

# OPAL Tree Health Survey: Guide For Teachers in Scotland



## Introduction

The OPAL Tree Health Survey presents an opportunity for diverse and engaging learning across the curriculum with a focus on outdoor learning. Pupils can explore the local woodlands, contribute to a nationwide scientific study and investigate the significance of trees through science, arts, and languages. In undertaking this survey and exploring the variety of types of learning it offers, teachers can develop their creativity and capacity for outdoor learning. This guide will provide a starting point for quality teaching and learning linking classroom and outdoors.

## Outdoor learning

Outdoor learning is a fundamental part of the Curriculum for Excellence, and should be seen as a method of delivering a wide variety of curriculum areas. Outdoor learning has recently been added to the General Teaching Council for Scotland's standards for full registration and career-long professional learning, and is considered by the Scottish Government to be an entitlement for all learners. Outdoor learning is part of a suite of approaches called 'Learning for Sustainability' which include Education for Sustainable Development and Global Citizenship.

## Doing the survey

The OPAL Tree Health Survey can form a whole project. This guide will help you do more than a simple tree health survey, showing opportunities for a wide ranging project exploring many aspects of trees, their ecology and connections to people locally and globally.

1 - The first stage is to **identify the trees** – what are they?

*The best way to really remember which tree is which is to build up many associations with it, not simply a name:*

- take photos
- draw shapes of leaves
- try and make exact leaf colours with paints or crayons
- explore different stages through the seasons.

Ask questions such as:

- what are their names, in English, Latin, Gaelic?
- what kinds of places do they like to grow in?
- what kinds of species like living with them?
- what kinds of things do people do with them?
- what is their folklore?

2 - Once you have identified the trees, **do the survey** – this involves basic mathematics and biology.

*This is a great opportunity for students to see how their learning contributes to a scientific survey on a large scale:*

- follow the guidance in the survey pack

- plan your trip, what will you need?
- measure the tree height and girth
- record the leaf cover and health
- look for pests and diseases on the trees
- collate your results, submit them online.

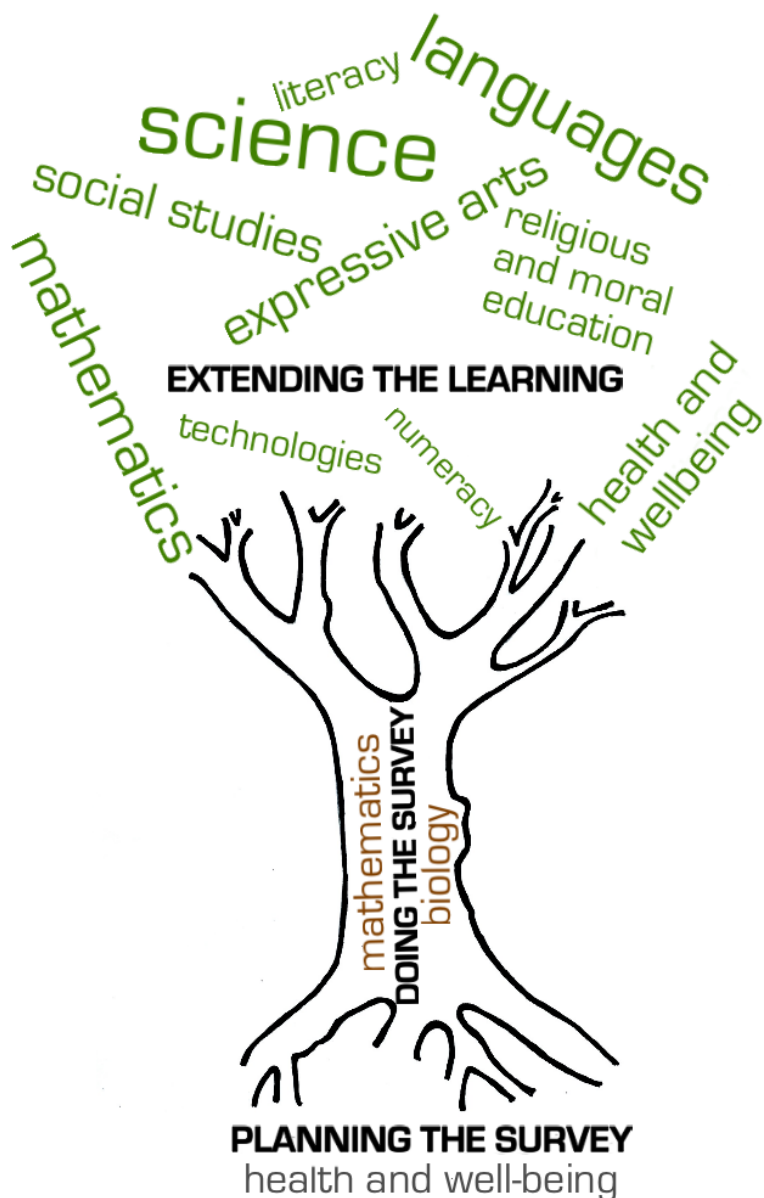
Ask questions such as:

- what examples can you think of where disease spreads from other places?
- what can be done to combat the spread of invasive species or diseases?
- who else can do this survey?

3 – Next, explore further learning linked to trees and woodland – knowing what they are and what makes them healthy or unhealthy leads to a wide variety of **other things to learn** about the trees.

There are several web links at the end of this guide to support your learning. See also the Appendix for links to the Curriculum for Excellence Experiences and Outcomes and SQA information.

*Having started getting to know the trees around the school, there are many ways to extend the learning.*



## Branching out: ideas to expand the learning

### Health and wellbeing

The OPAL Tree Health Survey is an opportunity to explore what makes us healthy, specifically planning safe trips.

*Ask the pupils to plan the next trip to the woods, and reflect on how it made them feel:*

- how did you feel learning about the diseases that trees can get?
- how does our health fit with the health of the world around us?
- what kinds of things do we have to get organised and think about before we make a trip out to the local woods?
- what risks are there, and what benefits are there in making this trip?

### **Literacy / languages**

The survey presents the chance to speak to people in the local community, and to explore the importance of trees and woods in the imagination through different texts.

*Go outside and create some of your own writing about the trees around the school:*

- in what ways have people written about trees?
- what do the trees symbolise in these writings?
- research the Gaelic tree alphabet *A Craobh*.
- read the chapter 'February - Good Oak' from Aldo Leopold's *A Sand Country Almanac* (1949). This involves the writer cutting a tree down for firewood, as the woodsman cuts through each ring, he imagines what history was happening the year that ring formed.
- find Sorley MacLean's poem *Hallaig*, what do trees represent in this poem?
- what are the Latin names for the trees you have identified?
- who invented this taxonomic system and why?

### **Numeracy / mathematics**

The survey presents an opportunity to use mathematical techniques in service of a real world goal, to see how maths can be applied to everyday situations.

*Do different measurements on tree species around the school:*

- calculate the heights of trees
- find the average diameters of trees around the school
- how much timber is in a tree?

### **Expressive arts**

Creating a project around the OPAL Tree Health Survey gives a chance to use a variety of creative techniques and be inspired directly by experiences in the outdoors.

*Go outside with your creative resources and make different art works about the trees around the school:*

- draw a tree
- make a collage
- invent a new tree colour palette with names for each new colour
- drama/movement – enact the life of a tree with your body, what makes it unhealthy, what makes it healthy.
- create a human tree model (some children are the trunk, some are branches and leaves, some are roots, some are fungi connecting to roots).

### **Religious and moral education**

The survey can lead to exploring the significance and value of trees in a variety of cultures including our own.

*Find out what the trees and woods mean to the people in your community, and compare this to other places:*

- explore the significance of trees in folklore and religion
- what is Yggdrasil?

- which tree did Buddha sit under to gain enlightenment, and how do Buddhists use this tree now?
- how does a rowan tree protect people?
- why are there often yew trees in church yards?
- do trees have a value and importance for themselves, or are they simply things useful for us?
- what would a tree say to us if it could?
- is it right to cut trees down?

### **Sciences**

The tree health survey is an opportunity to engage in a live and national scientific study and put scientific skills to practice in the local area.

*Explore the different woodland ecosystems around the school, survey the different flora and fauna which live there, compare to other places:*

- what types of ecosystem do you have around the school and how do trees fit into these ecosystems?
- which trees colonise new places first, which trees come after?
- which species live on or with trees?
- what roles do trees play in the oxygen cycle, the carbon cycle, the nitrogen cycle?
- why do conifers have needles, and deciduous trees have broad leaves?
- where do you find different types of tree ecosystems in the world – boreal, temperate, rainforest?

### **Social studies**

The survey helps pupils to learn first hand about human impact and relationship with the natural world.

*Learn about the interactions between people and trees in your area, and global connections:*

- how did the sycamore and sitka spruce get to the UK?
- when does a non-native species become a native?
- what reasons do people have for planting trees (shelter, fuel, food, raw material, beauty – try and find places around you which have these different uses)
- how has the tree cover in Scotland changed since the ice age?
- look at different maps from your area and see how they record tree cover
- go to a high point close to your school and do a field sketch of the trees and woodland cover.

### **Technologies**

The survey can explore the use and sustainability of trees and woodland products.

*Explore different uses of wood:*

- which kinds of wood are used for boats, musical instruments, piers, models, house floors, bowls?
- how can technologies help us keep woodlands healthier, what are the alternatives to cutting trees down?

- gather some hazel wands and make a meter square quadrat for use in scientific surveys.

### Crossing disciplines

All these questions and topics can be connected, they do not need to be explored in isolation. For example when going out to survey the local woodland, creative drawing and writing can also be done, and members of the community interviewed to see how they feel about the woodland.

### Further opportunities

There will be many opportunities to build on the experience of doing the OPAL Tree Health Survey. Many of these ideas will present themselves as you go along. One example would be to get your class involved in helping clear local invasive species, and use this experience to work towards the John Muir Award. There are also many other citizen science projects to get involved in (see links below).

### Links

Tree folklore:

<http://www.treesforlife.org.uk/forest/mythfolk/index.html>

Gaelic tree names:

<http://gaelic.snh.gov.uk/foillseachaidhean/faclan/index.jsp?start=Q&end=T&lang=ga>

'February - Good Oak' from Aldo Leopold's *A Sand Country Almanac* (1949):

<http://academic.keystone.edu/jskinner/WildlifeFisheries/leopold%20excerpts.pdf>

Hallaig by Sorley MacLean

<http://www.scottishpoetrylibrary.org.uk/poetry/poems/hallaig>

Maps showing tree cover

<http://www.forestry.gov.uk/forestry/INFD-857DT5>

<http://maps.nls.uk/>

Other OPAL surveys

<http://www.opalexplorenature.org/surveys>

Other citizen science initiatives

<http://www2.tcv.org.uk/files/jupiter2/file/SCschoolfactsheets.pdf>