Composting at Your School

Composting is a great way to reduce your school's overall waste production, reduce the amount of food that goes to waste in cafeterias, put to use leaves and grass clippings, and to eventually create valuable fertilizer for your garden. Composting has many great benefits and this guide will attempt to help you with your project, from planning to using your compost.

Talking Points

Be prepared to explain what composting is, how it works, and what it is used for. It will be vital to present the benefits of the project as well. Here is some information to help you present the project.

- Composting is the process of organic matter, such as leaves, grass and food scraps, being broken down by microorganisms, bacteria, insects and worms, into a soil like substance that returns vital nutrients to the soil over which it is spread.

- Composting reduces waste, and conserves space in the landfills or other garbage dumps where it would typically go, and can also prevent emissions from the incineration plants garbage often goes to, helping in part to mitigate global warming through greenhouse gas reduction.

- In a typical situation, composting all compostable materials on a continual basis can reduce the amount of waste generated by up to 25%. In school cafeterias, this could potentially be even higher.

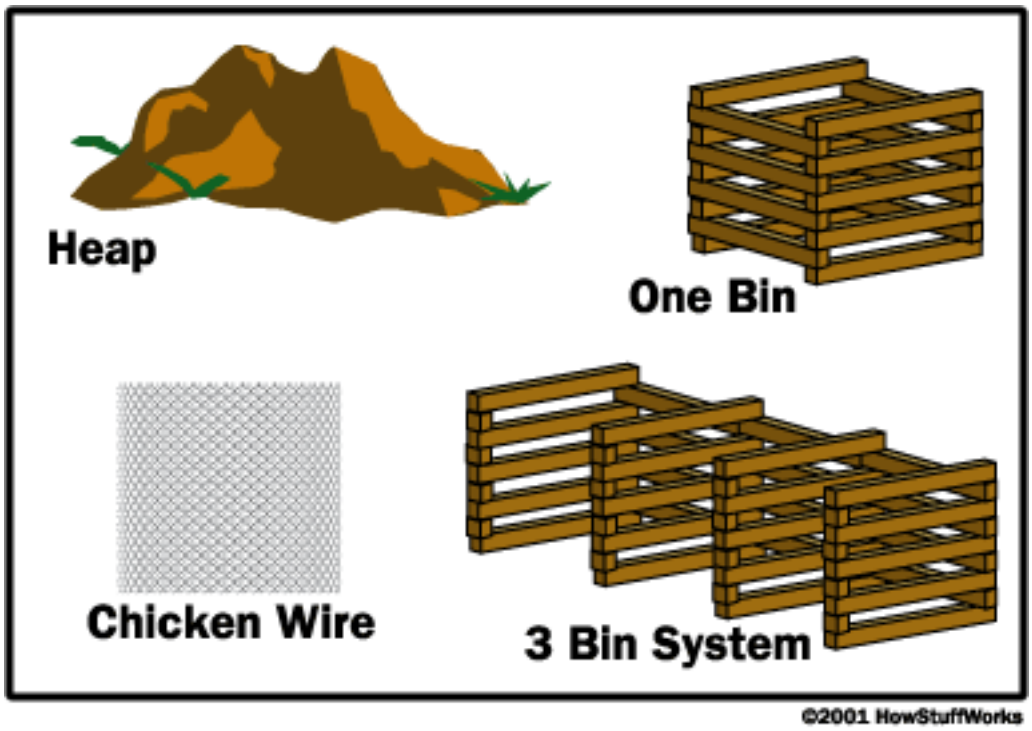
- Composting is fairly easy, practical, convenient and useful, and the reduced waste can even save you money over traditional waste disposal.

- Compost holds water and returns organic matter and nutrients to the soil in your garden, helping plants grow faster and stronger. This can be especially helpful to sandy soils, which do not hold water well and are generally nutrient poor compared to non-sandy soils.

- Adding compost to your garden helps plants grow healthier, which keeps air cleaner, conserves soil, and can provide great food.

Building a Compost Bin

1. Compost bins do not need to be fancy, and can be made out of many different materials. If you have a budget, compost bins can also be purchased pre-built or in an easy to assemble kit. However, there are many different ways you can construct a compost bin.



2. One compost pile should be about 3 cubic feet, so you will want to make sure your piles are neither too large nor too small. A good idea is to use wooden pallets to make a box, open on the top, bottom and one side, to mark off where the pile is and to keep it contained. You can also make the same shape out of regular boards, or stakes and plastic or metal fencing or chicken wire. Put a coarse material like woodchips or twigs at the bottom. This will facilitate drainage and aid aeration.

Collecting Compost

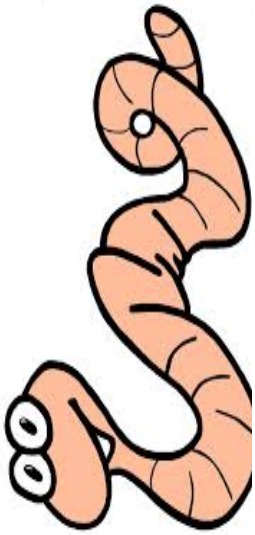
1. You will need separate trash can in the cafeteria for compostable materials. These should be well marked, and you should do your best to make sure students are aware of the composting system. Educate people on what can be composted, make posters to put on the cans and on the walls next to them, along with the information about what can and cannot be composted, and make sure they are not easily confused with the regular trash.

2. Be very clear and repetitive on what people should and should not be putting in the compost bins, as many people will struggle to understand what is going on and how to separate their wastes in to compostable and non-compostable materials. Especially if you will only be putting out your compost bins once a week, it may be a good idea to have one or more people stand by the cans directing people what to throw in the trash as opposed to what to put in the compost.

Reece Alvarez

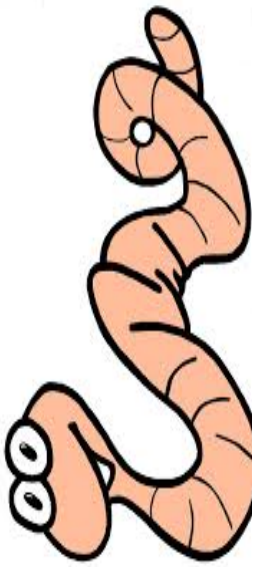
Implementing Your Compost System

1. Once the infrastructure exists to carry out your program, you can begin doing so. You should first educate students on why the program is being done, where they can put their compostable food waste after lunch, what can and cannot be put in to compost, and how the compost will be used.



2. Schools can produce a great deal of waste, and the amount of compostable material may overwhelm your capabilities. Therefore, it may be prudent to only compost on one day each week, or every other or third day, depending on the amount that you can handle and the amount your school produces.

3. With support and cooperation from the student body, you can have a great deal of compostable material, and run a very successful program. You may need to skim through the material before adding it to the compost pile to make sure there are no materials that do not belong in a compost pile, which can ruin it.



4. Worms are vital assets to a compost pile as they speed up the decomposition process. While worms will show up on their own eventually in your compost pile, adding them yourself when you first start to compost will help get the decomposition process going right away. Containers of worms are sold at many stores as bait for fishing. You could purchase some, then simply put them all on your compost pile to get the process going immediately.

Compost Upkeep

1. Add brown materials (dry leaves) and green materials (grass clippings or old annual flowers) as you collect them, making sure larger pieces are chopped or shredded. Shredding and chopping any large pieces you have will help the materials break down faster. In total the pile should be at 27 cubic feet (3'x3'x3').

2. Your compost pile should have an equal amount of browns to greens and alternate layers, about 2 to 6 inches thick, of organic materials of different sizes. The alternating layers will help balance levels of oxygen and nitrogen throughout the compost. Do not add animal waste, meats, oils, dairy, diseased plants, weeds that have gone to seed, or plants treated with pesticides or herbicides to your compost. If you do not have greens and browns available at the same time, you can build an entire pile out of one, and then add the other as it becomes available.

3. Moisten dry materials as they are added. Proceed with caution! Adding too much water could make the pile smell and too little could slow down decomposition. The pile should be kept moist, but not soggy. It should maintain the approximate consistency of a wrung out sponge.

4. Once your compost pile is established, mix grass clippings and green waste into the pile and bury food scraps under 10 inches of compost material. Add in a shovelful of finished compost or garden soil to help kick start the microbial activity in your pile. Save a few bags of fallen leaves each fall to use in your pile in the spring and summer, when green materials are often in much greater supply than brown materials.

5. Cover top of compost with a tarp to keep it moist (optional).

6. Turn the pile once a week to move material from the outside of the pile in. Oxygen is essential to the organisms breaking down the materials in your compost pile, and if the pile is not turned regularly and they are deprived of oxygen, decomposition will slow or stop entirely. Turning makes sure that decomposition proceeds at a normal pace. Additionally, you should fluff the pile with a pitchfork every time you add material. Turning the pile aggressively every spring and fall, so that the pile is turned totally inside out and upside down, speeds decomposition greatly.

7. When the material at the bottom is dark and rich in color and you can't differentiate any of the different materials in it, your compost is ready to use. This process can take a few months.

Once you have the pile established, you can begin collecting and depositing material on a daily basis. Remember to check for materials that cannot go in to compost, and keep turning the pile to aid in the decomposition process. Ensure that someone is tending to the pile over the summer break. While the compost pile will not 'go bad' or be ruined by not being maintained over the summer, it will work much better for its intended purpose and decomposition will proceed much faster if it is turned regularly. Your maintenance/grounds crew can continue adding grass clippings, leaves and twigs that they collect, but it should be in moderation. Since there will not be any food waste added over the summer, it is important that they not add too much of the grass clippings and leaves, as it will through the composition of the pile out of balance.

Another option for you to consider is having your faculty and staff compost the food scraps they produce while working over the summer. This is an area where your faculty adviser can be very helpful. Again, make sure everyone is educated on what to put in the pile, and make sure someone is turning it and ensuring that the right ratio of materials is maintained. Students can be a part of this as well, coming in to add to the pile, turn it, and make sure it is not too dry, wet, hot or cold.

Here is a list of what to compost and what not to:

Do Compost

Green Materials

- Fruit and vegetable scraps
- Horse, cow, chicken or rabbit manure
- Garden and grass clippings
- Egg and nut shells
- Plant stalks, stems and vines
- Apple cores and citrus rinds

Brown Materials

- Coffee grounds and (unbleached) filters and tea bags
- Bark, twigs and woodchips (limited amount)
- Wood ashes (only sparingly)
- Leaves

Do Not Compost

- Meat and fat
- Fish
- Poultry
- Bones
- Dairy products
- Plastic or synthetic fibers
- Diseased plants
- Vegetable oil
- Dog or cat feces
- Invasive weeds
- Weeds that have gone to seed

Source: CT DEP

Using Compost

Once your compost is dark and rich, it is ready to use. You can add it to the topsoil of your garden to give the plants additional nutrients. As it is extremely nutrient rich compared to regular soil, it would be somewhat of a waste to use it in place of soil. It is best when a thin layer is spread on top of the soil or mixed in. Plants can only absorb a finite quantity of nutrients, but if you have excess compost it is okay, because those nutrients will be returned to the soil and available for next year's plants to use (but you should still try to make your compost go as far as possible; if you have more gardens you can spread it on, do that before adding excessive amounts to the same beds). Compost gives plants valuable nutrients, allowing them to grow bigger and faster, and yielding a more bountiful harvest.

Success Stories:

Saranac Lake Central School:
Saranac Lake, NY
saranaclakecs.org

Saranac Lake Central School received grant money to build a greenhouse on their school grounds. This was to lengthen the growing season of the pre-existing school garden. Some of the vegetables planted in the school garden include: carrots, kale, beets, potatoes and onions, all of which will be harvested in the fall. Saranac Lake has also spearheaded a compost program in which they will not only have compost available but will also survey and educate the student body on food waste.

The North Country School:
Lake Placid, NY
Thenorthcountryschool.org

The North Country School has five acres of gardens and over 4,000 feet of greenhouses to help teach the students farming techniques. The garden was developed over 75 years ago in an effort to have "edible education" as part of the annual curriculum.

Since the last Youth Summit in 2013, the North Country School formed a new food justice club called S.N.A.C.K. which stands for Students Nourishing Adirondack Communities and Kitchens. NCS also divides gardening tasks by grade; the 4th and 5th graders constructed a hoophouse and planted kale and melon. The 6th graders built a composter and aquaponics garden that grows herbs for the school kitchen while the 7th graders hosted a plant sale for the local community. The money raised from the plant sale was then donated to a local food pantry. Each grade is responsible for spending 90 minutes a week in the garden. During the winter months they learn to cook delicious and healthy meals with produce harvested from the fall. The NCS also hires interns and volunteers to help on there farm and educated their students.

Waste to Compost – Compost to Garden - Garden to Table

Keene Central School Success Story

Bunny Goodwin started the Keene Central School compost program on Earth Day in 1995. The compost bucket sits in the cafeteria next to the dishwasher, milk bucket and trash can. A list of foods able to be composted is written on a whiteboard above each hole as a reminder for those that forget. The compost pile itself is out past the parking lot, in a four-sectioned wooden structure. National Honor Society students take the bin from the cafeteria out daily for the first and last eight weeks of the school year. They begin each year by training the next group, and it is largely student run, Goodwin is there for support (if needed). Woodchips are piled on the steaming pile in a two to one ratio and compost is spread on the garden after it has been turned and decomposition is complete. The heat of the pile is monitored throughout.

Shortly after the creation of the compost program, it became clear that KCS needed to create a garden as well. The KCS garden lies behind the elementary classrooms, watched over by Giant Mountain. The back elementary school doors open up onto each of their two 4' by 12' raised beds. The children plant one plot while the other lies dormant under soil enriching cover crop. Behind the Kindergarten baby pumpkins will be seen growing adjacent to the first and second grades' corn, beans and squash. The third grade plants potatoes to make potato chips and fourth grade grows cherry tomatoes. Kale for kale chips will be seen poking out of the fifth grade plot, and sixth grade focus on carrots. As is the garden provides rhubarb, lettuce, garlic, carrots, cherry tomatoes, strawberries and asparagus for the cafeteria if needed.

An after School Garden Club started by Bunny Goodwin meets one afternoon a week with an assortment of nine or ten children from third through sixth grade. They start and end each session by talking about the garden, what needs to be done, and what they have done, always snacking on something they have grown. On these select days one can see children writing in their garden journals, weeding, or reading from a selection of books Goodwin provides. Goodwin says, "the garden is primarily an educational place right now, not a place where we try to feed the school," but she hopes that the sort of education she does with the garden club can be established in K-6 curriculum. Goodwin explains that one child who never like vegetables went from eating none to eating four after he took part in growing and harvesting his vegetables.

Q&A with Bunny Goodwin

1) What are the biggest challenges that you have faced? How do you think they would be different at a bigger (or smaller) school?

"It is always a challenge finding enough volunteers to do what you want to do […]. Since I am not in the school every day and since I do not have children in the school it is hard to keep up with what is going on in terms of events where something from the garden could have a presence or in terms of curriculum subjects in each grade. I don't think this would be much different in a bigger school.

Another challenge is the soil. Our soil is sandy, very poor, and requires lots of amendments every year. For me, this means finding them, getting them and/or paying for them. The students help mix them into the beds."

2) What advice would you give to schools trying to start similar programs?

"Start small. […] For a garden, you can start with one 4' x 4' square bed that could either be worked in the ground or built above ground by a shop class or parent volunteers. Get volunteers for everything in order to build ownership in your project. Parents, grandparents, Master Gardener Volunteers, and local farmers are all good choices. The one garden bed can be a project for a particular class, find success, and then expand. Only plant things that are harvested when the students are in school**.** I have a list. (See list on the next page). If you mulch well, and put in automatic watering this limits the time needed to work in the garden during the summer.

Start small with composting as well. Limit the first year to one class or one grade. Have the students teach each other. Make a simple bin that costs nothing to build. It is easy to get money and it is easy to buy or build a bin, but you won't build as much ownership. If you show success, it is easier to get grants later when you want to expand."

*** For help in the startup of similar programs or the writing of grants feel free to contact Bunny Goodwin:** bunnygoodwin49@gmail.com

3) What has been the most rewarding part of your work for you?

"The kinds of rewards have changed with my changing role. However, I am still amazed and pleased that after 20 years, the cafeteria composting program is still operating at KCS and that a sustainable system is in place so that I do almost nothing. Another important rewarding part of my work is seeing Long Lake Central School and Petrova Elementary School in Saranac Lake start composting programs and gardening programs.