

# Tree Trail: Global Trees

Notes and map to assist you on your visit to the Garden

**LESSON PLAN:**      **Tree Trail - Global Trees**

**DURATION:**        **Typically 30 minutes**

### **Learning Objectives**

Navigate with a map to different trees in the Garden.

Observe the trees and take notice of information about the different types of tree and their geography.

Talk about what you have noticed about the different trees.

### **Introduction**

During this short tree trail pupils will navigate to six different sites within the Garden to identify and then learn about specific trees. The trees all bear name labels and are sited to be relatively easy to find and identify.

### **Main Task**

Use the map to identify the start point for the trail. At each tree/point stop and read the information and discuss the key features and facts about the trees. Use a question and answer approach where possible to elicit information that can be observed.

### **Plenary**

Discuss differences and similarities between the trees. Does anyone have a favourite and if so why?

### **Resources**

Map showing a selection of trees for a trail. Notes to accompany the trail with information about the trees.

### **Vocabulary**

Tree, bark, trunk, growth form and shape of tree, evergreen, deciduous, conifer, uses of trees.

### 1. Cork Oak (*Quercus suber*)

This beautiful, wide-spreading tree grows in southern Europe and north Africa and is a relative of our English oaks. It is best known as the tree from which we harvest cork. This material is actually the bark of the tree and it grows in a thick layer over the trunk and branches. As this corky layer is unable to stretch, it would seriously restrict natural growth. However, the tree avoids this problem by shedding its bark, every ten years or so. Just as with a caterpillar or a lobster, a new outer protective layer has formed beneath the old one and is ready to take over the job of the 'old coat' once it has been discarded.

Why is the bark of this species so corky? Regular forest fires are a natural feature of the Mediterranean Landscape and occur regularly in this habitat it has become adapted to protect itself from fire damage. The dry, shrubby vegetation of Mediterranean habitats tends to catch fire very easily. Forest fires move swiftly through an area. Although the leaves of the cork oak would be scorched by the flames, the bark has sufficient insulating properties to protect the inner trunk from burning. The tree grows new shoots and leaves as soon as rain comes.

Today 90% of the world's cork is grown in huge forest-like plantations in Portugal which are maintained by local farmers. No cork is harvested until the tree is 20 years old, by which time the bark is 2-3cm thick and sections of it lift easily from the trunk. New bark replaces it and from then on the tree is harvested every nine years or so.

As a crop cork is best known for making wine bottle stoppers. It is also used to make the soles of shoes, table mats and in many other circumstances where a light, flexible insulating material is required.

The Portuguese cork oak forests are Europe's equivalent of the tropical rainforests as they provide a home for numerous plant and animal species that could not live elsewhere. Amongst these are many rare birds as well as the Iberian Lynx, which has been declared the world's most endangered 'big cat'.

The cork oak forests protect the thin soils on which they grow. If the forests are cut down, these areas will soon become desert.

#### Can we help?

Portugal's cork oak farmers will only continue maintaining and harvesting the forests if there is a demand for their products. We can help to protect this industry - and the valuable cork forest habitat - by encouraging people to buy wines in bottles closed with real corks, rather than those with plastic or screw tops, as is becoming the recent trend. (This applies to European wines, rather than those from the southern hemisphere as producers from South Africa, Australia, New Zealand, South America etc. would be unlikely to import cork all the way from Portugal).

## 2. The Grafted Beech Tree (*Fagus sylvatica*)

Look at the bark of this tree and you will notice how its texture changes completely at about 2m above ground level. Below this, the trunk has smooth grey bark; above, it has many vertical grooves or 'fissures'.

The tree is the result of two trees being joined or 'grafted' together, early in the plant's life. Growers do this when they want to produce a tree with a particular characteristic - for example a 'weeping' beech, like this one, in which the branches hang down to touch the ground.

Even if you planted seeds produced by two parent trees both with 'weeping' branches, you could not be sure that the resulting offspring would inherit this characteristic. The only way to be sure is to graft a cutting from a 'weeping' form of beech onto the roots of another beech. The root section doesn't need to have a 'weeping' form.

## 3. Giant Redwood (*Sequoiadendron giganteum*)

The natural habitat of Giant Redwoods is the hilly uplands of California, USA, such as the so-called Giant Forest in Sequoia National Park. This is the home of a very famous Giant Redwood, known as General Sherman. There are taller trees and wider trees, but no other living thing on earth (including the great blue whales) is known to have greater overall **mass** than General Sherman. It is 83.8 metres tall and 31.3 metres in circumference at its base.

At 31 metres tall, the tree you are looking at now is not much more than a third the height of General Sherman. This one is estimated to be 160 years old, so it is still a youngster - Giant Redwoods, can live to be about 3,000 years old!

Notice that it has soft, spongy bark. Like cork oaks Giant Redwoods grow in an area where forest fires are common. Without bark with good insulating properties the Redwoods would never reach this great age. Redwoods are now protected in their natural habitat.

## 4. Austrian Pine and Pyrenees Pine (*Pinus nigra*) species

The two trees planted opposite each other here are members of the same species although you might not guess this by looking at them. The key is that they come from very different environments. The Austrian Pine (furthest from the Lake) comes from areas of Eastern Europe where the winters are very snowy. It's quite a narrow tree with downward sloping branches. These allow snow to slide off easily, rather than building up and eventually breaking the branches.

### **5. Dawn Redwood (*Metasequoia glyptostroboides*)**

This tree was planted in 1949. It is a direct descendant of parents found near the original discovery and was the first to be planted on British soil. The chance discovery, in 1941, of a living Dawn Redwood, in a remote part of China was one of the plant world's most exciting events in the last century.

The Dawn Redwood is sometimes described as a 'dinosaur tree' because it was known only as a fossil and scientists believed that it had been extinct for about 5 million years.

The Dawn Redwood is a beautiful tree throughout the year. Its young leaves in spring are a pink-bronze colour, then they turn from green in summer to soft rust in autumn, before falling to the ground. No wonder it has become a popular tree in gardens throughout temperate regions. Sadly, it is still critically threatened with extinction in its natural habitat in China.

### **6. Swamp Cypress (*Taxodium distichum*)**

Trees don't usually grow in water, mainly because the mud at the bottom of lakes or streams contains no oxygen.

Look out into the Lake and you will see a tree that has solved this problem! This is a Swamp Cypress and its natural habitat is in the rivers and swamps of the Everglades in southern USA, especially Florida.

Can you see outgrowths from its roots growing from the lake-bed and up into the air? These are known as 'knees' because they look rather like crooked knees emerging from the water. Many scientists believe that these unusual outgrowths act rather like snorkels, having tiny tubes that enable air to pass down to the roots, way below water's surface.

# Map for Global Tree Trail 2019



1	Cork Oak ( <i>Quercus suber</i> )
2	The Grafted Beech Tree ( <i>Fagus sylvatica</i> )
3	Giant Redwood ( <i>Sequoiadendron giganteum</i> )
4	Austrian Pine and Pyrenees Pine ( <i>Pinus nigra</i> ) species
5	Dawn Redwood ( <i>Metasequoia glyptostroboides</i> )
6	Swamp Cypress ( <i>Taxodium distichum</i> )