

‘Treemendous’ Trees

Activities for children aged 7–11 years

WWT has a well-established and well-loved education programme that we run across the UK at our ten wetland sites. We’ve designed these short activities based on one of our school activities. We’ve made it to connect you and your family to the natural world and help you to work with your children to feel great about nature and understand some of the things that WWT love and care about.

Why wetlands?

WWT works across the UK to save, conserve and build wetlands for wildlife and people. Wetlands are one of the most important habitats on earth – storing huge amounts of CO₂, providing a natural way of stopping flooding and serving as a home for huge numbers of different creatures.

This activity will help you and your children to explore the wonderful world of trees. You will discover how some trees have adapted to be able to live in wetlands and why all trees are vitally important to life on earth.

These activities link to the National Curricula for science in England, Northern Ireland, Scotland and Wales.

Stuff you need:

- Structure of a tree visual
- Tree Cards
- Mangrove tree visual
- Leaf ID sheet (see final pages of this document)

Note: Where you see a **Q** this indicates a question to ask your child

Indoor activities

(60 minutes – Can be broken down into 5 manageable chunks)

Q Have you previously completed the Plant activity session?

YES – Continue with **Section 1a**

No – Start at **Section 1b**

Section 1a: The structure of a tree

- Look back at the diagram you labelled showing the parts of a plant.

Q Which of these have a different name when referring to a tree?

The **stem** is usually called the **trunk**. It is much stronger than the stems of other plants. It is covered in bark that helps to protect the softer insides of the trunk.

The **flowers** are usually called **blossom**. The flowers of a tree may take the form of 'catkins' that are less easy to identify as flowers.

Q Are there any other parts of the tree that weren't shown on the plant pictures?

Answer

The branches:

- Branches grow from the trunk of the tree. They transport water and nutrients from the trunk to the leaves.

If you want to reinforce the learning from the plants session continue onto **Section 1b**.

If not then skip to **Section 2**.

Section 1b: The structure of a tree

- Look at the Structure of a Tree Visual. This shows a willow tree; a tree commonly found within wetland environments. Get your child to cut out the labels and use the names to label the following parts of the tree: **Roots; trunk; branches; leaves; blossom**. Help your child with any they are unsure of.
- Now see if they can match the correct description to the each part of the tree.
- They can then stick these in place if they haven't already done so.

Answers

Roots:

- Anchor the tree to the ground so it doesn't blow away. Also soak up water from the soil.
- Tree roots usually spread much wider than the branches of the tree.

Trunk:

- The main stem of a tree. Carries water from the roots to the branches.
- The trunk is covered in bark that helps to protect the softer insides of the trunk.

Branches:

- Carry water from the trunk to the leaves.

Leaves:

- Produce food for the tree.
- Leaves take in water, light and carbon dioxide and use them to make food for the tree as well as oxygen which is released into the air. This means that trees are great for the environment because they take in carbon dioxide, a gas that causes climate change, and give out oxygen, which all animals need to breathe.

Blossom:

- Makes seeds to produce new trees.

If you haven't completed the plants session, this includes a section on the role of flowers in plant reproduction.

Section 2: Deciduous or evergreen?

Q Do you know what we mean by deciduous and evergreen?

Key word: **DECIDUOUS**

Deciduous trees lose their leaves (usually in the autumn in the UK) and re-grow them (usually in the spring in the UK).

Key word: **EVERGREEN**

Evergreen trees keep their leaves all year round.

Q Why do you think some trees lose their leaves in autumn but others don't?

Deciduous trees

- The main reason deciduous trees lose their leaves in autumn is to save water and energy. During winter, frozen soil and roots mean that trees find it hard to get water. Sunlight is also in limited supply so it makes sense to shut down to save both water and energy and re-start in the spring.
- Deciduous trees have flat, wide leaves making them great at capturing sunlight to make food for the tree. This means they can make the most of the time that they do have leaves.

However, if they kept their leaves over winter:

- Insect eggs and larvae would stay on the leaves and they would quickly get eaten the following spring.
- The tree would be in danger of being blown over or damaged by the wind.
- The leaves would freeze and become damaged.

These trees drop their leaves in the autumn and then re-grow them again in spring.

Evergreen trees

- Evergreen trees take a different approach. They have thin, narrow leaves or needles. These aren't caught by the wind as much as the leaves of deciduous trees, meaning that evergreen trees can withstand winter storms even with their leaves still on. Their narrow leaves also mean that snow doesn't settle on them and the trees' shape (think of the shape of a typical Christmas tree) is designed to shed snow. The leaves of evergreen trees have a waxy coating. This protects them from insects, helps them to hold onto water and prevents them from freezing. This means that evergreen trees can hold onto their leaves throughout the year.

Deciduous or evergreen?

- The shape of a tree and its leaves can give us a big clue as to whether it is deciduous or evergreen. The branches of deciduous trees tend to spread out further from the trunk. The tree has a more 'bushy' appearance. Evergreen trees tend to be narrower and often have a pyramid or 'upside down cone' shape.

Sycamore (deciduous)



Sitka spruce (evergreen)



- The leaves of deciduous trees tend to be flat and wide whereas the leaves of evergreen trees tend to be thin, narrow needles with a waxy coating.

Sycamore (deciduous)



Sitka spruce (evergreen)



- Use the information above to help your child to sort the Tree Cards into those that they think are **deciduous** and those they think are **evergreen**.

Answers

Deciduous	Evergreen
<ul style="list-style-type: none">- Oak- Beech- Silver birch- Horse chestnut- Sycamore	<ul style="list-style-type: none">- Scots pine- Sitka spruce- Douglas fir- European larch- Yew

Section 3: Food factories

NOTE: If you completed the climate change session, you might want to re-cap this with your child rather than completing the activity below.

- Go back to your Structure of a Tree Visual
- Explain to your child that plants make their own food in their leaves (this process is called photosynthesis but it's not important to use this word at this stage).
- To do this they need sunshine, water and a gas called carbon dioxide.
- They absorb the carbon dioxide through stomata in their leaves. These are like the pores in our skin.

Get your child to draw an arrow pointing to one of the **leaves** on the **Structure of Tree Visual** and label this '**carbon dioxide**'. 



- They also absorb the sunshine through their leaves.

Get your child to draw the sun above the tree and draw an arrow from the **sun** to this **same leaf**.

They should label this arrow '**sunlight**'. 



- Trees draw in water from their roots and carry it up their trunk, along their branches and into the leaves.

Get your child to draw an arrow from the **roots, up the trunk, along one of the branches and into the same leaf**.

They should label this arrow '**water**'. 



- Explain that the leaf then turns the water, carbon dioxide and sunlight into food for the plant and oxygen.
- The food for the plant is taken from the leaf and distributed around the plant to help it to grow.

Get your child to draw an arrow from the **leaf** back into the **trunk**. They should label this '**food**'. 



- The oxygen goes back out of the stomata in the same way the carbon dioxide came in.

Get your child to draw an arrow **out of the leaf** into the **air around it**. They should label this arrow '**oxygen**'. 



This makes trees and all other plants absolutely amazing for two reasons:

- 1 They are the only living things that can produce their own food to give them energy without having to eat. This means that almost all food chains start with plants.
- 2 Because they take in carbon dioxide and give out oxygen, they help to prevent climate change (see climate change session) as well as helping us and other animals to breathe.

This means that without them there would be no life on earth!

Section 4: The importance of trees

Q Why do you think trees are important?

Get your child to list of as many reasons they can think of. Add any additional reasons from the list below that they may have missed.

Possible answers may include:

As above:

- Trees absorb carbon dioxide, helping to combat climate change.
- Trees are the only living things that can produce their own food to give them energy without having to eat. This means that nearly all food chains start with plants and plants provide food for a wide range of animals including humans.

Plus:

- Trees provide homes for a wide range of animals. When combined with those animals that rely on them for food, oak trees support 2,300 different species!
- Trees can help reduce flooding by taking in and storing water and providing root holes to help water soak into the soil.
- Trees provide woodlands for people to enjoy. People enjoy going for walks and bike rides as well as activities like watching wildlife.
- Trees provide shade for animals including humans.
- Trees provide a valuable source of fuel. Many people burn wood to keep their houses warm. So long as trees are replanted, wood can provide energy in an environmentally friendly way.
- Trees provide a useful construction material used in buildings, furniture etc.
- Trees are the raw material for paper. Try to use recycled paper to reduce the number of trees that need to be cut down.

Sustainable woodlands and FSC

As we have seen, trees provide a fantastic resource and can be used as a building material and to make furniture, paper and other products. However, if trees are cut down and not replaced this will result in habitat loss and increased climate change. It is important that trees are replanted as others are cut down. When buying paper and other items made from wood, look out for the FSC logo. This shows that the wood has been produced in this way.



Section 5: Wetland tree adaptations

Most wetlands contain trees of some sort. Trees commonly found in UK wetlands include alder, willow, birch and sallow. These trees are able to survive in wetter conditions than other trees.

Probably the best adapted to wet conditions are mangrove trees. These trees live in the intertidal zone; the area that is above the water at low tide and underwater at high tide. They are some of the few trees able to survive in salt water and have developed some amazing adaptations to enable them to survive in this habitat:

- Their main roots are very shallow and spread out sideways rather than downwards.
- They have prop or stilt roots that grow from the side of the trunk and prop them up, helping them stay standing in storms.
- Many have roots that stick out above the water. These aerial roots or pneumatophores take up oxygen and pass it to the main roots (which are in waterlogged soil which contains little or no oxygen)
- Many have roots that can filter out salt.
- Many have glands in their leaves that get rid of salt (this often leaves salt crystals on the leaves).
- Mangrove seeds begin growing while still attached to the parent plant. These seedlings even grow roots. Eventually, they drop into the water and float upright until they reach water that is shallow enough for their roots to take hold in the mud.

Take a copy of the Mangrove Tree Visual.

Q Can you use the labels to correctly label the different parts of the mangrove tree?

Take it outside:

(15 minutes+)

Make friends with a tree (or stick)

- If you are able to access an area with several trees nearby you can 'make friends with a tree.'
- 1 One person should blindfold the other and then spin them round a few times.
 - 2 Take them to a tree and get them to explore it really carefully with their hands, remembering the shape and features of the tree.
 - 3 Take them back to where they started. Spin them round a few times again and then remove the blindfold. Can they find 'their' tree?
 - 4 You can then swap over.

If there aren't enough trees nearby, you can carry out the same activity but with sticks:

- 1 Make a pile of sticks in front of you.
- 2 One person should blindfold the other and then get them to pick up one of the sticks and explore it really carefully with their hands, remembering its shape and features.
- 3 Place the stick back in the pile and give them a good mix up.
- 4 Remove the blindfold. Can they find 'their' stick?

Q Does your tree or stick feel special to you? Why?

- If your tree feels special to you, you could continue to visit it over time.
(I still have a special tree I have been visiting since I was a child).
- If your stick feels special to you, you could take it home and tie on other special things you find over time.

Leaf hunt

- Carry out a leaf hunt. See how many of the common tree leaves on our Leaf ID Sheet you can find.

Q Which is your favourite leaf? Why?

My favourite leaf

- 1 Ask your child to find a leaf that they really like. See if they can find a fallen leaf from the plant. If not, and if the plant has lots of leaves, get them to carefully remove a leaf from the plant, being careful not to damage the rest of the plant.
- 2 Ask them to hold their leaf up to the sky and observe it really carefully.
- 3 Ask them to try to store in their memory exactly what their leaf looks like.
- 4 Now challenge them to pick a handful of other leaves in the same way, mix them all up and see if they can find 'their' leaf.

🕒 How did it feel finding your leaf? Why?

- It is likely that by now this leaf will mean something special to them. They might like to take it indoors and press it so that they can keep it:
 - Place the leaves wrapped in newspaper inside a heavy book. Place more books, a weight, or rock on top of the book to add more weight.
 - Keep the book in a dry location. Check the pressing after about one week. Make sure the leaves are drying and not rotting. You will probably need to leave the leaves under the book for another one to two weeks before they are completely dry.

Leaf picture

- Collect leaves as above and use them to produce a picture. You can either do this on the ground (you could also use other natural materials) or stick them down onto a piece of paper (you could draw parts of the picture). See how creative you can be. You can find some great ideas for inspiration here: pinterest.co.uk/pin/108016091036339118



@WWTWorldwide



**Have fun and do share your work to our social media accounts –
we'd absolutely love to see it!**

Structure of a tree



Structure of a tree cut outs

<u>Trunk</u>	<u>Roots</u>	<u>Blossom</u>	<u>Leaves</u>
<u>Branches</u>	Anchor the plant to the ground and soak up water from the soil.	Makes seeds to produce new plants.	Transport water from the trunk to the leaves.
Produce food for the plant.	The main stem of a tree. Carries water from the roots to the branches.		

Mango tree cut outs

The main roots spread out sideways rather than downwards.	Aerial breathing roots (pneumatophores) rise from the main roots to provide them with oxygen.	Prop roots grow down from the trunk to hold the tree in place during storms.	Glands in the leaves get rid of salt.
---	---	--	---------------------------------------

Tree cards cards

- To make the cards, cut the line across the width of your paper then fold each half in half again so you end up with a picture on one side and the information on the other. Stick the two sides together with glue.

Fold



Cut

Oak

Deciduous



Cut

Fold



Beech

Deciduous



Fold



Cut

Silver birch

Deciduous



Cut



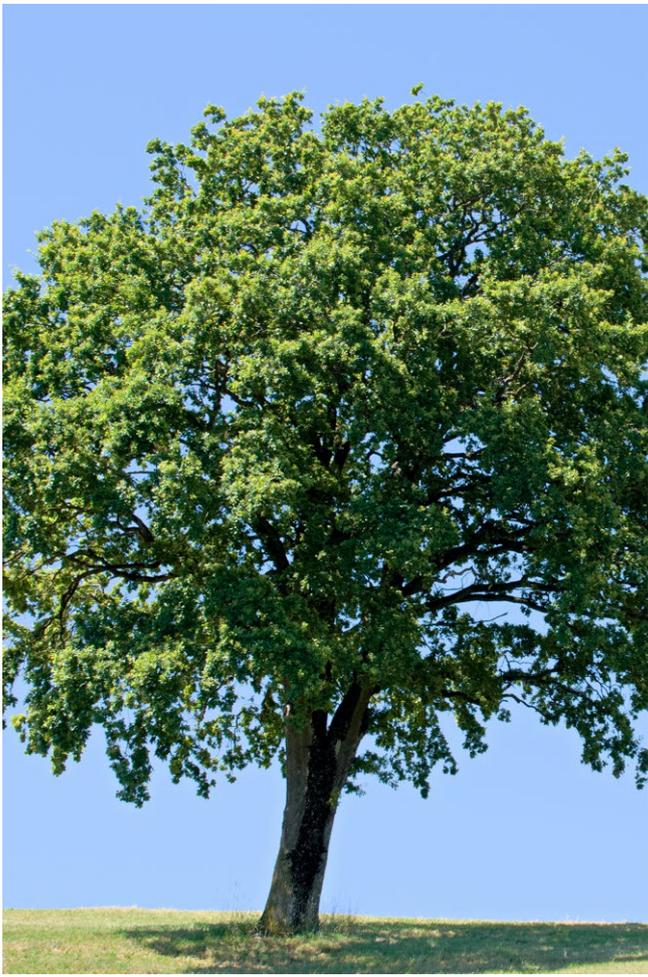
Fold

Horse chestnut

Deciduous



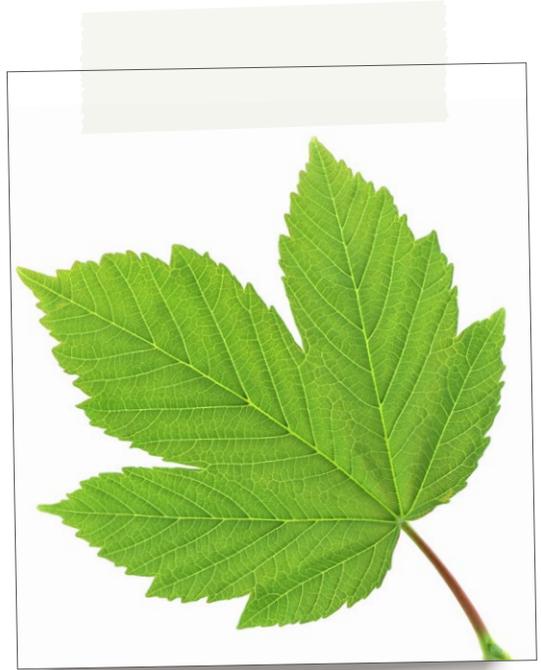
Fold



Cut

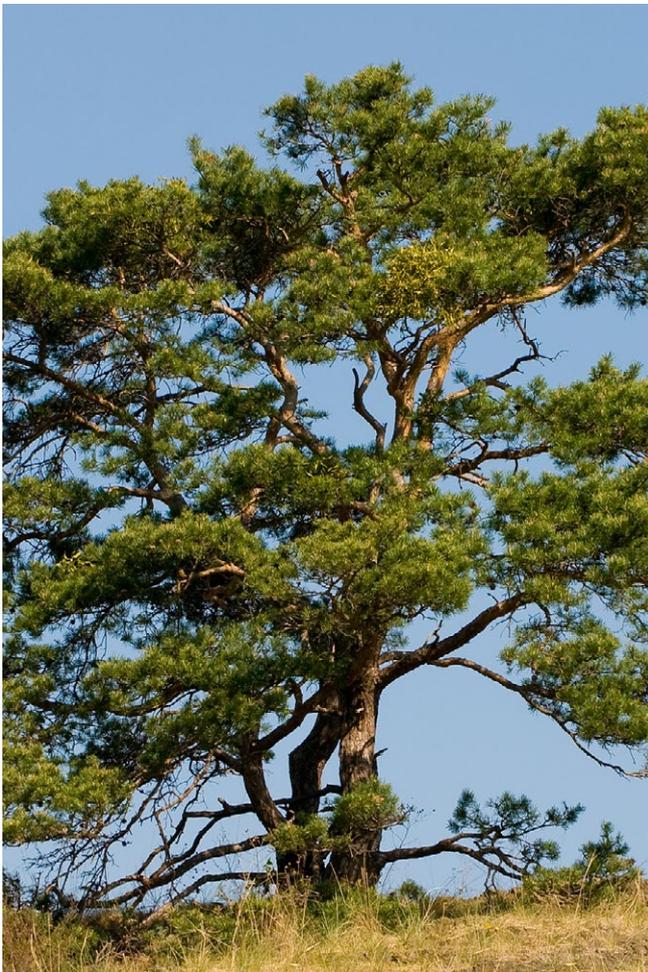
Sycamore

Deciduous



Cut

Fold



Scots pine

Evergreen



Fold



Sitka spruce

Evergreen



Cut

Cut

Fold



Douglas fir

Evergreen

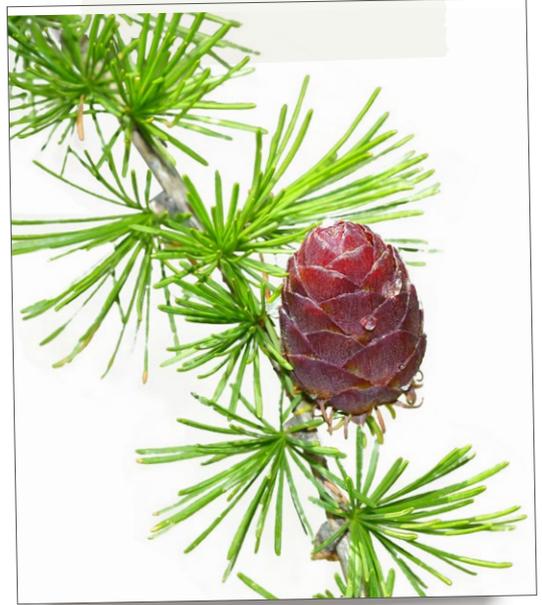


Fold



European larch

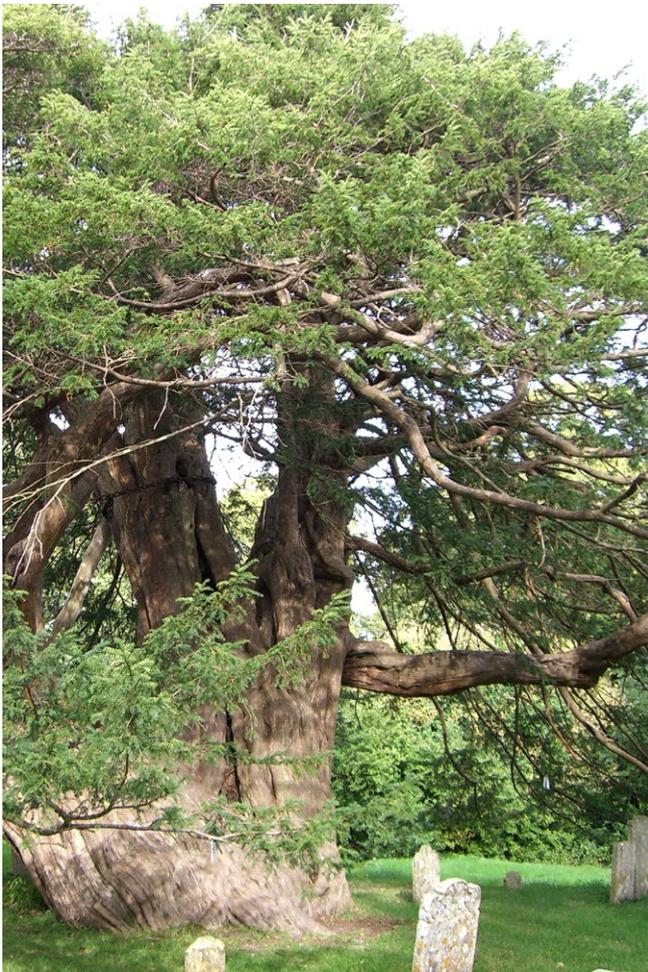
Evergreen



Cut

Cut

Fold



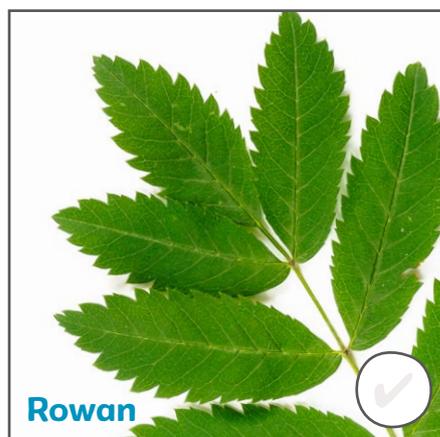
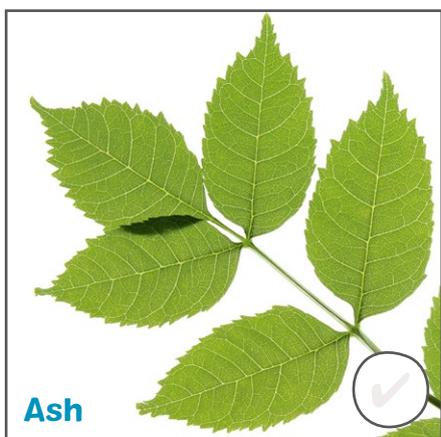
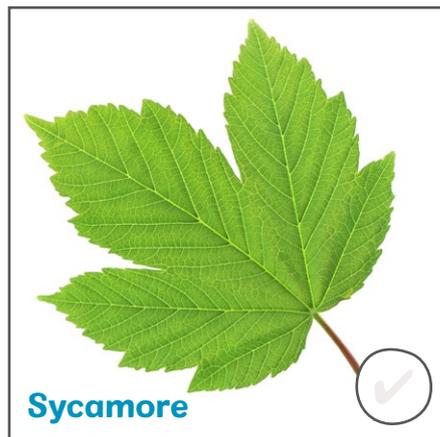
Yew

Evergreen



©WordRidden @ flickr

Leaf ID sheet



Mangrove tree

