

The Ancient Tree Hunt

SCIENCE:

ANCIENT TREES AND PEOPLE

UNIT 4 :TEACHERS NOTES

- **Ancient Trees – conservation and management**
- **Ancient Trees in Trouble – media reporting**
- **Ancient Trees Matter – convincing people**

Learning outcomes

By undertaking these activities learners will be able to:

- Use a variety of communication techniques to share knowledge, develop points of view and arguments, and presenting them to a wider audience.
- Think creatively and independently, developing informed attitudes and making informed choices/decisions.
- Describe skills from other disciplines helping in communicating and presenting scientific understanding.
- Explain the conservation priorities for ancient trees, and how science has helped in identifying appropriate management.
- Work independently and collaboratively, developing self awareness and communicating their own beliefs
- Evaluate an environmental/scientific issue, by undertaking a SWOT analysis, and using the results to assess the associated risks.
- Give an example of how science impacts on the environment, and the way we value our natural and cultural heritage
- Identify future science-related learning and career paths revealed from undertaking the activities

Key Concepts

- 1.1 Scientific thinking
 - b Critically analysing and evaluating evidence from observations and experiments.
- 1.4 Collaboration
 - a Sharing developments and common understanding across disciplines and boundaries.
- 2.2 Critical understanding of the evidence

Pupils should be able to:

 - a obtain, record and analyse data from a wide range of primary and secondary sources, including ICT sources, and use their findings to provide evidence for scientific explanations.
 - b evaluate scientific evidence and working methods.
- 2.3 Communication

Pupils should be able to:

 - a Use appropriate methods, including ICT, to communicate scientific information, and contribute to presentations and discussions about scientific issues.
- 3 Range and Content

This section covers:

 - 3.3 Organisms, behaviour and health
 - d all living things show variation, can be classified and are interdependent, interacting with each other and their environment.
 - 3.4 The environment, Earth and universe
 - c human activity and natural processes can lead to changes in the environment.



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Activity 1: Ancient trees – conservation and management

Background

The continuity of old trees in the landscape, and their conservation, depends on sound, scientifically based, advice and management. This takes into account the intrinsic values of these trees, as well as any legal implications associated with ownership. The particular ecological and biodiversity value of ancient trees is now recognised by most ecologists/ scientists. But there are some foresters/land managers and members of the public, who are less well informed, and continue to consider old, hollow trees to be dangerous. This activity explores such conflicts of interest, and how a balance can be reached.

Ancient trees have a unique capacity and opportunity with age to **develop a range of rich, but scarce habitats/niches**, supporting specific lichens, mosses, fungi, some types of invertebrates and birds – **some rare and endangered species**.

Woodland habitats, such as semi-natural and Ancient woodlands are generally protected by some form of designation, but wood pasture (characterised by open grassland with individual standing trees e.g. old alder and hazel pollards), and old pine woods are habitats, which have also been identified as needing protection.

Ancient trees in England and Scotland represent a very high proportion of the North European veteran tree population. They are also irreplaceable features of our landscape and biological heritage.

Many old trees and the fragile habitats they support are under threat from inappropriate management. This often results from felling, and/or changes in land use surrounding the trees, but also poor training of managers, ill-informed attitudes, and consequent tree management – quite inappropriate for what are often quite healthy trees.

Equipment needed:

Copies of **Student Activity Sheet 4/S1 Protecting Ancient trees** – 1 each/per group

Copies of **Student Activity Sheet 4/S2 Making a SWOT Analysis** – 1 each/per group

People responsible for any tree (owner/land manager) have a duty, known in law, as the **duty of care**. This means reasonable steps should be taken to ensure no action, or non-action, relating to a tree, is likely to endanger any person, or property. It is recognised that it is never possible to eliminate all danger completely. The law requires that obvious dangers are identified, and as far as is reasonably possible, removed – which may mean moving people not the tree.

The law protects certain species and the trees in which they may live – harming or destroying them, their nests, roosts or habitats is a criminal offence e.g. bats, red squirrels, invertebrates, breeding/endangered birds, endangered plants, fungi and lichens.

What to do

Give the class the opportunity to look at the Ancient Tree Hunt website www.ancient-tree-hunt.org.uk, and explore the *Ancient Trees/Protecting ancient trees* and *Ancient Trees/Ancient Tree Management* pages. Ask them to share some of the aspects of conserving ancient trees they have discovered – reinforce as necessary.

Organise the class to work in small groups of 2-3 with a table top/floor area to use. Present them with the scenario on screen/board/flipchart. Ask them to imagine a situation where a veteran/ancient tree stands in open parkland, in a Country Park. Recently a couple of large rotten branches have fallen to the ground where picnickers often sit, in the summer. **The rangers are considering how they should manage the situation.**



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Does everyone know what Countryside Rangers do? If not help them find out. Use a Search Engine and key words – countryside ranger.

The Rangers are responsible for **conserving the biodiversity** of the Country Park and its very old trees, but also their **interpretation** for the **enjoyment and understanding** of visitors, and for the safety of staff and visitors.

They have a number of options, and need to decide which one to choose. Ask the class to imagine they are one of the rangers, and are trying to make informed decisions, so they can justify their choice of option to their manager. Explain that there are no right/wrong ways to do this, but this is one way used in the workplace – they should not be afraid to say what they feel is best.

Organise the class into pairs/threes, and give each an Option card **Student Activity Sheet 4/S1** (choose from the 7 provided or make your own). Ask them to read the card carefully and be sure they understand what it means. The idea is to undertake a 'SWOT analysis'. What's this? A **Strengths, Weaknesses, Opportunities, and Threats analysis**.

Looking at the option they are given, they are asked to question the:

- **Strengths** of the idea for the tree, and then the rangers and/or public.
- **Weaknesses** of the idea for the tree, and then the rangers and/or public.
- **Opportunities** of the idea for the tree, and then the rangers and/or public.
- **Threats** of the idea for the tree, and then the rangers and/or public.

Give some examples as you explain.

Using **Student Activity Sheet 4/S2** to guide them, they should discuss the issues and then write down their thoughts, under the relevant heading. Make sure everyone understands

what is written on the cards. Keep an eye that each group is working through the process successfully. Developing a personal view, and then discussing this with others, is a key purpose of this activity, as well as the group dynamics. When they have decided on their analysis, they should indicate they are finished.

Draw all the groups together – ask one member from each group to present their findings to the rest of the class. Were there difficulties in getting group decisions? How did they find a solution to this problem?

Ask each individual to order the options [1=best to 7= worst] for the best balanced/informed decision for management. You can gather them on a chart, or hold a secret ballot. From the views gathered what is the management decision they would recommend, is this the same result the class would have agreed if negotiated? What are the strengths and weaknesses of negotiation – what happens to the science sometimes?

Use a sharing circle to draw out what they have enjoyed and learnt about the conservation of ancient trees, what have they learnt about making informed decisions, the work of a countryside ranger and how to become one, and/or about learning and working in a group – where do their own strengths and weaknesses lie?

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ACTIVITY SHEET 4/SI: STUDENT SHEET

Protecting Ancient Trees – option cards

<p>Reduce the size of the crown of the tree, reducing its likelihood to lose a branch. Reduce crown height and spread, perhaps over a period of time. Reduce end-loaded branches, or thin to reduce wind resistance. Reduce access in stormy weather.</p>	<p>Reduce the major branches to stumps – to maintain trunk stability. Cut off live/deadwood, using natural fracture methods, leaving the stub end for wildlife.</p>
<p>Fell the tree to the ground. Remove all dead and live wood from the site, and leave it tidy.</p>	<p>Fell the tree to the ground. Cut all the timber into logs and leave to rot on site – near the parent tree stump to maintain some continuity of habitat.</p>
<p>Change the use of the area into a wildlife meadow, using a mown path through the long grass, to a near point to view the tree. Use an interpretive panel to explain the ageing process of the tree, and its importance for wildlife – also warning of the risks.</p>	<p>Relocate picnic tables and parking areas, and remove obvious routes into the area, near the tree. Leave branch debris to deter visitors. Use regular, Ranger-led, guided walks to give access to the tree and explain its value for people and wildlife.</p>
<p>Use a low fence/barrier just outside the canopy of the tree; use signs to warn of the risks, and exclude all entry to the area, especially in stormy weather.</p>	

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ACTIVITY SHEET 4/S2: STUDENT SHEET

Making a Strengths, Weaknesses, Opportunities, Threats Analysis

STRENGTHS

WEAKNESSES

OPPORTUNITIES

THREATS



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Activity 2: Ancient Trees in Trouble

What to do

In small groups of 2-3, give out copies of 3-4 articles on veteran/ancient trees either saved/destroyed. For example:

- 02 February 2003 – 300 year old yew saved from the chop!
- 14 July 2004 – Ancient sweet chestnut threatened by airport expansion
- 29 June 2003 – Felled veteran tree in Surrey
- 17 November 2002 – Blazing ash tree gets another chance

Ask the students to read all the stories. They should ask questions if there is anything they don't understand. Using **Student Activity Sheet 4/S3 Ancient Trees in Trouble** and the outline, ask them to identify and make a list of what **threats** have contributed to endangering the tree, and what **solutions** have contributed to saving/not saving this, or another similar tree.

Once agreed, write each threat along a single root, and each solution along a single branch. You may have to use one story to demonstrate what they are being asked to do.

Draw the tree outline on a wall display. The first group to finish can add on their threats, the second group their solutions, and as the rest of the groups finish, if they have any different ones, they can add them on. They must be able to justify their choices.

Examples of:

Threats:

- Poor/irresponsible behaviour due to ignorance – felling, burning, soil compaction etc.
- Lack of young people/adults 'being in touch' with trees/woodland

Equipment needed:

Computer suite with access to the internet – Woodland Trust website www.ancient-tree-hunt.org.uk and/or

Copies of 3-4 selected stories from Ancient Tree Forum news web page – www.woodland-trust.org.uk/ancient-tree-forum/atfnews – 1 set per group

Copies of Student **Activity Sheet 4/S3 – Ancient Trees in trouble** – one each

- Lack of scientific knowledge about veteran/ancient trees and their ecological value available to the public.
- Lack of legal knowledge of what actions are allowed/disallowed associated with trees among key groups – developers, landowners, local councils.
- Lack of appreciation by people of the historical/cultural significance of veteran/ancient trees locally.
- Society's focus on development, economic benefit and health and safety at all costs.
- Bad luck – the wrong people in the wrong place at the wrong time.
- Changing land use – without considering options favouring ancient trees

Solutions:

- Involving knowledgeable professionals before cutting down trees
- Luck – the right person at the right moment in the right place
- Systems in place locally and nationally protecting trees
- Promoting ancient trees for their scientific and historical interest
- Find all the interesting trees and publicise them – link to Ancient Tree Hunt



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- Get members of the public and landowners involved – watchdogs and activists
- Educate developers and the government about ancient trees.
- Provide developers with positive alternatives and management guidance
- Provide guidance in managing ancient trees positively for landowners and land managers/foresters/gardeners

- The general public, amateurs, as well as professional naturalists have a role in protecting ancient trees.
- As a citizen you can play an important role as ‘watchdog’ or ‘enthusier of others’ – if you have a passion for science/nature, share it.

Those interested can follow-up by visiting the Ancient Tree Forum and Ancient Tree Hunt websites. These can be accessed through the Woodland Trust website www.woodlandtrust/ancient-tree-forum.org.uk, and www.ancient-tree-hunt.org.uk

Hold a sharing circle around the display [and statement arrangements (Activity1)] and discuss the issues identified – what surprised them most, what did they think was most significant for ancient tree protection in the future, how did displaying the information in this way help its interpretation, better than lists? How does this all reflect on their learning about science in school, and its use in their role as citizens of the future?

[At least one of the roots will include *lack of scientific/ecological knowledge*.

At least one of the branches will include *having scientific/ecological knowledge*.]

Other aspects that may be raised:

- Science is useful when applied in the real world – knowledge and understanding of ecosystems, ecological processes, trees and other wildlife.
- Science is useful when it leads to employment – what is an arborist?
- Our knowledge is still incomplete, especially in relation to ancient trees.
- Protecting ancient trees are something we can all help with – even if only writing to our local council or MP.
- Most solutions in the real world draw on different disciplines to solve – science, expressive arts, emotions and passion, social subjects.



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ACTIVITY SHEET 4/S3: STUDENT SHEET

Ancient Trees in Trouble

SOLUTIONS

**ANCIENT
TREES IN
TROUBLE**

THREATS



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Activity 3: Ancient trees matter – convincing people

What to do

Write up or display the following quotes on a screen/board:

“10,000 oaks of 100 years old are not a substitute for one 500 year old oak”

Oliver Rackham, scientist,
conservation author, and woodland historian

“Ancient trees are precious. There is little else on Earth that plays host to such a rich community of life within a single living organism”

Sir David Attenborough, scientist,
TV broadcaster and conservation activist

What do they know about so and so? Choose a historic scientist who had to fight to have their discoveries accepted by other scientists and the public, and who may have died for his/her beliefs. Or, for example, use Beatrix Potter the well-known children’s author. She was a highly competent mycologist, but her work when presented to the Royal Linnaean Society in London, in the late 1800s, was put down largely because she was a woman. It was eventually found to be accurate, but she had been ahead of her time! In her frustration, she turned to writing children’s books instead – who gained the artists, or the scientists?

Explain that throughout history scientists who have become authors, presenters or activists have always been focused and passionate about their particular interest e.g. Archimedes, Galileo, Darwin. In the early days, scientists were prepared to die to defend their beliefs in what science told them, however much it disagreed with the current thinking of the time. Luckily it’s not that bad these days!

So, have a look these statements. What do they think about these statements, made by two important scientists and

Equipment needed:

Class access to computers and a list of useful websites, as well as the school library and resource boxes for research.

You may like to join with the English and/or Art & Design departments in developing the students’ writing skills, in this scientific context – investigating ‘Ancient Trees’.

Have a look at the English and Art and Design learning and teaching resources on the Ancient Tree Hunt website.

conservationists of our time, and what is the science that backs them up?

How would they go about writing a short journal article, or essay, that illustrates and develops these statements? Otherwise, you could get small groups developing a 10 minute Powerpoint presentation, or a video clip for a TV slot with a presenter – taking on the ‘youth’ mantle for Ted Green (often seen in ATH/ATF video clips) in enthusing about ancient trees.

Talk them through the purpose and structure of this kind of scientific writing –

- **introduction** (to set the scene and provoke readers interest)
- **main body** (presenting the evidence)
- **conclusion** (rounding the case up)

Give examples of the kind of evidence/illustration they might use, and discuss how to research and select information – including use of photographs, diagrams etc.

They should choose which of the statements they wish to use. Limit the number of words to be used. Give them a deadline for research and completion of essay/article – it can be handwritten or word-processed. You might get the students to complete peer reviews; run a competition and award prizes for the *Top Three*, whatever.

You can post the best results on the school website/newsletter; send them to the Ancient Tree Hunt team or Ancient Tree Forum websites, or offer them to a local newspaper or magazine.



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