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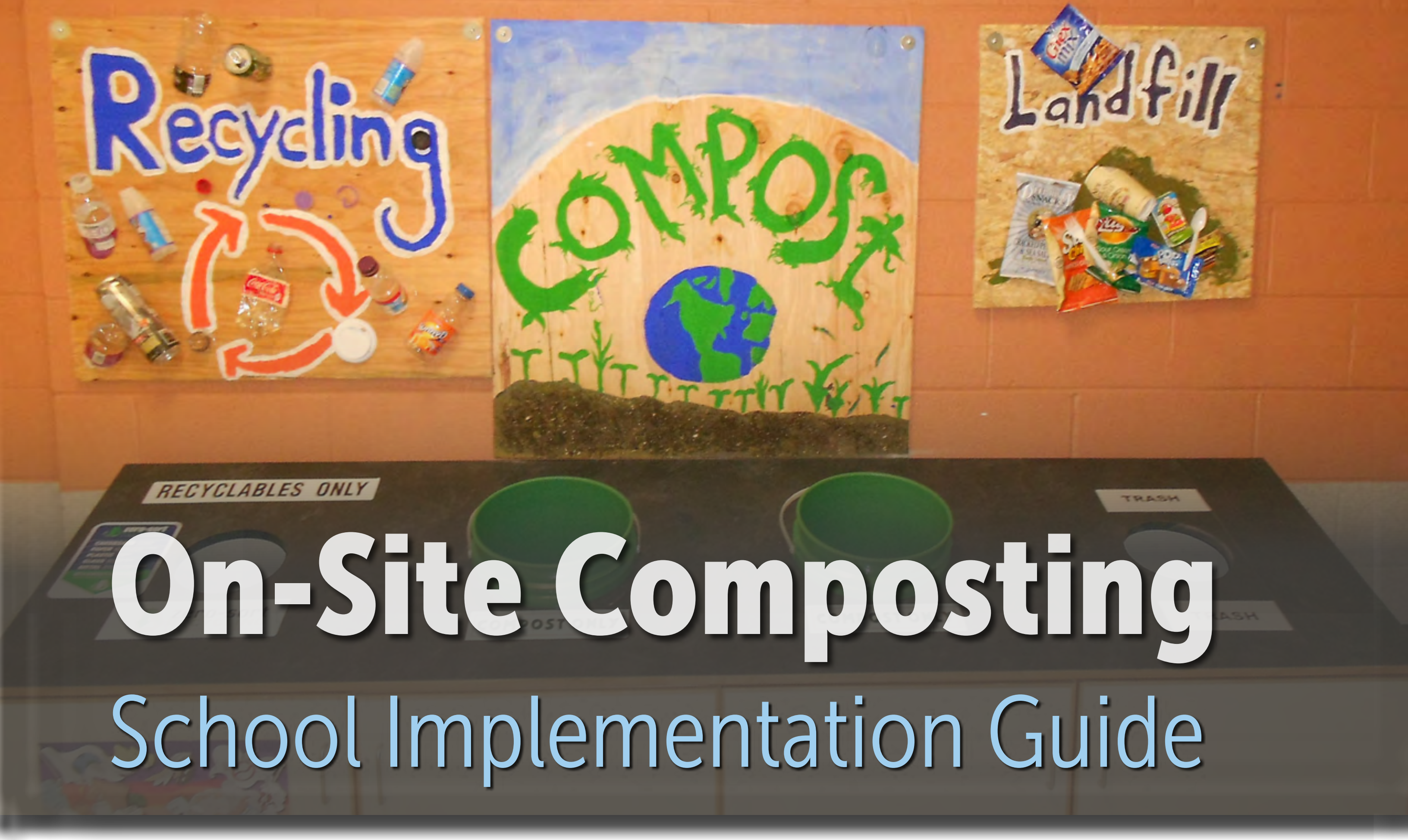
Department of Environmental Conservation



On-Site Composting

School Implementation Guide

Planning and Implementing a Program for Success

Composting programs at schools are an opportunity to cultivate environmental stewardship and encourage students to participate in their school's sustainability efforts. Students, staff, and volunteers find composting to be a rewarding experience that provides the school community with multiple opportunities to practice integrative thinking and take responsibility for their future and the conservation of their resources.

If your school is thinking about starting a composting program, several options for composting at schools exist. Many schools simply separate their food scraps from recyclables and trash, and then transport the compostables to the nearest off-site composting operation, often a local farmer. Food scrap collection programs already exist in many communities and the model is easily adaptable and scalable for different community situations.

Some schools choose to make compost on-site, particularly when there are existing gardens, providing a full soil-to-soil loop. With adequate planning and investment, on-site composting provides a sustainable composting strategy for schools over time. The following guide is a general overview of on-site composting meant to help schools consider the scope of this option for the school. If your school is considering developing an on-site composting program, it is important to take time in advance of making a decision to understand the key points that give on-site composting programs staying power. Workshops and technical assistance can support you in this process as well.

FOOD SCRAPS

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Foundational Components to Successfull Implementation

Composting Coordinator and Support From The Administration and School Board

Every successful on-site composting program requires at least one person to lead the program. The Compost Coordinator gets the ball rolling and sees that student/staff training, system implementation, and program management stays on course. This person could be staff, an administrator, parent, or community volunteer, and may change over time, but there will need to be someone facilitating the program as long as composting is happening on-site. It is essential that the school leadership validates this role and its purpose in order to ensure that the school is committed to filling and supporting this function over time. The Principal, and ideally the School Board, should make clearly defined commitments to the program to ensure success.

On-Site Composting System That Meets School Needs

The size and design of the on-site composting system should meet the school's requirements for handling all food scraps generated over the long-term, as well as for cleanliness and food safety, pollution mitigation, and overall manageability. The quality and efficacy of the system influences the value of the educational experience for the students.

Strategy for Implementation and Compost Management

To help clarify how your school will successfully implement and manage your school's composting system, a clearly defined strategy for implementation and a plan for managing the system should be developed. Active, dynamic systems like composting will require similarly active management and the capacity to respond to challenges. Having a plan in place will mitigate many preventable challenges, while ensuring the program has the capacity to resolve any issues that do arise.

Student Desire To Compost

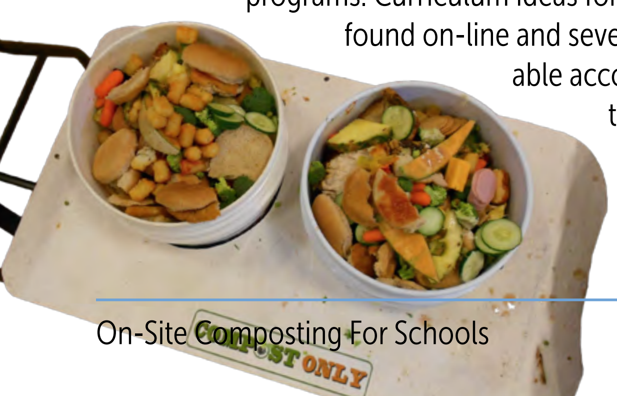
Composting programs work best when student participation is encouraged, but voluntary. It is essential that students are engaged in robust and thought provoking education programs. Students who understand the importance of their composting program and its impacts, will be more engaged,and therefore get more out of the program. Active participation in the composting program will allow students to become experts and empower them to take responsbility for educating their peers and ensuring the success of the program. Composting is a great opportunity for students to build transferable skills.

Student and Staff Training In Source Separation of Food Scraps

The entire school community must be educated about food scrap separation and be given the opportunity to participate. This is critical to ensuring food scraps are valued as a resource and therefore kept free of trash, which is a fundamental element to a successful program.

Integration of Composting Into School Curriculum and Culture

Composting and food systems fit well into just about every area of study. Leveraging these applied programs to teach academic course work will deepen the sense of purpose in the daily actions of composting at the school. Composting programs present academic and cultural opportunities for learning and exploration in all levels of education from pre-K to University and Graduate programs. Curriculum ideas for K-12 can be found on-line and several are available accompanying this guide.



On-Site School Composting Planning Checklist:

- ☐ Designated a school composting coordinator
- ☐ Identified a use for compost at your school
- ☐ Developed a plan to get student investment in the program
- ☐ Designated who is in charge of transporting food scraps to the compost system
- ☐ Identified the materials needed for successful source separation and where they will come from (five gallon buckets, totes, posters, labels, etc.)
- ☐ Conducted a school wide waste audit so you can track the decrease in waste overtime
- ☐ Conducted a cost -benefit analysis comparing on-site composting to hiring a solid waste hauler to pick up organics
- ☐ Identified who will train the students, staff, and kitchen about source separation of food scraps
- ☐ Identified who will size and design your on-site composting system
- ☐ Identified who will install the composting system
- ☐ Determined how the system will be paid for
- ☐ Designated students and staff to monitor and record the temperature and moisture of the compost piles on a weekly basis
- ☐ Designated who will source materials such as bedded manures, leaves, straw, hay, and wood shavings to provide the proper blend to your compost recipe
- ☐ Designated students to turn the piles regularly
- ☐ Designated a "go to person" for management questions and trouble-shooting
- ☐ Designated who is responsible for the program when the coordinator and other key parties move on. They will replace the coordinator, develop an interim management strategy and ensure long-term success of the program.
- ☐ Created a plan to prevent common challenges such as the availability of off-site materials, staff changes, and management issues from undermining the program

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NOTE: While the school may not be able to check off all of these components at first, it is necessary to address these key logistics and fill these key roles with committed members of your school community before action is taken to implement an on-site composting program.

Understanding Your School Composting System

Composting is a biologically mediated decomposition process, in which microorganisms convert organic waste into a stable and nutrient rich humus-like material. The processes taking place during managed composting are well understood and the practices and resulting products are very safe. Composting is done at many different scales, from backyards and schools, to municipalities and farms. The process starts by mixing correct proportions of different organic materials to create a habitat where microorganisms flourish and metabolize the materials.

School composting programs, especially those on-site, give students the opportunity to learn about decomposer systems and their role in ecology and sustainable communities. Students can also build skills in personal responsibility, cooperation, and civic engagement. Within the composting process itself, many areas of study overlap creating an opportunity for integrative learning throughout the school community.

For example:

Earth Science and Ecology
Global Carbon and Nitrogen Cycles and their role in food systems, global climate, and the composting process

Physical Science
Density, moisture, temperature, and chemical make up of materials in our world and in the compost pile

Mathematics
Calculation of volume, weight, the Carbon to Nitrogen ratios of different materials, and the combination of these formulas in compost system development

Scientific Process
Collection of data, graphing, identifying dependent and independent variables, correlating patterns in data with compost pile conditions

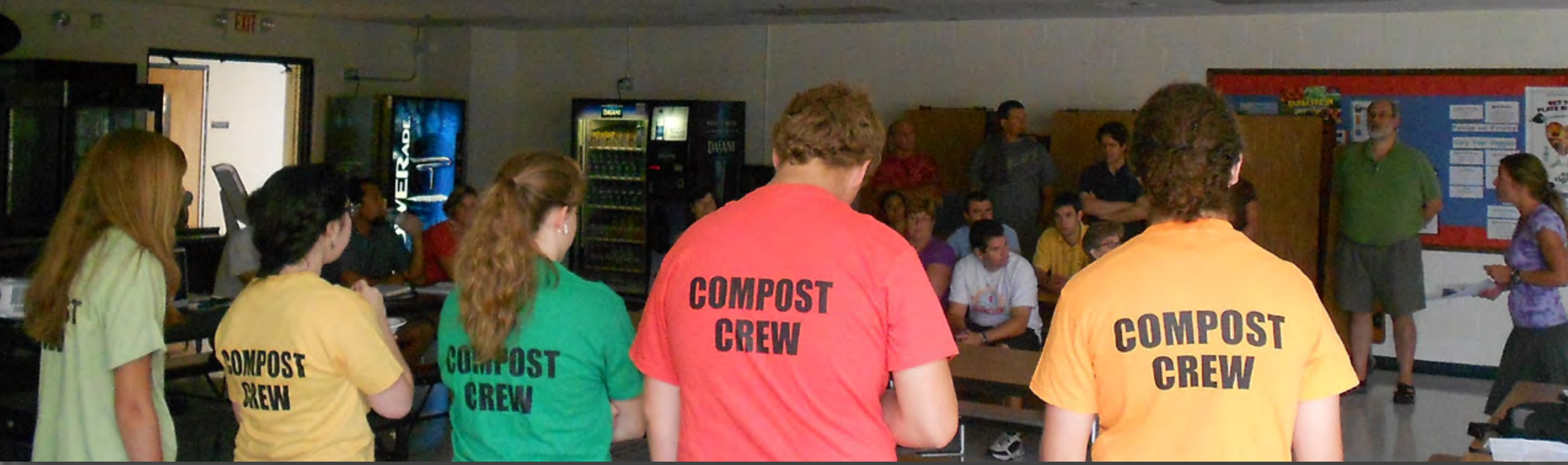
Biological Science
Life science, food webs, metabolism, microorganisms, and the cycles of organic life on the planet and in the compost pile

Nutrition
Soil-to-soil nutrient cycles and the role of compost in human nutrition and health

Bin Compost Systems

The most common type of on-site composting systems utilized by schools are Bin Compost Systems and for this reason the following guidelines are specific to bin type systems. There are many advantages to bin systems because the infrastructure is simple to build and maintain. When sized to meet the needs of the school and managed correctly, bin systems are an excellent way to introduce composting to your school's learning community. There are many other composting systems available to schools and some of the information given here is applicable for these systems as well, but we recommend seeking specific technical assistance if you have questions about what type of systems best suits your needs.

Ideally, your bin system contains at least three bins for composting, as well as space for the storage of dry carbon materials. The bins are designed for use in succession; each new batch will always start in your first bin, or Bin 1. When Bin 1 is full, its contents are transferred to Bin 2 and a new batch is started in Bin 1. Continue this progression until all of the bins are full, at which point the contents of the last bin will likely be finishing composting ready for curing. Before a new batch is created, the last bin can be emptied and either used immediately or stored elsewhere under cover. For design principles and concepts see Designing a Bin System for Hot Composting accompanying this guide.



Managing Your On-Site Compost System

The following section will provide you with an understanding of the key components to managing a compost bin system properly. The quality of your composting system will significantly impact its value as a learning opportunity. Taking the time to understand a few key logistics will initiate proper compost management right from the start. At this point let's assume you have sized, designed, and built your school's bin system and you are ready to start planning your compost piles.

STEP ONE

Source Quality Materials

Food scraps must be blended with other materials, often called "feedstocks," in order for them to compost properly. Finding a source for those materials is probably going to be the very first step in getting the compost process ready. You may already have some ideas about where your feedstock materials will come from or it may take some networking to source materials that will work well. In general you are looking for two categories of feedstocks:

- High carbon materials, such as leaves, sawdust, saw chip, wood shavings, straw, hay, or bark, and
- Bedded manures such as horse, calf, sheep, goat, chicken, or lama. The bedded manure source should be relatively dry (you should be able to squeeze a handful without having dripping) and contain a large amount of visibly distinguishable bedding material.

You will need a dry place to store these feedstocks near the compost bins that is accessible by delivery vehicles. Fresh manures work best, so manures will need to be sourced four times a year at a minimum. The higher carbon materials will not break down as quickly as manures, so they can be sourced in larger quantities if there is adequate storage. Sourcing materials must be on-going to avoid periods where there is nothing to blend with the food scraps. Build relationships with your feedstock providers to ensure you can continue to work with them in the future.

STEP TWO

Recipe Development

One of the most important factors in yielding a high quality product from the composting process is getting the right mix of material. Research has shown that the best compost is made when the blended materials have a combined carbon to nitrogen ratio of between 25:1 and 30:1, a moisture content between 55% and 60%, and a bulk density ≤ 1,000 pounds per cubic yard. For this reason it is helpful to consider your feedstocks as falling into these three broad categories and a good recipe has all three.

- Nitrogen-rich ("Greens"): Food scraps, meat, dairy, cow/chicken/pig manures. (20-25% of mix by volume)
- Carbon-rich ("Browns"): Leaves, sawdust, saw chip, wood shavings, straw, hay, or bark, and dry well bedded manures (75-80% of mix by volume)
- Bulky Material: Typically Carbon-rich materials such as wood chips, shredded wood/bark (5-10% of mix by volume)

A compost recipe can be established by blending your nitrogen-rich food scraps with your carbon-rich and bulky materials following the percentages above.
When adding food scraps to the pile, carbon materials are used to blend with and to cover food scraps. Bulky materials like woodchips are used to create porosity in the compost pile which allows oxygen to reach the core of the pile. A recipe building chart, *Compost Recipes*, is included at the end of this guide, and available as a separate companion resource. All of the recipes rely on your ability to utilize a common volume unit for the purpose of measuring the components of the recipe.

NOTE: There is some wiggle room in regards to building a compost recipe and pile outside of these parameters, however changes in a compost recipe should only be made after a strong understanding of target compost pile conditions has been developed.

STEP THREE

Charging The Pile

The potential for your compost piles to get up to temperature requires achieving a minimum volume of one $yard^3$ of material within about a month's time. In order to achieve hot composting we suggest starting with a fresh pile by adding a half-yard of bedded manure at the base of the bin. The pile will then build up from there, and the initial charge of high energy material will set the heating process into action very quickly.

STEP FOUR

Blending Materials

Remove food scraps from the school at a frequency that works best for the school, removing food scraps at least once per week. If food scraps are not removed daily, it is preferable to store the containers inside during the winter months to prevent freezing – Bin systems are small enough that adding frozen food scraps will slow down the biological activity. To save on time as the food scraps are brought out to the system, your carbon materials can be pre-mixed according to the proportions provided to you. Food scraps should be layered with carbon materials, with no more than 4 inches of any one type of material per layer. Take special care to make sure that no food scraps are left uncovered in the compost pile; always cover fresh food scraps with several inches of carbon-rich material, and keep food scraps about six inches away from the edges of the bins.

Vector and Pathogen Prevention:

Hygeine:
Composting is a safe and common practice. Some of the raw materials being composted in this system can contain pathogens that are potentially harmful to human health. The composting process, if executed properly, will either eliminate these pathogens or bring their populations to levels that are insignificant. General precautions should be taken such as wearing gloves and washing hands with soap and a nail brush when handling the raw materials and active compost. Additionally individuals with compromised immune systems should not participate in the turning or handling of unfinished compost materials.

Vectors:
The best strategy to avoid nuisances such as dogs and rodents in compost piles is by attaining proper conditions in the system. These conditions will prevent odors and moisture that will attract vectors. Heat generated by properly managed composting systems makes piles inhospitable to vectors. As an added precaution, it is highly recommended that you make your system impenetrable to animals by lining it (including the floor or ground) with hardware cloth. Lids and doors for the bins will also prevent unwanted entry.

STEP FIVE

Monitoring The Piles

"The best fertilizer is children's footsteps" goes the revised translation of an ancient Chinese proverb. Watching and measuring the moisture, feel, smell, and temperature of a compost pile is as critical a job as any to achieving success in composting. Below is a table that gives the target pile conditions for producing high quality compost.

Figure 1 - Target Pile Conditions

Pile Condition	Low Range	Target Range	High Range
Moisture	< 50%	50-60%	> 60%
C:N Ratio	< 25:1	25-30:1	> 30:1
Bulk Density	< 700	700-1000	> 1000
Porosity	<5% Bulky Material	5-10% Bulky Material	> 10% Bulky Material
Highest Pile Temperature	< 122 F.	131-160 F.	> 160 F.
Turning	0-2 Turns	3-10 Turns	10+ Turns
Diversity of Feedstocks	1-2 Materials	3-5 Materials	N/A

Monitoring of piles should be done on a weekly basis and can be done as often as every day. Students can and should monitor compost using the Monitoring Logs (See Appendix A) to record pile conditions and learn about what is happening throughout the different stages of the composting process.

Monitoring and recording temperature, moisture, and any other observations and management activities such as turning, allows you to easily track the progress of your piles over time. Closely watching the compost making process through the lens of these simple methods provides insight into the activities of microscopic life at work within your system.

Temperature

In order to track pile temperatures, you will need a composting thermometer, which costs between $30 and $145 depending on the size of the thermometer. Heat created by microorganisms (primarily bacteria) metabolizing carbon throughout the decomposition process is an indication that the process is working well. Pile temperatures above 131 degrees Fahrenheit for at least 3 days are required to inactivate pathogens and weed seeds, which is importatnt for creating quality compost. Using a thermometer will give you confidence in the effectiveness of your system and of the quality of the finished product. Both the inner and outer temperature of the piles are usually monitored, in order to know what is happening throughout the entire pile. Monitor at a depth of between 8-12 inches from the top of the pile an then again at about 8-12 inches from the bottom of the bin (if you monitor too near any edge you will not get an accurate reading).

Moisture

Testing moisture is as simple as digging about a foot into the pile and giving a squeeze to a handful of material. If you can barely squeeze a drop or two of water out between your fingers, then the pile is at 60% moisture, which is perfect. If there are any trickles or drips of water when you squeeze as hard as you can then the material is greater than 65% moisture and is too wet. If there is no sign of moisture coming from the compost, but when you release your grip, it stays in a ball, its about 50% moisture. If the compost crumbles when you release your grip, that's <50% moisture and is too dry.

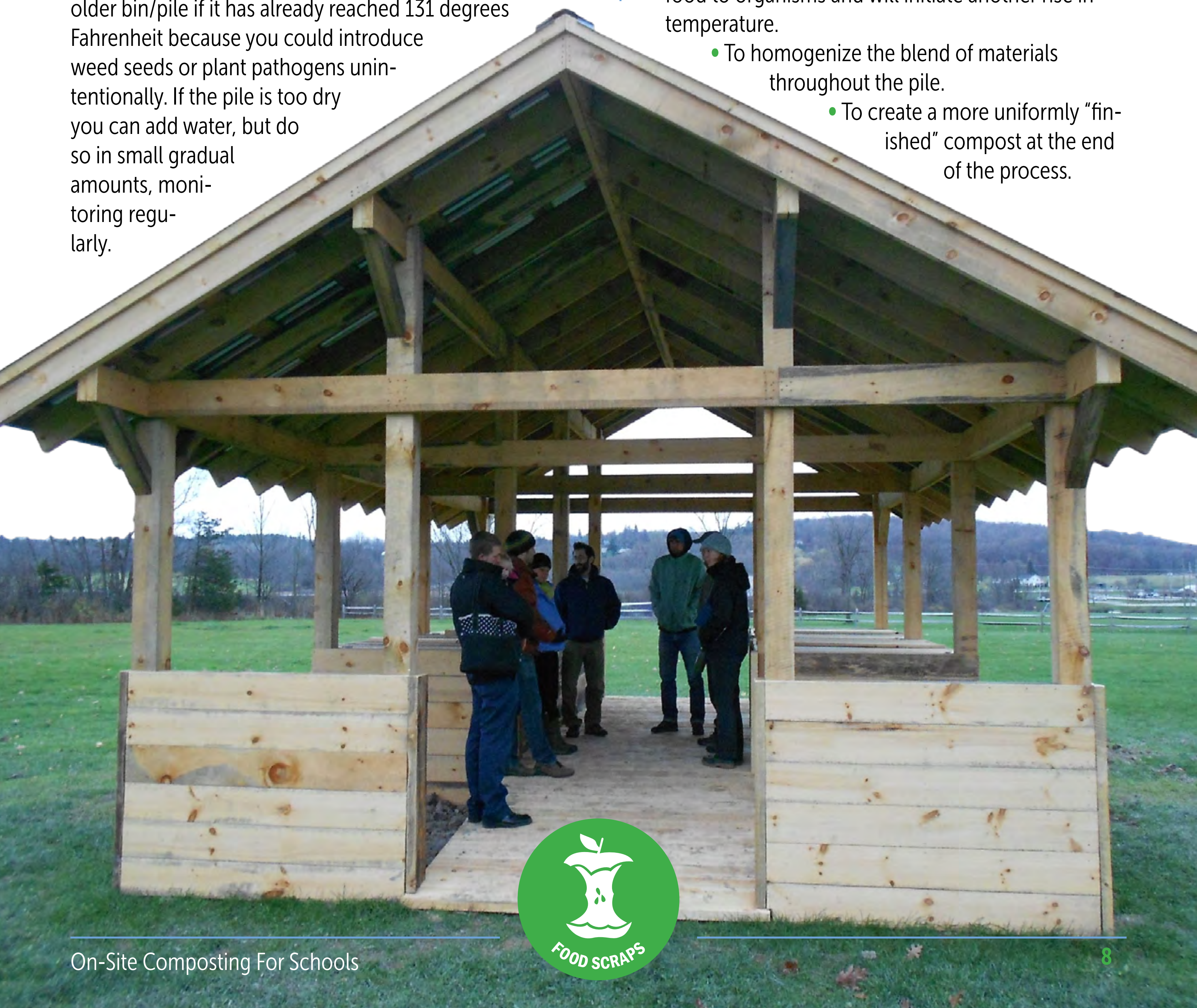
In a bin system materials are usually layered, so the moisture is rarely even throughout the pile. For this reason, moisture testing multiple locations is best, as some may be dry and others wet. When you turn the pile it will re-balance the moisture of the mix. If the pile is too wet or too dry everywhere then you may need to adjust the moisture. Wet piles can be fluffed with a pitch fork to aerate the piles. A small amount of dry material can also be added to a pile to absorb excess moisture. You should use caution when adding any materials to an older bin/pile if it has already reached 131 degrees Fahrenheit because you could introduce weed seeds or plant pathogens unintentionally. If the pile is too dry you can add water, but do so in small gradual amounts, monitoring regularly.

STEP SIX

Turning The Piles

On-going monitoring of pile conditions will give you the best indication of when your piles need turning. Turning compost piles for school on-site systems is necessary for a number of reasons:

- To ensure pathogen and weed seed inactivation throughout the entire pile.
- To renew the supply of oxygen throughout the pile, ensuring the pile does not become anaerobic.
- To incorporate fresh materials from the outside of the pile into the center, which provides fresh food to organisms and will initiate another rise in temperature.
- To homogenize the blend of materials throughout the pile.
- To create a more uniformly "finished" compost at the end of the process.



The temperatures in the pile will rise most intensively in the first 2 months of the pile's life and throughout this hot stage, it is recommended that you turn the pile 3 times. In this first stage of the compost process, there is a high ratio of simple sugars (carbohydrates) present that bacteria feed upon, rapidly metabolizing and producing heat. As temperatures rise, the populations of organisms in the pile change from species that are adapted to ambient temperatures (mesophylic), to species which are adapted to high temperatures (thermophylic).

A large part of compost management is taking advantage of high temperatures while they are present. While heat loving organisms become active during this stage, they survive only because they are adapted to these specific conditions, where as problem species like plant diseases and E. coli cannot. Once the temperature has reached its peak (at least 131 degrees Fahrenheit for over 3 days) and dropped, turn the outside of the pile to the inside and the inside of the pile to the outside. Repeat this process, turning the pile after it has reached its peak temperature until you are confident all of the material has reached temperature. The graph on the next page shows the relationship between temperature, pile turning, and simple sugars. After a few turnings most of the simples sugars have been metabolized and the temperature will no longer reach the peaks it did early in the process. The first two turns will probably be done in your first bin and then in the third turn you can simultaneously transfer the pile to a second bin.

Students, or a parent/staff volunteer can turn the piles. A pitch-fork works best if the mix is made of large particle materials, but a shovel can also be used. To involve a large group of students, form a line and let the students take turns shoveling one forkful at a time. If your goal is simply to turn the pile and not transfer it from one bin to another, you can fill a wheelbarrow or two from the center of the pile, turn the outside of the pile inside and then cover it with the contents of the wheelbarrow. If you have access to a small tractor or skidsteer, the bin system can be designed so that piles can be turned easily using a bucket loader. You may find your own creative method for turning and as long as all of the contents of the pile reach the center of the pile and heat you should achieve the conditions to produce good finished compost.

STEP SEVEN

Finishing The Piles

The compost is not ready to use until it has had time to finish, otherwise known as "curing." This is a low temperature stage, where the more complex plant compounds such as lignin and some cellulose are metabolized by a number of specialized organisms. During the curing stages the bacteria actinomycetes, which are visible as white strands/mats resembling fungi, produce the earthy smells associated with great compost and forest soils. Keeping the piles moist throughout the curing stage is important, but do not be worried if the temperatures are much lower than in the younger piles. Temperatures below 100 degrees Fahrenheit (assuming the pile reached high temps in the first place) are a sign that the curing stage of the pile is taking place. Two to three months of curing is safe, following six to nine months of composting. Compost that was not turned often or did not reach hot temperatures should have a longer curing period (give the compost ≥ 1 year from start to finish). This should give the compost time to become fully aerobic. If there is still woody material left in the compost after curing, this compost can be screened. Large particles that get screened out of the compost can be incorporated into a new compost pile.

STEP EIGHT

Using The Compost On-Site

Using compost made at your school provides the community with a real life ecological model, something any school should be proud of. The compost can be used to amend school gardens, landscaping, or in science experiments. By using compost, you are introducing the same organisms present in the compost, into the soil you're amending. A single teaspoon of good compost can contain 1 billion bacteria and 900 feet of fungal hyphae, to name only a small portion of the life that's present. These organisms are the basis of life on the planet, and their life cycles are what feed plants, which in turn feeds animals, and humans.

One yard of compost will provide more than a half-inch of compost over 1,000 sq. ft. of garden space. Adding compost to a garden increases beneficial microorganisms that would not be introduced by amending your soil with fertilizers. Compost can be applied as often as every three months and as little as every year.

The use of compost:

- Increases the soils ability to make nutrients available to plants
- Increases organic matter and aggregate stability
- Builds sound root structure
- Aerates clay soils for improved drainage
- Improves moisture retention of sandy soils
- Balances soil pH
- Helps control soil erosion
- Improves plant resilience to disease and weather
- Replaces the need for petrochemical fertilizers

Compost Pile Monitoring Log (Bins)

Pile Name:

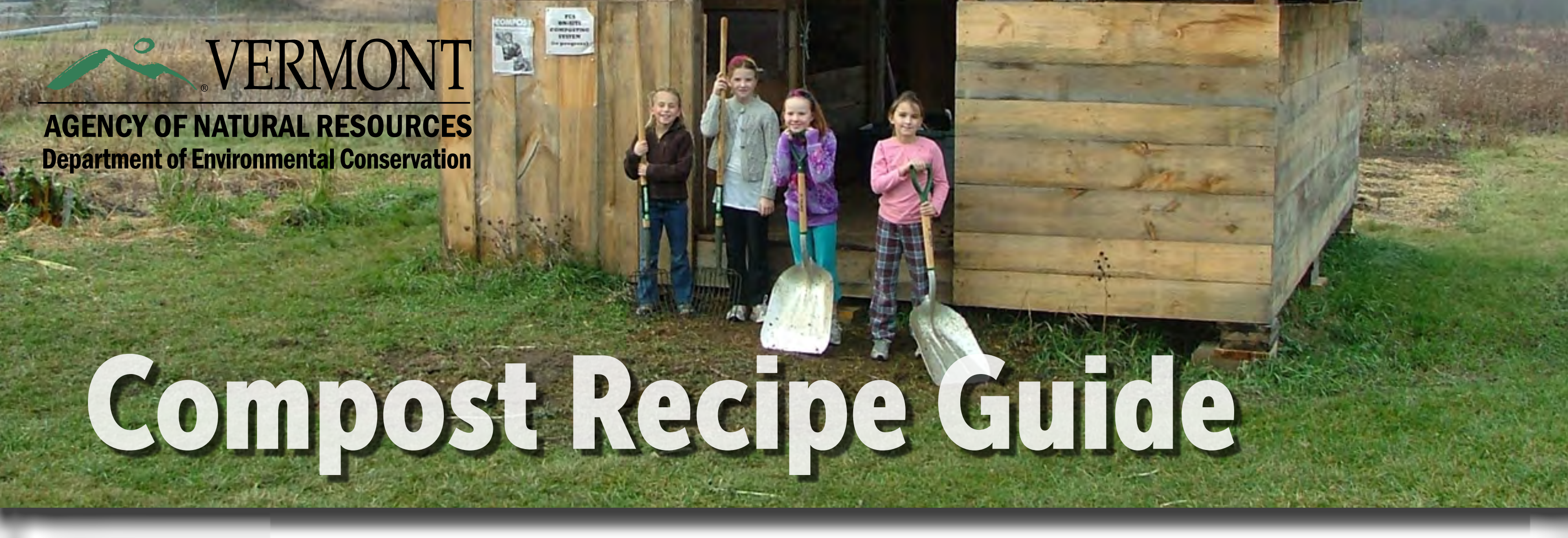
Pile Start Date:

Pile Recipe:

Pile End Date:

Date	Pile Temperature				Moisture	Pile Height	Notes (Turning, weather, smells, visual, other):
	Front		Back				
	1 Foot Depth	1 Foot From Floor	1 Foot Depth	1 Foot From Floor			

Log originally developed by Highfields Center For Composting



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Compost Recipe Guide

Material	Recipe 1	Recipe 2	Recipe 3	Recipe 4
Food Scraps	1 bucket	1 bucket	1 bucket	1 bucket
Horse Manure	1½ buckets	1 bucket	1 bucket	
Leaves	1 bucket	2 buckets		
Chips/Sawdust	½ bucket		1 bucket	1 bucket
Mulch Hay				2 buckets
Shredded Paper			1 bucket	

Provided here are four recipes for achieving the conditions necessary for proper composting. These recipes should provide a balance of Carbon and Nitrogen, Moisture, Density, and Porosity. To follow the recipes, decide upon a common volume unit, such as 1 five gallon bucket and follow any one of the recipes. If you would like to develop your own recipe you can download the advanced "Compost Recipe Calculator" found under the Site Management resources.

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Bin Mangement Guide

Adding Compost

1. When establishing a new compost batch in Bin 1, create a one foot to 18 inch base of horse manure preblended with wood chips, hay (1:1 ratio), or sawdust (2:1 ratio manure to sawdust).
2. As food scraps are brought to the bins, layer fresh food scraps first. Use a rake to level the layer. Food scraps should not be within one foot of the edge of the bin (looking down the food scraps should look like a square within a larger square of the carbon materials on which they were laid).
3. Cover the food scraps with the carbon material mix so that the carbon materials cap the scraps and fill in around their outer perimeter. Use the recipe provided to you to maintain the proper ratios of food scraps to other materials in the blend.

Pile Monitoring

4. Pile monitoring should occur in bins two or more times per week. This includes monitoring the pile's temperature, moisture, and odor, as well as visually observing the pile. Monitor temperature at one foot and at 1 1/2- 3 foot depth in at least two locations per bin. Monitoring results should be recorded and filed. Keep surgical gloves and a pitch fork on hand for the moisture squeeze test.

Pile Turning and Management

5. The monitoring results should be used to determine your turning activities. As the temperature drops and in order to get the temperature to rise, the pile contents should be turned to the next bin or stirred with a pitch fork to homogenize the materials and integrate air into the pile. Turn thoroughly, so that with multiple turnings all of the material gets incorporated into the center "hot" regions of the pile.
6. If a pile requires more moisture, the water should be applied at a relatively low rate and care should be taken to prevent over-watering.
7. When pile contents are rotated from one bin to the next, pile contents should be "fluffed" not "flopped" as they are being added to the new bin. This will significantly improve composting and will make the time spent moving the material substantially more effective. Bins with contents of like age can be combined to conserve space and promote more complete decomposition.

Compost Curing

8. Compost is finished when when the original materials are no longer identifiable. It should have a rich "earthy aroma", be darker in color, and feel crumbly and friable.
9. Compost should cure for one month or longer once it appears finished. This will ensure it is of the highest quality prior to use. The entire process will likely take over 9 months and maybe up to a year.

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Compost Pile Trouble Shooting Guide

Symptom	Possible Issue	Solution
Pile is wet and smells rancid like vinegar or rotten eggs	Not enough oxygen in compost pile	Turn compost pile
	Too much Nitrogen (food waste or manure) in compost pile	Add Carbon-rich materials (granted you are still actively adding materials to the compost pile) such as hay, straw, sawdust, wood shavings, or dry leaves
	Compost pile is too wet	Turn pile and possibly add a bulking material (wood chips or straw) or dry materials (hay, sawdust, etc.)
Compost pile is not heating up	Compost pile is to small	If appropriate, stockpile materials in order to add more mass to the compost pile all at once
		Insulate compost bin or compost pile
	Compost pile is too dry	Slowly add water to compost pile, preferably while turning the compost pile
	The correct balance of Carbon and Nitrogen materials in the compost pile has not been achieved	Assess compost pile for whether it might need more Carbon or Nitrogen-rich materials
Compost pile is damp, sweet smelling, and will not heat up	Likely not enough Nitrogen-rich materials in the compost pile	Add fresh grass clippings, food scraps, fresh manures, or other Nitrogen-rich materials to the compost pile
Compost pile is attracting animals	Meat or other animal products are attracting animals	Enclose the compost pile/bin with ¼” hardware cloth. If problem persists, avoid adding animal prod-ucts to the pile
	Food scraps are exposed	Cover all food scraps with 4” or more of fluffy, Carbon-rich materials
	Compost pile is not hot enough to deter vectors	See above

Adapted From:

Troubleshooting Compost Problems. Cornell Waste Management Institute: Department of Crop and Soil Sciences. 1996. <http://compost.css.cornell.edu/trouble.html>

References

On-Site Composting for Schools
Planning and Implementing a Program for Success. Highfields Center for Composting. Hardwick, VT. Web Resource: No longer available.

Lowenfels, j., Lewis, W. Teaming With Microbes: The Organic Gardener's Guide to the Soil Food Web. Timber Press. 2010.

Troubleshooting Compost Problems. Cornell Waste Management Institute: Department of Crop and Soil Sciences. 1996. Web Resource: Retrieved 06/15/15.

Photos

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The content has been made publically available for use in supporting organics management in Vermont and elsewhere through the generosity of the High Meadows Fund, the Harris and Frances Block Foundation, and the Vermont Community Foundation. For more information about the use of Highfields related materials please contact jake@vsjf.org.

The Vermont community wishes to thank the Highfields Center for Composting for its years of outstanding leadership in the service of community composting and universal recycling in Vermont.

Companion Resources:

Bin System Design Guide
Bin System Management Guide
Compost Recipe Guide
Compost Planning Checklist
Compost Bin Monitoring Log

Content Updates

Compost Technical Services

www.CompostTechnicalServices.com

and

Srise

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Design

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