Autumn leaves and leaf composting

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Introduction

There are two main types of trees in the world evergreen and deciduous.

- **Evergreen trees** are always green and lose their leaves bit by bit all year round.
- **Deciduous trees** lose their leaves all at once in the autumn.

Why do trees change colour in Autumn?

During the summer time plants make their energy by photosynthesis (converting the energy from the sun into sugars and carbohydrates). The chemical that captures the solar energy is a green compound called CHLOROPHYLL and it is this which gives leaves their green colour during summer.

During the Autumn as the sunlight level drops and the temperature falls, photosynthesis stops and any chlorophyll contained in the leaves is broken down to reveal other compounds.

One compound is called CAROTENE a yellow compound. So as the green fades the yellow becomes apparent and the leaf appears to change colour.

The red colouration sometimes seen on leaves is caused by ANTHOCYANIN, a red compound created by the reaction of the sugars (created by photosynthesis in the leaves) with the plant sap. However Anthocyanin is destroyed by frost so the red colouration is lost as the winter progresses and the yellow Carotene shows.

Leaf composting

Due to their slow decaying nature autumn leaves break down far more slowly than most other compost ingredients, and therefore should be composted separately. Leaves can take between one and two years to break down. While not high in nutrient content, leaf compost is an excellent bulky and fibrous soil conditioner.

fact!

There are more micro-organisms in a teaspoonful of soil than there are humans alive on the planet.

How to create leaf compost

This can be achieved either by raking up fallen leaves and placing them in plastic bags, or in specially-constructed plastic netting bins (see overleaf).

The process of decomposition is accelerated if the leaves are kept wet. In a plastic netting bin it is advisable to line the bin with newspapers to reduce the drying effect of the wind. Adding grass clippings can also speed up the process and increase the nitrogen content of the resultant leaf compost (leaf mold).

How to build a leaf composting bin

Materials

- 4 bamboo canes – 1.5m high
- 4 cane toppers
- Measuring sticks
- 4.3m plastic netting / windbreak netting
- Thin gardening wire – cut 10 pieces each 8-10cm long

1. Choose the location for your bin, bearing in mind that it will be in place for a minimum of 2 years. A suitable location would be a sheltered corner of the garden out of direct sunlight and strong winds.

2. Measure out a 1m square plot using the measuring sticks. Place the first cane or stake at one corner of the square.

   Continue until all 4 corners are marked in place with the canes or stakes.

Note. if using canes please ensure cane toppers are used for safety, if using stakes a mallet may be required (teacher use only).

3. Take the netting and wrap around the outside of all the stakes to form an enclosed cube, with an open top.

4. Fix the netting to the canes using the gardening wire, cable ties or string. Also ensure that where the netting overlaps it is also secured in position.

5. You are now ready to start collecting leaves to fill your bin. Use rakes to collect the leaves, get children to place leaves in trugs to transfer to leaf compost bin.

Note. to speed up decomposition the sides of the bin may be lined with newspaper to prevent drying. Also a newspaper or carpet top may be placed on top of the leaves to prevent drying and leaves blowing away. You can also water and turn the leaves occasionally.

Further work

When setting up your leaf bin also set up one (or more) black bin liner full of leaves and place in the same location. You can then compare the progress of the leaf bin decomposition to that of those leaves in the bag.