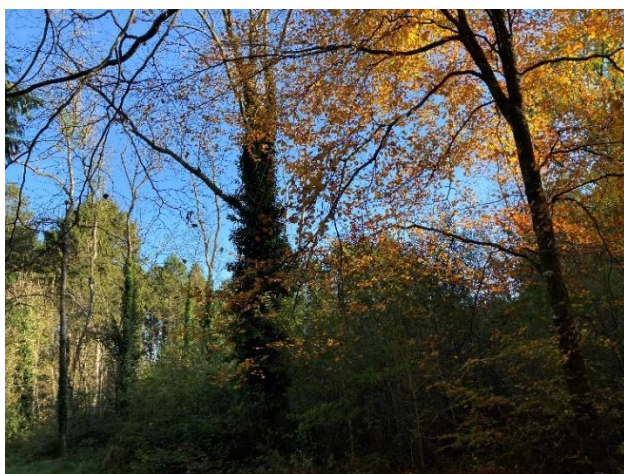


# November – Trees’ Leaves

## Seasons Changing

The transition from the warmest time of year to the coldest time is well underway. By November in Ireland the lush green landscape of the Summer has been utterly changed to a colourful mix of yellows, oranges, reds and browns. And many trees and shrubs will have already lost their foliage as they begin to take a break and go dormant for the chilliest period of the year. This whole phenomenon is brought about by the fact that the earth’s axis is tilted on the line upon which it orbits the sun. So as the earth does its annual lap around the sun, it means at some times in the year our northern hemisphere is closer to the sun, and receives extra light, heat and energy. At the opposite end of the year, the northern hemisphere is tilting away from the sun, and so there is less light, heat and energy reaching the ground. Of course, we call the latter time of the year winter, and here in Ireland, which is very much inside the northern hemisphere, many of our tree species have developed strategies to cope with this annual drop in energy availability at this time.

## How and why do the leaves change colour?



Year-round it takes a lot of energy for trees to keep their leaves healthy and functioning, and as the Winter has shorter days and less intense sunlight, less energy is available to them. Some trees therefore have adapted by developing a system whereby they drop their leaves for Winter, thus reducing their energy requirements for that period. We call these trees, “deciduous” trees.

Chlorophyll is an important pigment found in leaves – it gives them a green colour. Its main role is to capture energy from the sun and convert it to food that the plant can use to fuel itself. During the Spring and Summer, plants make great quantities of chlorophyll to maximise their ability to capture energy from the sun, and thus max-out on food production.

In Autumn, as the days shorten and the temperatures drop, deciduous trees stop making chlorophyll, and instead they break it down into smaller molecules which they reabsorb back into the tree itself (for use the following Spring). As the green chlorophyll pigments dissipate, other pigments that are also present in the leaves become more obvious, and then we see these pigments as the yellows, oranges and reds that are typically associated with this time of year.

## Dormancy

During the colder months, deciduous trees become dormant; they shut down, and rest, and the sap that is usually rising through their vessels bringing water and nutrients from the earth (powered by sunlight's energy) to the uppermost branches and leaves, does not need to flow. This dormancy is something that gardeners and tree planters look forward to, because at this time of year, tree transplanting becomes possible. If you try to transplant a tree when the sap is rising i.e. when the leaves are still on, you will likely kill it. But whilst the tree is dormant, you will have minimal impact on the plant.

### Activity Idea – Leaf Art

Using natural materials from the outdoors is always a great way of exploring and connecting with the world around us. [Leaf Art](#) or similar activities are best done in the Autumn and early Winter for a number of reasons. Not only are the leaves multi-coloured and vibrant at this time of year, but they are also no longer necessary for deciduous trees, so they can be collected in large quantities without doing any damage to the tree itself.



### Activity Idea – Tree Inventory of your School Campus or Locality

The leaves on most trees are a distinctive feature and can be used as a tool in identifying the species. Taking notice of the leaves on or gathered underneath your trees at this time of year is a good idea to help build your records of what species are on or near your school campus. Observing any fruit or nuts and the bark at this time of year will also help you to identify what is present. The features of buds as they appear over the coming months can also give you an indication of species type.

Creating a tree inventory for your school is a worthwhile task and learning experience in itself, but the process will also help you move towards your goal of listing the biodiversity present on your school grounds, as part of your work on the Biodiversity Theme. This is especially relevant if you are completing a Habitat Map, as part of the 'Environmental Review- Step 2' on the Biodiversity Theme.

To help with tree identification you can visit: [LEAF Ireland](#) and the [Tree Council of Ireland](#)

## Action Idea – Plant Trees



If you have identified an area in your school that is suitable for tree-planting (i.e. is not too near any buildings; is not likely to get trampled by walkers or sports games and; is not overly waterlogged or in deep shade) then this is the time to plan and to act.

The following lesson plan provides all the information you are likely to need to plant native bareroot trees in Ireland: [LEAF Lesson Plan for Planting Irish Native Bareroot Trees](#)

Native trees not only create habitats and space for more biodiversity, they also capture and store carbon from the atmosphere as they grow. In these times of global emergencies relating to climate change and biodiversity, the importance of tree-planting cannot be overstated

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