



Herts and Middlesex



Wildlife Watch

Tremendous Trees!

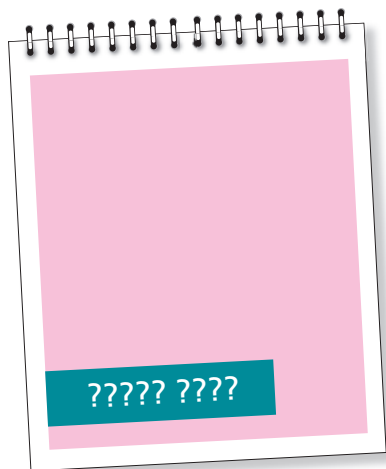
Background information

Trees are hugely important to a wide range of wildlife, providing the habitats that they live in and around and also providing a bounty of food for different species from invertebrates to mammals.

Trees are made up of a number of parts, many of which we can't see, all of which have a vital role to play in the functioning and survival of the tree.

Activity objectives

This activity aims to teach children how a tree functions by acting out the working parts of a tree.



What you will need

1. A large group (preferably at least 12 children).
2. The game uses drama to act out the roles played by each part of the tree. You will need the following to make up the tree.

- **Heartwood** (x1) – provides the strength and support of the tree
- **The taproot** (x1) – anchors the tree in the ground and draws up minerals and water
- **Lateral roots** (x2) – also help anchor the tree and draw up water and nutrients
- **Xylem** (pronounced Zy-lem) (x2) – tubes which carry water up to the branches and the leaves
- **Cambium** (x2) – the growing part of the tree where cells divide (producing xylem on one side and phloem on the other)
- **Phloem** (pronounced Flow-em) (x2) – tubes which carry food made in the leaves to the rest of the tree
- **Bark** (x 2) – the tough outer layer which protects the new wood

Top tip! Work out how many children you want to act out each part of the tree beforehand, as this will vary depending on the size of your group. You can multiply up all the parts of the tree.

Now turn over...



and play the game!





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How to play

The group leader acts as the narrator, choosing the actors to play each part of the tree and explaining what each of them is and what they do.

1. The first person chosen is the **heartwood**. Ask them to stand up straight and tall.

Explain: You are the heartwood. You are the inner core of the tree. Your job is to hold the tree strong and tall. All the other parts of the tree above the ground depend on you to hold them up. You have been around for a long time. At one time you were alive and carried water and food through the thousands of tiny tubes in your wood, but as you grew they clogged up with sticky resin and pith and now you are dead.

2. Ask the heartwood to say “I am tall and strong”

3. The next person is the **taproot**. Ask them to sit with their back to the Heartwood – their legs stretched out in front of them.

Explain: You are the taproot. You are the tree’s anchor. Your job is to get water from deep under the ground. You are one of many taproots that hold this tree tightly to the earth and keep it standing during storms.

4. The next actors are the **lateral roots** (ideally with long hair!). Ask them if they can lie down on their backs with their feet up against the Heartwood.

Explain: You are the lateral roots. There are hundreds of you growing out from the

base of the trunk helping to keep the tree upright. Each root has tiny hairs (ask the roots to spread out their hair). You have thousands of these hairs to absorb water and nutrients from the soil.

5. Ask the taproot and lateral roots to make “slurping” noises as if they’re sucking up water from the soil.

6. The next actors are the **xylem**. Ask them to form a circle around the heartwood, facing inwards and holding hands. Be careful not to step on the lateral roots!

Explain: You are the Xylem. Your job is to draw water from the roots up to the highest branches and leaves. You are the most efficient pump in the world. You move hundreds of litres of water a day, sometimes at speeds of up to 100 miles an hour!

7. Ask the xylem to go “Wheeee...!” and throw their arms up into the air. Ask the roots to slurp again and then the xylem to go “Wheeee...!” drawing the water up.

8. The next actors are the **cambium** and the **phloem**. Ask them to form a circle around the xylem, facing outwards.

Explain: You are the cambium and the phloem. The cambium is the growing part of the tree. Every year you grow a new layer of xylem on the inside of the tree and a new layer of phloem on the outside. Ask them to say “We divide and grow”.

Explain: Phloem, your job is to carry the food made in the leaves around the tree so it can grow. Ask them to start with their hands in the air then lower them





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down towards the ground as they bend their knees and say “Whoooo...,” in a long descending note.

9. Ask everyone to act their parts – the heartwood to say “I am tall and strong”, the roots to ‘slurp,’ the xylem to say “Wheeee...!”, the cambium to say “we divide and grow” and the phloem to go “Whoooo...”.

10. The final actors are the Bark. Ask them to circle the rest of the group facing outwards.

Explain: You are the bark. Your job is to protect the tree. You protect the living parts of the tree from drying out and damage. You also protect it from insects, pests and fungi.

11. Ask the bark actors to adopt a stance as if they’re protecting the tree – barking as they do so!

12. With all the parts of the tree in place

they can all work together to act out the functions of the tree at the same time:

- Heartwood stands tall and strong, saying “I am tall and strong”
- Roots anchor themselves firmly and ‘slurp’
- Xylem goes “Wheeee...!”
- Cambium says “We divide and grow”
- Phloem goes “Wooooo...”
- Bark defends them all by barking!

13. The group leader could pretend to be different things “attacking” the tree such as a woodpecker or a chainsaw, which the tree has to defend itself from.

14. The group leader could also become the wind, initiating a big storm that causes the whole tree to sway back and forth before falling over! The leader could then tap three or four children on the shoulder to be acorns who then grow up from the ground to become new trees!

Information for Teachers

National Curriculum Links

Y1 POS Identify and describe the basic structure of a variety of common flowering plants, including trees.

Y2 POS Explore and compare the differences between things that are living, things that are dead and things that have never been alive.

Y3 POS Identify the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. Explore the requirements of plants for life and growth (air, light, water, nutrients from soils and room to grow) and how they vary from plant to plant. Investigate the way in which water is transported within plants.



Follow up

1. Discuss how similar this structure is to other plants.
2. Look at a freshly cut tree stump to see if you can identify the layers.
(find link for this?)





Tremendous Trees!

Hornbeam vs. Beech

Hornbeam trees can be confused with beech trees, particularly as they are often found growing together. They're easy to tell apart with a little help!

European hornbeam

Carpinus betulus



European beech

Fagus sylvatica

Bark Grey stripey bark. Deeply fluted twisted trunks.



Bark Grey smooth bark. Straight trunks, not fluted.

Seeds Hornbeam seeds have wings! Carried away by the wind. Small nuts 3-6mm long. Loved by hawfinches and eaten by mice, voles and birds.



Seeds Distinctive larger nuts. Outer cases have spines to get tangled up in animal fur and carried away. A favourite food of bramblings (a type of finch) in autumn.

Leaves Sharply serrated, double-toothed edges. Deep furrowed veins which are hairy on underside. The leaves were traditionally used to stop bleeding and heal wounds.



Leaves Smooth edges with fine hairs. Young leaves can be used to make a liqueur called beech leaf noyau.

