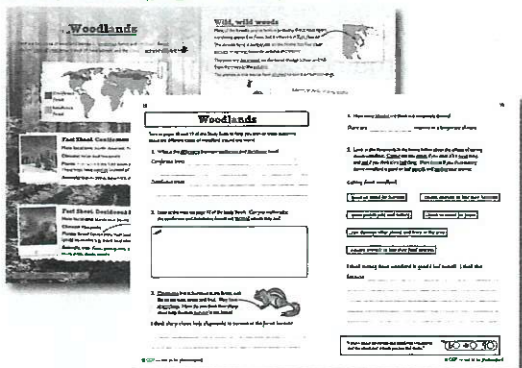
- 1) Emergent layer, Harpy eagle. 2) Canopy, Spider monkey 3) Understorey, Jaguar
4) Forest floor, Wild pig.
- E.g. *Advantage*: Paper is a very useful resource that we use every day. / Making paper creates jobs.
Disadvantage: Making paper means you have to cut down large areas of the rainforest. / Cutting down trees destroys habitats for rainforest animals.
- Any appropriate answer. Pupils should draw on information from the Study Book. E.g. They would have to be careful of big predators like jaguars. It would rain a lot so they would need a shelter to keep the rain out. There aren't many jobs available, so their parents might have to hunt, fish or collect resources to sell.
- Endangered means* at risk of becoming extinct.

Extra Activities

- Ask pupils to imagine that they are a rainforest explorer. What can they see, hear, taste, touch and smell? What emotions are they feeling? Pupils could summarise their ideas in the form of a diary extract describing a day spent exploring the rainforest.
- Provide pupils with data about the temperature and rainfall in a tropical rainforest and in the UK. Ask them to compare the two and decide which climate they'd most like to live in.
- Ask pupils to choose one of the animals mentioned in the Study Book — jaguar, parrot, tarantula, monkey, gorilla, snake, frog, chameleon, lemur or mantella. Pupils can make a fact file about their chosen animal, focussing on: where it lives in the rainforest, what it eats, what its predators are, how it is adapted to survive in a rainforest and whether or not it's endangered. As a follow-up activity, pupils could compare fact files and decide which animal is most endangered by looking at figures such as how many of each animal is left in the wild and how much of their habitats remain.

Woodlands

Study Book (pages 18-19)



Activity Book (pages 18-19)

National Curriculum Aims

- Locate the world's countries, concentrating on their environmental regions and key human and physical characteristics.
- Describe and understand key aspects of physical geography, including climate zones, biomes and vegetation belts.
- Describe and understand key aspects of human geography, including land use, economic activity and the distribution of natural resources.

Introduction

This topic introduces pupils to two types of forest biome — coniferous forests and deciduous forests. The majority of the natural woodland across the UK is deciduous forest. Most coniferous woodland in the UK has been artificially created, e.g. for timber production.

Once pupils have read pages 18 and 19 of the Study Book, ask them if they have ever been in a forest in the UK. What was it like? Were all the trees deciduous or were there coniferous trees too? Did they see any animals?

Answers to Activity Book Questions

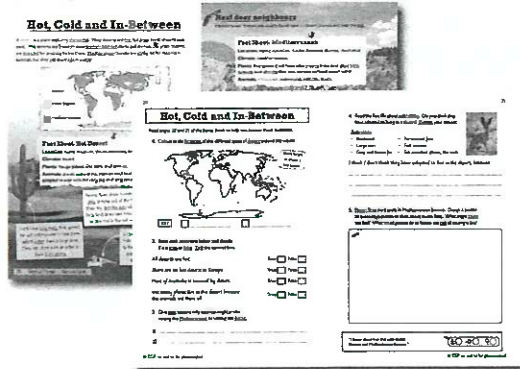
1. E.g. *Coniferous trees* have needles instead of leaves. They keep their needles all year round. *Deciduous trees* have broader leaves and lose their leaves in autumn.
2. E.g. coniferous forests are found in colder and drier climates because they're adapted to survive colder temperatures. Deciduous forests are found in slightly warmer, wetter climates.
3. E.g. *I think sharp claws help chipmunks to survive in woodlands because they help them to climb trees to look for food / they help them to dig their burrows.*
4. *There are four seasons in a temperate climate.*
5. Pupils should have coloured green: ...gives us wood for burning. / ...gives people jobs and money. / ...gives us wood for paper.
Pupils should have coloured red: ...causes animals to lose their habitats. / ...can damage other plants and trees in the area. / ...causes animals to lose their food sources.
Pupils may answer either way, as long as they give sensible reasons for their answer. E.g. *I think cutting down woodland is good overall. I think this because it gives us fuel, paper and wood which we need for lots of things.*

Extra Activities

- Show pupils pictures of deciduous woodlands in the autumn (or use those on pages 18 and 19 of the Study Book as examples). Ask them to create their own autumnal forest scene using paint or colouring pencils.
- As a class, investigate deciduous and coniferous trees in more detail. Pupils could either go to a local park or bring collected leaves into class. Ask them to identify as many types of tree as they can from the leaves. Pupils can also sort the leaves (or needles) into deciduous and coniferous species.
- Split pupils into pairs and ask them to imagine they're going camping together in the woods for the night. They have food, water and a tent, but nothing else. Provide pupils with the following list of items and ask them to pick three items they would take with them: torch, matches, sleeping bag, rucksack, game, sleeping mat, radio, walkie-talkie, sweets, comic. Pupils can discuss as a class why they chose those items.

Hot, Cold and In-Between

Study Book (pages 20-21)



Activity Book (pages 20-21)

National Curriculum Aims

- Locate the world's countries, concentrating on their environmental regions and key human and physical characteristics.
- Describe and understand key aspects of physical geography, including climate zones, biomes and vegetation belts.
- Describe and understand key aspects of human geography, including land use and economic activity.

Introduction

A desert is defined as an area without much vegetation or rainfall. However, deserts are not limited to places of extreme heat. Despite being covered with snow, many places in the Arctic and Antarctic receive so little annual precipitation that they are also considered to be deserts.

Unlike their closest relative, the tundra biome, polar deserts are so cold and dry that they cannot support any plant or animal life whatsoever. This topic describes hot deserts and Mediterranean biomes in more detail.

Answers to Activity Book Questions

1. Pupils' drawings should match the map on page 20 of the Study Book showing the locations of desert and polar desert biomes (but not the Mediterranean biomes).
2. False — True — True — False
3. E.g. the weather is warmer / there are beaches / you can swim in the sea / there are more holiday resorts.
4. Pupils should identify that jackrabbits have adapted to a desert climate. They should draw on information in the Study Book to connect some of the jackrabbit's features with living in a hot, dry climate. E.g. it's nocturnal to avoid the hottest part of the day and has large ears to keep cool. / Its grey and brown fur helps it to stay camouflaged in the desert. / It eats succulent plants full of water to stay hydrated. / Its fur-covered feet protect its skin from the hot sand. / It's a fast runner to escape predators in the open desert.
5. Many forest fires are caused by people being careless with fire. Pupils could draw, e.g. people using matches or campfires irresponsibly (or responsibly), or trees being destroyed by fires.

Extra Activities

- Provide pupils with data on the average monthly rainfall in the Mediterranean, a polar desert and a hot desert. Pupils could use the data to make graphs and compare them.
- Give pupils a list of desert plant adaptations and how they benefit the plant. Without telling them which adaptation matches which benefit, ask pupils to write the adaptations on one set of cards and the benefits on another. Pupils can then match the adaptation card to its corresponding benefit.
E.g. Waxy leaves — seal water inside the leaves so it doesn't evaporate.
Sharp spines — shade the surface of the plant and stop animals from eating it.
Shallow roots — let plants absorb water when there's only a small amount of rain.
Water stores — allow plants to survive during long dry spells.
- Ask pupils to draw their own desert animal species. What adaptations would it have? What colour would it be? Pupils can label their drawings to point out the animal's adaptations.