

■ Recycling Online



Bringing composting into schools – Part 1

by Roger Guttentag

When we think of school, we think of an institution whose primary function is to impart formal knowledge to our kids as they progress to adulthood. However, the way schools function as physical infrastructure, and what we can do to reduce their environmental footprint, can also yield teachable opportunities. This can be especially true when we create bridges between lesson plans and strategies for minimizing school waste. One terrific example is how many K-12 schools have used composting for both teaching science and other educational topics, while transforming organic school wastes into useful soil products. In this month's column, I will discuss various websites that demonstrate how to teach composting in the K-12 classroom.

Intel – Composting: why bother? (ICWB)

It would seem that the last place you would expect to find lesson plans on composting would be on the website of a computer chip manufacturer. However, Intel has created

an extensive program for supporting the creation of innovative teaching methods for K-12 grades and higher education institutions. ICWB is one of the products of the Intel Teach Program which focuses on developing effective educational tools like science projects that can be used in the classroom. It is designed to be used over a 10-12 week period within a biology or environmental science curriculum for grade levels 8-10. It is organized into six sections. The first discusses what this unit is designed to accomplish. The next two sections list what are labeled as curriculum framing questions, which seek to highlight the essential concepts the unit is trying to address. Also, included is a detailed description of the course assessment process including timelines and methodologies to be used by the teacher and students. Two sections are then devoted to instructional procedures with suggestions on modifications that could be made for classes for gifted students. These instructions include links to various supplemental resources such as a suggested course syllabus, student proj-

ect rubrics and multimedia-based content. The final section lists the prerequisites that students should meet prior to starting this course.

Cornell composting – A guide for student composting research (GSCR)

GSCR was published by Cornell University in 1997 with funding assistance from the National Science Foundation as a comprehensive reference for educators on how to teach the science and practice of composting to high school students. While GSCR is fairly old for a science education tool, it is still considered the best online reference available on this subject even though some parts of it are unavoidably outdated, such as its bibliographic recommendations. GSCR's contents can be downloaded as PDFs of individual chapters or as the entire document. It is organized into seven chapters. The first five address the scientific and technical basis of the composting process such as compost chemistry, mix calculations and process monitoring. All explanations are clearly written and cover each selected topic in a reasonably comprehensive manner.

Scattered throughout these chapters are short notes called "research possibilities" that discuss some ideas for science projects that students can consider undertaking. An example would be a note that appears in the section on thermophilic-based compost stability asking how the stability of vermicompost could be evaluated. The last two chapters address how research and experi-

Web Address Directory

CalRecycle – The Worm Guide	http://tinyurl.com/WormGuide
Cornell University – Composting in the Classroom	http://tinyurl.com/CornellCompost
Intel – Designing Effective Projects – Composting: Why Bother?	http://tinyurl.com/IntelCompost
Professional Recyclers of Pennsylvania – Vermicomposting Lesson Plans	http://www.proprecycles.org/Vermiculture.html
Snohomish County Public Works – Resource Guide for Educators	http://tinyurl.com/SnoCompost

mentation on composted materials and the composting process could be conducted. These chapters do an excellent job of integrating the task of teaching about the scientific method and the process of scientific investigation with the objective of introducing students to key questions about how composting works and why it has value.

CalRecycle – The worm guide (WG)

The WG is designed to provide educators a basic introduction to vermicomposting both as a method for recycling school generated organic wastes and to introduce students to interesting natural science concepts. The information covered in this document covers the usual bases such as what vermicomposting is, what types of worms are needed, how to establish and maintain the worm bed and harvesting composted materials. While WG is clearly meant for K-12 schools, it does not have a specific grade focus. Instead, it has activities that could be used for different grades but it is left to the educator to make the decision regarding which ones are applicable to their class. The WG does make recommendations regarding which activities or projects could be associated with specific topics other than science such as art, math or social studies. There are also appendices with references to sources of supplies and additional information (most are California-based) and instructions on how to build a worm box.

Professional Recyclers of Pennsylvania (PROP) – Vermicomposting lesson plans (VLP)

The VLP were developed in 2005 specifically for middle and high school grades. It consists of 35 lesson plans that can be downloaded from the PROP site as a complete set, or individually. There is a detailed introduction on the VLP that is worth reviewing prior to using it. It discusses the VLP's overall objectives and its basis in the inquiry approach to science education. Other educational issues that are covered include student participation and presentations and the value of journals. The individual lesson plans are listed in a recommended ascending order and each is organized into five sections. Teachers located in Pennsylvania will also benefit from the linking of each lesson plan to specific Pennsylvania Department of Education standards. The lesson plans cover a variety of experimental questions such as factors affecting worm growth, habitat analysis, as well as rate of mass destruction and impact of worm casting on plant growth.

Snohomish County – Resource guide for educators (RGE)

The subtitle for the RGE is "The Lunch Line with Recycling Mind" provides the

reason why I included it in this survey. In general, Web resources are presented in long lists loosely grouped under various organizing labels. Snohomish County (WA) goes one step further by tying together these resources within a unified framework, in this case school cafeterias, to give them a tighter, more meaningful focus. Many of the links are to composting references in the form of curriculum materials, project ideas and videos. These are presented alongside related topics such as recycling and waste reduction to show how composting fits within a larger program for minimizing the environmental impact of a school's food services.

Next month

Many schools have successfully incorporated composting within their curricula as well implemented actual composting projects within the classroom or for the entire school. Next month, I will survey websites that provide examples of schools that have successfully transitioned from compost theory to practice and references on how to develop a school composting program.

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