

World biomes

The types of natural vegetation and the significance of vegetation to the environment and to people (ACHGK021)



Elaboration

Understanding the spread of natural vegetation and its relationship to climate. Investigating an animal species and its natural environment. Investigating the biomes of Australia.

Key inquiry question

- How does the environment support the lives of people and other living things?

Geographical inquiry and skills

- Observing, questioning and planning: Develop geographical questions to investigate (ACHGS026) **AC**
- Collect and record relevant geographical data and information, for example, by observing, by interviewing, conducting surveys and measuring, or from sources such as maps, photographs, satellite images, the media and the internet (ACHGS027) **AC**
- Represent data by constructing tables and graphs (ACHGS028) **AC**
- Interpret geographical data to identify distributions and patterns and draw conclusions (ACHGS030) **AC**
- Present findings in a range of communication forms, for example, written, oral, digital, graphic, tabular and visual, and use geographical terminology (ACHGS031) **AC**

Geographical concepts

- environment • interconnection • sustainability

Geographical vocabulary

biome, climate, vegetation, tundra, forest, grassland, mountain, desert, savanna, pampas, veld, temperate, tropical, coniferous, deciduous, arctic, alpine

Teacher information

T Teaching notes

- Compare a map of world biomes and a map of the physical world. Discuss the location of each biome in relation to the equator.
- Pick out the main points of the text on page 23 and compare the features of each biome.
- Compare the map of world biomes with the pie chart on page 24.
- Discuss native animals from different biomes and how extensive their range is. Some occur in the biomes of only one continent whereas others may be common in the same biomes across the globe.
- Consider the effect of human activity on habitat of chosen animal.
- Compare political, climate and biome maps of Australia. Discuss the similarities between states and territories.
- Students write descriptions for a 'Which state or territory am I?' game. They can ask individual friends to identify their secretly chosen state or all descriptions can be gathered together and read to the whole class for identification.

B Background information

- The aquatic biomes are home to many species of plant and animal of all shapes and sizes. Life on Earth began in the water billions of years ago. Without water, no life form could survive and the planet would be barren.
- The freshwater biome includes ponds, lakes, rivers, streams and wetlands. The marine biome includes oceans, coral reefs and estuaries.
- Forests occupy about one third of the land area of Earth. Deforestation and pollution (acid rain) have caused major problems for this biome.
- A desert is a place that has less than 50cm of rain in a year. The soils of some deserts are high in nutrients as seen by the abundance of plant life that flourishes after rainfall.
- Grasslands are biomes noted for dominant grasses rather than large shrubs and trees. Millions of years ago, when natural climate change created a climate more favourable to grasslands, they became more widespread. The two main types of grassland are tropical (savanna) and temperate (pampas and veld).
- Tundra is the coldest, most hostile of all the biomes. Its name means 'treeless plain'. But this bleak environment teems with life during the short growing season when midges thicken the sky and migratory birds stop by for a feeding frenzy.

R Resources

World biomes

- http://www.blueplanetbiomes.org/world_biomes.htm
- <http://www.factmonster.com/ipka/A0769052.html>
- <http://www.mbgnet.net/sets/>
- <http://www.ucmp.berkeley.edu/glossary/gloss5/biome/>

Animals of world biomes

- <http://www.blueplanetbiomes.org/animals.htm>
- <http://www.thewildclassroom.com/biomes/speciesprofile/>
- <http://www.thewildclassroom.com/biomes/speciesprofile/>

Australian biomes

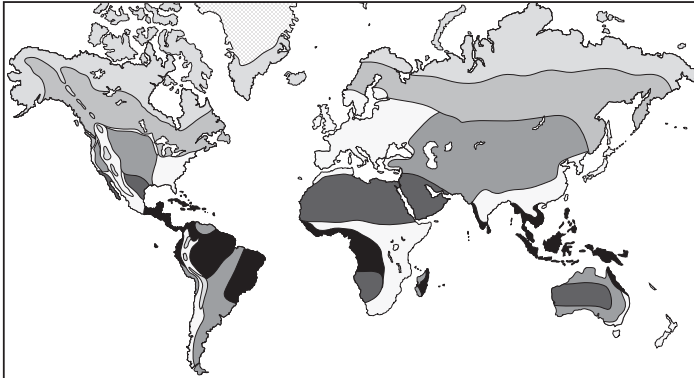
- <http://www.musc.edu/cando/ausdwnun/biom.html>

Additional activities

- Refer to a world biome map and a world political map to compare the biomes that exist in Australia and one South American country and one African country. Present your findings in a Venn diagram to show the similarities and differences between the three countries.
- In groups, investigate a biome's natural vegetation. Choose one plant each to describe. Use images from the internet to illustrate your description.

World biomes - 1

Biomes are places in the world with similar climates that support similar plants and animals. Climate controls the natural vegetation that can survive in a biome and the vegetation controls the animals that can live there.



Harsh climates with very low temperatures and/or low rainfall have low biodiversity. Biodiversity means the number of different species of plants and animals. Places with high rainfall and high temperatures are teeming with life.

The **Arctic tundra** encircles the Arctic Ocean. It is the coldest of the world's biomes. Trees cannot grow here because the subsoil is permanently frozen. Plants include mosses and lichens. **Alpine tundra** can be found on high mountains.

South of the Arctic tundra are **coniferous forests**. A belt of coniferous forest, known as the *taiga*, crosses the globe just south of the Arctic tundra. Plants include a variety of fir trees. Their flexible branches point downwards so that heavy snow can slide off without breaking them.

Deciduous forests exist in mild temperate climate zones. There are many species of trees that lose their leaves in autumn. This creates a mulch which enriches the soil, providing nutrients to support a greater number of plant species.

There are four main types of **desert** hot and dry, semiarid, coastal and cold. They all have little or no precipitation. Plant species such as cacti have adapted to survive in the dry conditions.

In **grasslands**, different species of grass grow in wide open spaces. In South America and Africa, hot, tropical grasslands are called savanna; temperate grasslands are called *pampas* in South America and *veld* in Africa.

Tropical rainforests close to the equator, are wet and hot all year round. They are home to millions of plant and animal species. In **temperate rainforests**, the temperature is always warm. The winters are long and wet. Summers are short and have less rain.

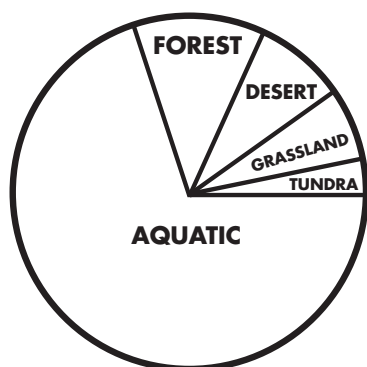
Mountains have a number of biomes that change with altitude. At the base of a mountain, its biome reflects that of its surroundings. With every 100 metres increase in altitude, the biome changes as the temperature falls and the strength of the winds increase.

Savanna is found in hot dry places. Vegetation is mostly grasses and small, scattered trees. Humans create savannas when grasslands and forests are cleared for planting crops.

World biomes - 2

Earth is known as 'The Blue Planet' because 70% of it is covered with water and only 30% is covered with land. Five major biomes exist across the globe, four terrestrial biomes and one aquatic.

The pie chart shows how much of the planet each biome covers.



1. Each major biome can be sub-divided.

Research to discover the main types of each biome and record them in the table.

Aquatic	
Forest	
Desert	
Tundra	
Grassland	

2. Choose a wild animal native to any world biome to research. Complete the table

Animal	
Country/countries	
Climate	
Biome/s	
Biome vegetation	
Food	
Habitat	
Effect of human activity on habitat	



Plants and animals have adapted to the conditions of different biomes.

Research to find out about some of these adaptations.

Australian biomes

1. Choose an Australian biome to investigate. _____

(a) Colour the location of your chosen biome on the map.



(b) Record the information you discover in the chart.

Location	Biome	Vegetation
Animals		Climate

2. Secretly choose one state or territory and, on the back of this page, write a paragraph to describe its natural environment.

Ask a friend to read your description and name the state or territory.

?

Australia has many unique animals but they are not found all over the country.

Research to produce a map of distribution of Australian native fauna.