composting

what is it?

It's the decomposition of organic material in the presence of oxygen. Without oxygen (anaerobic decomposition), the process is slower and smellier.

The composting process involves tiny organisms, including bacteria, fungi, insects and worms, that utilise the two main components of organic waste – carbon and nitrogen – and work in a series of stages. Insects, worms and other visible creatures break down material into a form suitable for microscopic organisms to act on. The result is a beautiful crumbly compost that contains a mix of minerals that plants can absorb as nutrients. There are many methods, from a basic pile to enclosed containers, self-built containers from waste timber, green cones (digesters), Bokashi systems (fermentation) and composting with worms or other creatures. Leaf mould can be produced in a separate container. Leaves take longer to break down but contain minerals the tree obtained from deep in the ground, that may not be found at the surface.

Anything organic can be composted, from garden waste, kitchen peelings, tea bags, eggshells and food that's gone off to cardboard, paper, matchsticks and human and pet hair.

Some things might attract vermin, but can be composted in a sealed container, or using a wormery or Bokashi or green cone systems - e.g. cooked food, meat, grease, bones, dairy produce. It's the same with pernicious weeds or diseased plants. The contents of the vaccuum cleaner are usually inorganic, but it might be OK if you have a natural-fibre carpet. It's the same with sanitary products – fine if they're made from organic materials. Corks will eventually compost, but it takes a long time.

Various things are not compostable - for example coal ash, as it doesn't break down; disposable nappies, as they usually contain inorganic materials; and plastic, glass, metal, polythene bags – or anything inorganic.

There's a debate about pet waste. If your pet is vegetarian, it's fine; but most advice about dog or cat faeces will be to bin it rather than compost it, due to the risk of disease. However, landfilling dog or cat waste could lead to higher risks than home composting, as it may leach into groundwater, and it won't break down very quickly in landfill because of the lack of oxygen. Again, many people successfully add pet waste to their compost bin – allowing the compost to break down for longer, and using the compost on trees or bushes rather than veg. See our links page for more information and advice.

what are the benefits?

In nature, plants die, break down and return to the soil, but when we grow food, we remove a crop that isn't allowed to return to the soil. So we have to add something else if we want the soil to remain fertile – and the best thing is compost. It's a wonderful soil improver, rich in nutrients, organic material and essential microbes to help your garden flourish.

Root systems of plants 'grab' the nutrients they need from composted materials in the soil, and (in the case of leguminous plants and nitrogen) from the air. Chemical fertilisers, on the other hand, are salts that are entirely water soluble, and their use causes several problems:

- Plants have to take them up when they take up water, so they become big and tasteless
- Plants don't have to 'work' for their nutrients, so their root systems become weak and unhealthy
- Because they're soluble, they leach from the land and cause pollution in watercourses
- They don't add to soil structure, so begin a downward spiral that needs ever-more fertiliser
- They only contain nitrogen, phosphorus and potassium (N,P,K), not the range of nutrients that compost does – like calcium, boron, magnesium etc, so plants suffer in the long-run
- The salts can kill some of the bacteria and fungi responsible for transferring nutrients to the plants, requiring ever-more chemical fertiliser

Other benefits of composting are:

- Saves money on buying compost
- Don't need peat composts (which destroy peat bog habitats)
- Reduces waste sent to landfill, so reduces harmful leachates (liquids) and methane (a potent greenhouse gas), and the need for fuel for trucks to transport it
- Reduces the need for garden bonfires
- Increases biodiversity in your garden

Keep a compost container in the kitchen for food waste; empty into your compost bin when full.

what can I do?

Actually, you can't stop dead organic materials composting, so you don't have to do much really – you just have to organise your process so that it produces compost relatively quickly (unless you don't mind how long it takes) and easily without any odours. If you have even the smallest of gardens or back yards, it really is something you should think about doing, rather than having organic material trucked away.

When choosing a site for composting, bear in mind that the process will be quicker in a sunny area, and directly on to soil. Composters can be placed in the shade or even on concrete providing there's drainage (add a few spades of earth at the bottom to introduce necessary micro-organisms), but the process won't be as fast.

It's important to include a roughly even mixture of 'greens' and 'browns'. Greens are high in nitrogen and include vegetable matter and grass cuttings. Browns provide the carbon content – examples are dead leaves, small twigs, scrunched-up paper and cardboard. These browns are very important, as they also provide structure for the heap. Without them the heap would be too compact, oxygen could become depleted, and the heap could start to degrade anaerobically (resulting in a slimy, smelly end-product, giving off methane, a greenhouse gas).

Plastic composter: fresh material is added via the lid at the top, and finished compost is removed with a spade via the hatch at the bottom.

Fresh organic matter recently added to the compost bin – you can see fruit and vegetable peelings, eggshells, teabags, weeds, straw, paper and cardboard.

Other forms of aeration can help. This can involve 'turning' the heap, but that can be hard work if it's contained. Try pushing a broom handle through the centre of the heap and 'stirring' instead.

Your heap should have around 50% moisture content and the consistency of a wrung-out sponge. If it's too dry, water it; too wet, add more 'browns'. You should have compost formed at the bottom of your heap after approximately 6-9 months. If you're in a rush add nettles, comfrey leaves, chicken manure or urine, all of which are compost accelerators. Pre-shredding your material also speeds up the process (but uses energy).

If you want to help others compost, you could look into community composting, which may involve training for larger-scale composting and waste collection, and/or using the compost in public areas. For more complex composting strategies, there are specialist books and websites. You may also be interested in visiting our composting toilets topic. Finally, remember that there's no such thing as 'good compost' – if it's not good, it's not compost.

resources

- see lowimpact.org/composting for more info, links, products, courses & books, inc:
- Pauline Pears, *the Organic Book of Compost*
- Adam Footer, *Bokashi Composting*
- Bianca Lavies, *Compost Critters*
- gardenorganic.org.uk/compost – how to guide
- nationaltrust.org.uk/features/going-peat-free - going peat-free
- cityfarmer.org/petwaste.html - pet waste composting