



GROWING THE FUTURE
TYFU'R DYFODOL

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WONDERFUL WORMS

AMAZING FACTS ABOUT WORMS

- The two main worms that we find in our gardens are earthworms that live in the soil and tiger worms that live in the compost heap

Where they live, their habitat

- Worms live where there is food, moisture, oxygen and a favourable temperature. If they don't have these things, they go somewhere else

The food they eat

- Worms eat their own weight in organic waste, soil and minerals and excrete their own weight in castings daily, which makes compost and enriches the soil
- They don't eat living plant tissue, so they don't hurt plants either. They truly are a gardener's best friend!

Their bodies

- Even though worms don't have eyes, they can sense light, especially at their anterior (front end). They move away from light and will become paralysed if exposed to light for too long [approximately one hour]
- Worms don't have legs but instead are covered in hairs or bristles that help them to move
- Worms breathe through their skin, which must remain moist to absorb oxygen from the air
- If worms dry out they will die
- Worms can have between 1 and 5 pairs of hearts, that's between 2 and 10 hearts



- Worms suck in material with their lips as they have no teeth
- Worms usually live for about 3-4 years and can live for up to 10 years

Baby worms

- Earthworms sometimes appear to have a "belt" or "saddle" around their bodies; this structure contains cocoons inside the cocoons there are between 1-20 eggs
- The cocoons are smaller than a grain of rice, the worms lay the cocoon. The baby worms take between 60 and 90 days hatch as little worms

A CLOSER LOOK AT WONDERFUL WRIGGLY WORMS

A scientific activity to do outdoors using equipment found around the house



WORMS ARE AMAZING CREATURES

Curriculum links: Knowledge and Understanding of the World, Mathematical Development, Creative Development, Physical Development, Science and Maths.

Age range: From early years to Key Stage 2

Outcomes: To encourage the children to investigate worms at first hand and discover why worms are so important to us.

Introduction

Worms are wonderful, they are a gardener's best friend. This is because they take dead leaves and organic matter from the surface of the soil and mix it with the rest of the soil. Eating it and creating tunnels of air making the soil rich and fertile.

This activity shows the worms at work.

Key words to learn: Earthworm, Tiger worm, Habitat, Decompose, Soil, Moist

Time: Activity time 30 minutes. Observation time 10 days



Equipment required to do the activity

- Large clean glass jam jar and lid, with several holes in for air
- Or clear plastic bottle
- Scissors
- Soil
- Sand
- Worms
- Leaves and vegetable matter
- Card (old cereal packet)
- String
- Water
- Magnifying glass

Additional Equipment

- Ruler

Set-up

- On a bench or lawn outside



STEP-BY-STEP METHOD

1) Collect a small bucket of soil from the garden

2) Collect a small amount of sand



3) If using a jam jar, ask an adult to pierce holes in the top. If using a plastic bottle, cut the top off then cut a small slit in the bottle to allow the lid to fit back on.



4) Using a small trowel or your hands, place a 2cm layer of soil in the bottom of the jar or plastic bottle, older children can measure this.





5) Add 1cm of sand.

6) Repeat this, finishing with soil. Make sure there is a 5cm gap at the top of the jar or bottle.

This has created a **habitat** (a home) for the worms to live in for a short time.



7) Next is the fun part!

Dig in your garden to find as many worms as possible and place them carefully in a bucket.

- **Earthworms** are thicker and a brown colour, **tiger worms** are stripy and thinner.
- Look at the worms through the magnifying glass.
- Measure how long the worms are.
- Decide which is the front and the back of the worm.





8) Put the worms on top of the soil in the jar or bottle in their new, temporary home.



9) Place old, rotting leaves and vegetation on top of the worms. This will be their food that they will take down into the soil to **decompose**.





- 10)** Gently water the worms to make sure they are moist.
- Worms need darkness, soil, food, moisture and air for the perfect **habitat** (home) to survive.



- 11)** Place the lid on top of the jar or bottle.





12) Cut out some black paper or card from a cereal box, wrap it around the jar or bottle to make it dark inside for the worms.

13) Place the bottle in a cool, dark place and keep the soil moist.

14) Every two days, remove the card to discover how hard the worms have worked mixing vegetation with the sand and soil.

15) After ten days, the worms will have done their wonderful job and beautiful mixed compost will be ready to add to your garden.

16) Empty the soil and worms into your garden for them to continue their work.



Questions

- What has happened to the leaves and vegetation?
- What patterns have the worms created in the earth?

Extensions

- Make a far larger wormery in a fish tank and observe it for longer.
- Attract worms to your garden by creating the perfect habitat for them by giving the soil decaying leaves and plant material.
- Start a compost bin and add some worms to it.
- Use the compost from the bin in your garden to attract more worms.

GROWING THE FUTURE

The Growing the Future project at the National Botanic Garden of Wales is a five-year project to champion Welsh horticulture, plants for pollinators, the protection of wildlife and the virtues of growing plants for food, fun, health and well-being.

Whether you are a seasoned gardener, a fledgling grower or a budding beekeeper – we want to help provide training, information and support to you. For more information on the project's events and courses, please call **01558 667150**, email gtf@gardenofwales.org.uk or visit botanicgarden.wales/science/growing-the-future.

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