Color Changing Leaves

As days get shorter, deciduous trees prepare for winter by dropping their leaves. Trees lose their leaves to help keep them healthy in this cold time of year. Chemicals used by trees during photosynthesis are ineffective in cold temperatures, so they cannot make food in winter. Trees also lose a lot of water through leaves by a process called transpiration. When water freezes, trees can’t replace this lost water, so instead they drop their leaves.

Before trees drop their leaves, they create the beautiful show we enjoy. Yellow, orange, and brown carotenoid pigments in leaves are masked by green chlorophyll all summer. When autumn comes and trees stop producing chlorophyll, these rich colors are revealed. Red and purple colors, created by anthocyanins, are only produced in fall. These chemicals help trees recover nutrients left in the leaves before they fall off the tree.

Weather & Leaves

The ideal weather for the best fall colors includes a warm wet spring, a summer that is neither too hot nor too dry, and a fall with warm sunny days and cool nights. Trees take their cue to prepare for winter, not by the change in temperature, but by the shortening day length.

The waxy cuticle, or outer coating, on evergreen needles helps them retain water and allows them to keep their leaves all winter long. Some trees, such as oaks, do not drop all of their leaves. Although their leaves are dead and no longer making food, some leaves won’t fall from the tree until spring.