Year 4 Geography: Climate Change

Some of the content is from Chris Quigley Education's Curriculum Companion for Geography.

Climate Change

Climate is the long-term temperature expected in a place. Weather is the day-to day conditions which change frequently. Climate change (or global warming), is the process of our planet heating up so that temperatures are higher than would be expected. The Earth has warmed by an average of 1°C in the last century, and although that might not sound like much, it has an effect on people and wildlife around the globe. Unfortunately, rising temperatures don't just mean that we'll get nicer weather. The changing climate will make our weather more extreme and unpredictable. As temperatures rise, some areas will get wetter and humans and animals will need to adapt.

What are the causes of 'Climate Change?'

- **Burning fossil fuels** – releases CO_2 which warms the Earth by acting as an invisible greenhouse.
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- **Farming** – methane gas that is released from 1.5 billion cows around the world, adds to the greenhouse effect.
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- **Deforestation** – as trees absorb carbon dioxide, with many forest being cut down, this means that less carbon dioxide is being absorbed.

Key Vocabulary

climate: the long-term expected temperature
weather: the day-to day differences in conditions
adapt: change behaviour
carbon dioxide: a greenhouse gas
methane: a greenhouse gas
excretion: getting rid of waste from the body
deforestation: cutting down large areas of trees

The Southern and Arctic Ocean

The Southern Ocean is the second smallest of the world's oceans. It covers 6% of the Earth's surface. It is also known as the Antarctic Ocean.

The Southern Ocean is in the southern hemisphere and surrounds the continent of Antarctica. It is connected, in the north to the South Pacific Ocean.

Key Vocabulary

ice breaker: ship that is strong and designed to break through ocean ice
accompany: go with
equator: an imaginary line halfway between the North and South Poles
roaring: very loud
furious: very angry
shrieking: making a high-pitched scream
invertebrate: a creature that does not have a spine

The Arctic Ocean is the smallest of the world's oceans. It is partly covered by sea ice called the Arctic polar ice cap for most of the year and almost entirely covered in winter.

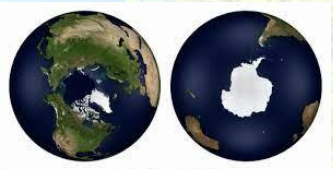
The Arctic Ocean is the most northerly of the oceans in the Arctic polar area in the middle of the northern hemisphere. It is surrounded by North America, Asia and Europe. It is connected to the Pacific Ocean by the Bering Strait (which separates Russia from Alaska) and to the Atlantic Ocean through the Greenland Sea and Labrador Sea.

Key Vocabulary

entirely: completely
connected: joined
ports: places where ships load and unload
natural resources: naturally occurring materials such as coal, land, etc, that can be used by people
climate change: the gradual rise of the Earth's usual temperature

Ice Biome

The ice biome is also known as the polar ice cap biome. An ice cap is body of ice in a high latitude region of the Earth. The polar ice caps contain the majority of the fresh water supply on earth.



These views of the Earth are looking at the poles. The polar ice caps are located in the Arctic Circle, near the North Pole and the continent of Antarctica at the South Pole.

Physical Features

The polar ice biome is the coldest place on Earth; the temperatures always average below 0° C even in summer. In the winter, there is no sunshine and so the temperatures are lower. One of the most recognisable features of a polar ice biome is the presence of permafrost. Because of the permafrost, no vegetation can grow here except for some microscopic algae.

Human Processes

Climate change is melting the polar ice caps. If Greenland's ice cap were to melt, sea levels would rise by 6 metres (20 ft). This is because the Greenland ice cap is about 650,000 square miles (1,683,500 square km) in size and contains a huge amount of frozen water. It is estimated that in only the last 100 years sea levels have risen by as much as 20 cm (8 in). As the ice caps melt, the environmental changes affect people, animals, plants and migratory behaviour.

Diversity

Herbivores do not exist in this biome because no plants grow here. Most animals live below the ice rather than above. Some examples of animals that inhabit the north polar ice biome are polar bears, arctic foxes and seals; and, in the south polar ice cap, penguins. There are no naturally occurring land animals here.

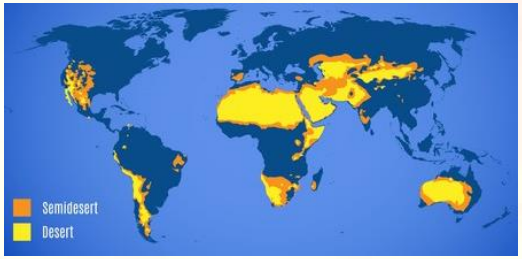
Key Vocabulary

latitude: the distance of a place from the equator
majority: most
permafrost: soil that is permanently frozen
microscopic: extremely small (can only be seen with a microscope

Desert Biome

The desert biome is an ecosystem that forms due to the low level of rainfall it receives each year. Deserts cover about 20 per cent of the Earth. There are four major types of desert in this biome: hot and dry, semi-arid, coastal, and cold. They all have plant and animal life that have adapted to survive there. The desert biome is a big tourist attraction. People enjoy rock climbing, cycling and hiking in the desert.

The Sahara Desert is the largest desert in the desert biome. It covers over 300 million square miles (776 square km). The desert biome can be found on every continent except Europe.



Physical Features

Daytime temperatures in the desert biome are very high but can be very low at night. Dust storms occur when the wind picks up dust from the surface. These storms can be up to 1 mile (1.6 km) high and travel over 100 miles (160 km). Some deserts are so hot that when it rains, the water evaporates in the air before hitting the ground. Some deserts in Antarctica are cold deserts. They are considered deserts because of the small amount of vegetation that grows. The driest desert on Earth gets on average 1 cm of rainfall every 5 to 20 years.

Diversity

Desert animals tend to be nocturnal, sleeping during the day and coming out at night when the temperatures are more tolerable. Because there is hardly any standing water in the desert biome, animals either store water in their bodies or get their water needs met by the foods they eat. The plants that are able to grow in the desert biome store water in their stem. Because body fat retains heat, most desert animals have an adaptation that allows them to store all their body fat in one area of their body. The camel stores all its body fat in its hump. Cacti have many adaptions to survive in the desert. Their spines protect them from being eaten by animals and their waxy outer covering prevents moisture from escaping.

Key Vocabulary

ecosystem: all the conditions, plants and animals that exist in a particular area
arid: dry
evaporates: turns from a liquid into a gas
vegetation: plants and trees nocturnal: being active at night