From Kitchen Prey to Garden Aid

Your Guide To Home Composting

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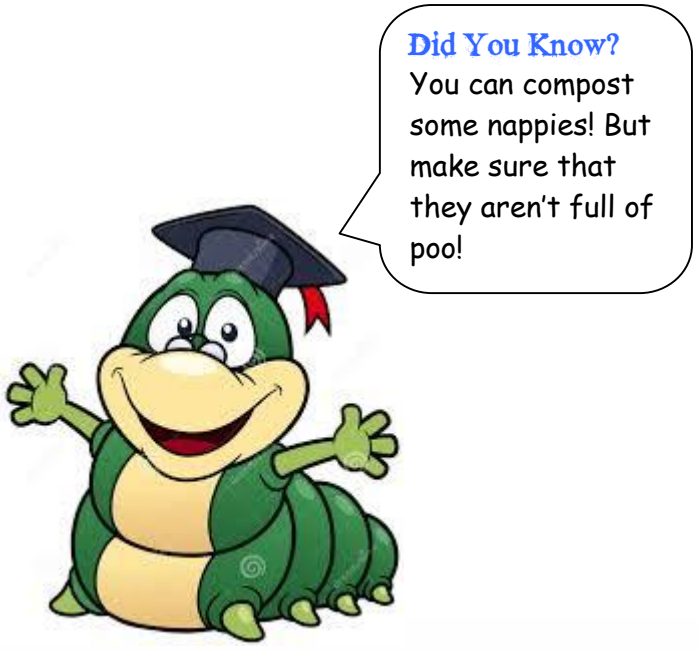
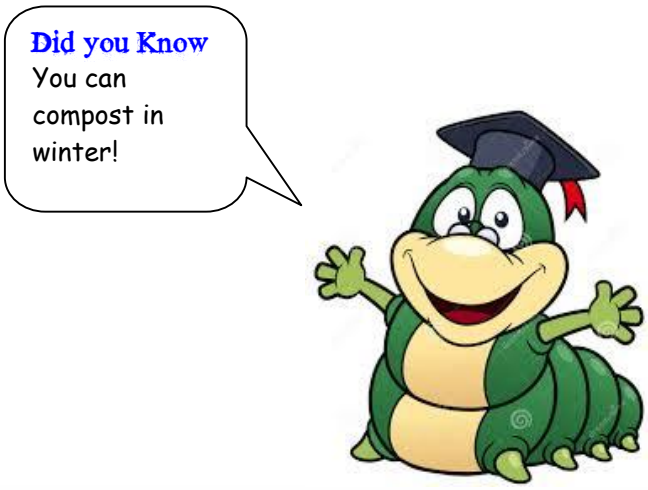


WHAT IS COMPOSTING?

Composting is a simple way to get rid of most of your waste and turning it into something that will fuel the growth of your plants and restore life in dead soil. It is also free and great for the environment.



Setting up your bin

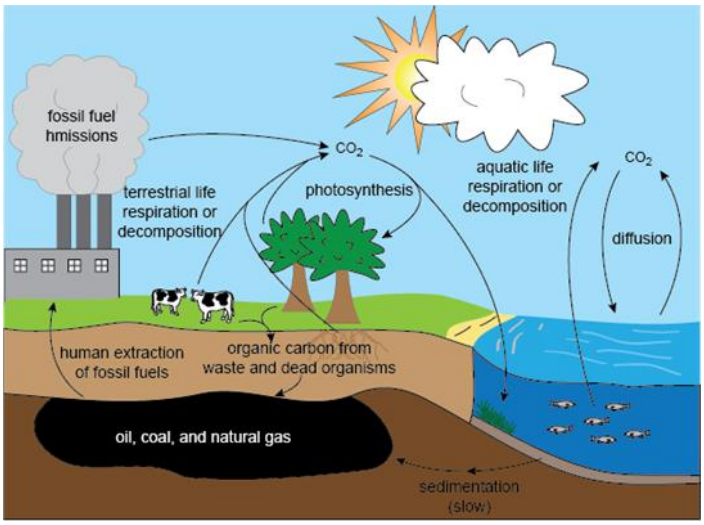
- First look on the internet for some pictures of compost bins to get some ideas.
- Once you have found a bin you like, draw up a plan of how you are going to make it.
- Make your bin.
- Find a place where there is dirt so that worms and bugs can easily access your compost.
- If the ground is hard, dig it up a bit before you place your bin.
- To get your bin going put a bucket full of nitrogen (fruit, veges and lawn clippings) and a bucket full of carbon (Leaves, twigs and paper). Add some water if the heap is dry.
- Continue to add carbon and nitrogen material. The best compost is made from a 1:1 ratio of carbon and nitrogen material.
- For optimal results turn the compost every week.

Fun Tip!
Design your bin so that you can harvest your compost easily

Carbon and Nitrogen Cycle

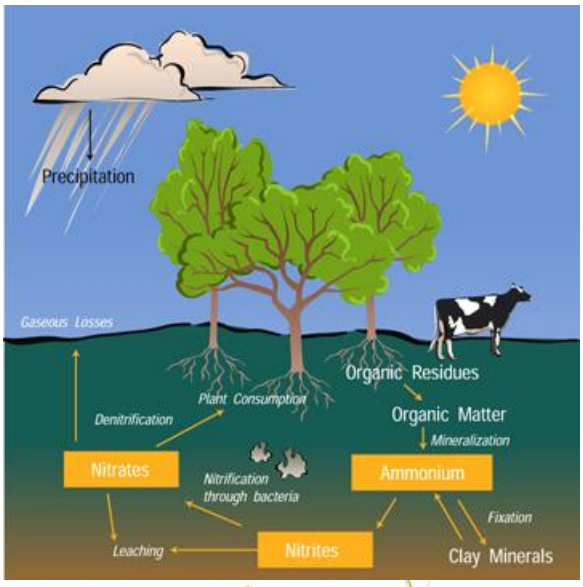
Carbon cycle

Carbon in the atmosphere is in the form of carbon dioxide. About 0.038% of air is carbon dioxide. All living things contain carbon in carbohydrates, protein and lipids. The life process of plants is important to cycle carbon through the ecosystem; photosynthesis, respiration and **decomposition**.



Nitrogen Cycle

All living things contain nitrogen, in proteins and in DNA. Nitrogen fixing bacteria are very important in the nitrogen cycle. These groups of soil bacteria are – decomposers, nitrifying bacteria and denitrifying bacteria.



WHAT TO PUT IN YOUR BIN

Yes

- Vegetable Scraps
- Fruit Scraps
- Tea leaves and bags
- Bread, Grains and Pasta
- Egg Shells
- Shredded paper towels and tissues

No

- Meat, Fish or Poultry
- Bones
- Cooking oils or fats
- Dairy Products
- Wood or timber
- Glass, Metals or plastics
- Styrofoam
- Liquids
- Dog or cat waste

Fun Tip!
Keep your compost a 50/50 split of carbon and nitrogen

pH

pH is a way to measure acidity or alkalinity of your soil. The pH is a scale ranging from 0-14. 0-6 being acidity and 6-14 being alkalinity. Most compost should have a pH between 6-8. The pH can be adjusted by adding lime (to increase the pH) or adding sulphur or iron sulphate (to decrease the pH).

At any point during the composting you can measure the pH. Keep in mind that the temperature can vary throughout the compost pile as can the pH level so make sure to take samples from a variety of spots.

There are different ways that you can measure the pH in the compost:

Soil Test kits

Test kits for analysis of soil pH can be used just follow the manufacturer's instructions.

pH paper

If your compost is moist, you can insert a pH indicator strip into the compost, let it sit for a few minutes to soak up water, then read the pH using colour comparison.

Compost Extractions

Using a calibrated meter or pH paper, you can measure pH in compost extract by mixing compost with distilled water. Make sure to be consistent in the ratio for compost to water and make sure you account for the initial moisture in the compost.

One approach to this method is to read the pH of oven-dried samples of compost that have been reconstituted with distilled water:

1. Spread compost in a thin layer in a pan, and dry for 24 hours in a 105-110°C oven.
2. Weigh or measure 5g samples of oven-dried compost into small containers.
3. Add 25 ml distilled water to each sample.
4. Mix thoroughly for 5 seconds then let stand for 10 minutes.
5. Read the pH with a calibrated meter or with pH paper and record as compost pH in water, or pH.

Micro organisms

There are many micro organisms in a compost pile. The main groups are bacteria, fungi, protozoa and actinomycetes. In a teaspoon of compost you may find up to a billion bacteria, 10,000 to 50,000 protozoa and 130 – 200 metres of fungi hyphae.

One way to think of bacteria is to break it up into temperature preferences.

The bacteria who like the cooler temperatures are the psychrophiles. They like the temperature at around 13°. They will work during the colder months but during the warmer months they will leave it to the mesophiles who like the temperature at 20 - 30°.

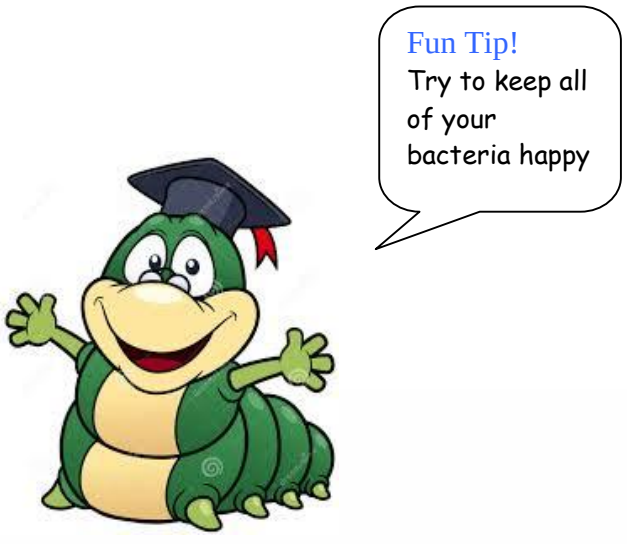
You should probably try to keep your compost pile at this temperature because it is perfect for all of the macro organisms such as worms and insects who will work along side the bacteria.

Thermophiles will start work when the temperature is at 40° for about 3-5 days and will stop if the conditions in the pile have not changed. If you decide to turn the pile after the thermophilic stage, it will

heat up. This cycle can repeat 3 - 4 times until you have exhausted the energy supply for the thermophiles.

Fungi take over the compost pile in the final stages. They prefer temperatures of 21 - 24°. Fungi break down the carbon material in your compost and like a pH of 5.5 – 7.0 compared to the bacteria who like a pH of 7.0 – 7.5.

Actinomycetes are part bacteria part fungi. They like moderate temperatures. If your pile has something that looks like grey cobwebs all over it, don't worry, these are the actinomycetes. They play a special role in creating humus (the stuff that comes out of composting). They work many feet below the surface of the soil (most bacteria work on the top).



Harvesting your bin

It takes a while for compost to mature. Turning the compost should speed up the process and it should take 3-4 months if it is regularly turned. If the compost is not turned it will take 9 months to a year.

Once the compost has matured it should look like a potting mix but it doesn't have to be perfect. As long as most of the materials have broken down and it has a soil like composition, your compost is ready to be added to your garden.

Harvesting your compost depends on how you designed your bin.

If you have a trap door, open it and scrape your compost out with a spade. Don't have a trap door? Lift up your bin and use a spade to scoop it out.

Problems and how to avoid them

Problems with your compost can generally be fixed by following the four compost principles; aliveness, diversity, air and moisture. But if you come across pest these tips may help.

Bad Smells

If your compost smells it is probably because your compost is to wet, needs more air or is too acidic.
To fix this try to

- Add some dry garden materials
- Give it a stir for aeration and to mix

Rodents

If you have rodents in your area they could be attracted to your bin.
To fix this try to

- Secure the lid
- Place chicken wire around your bin
- Plant mint or peppermint around your bin (rodents hate it)

Cockroaches

Cockroaches like to hide in warm, dry spaces.
To fix this try to

- Hose down your compost
- Mix your compost, poking every crevice
- Avoid forming dry, warm air pockets

Fun Tip!
Follow the four compost principles for healthy compost.

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