5 Wild woods!

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Theme: trees

CHAPTER LINK: CHAPTER 3 – CARING FOR TREES AND PLANTS

Aim: to discover more about trees and their role in sustaining our planet and how they are used to illustrate Biblical truths about God's kingdom.

Science advisor: Graham Hartland

Messy Church values:

- Christ-centred - discovering more about God the creator and sustainer through the parable of the mustard seed (Luke 13:18–19).

- Hospitality – exploring the way that trees provide a home to many other life forms in the natural world and their role in 'hosting' and sustaining life on earth.

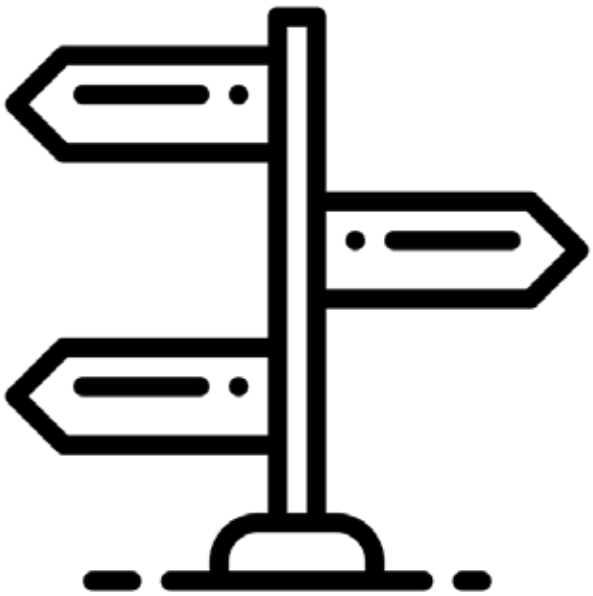
- Celebration – the joy of life expressed by trees.

- Creativity – exploring the creativity and diversity in trees and using their resources creatively.

- All-age – all generations exploring together, celebrating how time is marked in the growth of trees.

Section 1 On the move

You could start off by watching Graham Hartland, a scientist who knows a lot about trees and about God in this video (youtu.be/nWaEd1QqUsM).



1 A tree

- Pause by a tree.

- Ask the group what different perspectives they get as they look at the tree; far away, up close, down low looking up, up high looking down? How does our perspective change as we look from different angles?

- Does anyone know what type of tree this is? How can you tell?

- Give everyone a few minutes to find a really good stick on the ground. What makes a stick a good stick? Take a few minutes to compare the sticks, perhaps finding the shortest, longest, straightest, wiggliest, or using ideas from the group for a definition of 'best'.

- Isaiah in the Bible describes trees in a poetic way: 'You will go out in joy and be led forth in peace; the mountains and hills will burst into song before you, and all the trees of the field will clap their hands' (Isaiah 55:12). What on earth does Isaiah mean? Is your tree 'clapping its hands' in any way?

- Distribute lengths of string, wool or twine and ask everyone to tie their string on to one end of the stick. You can now use the stick as a 'journey stick' and as you go for your walk today, wrap the string around the stick, attaching any small objects you find along the way to the stick as a record of your journey.

- Tell the story of how Zacchaeus climbed into a tree so that he could see Jesus as he walked past. He didn't expect Jesus to see him. That meeting changed Zacchaeus' perspective entirely and was a life-changing moment in his journey. What has our journey been like up to this point? Might we want to take a peek at Jesus without anyone noticing? How would we feel if Jesus spotted us?

Ask: what questions do you have about this?

Suggestions for specialist input: a tree surgeon or pro-tree climber.

2 An orchard/vineyard/fruit tree (alternatively a greengrocer or market stall if no fruit trees are available)

- Take a look at the fruit trees, can you tell what fruit grows here?

- Ask what stage of life are they at? What season are we in?

- What does it take for these trees to be able to bear fruit? Talk about the life cycle of these trees, the role of pollinators and the care needed to ensure that the trees are fruitful.

- If appropriate, taste some of the fruit together and enjoy the flavours. (You could provide fruit like that grown on these trees if it's not possible to taste the fruits of these trees.)

- Talk about the way that the Bible uses fruit as an illustration of what the Holy Spirit grows in us, and talk about this fruit; love, joy, peace, patience, kindness, goodness, faithfulness, gentleness and self-control. Pick one of these as an example. How well is it growing in our lives? What stage of life might this fruit be at? How do you see it growing in other people in the group?

Ask: what questions do you have about this?

Suggestions for specialist input: a gardener.

3 A woodland/a forest

- As you enter the woodland, invite everyone to take five minutes to find a space where you can be still and quiet, all by yourself or with one other person, and just watch and listen. (Set the boundaries of how far people can go.) When you all come back together, ask what everyone noticed?

- What different trees are growing here? Can you identify any trees? How can you tell what they are?

- Can you see any signs that these trees are used as habitats for birds, insects or other living things? Without disturbing habitats, can you use some of the bigger branches to build a simple shelter together?

- Are there signs that this woodland is managed or is it left to grow wild? What does this mean for the trees here? What does it mean for the eco-system of the forest?

- Describe how the Bible describes forests many times, often as a place of danger where wild animals roam. Lots of other stories warn of dangers in the deep, dark woods. Sometimes they are described as a place of fortress to protect or to be overcome. In the book of Psalms it says, 'the trees of the forest will sing for joy' (Psalm 96:12), as all creation praises God. How do we feel about the forest? What does this woodland show us about God the creator?

Ask: what questions do you have about this?

Suggestions for specialist input: a forester or tree surgeon.

4 A shed/a fence

- Pause beside a wooden shed or fence.

- Can you trace the grain with your fingers? Where are the knots? Do you know how these are formed? What story do they tell us?

- Take a look at how the fence or shed has been constructed; if you are able to provide a plank of wood and some nails, invite participants to have a go at hammering the nail into the wood. How does it feel to force it through the wood?

- What makes wood such a good material for this task? Talk about some of the properties of wood and how some timbers are better for some tasks than others.

- Tell the story of how Joseph was a carpenter. Wonder about some of the things he may have made in his workshop. Jesus would have learnt these skills from Joseph and earned a living by doing so before he began teaching people about God. Sometimes people explain that Jesus died on a tree; he was crucified on a cross made of wood. Wonder at what it means that something so simple played such a crucial role in God's story and what this means to us.

Ask: what questions do you have about this?

Suggestions for specialist input: a carpenter, 'handyman' or DIY-er.

5 A nursery/garden centre (or provide a plant pot and seeds)

- Take a look at some very young trees, perhaps at a nursery or garden centre, or perhaps in someone's garden.

- Can you find a tree that is shorter than you? How does it feel to know that you are taller than a tree!?

- If no saplings are available, you could provide a plant pot, compost and a seed and plant it together.

- How incredible is it that the tall trees we see all start life as something so tiny? What potential those seeds hold! What must a tree endure before it grows into a mature, fully grown tree?

- Share the parable of the mustard seed. Explain that Jesus told a story, that the kingdom of God is like a tiny mustard seed which grows into a tree which makes a home for the birds. What do these saplings, and the great big trees that we have seen, show us about the kingdom of God?

Ask: what questions do you have about this?

Suggestions for specialist input: a gardener.

6 Beside water such as a stream, large pond or lake

- Take a moment to sit beside the water. How does it feel to be here? Can you rest in the quiet?

- Can you find a tree growing beside the water? Why is this a good place for it to grow?

- Look at the leaves of the tree, what do you notice about them?

- Can you see the roots of the tree? What jobs do they do? What else does the tree need to grow well?

- Share the story from Psalm 1, which describes those who listen to God as being like trees planted along the riverbank, which always bear fruit, whose leaves remain healthy and which grow well. What does it mean for us to have roots which go deeply into God? How would this enable us to grow well?

Ask: what questions do you have about this?

Suggestions for specialist input: a gardener.

Celebration and prayer

Invite everyone to share one new thing they've learned today and one thing they're going to do this week that's different because of what you've done today. Remember to ask about how you all got on next time you meet.

Prayer beside a tree.

What has made you think today? What would you like to pray about? Like the trees that we have seen, how are we growing in God? Perhaps we would like to commit to putting our roots down deeper into God. Perhaps we would like to stretch out in praise of God. Or perhaps we would like to ask the Holy Spirit to grow his fruit in our lives? You might like to take a moment to take a stance or perform a simple action as you ask God to help you grow this in your life, or perhaps stand beside the appropriate part of the tree as you silently commit this to God.

As you leave

Invite everyone to talk on your way home about where you saw God at work today.

Section 2 Adventure area in one spot

Meet at a woodland, forest or a copse. Issue the relevant health and safety warnings needed for your situation.

- When you enter the woodland, invite everyone to find a space where they can sit or stand and take a moment to rest and relax in the forest. Encourage participants to breathe slowly and deeply and make themselves really still. How does it make them feel? Some may feel compelled to climb the trees, to run between them, to feel the crunch of sticks under their feet, how can we explore the trees with all our senses?

- Invite people to take a printed copy of the parable of the mustard seed (Mark 4:30–32) and explore the area to find the best spot to read the story together. Ask everyone to take a look for the smallest 'seed' you can find in the forest and the tallest tree. Look at some of the different stages of growth in the trees. Can you find any nests in the trees above? Collect sticks, without disturbing any habitats, to build 'nests' together on the ground. What do these nests symbolise for us?

- Use a selection of the activities in section 3 to explore the properties of trees.

- Explore what biodiversity there is in the different levels of the woodland, looking closely down low at your feet, in the bark of the trees, and up high in the branches and sky above. What can you hear?

- Survey any pollution and litter and reflect on what dangers these items create for wildlife.

- Do a litter-pick before you leave.

Wonder:

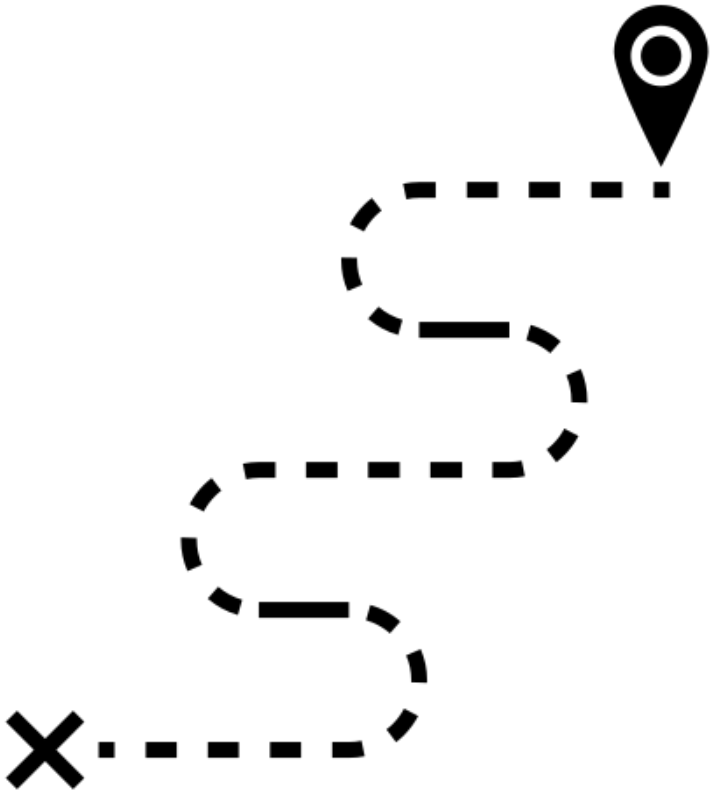
- How do you feel as you spend time in this woodland? Why do you think it makes you feel this way?

- We are dependent on trees for the role they play in sustaining the atmosphere. What does this tell us about the creator God and his plan for the earth? What role do we need to play in maintaining this balance?

- Where do you see diversity in the wildlife here in the forest? How are the different species dependent upon each other and so maintain the eco-system of the forest?

- Where do you see trees that have grown well? What clues can you see about the life of the trees? What about the way we grow? What does it mean for us to grow healthily? What things may impact our growth? How do we overcome these, or grow through them? What impression do they leave on our lives?

Suggestions for specialist input: forester, tree surgeon, woodland ranger or environmental scientist.



Section 3 Activities to explore the properties of trees

1 It's a home

You'll need: a tree, hedge or bushes; magnifying glass; insect guidebook or sheets.

This has little risk of injury but do check for damaged branches of trees and for sharp thorns in bushes. Hawthorns, acacia and berberis bushes, as well as roses, have quite sharp thorns.

What to do: take a closer look along the branches of a tree, hedge or bush, or carefully look under sticks or bark which has fallen on the ground. What do you find living there? Can you identify any minibeasts? The Field Studies Council produce a set of identification sheets (**field-studies-council.org/shop/publications/garden-safari**) which will help with this. Remember that you might also find fungi as well as many-legged beasties.

Big thinking: each tree or hedge has its own group of animals living in it. Some trees, like oaks, have a greater range of organisms living in them than others like fir or pine trees. This is because oaks have leaves which are easier to eat, whereas pine needles contain resin which makes them bitter to eat. This 'ease of eating' means that the trees can be used not just for living but also consuming. You might therefore find fewer creatures living in pine woodland compared to oak woodland. However, everywhere has spiders!

Big question: what makes this tree a good home for these creatures? In Matthew 8:20, Jesus said that unlike the foxes of the ground and the birds of the air, he had no physical home here on earth, while Ephesians 3:17 says that Christ will make his home in our hearts as we trust in him. What does it mean for us to make room for Jesus to make his home in our lives?

2 It's for creating

You'll need: fresh cut wooden sticks (green wood); whittling knives.

This activity is unsuitable for children under the age of ten and for those with limited manual dexterity. A risk assessment is needed as whittling knives are very sharp; lowering the risk of cutting, nicking and slicing is really important, and this activity is unsuitable for children under ten and for those with limited manual dexterity. The group leader will need to look some instructions before the session to see how to do this safely. Sharp knives make less accidents. Do not use a potato peeler.

What to do: demonstrate how to safely use the knives to whittle the wood and invite participants to choose a stick and have a go, carefully peeling away the bark and working the wood. Why have we carved these shapes? What do they represent? Can we turn our shaped wood into a story?

Big thinking: different woods have different abilities to be carved; it is worth getting some advice on which wood to whittle for best effect. As a material, wood is resilient and ubiquitous, and master carpenters will choose different trees for different jobs. From keels to bows, each part of a tree has different properties in terms of flexibility, strength, toughness and compressibility. In carving the wood, we can imagine and create something by removing bits of the wood.

Big question: Jesus would have grown up watching Joseph working as a carpenter and learnt the skills from him, before being a carpenter himself. I wonder what they would have made. It was on a cross made from wood where Jesus was crucified, and the wood of a tree played a central role in God's story. How do we respond to that?

3 It's a fuel

You'll need: a fire pit; wood to burn; matches or fire source.

Risk assess this carefully. What is under the firepit? How might you put out the fire if it gets too big? Who will look after the fire whilst the leader is talking? Who will keep small hands away from the metal sides? There is a high risk of injury from burns which might require hospitalisation as well as high risk of damage if the fire is not extinguished thoroughly.

What to do: start the fire burning and invite people to come and sit safely for a while near the fire, adding more wood to the fire as needed. As you sit, listen to the sounds the fire makes, watch the flames and smell the aroma.

Big thinking: wood is a store of chemical energy as it is largely made of carbohydrates, containing carbon and hydrogen. Both of these elements react with the oxygen in the air to form carbon dioxide and water ('dihydrogen monoxide', H2O) as well as release energy in the forms of heat, light and a little sound. This energy-releasing reaction is what folk have used to heat homes, to cook food, to see to read and to extract metals from ores. And it only takes a little flame from a match to get it started.

? **Big question:** how well does wood burn? Have you ever seen footage of forest fires burning? James 3:5 warns that the tongue can be like a tiny spark that sets a great forest on fire. How can we control our tongues? Perhaps we need to say sorry for some of the times when we have let our tongues get out of control.

4 It bears fruit

You'll need: selection of fruits; knives; chopping boards; water and soap for handwashing.

What to do: provide a selection of different tree-grown fruits like plums, apples, kumquats, avocado, durian, fig, mango, cherry, pear, ugli fruit. Talk about the different ways that these fruits are grown and harvested. Invite participants to try different fruits. How would you describe them? Which ones are your favourites? Are there any that you don't like? Which ones have you never tried before?

Big Thinking: different trees are adapted to grow in different places; they have provided food for other organisms for millions of years before humans evolved on earth. Careful management of fruit trees, by pruning off unwanted growth or diseased branches, helps them to have bigger crops. Interestingly, too much pruning shocks some trees, like mulberries, into growing too fast and exhausting itself.

? **Big questions:** the Bible tells us that the Holy Spirit grows fruit in our lives, an outworking of the Holy Spirit that everyone can see. Galatians 5:22–23 lists these as love, joy, peace, patience, kindness, goodness, faithfulness, gentleness and self-control. What might we have seen the Holy Spirit growing in our lives? What might we want the Holy Spirit to grow in our lives? We can ask the Holy Spirit to do this, but bearing fruit takes 'work' and there is a process for us to go through to reach the fruitful stage.

5 It grows over time

You'll need: a tree stump or tree trunk slices.

What to do: set out the tree trunk slices or gather around a tree stump. Explain that the rings in the trunk represent each year of growth for the tree. Challenge participants to count the rings and try to work out how old the tree was. Show them the thinner and wider rings and talk about the way that the circumstances around the tree at that time affect the way it grows, those rings tell a story. What about us? How do we grow over time? Take a look at some members of the group of different ages, how do we change over time?

Big thinking: the tree rings are made of tiny cells. These cells are called xylem cells and they form the tubes which carry water from the root to the leaves. The cells grow wide with fast growth and narrow with slow growth. Thus, wide rings indicate warm moist conditions; narrow rings reflect cold, extremely dry or extremely wet conditions. These rings are most obvious in trees from temperate latitudes; a few tropical trees can also produce rings if there are distinct rainy and dry seasons. Those in rainforests grow evenly throughout the year and thus have less obvious growth rings.

Big question: the Bible only gives us a tiny glimpse of Jesus' childhood. Luke 2:52 says: 'Jesus grew in wisdom and stature, and in favour with God and man.' As we grow physically, we also grow in other ways; emotionally, socially, in wisdom, spiritually too? How are we growing in our relationship with God? What evidence is there of our growth? Can we point to times of fast or slow growth, or has our growth been more even? How would we like this to grow more?

6 It sustains our life

You'll need: leaves freshly picked from a tree submerged in a clear container of water several hours before needed; sunshine; magnifying glasses. Alternatively, some pond weed will give the same result and be easier to see!

What to do: this experiment takes more time than you will have available during the session, so you could involve participants in setting it up, whilst also having one you prepared earlier to show them the effect. Submerge a freshly picked leaf in a clear container of water and leave it in a sunny spot. When it is ready, you will see tiny bubbles appear around the leaf, mainly on the underside. You can provide a magnifying glass for participants to look more closely.

Big thinking: the tiny bubbles are mainly oxygen gas made during photosynthesis. This chemical process uses carbon dioxide and water. The atoms making up these substances are taken off each other and reconstructed into carbohydrates and oxygen gas, just like reusing Lego to make new models. The energy to do this complicated process comes from light, hence the 'photo' in photosynthesis. We can use this oxygen to respire – releasing energy stored in our food – and so keeps us alive. Without plants, there would be no oxygen in the atmosphere; instead, it would be largely carbon dioxide and the world would be much hotter and lifeless.

? **Big question:** isn't it incredible that God designed our planet so that plants, animals, fungi and bacteria could all coexist? What other balances are there between different organisms? Carbon dioxide is also released when we burn fuels and traps heat energy in the atmosphere. This is what is driving climate change, as there are too few plants to absorb this excess carbon dioxide. What impact do we have on this imbalance? What can we do about that?

7 It protects itself

You'll need: trees or tree bark; clay or paper; wax crayons

What to do: provide some pieces of bark or invite participants to go and choose a tree. Use a lump of clay to make a print of the bark or use the paper and wax crayons to create a rubbing. Take a close look at the impression you are left with; what patterns can you see?

Big thinking: bark protects the tree. Different trees have different types of bark, depending on their circumstances. Eucalyptus trees have oily bark, whereas Redwood trees have bark that can be as thick as 30 cm. In both situations, the bark protects the trees from fire damage. In some trees, the bark is so ridged that small creatures use it as a home.

Big question: how does the bark protect the tree? In some ways it is like a shield, covering the rest of the plant. Psalm 28:7 says, 'God is my shield and my strength'. Where might we have experienced God protecting us like a shield? Where might we want to ask God to protect us?

8 It can be climbed

You'll need: tape measure; trees to climb.

Risk assess this very carefully. Check the trees for loose branches, rotten areas and sharp bits. Falling off a tree carries a high risk of injury, so this is not suitable for under 13s and those of limited mobility.

What to do: challenge (sensitively) participants to choose a tree to climb and see who can safely climb the highest. For those who would prefer to keep their feet on the ground, challenge them to look for the tallest tree and estimate its height. If you have small children, then they might (be helped to) 'climb' a parent so that they are high up and don't feel left out. Emailing **info@goodleaf.co.uk** (phone 0333 800 1188) can result in accessible tree climbing for those less mobile. If there are no climbable trees around, then getting to any high point is good: tops of flats, roof gardens, balconies, hills, mountains, cherry pickers.

Big thinking: maths skills here: if it's a sunny day then the height of the tree is (your height in metres) x (length of the tree's shadow) ÷ (length of your shadow). As long as you do all the measurements in feet – or metres – then you'll get the right answer. This is all about proportionality, as well as being calm! More information here (wikihow.com/Measure-the-Height-of-a-Tree).

Climbing involves distance perception, as well as the transfer of the chemical energy stored in your cells to kinetic energy in your muscles, propelling your body up a tree. Our 'grasping hands and eagle eyes' are thanks to our ape ancestors who enjoyed being up trees to get the bare necessities of life.

? **Big question:** what's the highest place you've ever been to? How high can you climb in the trees? Psalm 103:11 says that God's love for us is as high as the heavens are above the earth! That's so high (current science says around 13,500,000,000 light years) that we can't even measure God's love for us! How does it feel to know that that's how loved we are?

9 It can communicate

You'll need: a group of people, perhaps gathered around a tree.

What to do: gather participants in a circle and invite them to hold hands together. On the signal, the first player squeezes the hand of the person to the right, who then squeezes the hand of the next person and so on, passing the signal around the circle. You could time how quickly they can pass the squeeze around, perhaps running the game competitively.

Big thinking: whilst trees can't talk, they are linked together. Something that science has known for a while is that tiny fungal strands link trees to the soil and to each other. We have found that sugars can pass from tree to tree along this 'wood wide web' as well as to the fungi, who return the favour by giving the trees various minerals from the soil. This example of different species working together is called 'mutualism' and has many examples in the natural world: coral and algae, anemones and hermit crabs, humans and our gut bacteria being three such examples.

Big question: how do we communicate what we are going through with one another? How do we communicate our feelings? 1 Corinthians 12 tells us that we are like one big body with all different parts dependent on each other and that when one of us suffers we all share that together and when one of us succeeds we all share that celebration. How can we continue to develop our relationships with each other?

10 It can be a shelter

Risk assessment is low as long as there are sufficient people of sufficient strength. Note that in some places the wood is the property of the landowner and you may need permission to use the branches. Also note that in some woods, the rangers have deliberately left piles of cut wood as habitats for various animals and it would be considerably bad form to shift these around.

You'll need: large branches or logs (or smaller sticks if branches and logs are unavailable).

What to do: challenge the group to work together to build a den, starting with large branches, before infilling with smaller sticks or leaves. When it is ready you could test out its effectiveness; how many people can you fit inside? Is it waterproof? Test out with a watering can of water. If this is not possible, you could challenge the group to build a smaller den for a teddy bear, perhaps. Explain that wood is often used as a building material and can be used to build more permanent structures too. Inspiration can come from here (offgridsurvival.com/forestshelter) which is a video of Ray Mears building a shelter. If there are no sticks or branches around then lollipop sticks can be used to create smaller shelters for small toys.

Big thinking: shelter, fire and water are the three priorities for survival. Most of our energy is used to keep us warm which means, as mammals, we need to eat significantly more than our reptile cousins. Shelter reduces the energy loss, which means we can stay warm for longer. Our coats and clothes are effectively portable shelters, allowing us to stay out for longer in cold weathers. These act as insulators, reducing the heat loss from our body.

? **Big question:** there are lots of times in the Bible when it talks about God being like a shelter, how he protects us, provides shade, even hides us from danger. How do you think God is like a shelter? When might we need to be in this shelter?

11 Colourful leaves

This is a good for the autumn or if you have leaves which are not just green but brown, red, yellow or orange. Risk assessment is low as long as there are no naked flames nearby as alcohol and nail varnish remover are flammable. Scissors are sharp, so small hands or less dextrous folk might need help.

You'll need: some leaves; scissors; glass jars or pottery mugs; nail varnish remover.

What to do: the set up will need a day of preparation. The morning before your activity you will need a pile of leaves. Separate them according to colour. Chop them up finely using scissors and place them in glass jars or pottery mugs. Cover the leaves with rubbing alcohol or nail varnish remover. If you place them in plastic the alcohol will dissolve it! Crush the leaves using a spoon until the liquid goes a deep colour.

Cover the containers with a tight lid and leave them to soak **for at least eight hours**. Then cut strips of coffee filter paper or blotting paper, about twice the length of the container. Place one end of the strip in the coloured liquid, the other outside and **leave for four hours**. You will see each colour of leaves has a different blend of individual colours.

For a no prep, alternative, can you collect a rainbow of leaves in your hand?

Big thinking: the colours in leaves are actually different chemicals. These dissolve differently in the solvents (alcohol or nail varnish remover). They then move at different speeds through the coffee filter paper, which makes them easy to see. This separation technique is called chromatography and is used in forensic science to determine the pigments in ink and paint. Green is a pigment called chlorophyll; yellow is the pigment xanthophyll; orange comes from carotenoids, like carrots; reds are anthocyanins, and brown is just 'dead'.

? **Big question:** people are like leaves. We might think we know them on the surface, but they might have all sorts of talents, problems, difficulties or skills. We will only understand these when we get to know them by spending time with them. God is like this too: we might think we know God, but we might be surprised what happens if we spend more time with him.

12 What do I hear?

You'll need: mobile phones; paper; pens; clipboards or similar; something to sit on; giant marshmallows (these are in most large supermarkets, and – since these are made using gelatin – a quick search on the internet will also reveal supplies of vegan ones).

What to do: stand in a forest. Give each participant a piece of paper, a pencil/pen and a clipboard. Turn the phones to silent and then record the sounds around. Sit down, place the phones on the ground – leaving them recording – and ask the participants to close their eyes. Do this for five minutes. At the end of five minutes, stop the phones recording and save the file. Then get the participants to chew the marshmallow whilst they write down what they heard. Next, chewing a second marshmallow, play back the saved recorded sound from a volunteer. Get the participants to add to their list of things they heard. Finally, share the lists of items with each other: what did we all hear? Did anyone hear anything different from anyone else? Did we hear things second time round that we missed first time round? How many different types of bird song did you hear?

Some folk might find five minutes hard, so take a view and judge according to your group. Our concentration depends on a variety of things: absence of external noise can give rise to internal noise, so ensure that people are close to people they know in case silence triggers unhelpful memories.

Big thinking: we can only hear if we are focused on listening. Talking stops us hearing what is around us as we tend to listen to our own voice rather than the voice of others. This focus is a form of mindfulness and many folk find this calming. 'Being' without the need to 'do' is important psychologically.

? **Big question:** why was it important to chew the marshmallows while we wrote things down? What would have happened if we hadn't? Why did we have to write down what we heard? What was it like to be silent for that length of time? Some religious people recommend silence as a way to hear God. Why do you think this is so? In Luke 10:38–42 we read of Jesus visiting the house of Mary and Martha. Whilst Martha might have a point in terms of getting on with the obvious tasks in hand, sometimes Mary has the better option of making the most of Jesus whilst he is close. What might God be challenging you to do now?

13 What's in leaves?

Risk assessment is high – boiling water can scald and alcohol is flammable. You must have no naked flames like candles near this experiment otherwise there is the risk of burns. Iodine solution is minimal risk but will stain clothes permanently so handle with care. 12- to 13-year-olds will be fine with Iodine, but younger children will need supervision. Do not drink the iodine and do not buy the equipment from unknown suppliers hence the need to talk to your local school.

You'll need: a mug; kettle of boiling water; alcohol; forceps; white bathroom tile; iodine solution; plastic petri dishes and boiling tubes from a friendly school science department. You will also need some leaves off trees.

You will need to do this in spring or summer in temperate zones; the leaves will die in autumn and winter! Tropical areas will be able to do this any time. Do not use pine or fir trees to do this as they are too hard.

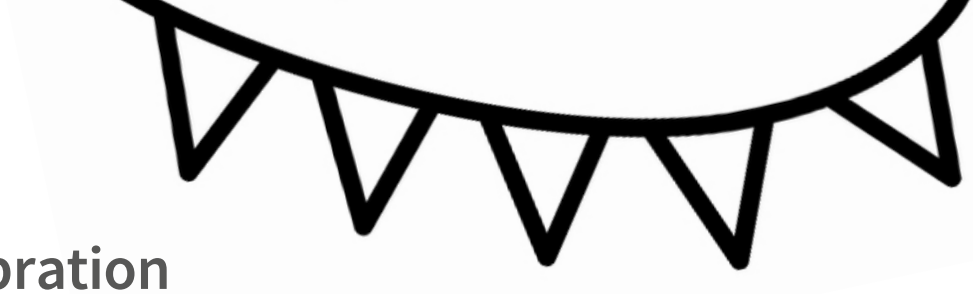
What to do: pour the water into a mug and place the leaves in there for 30 seconds. This kills the leaves and makes them softer. Then put one leaf into a boiling tube, cover the leaf with the alcohol and put the tube containing the leaf into the mug of hot water for ten minutes. Whilst it's in the alcohol, the leaf will decolourise the chlorophyll pigment and go white. After ten minutes, use the forceps to extract the leaf. It will be dehydrated so swish it in the warm water to rehydrate it. Put the petri dish on to the white bathroom tile. Spread the leaf out on the petri dish and cover it with iodine solution. The iodine solution will go black if there is any starch there.

Big thinking: humans store their excess food as fat in bellies or bums; trees store theirs as starch in their leaves. This starch is formed from the carbohydrate made during photosynthesis. Photosynthesis is when light energy is used to break apart and reform the atoms in carbon dioxide and water into oxygen and glucose. Tens of thousands (yes really) of glucose molecules join together to create one molecule of starch, which is stored inside the many starch grains in each cell. The iodine atoms join together and can absorb electrons to form polyiodide ions. Parts of the starch give more electrons, light is absorbed in a different way to usual, and the colour of the iodine changes from brown to blue-black. This is called a 'charge-transfer complex' and is one way we see different items in colours.

? **Big question:** Christians still have brains. Matthew 22:37 (like Luke 10:27) talks about loving God with our heart, soul and mind. How can we love God with our heart? How do we love God with our soul (what is a soul anyway? How do we know we have one?) How do we love God with our mind? What does this tell us about the role of education? And what is education anyway? How can we help each other to learn more about how God is active in the world?

Bigger activities

- Plant trees
- Sponsor a section of woodland
- Take a hike through a forest
- Help harvest the crops on a fruit farm
- Build wooden furniture or a wooden structure together
- Organise a trip to a tree-climbing centre



Section 4 Celebration

Gather everyone together and explain that trees can be found in many places in the Bible. There's a tree right at the beginning in the beautiful garden that God created which gave human beings the choice between doing things their way or God's way. There's a tree right at the end in the book of Revelation, showing the promise of new life, and of healing, that God gives. There is a tree in the centre of God's story; the cross where Jesus died is often called 'a tree.'

Tell the story of the parable of the mustard seed (Luke 13:18-19), perhaps using available props to help tell the story, or inviting participants to act this out together, coming together to find a 'home' in gathered twos and threes. Ask some wondering questions for participants to reflect: I wonder what you liked about this story? I wonder what it means for the kingdom of God to grow like a mustard seed? I wonder what it means to find a home in this kingdom?

Song suggestions:

- 'Let's make God happy/I wanna be a blooming tree' by Doug Horley

- 'How he loves us' by David Crowder.

Section 5 Eating together

Pick an idea from the Messy take-out menu or another source for outdoor meals, snacks and treats.

Fruit kebabs (on a wooden stick), fruit smoothies or dips with wooden sticks to spear what you're dipping, anything cooked over a wood fire, bread dough wrapped round a stick and baked in hot ashes all go well with the theme and provide a talking point.