

How to build a miniature worm farm



Background information

You can create a miniature worm farm inside your classroom (as part of a technology lesson), as worms will live in most containers.

The worms will produce worm castings in the top layer of the soil or bedding in the miniature worm farm. This is their 'poo', which contains many essential nutrients and minerals to enrich the soil.

The worms will produce worm tea in the bottom layer of the worm farm. This is their 'wee', which also contains many essential nutrients and minerals to enrich the soil. Worm tea is used on plants as a liquid fertiliser, diluted 1:10 parts of water.

Although worms are omnivores and will eat both plant and meat products, it's best to feed them only plant-based material to avoid rotting material. Foods that worms like include most fruit and vegetable scraps (with the exception of citrus fruit), tea bags and ground coffee beans (from the school staff room), and even eggshells (which also help to keep the worm farm alkaline and keep pests away). Avoid dairy products and too much bread as this is not readily digested by the worms and may go mouldy.

Visit www.createyouroweneden.org.nz for more information, facts and additional learning activity ideas, as well as a poster showing the materials that can and cannot go into a worm farm.

Equipment needed

- » Two ice cream or yogurt containers (or similar) and one lid
- » Food scraps
- » Newspaper and cardboard
- » Water
- » Worms (collected from another worm farm; or purchased – do not use earthworms)
- » Soil or compost
- » Weighing scales

Activity instructions

1. Drill or pierce at least 6 holes into the base of one of the containers. This becomes the top layer of the worm farm and is placed into the second container, which will collect the liquid generated by the miniature worm farm.
2. Shred a sheet of newspaper and soak it in water. Squeeze out the excess liquid until it is the texture of a damp sponge. Pull the paper apart and place it into the container with the holes in the bottom. The holes and the entire base need to be covered.
3. Add a small amount of soil or compost to the top container on top of the paper.
4. Weigh the worms and record their weight. Then place the worms into the top container, spreading them in the soil over the newspaper. They will use the newspaper and soil as a bed and a dark place to hide.
5. Weigh out the same amount of food as the weight of worms put into the farm. This is approximately the weight of food they will need every day (don't worry about the weekends).
6. Make holes in the lid for air and place the lid on the top of the container so that the worms have a dark, aerated environment.
7. Place the worm farm in a cool, shady part of the classroom.
8. View the worms regularly and record or discuss how much food they eat, where they are located in the miniature worm farm, or how much worm wee they produce.

9. Remove the liquid or 'worm wee' from the bottom container by removing the top container and tipping out the liquid collected in the bottom container. 'Worm wee' may take several weeks to appear and water can be added to the top container if needed.
10. At the end of the term/unit, the worms can be released into an existing worm farm or the compost bin where they will continue their good work!

Key Questions

- » Why are worms important to us?
- » Is there a certain type of worm that we should use for a worm farm?
- » What actually happens inside a worm farm? What do the worms do and what happens to our food scraps?
- » Can you predict what types of organic waste the worms will like best? Why do you think this?
- » Can you predict what foods worms won't like? Why do you think this?
- » How much food will the worms eat in one day, in one week, and in one term?
- » When we open our worm farm, why don't we see any worms on top of the food pile? Where are all the worms and why are they there?
- » Will we have too many worms if they just keep eating?
- » What can we do with the vermi-liquid ('worm wee') produced?
- » What can we do with the worm castings produced?
- » What types of food should be in our lunch box so that the worms will eat healthily like us? This may lead into a discussion on nutrition.