New York City composting guide

What you need to know to start outdoor composting right now, right here in New York City

What IS composting?

Composting is the process of creating the ideal conditions for the rapid decomposition of organic materials. **You can think of composting as speeding up the way nature recycles.** In nature, when a leaf falls to the forest floor, it is consumed and digested by a host of creatures, from worms and insects to microorganisms such as bacteria and fungi. When we make a compost pile out of our organic materials, we are creating the conditions (heat and moisture) that these **decomposer** organisms need to thrive. Only organic materials can be composted—and to prevent disease and odors, certain materials, such as animal products, shouldn't be (see page 7 for a complete list of what to compost).

When the decomposer organisms have done their job, what starts out as fruit and vegetable scraps—which would have wound up in your garbage can—becomes a nutrient-rich material called **compost**, a dark, crumbly material that looks and feels like potting soil. Adding compost to soil is an excellent way to improve soil texture: it loosens heavy clay soils, making them better for root growth, and it helps light, sandy soils retain water and nutrients. Compost suppresses diseases, provides vital aeration to plant roots, and is a source of minerals and nutrients that are essential to plant growth and health.

New York City composts!

The average New York City household discards **two pounds of organic waste each day**. This adds up to more than a million tons of organic waste per year. When we throw this "waste" away, we lose a valuable resource that can help beautify our parks, gardens, lawns, and houseplants. That's why the Department of Sanitation (DOS), through the City's Botanical Gardens, encourages residents to compost yard trimmings and food scraps in their own backyards. Backyard composting is not only the least expensive way to manage organic waste, it also recycles nutrients close to where they can best be used. Although New York City backyards are often smaller than their suburban counterparts, they provide plenty of room for a compost bin!

This booklet is your guide to the seven steps to begin composting at home, right here in New York City—no matter how small your outdoor space.

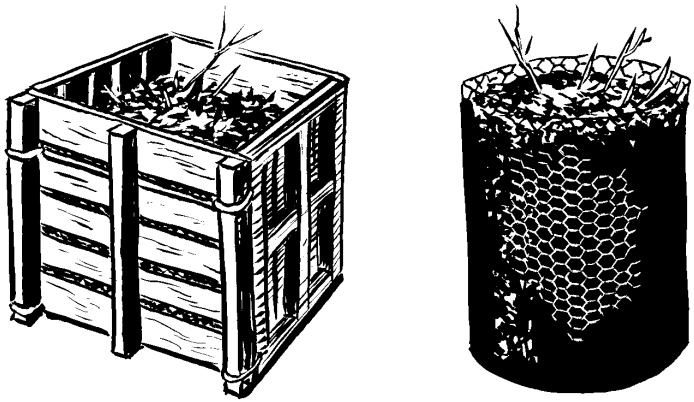
Step 1...set up your bin

Compost bins are really just containers for your compost pile that serve to keep warmth and moisture in, and keep pets, rodents, and other pests out. They also help keep your pile sightly, tidy, and compact, which can be especially important in small yards. People set up compost bins on terraces, roof gardens, patios, next to outdoor garbage cans, in courtyards, side alleys, and community gardens.

Choose a compost bin based on the space you have available for composting, the materials you want to compost, your budget, and the amount of time you want to spend tending your pile. Call the compost helpline in your borough to find out about compost demonstration sites or to obtain more information about buying or building a compost bin.

• **Holding units** are the simplest type of bin. You can construct your own using inexpensive or recycled wood, or chicken wire. Simply add materials and leave them to decompose. This method requires little work, but can take from six months to a year to make finished compost. If you want to continue to add materials, you will most likely need more than one holding unit—which can take up room in a small yard. These bins are most appropriate for composting fall leaves and yard trimmings. If you are planning on adding kitchen scraps, you should consider using an enclosed bin, which provides more effective protection against pests.

• **Enclosed bins** are suited to handle both yard trimmings and kitchen scraps. They are most appropriate for small yards or any



Two kinds of homemade holding units—wooden slats, and chicken wire rolled into a cylinder.

A simple homemade enclosed bin—a garbage can with holes drilled in the sides, top, and bottom.

small space, such as a side alley, roof garden, or terrace. If you live in a multi-unit building and are placing your compost bin near outdoor garbage and recycling cans, make sure you visibly label your bin so that other residents do not accidently place refuse or recyclables in it.

You can construct an enclosed bin by drilling ventilation and drainage holes in the lid, sides, and bottom of a 20- or 30-gallon garbage can or barrel. The Botanical Gardens also sell commercially available compost bins at a discounted rate, through a subsidy provided by the Department of Sanitation.

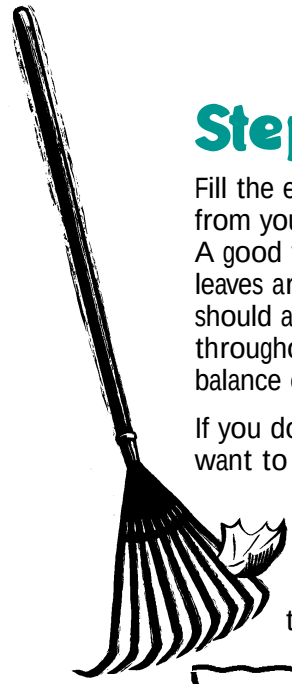
Rodent-proofing should not be necesary if your compost bin is enclosed. However, if rats are a problem in your area, you can take additional steps to rodent-proof your bin:

- Add screens to areas where rats and other burrowing animals can get through.
- If your bin is placed on the soil, lay a piece of screen between the soil and the bottom of the bin.
- Be sure to keep your pile moist and turn material regularly to increase the temperature in order to prevent nesting by rodents.
- In especially tough cases, you can add a screening barrier vertically 6 to 8 inches into the ground around the perimeter of the bin.

Frequently asked questions...setting up your bin

Q: Should I set up my compost bin in a sunny or shady spot?
A: It does not make a difference to the composting process whether you set up your bin in the sun or in the shade.

Q: Should I set up my compost bin on pavement or soil?
A: You can set up your bin on either concrete or soil. However, soil is preferable if you don't want to stain the concrete surface.



Step 2...add organic materials

Fill the entire bin with fall leaves or other dry organic materials from your yard. Make sure to cut up or shred any large pieces. A good time to begin composting is in the fall, because fall leaves are an easy material with which to start your bin. You should also stockpile leaves in bags to have on hand throughout the year to cover kitchen scraps or balance out "green" yard trimmings.

If you don't have any fall leaves available, or want to begin composting during another season, you can start your bin with some finished compost, used or new potting soil, or shredded newspaper or brown paper. Fill the bin about one third full.

If possible, keep some fall leaves on hand year-round to add to your compost bin.

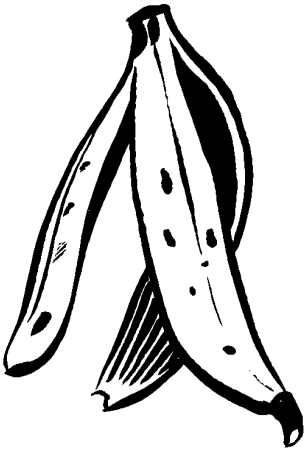
FAQ...adding organic materials

Q: Do I need to add worms to my compost pile?
A: Worms aren't crucial to the composting process—many other organisms will take care of the decomposition in the absence of worms. In an outdoor compost bin, worms will usually find their own way into the pile.

Step 3...add water

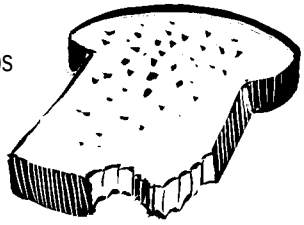
If you are starting your bin with fall leaves, dry yard trimmings, or shredded newspaper, it is important that you add water. Add at least 3 gallons of water to a 30-gallon homemade garbage can composter, or 5 gallons to a commercial compost bin. Be sure to mix the leaves as you sprinkle the water so as to evenly coat and soak them. The leaves should glisten with moisture. Shredded paper should be wet, but not "mushy." Continue to add water, especially during periods of little or no rain.

If you're starting your bin with finished compost or potting soil, you don't need to add water at the beginning. However, it is essential to monitor moisture levels and add water so that your compost pile remains moist and never dries out.



Step 4...add food scraps

Once you have started your bin with fall leaves, finished compost, shredded newspaper, or potting soil, you are ready to add food scraps. A convenient way to store kitchen scraps is to put them in a resealable container or a large zip-lock bag and place them in the refrigerator or freezer.



The main thing to remember when adding food scraps is that it is **important to bury them under a thin layer of finished compost, shredded newspaper, or fall leaves**. This will disguise the scent of the food and deter pests and flies. Again, if you have the space for extra bagged fall leaves, keep a supply throughout the year to cover food scraps.

Remember, in general you want to **add twice as much material from the "brown" (high carbon) list as the "green" (high nitrogen) list on the opposite page.**

FAQ...adding food scraps

Q: Do I need to add a *bioactivator*?

A: While some gardening companies promote various products to "jump start" your compost bin, these additives are not necessary for successful composting—the microorganisms responsible for decomposition are already present on the materials you add to the pile.

What to compost...

Here are materials that are excellent for composting. Remember, two other ingredients—water (see Step 3) and oxygen (see Step 5)—are also needed to transform your compost pile into a mound of black gold.

Browns

(Materials rich in carbon)

Fall leaves
Dead plants
Straw and hay
Pine needles
Small twigs and wood chips
Sawdust and woodshavings
Shredded newspaper
Egg shells
Corncobs
Bread and grains
Wood ashes
Old potting soil
Food-soiled paper towels and napkins
Dried flowers
Organic materials used for packaging (shredded paper and cornstarch packing peanuts)
Food-soiled cardboard (recycle if clean, but compost if dirty)
Stale flour, cereal, spices, beans
Nutshells

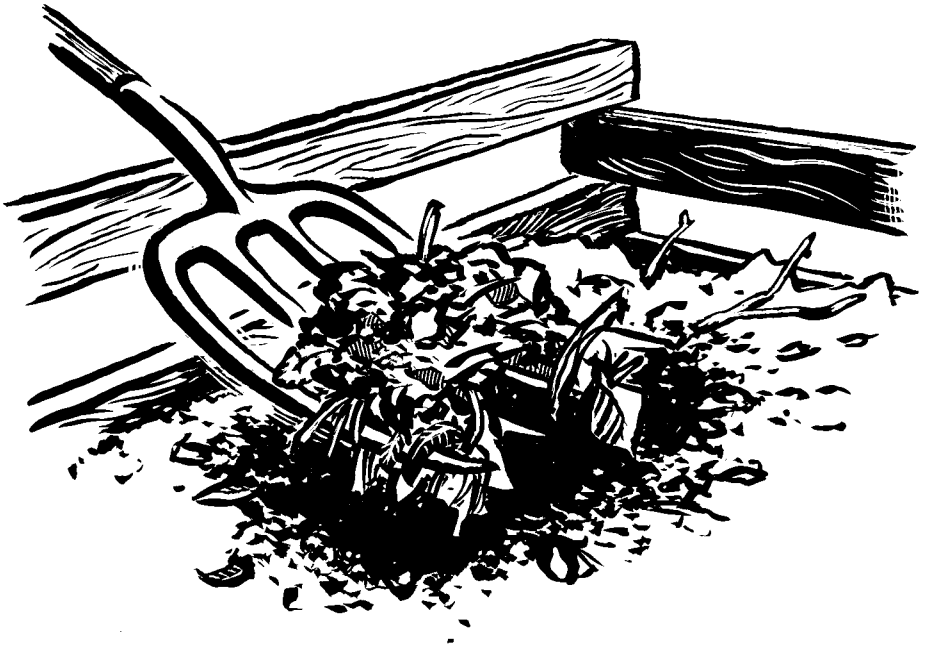
Greens

(Materials rich in nitrogen)

Fruit and vegetable scraps
Coffee grounds and filters
Tea bags
Fresh leaves
Green plants
Prunings and hedge trimmings (chop or shred larger pieces)
Grass clippings
Weeds
Flower bouquets
Seaweed
Feathers
Horse manure
Manure and bedding from hamsters, gerbils, rabbits, etc.
Brewery waste (hops and pomace)
Spoiled juice

...and what to avoid

Meat and fish scraps
Cheese and dairy products
Fats, oils, and grease
Dog and cat feces, kitty litter (handling these might expose you to disease pathogens)
Dead animals
Large branches (chop them up first)
Pressure-treated plywood and lumber
Invasive weeds
Weeds with seeds
Pesticide-treated plants and grass clippings
Diseased plants
Sand
Coal and charcoal ashes
Colored or glossy paper
Non-compostable materials such as plastics, metals, and glass



Step 5...mix the compost pile

In order for the microorganisms in your pile to do their work, they need water, a good mix of materials, and air. The steps above address the first two components, so let's look at how you can get air into your compost pile.

Initially, make sure to mix the pile ingredients. Then as part of maintaining the pile, from time to time **mix or turn your compost.** This means taking a long-handled rake, shovel, or even a long stick and pushing it down into different parts of the pile and "fluffing" the pile up. Try moving the inside of the pile outward toward the edges and the outer areas to the inside of the pile.

FAQ...mixing

Q: How often should I turn my compost pile?
A: For the best results, turn your pile about once a month. In composting, like cooking, you learn as you go along. Find a turning schedule that works best for you.

Compost science

At a microscopic level, **bacteria** and **fungi** eat and digest decaying organic matter. Other important decomposers are larger creatures such as **beetles, centipedes,** and **earthworms,** which work alongside the microscopic decomposers to consume the material.

Carbon and **nitrogen,** or "browns" and "greens," play an important role in composting, because they provide these bacteria and decomposer organisms with energy and cell-building ability.

As microorganisms digest the material in a compost pile, they produce heat, carbon dioxide, and excrement. This is why some compost piles will heat up. The microorganisms convert organic materials into a stable **humus**, which does not smell and has a texture and nutrients that improve the quality of the soil.

The organisms responsible for decomposition are naturally present in the environment and will readily establish themselves in a compost pile. Left on its own, all organic matter will decompose—there are very few "mistakes" in composting. However, moisture, oxygen, particle size, and the materials you include in your compost pile will affect how rapidly your pile will decompose. Following the tips in this brochure should help you produce compost faster, while minimizing odor or pest problems.

Step 6...wait!

Continue to add and mix organic materials...check on the bin to make sure there is adequate moisture and turn the pile.

FAQ...finished compost

Q: How long will it take to make finished compost?

A: That all depends on you! Some people want to make finished compost quickly and take extra steps to speed up the process, such as cutting up large pieces of material and more frequently turning and watering their pile. This more "intensive" method should produce finished compost in about three months. Other people take a more relaxed approach by simply adding materials and letting nature do the rest. They should see finished compost after a year or more.

Step 7...use your compost

Finished compost resembles dark, crumbly topsoil and should bear no resemblance to the original materials. Compost should have a pleasant, earthy smell to it. A quick test to see if your compost is finished: Place some of the compost in a sealed plastic bag. Wait a few days. If you open the bag and it does not smell, your compost is done. If it smells rotten, put it back—it's not finished. For a list of ways to use your finished compost see below.

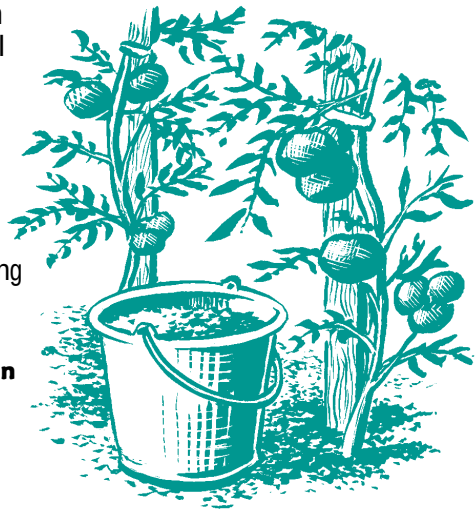
FAQ...using your compost

Q: Can I use compost for potting soil?
A: Yes, but not by itself. Different plants thrive in different potting mixes, but a good rule to follow is to add one part compost to two parts of potting soil.

How to use compost

If you have ever bought and used peat moss, wood chips, manure, or topsoil, then you already know how to use compost. Mix compost into flower and vegetable beds; blend it with potting soil to revitalize indoor plants; or spread it on your lawn as a fertilizer. Use coarser compost as a mulch around trees and shrubs. If you prefer finer compost, you can screen it to sift out the bigger pieces. Do not place compost as mulch directly against tree trunks, as this will damage the tree.

Using "unfinished," or immature, compost in the garden can steal nitrogen from garden soils, so make sure to set this material aside until it is fully cured. You can store it in an open container next to your compost bin. In the fall, you can incorporate unfinished compost directly into flower or vegetable beds; the material will mature over the winter and be ready for spring plantings.



Give tomato plants half an inch of compost a month for great produce.

How much compost to use

You can never use too much compost! The nutrients in compost are released slowly over time, so there is no risk of "burning" plants. Follow these guidelines to determine how much compost you need:

For amending soils...

The specific amount of compost that soils need is a function of the nutrients they are lacking and the condition and the texture of the soil. Testing your soil can help determine its condition and needs. The nutrients available in compost are a direct function of the raw materials that were used to create it. However, in general, work one to 2 inches of compost into the top 3 to 5 inches of soil.

For flowers...

In the spring, loosen the top few inches of annual and perennial beds and mix in a one-inch layer of compost. Or, apply a one-inch layer of compost as a mulch, like other mulches, to control weeds and conserve moisture.

For vegetables...

Give your vegetable garden plenty of compost (either half finished or finished) in the fall. Place several inches of compost on top of the existing bed and you can till it in come springtime. Or you can put a handful of compost in each hole when you're planting.

Once plants begin to grow quickly, you can add a 50-50 mixture of soil and compost. An alternative is to mulch the plants with partially decomposed compost or materials such as grass clippings, shredded leaves, hay, or sawdust. Remember when mulching: the finer the mulch material, the thinner the layer should be. Providing "heavy feeder" plants such as tomatoes, broccoli, corn, and squash with half an inch of compost monthly results in great produce. **Note: If you make compost with plant cuttings or grass clippings that have been sprayed with pesticides, do not use the compost on edible crops.**

Potted plants and window boxes...
A good potting soil is equal parts loam, sand, and a quarter-inch of screened compost. Twice a year add an inch of compost to potted plants and window boxes. Work it into the top layer of the existing soil, removing some of the existing soil to accommodate the additions if necessary.

For lawn/turf...

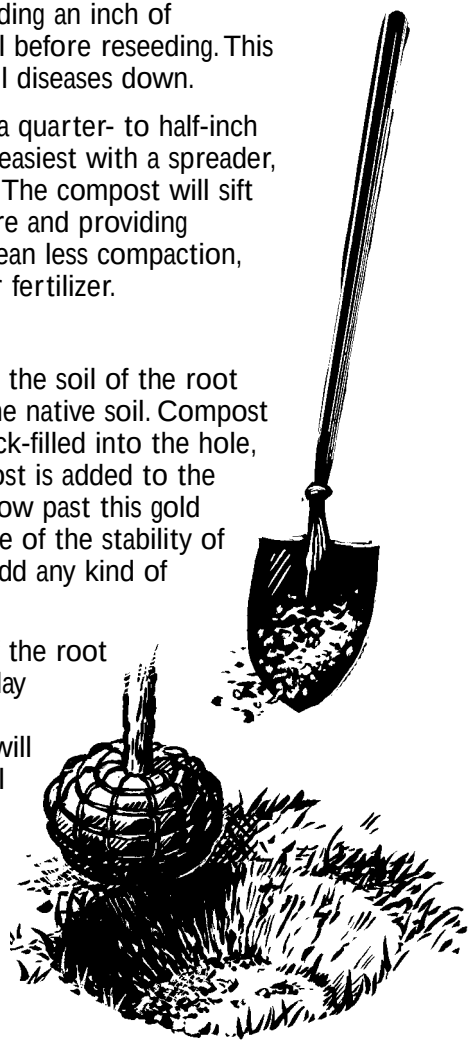
- **Establishing new turf.** Lay down one to 3 inches of compost. If possible, till to a depth of 5 to 8 inches before seeding. Otherwise seed directly over the compost.
- **Existing turf.** Treat bald spots by spreading an inch of compost over them. Work into the soil before reseeding. This will fight compaction and help keep soil diseases down.

You can also topdress existing turf with a quarter- to half-inch layer of finely screened compost. This is easiest with a spreader, but you can use a shovel for small areas. The compost will sift down into the soil, improving its structure and providing nutrients. Over the long haul, this will mean less compaction, fewer bald spots, and a reduced need for fertilizer.

Planting trees...
When planting a tree, the goal is to have the soil of the root ball be as close a match as possible to the native soil. Compost can be used to amend the soil that is back-filled into the hole, but do not overdo it. If too much compost is added to the back-filled soil, the tree roots will not grow past this gold mine of organic matter, depriving the tree of the stability of a deep root system. If in doubt, do not add any kind of amendment to the hole.

A simple test is to feel the soil texture. If the root ball is a sandy soil and the native soil is clay based, the tree will be fighting to survive. Applying compost to the back-filled soil will help by easing the transition between soil types, but it still does not create an ideal situation.

Once the root ball is planted and back-filled, you can use compost as a mulch for existing trees.



Troubleshooting

Symptom: Rotten-egg odor

Problem: Excess moisture and not enough air (anaerobic conditions).

Solution: Turn pile frequently; add dry material such as fall leaves, woodchips, or shredded newspaper. Make sure bin has drainage; leave lid off to allow more air to flow.

Symptom: Ammonia odor

Problem: Too much green, high-nitrogen material (such as food scraps, grass clippings).

Solution: Add brown, high-carbon material (such as fall leaves, woodchips, or straw).

Symptom: Slow decomposition

Problem: Lack of moisture, or lack of nitrogen.

Solution: Add water as needed; add material high in nitrogen, such as food scraps.

Symptom: Unwanted pests, flies

Problem: Wrong materials in the pile; food scraps are exposed.

Solution: Don't add animal or dairy products, or fatty foods. Make sure food is well covered. Rodent-proof bins by adding screens to areas where animals are getting through.

Tree and shrub maintenance...

For an existing tree, compost is a substitute for the layer of organic matter that naturally exists on the forest floor. In this case compost is used as a mulch. The grass should be removed from underneath the tree as far out as possible from the trunk. Compost should be worked into the top one to 2 inches of the soil. Be careful as to avoid damage to the roots. Compost not only helps to provide organic nutrients for the tree, but also reduces moisture loss and keeps the soil cool.

When spreading mulch or compost around the base of a tree, keep the area closest to the trunk open and free, to prevent the tree bark from rotting and becoming diseased.

New York City composting programs

The Department of Sanitation has a number of programs to recycle organic material through composting. For more detailed information, visit the DOS website at **www.nyc.gov/sanitation**, or the New York City Compost Project website at **www.nyccompost.org**. You can also call your borough's compost helpline number listed on the back of this brochure.

Fall leaf collection

Each fall, DOS collects over 20,000 tons of leaves, brush, and pumpkins from all boroughs except Manhattan, and composts them at large-scale facilities. Each spring and fall, finished leaf compost is made available to New York City residents, City parks, and community gardens in every borough (see **compost givebacks**).

Christmas tree collection

DOS collects Christmas trees in every borough. Each January, over 120,000 trees are collected, shredded, and composted with fall leaves, or used for mulch.

Compost givebacks

Each spring and fall, New York City residents can take home up to 30 gallons of **free** compost and purchase home compost bins at a discounted price. Compost givebacks and bin sales are sponsored by DOS and the City's Botanical Gardens.

Landscape waste

DOS has a **Leave It On the Lawn** campaign to encourage New York City homeowners and institutions to leave grass clippings on the lawn. New Yorkers currently discard about 78,000 tons of grass each year. Yet grass clippings contain valuable nutrients that can be used to enrich soil and beautify lawns and gardens. For more information on this topic see the DOS brochure, **"Leave It On the Lawn,"** or visit **www.nyccompost.org**.

Private landscapers take an additional several thousand tons a year of brush, leaves, and grass clippings to facilities in the Fresh Kills Landfill and the Staten Island Botanical Garden. Each year the Department sponsors a workshop to instruct New York

City landscape professionals on the benefits of leaving grass clippings on the lawn, composting, and mulching.

Rikers Island

The Department operates a food waste composting operation at the Rikers Island Correctional Facility. Four hundred to five hundred tons of food are collected each month from prison cafeterias, mixed with wood chips, and composted in an enclosed building. The finished compost is used for beautification projects and in the prison's horticultural program.

NYCHA

The Department, through the Botancial Gardens, has helped New York City Housing Authority sites throughout the five boroughs set up on-site composting to recycle their fall leaves.

Composting at schools

- **Outdoor composting:** Schools wishing to set up an outdoor compost unit, either on school grounds or in a school garden, should follow the steps outlined in this guide.
- **Indoor composting:** DOS, through the City's Botanical Gardens, offers NYC Teacher "Wormshops"—workshops for New York City school teachers on worm composting in the classroom. Teachers receive wormbins, worms, and educational materials to incorporate lessons on waste prevention, composting, and the environment into classroom activities. For more information on these workshops, contact the Botanical Garden in your borough.

The Earth Machine and Garden Gourmet are available at a discount from the City's Botanical Gardens, through a DOS subsidy.

For more information

For more information on grass recycling and composting, see **www.nyccompost.org**, or contact:

The Bronx Compost Project
The New York Botanical Garden
200th Street and Kazimiroff Boulevard
Bronx, NY 10458
compost helpline: (718) 817–8543
fax: (718) 817–8018
e-mail: bronxcompost@nybg.org
web: www.nybg.org

Brooklyn Urban Composting Project
Brooklyn Botanic Garden
1000 Washington Avenue
Brooklyn, NY 11225
compost helpline: (718) 623–7290
fax: (718) 857–2430
e-mail: compost@bbg.org
web: www.bbg.org

Manhattan Compost Project
The New York Botanical Garden
200th Street and Kazimiroff Boulevard
Bronx, NY 10458
compost helpline: (718) 817–8543
fax: (718) 817–8018
e-mail: manhattancompost@nybg.org
web: www.nybg.org

Queens Compost Project
Queens Botanical Garden
43-50 Main Street
Flushing, NY 11355
compost helpline: (718) 539–5296
fax: (718) 463–0263
e-mail: compost@queensbotanical.org
web: www.queensbotanical.org

Staten Island Compost Project
Staten Island Botanical Garden
1000 Richmond Terrace
Staten Island, NY 10305
compost helpline: (718) 273–0629
fax: (718) 422–3645
e-mail: sibgcompost@erols.com
web: www.sibg.org

The Department of Sanitation has funded compost education projects at the City's Botanical Gardens since 1993.

www.nyc.gov/sanitation
www.nyccompost.org

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