

# Roots

Rainforest trees have shallow root systems because the rainforest floor only has a thin layer of nutrient rich soil.



Buttress roots are large roots that spread around the base of the tree, above the ground, to widen the base of the tree and improve stability.

Stilt roots grow from branches, down towards the soil. When they reach the soil, they anchor and spread shallow roots underground. Stilt roots prop the tree up to make it more stable.



# Leaves

Rainforests have high rainfall levels. To adapt to high rainfall conditions, rainforest plants have developed special leaf features.



Drip leaves have pointy tips to channel water run-off. This is important because quick drying leaves prevent rot, fungus, algae, and waterlogging.

A waxy surface enables excess rainwater to run-off easily to prevent rot, fungus, algae, and waterlogging. It also reduces transpiration, or water loss, through the leaf's surface.



Leaf angling is an adaptation by large, flat-leaved plants that arrange their leaves at different angles to avoid shading the leaves below. This is important in the rainforest, where plants compete for sunlight.

Many rainforest plants that live below the canopy have adapted to the shady conditions by producing large leaves, with a large surface area, to increase their ability to absorb sunlight and improve photosynthesis.



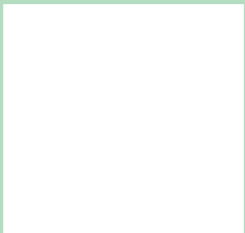
Holes in leaves enable water to run-off easily to prevent rot, fungus, algae, and waterlogging. Holes in leaves also allow sunlight to reach the leaves below, and, prevent leaves from being ripped by high winds in the upper canopy.

Coloured leaves reflect sunlight and protect plants from extreme exposure to the sun. It is often the new leaves of saplings that are coloured, which protects them while they develop their ability to photosynthesise. Once the leaves develop their photosynthetic machinery, they turn green.



# Lianas

Lianas are thin, woody vines that attach tendrils, or sucker roots, to other plants to support them. Lianas can grow from the ground and climb towards the canopy, or, grow from the canopy and send their roots towards the ground. Once they reach the canopy, the leaves and flowers of lianas spread out to increase sunlight absorption. Lianas depend on the support of other plants, or hosts, for growth and survival.



# Epiphytes

Epiphytes are plants that grow on the surface of other plants, known as hosts. Epiphytes do not need soil to grow roots.



Some epiphytes, like the strangler fig, are large. Strangler figs attach to a host tree and then grow down towards the forest floor, where they plant their roots into the soil. Strangler figs eventually encase and kill their host.

Other epiphytes are small, like epiphytic rainforest orchids, that grow on tree trunks and branches. Epiphytic orchid's roots are covered in a spongy coating called the velamen, which enables them to absorb water and nutrients from the air.

