

Trees in the Spring

Introduction: The Grey Birch

Each species has its own particular growth requirements. The grey birch is quite content in any soil. Its sole requirement: plenty of sunlight.

Nature has given the grey birch an ingenious reproductive system: its fruit appears as cones once its flowers have bloomed in the spring. The cone scales protect the seeds throughout the winter. At the first sign of spring, when March showers come, the cones swell with water and then burst when cold weather returns.

The seed of the grey birch is so small and light that it almost never attaches itself to the ground on its own. It gets blown here and there, waiting on a leaf or blade of grass until a deer comes along. The hard hoof of the deer presses the seed into the soil where moisture causes it to germinate. The hoof print creates a miniature clearing that sun rays will heat throughout the day.

Tree Buds in the Spring

Buds have been sleeping all winter, and it's finally time for them to open up to spring!

What Do Buds Look Like?

Have you ever really examined a bud before? You have to start with its general appearance. Each species of tree has its own distinctive bud. Here are some of the questions you should ask yourself when looking at buds. Where do they grow on the branch? Do they appear singly, in pairs, or as clusters? Are they big or small? Are they rounded or elongated? What color are they?





Sugar maple buds are pointed and reddish-brown in color.



Red oak buds grow in clusters at the end of branches.



The bitternut hickory has yellow buds.



Hobblebush buds don't have scales.



Beech buds are cigar-shaped.



Most buds are covered with scales, which are really small, modified leaves. Their role is to protect the bud against winter cold and drying.

But what does a bud look like on the inside?

A bud can be cut open with a very sharp knife to reveal what lies inside. Remember to ask help from your parents or your teacher.



As you can see, it contains tiny leaves. These are the leaves that will grow next year. Sometimes you can also see tiny flowers inside the bud or tiny, silky hairs. Maybe they're little fur coats for the buds!

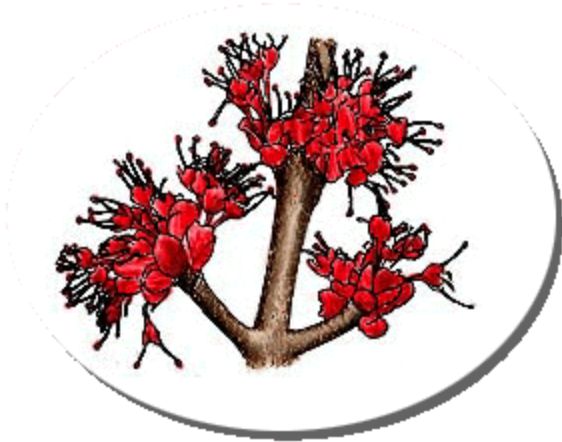
Tree Leaves in the Spring

Leaves appear on trees in the spring. They burst out of buds in which they have remained dormant all winter long. Sunlight triggers the bud break. In the spring, the sun gets brighter and brighter, and the days longer. Buds contain a kind of cell that is sensitive to light. It detects when there is enough daylight for the leaves to survive.



Tree Flowers in the Spring

Red Maple Flowers



Did you know that trees have flowers? Some are beautiful and pleasantly scented, such as those of the lilac catalpa. You may be familiar with linden flowers. They have a wonderful odor, but are small and green.

All trees have flowers, although we don't always notice them. Flowers are necessary for tree reproduction.

Parts of the Flower





The flowers of most trees are not readily evident. They often don't have petals and are frequently green or reddish, which makes them hard to distinguish from leaves. Flowers appear at almost the same time as leaves, in the spring, and are often contained in the same buds. They remain on the trees only a few days, just long enough to be [fertilized](#).

Some trees have two kinds of flowers: male and female. The male flowers only produce [pollen](#); the female flowers only have [stigma](#). Most trees rely on the wind to spread pollen to their female flowers. If you look at puddles or even on cars in the spring, you may notice a fine, yellow powder. It's tree pollen.

By the way, do you know what the flowers of conifers are? They're the [cones](#)!



The pollen is deposited on the female parts of the flower and [fertilizes](#) them. Then, the fruit begins to develop.



Fruit in the Spring

Some kinds of trees still have their fruit when spring comes around! The [yellow birch](#) is a good example. Others, such as the [larch](#) and the [red pine](#), will have already lost their [cones](#) from the preceding year. The [black spruce](#) will keep its cones for several years, while [jack pine](#) cones may stay on the tree for 10 to 15 years.

Most of our [hardwood](#) and softwood species flower in the spring. Some species flower earlier than others. Have you ever picked pussy willow catkins? Many species bloom before their leaves open ([willow](#), [poplar](#), [red maple](#), [beech](#), and [oak](#) are examples). You might even be able to see the fruit begin to form.

Spring is also the season in which seedlings begin to grow from their seeds. In a natural forest, a seed has one chance in a million of becoming a tree. Its chances are much higher in plantations. Did you know that some trees don't need seeds to reproduce?

But spring also brings back the insects! Major [epidemics](#) of an insect called the jack pine budworm have been linked to an abundance of male flowers of the species. It appears that climatic conditions and the age of the stands are factors as well.

Roots, Trunk, and Branches in the Spring

What Do Roots Do?

Roots have many functions. You already know that roots [absorb](#) water from the soil. At the same time, they absorb minerals that the tree uses to grow tissue.

Very early each spring, the roots grow very quickly in order to find as much water and mineral salts as possible. The tree's development during this period is very fast and intense, so it needs lots of food.

Some trees have roots that grow near the surface of the soil, while the roots of others plunge deep into the ground. The roots of some species can be dozens of metres in



length.



Oak roots extend deep into the earth. Poplar roots remain near the surface.

City-dwelling Trees

Many towns plant trees along their streets. It's much nicer for us to stroll down a street bordered with trees than one without. It's a different matter for the trees, however. There's often not much room for roots to grow under these conditions. As the tree grows, it needs more water. The greater its need for water, the more roots it grows. The roots end up choking each other and the tree dies.

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





Every spring, the tree produces a great number of wood cells, which tend to be large. Such wood is referred to as [early wood](#).

Annual rings can also indicate past weather conditions. Annual rings started in the spring and wet summers are much thicker because the tree was able to produce an abundance of large cells. The tree has more difficulty producing cells during droughts, so that annual rings are thinner.

Although nearly all the cells in your body can reproduce, only the cell layer just under the bark can divide in trees. This layer of cells is called the [cambium](#). It divides towards the trunk to produce wood and towards the outside to form bark. This is how cells reproduce and the tree grows.

Every spring, [sap](#), which is made of water and minerals, is absorbed by the roots and flows upward through the trunk to the leaves. The wood in the trunk and branches is made of very long cells called vessels, which carry the sap. The sap therefore is a little like the blood that flows in your veins.

Only the cells in the rings that are three or four years old conduct sap. This part of the tree is called the sapwood or alburnum. The remainder are for reserves or for structural support. These inner layers of wood are referred to as the heartwood or [duramen](#), which



can sometimes take on a dark color.

Bark

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.

