



national science week 2024

DIY Science – Wonderful Worms

Test how earthworms search for food, churn the soil, and hide from light.

Safety

When doing science activities outdoors, wear sun protection and comfortable, closed-in shoes. Always treat the natural environment with care and try to leave it as you found it. Wash hands with warm soapy water after handling worms and soil.

What you need

Large glass jar, small glass jar with a lid that fits inside the large glass jar, garden soil, sand, garden fork or trowel, gardening gloves, access to a garden to look for worms

What to do

1. Add some soil to the large jar to cover the bottom of the jar.
2. Place the small jar inside the large jar.
3. Sprinkle a layer of soil between the small jar and the large jar.
4. Add a thin layer of sand between the small jar and the large jar.
5. Continue adding layers of soil and thin layers of sand until the large jar is almost full and finish with a layer of soil.
6. If the soil and sand are dry, sprinkle water over the surface of the soil until it is just moist. Put the lid on the large container and leave it to sit for a while to allow the water to soak down through the layers of soil and sand.
7. Use the garden fork or trowel to dig through garden soil or look under leaf litter and rocks to find worms. Worms can usually be found in moist soil or under leaf litter or mulch. Different species of worms slither down to different depths in the soil, so digging deeper in the dirt might reveal worms of different colours and sizes.
8. Add worms to the top of the soil and cover with a handful of damp, dead leaves.
9. Place the jar in a dark cupboard, or in a closed box, or cover the container with dark fabric to block out as much light as possible. The worms will try as hard as they can to stay away from light.
10. Leave the worms for a few hours before checking on them. Check on them from time to time over a few days. Sprinkle water over the soil each day to stop it drying out.





11. Add some leaf litter or vegetable scraps to the surface of the soil in the jar. Observe which foods are preferred by the worms and record your findings in the table below.

When you have finished observing the worms, return them to the garden where you found them.

What's happening?

There are over 1,000 species of earthworms that are native to Australia plus a lot of other species that have been introduced to Australian soils. As they move through the soil, earthworms mix up the different layers of soil and their burrows provide aeration and drainage. Worms eat soil and organic material, absorbing nutrients into their bodies, and then excreting 'castings'. All of this burrowing, churning, and pooing helps plants to grow by providing plants with water, oxygen, and nutrients that are easy for plants to absorb.

Worms do not have lungs and need to take in oxygen through their skin. To absorb oxygen, a worm's skin must be moist, which is why they spend most of their time in damp locations and avoid moving around above the ground. Although they do not have eyes to see, earthworms have light receptors that can sense light and dark, helping them to stay safe underground away from sunlight.

Placing the small jar inside the large jar helps to keep the worms close to the sides of the large jar, making it easier to see their tunnels. If the jar is left out in the light, the worms will try their hardest to burrow away from the sides.

Results

Type of food	Did any worms eat the food?	Describe the worms that ate the food

Did you know?

To burrow through soil, an earthworm uses the muscles in its body and tiny hairs that act as hooks to hold onto the soil. A worm will stretch out its front end, grip onto the soil with the hairs, and then pull its back end through the soil. The back end then holds onto the soil while the front end stretches out again.

Find out more

- Listen to the squelching sound of a Giant Gippsland Earthworm and learn about this unique Australian native species: <https://www.giantearthworm.org.au>
- Learn about the three families of earthworms that are native to Australia: <https://australian.museum/learn/animals/worms/australian-earthworms/>
- Watch competitive 'worm charming', low frequency sounds used to trick earthworms into coming to the surface to avoid being eaten by moles (this practice is used in Europe and North America to catch worms for fishing): <https://youtu.be/8l-mdWZSw?si=hZiqgx2vUNrJJN0q>