

You will need

* a magnifying glass



* a notebook



* a scrapbook or some big pieces of paper

* sticky tape or glue



Become a nature detective

There is way more going on in our backyards than people realise. No matter where you live, if you look really closely at plants and in the soil, your investigations will

reveal plant, insect and animal life you never knew existed.

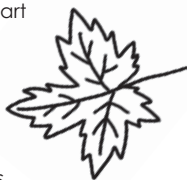


First suspects: trees

Next time you're out in the garden or at your local park, take notice of just how many different trees and shrubs are growing there. Can you name them?

Take a leaf or two from each of the trees. Use a magnifying glass to look at the leaves up close. See if you can find any small bugs or beetles.

When you get home, see if you can find out what sort of tree each leaf has come from. The Department of Conservation website is a good place to start (www.doc.govt.nz). Use the leaves' distinctive features to help work out what they are. For example, a five-finger or whauwhaupaku has five leaves on a single stem.



START A LEAF COLLECTION

If you're bringing leaves home to identify them, maybe you could think about starting a leaf collection! The best time to collect leaves is during spring and autumn. This is because spring reveals pristine new leaves unfurling themselves, and autumn provides a wonderful array of leaf colours as the leaves on **deciduous** trees die. Your collection could even have a theme like 'native trees and shrubs' or 'deciduous trees' or even 'fruit trees'.

Here are some hints to help you get started:



1. Take a good look at the leaves before you cut them off the tree. Observing the shape of the leaf cluster might help you to identify the tree.
2. Don't include leaves that are damaged, as they will deteriorate when stored.
3. Carefully cut your leaf samples off the tree. Try not to wrench or snap the leaves off, as this can damage them. Use a pair of scissors or some secateurs to cut the leaves off — just watch your fingers! You could also ask an adult to cut the leaves that you want.
4. When you've cut your samples, put them between the pages of an old magazine or newspaper. This will keep your samples separate and will also start the drying process.
5. When you get home, do some research into which trees the leaves are from and write the names onto the paper they're lying on, or on a sticky note. Then spread the magazines or newspapers in a warm, dry space and put some heavy weights — like big books — on top of them. Keep the whole surface completely flat, ensuring even pressure right across the leaf surface. Leave them alone for 8 to 12 days.
6. Once your leaves are dry, arrange them in an album or scrapbook with sticky tape or glue and label them clearly.
7. Practise naming each sample using its unique features as clues — leaf shape, leaf cluster, serrated edges and so on. Cover the names and see if you can recall them. You will be surprised by how quickly you'll become an expert.





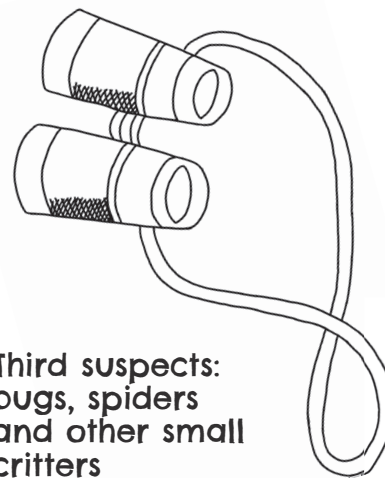
Second suspects: birds

Wherever you find trees, you'll probably also find birds. Different parts of New Zealand are home to different birds, and the best way to find out which ones live near you is to go bird-spotting.

1. Find a comfortable place to sit in the garden or at the park.
2. If you sit really still and watch quietly, the birds will get used to you being there and will start to come nearer to you. Birds have different 'fright distances'. This is the minimum distance you can watch them from without them flying or hopping away. Fantails might get really close to

you, while a tūi will suss you out from their preferred distance.

3. If you can, take photographs of the birds you see. If not, make notes on their size, what colour they are and what they sound like. Hearing a bird sing will help you to work out what it is, and New Zealand Birds Online (www.nzbirdsonline.org.nz) is a great place to learn more.
4. Use your knowledge of local trees to find out which birds are attracted to those trees. For example, tūi love the flowers on kōwhai trees and kererū enjoy eating the berries from pūriri trees.



Third suspects: bugs, spiders and other small critters

'Bugs are gross!' you might be shouting, but in New Zealand we are lucky that we have no snakes or scorpions, and very few dangerous spiders to worry about. Even if you start digging around in the leaves and dirt, it's highly unlikely you'll encounter the poisonous spider species we have, like the katipō and the redback. And anyway, they are way more scared of you than you are of them.

How about the next time you spot a creepy-crawly in your backyard, you don't run away from it, but instead look closely at it — grab a magnifying glass, even! Learning about these fascinating creatures will help you face your fears. These critters all have adaptive features like spiky arms or hard shells, which ensure they can survive in their environment.

Hunting for suspects

Once you've identified which plants, birds and other creatures live in your local area, you can set up a scavenger hunt for your siblings, your friends or even just as a challenge for yourself.

On a piece of paper, write a list of things for each of the hunters to find.

Some examples are given below.

<input type="checkbox"/>	Two interesting leaves	
<input type="checkbox"/>	A stone that looks like a heart	
<input type="checkbox"/>	A bird's feather	
<input type="checkbox"/>	A four-leaf clover	
<input type="checkbox"/>	A red flower	
<input type="checkbox"/>	Three different seeds	
<input type="checkbox"/>	The cast-off shell from an insect	
<input type="checkbox"/>	A piece of moss or lichen	
<input type="checkbox"/>	Two types of grass	
<input type="checkbox"/>	Something patterned	
<input type="checkbox"/>	Something you think is cool	
<input type="checkbox"/>	Something that looks like treasure	
<input type="checkbox"/>	Something that looks like something else	

Help out with conservation

Ask your parents or teachers about conservation projects in your community. The Department of Conservation, your local council and other conservation groups, like Wellington's Polhill Protectors, are always looking for people to help out with projects that help protect the environment. You could help with planting trees, setting traps for unwanted predators like rats and possums, or digging out weeds. All of these tasks help to look after your local **ecosystem** for years to come.

Closer to home, there are plenty of things you can do to help the environment. These include feeding birds (especially in winter), building a home for wētā and getting rid of any unwanted visitors to your backyard. For more ideas, check out the Department of Conservation's Kiwi Guardians programme.

DID YOU KNOW?

- ★ Even one small flax bush or kōwhai tree can attract tūi, which suck out nectar from the flowers for their food.
- ★ Bees live for only about six weeks.
- ★ Fantails or piwakawaka raise a family of chicks between two and five times each year.

Feed the birds

NATIVE BIRDS

The best way to attract native birds like silvereyes, tūi and kererū into your garden is to plant native trees and shrubs, which will provide nectar, berries and seeds at different times of the year.

You could also consider adding to their food by providing them with a sugar water solution. The best way to make this is by using a 1:8 ratio. This means using eight times as much water as sugar, which is sweet enough for the birds but it shouldn't attract bees. For example, if you use half of a cup of sugar, you'd mix it with four cups of water.

Just mix the sugar and water together until the sugar dissolves then put it in a shallow container in a spot where the birds will feel comfortable drinking, like on a high fence or a bird feeder. Make sure it's somewhere that allows you to watch!

OTHER BIRDS

To attract non-native birds, you could try making this very simple and effective bird feeder from a humble pinecone and a piece of string. This will attract birds like starlings, finches and sparrows, especially in winter when food can be harder for them to find.



1. Tie one end of the string securely to the stalk end of the cone.
2. Using a small spatula or flexible butter knife, mix up melted lard with an equal amount of peanut butter in a bowl. The mixture should be reasonably thick and sticky so that it can be worked into the pinecone's crevices.
3. Push the mixture into the pinecone's gaps — make sure to fill every crevice.
4. Hold the pinecone over a plate and sprinkle it with the birdseed, oatmeal or cornmeal, or work handfuls of seed into the peanut butter mixture.
5. Select a branch high enough that it's away from cats but where you can watch the birds feeding, and hang the pinecone from it.

You will need

- * a ball of string
- * a pinecone
- * 1½ cups of lard (a type of animal fat, which you can buy at the supermarket or butcher)
- * 1 small jar of peanut butter
- * 2 cups of birdseed, oatmeal or cornmeal

