

What should I already know?

- The seven **continents** (including Antarctica) and five **oceans** of the world.
- Examples of some countries around the world and what the **climate** is like there.
- What **climate** means and how it affects the **vegetation** in an area.
- Different **biomes** around the world, including the **polar tundra** and some countries where it can be located.
- What plants need to survive.
- How **seasonal** changes can affect the **weather** and **vegetation**
- Different **habitats** and some plants and animals that can be found there.

Vocabulary

arctic	the area of the world around the North Pole. It is extremely cold and there is very little light in winter and very little darkness in summer
barren	A barren landscape is dry and bare, and has very few plants and no trees.
biome	a natural area of vegetation and animals
climate	the general weather conditions that are typical of a place
climate change	changes in the earth's climate , especially the gradual rise in temperature , as a result of human activity
continent	a very large area of land that consists of many countries. Europe is a continent .
environment	all the circumstances, people, things, and events around them that influence their life
frozen	when something has become a solid because of low temperatures
global	something that happens in all parts of the world or affects all parts of the world
habitat	the natural environment in which an animal or plant normally lives or grows
harsh	Harsh climates or conditions are very difficult for people, animals, and plants to live in
landscape	everything you can see when you look across an area of land, including hills, rivers, buildings, trees, and plants.
melting	to change from a solid to a liquid state through heat or pressure
mountain	a very high area of land with steep sides
nutrients	substances that help plants and animals to grow
ocean	one of the five very large areas of salt water on the Earth's surface.
permafrost	land that is permanently frozen to a great depth
permanent	Something that is permanent lasts forever
plain	a large flat area of land with very few trees on it
polar	near the North and South Poles
seasons	main periods of the year that can have their own weather conditions
sustain	continue or maintain something for a period of time
temperature	a measure of how hot or cold something is
tundra	a flat layer of land where the top layer is frozen. There is hardly any vegetation .
vegetation	plants, trees and flowers
weather	the condition of the atmosphere in one area at a particular time, for example if it is raining, hot, or windy

The Polar Tundra

- The **polar biomes** (which include the **arctic tundra**) are **harsh environments** that only the toughest plants and animals can survive in.
- The **habitat** has a long and brutal winter and the **barren landscape** provides many challenges.
- While the **arctic tundra** is confined to only the areas near the north pole, other areas that are part of the **tundra biome** can be found in Antarctica and certain cold, **mountainous** regions.
- Unfortunately, the **arctic tundra** is shrinking as a result of **climate change**; the increasing **temperatures** are causing the **permafrost** to melt.

Permafrost:

- The thin layer of top soil in the **arctic tundra thaws** during the summer months, but beneath that the ground is **permanently frozen**.
- **Permafrost** currently covers approximately 20% of the earth's surface, but this amount is shrinking rapidly due to increases in **global temperatures**
- **Permafrost** is very challenging to build on, which is one of the reasons that very few people inhabit the **tundra**.

Landscape:

- Since the ground is **frozen** in the **tundra**, most plants are not able to grow their roots beneath the top soil or receive enough **nutrients** from the soil to **sustain** their growth.
- The plants that are able to grow are usually small in height and sprawl across the ground—giving the **tundra** a **barren landscape**.
- The summer is very short in the **tundra**, which also limits the ability of most plants to grow. The term **tundra** actually refers to a “treeless **plain**” or “**barren land**”.

Climate:

- The **arctic tundra** is the coldest and driest place on the planet. In the **tundra** the autumn and spring **seasons** are basically non-existent, leaving only two **seasons**—winter and summer.

Geographical Skills and Fieldwork

- Locate where the **polar biomes** can be found using maps, globes and atlases. Locate the countries that the **arctic tundra** can be found in.
- Describe the **climate** in the **polar biomes** and explain why this is the case.
- Explain the effect that **climate change** has on the **arctic tundra**.
- Explain why there is a lack of **vegetation** in the **polar biomes**.
- Compare the **vegetation** in the **polar biomes** to that of a woodland or forest and explain the similarities and differences.
- Look at digital maps of the **arctic tundra** over time. What do you notice? Why is this the case?
- Analyse bar charts that show average **temperatures** in the **tundra** at different times of the year.
- Explain what humans can do to help combat the effects of **climate change**.

