



Published by  
Larne Borough  
Council

CARNFUNNOCK COUNTRY PARK

# INVESTIGATING TREES GUIDANCE NOTES

This project has been assisted by Causeway Coast & Glens Heritage Trust as part of the Natural Resource Rural Tourism Initiative under the EU Programme for Peace and Reconciliation.

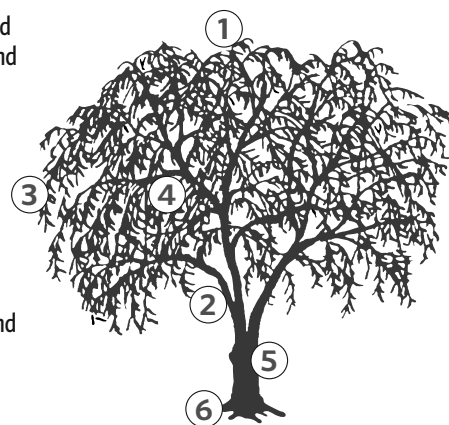
# WORKSHEET 1: KNOW THE PARTS OF A TREE

# 1

## WHAT IS A TREE?

Trees are plants with a single self supporting woody stem. When fully grown they are a minimum of 3 - 4 metres tall. Shrubs are smaller than trees and have one or more woody stems. Each part of the tree has a role to play:

- 1. Canopy:** The branches of tall trees and their umbrella of leaves (crown) form a cover over the ground below.
- 2. Branches:** Woody parts of the tree that connect the trunk to the leaves and transport water and minerals to the leaves.
- 3. Leaves:** Photosynthesis mainly takes place here i.e. the process by which green plants use energy from sunlight to convert carbon dioxide and water into sugar and oxygen. The leaves are held up by branches and are arranged in a way to capture maximum sunlight.
- 4. Twigs:** These are the tips of branches and the growing ends of the tree.
- 5. Trunk:** This supports the branches. Water and food are transported between the leaves and the roots through the trunk. The trunk is protected by a tough outer covering of bark.
- 6. Roots:** These anchor the tree to the ground so that it can stand upright, and they absorb water, minerals and nutrients (tree food) from the soil. As a general rule, the distance that roots spread outwards from a tree equals the outward spread of its branches.



## ADDITIONAL ACTIVITIES

### Activity 1: Heartbeat of a Tree

(Suitable for Key Stage 2 / 3)

#### Equipment Needed: Stethoscope

Early spring is the best time to hear a tree's 'blood' (sap) moving as it gets ready for a new season of growth. Show the children how they can use a stethoscope to hear their own heartbeats. Choose a deciduous tree at least 20 cm in diameter, with a thin bark. Press the stethoscope to the trunk to hear the tree's 'heartbeat'. You may have to try a variety of places to get the best results.

### Activity 2: Tree Words

(Suitable for Key Stage 2)

Organise the children into groups and get them to write down words to describe (a) parts of the tree itself e.g. leaf; branch; (b) groups of trees e.g. orchard, forest, wood, copse; and (c) wildlife that rely on trees for food and shelter e.g. squirrels, birds, insects.

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INVESTIGATING TREES  
GUIDANCE NOTES



# WORKSHEET 2: TREE IDENTIFICATION

# 2

Our publication 'Tree Spotting at Carnfunnock Country Park' focuses on the common trees growing in the Park and is a useful tool for tree identification. Many mature trees have aluminium labels attached to their trunks. There are also wooden identification signs mounted in areas where there are large numbers of a certain tree species. In order to identify a tree you will need to consider the: overall shape; shape of its leaves; shape and colour of its twigs and buds; colour and pattern of its bark; and the size, shape and colour of its flowers and fruit. The time of year may affect what indicators you can use i.e. buds in spring and fruits / seeds in summer and autumn only. You will need to select the worksheets that are appropriate for the time of year. The tree used in Worksheet 1 should be used throughout Worksheet 2.

Like all plants, a tree begins from a seed. Inside each seed is a tree waiting to be born! A seed must have food, water and light to grow. Once the seed sprouts, it grows into a seedling that grows into a sapling and eventually saplings grow into trees that produce their own seeds.

There are five ways that seeds are dispersed: wind; water; animal; explosions and fire.

Method of Dispersal in Carnfunnock	Type of Tree
Animals / Birds e.g. berries, nuts	Rowan; Oak; Beech; Yew
Wind e.g. winged seeds	Ash; Sycamore; Field Maple; Silver Birch; Lime
Water	Alder; Silver Birch.

Many fruits are produced especially to attract the attention of birds, which eat the fruit including the seed; the latter is then passed out in their droppings, allowing the plant to establish in a new area. Seeds are an important food source for animals especially in winter.

## ADDITIONAL ACTIVITIES

### Activity 3: Know Your Trees Game

(Suitable for Key Stage 2 / 3)

**Equipment Needed:** Make leaf cards using 4 - 5 species of common trees from Carnfunnock Country Park. Stick each leaf onto a card and label each one accordingly.

1. Go through the cards with the children, naming the leaves and drawing attention to their different shapes.
2. Give a card to a pair of children and ask them to find the tree that the leaf came from.
3. Swap over cards so the children become familiar with each species. Do they notice any other distinguishing features about the trees?













Once you have played this game a few times and the children are familiar with the names of the trees, without using the cards, get pairs or small groups of children to lead the rest of the group to an example of one of the species they are familiar with. Get the group to decide if they have made a correct choice - this can always be checked with reference to the cards.

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INVESTIGATING TREES  
GUIDANCE NOTES



# FRUIT / SEED IDENTIFICATION - ANSWERS

# 2

<p>Common Oak</p>  <p>Sessile Oak</p>	<p>Ash</p> 	<p>Sycamore</p> 	<p>Horse Chestnut</p> 
Dispersal by: Animals & Birds	Dispersal by: Wind	Dispersal by: Wind	Dispersal by: Humans
<p>Scots Pine</p> 	<p>Yew</p> 	<p>Wych Elm</p> 	<p>Silver Birch</p> 
Dispersal by: Wind & Birds	Dispersal by: Birds	Dispersal by: Wind	Dispersal by: Wind & Water
<p>Rowan</p> 	<p>Beech</p> 	<p>Alder</p> 	<p>Lime</p> 
Dispersal by: Birds	Dispersal by: Animals & Birds	Dispersal by: Water & Wind	Dispersal by: Wind

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INVESTIGATING TREES  
GUIDANCE NOTES

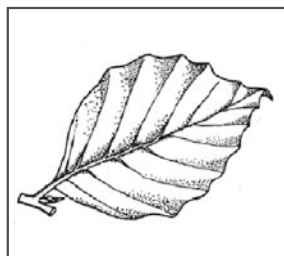


# SHAPES OF LEAVES – ANSWERS

# 2

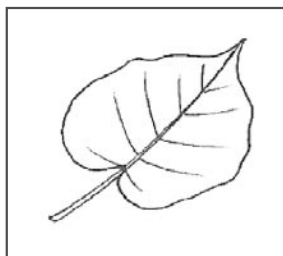
## Key to Leaf Shape:

1. Simple leaf
2. Compound leaf
3. Needle



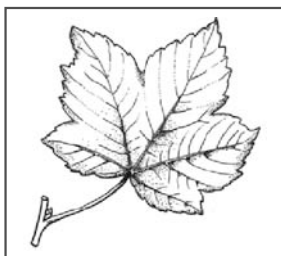
Beech

1



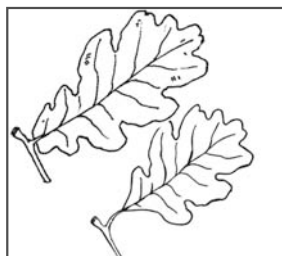
Lime

1



Sycamore

1



Oak

1



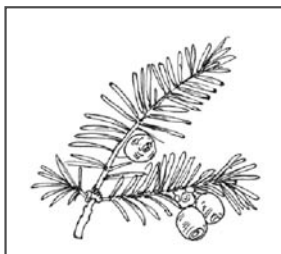
Alder

1



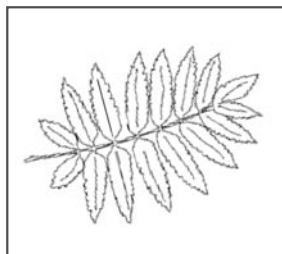
Scots Pine

3



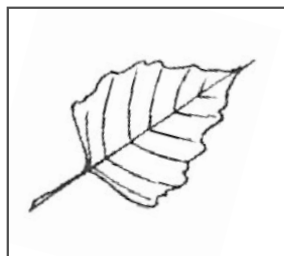
Yew

3



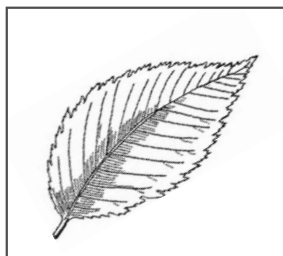
Rowan

2



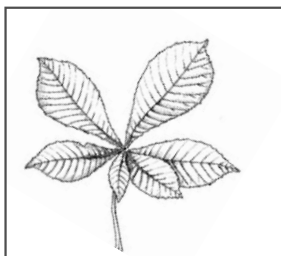
Silver Birch

1



Elm

1



Horse Chestnut

2



Ash

2

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WORKSHEET



# WORKSHEET 2: TREE IDENTIFICATION

# 2

## Activity 4: Picture a Tree

(Suitable for Key Stage 2)

**Equipment Needed:** Pencils and paper.

The children can be grouped together to write a description of their particular tree to give over the radio to someone who has no idea what a tree is e.g. a person from another planet. (Remember - the other person cannot see the tree and there is no picture.)

## Activity 5: Bark and Leaf Rubbing (Suitable for Upper Key Stage 1 / Key Stage 2)

**Equipment Needed:** Selection of different papers, wax crayons or charcoal and cello tape.

1. Identify the trunk of the tree and discuss the texture and patterns of the bark, looking at different trees to see how they compare.
2. Demonstrate how to do a successful rubbing and send the children off to choose a tree with bark they find interesting.
3. After making a rubbing, ask the rest of the group to locate the tree each individual found interesting using the rubbing.
4. The same activity can be done with leaves from different trees.

## Activity 6: Seed / Fruit Packaging

(Suitable for Key Stage 2)

**Equipment Needed:** Paper bag.

1. Divide the children into small groups then allow them to collect common fruits and seeds, which can then be spread out on a table.
2. Give each group the Clue 7 worksheet and ask the children to match the drawing with the correct fruit or seed.
3. Ask each group to explain how they think their fruit is dispersed, picking out important features - for example fruits dispersed by the wind are very tiny or have wings or parachutes while those dispersed by animals / birds are often brightly coloured to make them attractive to eat.
4. Look at how various seeds are packaged such as the beech nut and conker. Discuss with the children the purpose of this packaging and why it is so important for trees to have their seeds dispersed.

## Activity 7: Key Guide

**Equipment Needed:** A3 paper joined together and pencils.

1. Gather the information collected by the children in the 'Guess The Tree' section.
2. Create your own key using: tree shape, bark, buds, shape of leaves, flowers and berries or seeds.
3. This can be coloured in and placed on the wall (see example of a combined one on the next sheet).

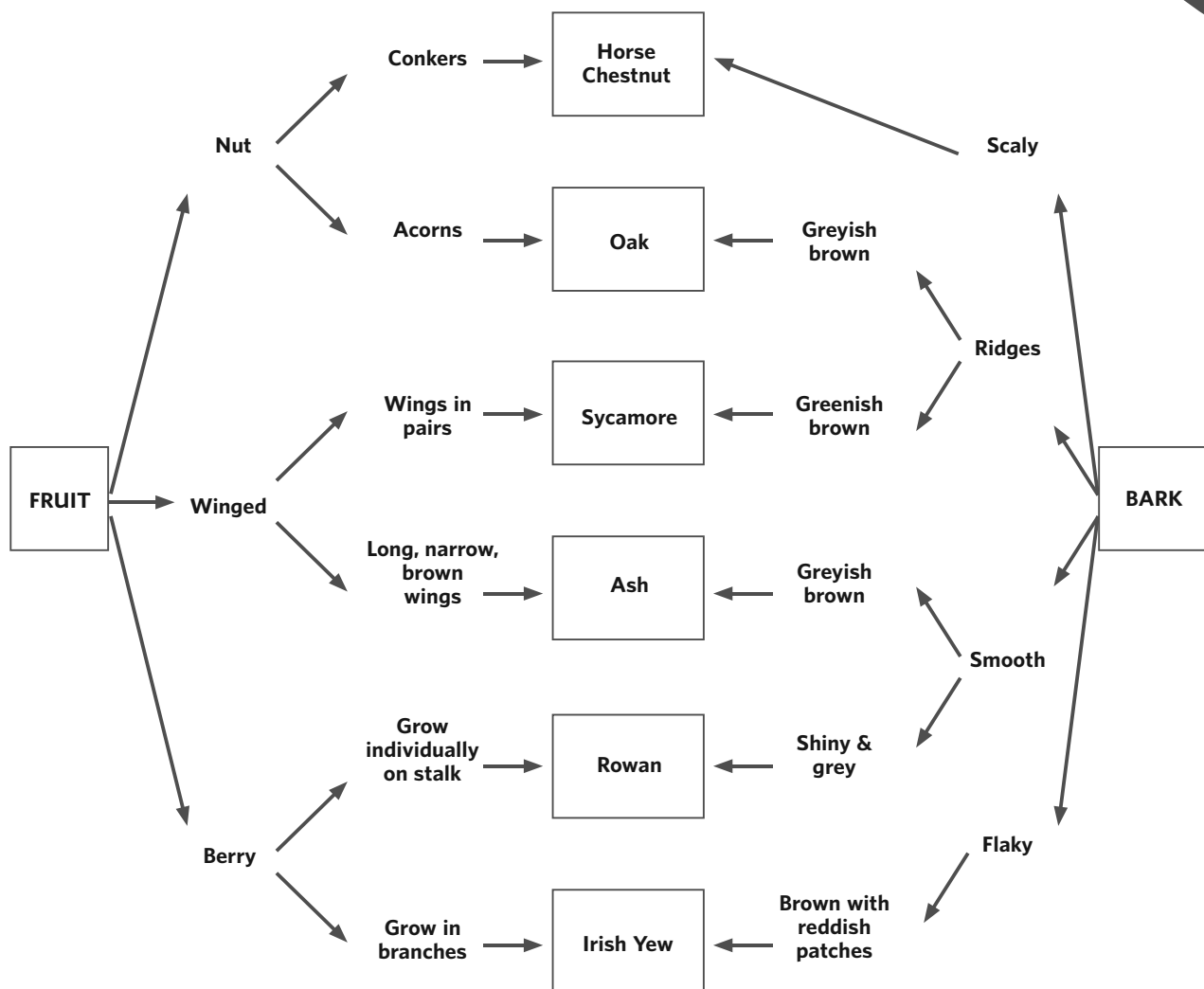
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INVESTIGATING TREES  
GUIDANCE NOTES



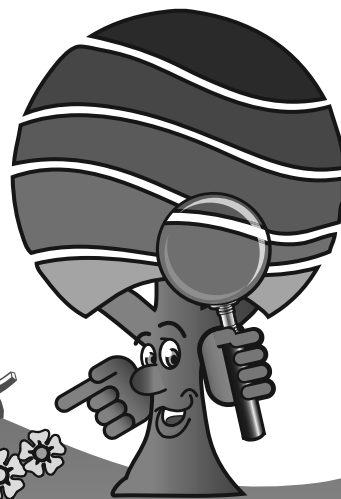
# WORKSHEET 2: TREE IDENTIFICATION

# 2

Example of a combined key guide using fruit and bark



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GUIDANCE NOTES



# WORKSHEET 3: WOODLAND HABITAT

# 3

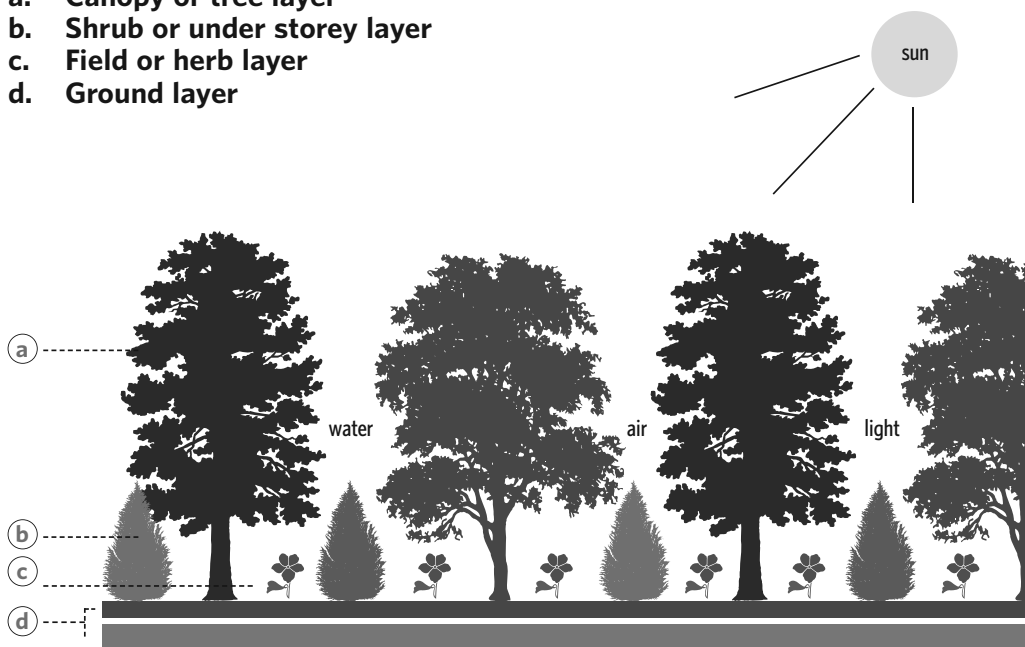
Trees are one of the most important 'plants' in our countryside. Trees not only provide an attractive and important landscape feature but they also have a high wildlife value. Our native trees provide food, shelter and homes for a great variety of wildlife including many types of plants and fungi.

Deciduous woodlands are one of our most important habitats and provide different habitats that are arranged in layers from ground level to a height of 20 or 30 metres. There are 4 layers:

a. Canopy or tree layer:	Consists of upper limbs and twigs of mature trees. This layer is structured to give the maximum number of leaves the greatest exposure to light.
b. Shrub or under storey layer:	Consists of lower branches of mature trees, young trees and shrubs e.g. holly and hazel
c. Field or herb layer:	Consists of flowering plants and ferns;
d. Ground layer:	Plants that live here are shade tolerant such as mosses and very small or creeping plants. Fungi and dead leaves are also present.

## Layers of Woodland key:

- Canopy or tree layer
- Shrub or under storey layer
- Field or herb layer
- Ground layer



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GUIDANCE NOTES



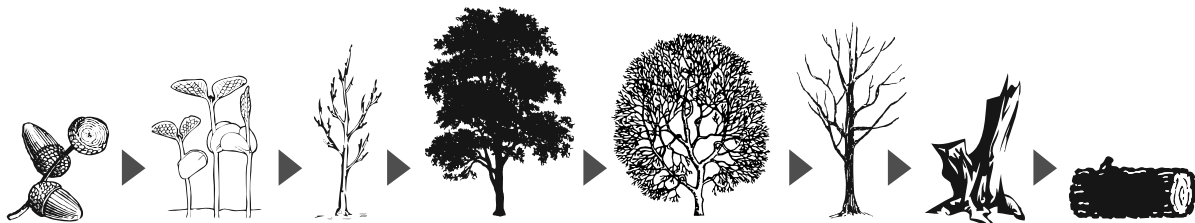


# WORKSHEET 3: WOODLAND HABITAT

# 3

## TREE LIFE CYCLE

The life cycles of trees, especially conifers, are divided into the following stages in forestry for survey and documentation purposes:



- |    |               |  |
|----|---------------|--|
| 1. | Seed;         | eggs fertilised by pollen develop into a seed which contains an embryo;                                    |
| 2. | Seedling:     | the above ground part of the embryo that sprout from the seed;   |
| 3. | Sapling:      | after the seedling reaches 1 m tall, and until it reaches 7 cm in stem diameter;                           |
| 4. | Pole:         | young trees from 7 - 30 cm diameter;   |
| 5. | Mature tree:  | over 30 cm diameter, reproductive years begin;   |
| 6. | Old tree:     | dominate old growth forest; height growth slows greatly, with majority of productivity in seed production; |
| 7. | Over mature:  | dieback and decay become common;   |
| 8. | Snag:         | standing dead wood; and  |
| 9. | Log / debris: | fallen dead wood.  |

## ADDITIONAL ACTIVITIES

### Activity 7: Woodland Investigation

(Suitable for Key Stage 2)

1. Try to identify the layers of the woodland and the different plants growing in each layer.
2. Look at the variety of plants including the mature trees that grow in a deciduous woodland.
3. Identify Tree Life Cycles by finding: seed, sapling, mature tree and dead tree.
4. Discuss how different animals and invertebrates exploit a tree in the stages you have identified.
5. Pick an area of woodland and watch how it changes during the seasons.

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GUIDANCE NOTES



# WORKSHEET 4 & 5:

## IMPORTANCE OF TREES TO PEOPLE

4 & 5

Living trees are important in the environment as they:

- **Add variety and interest to scenery**
- **Mark field boundaries**
- **Prevent erosion on hillsides by holding the soil in place**
- **Support leisure activities e.g. walking, riding and picnics in woodland**
- **Reduce noise from motorways / roads**
- **Landscape parks**
- **Strengthen the banks along the sides of a ditch**
- **Are used for ornamental purposes in gardens**
- **Provide windbreaks**
- **Provide privacy in gardens**
- **Are used as Christmas Trees**

Products are derived from all parts of a tree. Cellulose is the major component of wood. Paper and paper products e.g. books, magazines, cardboard etc. are made from cellulose. Cellulose is also an ingredient in a variety of products such as rayon for textiles, synthetic sponges, imitation leather, shatterproof glass, explosives and sausage casings. Other products include:

- **Those made from the gum e.g. rubber products, chewing gum;**
- **Those made from wood e.g. bats, wooden toys; timber for building houses, fencing, furniture, doors, floors, firewood, wood chips to make chipboard for furniture and building, wood pulp for paper making, charcoal;**
- **Those made from tree resin e.g. violin rosin, soap, varnish;**
- **Those derived from the fruits and nuts e.g. olive oil, chocolate, marmalade, cider - orchard fruits e.g. apples, pears, plums and cherries; and**
- **Those extracted from the leaves or bark e.g. cork, tobacco, food flavourings such as bay leaves.**

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GUIDANCE NOTES



# WORKSHEET 6: EXOTIC TREES

6

There are 3 types of trees planted in Carnfunnock:

## 1. NATIVE TREES

These trees are defined as native as they re-colonised after the ice began to melt around 10,000 years ago. This melt water filled up the North Channel and eventually cut Britain and Ireland off from Europe. Native trees in particular provide an important habitat for a large variety of flora and fauna including insects, birds, mammals, fungi, lichens and wildflowers. Examples include: Ash, Rowan, Wych Elm, Oak, Cherry, Scots Pine, Alder, Birch and Yew.

## 2. NATURALISED TREES

Over several hundred years ago these species were imported to Britain from faraway places, for their edible seeds, fruit and timber. These trees have now become naturalised. Examples include: Horse Chestnut, Sycamore and Beech.

## 3. NEWCOMERS / NON-NATIVE

These species were introduced for either timber or ornamental purposes. For example: Larch, Cabbage Tree, Pissards Plum, Sweet Chestnut, Monterey Cypress, Austrian Pine and Lime.

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INVESTIGATING TREES  
GUIDANCE NOTES

