

Frozen Kingdom**What should I already know?**

- Latitude is the distance north or south of the equator and longitude is the distance east or west of the Prime Meridian.
- Use compass points and grid references to interpret maps, including Ordnance Survey maps, with accuracy.
- Identify and describe the similarities and differences in physical and human geography between continents.

**Vocabulary**

The Arctic	The region of the world inside the Arctic Circle.
The Antarctic	The region of the world inside the Antarctic Circle.
Climate change	The theory, believed by almost all scientists, that humans are causing the Earth to warm up.
Glacier	A huge mass of ice which moves very slowly over land underneath it.
Greenhouse effect	The theory that carbon dioxide in the atmosphere is making the Earth heat up.
Inuit	Indigenous people that live in the Arctic Circle.
Indigenous people	People that have lived in an area for an extremely long time and were the first humans who lived there.
Native species	Plants or animals that live where they would naturally exist.
Nomadic	People who don't live in one place but travel, often following herd animals.
Permafrost	Land that has remained completely frozen for at least two years.
Tundra	Flat areas where the ground is always frozen and trees don't grow.

**Linked Science knowledge for the topic**

Plan and carry out a range of enquiries, including writing methods, identifying and controlling variables, deciding on equipment and data to collect and making predictions based on prior knowledge and understanding.

Report on and validate their findings, answer questions and justify their methods, opinions and conclusions, and use their results to suggest improvements to their methodology, separate facts from opinions, pose further questions and make predictions for what they might observe.

Gather and record data and results of increasing complexity, selecting from a range of methods (scientific diagrams, labels, classification keys, tables, graphs and models).

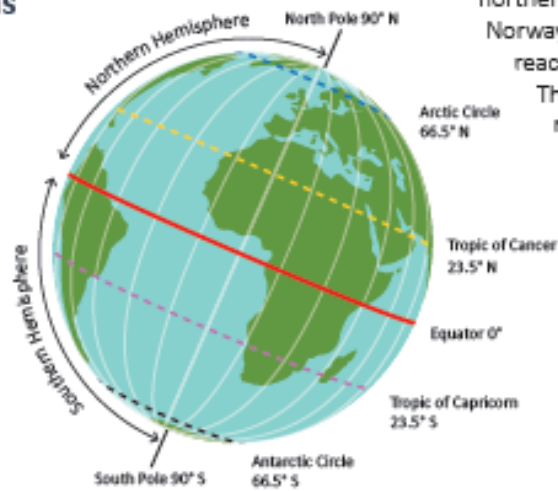
**By the end of the topic we will be able to...**

...confidently discuss what makes the Polar Regions unique and worthy of protecting. We will be able to identify how life in the Polar Regions is very different to what we experience and explain how the peoples of the Polar Regions live and respect both their ancestors and the environment.

# Frozen Kingdoms

## The polar regions

The Earth has two polar regions: the Arctic Circle in the Northern Hemisphere and the Antarctic Circle in the Southern Hemisphere. Polar regions have long, cold winters and temperatures mostly below freezing. The weather can be very windy with little precipitation.



## Polar landscapes

Much of the polar regions is covered with snow and ice all year round. Polar landscape features include glaciers, ice fields and icebergs.

### Glacier

Glaciers are slow-moving masses of flowing ice, formed by the compaction of snow. They can vary in depth from 50m to 1500m.



### Ice field

Ice fields are large areas of connected glaciers covering flat areas, such as valleys and high plateaus. They are made from compressed and frozen snow.



### Iceberg

Icebergs are chunks of ice that calve, or break off, from glaciers and ice sheets and float in the sea. Wind and water erode icebergs into sculptural shapes.



## Arctic region

The Arctic region consists of the Arctic Ocean and the northern parts of Canada, Alaska, Russia, Finland, Sweden, Norway, Greenland and Iceland. Winter temperatures can reach  $-50^{\circ}\text{C}$  and summer temperatures can reach  $10^{\circ}\text{C}$ .

The Arctic region has a varied landscape including mountains, tundra and boreal forest. It is home to small populations of people and an amazing variety of plants and animals including the polar bear, Arctic fox, Arctic hare and walrus.



polar bear

## Natural resources in the Arctic

Natural resources in the Arctic include oil, gas, minerals, metals, fish, wood and freshwater. Arctic inhabitants use the natural resources available for fuel, food and to sell to other countries. However, many of the resources have not yet been touched as they are difficult to extract, especially those that underneath the frozen waters of the Arctic Ocean.

## Indigenous peoples of the Arctic

The indigenous peoples of the Arctic have inhabited the area for thousands of years. In the past, they adapted to the cold, harsh conditions by hunting and eating animals native to the area, such as seals, whales and walrus, and using reindeer skins to keep warm. Many lived nomadic lifestyles, following reindeer herds. Today, many indigenous peoples live in permanent settlements and have a modern lifestyle, but some still follow the traditional way of life.

## Antarctic region

Antarctica is the world's fifth-largest continent and is covered in an ice sheet that is up to 4800m thick. It is the coldest, driest, highest and windiest continent on Earth. Temperatures can drop to  $-89^{\circ}\text{C}$ , there is little precipitation, and wind speeds can reach 80km per hour. There are only two native species of flowering plants in Antarctica, but there is a rich sea life, including the emperor penguin, humpback whale and leopard seal. No people live permanently in the Antarctic. However, scientists stay for part of the year to carry out research and tourists visit in the summer months to see the landscape and wildlife.



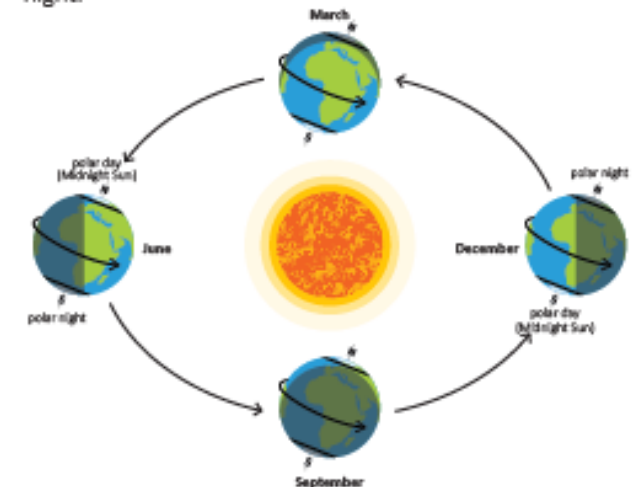
emperor penguin



humpback whale

## Polar day and night

Due to the tilt of the Earth, the poles experience nearly 24 hours of daylight during the summer months. This is called polar day, or Midnight Sun. In the winter, the poles experience nearly 24 hours of darkness. This is called polar night.



## Polar exploration

Due to the harsh and inhospitable conditions, the polar regions were the last places on Earth to be explored. During the golden age of polar exploration, between 1898 and 1916, explorers searched for the Northwest Passage in the Arctic and raced to reach the South Pole in Antarctica. Three famous polar explorers were Robert Falcon Scott, Roald Amundsen and Ernest Shackleton.

### Robert Falcon Scott

Robert Falcon Scott (1868–1912) was a British explorer who led two expeditions to the Antarctic. His second expedition turned into a race to the South Pole that Scott's team lost, losing their lives in the attempt.



Image from: Wikimedia Commons/Public domain

### Roald Amundsen

Roald Amundsen (1872–1928) was a Norwegian explorer. He was the first to discover the Northwest Passage in the Arctic that joined the Atlantic Ocean to the Pacific Ocean. In 1911, he led a successful expedition to be the first to reach the South Pole, beating Scott's team.



Image from: Wikimedia Commons/Public domain

### Ernest Shackleton

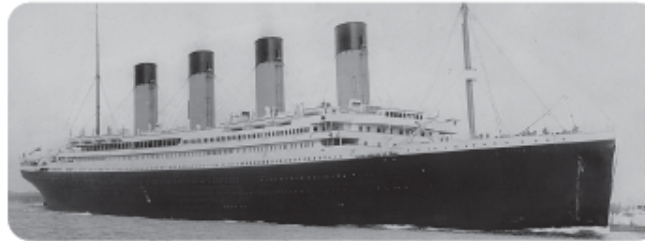
Ernest Shackleton (1874–1922) was a British explorer who led an expedition to attempt to walk across Antarctica. However, his ship became stuck in sea ice and sank. Shackleton and his men managed to survive for 18 months before making their way to safety.



Image from: Wikimedia Commons/Public domain

## Titanic

The RMS *Titanic* sank on 15th April 1912. Four days after leaving Southampton, UK and just 300 miles from its destination of New York, USA, the lookout crew spotted an iceberg in the *Titanic's* path. The ship collided with the iceberg, damaging its hull. At 2:20am on 15th April, the *Titanic* began to sink. Although the crew sent distress signals, none of the ships who responded were able to reach the *Titanic* before she sank. It is estimated that 1500 people were killed and only 700 survived.



RMS Titanic

## Climate change

Human activities such as burning fossil fuels and deforestation are releasing gases into the atmosphere that are causing the temperature of the Earth to rise and its climate to change. The Arctic landscape and wildlife are at risk due to this change. Scientists are concerned that the rising global temperature is causing the polar ice to melt. If the polar ice melts, sea levels and temperatures will rise, weather patterns will change and the polar regions will be damaged.



Arctic landscape

