

## **Composting Resources for Schools and Students**

Composting is a great topic of study for K-12 students because it is hands-on, inexpensive to demonstrate on a small scale, can be tailored to any age group, and incorporates a number of topics in science such as chemistry, biology, waste and resource conservation, soil and water quality, and climate change. Schools can get involved in composting education in three ways:

- Start composting on site, using yard trim (leaves, grass, etc.), cafeteria scraps, and non-recyclable paper such as paper towels and napkins.
- Collect food scraps and non-recyclable paper from the cafeteria to send to an off-site composting facility.
- Incorporate composting into environmental education (e.g. conduct classroom-scale experiments; learn about the process and benefits of composting; take a field trip to a compost facility).

The following resources are aimed at assisting schools in taking any of the above approaches to composting education.

### *Resources for Composting at Schools*

The following materials will guide school administrators, teachers, and staff through the process of starting an on-site composting program, from the planning phase through implementation and troubleshooting.

**[CalRecycle, The Worm Guide: A Vermicomposting Guide for Teachers.](#)** This guide explains how to start and maintain a vermicomposting bin for use as an educational tool (vermicomposting is composting using worms). It also provides ideas for lessons and instructions on starting a program to divert school food scraps for composting. Case studies and classroom activities are also included.

**[Connecticut DEEP, School Composting: The Next Step in Recycling, A Manual for Connecticut Schools.](#)** This manual covers the logistics of starting up a composting program at a school, including how to get teachers, students, and custodial staff involved, the type of equipment that will be needed, and step-by-step procedures for carrying out the daily tasks of composting. Classroom activities, signs, and log templates are included.

**[Center for EcoTechnology, Composting in Restaurants and Schools:](#)** This toolkit provides simple step-by-step instructions for planning and implementing a composting program at a restaurant or a school, complete with the estimated time needed to carry out each step. Case studies are also provided.

**[Cornell Waste Management Institute, Health and Safety Guidance for Composting in the School Setting](#)**. This fact sheet covers the basic safety issues to consider when teachers or students are interacting with the composting pile.

**[City of San Francisco Posters and Signs](#)**: Training staff and students to properly separate acceptable from unacceptable materials is an important part of a program's success. San Francisco has a toolkit designed for businesses that includes an online sign maker, pre-made signs, posters, and flyers. Though the resources are aimed at business composting, they provide ideas of the types of signage that might be used in schools.

**[University of Maryland, Campus Sustainability](#)**. The University of Maryland website shows a brief video and photos of the school's bins and signage for collecting recyclables and compostables at the dining halls and student union. Similar methods could be adapted for a K-12 school setting.

**[Northeast Recycling Council, Composting School Food Scraps and Soiled Paper](#)**. This concise guide outlines the steps and considerations to planning a composting program for typical cafeteria scraps.

**[Northeast Recycling Council, School Composting Options](#)**. This presentation is a companion to the above guide by Northeast Recycling Council. It describes in more depth (and with pictures) the planning and siting process, options for composting bins, and methods of collecting the food. Troubleshooting tips are also included.

**[CalRecycle, Building your Own Composting Bin: Designs for Your Community](#)**. This document includes instructions for building over a dozen simple composting bins. Pre-made bins are also available for purchase at many gardening or home improvement stores or online and can vary widely in size, complexity, and cost. When selecting a bin design, schools should consider the expected quantity of feedstocks generated, the expected residence time of the materials, the difficulty of using the bin, and potential issues such as odors and pests.

**[Cornell Waste Management Institute, Compost Mixture Calculation Spreadsheet](#)**. This downloadable spreadsheet can be used to calculate the moisture content or carbon to nitrogen ratio for various combinations of materials (up to 4 feedstocks) or can calculate the proportion of each material needed to attain a moisture or C:N goal.

**[Are You Going to Eat That? A Composting Pilot Case Study](#)**. This in-depth case study analyzes a pilot food scrap collection program that was conducted at several Baltimore City schools. The program was headed by Baltimore City's Office of Sustainability with funding from EPA and others. The case study details successes and challenges of the program and provides useful lessons for schools planning new programs.

## *Educational Materials*

The following resources provide ideas for lessons and activities designed to bring the science of composting to students.

**[Cornell Waste Management Institute, Composting in Schools](#)**. This website includes information on school composting, classroom activities, labs, projects, background on the basic science of composting, and a composting quiz.

**[CalRecycle, Vermicomposting Classroom Activities](#)**. This selection of activities is designed to be used in conjunction with a class vermicomposting project. It includes worksheets for students to record their observations about the worms, games, and experiments.

**[CalRecycle “Vermi the Worm” Composting Game](#)**. This computer game is available online or for download and teaches students about composting and recycling (e.g. how to correctly source-separate various items). Information about the game and download instructions are located [here](#) (the game can also be played directly in the browser).

**[Central Vermont Solid Waste Management District, Do the Rot Thing: A Teacher’s Guide to Compost Activities](#)**. This guide provides compost-related activities grouped into categories, including basic composting, worm composting, and spreading the word (compost marketing and publicity). Each activity has a recommended grade level range.

**[Connecticut DEEP, Composting Video Downloads](#)**. These free videos show how to compost at home and also show how yard trim is processed at a larger-scale composting facility.

**[U.S. Composting Council, Composting for Teachers and Students](#)**. U.S. Composting Council provides this list of educational resources related to composting. Scroll down to the very bottom for additional composting videos.

**[Trautmann, Nancy and Marianne Krasny, Cornell University, Composting in the Classroom: Scientific Inquiry for High School Students](#)**. This extensive guide was developed through the combined efforts of high school science teachers and scientists at Cornell University. It provides teachers the scientific background on composting that is necessary to support their students in conducting composting research. It also provides a guide to composting research projects, including example experiments. This guide would be useful in preparing for a science fair or similar program.

**[Teachers Domain, Recycling and Composting Lesson Plan](#)**. This lesson plan incorporates online activities, videos, and worksheets tailored to students in grades K-5.

**[Cornell Cooperative Extension, Composting: Wastes to Resources](#)**. This guide is designed for teachers and 4-H leaders and explains the basics of how composting works and how to get started. It includes ideas for composting “investigations” and templates for students to record their observations. Two informational posters go along with the guide and are available [here](#) and [here](#).