

# Ready, Set, Grow

SCHOOLS PROGRAM



NORTHERN SYDNEY  
CENTRAL COAST  
NSW HEALTH



# Ready, Set, Grow

## SCHOOLS PROGRAM

## How to manage waste at school

### What is compostable, collecting food scraps and setting up composting and worm farming

#### Did you know?

About half of what we throw into the garbage bin is food and garden waste!

Mixed with the rest of our garbage, the potential of these organic materials is lost – they are usually wasted in landfills where they contribute to environmental problems like the greenhouse effect and water pollution.

Food and garden scraps are too valuable to waste. Recycling your school's food and garden scraps on site not only saves energy (less trucks to have to pick up the material), but also provides a natural soil conditioner for your gardens.

By turning your food and garden waste into compost you can make a difference to our environment, by –

- reducing the amount of waste you dispose
- reducing the use of artificial fertilisers
- improving your local soil quality
- creating a more natural, healthier (and happier) place for your students

#### What is compostable?

All food can be collected as well as paper food wrappings and paper bags. (The small amounts of meat in left over sandwiches shouldn't affect your composting system.)

#### The benefits of composting

Composting food and garden scraps helps to complete a natural cycle of life. Composting occurs naturally everywhere. As plants grow and eventually die, their nutrients are made available again by returning to the soil.

#### 1. Cut back on school waste and save money

One major benefit of composting is that you will greatly reduce the amount of garbage your school throws away. Sending less waste to landfills is an effective way to reduce your environmental impact.

Compostable food and garden waste can make up a significant percentage of landfill waste. Experts say that between 25 percent and 50 percent of the food we buy ends up being thrown away.

Composting is one of many environmentally friendly ideas that can also save your school money. By composting your schools organic waste you can cut back on garbage disposal bills while helping the earth.

#### 2. Help reduce greenhouse gases

Your school can have a direct effect on reducing greenhouse gases just by composting. Organic waste that is sent to landfills ends up buried, where sunshine and air cannot reach it. The result is decomposition that occurs in an anaerobic environment, which creates methane gas. Cutting back methane emissions, which are many times more effective at trapping heat than carbon dioxide, is a top priority in reducing greenhouse gas.

#### 3. Free organic fertiliser

Composting gives you a free supply of organic fertiliser for your school garden. Compost as a fertiliser

- contains nutrients and microorganisms that your plants, shrubs, and trees will love
- retains water in your soil, thereby reducing erosion
- encourages nature to work for you
- earthworms and many other beneficial creatures flourish in enriched soils. Their activities help release essential nutrients, which strengthen plants and increase their resistance to diseases

Mix your compost with your soil as you prepare your garden beds for planting. You can also use compost to top-dress the soil around the bases of perennial plants, trees, and shrubs.

Put the benefits of composting to work for you by starting your school composting system. Composting is an easy and rewarding way to reduce your schools garbage and feed the soil.

# Composting

Things to consider before you start composting

## Who will manage the compost?

- Student ECO/Environment team
- School caretaker/gardener
- Teachers
- Cleaner

Ensure that more than one person is responsible so there is always back up.

## How will the food for composting will be collected

A food collection bucket should be placed beside every garbage bin.

- Collection buckets should be
- 10 litre size (maximum)
- should have a lid
- should have a handle (a second hand tradesmen's bucket with a small hole cut into the lid is ideal save money by asking for donations within the school).

## Clean signage on the bucket and education about what is compostable is essential

Simple ideas for signage

- school colouring competition to custom make signs
- Council can provide generic signs

## Who does the collection?

- Bin monitors (senior students)
- Bin committee
- Caretakers
- Environmental group or committee

## Setting up the composting

How many bins?

- A waste audit can be done to determine the number of bins required. (Council can assist with your audit. The audit can become part of your SEMP).
- Alternatively start with a minimum of two bins and add extras as required.

## Where to put the bins?

Ideally the bins should be

- on the soil in a warm, well drained location
- in a sunny spot
- close to the garden where the compost will be used
- close to water

## Other considerations are

- Space near bin for collection/storage of mulch and other 'woody' materials
- Space near bin for storage of finished compost
- Hessian bags to cover the compost
- Compost turning tool for easy aeration

Follow our Easy Compost Recipe to make great compost.



## Easy Compost Recipe

### Ingredients:

Compost bin, broken up twigs, prunings, dry leaves, mulch, grass clippings, flowers, torn newspaper, food scraps, hair, vacuum cleaner dust, finished compost (rich potting mix, soil, dynamic lifter, manure, straw etc), water, hessian bag, air, compost turner (optional)

### Method:

**Step 1:** Choose a position for the compost bin - things to consider when choosing a position

- should be well drained
- sunny
- close to water
- room for storage of mulch and woody materials
- room for storage of finished compost

**Step 2:** Put a layer (10–15cm, about the width of four fingers) of coarse material (broken up sticks, twigs, prunings, dry leaves and newspaper) on the bottom of the heap. This allows air to flow through the heap.

**Step 3:** Add a bucket of finished compost as a starter.

**Step 4:** Add food scraps to the heap.

**Step 5:** Add a layer of vegetation (mulch, leaves, etc). For every bucket of food scraps add two buckets of vegetation or other material.

**Step 6:** Add water, if necessary, to ensure enough moisture.

**Step 7:** Add air by turning or stirring.

**Step 8:** Cover with hessian bag – this helps retain the moisture and keeps out the flies.

Rinse the collection buckets and wash hands.

Repeat **steps 4 – 8** every day or at least once a week until the bin is full. You can add material in any order depending when you have it available.

When bin is full **do not add any more food scraps**. Keep moist by adding water (if necessary) until no food scraps are visible and the compost smells fresh and earthy – this will take 8-12 weeks. (Stirring the compost once a week (no more) will speed up the process.).

It is now finished compost ready for use on the garden. You can set up another compost bin while this compost is cooking. So you have one active bin while the other is maturing its compost.

## Help!

### Smelly compost

Three things could cause smelly compost

- too wet
- not enough air
- too much food, not enough “other” materials

Fix it by:

- stirring in dry leaves, mulch or soil
- turning the compost to get more air in
- adding two or three handfuls of garden lime or dolomite
- mixing food with shredded newspaper before adding to the bin

### Unwelcome visitors

If ants, cockroaches, fly, mice or rats make your compost their home.

Fix it by:

- ensuring food is covered by vegetation or mulch (see Step 7)
- adding lime and turning the compost to discourage ants and cockroaches
- keeping meat out of the compost
- turning the compost regularly

### Too dry

Compost should always be spongy, and squeezable.

Fix it by:

- Adding water

### Composting too slow

Usually happens if compost is too wet or too dry or too cold.

Fix it by:

- adding newspaper, and turning (if too wet)
- adding water and turning (if too dry)
- stirring in some dynamic lifter or old compost, or grass clippings

### What about weeds?

Compost can kill weed seeds if hot enough, but it takes at least 60 degrees for three days.

An easier and safer way to dispose of weeds is to make a compost tea – put weeds in a bucket with water for 2 – 4 weeks. This increases the nitrogen and works as an activator to build up the heat then add to compost heap.

Alternatively weeds can go in the green lid bin.

### What not to compost

Although in principle anything that was once part of a plant or animal can be used in home compost, until you feel confident about composting do not compost the following:

- dog, cat or human faeces (can cause disease)
- meat and fish scraps
- only small amounts of dairy products and fats (add to the centre of the heap so they break down and do not attract flies, rats or mice)
- chemicals (most will kill or slow down the living organisms in the compost and soil)



## Worm farming

Another way to use your valuable food scraps.

### What is worm farming?

Worm farming is another great way to compost your food scraps. Worms will eat most of your kitchen waste and turn it into a high-quality fertiliser. Worm farming is great for people who live in units, high rises or have limited space or garden material. Worm farms don't smell, they don't take up much room and can be kept indoors.

### What type of worms will be in the worm farm?

Composting worms, such as Tigers, Reds and Blues, are the only species that live, work and breed well in the rich, moist, organic environment of a worm farm.

### How many worms are needed to start a farm?

You start a worm farm with about ½ kg or 2000 worms. The population doubles approximately every three months until the population reaches the capacity of the container. Worms are self regulating and will stop breeding once they reach the capacity of their container, as the older worms die off they will start breeding again.

### What worms like to eat?

Worms like to eat most vegetables (except tomatoes, raw potatoes and peelings, carrot tops), they love fruit especially melon, pineapple and apple (they don't like citrus), they enjoy herbs (but don't like strong flavours like chilli, onion and garlic). Worms will also eat soaked and ripped cardboard, hair, tea bags and crushed egg shells.

### The worm farm

In establishing and maintaining a worm farm you are looking after a living creature, as living creatures worms require three basics: 1) shelter, 2) food and 3) water.

Worms are easy going so you can choose the style of worm farm best for you.

Basically a worm farm is a series of stackable boxes made up of plastic, wood or any other lightweight, waterproof material (polystyrene boxes from the fruit shop are ideal). You can easily make your own worm farm or if you prefer you can purchase a worm farm from Hornsby Shire Council.

If you are making your own worm farm, the base should have a solid floor to catch the run off or worm tea from the upper layers or trays. Layers stacked above the base layer need to have holes in them to allow run off to drip into the bottom tray and for the worms to move between layers.

Sample worm farm available from Hornsby Shire Council



## Easy steps to worm farming

### Step 1: Provide shelter - set up your worm farm.

Place the worm farm in a shady place in your backyard or in a low light area on your balcony, worm farms can be kept inside if you like.

Before adding your worms to the worm farm, you will need to provide them with bedding material to the second working tray. A combination of finished compost, leaves and paper works best as bedding. However a coir fibre brick for the bedding is provided in the worm farm kit - make sure there is enough to come up to the line.

The bedding material should be moist before it is added to the first working tray of your worm farm. Make the bedding layer 10 to 15 cm deep.

Spread worms out on the surface of the bedding and allow them to burrow. Leave the worms for a week to allow them to settle in. The worms will live in the bedding, wriggling from lower trays to the upper trays to eat the food.



## Step 2: Provide food – what and how to feed your worms

When starting out, add a small amount of food to the first working tray. You may not be able to feed your worms all your food scraps in the first few weeks. Do not overfeed – about ½ kg per 2,000 worms per week is enough to keep them going. Once your worms start multiplying, you will be able to give them more food.

To help the worms eat more, you can mash, blend or process food before adding it to the farm.



The worm farm will take a few months to get going - worms can consume their own weight in food each day!

Remember, don't add too much food at once and only add more when most of the previous meal has disappeared.

After you have fed your worms, keep their environment moist and dark by covering them with moist newspaper, a piece of underfelt/carpet or a hessian bag. You will only need to use your second working tray if/when the first working tray becomes full (keep in your garage or shed until this time).

### What worms eat

Just like us, worms have their likes and dislikes. Worms will eat most of the scraps from your kitchen, with only a couple of exceptions.

### Worms like to eat...

- most vegetable and food scraps (they really like variety)
- soaked and ripped pizza boxes /egg cartons
- shredded and soaked cardboard
- paper – ripped into small bits
- hair
- crushed egg shells

### Worms don't like...

- onions – including garlic and shallots
- citrus fruit
- chillies
- raw potato peelings

### Worms are fussy about...

- meat
- dairy foods
- fatty foods

(Worms will eat these foods, but they can sometimes make the worm farm smelly and attractive to maggots, it's therefore best to avoid, or not add these foods at all.)

Do not feed worms manure from animals or fruit/vegetables scraps which have recently been sprayed with pesticides as they could kill your worms.

### Step 3: Adding water

Worms rely on moisture within the soil to maintain their body functions. It is essential to keep the worm farm moist – the consistency of a wet sponge, but not too moist or too dry, as the worms will die.

Add water to the farm as required, this can simply be done by gently pouring a bucket full of water over the top (leave the hessian or newspaper cover in place). During periods of high temperatures you may need to "water" your worm farm every day.

Remember to remove the liquid or "worm tea" in the bottom tray regularly. Leaving the tap open with a bucket or container under the tap to collect the worm tea is the easiest most convenient way to collect the worm tea.

It is also a good idea if your worm farm is outside and there is a lot of rain as leaving the tap open will allow the farm to drain freely.

The worm tea makes a great natural liquid fertilizer, full of nutrients. Mix the worm tea with water (1:10) to the colour of weak tea before feeding your plants.



#### Step 4: Harvesting

Harvest the castings from the first working tray when the castings have reached 2cm above the moulded line. Stop feeding the worms for one week, remove the newspaper/hessian and remove the first working tray and empty. Rotate with the second (so this becomes the first working tray), put some food scraps in the top tray and cover. The worms will move up towards the food in the second working tray.



#### How to use the worm liquid and castings

The castings harvested from your worm farm can be

- mixed into compost and used in your "no dig" veggie garden
- added to potting mix when potting plants (caution - if harvesting in spring and autumn you could get baby worms appearing in pot plants!)
- applied around the drip line of plants (especially vegetables and herbs) when planting into your "no dig" veggie garden
- applied around the dripline of native trees

Worm liquid or worm tea – liquid fertiliser drains through the worm farm and into the Collector Tray.

To use; mix 1 part worm tea to 10 parts water and use as a liquid fertilizer for your plants. If too strong it will burn plant roots. The diluted worm tea can also be sprayed on to foliage as a natural insecticide.

## Help!

### Too dry

Worms rely on moisture within the soil to maintain their body functions. (If your worm farm is too dry you may also have ants.)

Fix it by:

- water over the top of the newspaper/hessian especially in hot weather

### Too wet

Worms can drown if there is too much liquid in the liquid collection tray.

Fix it by:

- leaving the bottom tap open to allow the liquid to drain
- aerate the castings with a fork and add in some lime

### Too acidic

If worms aren't laying eggs, the farm will probably be too acidic (from fruit and sugary foods). An indication is the presence of small white worms and ants.

Fix it by:

- adding a sprinkle of lime every month or so (1 tablespoon per kg of food)
- add water

### Maggots

Maggots come from meat, dairy or fatty foods in the worm farm.

Fix it by:

- soak some bread in milk and leave in the feeding tray, the bread acts as a magnet for the maggots, after about two days dispose of the bread and maggots

