

## Trees in the Summer

### Introduction: Fighting the Sun

In the three months from June to August, the forest experiences a period of wild growth. Some trees, such as young [quaking aspens](#), can grow as fast as corn at a rate of two centimetres a day. The girth of [white spruce](#) trees can expand by three centimetres in just a few weeks.

Trees compete fiercely. Those that can, such as hardwoods, aim for the sky. Others spread out, trying to take up as much room as possible. As soon as any room opens up, such as after harvesting, a fire, or in a field left fallow, scattered seeds sprout and attempt to establish themselves. If a species shows signs of weakness, another will soon take its place.

From the tree's point of view, there's no more crucial resource than sunlight. In fact, access to sunlight is a question of life or death. Each species develops its own [strategy](#) to win its share of life-giving light.

(Adapted from André Croteau's *Guide de la forêt québécoise, saison par saison*, Éditions de l'Homme.)

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## Tree Buds in the Summer

When do you think that buds appear on trees? In the spring? Or maybe at the end of winter? Well, trees actually form their buds during the summer, usually in August! Since trees are [dormant](#) during the winter, they don't have the energy to grow [structures](#) that are that small and [complex](#)! Buds aren't very apparent in the fall and throughout the entire winter. In the spring, however, they swell and are ready to open.

### Lignification

Trees produce their buds at the end of summer. This occurs during what is referred to as



lignification, when trees get ready to face the upcoming winter. Trees do all their growing in early summer. In late summer, they store up reserves to begin the growing process again the following spring.

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## Tree Leaves in the Summer

### The Tree's Factory

Leaves sprout early in the spring and get right to work. You can think of them as the tree's factory since they capture energy, convert it, and produce something. They take sunlight, convert it into chemical energy, and then busily produce sugar all summer long.

The roots provide the minerals and water required to produce the sugar, which is then distributed throughout the entire tree, trunk, roots, branches, and fruit to develop tissues or reserves.

This process, which is called photosynthesis, converts light energy into chemical energy. It takes place in tiny green grains in the cells of the leaf. There are so many of these tiny grains that the leaf appears to be green. These little grains are called chlorophyll. What color would leaves be if they had no chlorophyll?

### The Tree's Lungs

Leaves also serve as the tree's lungs. A tree "breathes" air in through small openings on the underside of its leaves called stomata. What would happen if a tree couldn't breathe? Would it die?

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## Tree Flowers in the Summer

Most of our trees, whether hardwood or softwood species, flower in the spring. The linden,



however, flowers in midsummer, around July.

Some places in Québec, such as the Laurentians, still have snow in June. Do you think that the trees in such areas flower in the spring or in the summer? Why not ask your parents to take you there to see for yourself?

The seeds of some trees, such as [red](#) and [silver maples](#), mature during the summer. You can see their keys (fruit) as early as June. All maple keys are edible, which means that we can eat them. Remember to remove the wings and scales before you roast and eat them.

Lack of rainfall in the summer can cause devastating forest fires. You always have to be very careful in the forest. All our vast [grey pine](#) forests have resulted from forest fires. The intense heat generated by a forest fire is required to open their [cones](#).

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## Fruit in the Summer

All trees have fruit, if not seeds. You should be able to come up with a number of fruit and their trees: the apple and the apple tree; the pear and the pear tree; and the orange and the orange tree, to name just a few. The seeds are found inside the fruit. If you plant an apple seed, an apple tree will grow. If you plant an apple from which the seeds have been removed, nothing will grow. The important part is the seed. The seed contains all the genetic information needed to grow a tree.

The fruit develops once the flower has been [fertilized](#) by [pollen](#). Each species of tree has its own kind of fruit, which ripens at different times of the year.

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## Roots, Trunk, and Branches in the Summer

### Branches

A tree grows both in height and girth each year. The branches stretch skyward to get as



much light as possible.

The trunk and branches grow to support an increasing number of leaves and branches.

Most of this growth occurs in the spring, well before summer officially arrives, because there is an abundance of water in the soil.

## Wood Cells and Annual Rings

The wood produced in the spring is called early wood. When summer arrives, growth slows since there is less water in the soil. Fewer and smaller wood cells are produced then. This wood is referred to as late wood.

In late summer, the tree stops producing wood cells. It would rather put its energy into storing reserves and producing buds. Early wood and late wood differ in color, which allows us to distinguish annual rings. Each year, therefore, the tree produces one ring. The age of a tree can be determined by counting its annual rings.

## Bark

The bark's main purpose is to protect the tree. It's a little bit like our skin. The bark protects the tree against disease, insects, fire, drought, injury, and animals.

