

Cradle to grave

Learners will have/be able to:

- Describe a time and/or place where wood was/is the main raw material used, and explain why wood/timber is such a valued natural resource
- Describe a number of British native trees and their properties and/or products these species have been/are being used to make
- Explain terms associated with recycling and renewable resources – such as sustainable, renewable, biodegradable, carbon sink – and be able to explain where there are carbon dioxide emissions within the growth – product – decay process.
- Contribute to both group and individual tasks effectively, and help the group make progress.
- Assess and evaluate their own work and that of others, and provide thoughtful, positive feedback on how to improve others' posters.

Outdoor and indoor spaces

Outdoors in a woodland/school grounds, with a log circle, and indoors – for internet research

Selection of everyday wooden objects

In a woven basket–IKEA type grass/twig basket or locally made willow/birch basket

Forestry Commission *Tree Trumps* cards

1 pack per group – otherwise, have a look at www.cte.napier.ac.uk

Large sheets of flipchart paper & coloured pens

Scottish Cultural Resources Access Network

FREE educational use and linked to Scottish and English curricula – www.scran.ac.uk/search and/ or www.rcahms.gov.uk/scran.html

The Centre for Timber Engineering

Exploring science and properties of timber www.cte.napier.ac.uk/firrs

Try contacting a local...

Forester/ranger to come and make something from wood with the class – whistles, walking sticks, bird/bat boxes, log seats, wind chimes or a xylophone for the school grounds

Basket weaver to come and show/help the children make a simple basket/artefact from willow, or a living willow sculpture in the school grounds

Bodger to bring a pole lathe to school to demonstrate what it can do – decorative finishes for chairs, stools, spindles etc. In Scotland have a look at the website www.brotus.co.uk also www.crannog.co.uk

FCS/RHET office to see whether you can borrow some *Tree Trumps* cards

For more ICT ideas
www.blabberize.com

This is an activity to raise learners' awareness of life and society today and in different times, at home and abroad. Throughout they will find how wood has been a constant and valuable resource.

Certain woods are better for some things than others – the trick is to know which. Eventually everything wears out and will be discarded – what happens to wood, and what consequence does that have for climate change, and the carbon cycle?

Gather everyone around, preferably sitting on a log circle. Explain how throughout history people have used wood to build and furnish their homes to cook their food and to make tools and music.

You may like to find a relevant quotation from an early journal or travel writer as a starting point. Or, use an eighteenth century Scottish traveller/ writer, such as Edward Burt. Burt was a gentleman travelling in the Highlands of Scotland in the 1720's, and he wrote in his journal:

"Almost all of their implements for husbandry, which in other parts of the country are made of iron, or partly of that metal, are made entirely of wood: such as a spade, plough–share, harrow, harness and bolts; and even the locks of doors are made of wood."

Can they imagine this...do they know what all these things are – source images from these implements off the internet (SCRAN website). At that time people in the Highlands valued wood very highly, and it was cheaper for them to obtain – they were largely subsistence farmers then. Wood was becoming a scarce commodity, however, and in some areas landowners had to stop outgoing tenants from leaving with the supporting timbers of their roof!

Otherwise, you may like to study an area in the world where indigenous people are still reliant on wood/forests as their main resource. Ask whether they know of anywhere today where this is still so – Amazon and Congo rainforest. A few remaining indigenous tribal peoples still depend on the trees for all these things, as well as medicines, and poison for their arrows and spears, and other cultural traditions. Also in poor countries and remote forest areas (e.g. Nepal, China, Russia), there are communities who are still largely reliant on wood fuel and wood as a construction material. Find these places on an atlas, or on a globe, and research the way of life of these communities.

Gather evidence from a variety of sources, including the internet to find out what their homes, agricultural tools, and boats looked like and were made from. Create a wall display, and draw out the properties of the wood that made it a suitable raw material to make these products.



Activity 2

01 Gather a basket with different everyday things made of wood as a focus for this activity – 2 or 4 of each item, enough for the group. Find somewhere comfortable and in a sharing circle, give the items out so everyone has something to handle and feel/smell. You may ask what everyday things made of wood do we use today – in school or at home. People in the past, before cars and trains, mainly had to make do with what they had nearby. They used native tree species to make their objects. Where does a lot of wood we use to make objects come from today? (tropical hardwoods of the Amazon, Malaysia, Indonesia, tropical Africa, rest of South America, and India, boreal softwoods of Scandinavia, Northern Europe and Russia, hardwood eucalyptus of Australia) – how does this impact on climate change?

02 Do we still know what our native trees are useful for making? Surprisingly perhaps, there is a growing interest in going back to old traditions associated with making wood products. Do they know? How might they find out more? What kinds of questions would they need to ask before designing/making something from a particular native tree? Which timber is best for what and why?

03 Obtain some packs of the Forestry Commission Tree Trumps produced for the Tree Trunk – looking at products, or use the website www.cte.napier.ac.uk/firrs to play the interactive game Trees & Trumps – looking at properties. First sort out those tree species native to Scotland (or Wales/England, wherever you are) then play the game to find out which have the best timber value. Ask a local forester, farmer or ranger to help provide some lengths of a variety of trees for the children to compare weight/grain etc. – ash, oak, beech, sycamore, Scots pine, Douglas fir, willow, yew.

04 What about the carbon that is trapped in this wood – these items are **carbon sinks**. What will happen when these items break or you want to throw them away – where will you throw them – can they be recycled – to make something else? (chipboard). Could you compost them? Are they biodegradable? Test it and find out.

05 For the item they are holding, find someone else with the same item, and ask them to draw a cradle to grave diagram showing what happens to the wood from the original tree – being made into something – to finally being discarded – and beyond (should return to the soil and feed another tree at the end). Show an example if this helps. Identify the stages and sources of carbon dioxide. Take the same object made from plastic or metal and show how the production process is generally longer and takes greater energy in its production and manufacture, and decay.

06 Hang up a washing line between two/more trees and ask them to peg their finished wood diagrams onto the line with the objects below. Have everyone walk around the gallery and celebrate the lives of these objects as carbon sinks.

Tree products and their sources

TREE PRODUCT	RAW MATERIAL	TREE SOURCE
Coffee	Coffee beans	Coffee tree fruit, Tropics
Balloon	Sap	Rubber tree sap, Tropics
Bounty bar	Coconut flesh & milk Chocolate beans	Coconut tree fruit, Tropics Chocolate tree fruit, Tropics
Hockey stick	Timber	Ash tree timber, UK/Europe
Wooden furniture	Timber	Hard or softwood tree trunks
Tea-tree soap	Seeds	<i>Meloleuca</i> tree seeds, Australia
Aspirin	Bark	Willow tree, UK/Europe
Coir mat	Nut casing	Coconut tree fruit, Tropics
Cardboard carton	Softwood fibre/pulp	Softwood tree trunks – Sitka spruce
Paper bag	Softwood fibre/pulp	Softwood tree trunks – Sitka spruce
Wooden clothes peg	Softwood fibre/pulp	Softwood tree trunks – Sitka spruce
Maple syrup	Sap	Maple tree sap, Canada
Modal clothing	Cellulose	Softwood tree fibres, UK
Apple	Fruit	Apple tree fruit, UK
Charcoal	Timber	Hardwood tree trunks, UK
Cork	Tree bark	Cork Oak bark, Spain/Portugal
Wooden box	Timber	Hard/Softwood trees e.g. Box, Cedar, Pine
Book	Paper & cardboard	Softwood fibres/pulp
Wooden bowl/plate	Timber	Hardwood/softwood e.g. Birch, Sycamore
Chewing Gum	Sap	Tropical tree gum/sap

ADDITIONAL INFORMATION

Wood products and sustainable certification

Wood products store carbon throughout their lifetime, keeping it locked away from the atmosphere. This will eventually be released through decay or burning, but as long as more trees are planted in place of those cut down, this provides a more climate-friendly alternative than other materials like steel or concrete.

Wood requires a lot less energy in its production than other materials, such as aluminium, plastic or cement. Using one cubic metre of timber instead of concrete or bricks can avoid up to three tonnes of carbon dioxide emissions.

Wood is also an excellent insulator – wooden buildings keep us warm in winter and cool in summer. It is a very versatile construction material, and can be used for many public building purposes e.g the treehouse at Alnwick and the observatory in Kielder forest. In 2005, Forestry Commission England ran an architectural competition to design an Observatory at Black Fell Hill, Kielder Forest. Architects and an astronomer worked together and came up with a winning design – including a viewing platform, rotating turrets, a warm room heated by wood fuel, and a composting toilet. The building is truly carbon emission-friendly – using sustainable, lightweight, home grown Douglas Fir for the structure, and powered by wind turbine and solar photo-voltaic panels.

The best way to ensure that the wood you buy has come from a sustainable source is to look for wood that has been certified.

There are two global forest certification schemes, which demonstrate that timber and wood products come from legal and sustainable sources. These are:

- Forest Stewardship Council (FSC)
- Programme for Endorsement of Forest Certification schemes (PEFC)

The FSC label is most often seen. It is currently found on over 10,000 product lines in the UK alone – from garden furniture, to bird boxes, brushes, wallpaper, doors, toilet tissue, paper books and pencils. FSC not only certifies timber products – in fact all forest products can potentially be certified. Venison from Forestry Commission land is one such non-timber product that is FSC certified in the UK. Increasingly large chains are looking to be environmentally friendly – for example, B&Q source all their timber products from sustainably managed forests across the world.

