

Drip-Tips! and Other Adaptations in the Rainforest

By Mimi Jorling

Tropical rainforests have ideal climates for plant growth. Tropical rainforests are hot, humid, and wet. They have abundant rainfall and are warm year-round. Temperatures range from about 85 degrees Fahrenheit during the day to 70 at night. Tropical rainforests get at least 80 inches of rainfall each year. (Compare that to how much your town or city gets each year.) These two factors also create challenges for the plants that live there. As a result, plants in tropical rainforests have adapted to these conditions by making adjustments in how they grow.

The perfect conditions for plant life—warm temperatures and plenty of water—cause plants to grow quickly. One consequence of rapid plant growth is the depletion of nutrients in the soil. It also creates a thick layer of leaves in the upper part of the forest (the canopy) that blocks sunlight from reaching the forest floor.

Most plants get their nutrients from soil. However, in the rainforest, where soil is not nutrient-rich, many plants don't rely on it for their source of food. Some plants called epiphytes, or air plants, have adapted to get nutrients from the air. Some examples of epiphytes in rainforests are mosses, lichens, and orchids. Although they often live on other plants, they don't take any nutrients from the other plants—they get what they need straight from the air with special root systems.

There are also some plants called parasitic plants. They grow on other plants, their host plants. Parasitic plants actually DO take nutrients from their host plants. Instead of getting food and water from the soil, parasitic plants have developed roots to cling to a host plant, pierce through its leaves, stem, or trunk, and suck the nutrients out of the host. An example of a parasitic plant you might know is mistletoe. Parasitic plants can kill their host plants if they grow too rapidly. However, they tend to not kill their host plants because without a host, the parasitic plant will also die.

Another condition created by rapid plant growth is a lush canopy that shades out plants living below. Large trees grow quickly, reaching for sunlight. They create a dense shade that prevents sunlight from reaching the forest floor. In fact, only about 1% to 2% of sunlight reaches the ground in a tropical forest. Since plants depend on sunlight for growth, very few plants live on the ground. Instead, they find ways to live on other plants by climbing them, as vines do, or by growing very large, dark green leaves to absorb as much sunlight as possible.

Hot, humid, and wet conditions are also ideal for bacteria and fungi to grow. Water trapped in the crevices of a plant, in combination with warm temperatures, is a breeding ground for bacterial and fungal growth, which can harm plants. One adaptation many plants have made in the tropical forest is to develop smooth bark so that water runs off quickly. Another adjustment plants have made to shed water efficiently is to grow leaves with 'drip tips.' This shape prevents water from collecting on leaves. Look at the shape of leaves of plants around you. If possible, and after checking with an adult, gently pour water on the plant and watch where it goes. It may be channeled toward the stem of the plant or far away from it. These observations can give you clues to how a plant lives.

The environments plants and animals live in provide useful and harmful conditions for living. As a result, all living things must learn how to adapt to the challenges of where they live. These are some of the adaptations plants in a tropical rainforest have made to survive in their particular environment.