

## KS3 Geography: Ecosystems and biomes

### The wildlife and ecosystem of rainforests

Trekking through the Amazon rainforest is something that's high up on many travellers' 'to do' lists. But this is not the only tropical rainforest with natural beauty to behold. South America, Africa and India also have an abundance of wildlife and wonder. But what is it that makes this biome home to so many species of plants and wildlife?

Tropical rainforests form a broad, discontinuous belt around the world, centred at the equator and extending from the Tropic of Cancer in the north to the Tropic of Capricorn in the south.

The climate in this biome is humid and there's no winter or summer. Instead, it's hot and wet all year, providing the perfect climate for the plants to flourish. Much like deciduous forests, tropical rainforests are made up of a number of layers.

The *ground layer* is very dark and due to the heat is very steamy, with only 2% of light penetrating through. It has a lot of dead and quickly decaying plant matter - such as leaves that rot away. The rapid decomposition releases nutrients that are quickly absorbed by the plants and trees, leaving the soils relatively infertile.

The *shrub layer* is between 0-10m. It's made up of smaller plants, including orchids. It grows thickly near openings in the forests, rivers and small clearings. Depending on the particular forest you can find alligators, jaguars, snakes and insects - such as ants and tarantulas - living here.

The *under canopy* tends to be between 10 and 20m. It's made up of young trees that are growing quickly as they compete to reach the sunlight. In the South American rainforest you'll find insects, sloths, and howler monkeys here.

Coming next is the *main canopy* at 20-30m. It's home to birds and acts a bit like an umbrella, shading the layers below the trees. These are tall and straight with few branches. These creepers, which look like the type Tarzan would swing from, are called *lianas*. They are rooted to the ground and have leaves and flowers up in the canopy.

These plants are called *epiphytes*: they grow on the trunk and branches of the trees and survive by obtaining nutrients direct from the air or rain water.

At around 30-40m, the *emergent layer* is made up of one or two of the tallest trees in the rainforest. Down near the ground they have wide buttress roots, providing a stable support for the trees.

This *canopy layer* and emergent trees are humming with birds insects and butterflies. Trees and wildlife have learned to flourish in this environment, making the rainforest biome the most biodiverse in the world.

The teak tree has a long, straight trunk that allows water to run down it quickly to the floor. They can grow as wide as 1.5m across and as tall as 30-40m. The branches spread out horizontally, so the leaves capture as much light as possible. It's a deciduous tree, shedding its leaves if there's a dry season, so protecting itself from the lack of water. The wide, buttress roots make a wide triangular base that provide support for the tree during times of high wind, preventing it from toppling over.

The rainforest is home to some weird and wonderful animals: from pythons in Africa and Asia to the Indian elephant. When they are fully grown the Indian elephant does not have any predators, other than man. They travel in herds, so if they are attacked they can group their young together and protect them. The trunk helps them when they are searching for food and can help them to reach high branches, or even when they are searching for food on the ground. They eat bark, which they strip from trees using their tusks. They also use it to bore down into the ground when searching for water. Their ears help to keep them cool in the tropical heat. When they flap their ears they can lose up to 5C as heat is released from capillaries that run close to the surface.

Some tribes still inhabit tropical rainforests across the world. The people living here hunt for food and have learned to survive among the plants and animals.

Humans use resources from tropical rainforests - such as rubber, bamboo and wood. We also take food - such as cocoa beans, coffee beans and nuts. Deforestation is taking place in an unsustainable way: if this continues it could have a huge impact on the whole planet.

As you can see, hot and wet conditions mean that lots of plants and wildlife flourish and many have adapted to survive in this tropical biome.