



Grade 6 Term 3 Geography Summary

Climate and Vegetation Around the World Climate Around the World

Understanding Weather and Climate

- Weather and climate both talk about temperature, rainfall, cloud cover, and wind, but they do so in different ways.
- Weather describes these conditions over a short period, like a day or even just a few hours.
- It usually talks about small areas, such as a town, city, or part of a province.
- Climate, on the other hand, describes the same conditions but over a much longer time, like a season or a year.
- It covers larger areas, such as a whole province, country, or even the entire world.



Different Climates Around the World

- The average temperatures during different seasons help us understand whether a place has a hot, mild, or cold climate.
- To figure this out, we can look at the average temperatures in January and July, which are in the middle of summer and winter.

January Temperatures

- In January, it's summer in the southern hemisphere (the bottom half of the Earth) and winter in the northern hemisphere (the top half of the Earth).
- This means the hottest temperatures are found in the southern hemisphere, and the coldest temperatures are in the northern hemisphere.

July Temperatures

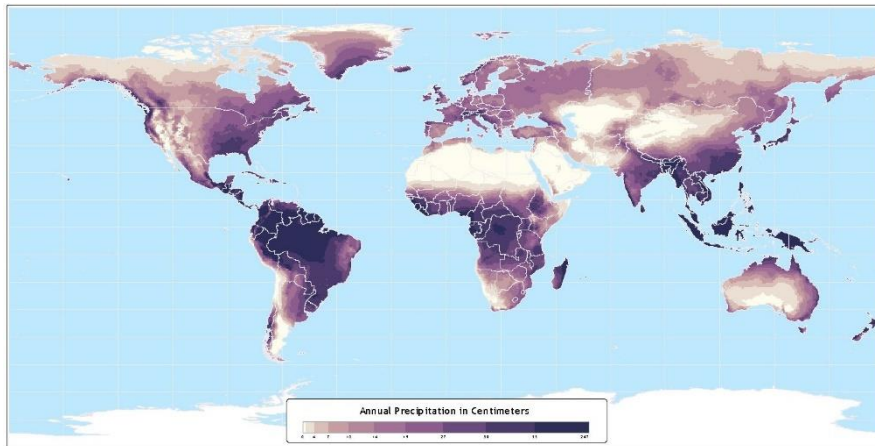
- In July, it's winter in the southern hemisphere and summer in the northern hemisphere.
- So, the highest temperatures are in the northern hemisphere, and the lowest temperatures are in the southern hemisphere.

Wet and Dry Areas of the World

- Different places around the world receive different amounts of rainfall each year, which helps us identify wet and dry areas.

Annual Rainfall

- Annual rainfall is the total amount of rain that falls in a year, measured in millimeters (mm).
- Some places get a lot of rain, while others get very little.



Wet Areas

- Wet areas of the world receive a lot of rain throughout the year.
- These places often have lush vegetation and diverse wildlife.
- Examples of wet areas include:
 - **Tropical Rainforests:** Found in places like the Amazon in South America, the Congo Basin in Africa, and Southeast Asia. These areas can receive over 2,000 mm of rain annually.
 - **Temperate Rainforests:** Found in places like the Pacific Northwest of the United States and Canada. These forests also get a lot of rain, though usually less than tropical rainforests.
- Most of the wettest areas of the world are between the lines of the Tropic of Cancer 23,5°N and Tropic of Capricorn 23,5° South.

Dry Areas

- Dry areas receive very little rain throughout the year.
- These places often have sparse vegetation and are home to specially adapted plants and animals.
- Examples of dry areas include:
 - **Deserts:** Found in places like the Sahara in Africa, the Arabian Desert in the Middle East, and the Atacama Desert in South America. Deserts typically receive less than 250 mm of rain annually.

- **Arid Regions:** These are slightly wetter than deserts but still receive very little rain. They include places like the steppes of Central Asia and parts of Australia.

Tropical Rainforests

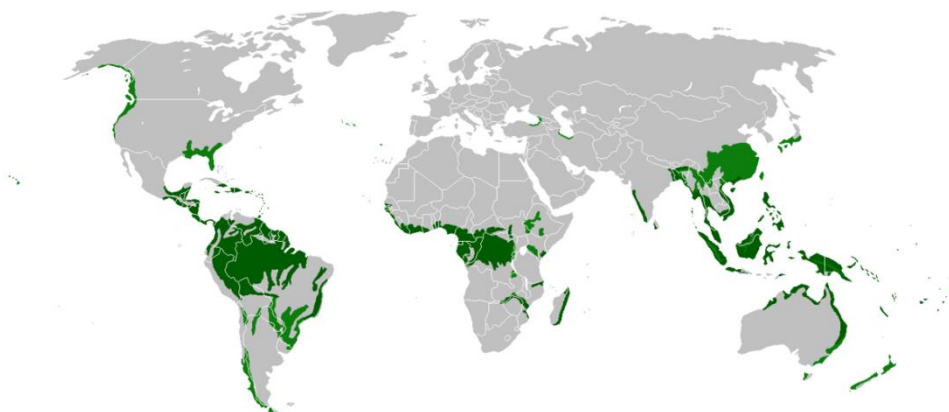
Tropical Rainforests

- Plants need light, heat, and water to grow well, and the climate of a place greatly affects what types of plants can thrive there.
- Because plants provide food and homes for many animals, the kinds of plants that grow in a particular region also determine the types of animals that live there.
- In regions with similar climates, you often find similar plants and animals.



Location of Tropical Rainforests on Earth

- Tropical rainforests are found near the equator, the imaginary line that circles the middle of the Earth.
- These forests are called tropical rainforests because they are located in the tropics, the areas between the Tropic of Cancer in the northern hemisphere and the Tropic of Capricorn in the southern hemisphere.
- Some well-known tropical rainforests include the Amazon in South America, the Congo Basin in Africa, and the rainforests in Southeast Asia.
- These forests are warm and wet all year round, providing the perfect conditions for a wide variety of plants and animals to thrive.



The Climate in Tropical Rainforests

- Tropical rainforests are known for their hot and wet climate.
- These forests experience high temperatures year-round, usually averaging between 20 to 30 degrees Celsius.

- Unlike many other regions, tropical rainforests do not have distinct dry seasons. Instead, they receive a lot of rain throughout the year, often totaling between 2,000 to 4,000 millimeters annually.
- The constant warmth and abundant rainfall create a humid environment, perfect for the lush, dense vegetation that characterizes these forests.
- This climate supports a diverse array of plant and animal species, making tropical rainforests some of the most biodiverse places on Earth.

Natural Vegetation and Wildlife in a Rainforest

Natural Vegetation

- Natural vegetation refers to the plants that grow in a region without any human help.
- This means they are not crops, trees, or flowers that people have planted.
- In tropical rainforests, the high temperatures and constant rainfall create the perfect conditions for lush, dense forests to grow.
- Unlike trees in places with cooler seasons, which lose their leaves in autumn, trees in tropical rainforests stay green all year round.
- In these hot and wet forests, different trees shed their leaves at different times, so there's never a season when all the trees are bare.
- The forest floor is always covered with a thick layer of fallen leaves.
- These leaves decompose quickly in the warm, moist climate, turning into rich compost that nourishes the trees and other plants.
- This continuous cycle of growth and decay keeps the rainforest vibrant and full of life.



Layers of a Tropical Rainforest

- Tropical rainforests have several layers, each with unique plants and animals.
- The tallest trees, like mahogany, teak, and ebony, can reach great heights.
- These towering trees grow so close together that their branches form a thick canopy, which acts like a giant umbrella, blocking much of the sunlight from reaching the forest floor below.



- Among these tall trees, you can find giant vines called lianas.
- Lianas climb up the trees to reach the sunlight.
- Below the canopy, plants like ferns and orchids grow in the shade, adapting to the lower light levels.
- Some trees in the rainforest have special roots called buttress roots.
- These roots stick out above the ground and help support the tall trees, giving them stability in the soft, moist soil of the rainforest.
- This unique structure helps the rainforest thrive, with each layer providing a home for different types of plants and animals.



Animal Life in the Rainforest

- Each layer of the rainforest provides different living conditions and types of food for animals.
- The abundance of seeds and fruits available year-round means animals don't have to move to find food during different seasons.

Some Animals You Will Find in the Rainforest

- Butterflies: There are thousands of butterfly species in tropical rainforests. Some have a wingspan of up to 30 cm. These butterflies often have bright colours and feed on nectar from flowers.
- Gorillas: Male gorillas can grow up to 2 meters tall and weigh around 300 kg. They live in large family groups and build nests from leaves on the forest floor or in trees. Gorillas are herbivores, mainly eating leaves.
- Chimpanzees: Chimpanzees eat berries, leaves, and shoots. They build nests in the trees where they sleep at night. Chimpanzees are very social and live in communities.
- Ring-tailed Lemurs: Found in the forests of Madagascar, ring-tailed lemurs eat mainly leaves and fruits. They use their long tails to help balance and hook around branches.
- Chameleons: Chameleons are known for their long, sticky tongues, which they use to catch insects. They can also change colour to blend in with their surroundings and hide from predators.
- Giant Centipedes: These centipedes can grow up to 26 cm long. They live in dark, damp places like under stones, leaves, or dead tree trunks. At night, they feed on worms, insects, and spiders.



Deforestation

- One of the most valuable resources from rainforests is timber, such as teak, ebony, and mahogany.
- These types of wood are excellent for making furniture.
- For many years, people have been cutting down trees in the rainforest to sell the timber.
- However, when trees are cut down, it can take up to 100 years for new ones to grow to full size.
- Unfortunately, people have not been replanting the trees they cut down, leading to the disappearance of many tropical forests. This process is known as deforestation.



Deforestation in the Ivory Coast

- The Ivory Coast used to be covered in tropical rainforests.
- Over just 25 years, the forest area shrank from 12 million hectares to 4 million hectares, leaving very few trees.
- Forestry companies cut down many trees without replacing them, and farmers cleared land to grow crops like coffee and cocoa.
- The loss of the forest has had a big impact on the Ivory Coast's economy, climate, and soil.
- Without the forests, timber sales dropped, reducing the money the country earned from exports.
- This caused around 30,000 workers in the timber industry to lose their jobs.
- Additionally, as the forest was cleared, rainwater either dried up in the hot sun or ran off the land instead of soaking into the soil.
- Without a layer of leaves decomposing into compost, the soil became less fertile.
- This led to drier savannah vegetation replacing the lush rainforest.
- The overall result has been damaging for the environment and the people who depend on it.



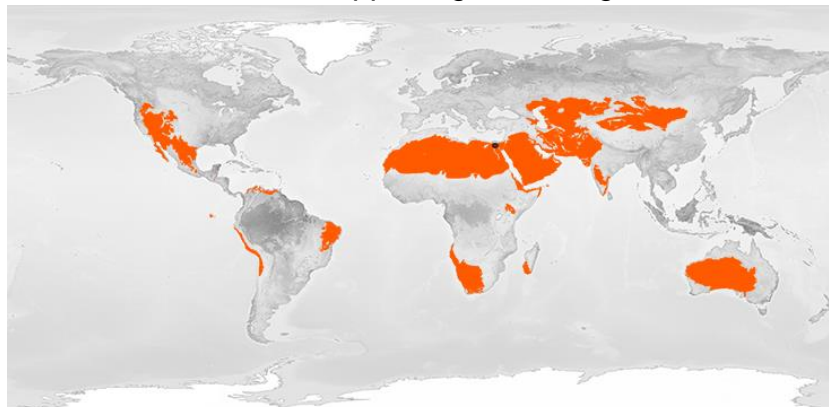
Hot Deserts

Location of Hot Deserts on Earth

- Deserts are regions that receive very little rainfall, usually less than 120 mm per year.
- Hot deserts are found between about 20° and 35° north latitude and 20° and 35° south latitude.
- These deserts are often located on the western sides of continents.

For example, in Africa, there are three major hot deserts:

- **The Sahara Desert:** Located in the northern part of Africa, it's the largest hot desert in the world.
- **The Namib Desert:** Found along the southwestern coast of Africa, it is one of the oldest and driest deserts in the world, estimated to be around 55 million years old. Together with the Kalahari Desert, the Namib covers half of the land surface of Namibia.
- **The Kalahari Desert:** Located in southern Africa, this desert has some areas that receive a bit more rain, supporting some vegetation.



The Climate of Hot Deserts

- Hot deserts have a unique climate that makes them very different from other places on Earth.
- Here are some key facts about the climate of hot deserts:

Temperature

- Hot deserts are known for their extreme temperatures.
- During the day, temperatures can soar very high, often reaching above 40°C or even higher.
- This is because deserts receive a lot of direct sunlight and have very little moisture in the air to hold back the heat.



- At night, temperatures can drop dramatically, sometimes below freezing, because there are no clouds to trap the heat.

Rainfall

- Hot deserts receive very little rainfall, usually about 150 mm per year. Some deserts, like the Sahara in Africa, may not see rain for years at a time.
- When it does rain, it often comes in short, intense bursts that cause flash floods.
- Most of the rain evaporates quickly or runs off the hard, dry ground, so it doesn't soak into the soil to nourish plants.



Dry Air

- The air in hot deserts is very dry, which means it holds very little moisture.
- This low humidity makes the heat feel even more intense during the day and causes rapid evaporation of any water that does fall.

Vegetation

- Due to the harsh conditions, vegetation in hot deserts is sparse and consists mainly of plants that can survive with very little water.
- These plants often have special adaptations, like deep roots to reach underground water sources or thick, waxy coatings on their leaves to reduce water loss.



Natural Vegetation and Wildlife in Hot Deserts

- Hot deserts are challenging environments for plants and animals because they receive very little rainfall.
- However, it's amazing how plants have adapted to survive with minimal water.
- Many desert plants store water in their tissues or have special features to reduce water loss.
- Animals in the desert rely on these plants for food and moisture, often going long periods without eating.

Plant Adaptations

- **Quiver Tree:** Found in deserts like the Namib, the quiver tree has thick bark and leaves that store moisture. Bees, birds, and baboons feed on the nectar from its flowers.

- **Euphorbia:** Also known as "melkbos" because of its milky fluid-filled stems, euphorbia survives in arid conditions. Gemsbok and rhinos chew on its stems, and small desert animals eat its seeds.
- **Welwitschia:** This unique plant in the Namib Desert has two large leaves growing from a woody stem. Its roots can reach about 3 meters deep to find water. Animals chew on its leaves for moisture but spit out the tough fibers.
- **Nara:** Growing in dry riverbeds, nara has no leaves and stores water in its fruit. Jackals, crickets, mice, and beetles eat its fruits, and ostriches consume the tips of its stems.



Quiver tree



Euphorbia



Welwitschia



Nara

Animal Adaptations

- **Gemsbok:** Large antelopes that live in the Namib and Kalahari Deserts. Gemsbok can survive on very little water and eat nara melons, bulbs, and roots which they dig up with their front feet.
- **Ground Squirrel:** These desert dwellers live in large groups in the Kalahari Desert and dig tunnels up to 180 meters long. They feed on roots and other vegetation found underground.
- **Shrew:** Small animals with long snouts that live in hot deserts. They use their snouts to dig up insects, which are their main source of food.
- **Bat-eared Fox:** Found in the Kalahari Desert, bat-eared foxes eat insects, fruit, mice, and reptiles. Their large ears help them hear insects moving underground.



Gemsbok



Ground squirrel



Shrew



Bat-eared fox

How People Live in a Desert

- Living in a desert is very challenging for humans.
- In some hot deserts, small groups of people known as nomads make their homes.
- The word "nomad" means "wandering," because these people do not have fixed homes.
- Instead, they move from place to place in search of water and food.

The San of the Kalahari Desert

- The San people are hunter-gatherers who have traditionally lived in the Kalahari Desert.
- They gather fruits from baobab and marula trees, as well as roots, to eat.
- For hunting, they use bows and arrows tipped with poison made from beetles, snakes, scorpions, and spiders.
- The San have adapted to survive on very little water, which is scarce and precious in the desert.
- They collect water by sucking it through reeds from underground sources and store it in ostrich egg shells.
- They also obtain moisture from tsamma melons and sometimes drink water from the stomachs of animals they hunt.
- Many San people have moved from the desert into towns in recent times.



The Tuareg of the Sahara

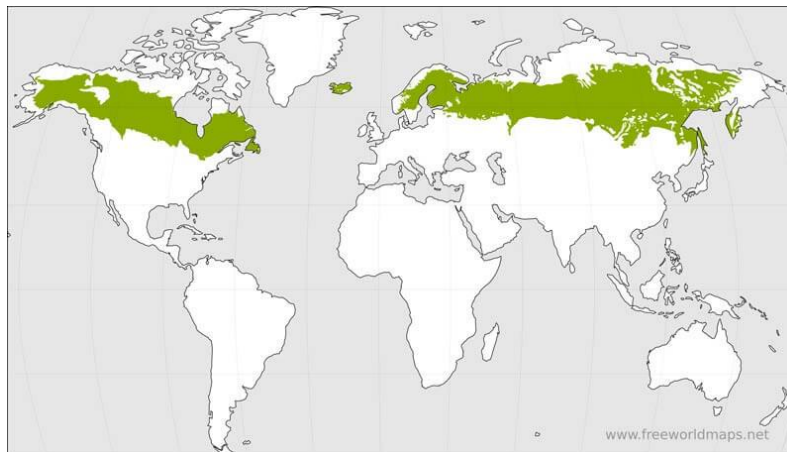
- The Tuareg are nomadic people who live in the Sahara Desert.
- They raise herds of cattle, goats, and sheep, using donkeys and camels to transport themselves and their goods across the desert.
- Traveling from one water source to another, they rely on deep wells they have dug, some reaching depths of up to 60 meters.
- Using leather bags, they bring water to the surface.
- The Tuareg derive food from their animals, drinking their milk and slaughtering sheep or goats for special occasions.
- They also utilize animal skins to construct tents and leather bags to carry water.
- When they visit towns, they trade their animals for essentials like rice, tea, sugar, and salt.



Coniferous Forests

Coniferous Forests

- Coniferous forests are mainly populated by trees called conifers, like the pine tree.
- These trees keep their green needles year-round, unlike deciduous trees that lose their leaves in the fall.
- Conifers have narrow leaves shaped like needles and produce tough, brown fruits known as cones.
- They are well-suited to survive in cold climates.
- Most coniferous forests are located in the Northern Hemisphere, primarily in the far north regions of North America, Europe, and Asia.
- These forests thrive in cooler climates where the growing season is shorter and temperatures are colder.
- Coniferous trees, with their unique adaptations, play an important role in these ecosystems, providing habitat for many animals and contributing to the global carbon cycle.



Natural Vegetation and Wildlife in Coniferous Forests

- Coniferous forests are home to plants and animals that have adapted to survive in extreme cold, wind, and heavy snowfall.
- The trees in these forests, such as pine and spruce, have unique adaptations:
 - The trees do not have large leaves that lose a lot of water. Instead, they have needle-like leaves covered with a waxy coating that reduces water loss.



- Their shape allows snow to slide off easily, preventing branches from breaking under the weight of heavy snow.
 - Coniferous trees have shallow roots that can grow above the permafrost layer, which is permanently frozen ground.
 - The bark of these trees contains resin, a sticky substance that helps keep them warm and prevents moisture loss.
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- Animals in coniferous forests also face challenges due to the cold and snowy conditions.
 - During the winter months when the ground is frozen, food becomes scarce. Some animals, like bears, hibernate by eating a lot of food before winter and then sleeping through the cold months.
 - Others, such as moose, migrate to warmer areas with more accessible food, like grasslands.



Human Activities in Coniferous Forests

- Humans interact with coniferous forests in several ways, primarily through forestry activities.
- Coniferous trees, known as softwoods, like pine, are valuable for timber used in construction, flooring, and furniture making.
- However, their primary use is in paper production. In pulp mills, the wood is crushed into pulp, which is then processed to make paper.
- These forests are important resources, providing not only materials for human use but also habitat for diverse wildlife.
- Sustainable management practices are crucial to ensure that coniferous forests continue to thrive and support both natural ecosystems and human needs.

