CLIMBING VINES AND EPIPHYTES

Plants compete for light by growing tall. This competition is particularly intense in the tropical rain forest, where water is abundant year around. Unlike their more northern counterparts, which are often shaped like pyramids, trees in the tropical forest grow straight up. Their towering trunks are bare up to the very top, where the branches, with their leaves, spread out like open umbrellas. From above, the top of the forest (also called canopy) looks like a solid green carpet. Only 1 or 2 percent of the light that touches the canopy reaches the forest floor. Very few seedling trees receive sufficient light to grow tall enough to reach the canopy.

Some plants cheat: for example, woody vines, as long as 150 meters and as big around as your thigh, sprawl across the forest floor until they reach a tree trunk. Then they snake their way upward. Climbing vines reach the top much more swiftly and with much less of an investment than the trees that support them.

Bromeliads (*Aechmea zebrina*) growing on a tree in Ecuador.

Other cheaters, known as epiphytes, drop from the sky. These plants, unlike vines, have no connections with the ground. They collect and store water and nutrients not from their hosts but from the air, creating little patches of soil from accumulated debris. Bromeliads, among the most common of the epiphytes, have gone one step further. (You can recognize the bromeliads in the figure because they look like the top of pineapples; the pineapple is also a bromeliad, although not epiphyte.) The leaves of bromeliads merge at their bases to form watertight tanks; in some of the larger species, the tanks can hold as much as 45 litres of rainwater.

These pools of water are microcosms of bacteria, protozoa, larvae, insects and insect-eaters. Many rain forest mosquitoes breed exclusively in bromeliad tanks. The bromeliads absorb water form their built-in reservoir and are also supplied with nutrients from the debris.

From time to time, weakened by age or disease or by the weight of vines and epiphytes, a giant tree crashes, sunlight reaches the forest floor where a young tree is waiting, and the race to the top starts over again.

Leggi attentamente il testo e rispondi alle domande che seguono.

A What percentage of light reaches the forest floor?

B How does a bromeliad hold rainwater?