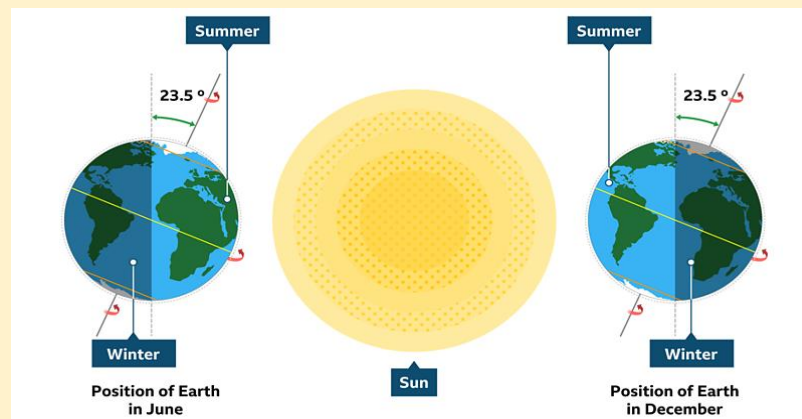


## Antarctica: The Frozen Continent

Antarctica is the southernmost continent in the world and contains the South Pole. It has no countries and its population is zero. It is the driest, coldest and windiest continent and, in winter, temperatures can reach -80°C. The size of Antarctica changes with the seasons. It holds 80% of the world's fresh water. Very few living things live in Antarctica all year. Many creatures migrate during the summer.

Sunlight hits the Earth most directly at the Equator. The curve of the Earth means that sunlight is spread over a wider area the further you move from the Equator. Sunlight hits a smaller surface area at the Equator so heats up quickly compared to the poles.



Antarctica lies at the South Pole/. During the UK summer, Antarctica lies in total darkness. During the UK winter, the sun rises above the horizon in Antarctica. The continent has 24 hours of daylight every day and temperatures are slightly warmer.

Antarctica is almost completely covered by an ice sheet which has been formed by snow. The snow has accumulated over hundreds of thousands of years and compressed into ice. At its thickest, the ice is over 4 km deep. Beneath the ice sheet is a hidden landscape of mountains, valleys and plains.

Except for coastal peaks, only the highest Antarctic mountains show above the icecap. The Prince Charles Mountains and the Transantarctic Mountains (which divide the continent into East and West Antarctica) contain the highest peaks in Australian Antarctic Territory. During winter, it gets so cold that the sea surrounding Antarctica freezes for hundreds of kilometres offshore. The ice breaks up to form pack-ice.

The biggest challenges Antarctica faces include climate change, exploitation of resources and damage to the ozone layer. Climate change is affecting Antarctica. Parts of the continent are experiencing the greatest increases in temperature on the planet, leading to the melting of ice and loss of habitat for species like penguins. Many glaciers have retreated and ice shelves have collapsed. The continuation of these effects may result in a rise in sea level which will impact the rest of the world.

Nobody owns Antarctica. It has no government or permanent population. During the 20th century, North American and European explorers raced to become the first to explore Antarctica. In 1911, Norwegian explorer Roald Amundsen became the first to reach the South Pole. His team were closely followed by Robert Falcon Scott of the United Kingdom. The expeditions were dangerous but deemed important as a show of strength and power over other nations.

Antarctica is a global common, which means it is outside of the control of any one country. Many countries work together in Antarctica and so the continent needs careful management to ensure that it is not destroyed. The Antarctic Treaty is an agreement that sets aside any territorial claims, demilitarises the continent (so no weapons testing can take place) and promotes scientific research only.

## One **BIG** question:

*Are the costs of exploration  
always justifiable?*



### Courageous Advocate

**Robert Falcon-Scott** was a British Royal Navy officer and explorer who led two expeditions to the Antarctic regions: the Discovery expedition of 1901-04 and the Terra Nova expedition of 1910-13.

### Vocabulary Dozen

#### *geologists*

scientists who study rocks, soil and everything about the Earth to understand how our planet was formed and how it has changed over a very long time

#### *geologically*

related to how the Earth was made and how it has changed over a very long time

#### *global warming*

an increase in the Earth's temperature due to burning fossil fuels like coal and oil

#### *climate change*

changes in weather patterns on Earth

#### *territories*

areas of land that belong to a particular group or country

#### *native*

something or someone that has always been in a place

#### *treaty*

a special agreement or promise between groups or countries; a way for them to solve problems together without fighting

#### *hemisphere*

the two halves of the Earth (Northern and Southern hemispheres)

#### *migratory*

animals that travel from one place to another at certain times of the year

#### *adaption*

when living things change a bit to survive better in their environment

#### *classify*

to group things together based on their similarities; putting things that are alike into the same category or class

large

### Emperor Penguins



Emperor penguins are the biggest of the 18 species of penguin found today and are one of the largest of all birds. They are approximately 120 cm tall (about the height of a six year-old child) and weigh in at around 40 kg. They feed mostly on Antarctic silverfish as well as other species of fish, krill and squid.

Once the female lays an egg, in May or June, she will pass the egg to the male to incubate. Then, she will make the long voyage back to the sea to feed on krill, squid, and fish. As

there are no nesting supplies available on the ice mass, emperor penguins must create a safe, warm environment for the eggs using their own bodies. Careful to keep the egg sheltered, the male will balance the egg on his feet and cover it with a warm layer of feathered skin called a brood pouch.

Emperor penguins are uniquely adapted to survive the harsh conditions of Antarctica where temperatures can drop down to a bone chilling -50°C with winds of up to 200km/hr. They have two layers of feathers, a good reserve of fat and proportionally smaller beaks and flippers than other penguins to prevent heat loss. Emperors also have feathers on their legs, so their ankles don't get too chilly.

These majestic birds are also specially adapted to traveling in this extreme habitat. On the ice masses, they use strong claws on their feet to help grip the surface as they shuffle along. Additionally, their feet contain special fats that prevent them from freezing. They also slide on their sleek bellies while pushing with their feet.