



**NORTHERN BACKYARD FARMING**

# COMPOSTING

# COMPOST

1 Compost

4 Backyard Compost

12 Vermicompost

22 Use Your Compost

23 Resources

## Design and Layout

[www.soaringtortoise.ca](http://www.soaringtortoise.ca)

Soaring Tortoise

## Illustration

[www.alisonmccreesh.com](http://www.alisonmccreesh.com)

Alison McCreesh



# Compost

## Waste not, want not



Composting  
is nature's way  
of recycling!

Composting is a natural process where organic materials such as food and yard waste get broken down into a dark, soil-like material called compost.

Tiny living things called microorganisms do most of the hard work during composting. They are the ones that break down food and yard waste and turn it into compost.

Composting can be done almost anywhere, anytime, and at any scale - even during winters in the Northwest Territories (NWT)!

## Let it rot!

Composting is a fun and satisfying way to turn your food and yard waste into a valuable material - compost! It can be done indoors, or outdoors, and if done properly, it won't smell.

Compost is one of the best soil conditioners that you can use to help your garden and lawn grow. It is loaded with lots of good bacteria, fungi, and other microorganisms that make for happy soil, and it's free!

Compost helps to revitalize the soil because when you add broken down organic materials, you also boost the soil's ability to absorb nutrients and hold vital water in the soil for good root and crop growth.

Composting is also a good way to reduce the amount of garbage you send to the landfill. This reduces the amount of methane, a powerful greenhouse gas, that is released into the atmosphere.



In Yellowknife, studies show that 26% of waste is organic.

## Inside or outside?

There are two general ways you can start composting your food and yard waste at home.

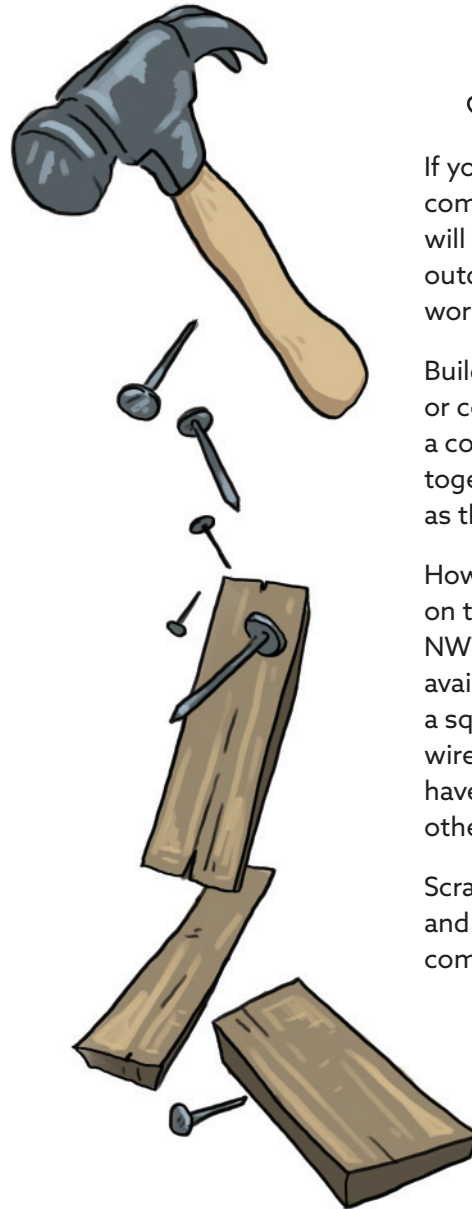


**Backyard composting**, which is done outside in a compost bin.

**Vermicomposting**, which is done inside in a worm bin with the help of red wigglers.

Outdoor composting can be done year-round, although the pile will freeze in the winter.

Vermicomposting is composting in a bin using worms, specifically red wigglers, to turn food waste into compost. This method of composting is particularly useful during the winter, and is great for those who want to compost their food scraps, but don't have enough outdoor space. Vermicomposters are also great for classroom settings at any age.



## Backyard Compost

### The compost bin

If you are thinking about starting a backyard compost bin, take time to think about where it will go. Keep in mind that bins require a minimum outdoor space of about three feet by three feet to work properly.

Building your own compost bin can be as simple or complex as you like. The basic idea is to create a containment that keeps the compost materials together so that microorganisms can create heat as they break down the organics into compost.

How you design and build your bin will depend on the materials you have on hand. In the NWT, wooden shipping pallets are often readily available. Simply place four pallets upright to form a square bin and tie the four corners with rope, wire or chain. Keep in mind that it is also useful to have a lid or cover for your bin to keep ravens and other animals out.

Scrap wood (non-pressure treated), mesh wire, and cement blocks can also be used to make a compost bin.



## Multi-compartment bins

If you are interested in composting seriously, or you want to share the work with your neighbours, consider building a multi-compartment compost bin. Multi-compartment bins are a good idea if you have lots of organics because they allow you to make compost in batches.

The compost must undergo two phases to make a finished batch of compost - active and curing. The active phase is first, and is when the organics breakdown rapidly. With the right ratio of carbon to nitrogen, and with your own initial turning of the pile, oxygen-loving compost microorganisms will heat-up the pile during this active phase. Curing is the second phase, and begins when the organics are done breaking down and the compost starts to cool off.

A multi-compartment compost bin allows you to simultaneously make multiple batches of compost. For example, you can fill up one compartment with organics and set it aside to finish curing, while at the same time starting a new batch of active compost in another compartment!

## The compost recipe

Composting is like cooking. You need to have the right ingredients to make it work.

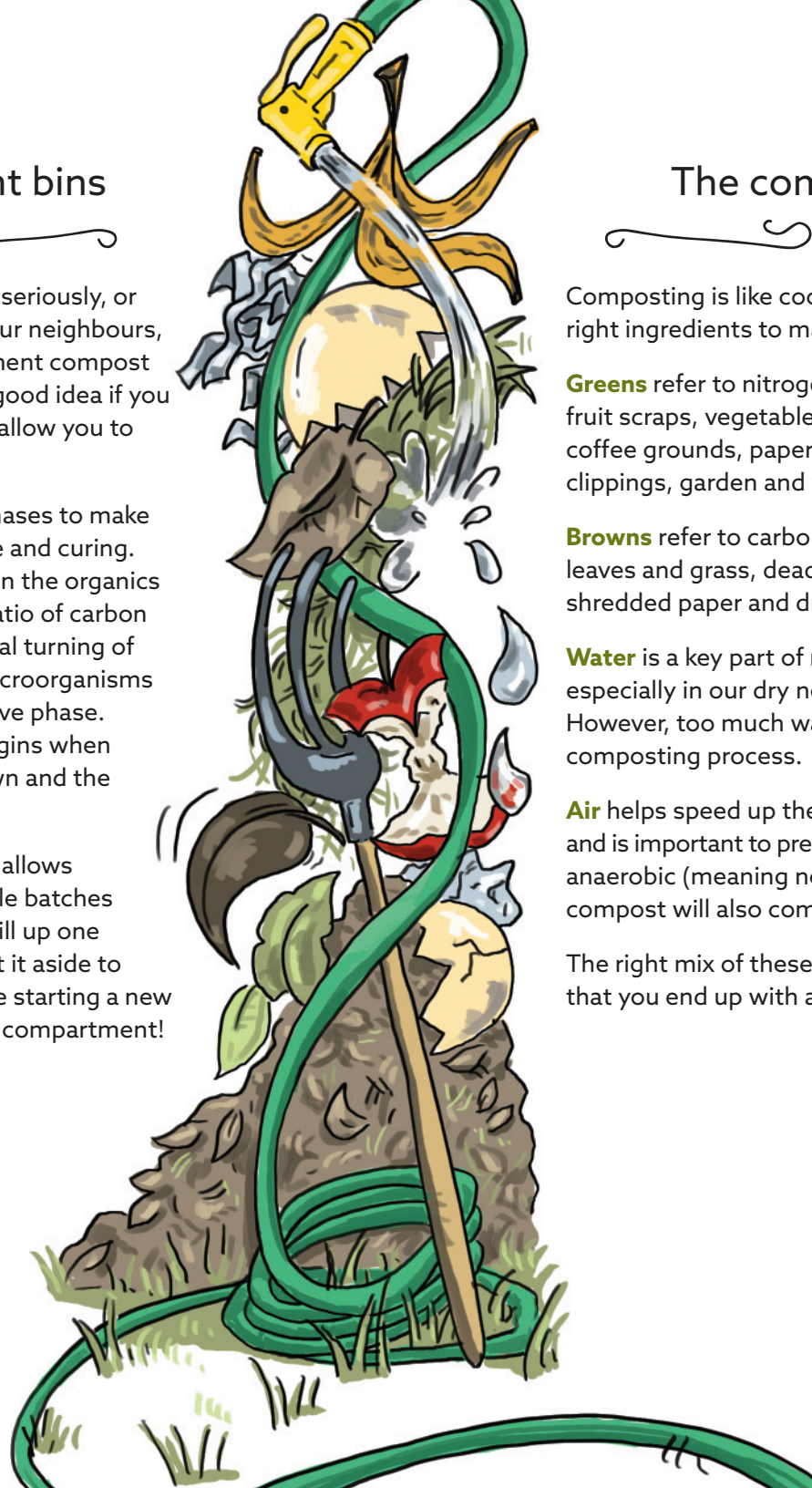
**Greens** refer to nitrogen-rich organics such as fruit scraps, vegetable scraps, crushed egg shells, coffee grounds, paper towels, tissues, grass clippings, garden and yard clippings.

**Browns** refer to carbon-rich organics such as dried leaves and grass, dead plants, wood shavings, shredded paper and dryer lint.

**Water** is a key part of making quality compost, especially in our dry northern environment. However, too much water can be harmful to the composting process.

**Air** helps speed up the decomposition of organics, and is important to prevent compost from becoming anaerobic (meaning no air can get in). Unturned compost will also compact and start to smell.

The right mix of these four ingredients will ensure that you end up with a quality, finished product!



## Like a layer cake!



Cover the greens with a layer of browns to deter pests and prevent bad smells!

Think of your compost bin as a layer cake. It is best to start your compost bin with a generous layer of coarse browns along the bottom of the bin (about ten centimeters thick). Next, add a layer of greens, such as kitchen scraps or lawn trimmings (about six to eight centimeters thick). Continue to alternate between layers of greens and browns. The thick base layer helps ensure that your pile will be properly aerated.

You can add water as you build up your compost pile with organic layers. However, sometimes it can be tricky to determine if you need to add water or not. A sponge test can help you make this decision.

To do the test, take a fistful of organics from your bin and squeeze it together. If it falls apart and crumbles, you need to add water. If it sticks together and feels like a wrung-out sponge, then you have the right amount of moisture. If there are droplets of water when you squeeze, then there is too much water.

## Cooking compost!



Mix the pile every 10-14 days during the active phase.

Within a short time of adding organics and water to the bin you will start to notice the compost heating up. This is a sign your compost is cooking, and in the active phase.

Make sure to turn and water occasionally while the compost is cooking - you want to keep those microbes happy!

You can continue to add new organics to your bin as the compost cooks. If your bin is full, you may want to consider creating another compartment, or starting a second compost bin.

If you stop adding new organics to your full pile it will start to cool down and stop cooking. This is a sign it is entering the curing phase.

If you are working with a single bin, you can continue to add new organics to the top of the pile while the bottom starts to cure.

## Active or curing?

Not sure whether your pile is active or curing?  
Here are some quick tips to help you tell.

Active:

- Warm to hot temperature
- Still visible pieces of organics
- Smells a little (and sometimes a lot)
- If cool, heats up after turning and/or watering

Curing:

- Cool to warm temperature
- No more visible organics (looks like dirt)
- Smells like the forest floor
- Doesn't get hot after being turned

Keep in mind that when the temperatures are consistently below zero, your compost will freeze. You can still add to your outdoor compost pile during the winter, but the pile will build up until spring when it will really start cooking.

## Troubleshooting your compost

Sometimes you may find that your compost bin looks or smells a little "off". Here are some tips to get your compost back on track.

If your compost smells like rotten eggs or is sopping wet it has likely become anaerobic:

- Turn it more often to aerate the pile
- Add more browns, and mix
- Leave the lid off to dry it out
- Try to layer more frequently

If your compost doesn't seem to break down, even when outdoor temperatures are warm:

- Do a sponge test and add water if needed
- Turn it more often to aerate the pile
- Are you too heavy on greens or browns?
- Cut organics into smaller pieces

If your compost is attracting pests:

- Cover the pile with browns or soil
- Put a lid on the pile
- Aerate your pile by turning



Part of what attracts pests is the smell.

## Harvesting your compost

Compost is finished and ready to use once it is a dark and crumbly soil-like material with an earthy smell, or no smell at all. If it still has a lot of large lumps in it, or is still warm, it is best to let your compost sit for a few more weeks. However, many gardeners will remove lumpy compost in the fall and use it as mulch around shrubs, or to fill empty garden beds.

In the NWT, it can take two seasons to make finished compost. However, it is easy to get finished compost in one season with a well-maintained multi-compartment system that is south facing.

If you are using a single bin, harvesting your compost is as simple as removing the finished compost from the bottom of the pile. Be sure to avoid removing the unfinished organics that are still breaking down- they will be ready in due time! The process is like a conveyor belt.



## Vermicompost

### Composting with worms!

While there are many perks to outdoor composting in the NWT, you may also want to consider starting a worm bin (vermi-composter).

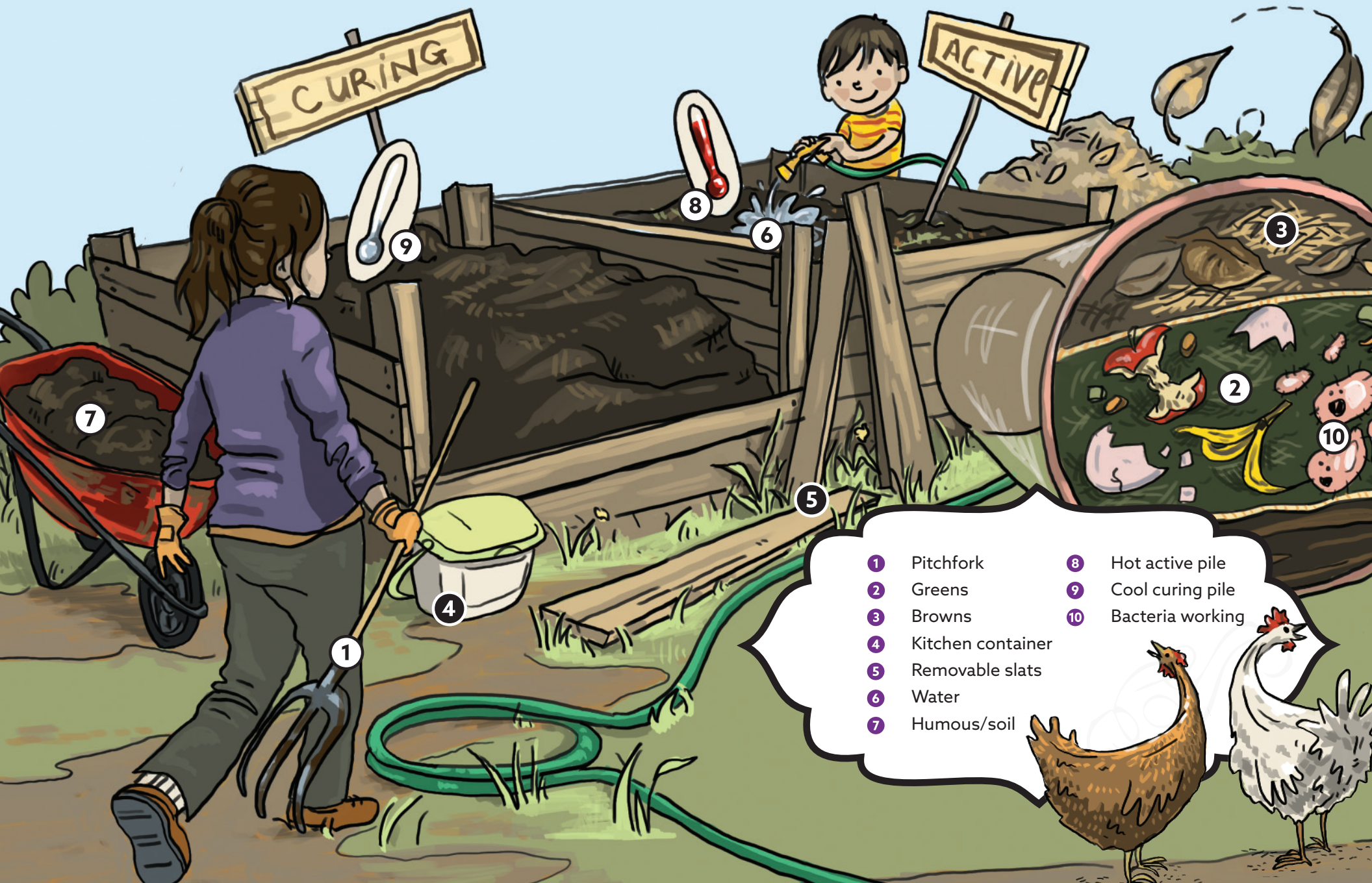
It is a fun and easy way to compost indoors, and is the perfect solution to making compost when it is freezing outside.

You only need a few things to get started:

- A ventilated bin
- Bedding for the worms to live in
- Some red wiggler worms
- Food for the worms to turn into compost







- |   |                   |    |                  |
|---|-------------------|----|------------------|
| 1 | Pitchfork         | 8  | Hot active pile  |
| 2 | Greens            | 9  | Cool curing pile |
| 3 | Browns            | 10 | Bacteria working |
| 4 | Kitchen container |    |                  |
| 5 | Removable slats   |    |                  |
| 6 | Water             |    |                  |
| 7 | Humous/soil       |    |                  |

## Red wigglers



Red wigglers are a special type of worm that are well known for their composting abilities.

They reproduce quickly, process large amounts of organic materials, and can live happily in small containers.

You can start your worm bin (vermi-composter) with anywhere between a half and full pound of red wigglers.

Worms can be requested for free from Ecology North in Yellowknife or from the Northern Farm Training Institute in Hay River.

## The worm bin



Although there are pre-made worm bins available for purchase, it is just as easy to make your own!

All you need is an opaque plastic (or wooden) bin with a removable lid. Although worms don't have eyes, they are still very sensitive to light and prefer living in the dark.

You can alter the size of the bin to suit your composting needs, however we recommend that the bin be approximately 20 centimeters to 30 centimeters in height, and have a bottom of at least one square foot. Rubbermaid containers with added ventilation holes are commonly used for worm bins.

Drill some small holes in the top of the bin (about five millimeters in diameter) to allow ventilation and drainage. Don't worry about the worms escaping through the holes. If you maintain a healthy worm bin, they will be happy to stay!

Some people drill holes in the bottom and place their bin on a tray or in a second container to allow moisture to drain out. This helps with moisture levels, but isn't necessary.

## Bedding



A moist compostable material should be used for bedding.

Once the bin is ready, the worms will need a comfortable material to live in - bedding.

A moist, compostable material should be used for bedding. What you choose for bedding will depend on what is available in your community, but some examples include shredded newspaper, shredded cardboard, peat moss or sawdust. Glossy materials such as flyers and magazines should be avoided.

Fill the bin half to three quarters full with bedding material. Add water. The bedding should be fluffy, and about as wet as a damp sponge: not soaking, but not dry either.

It is a good idea to mix or turn the bedding every few weeks to aerate the bin and distribute moisture.

## Food



Red wigglers eat half of their weight in food waste every week!

Worms are not too picky when it comes to food, but it is a good idea to avoid meat, oils and dairy because they may result in bad smells!

Foods that are acidic, such as citrus peels and tomatoes should also be avoided or minimized because when they make up the largest part of the feedstock they can make the bin too acidic for the worms.

Kitchen waste such as fruit and vegetable scraps, tea bags and coffee grounds can all be composted in the bin.

Sometimes the worms will also need 'gritty' foods to help digest the other foods in the bin. Crushed eggshells usually do the trick, and they also help control acidity.



## Feeding your worms

Feed your worms on a regular basis, ideally once or twice per week. To feed them, dig a small hole in the bedding, place the food scraps underneath, and then re-cover the hole with the bedding.

Put the food in a different corner of the bin each time to keep the decomposed materials and the fresh food scraps separate.

To help break down the food as quickly as possible, you can chop food into small pieces. The smaller you cut up your food scraps, the faster they will be eaten.

Try to avoid over-feeding your worms as this can cause bad smells and attract fruit flies. If after three days you can still see the food you put in the bin, then you put too much.

## Worm problems

If your bin smells like rotten eggs or is too wet:

- Add fresh dry bedding
- Stir the contents of the bin to aerate
- Add crushed eggshells and limit acidic foods
- Take out some food and wait to add more
- Unblock air holes or drill more

If your worms are trying to escape:

- Add water if the bin is too dry
- Add fresh dry bedding if it appears too wet
- Stir the bedding to allow ventilation
- Start a new bin if you have too many worms
- Add crushed eggshells to reduce acidity
- Harvest some of the finished compost

If you have fruit flies:

- Bury worm food in the bedding
- Add less food
- Add bedding on top

If you have moldy food:

- You may be providing too much food
- Make sure you bury food under bedding



## Harvesting your bin



After two to three months there should be dark, soil-like worm castings ready for harvesting. The trick to harvesting is to separate the worms from the castings. There are various methods you can use to do this.

Side-to-side:

- Slide all of the contents in your bin to one side
- Lay fresh bedding on the empty side
- Bury new food under bedding
- Worms will migrate to new food
- In three weeks harvest compost

Bright lights:

- Put bin under a bright light or dump contents onto a sheet of plastic
- Worms keep away from the light
- Remove two inches of the top layer
- See worms? Give it ten minutes
- Remove the next layer and repeat as needed

## Use Your Compost

### Feed your dirt

The compost you harvest from backyard composting and vermicomposting is very rich in nutrients and can be used in many ways.

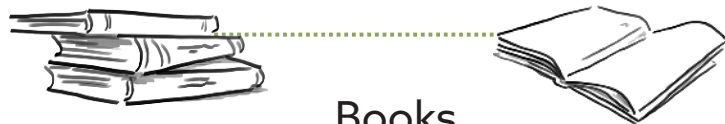
Some ways to use your finished compost include:

- Working compost into your garden beds before you plant in the spring or after you harvest in the fall
- Spreading compost around the base of existing shrubs, trees and houseplants
- Mixing one third compost to two thirds soil to get the best soil mix
- Making 'compost tea' for your plants by adding a few cups of compost to your watering can and allowing it to steep for a day





# Resources



## Books

### **Worms Eat My Garbage**

Mary Appelhof, 1997.

### **Easy Compost**

Niall Dunne, 2013

### **The Rodale Book of Composting**

Grace & Deborah Martin Gershuny, 1992

### **The Complete Compost Gardening Guide**

Deborah Martin & Barbara Pleasant, 2008

### **The Complete Guide to Gardening and Composting with Worms**

Loren Nancarrow & Janet Hogan Taylor, 1998



## Web resources

### **Composting North of 60, NWT Resources, Wildlife and Economic Development**

[www.iti.gov.nt.ca](http://www.iti.gov.nt.ca)

A guide to home composting in the NWT.

### **Territorial Farmers Association**

[www.farmnwt.com/article-categories/composting](http://www.farmnwt.com/article-categories/composting)

A collection of good articles on composting in the NWT.

### **Vermi-Composting: A How-To**

[aep.alberta.ca/waste/composting-at-home/vermicomposting.aspx](http://aep.alberta.ca/waste/composting-at-home/vermicomposting.aspx)

A discussion about best practices for vermi-composting.

### **Backyard Composting: A How-To**

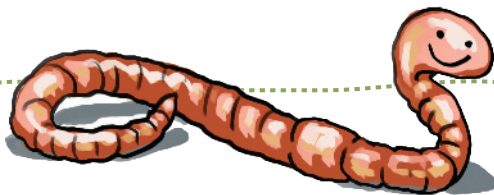
[aep.alberta.ca/waste/composting-at-home/backyard-composting.aspx](http://aep.alberta.ca/waste/composting-at-home/backyard-composting.aspx)

A discussion about best practices for backyard composting.

### **Compost Education Centre**

[compost.bc.ca](http://compost.bc.ca)

A useful website on all things compost.



## About this book



Composting is a great way to keep organic materials out of the landfill. It is a fun, inexpensive and easy way to turn food and yard waste into a valuable and nutrient-rich soil conditioner. This guide is intended to illustrate the basics of backyard composting and composting using worms. This guide is the third in a series of booklets that Ecology North has developed about food in the NWT. Pick it up and give it a read; maybe making your own compost is your next step to growing local and healthy food right here in the NWT!

For additional books in the series or for more information, please contact Ecology North.  
(867) 873-6019 [www.ecologynorth.ca](http://www.ecologynorth.ca)

