

Frozen World | Geography | Years 5 & 6 | Autumn Term 2023-24

National Curriculum – Geography

Locational knowledge

- Locate the world's countries, using maps to focus on Europe (including the location of Russia) and North and South America, concentrating on their environmental regions, key physical and human characteristics, countries, and major cities.
- Identify the position and significance of latitude, longitude, Equator, Northern Hemisphere, Southern Hemisphere, the Tropics of Cancer and Capricorn, Arctic and Antarctic Circle, the Prime / Greenwich Meridian and time zones (including day and night).

Human and physical geography

- Describe and understand key aspects of:
 - physical geography, including: climate zones, biomes and vegetation belts, rivers, mountains, volcanoes and earthquakes, and the water cycle.
 - human geography, including: types of settlement and land use, economic activity including trade links, and the distribution of natural resources including energy, food, minerals and water.

Geographical skills and fieldwork

- Use maps, atlases, globes and digital / computer mapping to locate countries and describe features studied.

Physical Features & Processes

Why the polar regions are so cold:

The sun supplies the Earth's warmth. The North and South Poles are the furthest points away from the equator and curve away from the Sun's rays meaning the rays must travel further to reach the poles. The further the Sun's heat has to travel, the cooler it becomes, hence why very little warmth actually reaches the Earth's Poles.

Fast ice: Ice that covers seawater but is attached to land.

Drift ice: Detached pieces of ice drifting with the wind or ocean currents.

Glacier: Fallen snow that over many years form into large, thick, ice masses which flow like a very slow river. They cover around 10% of the Earth's total land area and store 75% of the world's fresh water.

Ice shelf: A thick, floating platform of ice that forms where a glacier flows down to the coastline and onto the ocean surface.

Permafrost: A thick, subsurface layer of soil that remains below freezing point throughout the year. Found in the Tundra biome of the Arctic.

Human Features & Processes

Are the polar regions inhabited?

Antarctica has an official population of zero, although people do visit for research and tourism purposes meaning c. 1000-5000 people are live there throughout the year. Almost 4 million people live in the Arctic, including many indigenous groups (such as the Inuit and Sami), people who live in cities, hunters and herders. Indigenous people make up about 10% of the population and keep traditional ways of living alive.

Where are settlements mostly located?

Many settlements are found along the coastline (for example, in Greenland) as water retains heat so these areas are slightly warmer. The ocean also provides food and access to imports from overseas. Some physical features, such as icesheets, make areas inland inhospitable.,

How are polar regions being affected by climate change?

Rising temperatures are resulting in loss of habitat affecting both fauna and flora in the polar regions. The Paris Agreement and COP26 are attempting to reduce this damage.

Vocabulary

Continent: any of the world's main continuous expanses of land.

Country: a nation with its own government, occupying a particular territory.

Equator: an imaginary line drawn on the Earth equidistant from the poles, dividing the planet into northern and southern hemispheres.

Climatic zones: divisions of the Earth's climates into general areas according to average temperatures and average rainfall. The three major climate zones of the Earth are the polar, temperate and tropical zones.

Desert: a barren area with little or no rainfall.

Biome: a community of plants and animals that have common characteristics for the environment they exist in.

Indigenous: originating or occurring naturally in a certain place; native.

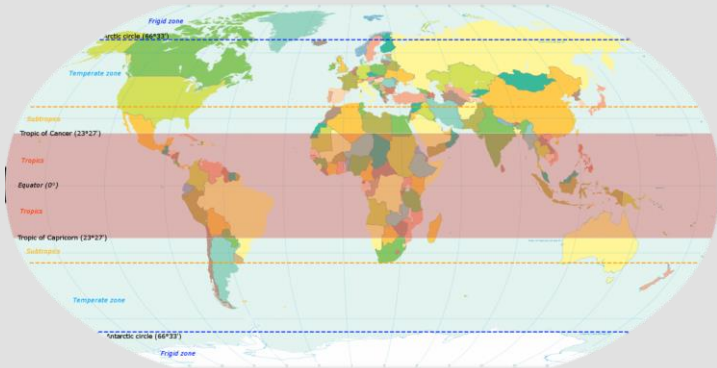
Temperate: a region or climate characterised by mild temperatures.

Aurora Borealis: A natural phenomenon of red/green streams of light in the sky, caused by the Earth's magnetic field & light particles.

Location & Techniques

The Arctic:

The region which sits north of the imaginary line of latitude wrapping around the globe at approx. 66°N. Above this line the Sun does not always set in the summer – the ‘Midnight Sun’.



Antarctica:

The region which sits south of the imaginary line of latitude wrapping around the globe at approx. 66°S. It is surrounded by the Southern Ocean and is the fifth largest continent based on area. Although over 98% of Antarctica is covered in ice, it is considered the world’s biggest desert because it never rains there; it is the driest and coldest continent on Earth.

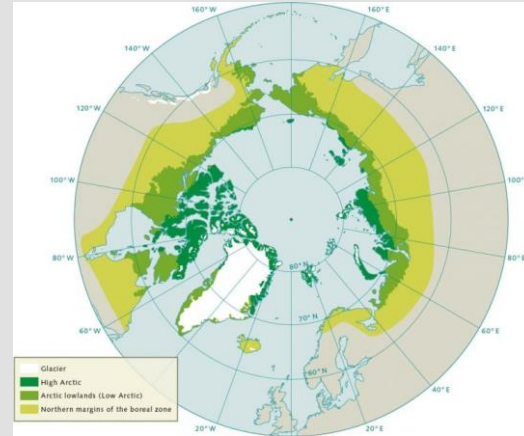
Exploration:

On 8th August 1914, Ernest Shackleton led an expedition to the Antarctic with a crew of 26 men aboard two ships, ‘Endurance’ and ‘Aurora’: their object was to make the first land crossing of the continent via the South Pole. The crew faced much peril, including their ship becoming stuck in the ice, and were eventually rescued on 30th August 1916 after two years of living on the ice.

The Arctic is not a country or a continent. It comprises: the Arctic Ocean and its surrounding seas; plus part, or all, of the land of eight countries – Norway, Sweden, Finland, Denmark (Greenland), Iceland, Canada, Russia and the United States (Alaska).



The Arctic can be divided into three main biomes: the Taiga (boreal / coniferous forests), the Tundra (Arctic lowlands) and the High Arctic (or Polar Desert).



The boundaries of these biomes are changing as a result of global warming and climate change.

Key Learning: To understand the physical and human geography of the polar regions.

1 **Where are the Earth's climatic zones? What are their distinguishing features and what causes them?**

Recap the five main lines of latitude of planet Earth and how these can be used to define the three main climatic zones: polar, temperature and tropical. Recap the key features of each zone then complete a map to illustrate this knowledge.

2 **Where is the Arctic Circle?**

Use Google Earth to discover how far away the Arctic Circle is. Learn the three accepted definitions of the 'Arctic', the reason for the 'Midnight Sun' and key facts about the region around the North Pole. Complete a jigsaw of the Arctic region to learn its composition of eight countries (partial or complete) and its ocean/seas.

3 **Are the polar regions only made of ice and snow?**

Sort a selection of images into those relating to the Arctic and those relating to elsewhere: use to address misconceptions that the polar regions are only 'ice and snow'. Study a variety of ice formations found in the Arctic / Antarctic and say whether each is an example of fast ice or drift ice.

4 **How do the Arctic and Antarctic differ? How are they similar?**

Learn about the key physical and human features of the two polar regions including temperatures and compositions (for example: landmass, oceans, countries, continents, governance, flora and fauna). Draw comparisons between the two regions, explaining the ways in which they are similar and different.

5 **Are the polar regions inhabited? Why?**

Learn about indigenous peoples of the Arctic using two case studies: Yamal, Russia; and Ilullisat, Greenland. Consider their way of life, clothing, housing and important industries in their regions. Make comparisons (similarities and differences) to settlements and life in the UK.

6 **What is the Tundra biome?**

Identify the key features of the Tundra biome. Explain the relationship between the flora and fauna of the Tundra and its climate.

7 **What is the Taiga biome?**

Identify the key features of the Taiga biome. Explain the relationship between the flora and fauna of the Taiga and its climate.

8 **What might the Arctic be like in 2050?**

Consider the role climate change plays in changes to the Arctic biomes, the impact of these changes and their wider implications. Learn how humans can influence this for better and for worse, including the aims of initiatives such as the Paris Agreement and COP26, and progress made towards these goals as a global population.