



Compost in a bottle

Explanatory video transcript

(0:12) Have you ever thought about the treasure trove of our planet on which we move every day? Hidden beneath our feet is not only the basis for plant growth but also the foundation for our existence. Do you know what I'm talking about? Of course, the earth. Which is more than just soil. It is a source of life, a fascinating world full of vitality and possibilities. Why not go on a nature walk and discover the home of trillions of tiny living creatures? These little creatures do hard work every day, but not all living things can be seen with the naked eye.

(0:48) Are you perhaps wondering what that hard work might be? Or maybe you already know the answer? Yes, that's right, the little creatures are composting. This is nature's way of recycling by returning needed nutrients to the soil for new plants to grow.

(1:06) So why don't we learn from nature and do some composting ourselves. This is my mini composter. All composters are fantastic whether they are big or small because they all help to reduce the amount of food waste that ends up landfill.

(1:22) When our food waste sits in landfill, it creates harmful greenhouse gases like methane, and this contributes to global warming. If we use a composter to breakdown and decompose our food and garden waste at home or school, we can reduce the amount of harmful gases going into our environment and have compost rich in nutrients to help grow our own vegetables.

(1:47) First of all, let's explain what composting is. Composting is the controlled breakdown or decomposition of organic materials. There are three methods of composting. Firstly, vermicomposting, this process uses worms to help break down organic matter. The worms digest the waste and produce worm castings rich in nutrients.

(2:12) Secondly, heat-based composting. Compost is heated to speed up the rate of decomposition. And finally, home composting, this process uses the natural decomposition of organic waste using naturally occurring tiny living things, microorganisms.

(2:31) So how can we make the perfect composter to create quality compost at home or in school? Will too little water slow down decomposition? Does it need to be warm to decompose? Let's find out.

(2:45) Get an adult to help you prepare the bottles and then add the layers as shown.

(3:07) Over the next few weeks, give each composter a stir every few days and only spray water on the composters that need water for this experiment. This is a perfect opportunity to observe the compost bottles. You could record your findings, including the temperature of the bottles, the appearance of the bottles and the smell.

(3:30) Composting takes time, so be patient and wait between 5 and 6 weeks before you empty out your compost bottles. What do you think will happen? Make a prediction.

(3:41) Now it is time to empty your composters. What do you think you will find? Which one will have decomposed the most?



(3:48) What have you noticed? Did moisture and temperature affect the rate of decomposition? What are the most important conditions for a good compost pile? In conclusion, to create the ideal compost, we need to create the best conditions for microorganisms, tiny living creatures like fungi or bacteria.

(4:08) As these help break down or decompose the food waste into tiny little pieces, they use this for energy and this process generates heat.

(4:17) As the heat increases, the activity of the microorganisms increases too, causing the decomposition rate to go up, meaning the organic waste breaks down much more quickly.

(4:28) If it is too cold, the rate of decomposition slows down as we can see by the contents of our compost bottle kept in the fridge. That is why we need to keep some of our food in the fridge as it stops it decomposing quickly and keeps food fresher for longer.

(4:44) Microorganisms also need water to survive like all living things. The compost bottle without any moisture did not decompose as quickly as our compost bottle with moisture. Therefore, moisture and temperature did affect the rate of decomposition in our compost bottles. Now we have some compost rich in nutrients, why not plant a seed to start the whole cycle again?

(5:09) Now you have completed this experiment, could you delve a bit deeper? How do you think acidic rain affects the quality of compost? Do all plants need good quality compost? What about plants that have adapted to their environment?

(5:23) Or could we use the heat formed from the decomposition process to warm our homes and help protect our planets even more?

