

# Making a Wormery

## Summary:

This activity allows students to engage with ideas around food waste, composting and food growing, life cycles, and wildlife. It will allow you to use the food scraps from your school kitchen to turn into compost that can be used to grow more food - a full cycle which involves your students learning scientifically at the same time!

## Curriculum links:

KS1 & KS2 - Science

- ❖ Living things and their habitats: Year 2, Year 4, Year 5, Year 6
- ❖ Animals including humans: Year 1
- ❖ Rocks: Year 3

KS1 & KS2 - Geography - All links to environmental geography studied including links to Eco-Schools

Making a wormery may also feature as an aspect of a Forest Schools approach to learning.

## Activity links:

This is a great resource to pair with our 'Investigating soil' activity pack. The understanding that learners gain in these soil experiments link up well with the understanding of soil health that they will gain through this exercise. Making a wormery is therefore a great follow-on from the soil investigations.

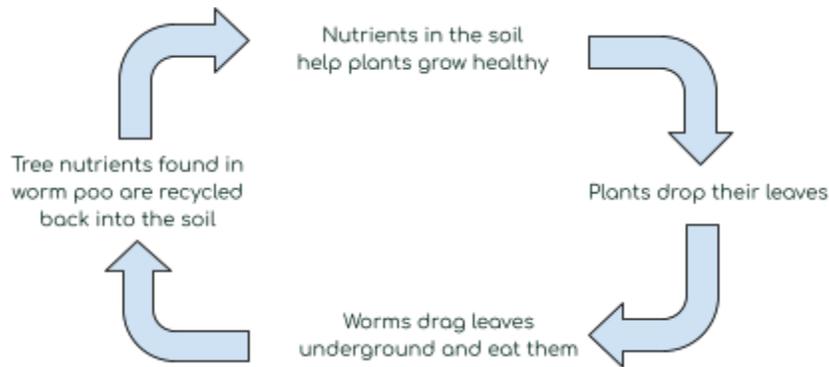
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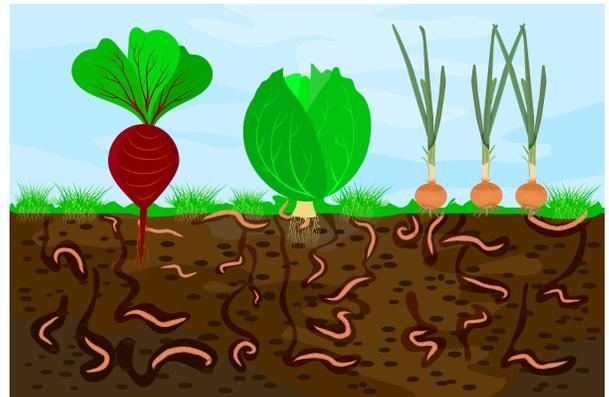


## Why are worms important?

Earthworms are very important creatures when it comes to creating **healthy soil** for plants to grow in. They do this by taking leaves from the surface of the soil and dragging them underground to eat. They then digest and excrete (poo) them out, which allows the **leaf nutrients** to be recycled back into the soil. These nutrients are used by plants to grow nice and healthy!



Worms also love to **burrow** in the soil. This not only helps to **mix the nutrients** around, but also creates **tunnels** for **air and water** to move through the soil! If you have done our 'Investigating soil' activities, you will know that allowing water and air to move through the soil is very important for **keeping soil fertile** so that plants can thrive!



## What is a wormery?

A wormery is where food scraps are converted into compost with the help of worms - this is also called '**vermicompost**'. The compost that is created is nutrient-rich and supports healthy plant growth, and the juices created can be used as a natural fertiliser in your garden too!

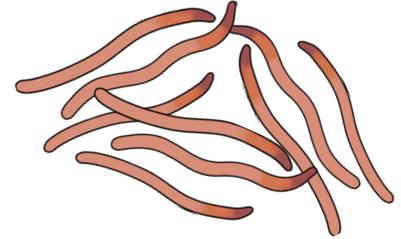
- ❖ **Don't worry** - wormeries don't smell like compost heaps do! They make compost much more quickly and are perfect for small spaces.

You can create a **smaller glass wormery**, which will allow learners to gain a visual understanding of what worms get up to below the ground by viewing the wormery jar, which can be kept in a classroom cupboard. You can also create a **larger composting wormery**, which will allow learners the experience of working with worms to create lovely compost and natural fertiliser that they can use to grow their own food! We recommend making both for maximum learning, curiosity, and fun - a mini wormery for learning about how worms behave as well as creating a larger wormery where you will actually produce your own compost.

# How to make a mini wormery

## What you'll need:

- A large jar - choose one with a large opening at the top, and make sure you wash it well first!
- Sand
- Damp soil
- Dead leaves
- Fabric - just enough to cover the top of the jar
- Elastic band
- Black paper - enough to wrap around the jar
- Tape
- Worms from your garden



## How to:

1. Pour a thin layer of sand into your jar, followed by a thicker layer of soil. Do this until you fill the jar to  $\frac{3}{4}$  of the way to the top with layers of sand and soil.
2. Add some dead leaves to the jar.
3. Put your worms in the jar, on top of the leaves.
4. Cut some holes into the fabric and place it on top of the jar. Secure the fabric using an elastic band.
5. Now wrap the black paper around the jar and secure it with tape.
  - ❖ We do this because wrapping the jar in black paper mimics the darkness of the underground, which worms are used to - so they are more likely to feel at home and behave normally.
6. Keep your wormery somewhere with conditions similar to those that worms are used to - so a cool, dark cupboard would work best. Make sure you keep the soil moist by gently watering it when it gets dry. You can take the wormery out and see what your wriggly friends have done once or twice a day! Make sure you record what you see. Consider:
  - How long does it take for the worms to mix the leaves into the soil?
  - How long does it take for the worms to mix the layers of sand and soil together?
  - What does the sand / soil mixture look like each day during this process?
  - How long does it take for the worms to eat the leaves?
  - Did any of your observations surprise you? For example, do worms move more quickly or more slowly than you expected?
7. Once you are finished with your wormery, remember to release the worms back to the soil outside!

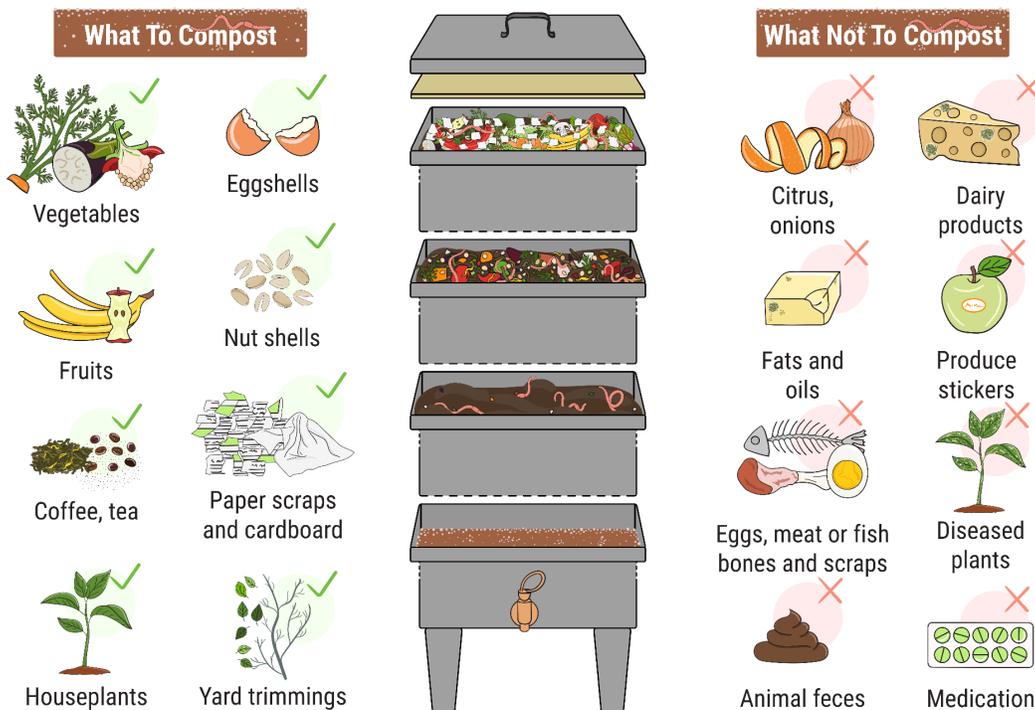
# How to make a compost wormery (vermicompost)

There are a few different ways that you can make a compost wormery, depending on the materials that you have available.

- ❖ **Single unit method** - uses either a lidded dustbin, a wooden or plastic lidded box, or a water butt, and can be stored outside.
- ❖ **Stacking method** - uses opaque plastic boxes and is stored indoors in a shed, utility room or garage.

Other than the container you choose to use for your wormery, both of these methods will follow the same general process - you will add food scraps to your wormery and the worms will eat and digest your food scraps to create nutrient-rich compost for you to use to grow plants in your garden. Essentially the compost is just worm poo (or worm castings)!

Before you begin, it is a good idea to **start collecting your food scraps** if you don't already. Here is a guide as to what you can put into your wormery for the worms to digest, and what you can't:



# Single unit method

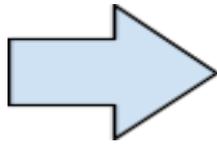
## What you'll need:

- A lidded dustbin, water butt, or lidded box - just make sure it is waterproof
- A drainage tap - unless you are using a water butt which already has a tap
- Bricks - enough for the wormery to sit on
- Tray - this needs to be bigger than the container that you're using for your wormery, as the wormery will sit on top so that liquid can drain into the tray
- Gravel
- Fibrous matting - coir bedding works perfectly
- Leaf mould (decaying leaves) or well-rotted compost
- Worms! - the best types of worms to use are tiger worms or brandlings. You can find these in mature compost heaps or existing wormeries, or you can look for composting worms in fishing shops or online
- Kitchen scraps
- Newspaper or cardboard

## How to:

- 1) If you are using a dustbin or box, drill a hole into the container around 5cm from the bottom. If you don't have a tap, you can drill holes all around the bottom of your container, 25cm apart from one another and 5cm up from the bottom. These holes/tap are for the worm juice (AKA wonderful natural fertiliser) to come out of as your compost matures.
- 2) Place the tray on the ground where you will have your wormery. Then place the bricks down and put your container on top. Make sure it is stable and won't topple over!
- 3) Pour a 10cm layer of gravel into your container.
- 4) Place your fibrous matting on top of the gravel - this will stop the compost from falling through but allow liquid fertiliser to seep down.
- 5) Add a 10cm layer of organic material on top of the matting - this could be leaf mould (decaying leaves) or well-rotted compost.
- 6) Add the worms!
- 7) Add a handful of kitchen scraps to the corner of the wormery.

- 8) Place some wetted newspaper, cardboard or shredded paper on top of everything.
- 9) Place the lid on and leave your wormery for a week so that the worms can settle in.
- 10) You can gradually add more kitchen scraps as your worms multiply.



# Stacking method

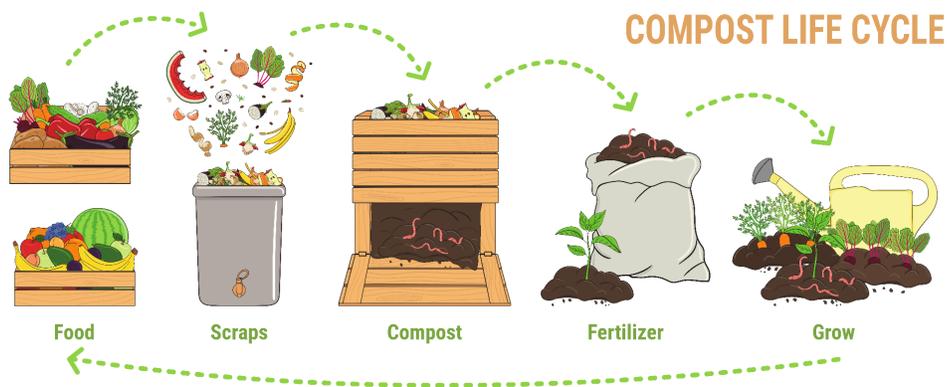
## What you'll need:

- Plastic boxes x3 - 35-45 litre storage containers work well, just make sure they are opaque and that they stack quite tightly onto one another
- A lid for the top tray
- Plastic faucet or water barrel tap
- Drill and drill bits
- Bedding material - moist newspaper or shredded paper
- Moist cardboard
- Some leaf mould or well-rotted compost
- A bit of garden soil
- Worms

## How to:

- 1) Drill about 20 holes into two of the boxes using a 1/4 inch drill bit - make sure they are evenly spaced. These holes will allow liquid to drain from the boxes to be used as fertiliser, as well as allowing the worms to move from box to box so that you can collect the vermicompost when it is ready.
  - ❖ Tip: you can use masking tape where you are drilling holes in order to prevent the drill bit from slipping, and so you don't have to press as hard - you want to prevent cracking the plastic.
- 2) Using a 1/16 bit, drill holes around the top rim of each of these two boxes, around an inch apart, as well as about 30 holes in the top of the lid. These are the ventilation holes.
- 3) Drill one hole at one end of the box that will be on the ground. This will be to drain liquid from.
- 4) Stack one of the boxes with lots of holes onto the box with just one hole. The second box with lots of holes can be placed to the side for now.
- 5) Add a 4 inch layer of bedding material into the top box as well as some leaf mould and compost, and a bit of garden soil.
- 6) Now add your worms!

- 7) Place a handful of kitchen scraps in the corner of the box and then cover everything with moist cardboard and put the lid on.
- 8) Place your wormery indoors in a well ventilated area outside of direct sunlight. A garage, shed, or utility room are all great homes for your wormery.
- 9) Leave your wormery undisturbed for a week for the worms to settle. Then slowly start feeding the worms as they reproduce, leaving food scraps under the cardboard with them.
- 10) Collect the juice that will build up in the bottom box - this can be diluted and used as a natural fertiliser in your garden!
- 11) Once the first box is full of vermicompost, place the second box on top of the first, so that it is sat on top of the compost. Add some food scraps and place wet cardboard on top. Put the lid on top of this second box. Now the next chamber of your wormery is ready to get going!
- 12) The worms will gradually make their way from the lower box to the top one, leaving beautiful compost for you to use. This may take a few months. Once most of the worms have migrated to the top box, you can empty the full box in the middle and sieve through to remove any leftover worms and place them back into your wormery. They prefer to live in the vermicompost rather than garden soil.



## Learn more:

<https://www.growveg.co.uk/guides/worm-composting-how-to-make-a-wormery/>

<https://www.permaculture.co.uk/readers-solutions/how-make-inexpensive-diy-wormery>

<https://www.verticalveg.org.uk/how-to-make-your-own-wormery/>

<https://www.gardenersworld.com/how-to/maintain-the-garden/how-to-set-up-a-wormery/>

<https://www.woodlandtrust.org.uk/blog/2020/05/how-to-make-a-wormery/>

<https://www.turningtogether.com/post/diy-worm-composting-bins>