



The Decomposition Break Down: Action Plan for High School Composting

By Sarice Greenstein and Kate Catlin

INTRODUCTION

Do you ever think about where all your uneaten food ends up?

Usually we dump leftover food in with the rest of our garbage, and it goes off to a landfill. Landfills cause soil, air and water pollution, affect local wildlife and their habitats, and release harmful methane gases into the atmosphere. Unlike other kinds of garbage, organic materials (including vegetables, fruits and grains) are not doomed to such a wasteful fate—they can be composted and reused in the soil to fertilize other plants. Of course eliminating unnecessary food waste is the best option, but for any food that is not eaten, composting is the best way to use this “waste.”

Reasons to compost:

Benefits for the environment:

- Cut your waste! Americans throw away more than 25% of food served to them and in 2005 alone, almost 12% of the total municipal solid waste generated in American households was food scraps.ⁱ
- The waste of food scraps directly contributes to landfills being the second largest source of human-related methane emissions in the United States.ⁱⁱ Methane is a lesser known greenhouse gas than carbon dioxide, accounting for 20% of greenhouse gases, but has 25 times the impact on temperature change.ⁱⁱⁱ
- If the average person composted all their food and garden waste, they would prevent 5kg of methane from being released into the atmosphere every year. That is equivalent to the carbon emissions of a 40 mpg car driving 400 miles.^{iv}
- Food scraps can be composted to create healthy soils that give nutrients to growing plants.
- Composting organic matter continues the natural life cycle of organic matter by returning nutrients into the Earth's soil to grow healthy plants and trees

Benefits for your school:

- The compost you produce can eliminate the need to buy fertilizers, pesticides, and water for the school's garden.^v
- Less matter will need to be transported to a landfill; collection and landfill costs will be reduced.

HOW TO START YOUR CAMPAIGN

HAVE A CLEAR, WRITTEN GOAL

Goals will provide direction and focus to your group. They will keep you and everyone you work with on track, while providing a way to measure how successful you have been. Choose one from the suggestions below, or write your own.

- **Have 50 students commit to composting in their own homes.** The road to big solutions starts with one brick! If students learn the concepts of composting and start it in their own homes, the process of starting the program at your school will be much easier.
- **Install three composting bins in your school, and get volunteers to monitor them during lunchtime.** Don't just campaign for the bins; see your project through to the end by increasing awareness and training your peers.
- **Get biodegradable utensils or plates for the lunchroom.** Increase your school's composting yield and decrease its waste!
- **Recruit ____ number of students to join your campaign:** The more students you can get to support your cause the greater voice you will have. Start a club dedicated to your campaign and meet once a week. Explain to others why the issue is important and why they should care. Once they join, have them bring a friend!

Key Messages

You need key messages for your campaign – these will clearly state the problem and a solution to everyone you talk to. Choose two to five that will be understandable to your peers and administrators. Be sure that everyone working on your campaign understands the key messages and is prepared to repeat them. Here are a few suggestions:

- “Composting is natural; it's continuing the cycle of returning our waste to the earth.”
- “Composting is the most efficient form of recycling!”
- “Composting would cut our carbon footprint drastically.”
- “We could sell the compost to raise money for the school.”

Strategy and Action Items

The strategy is how you will get from “point A” to “point green.” Without a strategy your efforts will lack significance, so planning out your campaign is important from the get go. Depending on the goal, the best route might be anything from a grassroots petition, multi-media outreach, or education. We've provided a sample below, follow along or plan your own:

SAMPLE SHORT TERM SRATEGY			
Action Issue:	Composting Your Food Waste	Grade Level:	7-12
Goal:	Educate students on the benefits of composting and teach them the ropes to do it themselves! Maintain at least 30 participants.		
Overall Strategy:	Install one small bin at the school in one teacher's classroom and practice composting the leftover fruits after lunch.		
Total Campaign Length	4 weeks (three in planning and logistics)	Activism Experience Level (1-3):	1

WEEK	FOCUS	WEEKLY ACTION ITEMS	TIPS
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<p>1</p>	<p>Educating Yourself</p> <p>Educate Your Teachers</p> <p>Build Leadership</p> <p>Get a Bin!</p>	<ul style="list-style-type: none"> • Research if there has been any efforts to compost in your school (or in any of the neighboring schools) in the past, even on a small scale. • Reach out to the environmental science, biology, or horticulture teachers. Explain how beneficial composting is. Ask if they can be the supervisor of a small scale composting bin you will install outside the school. • Delegate leadership to three students who are excited about the campaign. One will coordinate other volunteers, one will coordinate educational outreach, and one will be the designated manager of the compost bin. • Take direct action and go ask a local building supply store or nature center for a free compost bin. It's for a good cause! Show up at the meeting dressed professionally and make your ask in a mature manner. Also, many food service establishments have five gallon buckets to donate for use as compost bins. Ask around! If they won't give you a small compost bin, buy a cheap backyard bin. 	<ul style="list-style-type: none"> • Make sure you are delegating responsibility to build leadership for longer campaigns! • You will probably only be able to compost fruits, vegetables, and raw foods with your compost bin. Other waste can attract rodents and insects. • Be prepared to handle questions concerning pests. Most bins today come as air-tight and are completely sealed so they pose no rodent risk. Watch out for this during the shopping process as a well!
<p>2</p>	<p>Logistics, Logistics, Logistics</p>	<ul style="list-style-type: none"> • Lock down where you will put the bin. Preferably directly outside of the sponsoring teacher's classroom or science lab. • Coordinate volunteers who will help with the program once it is up and running. Compost bins will need to be emptied and cleaned, and your compost pile needs to be turned and maintained. This work may be done by a combination of staff and student volunteers • Determine what your school will do with the final product? If you have a garden at your school the compost can be used as natural fertilizer for the soil. Otherwise, you can certainly find some parents or local gardeners who will be willing to take it off your hands. 	<ul style="list-style-type: none"> • Make sure your student leaders are doing their jobs and provide them support.
<p>3</p>	<p>Logistics, Logistics, Logistics</p> <p>Start Reaching Out</p>	<ul style="list-style-type: none"> • Reach out to the environmental club (or another small group of interested students) and educate them on the benefits of composting! Let them know about the new compost bin, and encourage them to use it to dispose of their apple cores and other raw lunch waste. • Assess how the first week went with only a few students using the bin. How can you build on those results? What needs to be done differently? • Maintain your composting bin well. You want to be able to use it later as proof that students can run a composting program competently. 	<ul style="list-style-type: none"> • Expressing the WHY behind what you are doing is immensely important. Teachers will take you more seriously, and students will respond more positively.
<p>4</p>		<ul style="list-style-type: none"> • Expand to the sponsoring teacher's first period. Ask your teacher if you can have 10 	<ul style="list-style-type: none"> ○ Continue to thank and support your leaders

	GAME TIME!	<p>minutes of class time on Monday to explain what composting is and how it is done. Try for participation from all these students.</p> <ul style="list-style-type: none"> • Document how well you take care of your bin and how many people used it. Make records of who took care of what, overflows or other problems. • Assess how this week went. Do you have the capacity to expand to the sponsoring teacher's second period? Is there anything you need to change in terms of how the bin is managed? 	<p>and volunteers. After it's all over on Friday, take them out for coffee or pizza as a thank you, and plan to build on your success.</p>
Beyond	Build Your Movement	<p>Possible next steps:</p> <ul style="list-style-type: none"> • Institutionalize the bin campaign by asking your sponsoring teacher to incorporate it into their curriculum. • Expand to the rest of the teacher's classes to increase your composting yield. • Build on with the following 6-8 month campaign! 	<ul style="list-style-type: none"> • You've got momentum! Take a break, but don't wait too long to start a new project or your energized volunteers will get bored and find something else to do. High school students can be fickle, hold their attention!

SAMPLE LONG TERM STRATEGY			
Action Issue:	Composting Your Food Waste	Grade Level:	11-12
Goal:	Get a large scale rotating compost system for your school, and expand waste from the cafeteria kitchens.		
Overall Strategy:	Start small to prove how effective composting can be, then work with the administration to fundraise for a larger, rotating compost system.		
Total Campaign Length	7 months	Activism Experience Level (1-3):	2

MON TH	FOCUS	MONTHLY ACTION ITEMS	TIPS
1	<p>Educate Yourself</p> <p>Build Momentum</p>	<ul style="list-style-type: none"> • Acquire one small compost bin (or bucket) and start a miniature composting program with a single class or small group of students. Delegate leadership to three students who are excited about the campaign. One will coordinate other volunteers, one will coordinate educational outreach, and one will be the designated 	<ul style="list-style-type: none"> • Make sure you are delegating responsibility to build leadership in your peers! • From the very beginning, take yourself seriously.

	<p>Make Contacts</p> <p>Prove Yourself</p>	<p>manager of the compost bin.</p> <ul style="list-style-type: none"> • Document everything. Volunteer coordination, the composting process, successes, failures, and what you have learned and changed. • Write a letter to your principal, PTSA, and school board detailing your documentation and how well the system went. Ask to arrange a meeting to discuss possibilities of a larger scale system. Include information and statistics on how much CO2 and how much waste your school could save. Also mention that if you sell the compost it could make money for the school in the long run. 	<p>During all interactions with administrators, dress well, speak or write formally, and remember they will respect you only if you respect yourself.</p> <ul style="list-style-type: none"> • You will probably only be able to compost fruits, vegetables, and raw foods with your compost bins. Other waste can attract rodents and insects. • Be prepared to handle questions concerning pests. Most bins today come as air-tight and are completely sealed so they pose no rodent risk. Watch out for this during the shopping process as a well!
<p>2</p>	<p>Hold a Successful Meeting</p> <p>Plan Your Next Steps</p>	<ul style="list-style-type: none"> • Coordinate all the logistics. Write out EXACTLY how the system would work. Where will you put it? What capacity of food waste could you handle? Will volunteers take care of the bins, or will a teacher take point on making sure everything gets done? • Consult custodial workers on how much garbage your cafeteria produces normally, and figure out how much your program can handle. Decide whether you want to start with post-industrial food waste (leftovers from people's meals), pre-industrial food waste (vegetable scraps that are thrown away during food preparation) or both! • Lock down what you will do with the finished product – use it in school gardens? Sell it to parents? Donate it to a local farm? • Calculate exactly how much this will all cost. How much of the cost could you make back by selling the compost? • Involve Everyone: The more people who are invested in a composting program, the more likely it will be established and stick. Create a "Green Team" of all different people who want to be involved, such as other students, teachers, parents, or school board members. A good place to start might be your school's Parent-Teacher Association. • Talk it Out: Follow up on your letter and request a meeting with your principal to 	<ul style="list-style-type: none"> • Don't go into the administrative meeting expecting an immediate yes. • Never burn a bridge during any meeting. Do not whine, threaten, accuse, or insult. Stay professional! • Expressing the WHY behind what you are doing is immensely important. Otherwise, you will get half the response and results won't last. Tell it well and the campaign will sell itself. • If your local waste management system supports composting, consider having them take it away instead of having to fundraise for an in-school system. Local companies also take away composting, research how much that will cost.

		<p>explain your ideas and answer any questions they may have. Make sure that you are well prepared for the meeting with information on costs and benefits of buying and installing a composting system. You can also bring examples of success stories at other schools. Schedule a second meeting at the end. Pitch an enclosed, rotating compost system. If you only compost raw, fruit, vegetable, and yard waste in a rotating compost system there is no chance of rodents, maggots, and other pests (which will likely be the largest concern).</p> <ul style="list-style-type: none"> • Follow Up Again! Come back to your second meeting with responses to any questions or concerns expressed in the first meeting. This time, invite administrators or the district cafeteria coordinator. • Make the Hard Ask – If students raise the needed funds for a food waste composting system for the kitchen, would the school consider installation? If yes – get fundraising! If no – keep having meetings and addressing concerns. Consider asking students and parents write letters of support. 	<ul style="list-style-type: none"> • If you can get permission to compost student's leftovers, do it! But you're more likely to only be able to compost pre-industrial food, vegetable scraps that are thrown away by the kitchen staff.
<p>3</p>	<p>Get a Commitment!</p> <p>Educate Your Peers</p> <p>Make Some Money!</p>	<ul style="list-style-type: none"> • Write a letter to the lunchroom staff, janitors and ground crew asking for a meeting so you can speak with them about the upcoming new composting system. Be respectful; make it as convenient from the as possible. • You got approval – now get some green! It's time to start fundraising. You probably need around two 18-bushel compost bins for lunch waste and yard clippings (to start out with) which would cost approximately \$300-\$600. Some ideas to fundraise are as follows: <ul style="list-style-type: none"> • Plan how you will get the money if you don't get grants. How many volunteers do you need? How much time will they have to commit? What different activities will they be participating in? Make a calendar of days you will fundraise to acquire \$600 (or your monetary goal) in two months and how many people you will need. • Apply for grants as a first step. If you can raise the funds for a comprehensive composting system just by writing a letter or application, it's a lot easier than months of hard labor. See the resources section for a list of organizations that 	<ul style="list-style-type: none"> • For more fundraising ideas, check out Earth Day Network's downloadable fundraising guide. • Communication is everything! Make sure that you are consistently checking in with your principal or administrators so that everyone is on the same page • When you start fundraising, make sure you have a lot of help! This is where your volunteer coordinator gets a chance to shine.

		<p>provide grants.</p> <ul style="list-style-type: none"> • Sell the finished compost from your smaller scale system. Try for \$15 for a 10 lb. bag, and advertise that buyers are supporting the school, concerned students, and the environment! • Organize a phone banking system. Call the home number of everyone at your school using the phone book that your PTSA distributes. If you assume that one phone banker raises \$15 an hour, get 10 volunteers together for a three hour pizza party and raise \$150. • Write a formal letter to local businesses. Ask for \$50 to support waste reduction and environmental education from each. Expect that one in five will come through, and send at least 20. • Communicate constantly with the administration. Let them know how well fundraising efforts are going, and make sure they are still on board with the project. 	
<p>4</p>	<p>Make Some (More) Money!</p>	<ul style="list-style-type: none"> • Educate your lunchroom staff, janitors and ground crew on the new system, and what they should refrain from throwing away. Make clear this should involve minimal extra work on their part, you will be running the compost system yourself. They just need to sort their scraps right! • Recruit more students to help with fundraising in order to expand how much money you make, and later how much help you have with the compost. • Research compost system suppliers. Who's got the best price? Who's got the right system? How many bins can you afford to start out with? Ask if they'll give you a discount for being a student. Communicate this information to the administration. • Expand your fundraising efforts! Here's some steps: <ul style="list-style-type: none"> • Institutionalize the fundraiser by asking the DECA or marketing teacher to make it part of his or her curriculum or learning projects. • Market by putting a notice in the PTSA newsletter about your efforts, and why you are doing it • Reach Out to local businesses to ask if they will match the money you make (or just donate to the cause). • Apply for more grants! Environmental organizations will be impressed by your efforts. See the 'Resources' section below. 	<ul style="list-style-type: none"> • Build your volunteer base as you fundraise! This is great experience for anyone who wants to go into business, it will look fabulous on college applications, and it's for a good cause! • If you apply for grants let them know how hard you're working to fundraise! It will definitely impress the organization that students like you are so committed!

<p>5</p>	<p>Logistics, Logistics, Logistics</p>	<ul style="list-style-type: none"> • Order your composting system. It might take a while to come, use that time to get ready! • Plan how many volunteers you need and when. Who will cover monitoring waste collection bins at lunch time? Who will be in charge of making sure they get rotated? Who will be in charge of distributing the finished project? • Remind everyone – it's coming!!! 	<ul style="list-style-type: none"> • Double check with the administration before you buy.
<p>6</p>	<p>GAME TIME!</p>	<ul style="list-style-type: none"> • Get out there on the day it arrives and make sure everyone is in place. Thank the kitchen staff for making sure they put food scraps in a compost pile, and make sure your volunteers pick it up and get it into the rotating composting bin in a timely fashion. • Ensure that everything runs smoothly in the system. Check in weekly with lunch workers, volunteers who rotate the bins, and volunteers who distribute the product. • Party Time! Treat your dedicated leaders and volunteers to an organic pizza party (compost the leftovers) • Write thank you letters to administrators, involved teachers, and the janitorial staff. 	<ul style="list-style-type: none"> • Don't let volunteer compost monitors get lax after the first day. Rotate schedules and get new people involved so it doesn't get old.
<p>7</p>	<p>Keep on Educating</p>	<ul style="list-style-type: none"> • Maintain composting education, at least through this month. It may take a while for staff to get adjusted to the new system. 	
<p>Beyond</p>	<p>Build Your Movement</p>	<p>Possible next steps:</p> <ul style="list-style-type: none"> • Institutionalize the bins by asking a teacher to incorporate it into their curriculum. • Expand to every school in the district! If you have extra funds, buy a compost bin for the middle school down the street and teach them the ropes. • Build on by choosing another aspect of your school to get greening! 	<ul style="list-style-type: none"> • You've got momentum! Take a break, but don't wait too long to start a new project or your energized volunteers will get bored and find something else to do. High school students can be fickle, hold their attention!

ALLIES AND RESOURCES

You can't do it alone! Below is a list of potential allies, research resources, and success stories.

Potential Allies

- **Your environmental science or biology teacher.** These teachers probably want to get you engaged in the natural world anyway; they will probably be a great resource to help build an outdoor classroom.
- **Your Principal.** Always try to work with your administration, not against them. Your Principal could be your greatest ally when talking to district administrators.
- **The PTSA.** These involved and dedicated parents would be wonderful to tap into if your administration is on the fence for changing policy. Parents love helping kids reach their passions and will probably jump to help you if you explain the issue well.
- **The Environmental or Outdoors club.** They already care about reducing waste, and will probably jump on board to help!
- **Other philanthropy clubs in the school.** In general these people just want to make the world a better place. They may want to help in the composting effort when they understand all the benefits!
- **The local municipal system.** Your town may have a composting system going; ask them to help you out.
- **Local farmers, gardeners, and nurseries.** They will definitely want the fertilizer you produce – they could be a good resource for funding or support.

Resources

- Organizations that provide grants for green schools:
 - [Earth Day Network](#): Provides a Climate Change Educator Grant and a National Civic Education Project grant.
 - [The Discovery Channel](#): for innovative ideas by middle school teachers.
 - [The EPA](#) awards grants to educators who implement environmental education into their curriculum, as your health teacher or marketing teacher may do if you follow the campaign above.
 - [National Environmental Education Foundation](#) offers grants for students for school and community projects
 - [North American Association of Environmental Education](#) offers grants for k-12 school greenings.
 - [Lowe's Charitable and Educational Foundation](#), International Paper and National Geographic Explorer! classroom magazine have partnered to create an outdoor classroom grant program to provide schools with additional resources to improve their science curriculum by engaging students in hands-on experiences outside the traditional classroom.
 - [Foundation Center](#) has general information and links to grants.
 - [School Grants](#) has information and links on grants specific to schools.
- [Wikipedia's summary of composting](#)
- [A Walt Whitman poem](#), "This Compost"

- [EPA's composting page](#)
- [The State of Connecticut](#): A guide to starting a composting program in high schools
- [The State of California](#): A guide to vermicomposting for teachers
- [Vermicomposting](#): Instructions and a video

Success Stories

- [Mansfield Middle School](#), Mansfield, CT
Students initiated a school-wide composting program in the fall of 2000 with its 650 fifth through eighth graders. Approximately, 4,168 pounds of food scraps mixed with 3 to 4 cubic yards of wood chips and leaves, produced roughly 1.5 cubic yards of compost in the first year of operation.
- [Ballard High School](#), Seattle, WA
Students in the Earth Service Corps, an environmental club, started a composting program of their own. Biodegradable waste from the lunchroom, staff room, home-economics classes and onsite preschool are being composted. They figure that more than two-thirds of the school's compostable waste is being recycled. More than a dozen other Seattle high schools are also composting.
- [Park View Center School](#), Los Angeles, CA
The school has a worm farm where the worms consume 30 pounds of food waste each day. This program cut in half the amount of food they were sending to the landfill each day.

What is Composting?

Composting is the transformation of raw organic material into its simplest form, so that it is suitable for a variety of soil-plant uses. Organic material comes from a living organism and is capable of decay. Through decomposition, the organic material is broken down through a series of processes into carbon dioxide, water, heat and humus, which is the final product of decayed organic material that cannot be broken down any further. Being that the richest soil for plants and trees is packed densely with humus, decomposition is an essential process for putting nutrients back into soils that plants use. Composting is a way for humans to be a part of Earth's natural cycle, instead of interrupting it. Plant materials are naturally converted back into the soil, which helps more plants to grow. Composting is a great way to understand the Earth and recycle natural resources.

How is it done?

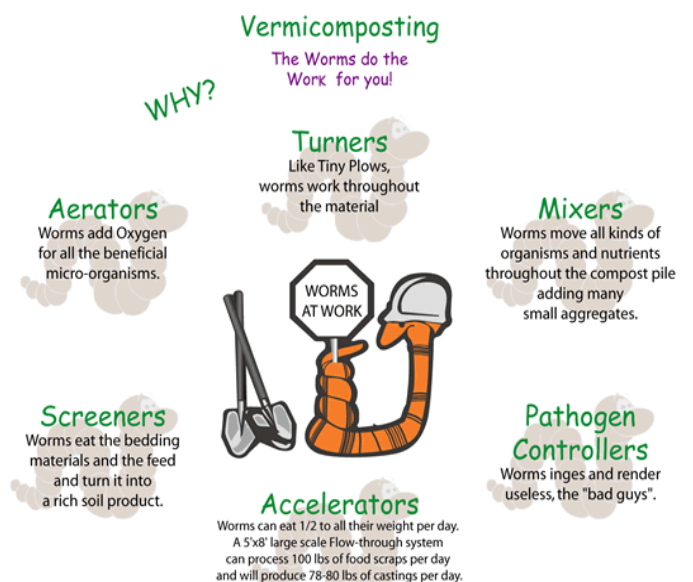
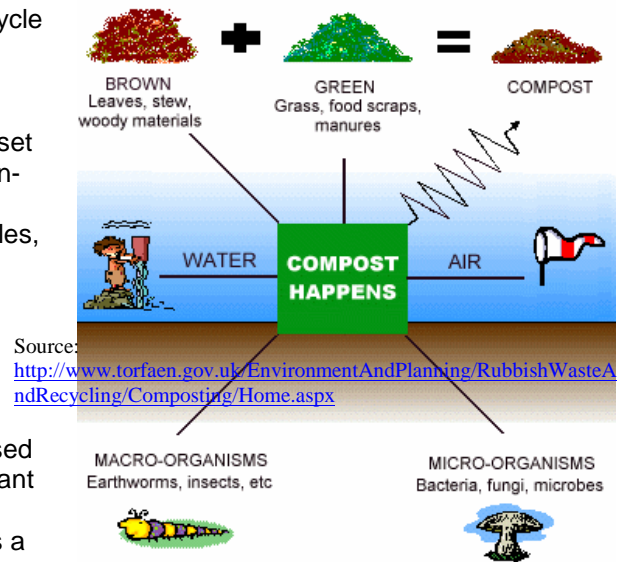
A compost pile, or a heap of organic materials intentionally set aside for use, must always include a combination of nitrogen-rich and carbon-rich organic material. Nitrogen-rich matter (sometimes referred to as "greens") includes fruits, vegetables, grains and grass clippings, and also animal wastes such as urine and hair. Carbon-rich materials ("browns") include leaves, woodchips, and hay. Things that you cannot put into your compost pile are grease, meat, dairy products, and human waste. It is important to maintain the right ratio of carbon-rich to nitrogen-rich matter. If too much nitrogen is in your compost pile, ammonia gas will be released and your compost pile will smell so awful that you will not want to be anywhere near it! If there is too much carbon-rich material, then the composting process will be very slow. As a general rule, there should be about twice as much carbon content as nitrogen content in your compost pile.

Other factors that you need to pay attention to include: moisture levels, temperature, particle size and oxygen levels. Moisture content needs to be kept around 50-60% in order for the composting process to be most effective. Water is needed for decomposition, but too much restricts the oxygen flow in the compost pile. Particle size within the pile should not be so small so that water and air cannot circulate, but should be small enough as to increase surface area as much as possible. The particles should range from a ½ inch to 2 inches.^{vi} Having enough oxygen is also essential for decomposition. Without it, organic material cannot decompose in landfills and methane gas is produced due to the suffocation of the organic matter.

It is necessary to check on your compost a couple of times a week to see how things are going. To keep air flowing in your compost pile, be sure to turn it often by turning over with a rake, or mixing up the contents. This will also prevent an unpleasant odor. Remember—your compost should not smell bad if you take care of it! One way to monitor the progress of your compost is through its temperature. Temperature levels should range between 120 and 140 degrees Fahrenheit. Buying a composting thermometer will help you keep track of this. If the temperature is too low, that indicates that there is something missing from your equation. If the compost looks dry, you might want to add more water. Or, you could turn the compost to get oxygen flowing. It might also help if you chop your organic material into smaller pieces.

Getting By with a Little Help from Your Friends - Vermicomposting

Vermicomposting uses earthworms to decompose food and is another great way to create compost from



food scraps. Either Red Wigglers or Red Earthworms can be used to decompose food into compost. A benefit of vermicomposting is that the bin can more easily be placed indoors and can even be placed in the kitchen or cafeteria -- closer to where food is prepared and eaten. The worms need to be placed in a container with a bed of "browns" or yard waste, and then food scraps can be added. Worms prefer temperatures around 55 to 70 degrees Fahrenheit, which is just around room temperature. But be careful - don't to put them outside during winter—they will die!

Worms are able to decompose meat scraps, but adding meat to your compost will attract rodents and pests, so consider this carefully. As with a regular compost pile, it is important to make sure there are enough carbon materials to prevent bad odors. The worms do the decomposing for you, and after a few weeks you will have fresh, rich compost. The compost created actually has more nutrients for soil than traditionally cultured compost. See Allies and Resources section for more information.

ⁱ <http://www.epa.gov/epaoswer/non-hw/organics/fd-basic.htm> Retrieved June 17 2008

ⁱⁱ <http://www.epa.gov/lmop/overview.htm>. Retrieved June 18 2008

ⁱⁱⁱ http://www.grida.no/climate/ipcc_tar/wg1/017.htm Retrieved August 25 2008

^{iv} "Composting for Climate" Centre for Alternative Technology, 2008.

http://www.cat.org.uk/information/catinfo.tpl?command=search&db=catinfo.db&eqSKUdataq=InfoSheet_CompostingForClimate Retrieved June 18 2008

^v <http://www.epa.gov/epaoswer/non-hw/composting/benefits.htm> Retrieved June 17 2008

^{vi} <http://www.css.cornell.edu/compost/calc/partsizes.html>