# A53 Using wormeries

**A wormery is a container where worms and micro-organisms create worm compost ('vermicompost') and fertile liquid run-off. Worms mostly consume vegetable peelings, but also shredded paper and other soft waste. This activity explains how to set up different wormeries with the right waste. There are also answers to frequently asked questions.**

## Resources

- Wormery and composting worms – not earthworms, see Top tip
- Suitable degradable waste (see list on page 4)

## Activity

1. Follow instructions on the next page for setting up and using your wormery.
2. Get everyone involved in gathering waste, organising 'feed the worms' sessions every few days in summer and as needed in cooler months.
3. Harvest and use the end products (see suggestions on page 4).

## Extended activities

1. Find out about worms. These fascinating creatures are hugely diverse, eg they have five hearts. What do worm cocoons look like and what is their mating cycle?
2. Design and make your own wormery, using recycled materials if possible.

*Top tip*

### Getting worms

Worms usually arrive with a mail-order wormery or are delivered separately if buying from a shop. You can also buy worms from fishing shops where they are sold as bait. The usual weight of worms needed to start an average size wormery is 500g. The 'brandling' (or tiger) worms (*Eisenia foetida*) are best for composting. They are different from burrowing earthworms, and identified by banding on reddish bodies.

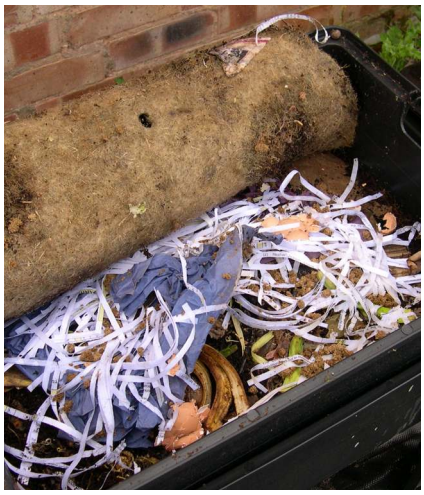
| | |
|---|---|
| **Health & Safety** | Waste and compost is safe to handle if usual hygiene rules are followed, eg wear gloves if needed, keep cuts covered, wash hands after handling and keep tetanus vaccinations up to date. Ensure adult supervision.<br>*See also Health and Safety Guidelines (Section SG1.2)* |
| **Further information** | A38 Making potting mixes<br>Home composting www.homecomposting.org.uk<br>Example wormery supplier www.wigglywigglers.co.uk |

# Instructions for setting up and using a wormery

## *Choosing a wormery*

Lots of wormeries are available from about £60-100. You can also make your own from plastic or wooden containers as long as they have adequate air and drainage. A good wormery has the following features.

- Excludes light.
- Large enough to hold the worms, their food and bedding.
- Has wide, flat layers with air holes, as worms prefer to work near the surface with good air circulation.
- Allows excess moisture to be drained, eg tap at the bottom. Worms die if the mix becomes waterlogged.



*Place a layer of cardboard over the mix to keep in moisture.*

## *Two types of wormery*

### 1 A simple design where all the material is in one layer

Worms and kitchen waste are near the top and the finished compost below. There is often a sump to hold excess liquid and tap for draining.


**How to harvest**

- Harvest compost by removing the fresh waste and composting materials. This is where most worms will be. Scoop out the worm-free compost underneath.
- If there are worms in the finished compost, leave a little longer or pile the compost into a pyramid shape and skim off the surface layers as worms progressively burrow deeper away from the light. Repeat as necessary until all the worms have gathered in a ball when you can carefully lift them up and put them back in the wormery.

## 2 A more complex, but easier to use design with layers

- **Sump** that holds excess liquid ready for draining from a built in tap.
- **First, second, and third tier.** Worms migrate upwards between tiers through holes. They live mostly in the top tiers where waste is added. The ready to use compost is in the lower tiers.
- **Plastic lid** to keep moisture in and light out.

### How to harvest

- When the first tier is nearly full, add a second tier with some waste in it. The worms will migrate to the second tier, but still use the first tier for a while.
- When the second tier is nearly full, add a third tier with some waste in it. Then harvest the compost in the first tier, removing it from the wormery so the second and third tiers move down. The harvested compost should be worm free. If there are worms, leave a little longer or pile the compost into pyramids as described on the previous page.
- Repeat steps one and two.

## *Five steps for starting a wormery*

1. **Time:** give worms time to settle in before starting to make compost. Add a thick layer of bedding of moist material such as strips of newspaper or cardboard, mature compost or leafmould. Add this to the first tier of a layered design above the sump (see above).
2. **Moisture:** worms need damp skin to breath so keep the bedding moist. Water should just ooze out if squeezed. The compost is too wet if there are lots of drips. Regularly check the mix, adding drier, fibrous materials like shredded paper and egg boxes if too wet; greener, wetter materials if dry.
3. **Cover:** to retain moisture and exclude light, eg cardboard or a few sheets of newspaper.
4. **Warmth:** aim for an even temperature, about 12-25°C. Worms slow down and huddle together if colder and may try to escape if hotter. Worms will continue to make compost all year indoors. Outdoors, position out of direct sunlight in summer and put in a shed or insulate the wormery in winter.
5. **Feeding:** after a day or two, begin adding small amounts of kitchen waste on the surface and cover. As worms multiply, add more chopped garden or kitchen waste, avoiding anything big or woody. Little and often is best; up to three handfuls every day in summer but much less (if any) at lower temperatures. Keep covered at all times.

## Materials to add

| Plenty | Do not use |
|---|---|
| • Vegetable peelings.<br>• Fruit peelings.<br>• Cooked vegetable leftovers.<br>• Burnt toast.<br>• Shredded paper, egg boxes.<br>• Coffee grounds.<br>• Tea leaves.<br>• A little soft green garden waste. | • Grass cuttings (they heat up too much, which may kill the worms).<br>• Dairy products, meat and fish (protein-rich substances like these go putrid and may attract vermin).<br>• Cat and dog faeces (to avoid potential health hazards from pathogens).<br>• Non-biodegradable waste (such as plastic or glass). |

**Best to avoid**

Citrus peel and rhubarb leaves (too acid); onion skins and any other tough kitchen waste.

## Frequently asked questions

**Q** What are the white worms in my compost?

**A** These are pot worms (Enchytraeids). They are harmless, but usually indicate that the compost mix is a little too wet or acid. Add drier material like shredded paper and ground up egg shells to increase alkalinity

**Q** Why are there clouds of black fruit flies when I open the lid?

**A** A few fruit flies are inevitable, but too many suggest a wet mix with too much rotting kitchen waste. Add drier material, keep covered and stop feeding for a couple of weeks.

**Q** How can I stop my compost smelling bad?

**A** Increase the ventilation and stop feeding worms for a few weeks to allow waste to go down. Make sure any liquid is drained regularly.

**Q** My worms have curled up into a tight ball in the centre. What's wrong?

**A** Worms often huddle to protect themselves in cold weather, usually when wormeries are kept outside over winter. Move indoors or insulate.

**Q** I keep finding lots of worms gathered inside the lid. Why are my worms trying to escape?

**A** The cause is usually poor conditions like too wet, too hot or too acid. Worms will also try and escape if the mixture is too dry. All of these can be remedied by adjusting the mix of ingredients as above and reintroducing the worms.

## Using the end products

- Potting on mixes. See A38 for recipes.
- Top-dressing plants in large containers, ie replacing the top 5cm of potting mix annually to provide nutrients.
- Drain off liquid for use as plant feed. Dilution varies per mix; usually 1:10 or the colour of weak tea. See S4.5 about additional feeds.