

# Plant Adaptations

By Cindy Grigg



<sup>1</sup> What's the strangest place you've ever seen a plant growing? It sometimes seems as though plants can grow everywhere. You see them growing in your house, in your yard, and even in the cracks of highways and rocks. Some grow in swamps or oceans. Some grow in the dry desert. Some plants thrive under the snow, and others live in forests. Plants grow on every continent on Earth. Even Antarctica has several species of lichens and mosses growing there.



<sup>2</sup> Because they stay in one place, plants must be able to get what they need from their environment. Think of all the different types of environments where plants live. Some plants have adaptations that help them survive. Plants in the far north or high on mountains grow close to the ground as protection from the wind. Desert plants grow far apart so that they can get water and nutrients from a larger area. The sharp spines of a cactus keep animals from eating it.

<sup>3</sup> Plants have adapted to many different environments on Earth. Desert plants look very different from plants that live near the ocean or in the mountains. The leaves, stems, roots, and reproductive parts of plants can be very different depending on where the plant lives.

<sup>4</sup> Mosses are soft cushiony plants that live in damp places. Mosses have few or no stems. They are non-vascular plants. They grow close to the ground. They hold soil in a forest and prevent it from being washed away by heavy rains. These plants have no roots so most of them grow close to the ground to keep from drying up. Some mosses, known as sphagnum peat mosses, absorb water like sponges and hold the water in their stems. The mosses often form wet, spongy quilts between the trees in damp forests.

<sup>5</sup> It takes a very special sort of plant to cope with the boiling hot days, freezing nights, and the dry soils of a desert. Desert plants have special features such as spines, huge root systems, and deadly poisons that help them survive. The creosote plant produces a poison in its roots that prevents any other plant from growing near

it. That way, it gets to keep all the available water near it for itself. Desert plants may have smaller leaves to minimize moisture loss. Leaves may have a waxy coating for the same reason. Hair-like structures on the plant help to slow evaporation and reflect sunlight.

<sup>6</sup> In the dry season, some desert plants shed all their leaves so that they don't lose moisture through them. They grow a new set of leaves as soon as it rains. Many plants survive the dry season as seeds buried in the desert sand. As soon as there is enough rain, they suddenly sprout and produce flowers and seeds. The seed of one African plant takes only eight to ten days to grow into a mature plant and produce seeds of its own.

<sup>7</sup> A giant Saguaro Cactus may grow up to fifty feet high and live for over two hundred years. They do not usually grow arms until they are seventy-five years old. Large Saguaros may weigh as much as two elephants. Three quarters of this weight is the water they store in their huge stems. The pleats in the stem expand like an accordion as the cactus takes up water. A waxy outer skin helps to keep water from escaping. Prickly-pear cacti have a vast network of shallow roots to soak up moisture.

<sup>8</sup> Some rainforest plants climb all over trees or perch on their branches. This helps them to escape from the dark, wet jungle floor and live nearer to the sunlight which streams down on the canopy of the rainforest. They have adapted special roots, stems, and leaves to catch, carry, and store water and nutrients.

<sup>9</sup> High up on mountains, life is an extreme environment for plants. The strong sunlight, fierce winds, thin soils, and freezing night-time temperatures make it hard for plants to grow there. Yet some amazing plants manage to survive in that environment. The Silversword plant lives only on the tops of old volcanoes on two Hawaiian Islands. Only about three inches of rain falls each year so the Silversword may take twenty years to store enough water for flowering. A few weeks after flowering, the plant dies.

<sup>10</sup> The European Edelweiss plant grows high in the Alps. They have a thick coat of hair-like structures which help to trap the warmth of the sun and stop water from escaping from the plant. The white color helps to reflect strong sunlight which might harm the flower.

<sup>11</sup> Some mountain plants grow close to the ground with their short stems packed tightly together. This helps them to escape from the wind and they also can trap heat between their stems.

<sup>12</sup> Earth has a variety of environments or habitats. A particular type of plant cannot live in every environment on Earth. When you move a plant, such as a cactus, away from its natural environment, you may have to make special arrangements for it. It can't survive in a cold, wet place. Plants that grow where you live would have trouble living in a very different environment, too. Their leaves, stems, and roots have adapted to their environment over a long period of time.