

Waste Management

RETHINKING SCHOOL LUNCH GUIDE



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FOOD FOR THOUGHT

“Often, school districts are unaware of the hard costs of garbage generation and disposal. . . . A recent waste audit in Berkeley [California] Unified School District determined that the district was spending on the average of \$26 per student for waste disposal, or a total yearly cost of \$225,661 for the district. A large part of this figure is waste generated from school lunch. School meal programs, even when lunch is brought from home, are significant generators of solid waste.”

— Janet Brown, program officer for food systems, Center for Ecoliteracy



WHAT'S INSIDE?

RETHINKING WASTE MANAGEMENT: The goal, the challenge, and some key points to remember.

EDUCATION, NATURAL RESOURCES, AND SUSTAINABILITY: **Janet Brown**, program officer for food systems, Center for Ecoliteracy, answers questions about school site waste management programs.

CASE STUDY: Vermicomposting—using worms for composting—provides a way for waste management and reduction to become part of the academic curriculum.

A MODEL SCHOOL DISTRICT WASTE MANAGEMENT POLICY: Current policy of the Berkeley (California) Unified School District.

WASTE MANAGEMENT RESOURCES: Garbage in, garbage out? Change your paradigm. Waste management in schools can be educational, inspirational, and even fun. Learn how here.

RETHINKING WASTE MANAGEMENT

The Goal *To initiate school waste reduction and management programs that help students make connections between the way humans live and the need to conserve natural resources.*

The Challenge *To find ways to reduce levels of waste or to initiate new programs that would reduce future waste streams in schools, helping to conserve resources and the environment.*

Schools generate a great deal of waste, especially as a by-product of food service. Many, of course, have some sort of recycling program in place. The challenge to schools is to make waste management a viable and even exciting part of the total learning experience.

Rethinking School Lunch's farm-to-school model makes lunch a learning experience for students. A student lunch program that uses fresh produce will naturally produce a lot of waste. Instead of simply teaching children and youth to place the waste into the proper receptacle, educators, administrators, and parents have a real opportunity here to teach meaningful and lifelong lessons. Plant waste comes from the earth and returns to it in a new form. Students can learn firsthand how recycling the plants they grow, consume, and discard is part of the ongoing cycle of life.



KEY POINTS

“All Education Is Environmental Education”

David W. Orr, Professor of Environmental Studies and Politics at Oberlin College, is blunt: “All education is environmental education. By what is included or excluded, students are taught that they are part of, or apart from, the natural world.”

Including waste management in the suite of learning outcomes empowers students to consider their personal habits and shared responsibilities in terms of the whole school and the greater community. What is important is how students perceive this recycling and the district’s commitment to include waste management in the learning process.

Waste Management Can Be an Important Part of the Curriculum

Waste management, properly incorporated in a school’s curriculum, teaches many lessons. The Policy Advisory Committee of the Berkeley (California) Unified School District states this message strongly: “Good stewardship of our environment includes respect for the entire cycle of life by promoting composting of school food waste; recycling of paper, cans, bottles; and the basics of reuse, reduce, and recycle.”

School site routines in the cafeteria, classroom, and playground may include activities related to recycling, composting, and material reuse that naturally lead students to understanding the need to conserve natural resources. Students can play a role in conducting a waste audit of the cafeteria, leading to curriculum and experiential learning opportunities about energy use and nutrient cycling. Educators can easily link these

to school lunch. For example, classroom lessons can use food scraps in decomposition experiments.

Waste Management Is an Opportunity to Refocus District Policy

Waste management is a huge opportunity for revising and refocusing district policies. Policies can do all sorts of things you may not have considered. They can determine the length of lunch periods; eliminate the conflict between lunch and recess; improve students’ role in waste management programs; reduce use of prepackaged food items; rethink waste reduction, recycling, and composting; mandate use of recycled paper, real dishes, and dishwashers; and link composting to school gardens.

Waste Management Can Be a Learning Opportunity

Proper waste management at school sites, when it is part of the life of the entire learning community, provides students with important information and learning opportunities. When composting, material reuse, and recycling are modeled at school — along with other healthy foundational experiences in gardens, kitchen classrooms, and dining rooms — the school functions as an apprentice community engaged in education for sustainable living. The message to students is that they are valued: Caring for the environment means caring for their future.

Waste Management Programs Can Save Money

School districts may be unaware of the costs of garbage generation and disposal. When utility bills are paid at the district level, individual schools never see the real cost of the waste they

throw away every day. A recent waste audit in the Berkeley (California) Unified School District (BUSD) determined that the district was spending on the average of \$26 per student for waste disposal, or a total yearly cost of \$225,661 for the district. Recycling, composting, and dishwashing programs at a pilot BUSD school reduced the cafeteria waste stream between 30 percent and 60 percent.

Farm-to-School = Less Waste The farm-to-school model of food preparation is a great place to start. Buying food in bulk and preparing more meals from fresh ingredients automatically reduce packaging waste. Giving children a greater element of choice in serving themselves and allowing adequate time to eat and enjoy the meal mean they will make better choices, eat more, and discard less.

Beginning to Think About Waste Management Start now to think about a new waste management program. Consider goals, management, and student participation.

Begin with a waste audit:

- **Good record keeping is essential** to the success of waste reduction programs. Waste audits can shed light on where the district can make the greatest gains in the shortest amount of time.
- **Determine the current level of waste** generation at the district and school sites. How much does the school meal program contribute to the district's solid waste problem? Your findings may surprise you.

- **Learn how the district keeps records** connected to waste reduction. If it does not already keep these records, get a program started right away.
- **Examine the district's garbage bill** to determine the monthly expenses associated with waste disposal. Think about some ways the district can cut down on these expenses.
- **Explore hidden costs** connected with disposable trays and utensils. A dishwashing program—replacing disposables with real dishes and utensils—at an elementary school of 350 students eliminated 12,600 pounds of solid waste per school year. Participation in one pilot school meal program almost doubled when real dishes replaced disposable trays and utensils.

Steps a school can take right away:

- **“Pack it in, pack it out”** Ask children to take home the food waste and paper trash from lunches sent from home to create a feedback loop about lunch and packaging for parents. Bring families in early as an integral part of the program.
- **Use vermicomposting** — worms turning food scraps into compost — as an educational program that also reduces food waste. It costs very little, is easy to do, and produces great benefits. Binet Payne, author of *The Worm Café*, says, “Implementing a successful mid-scale vermicomposting program at your site begins with a

shifting of old paradigms, and with the vision and willingness to make a difference in your community and in the world.” See the case study in this section for more information.

- **Let students in on the process of monitoring** the school’s current waste levels and assessing goals for a new program. Becoming aware of what is thrown away can become the first step toward a new way of thinking about waste.



RETHINKING SCHOOL LUNCH

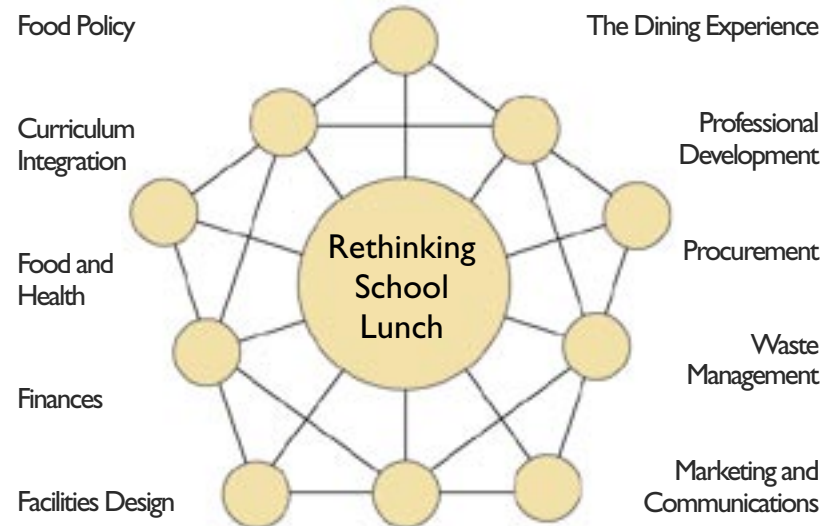
Web of Connections

This document is part of a comprehensive **Center for Ecoliteracy** project that provides helpful information on topics related to redesigning school lunch programs.

The diagram illustrates our systems approach to integrating school lunch programs with curriculum, improving student health and behavior, and creating sustainable communities.

School administrators, food service directors, teachers, and parents will each approach this project from their unique perspective. Readers can begin with the topic that interests them most, then explore the other related topics.

The entire Rethinking School Lunch project is available at: www.ecoliteracy.org/rethinking/rsl.html





Education, Natural Resources, and Sustainability

by Janet Brown, program officer for food systems at the Center for Ecoliteracy with input from members of the Fertile Crescent Network, and Dr. Carolie Sly, executive director of Community Learning Services.

What is the educational responsibility of the district to students regarding proper waste management?

Learning how to live within the limits of the planet's resources is the biggest challenge facing the world's population today. Waste generation and management is at the very heart of that challenge. Students need to begin to make connections between human patterns of living and the need to conserve natural resources. Waste represents enormous stores of energy that can be reclaimed and recycled. Good programs of waste management at schools are powerful and accessible learning tools that begin to make these vital connections for students.

How should schools assess the current level of waste generation at district and school sites?

Often, school districts are unaware of the hard costs of garbage generation and disposal. Frequently, the district's utility bills are batched at the district level so that individual schools never see or realize the costs associated with the waste they are throwing away. One useful place to begin understanding the necessity of reducing waste, and the associated costs of not doing so, is to separate the garbage bills from the rest of the district's operating expenses and to itemize the bills according to expenses associated with individual schools. Once that has been accomplished, a report can be prepared for the superintendent and principals and a plan can be devised to reduce waste at school sites. Awareness of the costs can become a huge motivation to save.

How much do school meal programs contribute to a district's solid waste problem?

A recent waste audit in Berkeley (California) Unified School District determined that the district was spending on the average of \$26 per student for waste disposal, or a total yearly cost of \$225,661 for the district. A large part of this figure is waste generated from school lunch. School meal programs, even when lunch is brought from home, are significant generators of solid waste.

School lunches are often delivered in disposable trays in which each food item, each set of utensils, dishes, bowls, and cups are all individually wrapped and disposable. Frequently lunch competes with recess, making students choose between eating and spending time with friends. The net effect is that they hurriedly consume a favorite or easy to eat item and throw the rest away.

Lunches brought from home are often purchased in disposable plastic lunch boxes that are thrown away at school. Some schools have instituted programs such as "Pack it in...pack it out" by removing trash cans from the lunch area and requiring students

to take home lunch food scraps and trash they brought to school. This has provided a feedback loop to parents about what food is being consumed during lunch, leading to better meal planning, and reducing the volume of trash disposed of at the school site. Schools with several hundred students have estimated the reduction to be about one dumpster per month.

Studies show that when students are given a choice about which entrée they prefer, or are able to serve themselves from a salad bar or family style lunch knowing that they can come back for more, they make better choices, take appropriate portions, and waste less food.

Has the school district integrated its waste reduction and management strategy with that of the municipality of which it is a part?

Usually schools districts are not included in the waste audit of the municipalities of which they are a part. City waste reduction policies do not include school districts and cities are not working with schools to develop mutual goals and work toward them together. Recently, cities have begun to realize that real progress on waste reduction goals will not be possible unless and until schools become full partners in the goals.

From a municipality's point of view, until schools are seen as part of the whole system of waste generation, and, therefore, necessarily part of the whole system of waste reduction, cities are unlikely to reach the ambitious goals of California AB939 that mandates recycling of 50 percent of waste by the year 2000 and 75 percent by the year 2010.

Has the district set goals for waste reduction, recycling and composting that can be revisited from year to year?

School districts can work with their county waste management authority to develop realistic and substantial goals of waste reduction. The county waste authority is equipped to support the

district in setting and reaching its goals. Setting goals and initiating waste audits is a good way to keep track of successes.

Students are a valuable resource in helping the district to sustain its goals and in monitoring progress. As partners in the waste reduction program, students can participate in separating, recycling, and composting programs and can manage waste audits with the assistance of adults. Over time, students come to understand the practice and value of reducing waste and the implications it has for their future.

School lunch programs can reduce waste by ordering in bulk and by preparing more fresh and less prepackaged food. Meal programs that offer more choice allow students to take only what they want to eat, thereby reducing food waste. The cafeteria can also take the lead in making sure that food scraps are composted in the garden.

Schools provide a place for students to share their untouched, leftover food, rather than toss it. Whole fruit, packaged snacks and wrapped sandwiches can be placed on a "giveaway" table so that hungry students can help themselves and good food does not go to waste.

Who will be responsible for managing the program?

Often, the district will rely on volunteers to initiate and manage waste reduction programs. The pitfalls of this approach include volunteer burnout, or in the case of volunteer parents, moving on when their children graduate. In any event, the program tends to disintegrate when it is sustained solely by volunteer labor.

Programs of this type are most successful if waste reduction, recycling, and composting oversight is a district paid position. It may be part of a larger facilities related position, but what is important is that the tasks are institutionalized. That is likely to happen only when the district adopts a policy on waste reduction. On the positive side, early research shows that waste reduction really does save money.

The funds allocated to a part time position funded by the district could potentially be recouped through savings on waste disposal.

What special equipment will the district need and what will it cost?

Often, very little new equipment is necessary to start a waste reduction program. In the case of recycling, the school will need to add trashcans to facilitate the separation of recyclable items.

If vermicomposting is part of the food scrap reduction program, then worm bins will need to be made or purchased. This can easily become a student led project. For example, Laytonville (California) School District initiated a vermicomposting project. The first year, students built four mid-scale worm bins. They cost Laytonville Elementary and Middle Schools \$400 total. In ten month's time, the worm bins eliminated the use of one trash dumpster to save \$6000 in disposal costs.

A good rule of thumb is that all containers need to be designed so that students can manage the chores. Lunchroom staff, teachers or other adults can provide assistance and be available for questions, but the program itself is most effective and sustainable when students run it.

How does the district keep records connected to waste reduction?

Good record keeping is essential to the success of waste reduction programs. Waste audits can shed light on where the district can make the greatest gains in the shortest amount of time. Waste audits are also interesting and instructional. Students are an excellent resource for waste stream record keeping.

In the cafeteria, students can stand near waste bins to inform fellow students of the new program of waste reduction, separation, recycling, and composting. At the end of the lunch period, the same students can assess by weight the amount of aluminum, paper and food scrap waste collected in the bins and identify major sources of waste. Students keep track of amounts and transport food scraps

to the garden for composting. Cafeteria and janitorial personnel can assist students in the audit. At the end of the audit period, students can make a report to the whole school about their findings.

Janet Brown is the program officer for food systems at the Center for Ecoliteracy. Brown is a certified organic farmer and vice president of Marin Organic, an association of nearly 30 organic producers in Marin County working to educate consumers about the value of local food systems. She is founder and chair of the Marin County Food Policy Council. With Zenobia Barlow, she is co-facilitating a five-county network of innovative farm-to-school projects in Northern California, called the Fertile Crescent Network.

Dr. Carolie Sly is executive director of Community Learning Services, a nonprofit organization dedicated to project-based learning. She has worked with students in and out of classrooms for 30 years. Sly holds a B.S. in child development, an M.A. in instructional research and curriculum design, and a Ph.D. in science education. She submitted the final report of The Blue Ribbon Commission for Reducing Waste in Schools to the Alameda County (California) Office of Education in June of 1996.





Case Study

Vermicomposting — using worms for composting — provides a way for waste management and reduction to become part of the academic curriculum.

excerpted from *The Worm Café: Mid-Scale Vermicomposting of Lunchroom Waste—A Manual for Schools, Small Businesses, and Community Groups* by Binet Payne. © 1999 Flower Press.

Today's students are hungry for work that is real, for learning that is meaningful. Project-based learning is a teaching strategy that allows students to take more responsibility for their learning as they make decisions and create solutions to problems that interest them. All subjects can be integrated as students apply their academic, social, and life skills to their work. As schools change, so will our impact on the future. Project-based learning is a teaching strategy that honors students as capable people, readying themselves to be future leaders by giving them chances to be leaders as children.

Today, population growth and changes in society have led to more people and fewer natural resources. It now becomes important

to heed new educational imperatives. Reduce, reuse, and recycle are major economic corollaries of vermicomposting. The organism central to the biological technology of vermicomposting is the earthworm.

Earthworms are animals in a group we know as invertebrates, which have no backbones. They are in the phylum Annelida and are commonly called annelids. Earthworms are exceptionally valuable to the environment. Without their constant burrowing, the soil would lack good drainage and aeration, and their nutrient-rich castings would not be mixed into its upper layer. School vermicomposting projects and school gardens, begun by Laytonville [California] Middle School in the fall of 1987, can demonstrate that communities can reduce their use of local landfills, water, and fossil fuels.

Earthworms did help the elementary and middle schools in Laytonville reduce use of both pesticides and natural resources. Avoiding the use of pesticides on school grounds and in school gardens is possible because nutrient-rich worm castings applied to the soil maintain soil health.

Parents, community members, teachers and students worked together to avoid the use of pesticides on our school grounds. We were concerned about the long-term effects of pesticide use on our students. Some teachers felt there was a connection between some of the systemic pesticides being used on our grounds and an increase in headaches and nosebleeds experienced by some of our students. Using vermicompost as a soil amendment helps improve the tilth, nitrogen, and pH of the soil. The improved tilth causes less leaching of nutrients out of the soil and contributes to a healthier soil full of microorganisms, including earthworms, that help increase the yield of crops grown in our school garden. Soil and crops that are healthy are less likely to be attacked by insects and disease. We have also reduced our use of commercial fertilizer.

Because the schools relied on worms on-site instead of using gasoline-powered trucks for transportation to a recycling plant

25 miles away to process paper wastes, they actually reduced fossil fuel use. Water conservation was another objective of the comprehensive organic gardening program. Mechanical garbage disposal in a kitchen sink requires eight gallons (30 liters) of water to dilute one pound of food waste. Because Laytonville schools no longer wash food waste down the drain and, in addition, reuse rinse dishwater to swish out empty milk cartons before transporting them to the recycling center, they used 103,680 fewer gallons (394,000 liters) of water a year after beginning the program than they consumed the previous year.

Above all, vermicomposting reduces solid waste at its source. Every year people in the state of California throw away 146 million tons, (132,700,000 t) of trash. Each person is responsible for generating about one ton of waste each year. Of that waste, 880 pounds is paper, 200 pounds is glass, 180 pounds is metal, 140 pounds is wood; another 140 pounds consists of cloth, rubber, plastic, and leather; and 460 pounds is yard waste. Schools top the list of sources for discarded paper and food waste. Mid-scale vermicomposting provides a simple, effective, and inexpensive method for processing paper and food wastes that requires no transportation to a central location for further processing. At the same time, mid-scale vermicomposting empowers students to feel they can, and do, make a difference to the positive economies of their town through active stewardship of the natural resources they use.

During the program's first school year, a ten-month period (not a 12-month calendar year), Laytonville vermicomposted 3,600 pounds of cafeteria food waste and fed 9,360 pounds of protein food waste to chickens and pigs. The schools recycled 567 pounds of milk cartons and 654 pounds of tin cans. Adding these numbers shows that more than seven tons of solid waste were effectively diverted from one local landfill.

That first year of mid-scale vermicomposting, the school district saved \$6,000 in dumpster fees by reducing the amount of paper

and food waste collected in commercial dumpsters that eventually went to the landfill. Janitors also spent less time handling trash-can waste. Five years later, this successful vermicomposting program for a school population of 400 students continues to provide a model for student citizenship.

Besides helping reduce the flow of food waste to landfills, mid-scale vermicomposting provides schools with unique study opportunities. An introduction to small business practices arises as staff and students conduct worm workshops and sell both worms and vermicompost to the workshops, and sell both worms and vermicompost to the community. Students also experience mathematical concepts and scientific methods close-hand: measurement, ratio and proportion, area, temperature, observing, predicting, testing, comparing, and contrasting. There is not a better vehicle than a worm bin for the study of a healthy ecosystem.

A vermicomposting bin is an alive and extremely complicated system. Interdependence, flexibility, diversity, cooperation, and sustainability are all represented in a vermicomposting bin. The inhabitants are so interrelated that to study the system in separate parts is impossible. Worm bins are not just collections of plants, animals, and bacteria. Worm bins are communities involved in complex relationships. Within the walls of a worm bin, millions of creatures are dependent on one another for survival, while others are content to share a desired environment or food source. So, to understand the dynamics of worm bins, we must first look to, and understand, relationships.

Our combined vermicomposting/organic-gardening program is successful because it is systemic. In life, we can find many types of systems—health systems, educational systems, transportation systems, and so on. Each system is dependent on its many parts which must be organized and integrated if the system is to survive and flourish. Systems thinking, or systems engineering, focuses

more on coordination of the total system rather than on its individual parts. Systemic programs are methodical, ordered and comprehensive.

Vermicomposting is cyclical in nature. The school, a system itself, is in many ways very much like an ecosystem. Energy and matter move through the school community and, like a healthy ecosystem, many substances are recycled. The understanding of connectedness in this process is invaluable, realizing that we do not make decisions in isolation and that our every action has an equal or greater reaction. Actions of each person directly involved in the cycle guarantee the success of our vermicomposting project which does not depend on special circumstances. It is very simply managed by children with the aid of adults. Vermicomposting has become a part of daily life in our school cycle.

Implementing a successful mid-scale vermicomposting program at your site begins with a shifting of old paradigms, and with the vision and willingness to make a difference in your community and in the world. Always involve as many people in the initial process as you can. Involvement by others will achieve more “buy-in” and a greater long-term success rate for your program.

Binet Payne is an educator and author of *The Worm Café*, which she wrote while teaching at Laytonville Elementary and Middle Schools in Laytonville, California. She is also author of numerous articles in periodicals, magazines, and newspapers and has developed nationally recognized programs to teach ecology. Payne has worked with the Center for Ecoliteracy, the Autodesk Foundation, the Center for Complex Instruction at Stanford University, and for the North Coast Rural Challenge Network, helping students become stewards of their communities.

Checklist for Successful Mid-Scale Vermicomposting

by Binet Payne, author of *The Worm Café*

1. Conduct a waste audit. Parents, community members or a group of students can do this.
2. Get funding. Pacific Gas and Electric gives mini-grants for projects that reduce waste generated on site. The American Association of Nurserymen gives grants to schools. The National Gardening Association in Burlington, Vermont, also gives small grants to schools.
3. Involve all staff from the very beginning of the project. Start with students and staff meeting together to develop a plan. Keep one another informed every step of the way.
4. Purchase the materials and have students assemble bins with staff or volunteers.
5. Start small. Start where you can and build up the program as you go. Don't wait.
6. Set up a schedule for waste flow. Provide clipboards for each bin.
7. Monitor and record the daily health of the bins.
8. Have students report their project to the school board. Invite local news personnel to the school. Have students conduct workshops on vermicomposting for the community.
9. Use the castings to grow vegetables in the school garden or to nourish plants that beautify the school grounds.
10. Know you are making a difference one step at a time.



A Model School District Waste Management Policy

Current policy of the Berkeley (California) Unified School District

Office of the Superintendent

Adopted March 7, 2001

Resolution Establishing a Green Procurement and Sustainable Procedures Policy for Berkeley Schools

WHEREAS, it is important to our society to reuse, reduce and recycle, and rot (4Rs) as much as possible of the abundant waste we generate; and

WHEREAS, the 4Rs saves energy and resources that will directly benefit our communities; and

WHEREAS, the Berkeley Unified School District can follow the example of other large institutions, such as the University of California, Berkeley, and the City of Berkeley, in establishing comprehensive green procurement and sustainable practices and policies; and

WHEREAS, the City of Berkeley provides collection services for bottles, cans, plastic bottles, cardboard, mixed paper and landscape trimmings at no additional cost; and

WHEREAS, a comprehensive recycling program will reduce costs of trash disposal by 30-59%, and

WHEREAS, participation in a green procurement and sustainable practice at schools furthers our goal of educating students to become: “Lifelong Stewards of the Land”

THEREFORE, BE IT RESOLVED, that the Berkeley Unified School District will implement a comprehensive green procurement and sustainable practice plan that will include:

1. Recycling of cardboard, mixed paper, bottles, cans and landscape trimmings.
2. Recycling in every classroom, staff room and administration area of paper and of bottles and cans as feasible.
3. Recycling of bottles, cans and paper if feasible, in cafeterias, snack bars and kitchens.
4. All construction and demolition materials shall be reused or recycled in the appropriate manner, to the greatest extent possible.
5. Promote our use of source reduction and recycled products whenever feasible.

6. To purchase source reduction products and/or recycled products containing the highest amount of postconsumer material practicable, or when postconsumer material is impracticable for a specific type of product, containing substantial amounts of recovered material. Such products must meet reasonable performance standards, be available at a reasonable price and be available within a reasonable time.
7. All equipment, both leased or rented, shall be compatible with the use of source reduction and recycled products.
8. All BUSD departments, in preparing departmental goals and objectives, and action plans, shall include within these goals and objectives and actions plans information on each department's goals and actions in applying this policy.

All departmental evaluations shall include within the evaluation, assessment of each department's effectiveness in applying this policy.



Waste Management Resources

Center for Ecoliteracy Newsletter

Inspiring stories and information that illustrate the efforts of educators and students whose work the Center supports

www.ecoliteracy.org

Food Cycles: Starring The Edible Schoolyard Compost Pile
Spring 2002: Composting at The Edible Schoolyard

www.ecoliteracy.org/pages/newsletter3_compostpiles.html*Learning to Recycle at Edna Maguire Elementary School*

Summer 2003:Waste-free lunch

www.ecoliteracy.org/pages/newsletter5_maguire.html

Quick and Easy Compost

Spring 2002:A recipe for compost

www.ecoliteracy.org/pages/newsletter3_compostrecipe.html

Vermicomposting

For more information about composting with worms

The Worm Café: Mid-scale Vermicomposting of Lunchroom Wastes
Binet Payne

This manual describes how Binet Payne and her students developed a system to compost lunchroom waste with worms and save their school thousands of dollars per year. The book includes earthworm diagrams, bulletin board materials, a sample letter to parents, charts, and more.

www.wormwoman.com/acatalog/Wormwoman_catalog_The_Worm_Cafe_4.html

Worm Woman

Mary Appelhof's website for worm composting resources offers books, videos, resources for classroom studies, and more.

www.wormwoman.com

School Waste Reduction Programs and Resources

For more information about school waste reduction programs and resources to help you start a program at your school

Away with School Waste: A Teacher's Guide to Starting a School Waste Reduction, Recycling & Composting Program

Alyson Chambers, Arlene Kozimbo, Erika Perloff, and Collette Streight

This guide was written for teachers who want to start a school-wide waste reduction program at their schools. Produced by Ecology Action, Life Lab Science Program, and Santa Cruz County Office of Education. (PDF: 12 pages)

www.wastefreeschools.org/PDF/away_waste.pdf

Composting in Schools

The information on this site is drawn from the book *Composting in the Classroom* by Nancy Trautmann and Marianne Krasny. The book offers ideas for high school research projects and a wealth of compost-related information.

<http://compost.css.cornell.edu/CIC.html>

Cornell Waste Management Institute

This institute serves the public through research, outreach, training, and technical assistance programs in solid waste disposal, management, and planning.

<http://cwmi.css.cornell.edu/>

Environmental Defenders Teacher Resource Packet

This packet provides sample hands-on activities to help students learn more about protecting the environment and a list of environmental education resources. (PDF: 16 pages)

www.888cleanla.com/epd/envdef/TEACHER-TeacherPacket.pdf

Food Diversion at Schools

This material provides options and methods for preventing, reusing, and composting food waste in schools. Lists on-line resources and publications available from the California Integrated Waste Management Board. (PDF: 3 pages)

www.ciwmb.ca.gov/Publications/Organics/44203018.pdf

Oregon Green Schools Association

This organization's mission is to assist Oregon schools in setting up and maintaining effective, permanent waste reduction and resource efficiency programs that improve the school environment and community.

www.oregongreenschools.org/about.html

Organizing Cafeteria Recycling Programs in Elementary Schools: A How-to Guide

This document from the Los Angeles County Department of Public Works, Elementary School Environmental Education Program outlines an easy-to-implement school cafeteria recycling program. (PDF: 9 pages)

www.888cleanla.com/epd/envdef/Teacher-PrincipalPacket.pdf

Recycling Manual for NJ Schools

This manual created by the Association of New Jersey Recyclers (ANJR) offers school personnel step-by-step guidance through the process of setting up a comprehensive recycling program. (PDF: 58 pages)

www.state.nj.us/dep/dshw/recycle/njsrpm.pdf

Rethinking Recycling: An Oregon Waste Reduction Curriculum

Oregon Department of Environmental Quality offers activities and lesson plans for students in grades K-5.

www.deq.state.or.us/wmc/solwaste/rethinkrecyc/rethinkrecyc.html

Santa Cruz County Public Schools Resource Conservation Program

This district-wide program is built around the set up, maintenance, and improvement of paper, cardboard and mixed container recycling, food composting, and a wide variety of reuse and reduce systems.

www.wastefreeschools.org/structure.html

Saving Money & Reducing Trash at School

Minnesota Office of Environmental Assistance summarizes the waste problem and offers suggestions for reducing waste. (PDF: 2 pages)

www.moea.state.mn.us/p2week99/99school.pdf

School District Waste Reduction: Purchasing Table

There are several waste reduction considerations to take into account when purchasing school food service items. This table may help identify purchasing options that effectively promote a district-wide waste reduction program.

www.ciwmb.ca.gov/schools/wastereduce/food/purchasing.htm

Schools and Waste

The Natural Resources Defense Council's fact sheets summarize why it's important to recycle in schools and what kids can do. (PDF: 2 pages)

www.nrdc.org/greensquad/

Terry Husseman Sustainable Schools Awards: A Guide to Achieving Sustainability in Your School

Jim Bill

The purpose of this guide is to help schools establish sustainability programs and to provide ideas for improving existing programs. It was developed also to serve as a resource document for schools wishing to compete in Ecology's School Awards program. (PDF: 40 pages)

www.ecy.wa.gov/pubs/0207022.pdf

Waste Audit Program [Earth Flag Program]

This environmental education initiative, sponsored by Ijams Nature Center, facilitates school-wide waste reduction, improvement of school grounds, and reinforcement of classroom concepts through learning environmental responsibility.

www.ijams.org/Pages/ef_audit.htm

wastefreelunches.org

This website includes information on how to pack waste-free lunches and helpful links to other sites.

www.wastefreelunches.org/about.html

Business Recycling and Waste Reduction: What Schools Can Do to Reduce, Reuse and Recycle

Solid Waste Services of Montgomery County, Maryland, offers waste reduction tips to schools and businesses.

<http://solidwaste.dpwt.com/sorrt/busrec7g.htm>

Research and Reports

For information to support efforts to reduce waste in schools

Report on the CIWMB School District Diversion Project (April 2002)

This report by the California Integrated Waste Management Board includes strategy, pilot programs, and background information on efforts to initiate waste reduction in institutional settings. Six school districts participated in the pilot project. (PDF: 240 pages)

www.ciwmb.ca.gov/Publications/Schools/31002008.pdf

International

For information about waste management programs on an international level

Waste Free Lunches

Bramley Frith Environmental Education Centre's information on waste free lunches.

www.bramleyfrith.co.uk/ecocentre/wastefreelunch.htm

Waste Watch Education Services

Waste Watch's education programs include Schools Waste Action Club and WESP (the Waste Education Support Program).

www.wastewatch.org.uk/education/





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