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Instructor 
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HOW PLANTS ADAPT TO THE ENVIRONMENT

There are plants almost everywhere in the world. There are plants that can live in all kinds of different environments and climates. They grow in the dry, hot desert, in the rainforests and high up on mountains. Plants live where there is little sun, where there is little rain and even under water. Each type of plant is able to survive in its environment because it has developed special **adaptations** for the place where it grows.

For example, it may seem unlikely that plants could survive in the desert, where there is not a lot of rainfall and it is often very hot. But there are many plants growing in deserts. In the Sonoran Desert of California and Arizona, there is a plant called the barrel cactus that has adapted very well to the environment. The barrel cactus has very shallow roots and grows only about three inches into the soil. This is an advantage for the cactus because when it does rain in the desert, the plant's roots can soak up rainwater very quickly because they are near the ground. When it does not rain for a while, the ends of the barrel cactus' roots fall off. This keeps the water that the plant has already absorbed from spilling out into the soil. The stem of the barrel cactus is also adapted for life in the desert. It is covered with prickly spines and folds that protect the moist parts of the stem from heat.

There are also plants that are adapted to survive in very cold climates, in windy climates, and in water. In Alaska, for example, there are plants that are able to survive in cold weather because they grow very close to the surface of the soil. That's where it is warmest because the dark soil absorbs heat from the sun. A plant known as Fireweed is adapted to surviving in very windy conditions. Fireweed has plume-shaped seeds that can ride the wind for long distances before falling to the ground to take root. Plants that grow in swamps adapt by growing very tall. This keeps them from ending up completely underwater if there is a flood. These plants are also often hollow with tough fibers inside to keep them from getting damaged when it is very windy.

Some plants have adaptations that keep animals from eating them. Blackberry vines grow fruits that are very bitter-tasting until its seeds are ripe. Other plants develop tough coverings around their seeds that are difficult for animals to chew. The prickly spines on the barrel cactus and other cactuses are another adaptation that protects plants from animals.

