



Working to Build Zero Waste Communities

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School Compost Programs: Pathways to Success

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After the oft-repeated three R's (reduce, reuse, recycle) comes the lesser known, but equally important fourth R, rot, for compost. There are a number of methods that a classroom, school or school district may use for establishing a compost program. The finished product is a valuable soil amendment, adding fertility to local farms, school gardens or classroom plantings. What must be kept out of compost is as important as what should go in. However, much of a school's waste stream that is not recyclable, and is organic, can be composted.

Eco-Cycle, a nonprofit based in Boulder, Colorado has coordinated one of the oldest and most comprehensive school recycling and environmental education programs in the nation since 1987. In 2005, they created the Green Star Schools program, a national model for Zero Waste schools. Composting is integral to this project and to any Zero Waste effort in a school setting. The following outlines best practices that will help any school or school district launch a solid and effective program.

Why compost?

As schools look at "greening" their practices and shrinking their environmental footprints, the collection of compostable materials can help to accomplish these goals. In addition, school composting provides endless educational opportunities and can be tied in with the growing popularity of school gardens.

Composting has the potential to reduce waste in schools by significant amounts. Various estimates show that organics (food, yard waste and non-recyclable paper) comprise as much as twenty to thirty-five percent of discarded waste. Adding compost collections to an existing recycling program is often the next logical step in waste reduction efforts, but compost programs can also be successful in areas where recycling facilities don't exist. The beauty of composting is that there are several methods that can work for a variety of budgets, and for different administrative or educational priorities. These include composting with worms, schoolyard composting and large-scale collection of compost.

WORKING WITH WORMS

Vermicomposting, or composting with worms, is an easy method for teachers and students to do in the classroom. All that is needed is a small bin (wooden or plastic) no larger than 36 inches (length) x 24 inches (width) x 18 inches (height), a pound or two of red worms and some ripped-up newspaper for bedding. The resulting compost is wonderful fertilizer for classroom or home use. The worms also lend themselves to numerous math and science activities.

Things to consider:

1. **Make sure the worms are *Eisenia fetida*** (commonly known as red wigglers), because a different species of worm won't work very well. Check with local garden supply stores and bait shops or search online. There are several online suppliers.
2. **Make sure to have an ongoing supply of bedding.** Ripped-up newspaper (in strips 2-4 inches wide) is a readily available source that works well, but leaves and gardening soil can also be used.
3. **Measure the waste going into the bin.** Stick to fruits, vegetables and small bits of used paper towels. A pound of worms can eat approximately 3-4 pounds of food in a week, but it takes time for the food to be digested by the worms.
4. **Bury the food scraps and prevent pests.** Keeping a close eye on the worms and how much they are being fed will help to maintain a pest-free bin and classroom. Start a fruit fly trap as a preemptive measure with a funnel, small plastic container and vinegar.
5. **Read *Worms Eat My Garbage* and *Worms Eat Our Garbage*** (curriculum), both by Mary Appelhof, for in-depth tips and classroom activities.

SCHOOLYARD COMPOSTING

Schoolyard composting is similar to backyard composting. There are a variety of outdoor methods and bins which may be used. This can be small-scale where one or two classes contribute food waste, or larger scale where waste from the cafeteria and classrooms is collected for on-site composting.

Things to consider:

1. If the school has a garden, work with the gardeners to establish a compost site nearby.
2. Almost every community has a composting expert. Recruit a parent or community expert to help.
3. Decide on the scale – is the entire school participating or just one or two classrooms?
4. Consider the project site, local climate and scale to choose a bin or multiple bin system. Bins can be constructed or purchased from hardware or garden supply stores.
5. Establish a collection system inside the school (see below).
6. Establish a teacher and student group to be in charge. Composting is often a favorite project for parent volunteers.

LARGE-SCALE COMPOSTING

Large-scale composting is increasingly available as more communities add composting collection to their waste and recycling programs. Schools in these communities can take advantage of local infrastructure and hire a local company to haul away the compostables for processing at a large-scale facility. Trash will be reduced and trash hauling fees can be cut by 30% or more to compensate for this cost. The big advantage to this method is that large amounts of food-waste, non-recyclable paper and yard waste can be collected and composted, quickly and efficiently.

Things to consider:

1. Check with school's current garbage (and recycling) hauler to see if they offer the service of collecting and hauling compost.
2. Inquire if there are community-sponsored compost collection programs available. There may be a way that the school can be included.

3. Inside the school, be sure to use consistent signage and color for collection containers. Colors and shapes that differentiate from trash and recycling containers will help to reduce contamination.
4. Check that compost containers in classrooms get emptied often. Set up a system so that students and teachers deliver compost to a designated larger bin to cut down on custodial time. Non-recyclable paper (tissues, paper towels, construction paper, etc.) and food waste can be collected in the classroom.
5. Set up collection in the cafeteria. Work with cafeteria staff and custodians to set up a waste station, so that students now dump food waste and napkins into the compost bin instead of the trash.
6. Bathroom trash containers can be replaced with compost bins, because most bathroom trash is paper towel waste (use separate trash bins for sanitary products).
7. Use ongoing training to motivate student and staff involvement and to lower contamination.
8. Have a student group lead waste audits to keep track of school progress and to promote successes and where improvements are needed.

Keeping Compost Clean: What to Include and What to Keep Out.

When establishing a school compost program, it is very important to promote clear and easy-to-understand guidelines for which materials are and are not accepted. Compost collection programs are gaining in popularity and participation throughout the U.S. It has become increasingly important to insure that the materials collected are truly compostable so that the finished compost does not contain contaminants that will be distributed into the greater environment when the compost is applied to soil.

1. Collected compostables should consist only of food waste, non-recyclable paper and yard waste. All metal, glass and plastic must be kept out of the compost.
2. Plastic-coated paper products such as paper plates, bowls, cups and milk cartons must be kept out. Recent studies have shown that they produce non-biodegradable micro-plastic fragments that contaminate finished compost. Micro-plastic fragments are known to be an increasing source of plastic pollution in the environment, with potentially harmful effects on living organisms.
3. Non-coated paper plates and plates, cups, bowls and flatware made from (or coated with) plant-derived materials, that are certified as compostable, can be collected.
4. Purchase only compostable paper and plastic food-service ware (including cutlery) that have been certified by the Biodegradable Products Institute. This organization uses international standards to certify products. Their website (www.bpiworld.org) is the best way to ensure that the products you purchase are truly compostable.
5. Beware of purchasing oxo-degradable plastic products (foam plates, cups and trays, plastic bags, plastic films) that are marketed as degradable. They do not meet international certification or BPI standards for compostability.
6. Visit www.ecocycle.org/microplasticsincompost for more information on micro-plastics, oxo-degradables and guidelines for choosing certified compostable food-service ware.

References

The Complete Book of Composting (various editions) by R. I. Rodale (Rodale Press)

Worms Eat My Garbage by Mary Appelhof (Flowerfield Enterprises) (www.wormwoman.com)

Worms Eat Our Garbage (curriculum guide) by Mary Appelhof (Flowerfield Enterprises) (www.wormwoman.com)

Microplastics in Compost, www.ecocycle.org/microplasticsincompost/ Micro-plastics, oxo-degradables, guidelines for purchasing compostable food-service ware

Biodegradable Plastics Institute, www.bpiworld.org

Eco-Cycle Zero Waste programs, www.ecocycle.org, Cyndra Dietz, 303-444-6634

(Optional sidebar for inclusion to article)

Benefits to Different Compost Program Options

Composting with worms	<ul style="list-style-type: none">• Small-scale - classroom based bins• Small amounts of compost produced• Small amounts of fruit, veggies, bread & paper towels composted• Requires maintenance, but little coordination with rest of school• Great for classroom based curricula, variety of ages• Year-round
Schoolyard composting	<ul style="list-style-type: none">• Small-scale or medium-scale• Requires outside space and maintenance• Can be tied to and used with school garden• Needs established leader/group for maintenance• Small to large amounts of fruit, veggies, bread & paper towels composted• Can be affected by weather/change of seasons
Large-scale composting (offsite)	<ul style="list-style-type: none">• Large-scale diversion of waste• Requires hauling away from school• Requires in-school coordination for maintaining and emptying compost containers• Potential for composting all food waste, yard waste and non-recyclable paper• Year-round