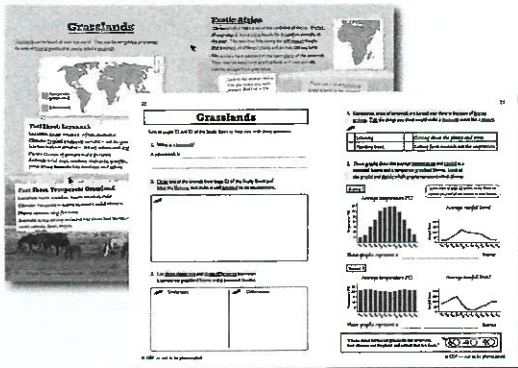


Grasslands

Study Book (pages 22-23)



Activity Book (pages 22-23)

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

This topic compares two types of grassland — temperate and tropical grassland. Temperate grasslands are also known as plains or prairies (particularly in North America) and tropical grasslands are often called savannahs. In spite of their name, some temperate grasslands can range in temperature from -18°C to 32°C between winter and summer. In contrast, savannahs generally stay between 20°C and 30°C all year.

Answers to Activity Book Questions

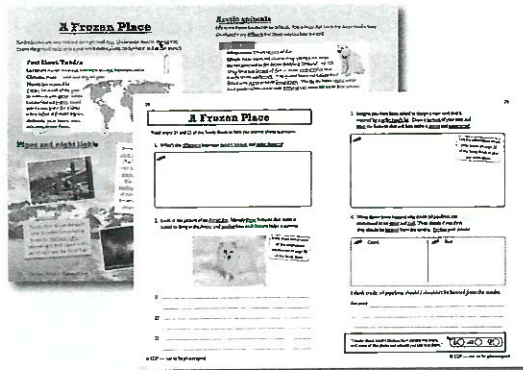
1. A savannah is an area of tropical grassland.
2. Any appropriate drawing. Pupils should draw on information from the Study Book for their labels.
3. Any appropriate answer. Pupils should draw on information from the Study Book. E.g.
 Similarities: Both biomes have a lot of grasses. / Neither biome has a lot of trees. / Both biomes have grass-eating animals. / Both biomes can be found in South America.
 Differences: Savannahs are hot all year, temperate grasslands are cooler in winter. / Savannahs have some trees, temperate grasslands have very few. / Savannahs have a wet season and a dry season, temperate grasslands don't. / Savannahs are found in Africa and Australia, but temperate grasslands aren't. / Temperate grasslands are found in North America and Asia, but savannahs aren't.
4. Pupils should have ticked: Cutting down the plants and trees and Letting farm animals eat the vegetation.
5. Biome 1: *These graphs represent a temperate grassland biome.*
 Biome 2: *These graphs represent a savannah biome.*
 Pupils should identify that Biome 1 has cooler winters and warmer summers and no drastic variations in rainfall. They should also identify that Biome 2 has a higher temperature all year round, and has a distinct rainy season.

Extra Activities

- Ask pupils to design a leaflet telling people about the issue of illegal hunting (poaching) and how it affects animals like rhinos, lions and elephants. How might they help to stop this? Pupils could make campaign posters for a wildlife charity, or create a radio or TV advertisement to draw attention to the issue.
- Get pupils to create their own 'Grassland Display'. Make a large background of blue and green/brown to represent the sky and savannah. Pupils could add animals to the display that they have drawn or painted. Once finished, discuss the ways in which the savannah is different from the countryside of the UK.
- Ask pupils to choose an animal that lives on the savannah and create a fact file on that animal, including: its full name (and its Latin name), what it eats, what adaptations it has, its predators and how endangered it is.

A Frozen Place

Study Book (pages 24-25)



Activity Book (pages 24-25)

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 tundra biomes. While they may appear similar to a polar desert, tundras go through cycles of freezing and thawing which allows them to support plant and animal life.

Answers to Activity Book Questions

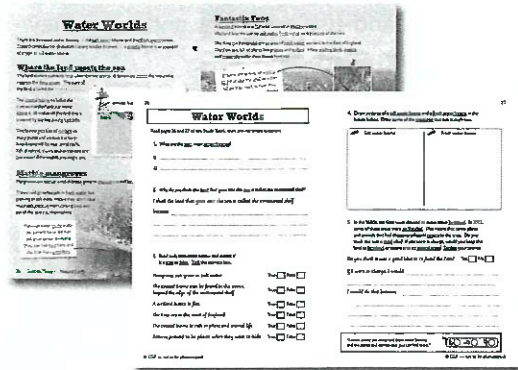
1. E.g. The ground in a polar desert is frozen all year. The ground in the tundra remains frozen for most, but not all, of the year. / Plants and animals can't live in a polar desert, but they can live in a tundra biome.
2. E.g. Its white fur helps it blend into the snow. / Its thick fur keeps it warm in the cold weather. / It has short ears and a short nose to reduce heat loss.
3. Any appropriate answer. Pupils' drawings should show an understanding of how polar bears stay warm, for example, by having a thick, oily coat and a layer of guard hairs over their soft undercoat fur.
4. Pupils may answer either way as long as they give sensible reasons for their choice. E.g. *Good*: The pipelines get oil to the oil companies. / We use oil to make plastics and fuel which we need. *Bad*: The pipelines affect wildlife (such as reindeer) and stop them from migrating. Pupils' explanations should expand one or more of the reasons they listed in the table e.g. *I think crude oil pipelines shouldn't be banned from the tundra, because we use oil for fuel and to make plastics which are very important in our daily lives. Unless the oil companies can access the oil, it can't be turned into things we need.*

Extra Activities

- Challenge pupils to build their own igloo using ice cubes or sugar cubes. If using ice cubes, suggest to pupils that they sprinkle a little salt on the ice cubes to help them stick together. If using sugar cubes, suggest PVA glue. Make sure they leave room for a door. Encourage pupils to think about how they will construct the igloo before they start. If their first attempt is not successful, encourage them to reflect briefly on what went wrong and how they can improve their next attempt.
- Provide pupils with one or more images of the Northern Lights. Ask them to create their own Northern Lights image using pastel chalks. Then ask pupils to draw trees or buildings onto black paper and cut them out. They can place these on top of their Northern Lights picture to create a silhouette effect.
- Pupils could test the thermal efficiency of their own coats. Ask pupils to fill two bottles with warm water and use a thermometer to record the temperature of the water in each. Place both bottles outside, one wrapped in a coat, and the other uncovered. Leave outside for 15-20 minutes, then record the temperature again. Which bottle of water remained the warmest? Pupils could repeat the experiment using different coats to see whose coat retains the most heat.

Water Worlds

Study Book (pages 26-27)



Activity Book (pages 26-27)

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 and biomes.

Introduction

This topic covers some examples of fresh water and salt water biomes. Both types of water biome can be further divided into smaller biomes, for example estuaries, salt water wetlands and coral reefs.

Once pupils have read pages 26 and 27 of the Study Book, recap with the class what they have learned already about the oceans, including the three layers of the ocean and the creatures that live there, and how the oceans affect the climate.

Answers to Activity Book Questions

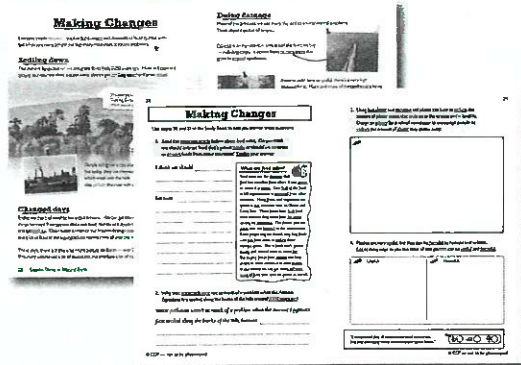
1. Fresh water biome and salt water biome.
2. E.g. *I think the land that goes into the sea is called the continental shelf because it is the land at the edge of the continent. It looks like a shelf underwater, separating the coastal biome from the deep ocean.*
3. True — False — True — False — True — True
4. Any appropriate answer. Pupils should draw on information from the Study Book. E.g. The salt water biome could include: seaweed, octopuses, sharks, sea horses, jellyfish, whales, dolphins. The fresh water biome could include: reeds and sedges, water lilies, fish, wading birds, otters.
5. Pupils may answer either way, as long as they give reasonable justification for their answer. E.g. Yes. *If I were in charge I would return the land to its natural state. I would do this because I think it's important to protect the natural habitats of plants and animals so they don't become endangered or go extinct.*
No. *If I were in charge I would keep the land as farmland. I would do this because people need food and farmers need farmland to earn money.*

Extra Activities

- Find a video about coral reefs aimed at KS2 pupils online and show it to the class. Encourage pupils to think about the diversity of life that exists in the coastal biome. How many different creatures in the video could they identify? Can they identify any predators? You could also ask them to discuss any environmental issues raised by the video, as a class or in small groups.
- Using the information from page 27 of the Study Book, ask pupils to create a poster to encourage people to consider their point of view regarding the re-flooding of the Fens. Encourage pupils to work on their persuasive skills by making their points as clearly and concisely as possible.
- Ask pupils to make their own coral reef — this can be done either individually or as a class project, using different coloured pipe cleaners, assorted colours of tissue paper, various colours of acetate sheet, sweet wrappers etc. Pupils could spread sand over a layer of PVA glue to represent the sea bed.

Making Changes

Study Book (pages 28-29)



Activity Book (pages 28-29)

National Curriculum Aims

- Understand land-use patterns and how they have changed over time.
- Describe and understand key aspects of human geography, including types of settlement and land use, economic activity and the distribution of natural resources including food and water.

Introduction

This topic introduces pupils to some basic facts about the resources people need in a settlement. It also discusses the consequences of overuse or careless usage of certain resources, like plastic and palm oil.

Palm oil is the most widely used vegetable oil in the world. Recently, it has been under particular scrutiny for the impact its production has on the rainforest. However, campaigns against palm oil production are complicated by the fact that palm oil has a very high yield per square kilometre — higher than any other vegetable oil — which means that if we were to replace all palm oil with other vegetable oils, more land would have to be cleared to grow it. One solution could be closer regulation of palm oil plantations to reduce rainforest loss.

Answers to Activity Book Questions

1. E.g. *I think we should keep importing food, because it gives us lots of choice in the supermarkets and helps farmers in other countries make money. / I think we should eat food grown locally, because it has low food miles, which would reduce the amount of harmful gases in the atmosphere.*
2. E.g. *Water pollution wasn't so much of a problem when the Ancient Egyptians first settled along the banks of the Nile, because there weren't any factories along the river to pollute the water / people weren't using harmful chemicals like pesticides and fertilisers that end up in the river.*
3. Any appropriate answer. Pupils' posters should encourage people to reduce, reuse and recycle plastics.
4. E.g. *Useful:* making water bottles / making parts for computers, televisions and phones / sports equipment / pens and other school supplies / furniture / car parts / keeping food fresh.
Harmful: plastics can hurt ocean animals that try to eat it or get stuck in it / plastic pollutes the water / plastic doesn't degrade so it fills up landfill sites.

Extra Activities

- As a class, using the information in the introduction above as a starting point, discuss the pros and cons of palm oil. Encourage pupils to think about sustainability when shopping with parents and consider more environmentally friendly products. Pupils could also create a display of items that use palm oil.
- Pupils could create a recycled display, for example, an image of a river flowing through a landscape, made entirely out of old straws, plastic lids, rubbish from break-time to convey their message that we need to cut down on the amount of waste we create.
- To expand on question 1 in the Activity Book, search online for a video aimed at KS2 pupils about food miles. Ask pupils to bring in empty food packets from home. Pupils can locate the countries of origin of the foods and mark them on a large wall map to show how far some of their own food has travelled.