

**The ingredients:  
N, C, O<sub>2</sub> and H<sub>2</sub>O**

Like us, soil microbes need Nitrogen (we use protein), Carbon (we use carbohydrates), water and oxygen.

**Carboniferous** materials can include straw, wood shavings, sawdust (from untreated wood), autumn leaves, or shredded paper.

**Nitrogen** can come from weeds, grass clippings, kitchen waste, protein, urine and manures, alfalfa and compost "activator".

Compost works best with a ratio of carbon:nitrogen between 25:1 and 35:1.

An easy way to get to this ratio is to keep a source of carbon on hand like a bale of straw. After putting your kitchen scraps on the compost, keep it covered with a handful or two of carbon.

Compost with all these ingredients will ideally be between 40° and 70° C, which will kill pathogens, weed seeds and plant diseases.

**Composting with Worms**

Vermicomposting is one way to deal with organics in an apartment. You will need a container. A rubbermaid works well. It will need holes to drain extra water into a pan underneath. The worms are kept in a medium made of damp newspaper. They will eat the medium and any kitchen scraps you lay on top of the bed.

Red wigglers and nightcrawlers are tropical worms. They have evolved to eat and reproduce quickly. They can eat their own body weight in compost in a day.

The finished worm castings can be used as fertilizer (about 1:1:1) or to make aerated compost tea. The castings are finished when they have eaten all the bedding and replaced it with worm poop. It will look brown crumbly and moist. Feed the worms eggshells to encourage them to breed.

**Worm troubleshooting:**

If the bedding becomes anaerobic (smelly, not enough oxygen) the worms will try to escape. If you have runaway worms, try adding clean, dry bedding or increasing drainage. Avoid over feeding them and keep the bedding on the dry side, as moist as a wrung-out sponge. Make sure the bedding is pH balanced and always use filtered water, or water that has been standing out overnight.

**Batch composting: the Berkley Pile**  
(taken from *Let it Rot!* by Stu Campbell)

One cubic yard is built up out of manure, seaweed, straw, yard waste, kitchen scraps, coffee grinds, brewers waste, apple pomace or whatever organics you can get your hands on. Try to use heavier sources of nitrogen. Wet the heap with a hose until it is moist but not dripping. Turn the pile with a pitchfork every few days. This can produce finished compost in as few as three weeks!

**Lasagna Gardening** is similar to batch composting except the layers are spread out over land that you intend to cultivate. This can be the quickest way of turning lawn into garden. Cover the grass with newspaper or cardboard, and then layers of kitchen organics, seaweed, sawdust, manures, lawn clippings, straw and other sources of nitrogen and carbon. After 6 months to a year, this bed will be rotted down and can be planted in.

Cardboard	_____
Manure	\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$
Leaves	#####
Seaweed	~~~~~
Straw	#####
Cardboard or news paper	_____
Dying grass	=====

**Water** can be got from the rain, though Nova Scotia tends to provide too much rain, which can leach out the nutrients and replace air spaces in the pile. I keep my pile covered and at the wetness of a wrung-out sponge.

### **Oxygen**

This is why people turn their compost piles. There are differing opinions on how often to turn a pile, from every two days to never. I make sure my pile has lots of bulky materials to trap air, like straw and branches, and turn it four times a year.

### **Troubleshooting:**

#### **Compost is cool, decomposes slowly:**

You probably have a lot of carbon (sticks and husks or the like) and not enough nitrogen.

#### **Compost is sticky, slimy, smells bad:**

Too much moisture or not enough Oxygen. Add more bulky materials and turn the pile. You may need to cover your pile and maybe even raise it up out of the wet on a platform.

#### **Compost is really hot, smells like ammonia and/or loses volume quickly**

Too much nitrogen, add carbon.

**Flies:** Keep your nitrogen source well covered with your carbon source

### **Mulch**

Mulch is a layer of carboniferous material that we spread on the surface of a garden. In effect, we are creating a nitrogen-poor compost.

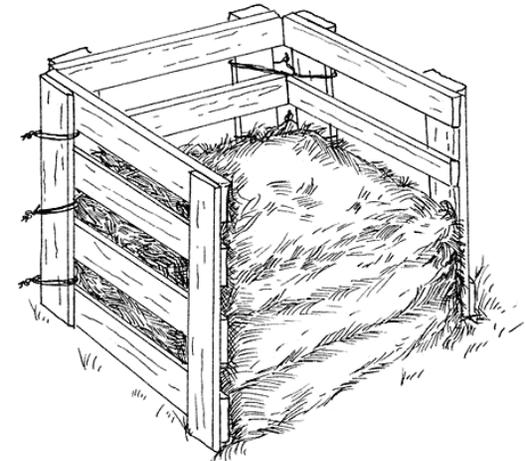
Mulch suppresses weed growth. It maintains moisture in the soil and protects the soil from extremes of temperature. It protects soil from the compaction and erosion effects of rain. Finally it contributes to the organic content of soil when it decomposes after a few years.

In nature soil is never exposed to the air unless there has been a disturbance: a fire, a landslide or another disaster. We use mulch to mimic how soil naturally behaves.

Because mulch is carbon-rich, it will rob soil of nitrogen temporarily in order to use it to decompose. When the mulch is fully decomposed and has become soil it will release the nitrogen again. Because of this we do not mulch around plants we want to keep, but leave a little space around their stems and roots. This nitrogen-desert is one reason mulch is good at preventing weeds.

A mulch of 3 or 4 inches will last a few years in our region. In the desert they use mulches of 1 foot to 1 meter or more!

### **Why compost?**



Composting is a way to get fertilizer for free. We save energy by composting at home and not having it freighted by the city.

Many commercially available garden soils were strip-mined in an unsustainable manner from wilderness lands or farmer's fields. In nature, soil can take thousands of years to form and farmed soil may be laced with pesticides.

Compost doesn't have to smell, and can be created without flies or rodents.

Organic materials decompose on site in nature all the time, and composting is an important part of the nutrient cycle. It is a fast way to build soils.