Pack

earthwatch
EUROPE

Hello there,

Welcome to the Tiny Forest Tree Survey, we're thrilled to have you onboard! Thank you for signing up to identify and measure trees at your Tiny Forest this October. You will be helping us understand how different species in the Tiny Forest grow and store carbon over time. We will then be able to learn how your Tiny Forest benefits the environment and your community.

IN THIS PACK, YOU WILL FIND:

- [ ] **Introduction to the Tiny Forest Tree Survey**
- [ ] **Survey instructions**
- [ ] **Survey sheet**
- [ ] **Autumn tree identification guide**
- [ ] **Autumn activities**
- [ ] **Autumn recipes**
- [ ] **Colouring sheets**

We hope you have a tree-mendous time! We'd love to hear about your Tiny Forest Tree Survey adventures, let us know by sharing on social media with **#TFTreeSurvey** and **#TinyForest**. Or you can email us on **hello@earthwatch.org.uk**.

CONNECT WITH NATURE AND DISCOVER THE TINY FOREST IN YOUR COMMUNITY!

The Tiny Forest Tree Survey is taking place this October. We're calling on everyone who lives near a Tiny Forest to get involved and help us understand how Tiny Forests grow.

What is the Tiny Forest Tree Survey?

The Tree Surveyis a simple tree measurement survey across the 290+ Tiny Forests in the UK. You will help us track tree growth and the carbon stored in your local Tiny Forest. Connect with nature, boost your wellbeing and discover the trees in your Tiny Forest! Though each Tiny Forest spans just 200m², and may only make a small contribution to carbon storage, they grow quickly and together can make a big impact. While they won't solve the climate crisis alone, they play an important role in climate mitigation and restoring nature in urban areas. By gathering data on the height and width of different tree species in Tiny Forests, we can fill the knowledge gaps on how forests planted using the Miyawaki method grow and store carbon. This will help us better understand how Tiny Forests can help tackle climate change and bring other environmental benefits to cities.

What is a Tiny Forest?

A Tiny Forest is a dense woodland planted in a small area, recreating the natural structure of a forest in miniature. Tiny but powerful, they bring the benefits of a woodland into the heart of urban communities. Pioneered by Earthwatch Europe here in the UK, Tiny Forests are planted using the Miyawaki method developed in Japan. Around 600 native trees are planted into a space roughly the same size as a tennis court. This helps them grow much faster than conventional tree planting. A Tiny Forest is more than just trees. The forests help reconnect people with nature, enhance our wellbeing, tackle the impacts of climate change and provide nature-rich habitat for wildlife.

Why are trees important?

Trees play an important role in combating climate change by acting as natural carbon sinks. Through photosynthesis, trees absorb carbon dioxide from the atmosphere, storing carbon in their living trunks, branches, and roots while releasing oxygen back into the air. This helps mitigate the greenhouse effect, which is the main driver of climate change.

Beyond storing carbon, trees also help cool the local environment, regulate the water cycle, provide homes for wildlife, and restore degraded land. Trees are vital for mitigating climate change, restoring ecosystems and ensuring a sustainable future.

Why is it important to monitor the trees?

For this survey, you will monitor tree growth by measuring the height and stem diameter of different species. This data helps our science team track the growth of Tiny Forests and estimate their carbon storage. Since these areas are under-researched in Miyawaki forests, your data helps to fill critical knowledge gaps. This improves scientific understanding, refines planting methods, and maximises the environmental benefits of Tiny Forests to support global climate goals.

Miyawaki method and tree growth

Soil preparation affects Tiny Forest tree growth. Our goal is to learn how trees grow in different situations. One of the main features of the Miyawaki method is the soil preparation approach. This typically involves excavation, digging over the soil and adding supplements to reduce compaction and improve the amount of water that can be stored. This gives the trees the best possible growing conditions. We want to find out how these methods impact tree growth.

About Earthwatch Europe

Earthwatch Europe is an environmental charity that works to create a world where we live in balance with nature. We connect people with nature, motivate them to protect the environment and provide them with the knowledge and tools to make change happen. Working alongside communities and organisations, we build an understanding and a love of nature, and help everyone to protect the natural world. Guided by science and powered by people, we create change through connection. We work where we can have the biggest impact – in our towns and cities, our farmed fields and throughout our network of rivers, lakes and wetlands.

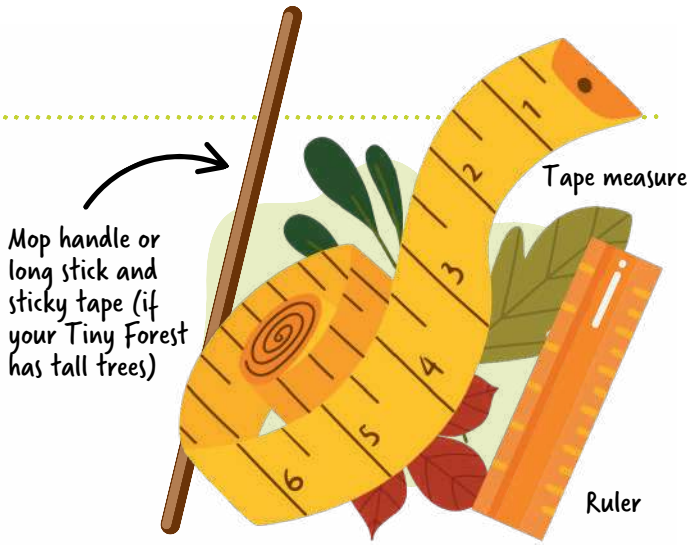
HOW TO TAKE PART

1. Get ready

Find your nearest, or preferred, Tiny Forest on our **map** and click through to its page. Here you will find a link to the surveys for your forest. Instructions are provided in this pack. You can also watch video guides **here**.

2. Join in and have fun

Choose any day and time during the Tree Survey fortnight to visit your Tiny Forest. Bring a tape measure and ruler. If your Tiny Forest is older than two years, you may need a long stick or mop handle to measure some of the taller trees. It takes less than 5 minutes to measure one tree, and there are 100 such experiment trees. You can measure as many of the tagged trees as you like or can find. More the merrier!



3. Submit your data

The easiest way to submit your data is online. You can do this whilst you're at the Tiny Forest if you have internet connection - so remember to bring your phone. If you'd prefer to use paper, or if phone signal is an issue, you can print the survey sheets included in this pack. You will then need to use the online survey to add your data by the end of the fortnight. After the Tree Survey, keep an eye on your emails for the results!

TREE SURVEY INSTRUCTIONS

1: Find an experiment tree

These are the trees with a metal disk numbered 001-100, and a plastic tag. It may be hidden in the grass or sometimes buried in the mulch.

If the tag is around the trunk, please move this to a branch (if possible). This prevents the tag damaging the trunk as the tree grows.

2: Try to identify the tree species (if possible)

You can try to ID the tree using the leaves, the buds, bark, or use apps like **Seek** by iNaturalist. It can be tricky once the leaves have fallen.

Do not worry if you cannot identify your tree, you can move to the next step.

3: Measure the distance of the tree from the edge of the Tiny Forest

The edge could be the nearest fence of your Tiny Forest or the classroom area where the benches are.

4: Check if your experiment tree is alive

Alive

- May have leaves or recently fallen ones
- When you lightly scratch the bark, should be green

Dead

- Looks droopy
- When you lightly scratch the bark, it is dry and brown

5: Measure the height of the tree using a tape measure

If the tree is taller than you, you can use any pole that you might have handy at home (like a mop or painter's pole) and attach the tape measure to the top

If the tree is taller than the pole, select method 3, and record the maximum height you were able to measure

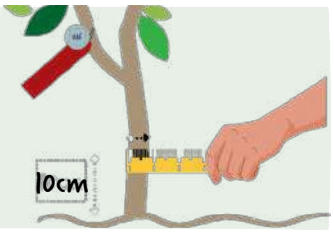
Method 1:
Trees within standing height

Method 2:
Trees within pole height

Method 3:
Trees beyond pole height

6: Measure the width of the tree using a ruler

Use your tape measure to find 10cm up the trunk from the soil, then line up your ruler against the stem at that point and record the diameter to the nearest mm.



7: Submit!

Share your results on the online form. There are 100 such experiment trees in your Tiny Forest. You can measure as many as you like or can find. More the merrier!

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TREE MEASUREMENT

TINY FOREST NAME	DATE	START TIME

- Fill in the table below for each tree that you study.
- If the tree is too tall to measure height, please make a note in 'tree height' and continue to measuring stem diameter.

TREE TAG NUMBER	**WHAT SPECIES IS YOUR TREE?**	**How far from the closest edge is your tree located?**	**IS THE TREE DEAD? Yes/No**	**TREE HEIGHT (cm)**	**TREE HEIGHT METHOD NO.** (1, 2, or 3)	**NUMBER OF STEMS**	**STEM DIAMETER AT 10cm FROM THE GROUND (mm)** if multiple stems measure stem of medium thickness	*only do this if your first measurement is over 100mm **STEM DIAMETER AT 130cm FROM THE GROUND (mm)**

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We'd love you to measure more trees if you would like to! Just use another field sheet!

AUTUMN TREE IDENTIFICATION GUIDE

ALDER
Alnus glutinosa

Tip: Leaves are racquet-shaped, twigs have a light brown, spotted stem and female catkins shaped like cones stay on the tree all year round.

GREY ALDER
Alnus incana

Tip: Leaves are sharply pointed, dark green and shiny, hairy underneath.

RED ALDER
Alnus rubera

Tip: More oval leaves than grey alder, greyish underneath, triangular twigs. The buds are long and pointy, growing along the twig.

ALDER BUCKTHORN
Frangula alnus

Tip: Leaves arranged alternately along the twig, matt green, oval and slightly hairy.

CRAB APPLE
Malus sylvestris

Tip: Crab apple has glossy leaves.

ASPEN
Populus tremula

Tip: Leaf stalks are flexible so leaves flutter easily in the wind.

COMMON BEECH
Fagus sylvatica

Tip: Their leaves are stalked, oval and pointed at the tip, with a wavy edge. Leaf buds point outwards.

BILBERRY
Vaccinium myrtillus

Tip: Bilberry is a low bush with small leaves and individual berries, their flesh is red rather than white like blueberries.

DOWNY BIRCH
Betula pubescens

Tip: Triangular shaped leaves, more rounded towards the leaf stalk, leaf stalks are downy (hairy). They have white papery bark and rough twigs

SILVER BIRCH
Betula pendula

Tip: Leaf edge is more toothed, leaf base is flatter towards the stalk. They have white papery bark and rough twigs.

BLACKTHORN
Prunus spinose

Tip: Twigs are black-purple and have spiky thorns.

BROOM
Cytisus scoparius

Tip: The stems are thin, long and whip-like, with short, small leaves.

PURGING BUCKTHORN
Rhamnus cathartica



Tip: Leaves grow on opposite sides of a stalk, with a few veins on each leaf that meet upwards towards the tip. Twigs have thorns on them.

BIRD CHERRY
Prunus padus



Tip: Leaves have hairs on the underside veins and two red areas at the base of the stem. Twigs are a pale brown colour and buds grow laterally in clusters along the twig.

WILD CHERRY
Prunus avium



Tip: In winter, the twigs have oval-shaped buds in clusters, the leaf stems have two red areas at the base of the leaf.

COMMON PRIVET
Ligustrum vulgare



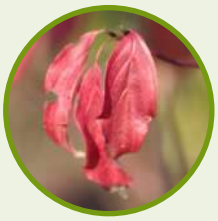
Tip: Bushy shrub with dark green, glossy, narrow leaves, stems are light brown-green.

DOG ROSE
Rosa canina



Tip: Leaves grow symmetrically on both sides of a twig and are shiny, thorns are pink-red and curved downwards.

DOGWOOD
Cornus sanguinea



Tip: Twigs are bright red in winter. The leaf edges are smooth and can curve due to the veins.

ELDER
Sambucus nigra



Tip: Leaves grow in bunches of 5-7 either side of the same stalk, the twigs are green and smell unpleasant.

WYCH ELM
Ulmus glabra



Tip: The leaves are sharply toothed, asymmetrical at the base and come to a sharp point at the tip. Twigs are dark grey and covered in hairs which may look orange in winter.

GORSE
Ulex europaeus



Tip: The shrub is evergreen with needle-like leaves and yellow flowers that bloom from January to June.

GUELDER ROSE
Viburnum opulus



Tip: Three-lobed leaves with a rounded base, softly hairy underneath. In winter, there are green hairless buds with a pair of scales, the buds are pressed closely to the twig.

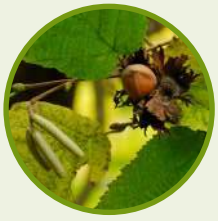
HAWTHORN
Crataegus monogyna



Tip: Leaves are lobed which cut at least halfway into the middle. The twigs have thorns on them.

HAZEL
Corylus avellana





Tip: In winter, hazel can be identified by its nuts which are held in a leafy husk. Small, green catkins might also be present. Hazel leaves have a soft, hairy underside.

HEATHER
alluna vulgaris



Tip: Heather is a small evergreen shrub with tiny soft overlapping leaves. The shrub flowers in pink or pale purple blooms.

HOLLY
Ilex aquifolium



Tip: Dark green, glossy and leathery leaves that might have spikes on a younger holly plant.

HORNBEAM
Carpinus betulus



Tip: Hornbeam leaves are smaller and more deeply furrowed than beech leaves, the edges are finely toothed. In autumn the papery seeds stay on the twigs. Leaf buds are pressed closely to the twig.

JUNIPER
Juniperus communis



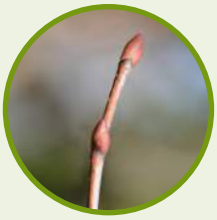
Tip: Juniper is a conifer shrub, the needles are green with silver bands and come to a sharp, prickly point.

LARGE-LEAVED LIME
Tilia platyphyllos



Tip: The twigs are green-grey but look reddish in sunlight, the buds are red and the leaves have hairs all over the underside.

SMALL-LEAVED LIME
Tilia cordata


Tip: Twigs are brown-red, shiny in sunlight, leaves are heart-shaped with a pointy tip.

FIELD MAPLE
Acer campestre



Tip: The leaves have five lobes with rounded teeth. In winter, the twigs might look veiny and have small, grey buds with grey fluff at their tips.

ENGLISH OAK
Quercus robur



Tip: The leaves have no leaf stalks and long acorn stalks, in winter its buds grow in clusters.

SESSILE OAK
Quercus petraea



Tip: Sessile oak has long leaf stalks and no acorn stalks. This oak has a more upright trunk and straighter branches than English oak.

COMMON OSIER
Salix viminalis



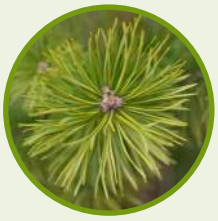
Tip: A small willow tree, very long, narrow, pointed leaves. The branches are long and sweeping upwards.

COMMON PEAR
Pyrus communis



Tip: Bark is grey brown. Twigs are very spiny.

SCOTS PINE
Pinus silvestris



Tip: The evergreen, long needle-like leaves are present all year round.

CHERRY PLUM
Prunus cerasifera

Tip: Leaves are green, slender with a tapered base, and 2 red dots or 'nectar glands' at the stalk. The bark is dark grey, the twigs are green with multiple flower buds growing from the same stem.

BLACK POPLAR
Populus nigra

Tip: Twigs are knobbly and the buds twist around the twig and are closely pressed to it. The leaves are quite triangular, shiny and green with long tips.

ROWAN
Sorbus aucuparia

Tip: Leaves are composed of 6-8 pairs of small leaflets (12-16 leaflets in total).

SPINDLE
Euonymus europaeus

Tip: The leaves are shiny and slightly waxy, with tiny sharp teeth. The twigs are straight and thin, deep green in colour.

WAYFARING TREE
Viburnum lantana

Tip: This shrub's leaves are large, oval, hairy on the underside and slightly wrinkly. In winter, pale yellow-green buds grow opposite each other on slightly hairy twigs.

WHITEBEAM
Sorbus aria

Tip: Leaf buds are green and oval to pointed with hairy edges. The leaves are thick, irregularly toothed, with the underside covered in felt-like hair.

WILD SERVICE TREE

Sorbus torminalis



Tip: Leaf buds are green and round. The lobed leaves are similar to maple, but have 3-4 unequal and not distinctive lobes.

GOAT WILLOW

Salix caprea



Tip: Has greenish brown, rounded, hairless buds. The leaves are oval rather than long and thin like other willows. The pointed tip of the leaf bends to one side.

GREY WILLOW

Salix cinerea subsp. oleifolia



Tip: Has red, hairless, narrow buds pressed closely to the twig. The leaves are oval but unlike goat willow are twice as long as they are wide. The underside of the leaf has fine silver felt.

Note on dead trees

Some trees might be dead but nothing is lost in a forest. A dead tree can become a great habitat for all kinds of wildlife. Can you think of any animals or plants that could live on a dead tree or use a dry branch to build their home?

EXTRA TREE IDENTIFICATION TIPS:

Step 1: **Observe the leaf.** Notice its shape: is it oval, round, long and pointy? Notice its texture: is it shiny, matt, ridged? Notice the edges: are they smooth or do they have teeth or little hair?

Step 2: **Observe the bark.** What colour is it? Is it smooth, rough, or patchy? Does it have thorns?

Step 3: **Observe a young twig.** What colour is it? Is it smooth or hairy? How does its tip look like?

Step 4: **Observe the bud.** What shape is it? What colour?

Step 5: **Notice if it has any fruit.** Fruit is not only something we, humans, eat. It can be a tasty snack for other animals, too, or a tool for a tree to pollinate. A young tree can be harder to identify than a mature one. This is because it can take a few years for a tree to start producing its unique fruit.

Autumn Leaf Biscuits

- SERVES: 24 BISCUITS • PREP TIME: 20 MINUTES
- COOK TIME: 10 MINUTES • TOTAL TIME: 30 MINUTES

INGREDIENTS

- 200g unsalted butter, softened
- 200g golden caster sugar
- 1 large egg
- ½ tsp vanilla extract
- 400g plain flour, plus extra for dusting
- 1/2 tsp mixed spice (optional)
- 1/2 tsp cinnamon (optional)
- A few drops of red food colouring (optional), a few drops of brown food colouring (optional), a few drops of green food colouring (optional)

INSTRUCTIONS

1. Heat the oven to 200C/180C fan/gas 6 and line a baking sheet with greaseproof paper.

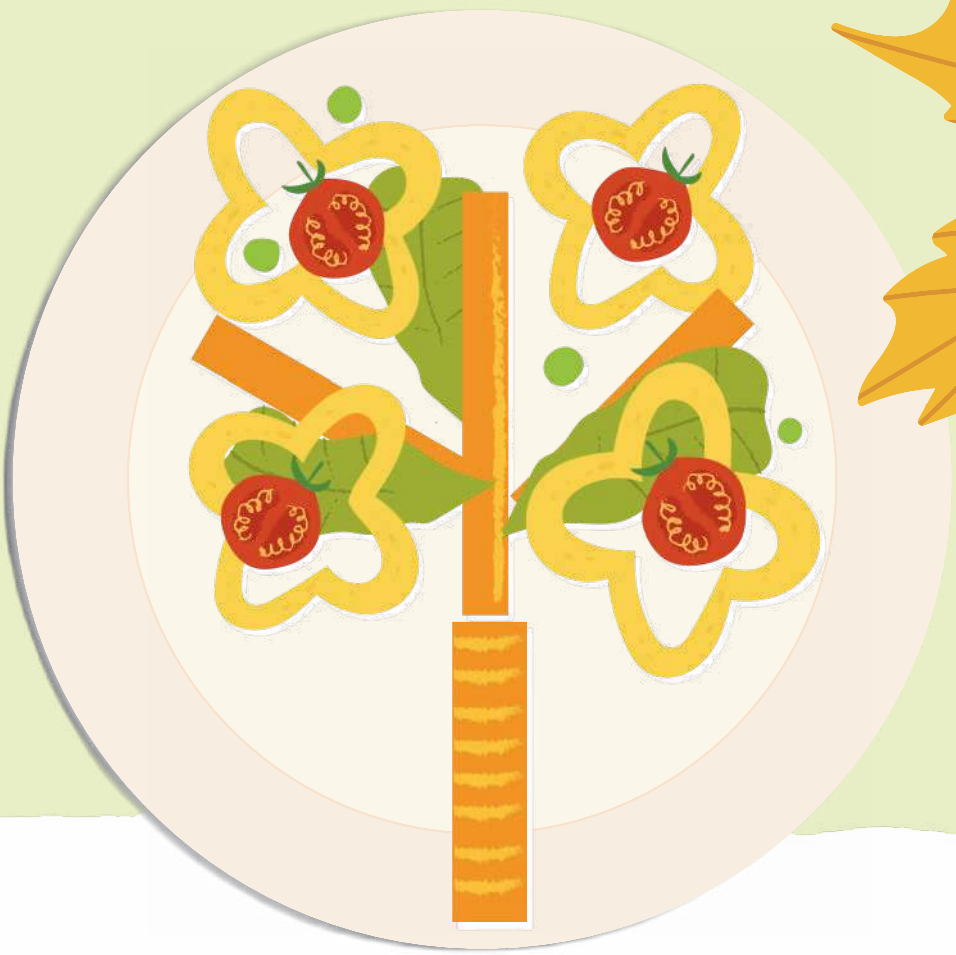
2. Put the butter in a bowl and beat until soft and creamy. Mix in the sugar, then the egg and vanilla, and finally the flour to make a dough. Add optional spices and colouring now, trying to match the colours from outside. If the dough feels a bit sticky, add a little bit more flour and knead it in.

3. Now for the fun part! Pinch off small balls of dough, flattening them between your palms and gently shaping into leaf shapes, using a butter knife to add "veins" or details. Aim for a thickness of about two £1 coins. If you want to make more detailed leaves, you can roll out the dough and cut it into rough leaf shapes with a knife — no cookie cutters needed!

4. Transfer to the baking sheet and bake for 8-10 mins or until the edges are just brown. Leave to cool for 5 mins, then serve.

Will keep for three days in a biscuit tin.

Edible Autumn Tree



Let's bring the beauty of autumn right to your plate using some of your favourite snacks!

To make your own edible tree, try using breadsticks or celery sticks as your tree trunk, and then add some "leaves" by arranging slices of colourful fruits and veggies like apples, carrots, or cucumber. Maybe sprinkle some cheese cubes or berries around for "fallen leaves" or "acorns." You can even use a slice of kiwi or an orange wedge as a "sun" shining over your tasty creation!

Have fun creating, and don't forget to munch on your masterpiece!

FUN QUESTIONS TO THINK ABOUT

- What kind of tree are you making? Could it be an apple tree with apple slices or a magical tree with rainbow-coloured leaves?
- Imagine you're in a forest—what animals might come to visit your tree? Maybe a squirrel would love those nuts, or a bird might swoop in to nest!
- Do the colours of your tree match what you see outside during autumn? Is your tree turning red, orange, or yellow just like the real ones? Or is it an evergreen?

AUTUMN ACTIVITIES

Treasure Hunt

☐ Crab apple

☐ Sloe berries on blackthorn

☐ Sweet chestnuts

☐ Holly

☐ Oak leaf/acorns

☐ Birch

☐ Lime

☐ Elderberry

☐ Willow

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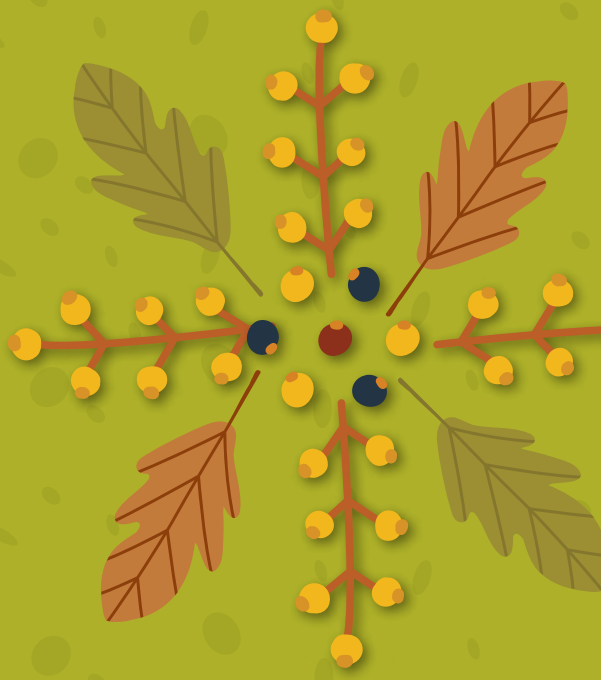
AUTUMN ACTIVITIES

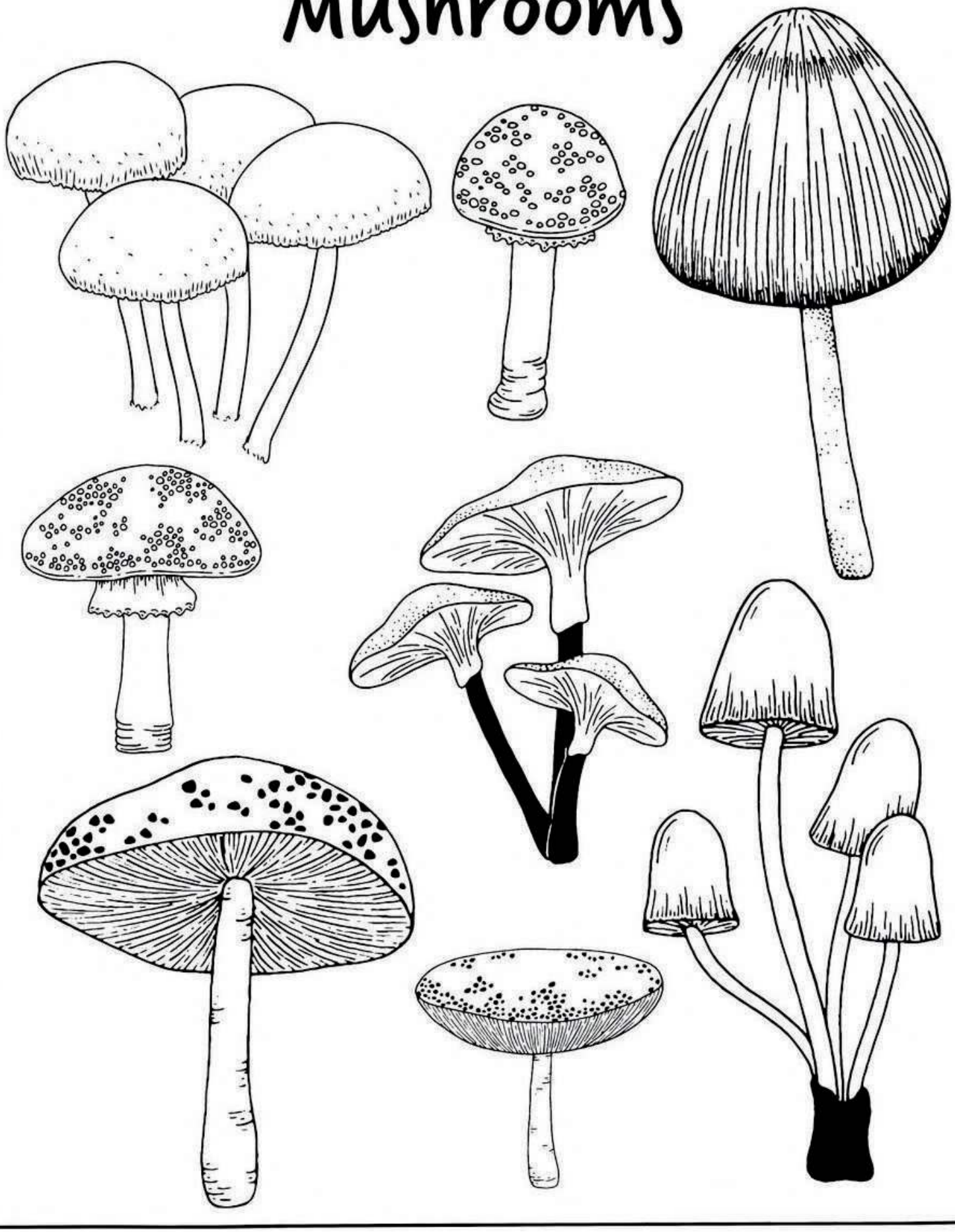
Nature Mandala

Gather a collection of autumn treasures—colourful leaves, acorns, pinecones, bark, fallen leaves, feathers, little stones and twigs, just be sure not to disturb any living thing or pick anything that is still growing. Once you have your collection, find a flat spot and start creating your mandala! Begin by placing something in the centre and then, work your way outwards, arranging your items in patterns that radiate like the sun. Try making circles of different colours or mixing textures with smooth leaves and rough bark. You can even take it a step further by drawing or painting on the leaves and pinecones!

There's no wrong way to do it—just let your imagination lead the way!



Mushrooms



Colour me in!

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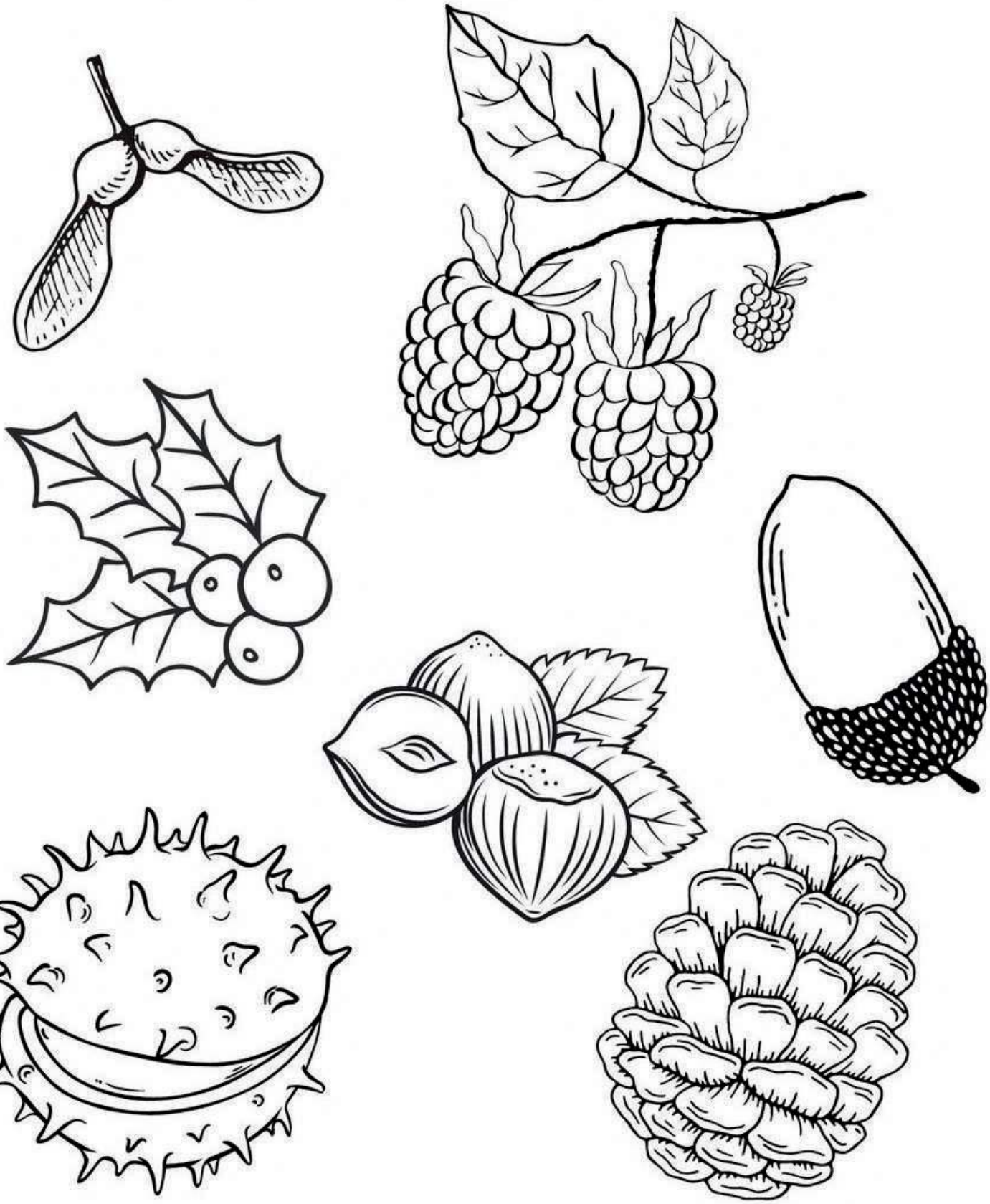
Seeds and berries



Colour me in!

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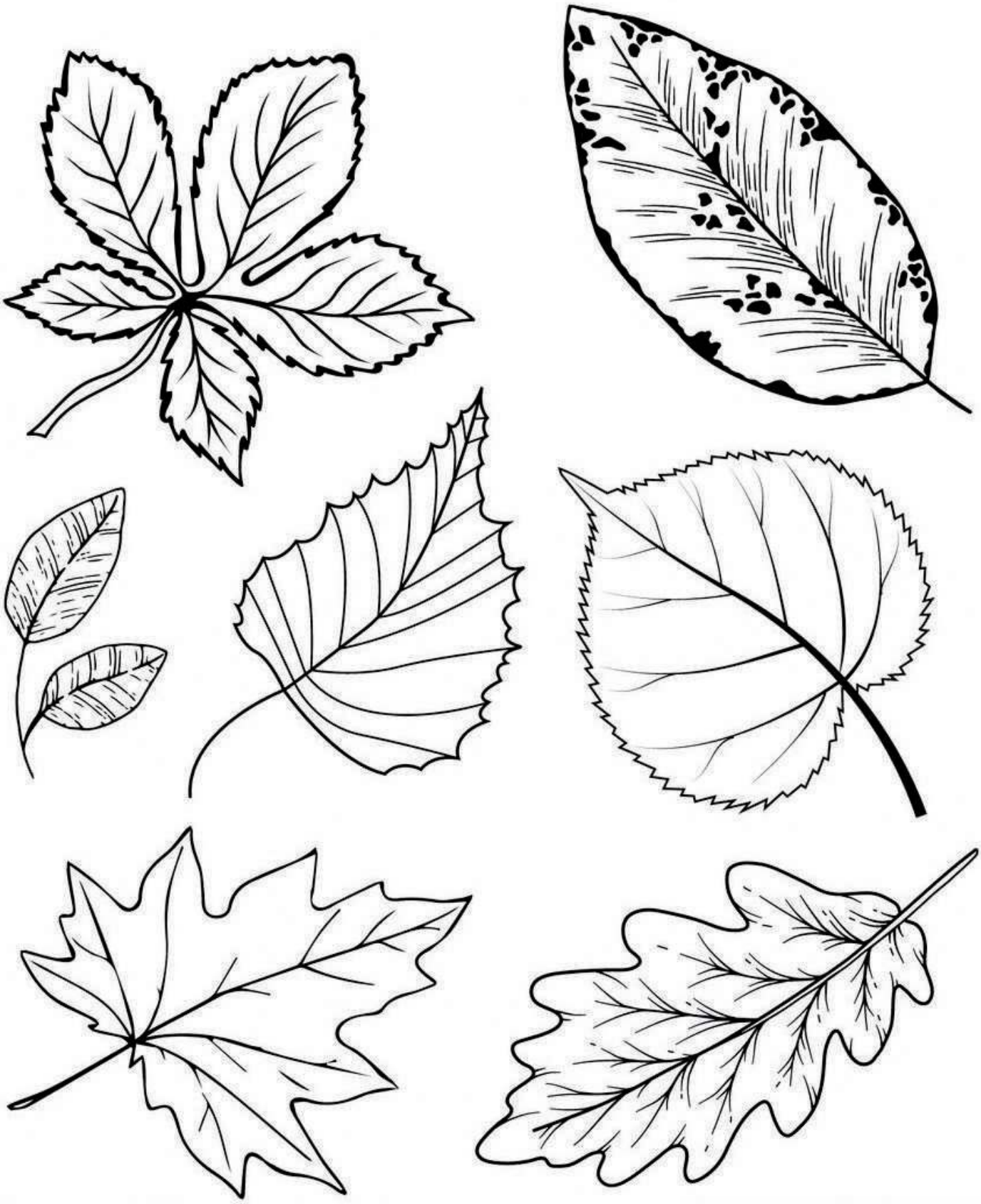
Autumn leaves



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