

Rural School Case Studies in Waste Reduction, Reuse, Recycling, and Composting

Saving School District Money

Pasco County Florida School District has reduced solid waste by approximately 40% and lowered its disposal costs from \$600,000 to \$300,000 annually. It also earns nearly \$50,000 a year through the sale and auction of scrap metal and old equipment, as well as beverage containers. The District's Resource Recovery Department operates a comprehensive recycling program which includes: aluminum cans, household batteries, cardboard, carpet padding, cellular phones, electronics, foam trays, light bulbs, metal cans, metal scrap, mixed paper, newspaper, oil, paint, plastic bottles, textbooks, tires, toner cartridges, and wood pallets.



Each school is required to recycle a variety of materials to help reduce solid waste generation. Staff collect recyclables from 10-12 schools each day, transport the materials to Distribution Services, and sort them into roll-off or other containers for collection by a local recycler. Student "Earth Patrols" perform a variety of activities such as: collect paper; create commercials and announcements to encourage recycling and conservation; look for recyclables in the waste can and trash in recycling containers; plant and maintain gardens; participate in battery and cellular phone recycling; and promote litter prevention. The District's Creation Station reuse center provides free materials to school employees and non-profit groups. A wide range of items can be donated to the center, including: arts and craft supplies, books, cardboard, cards, ceramics, fabric, gift wrap, magazines, office supplies, and much more.

The District School Board of Pasco County
Attention: Resource Recovery / Creation Station
7227 Land O' Lakes Boulevard, Building 5A
Land O' Lakes, Florida 34638
Karen Bryant, Recycling Coordinator

727-774 - 2752

kbryant@pasco.k12.fl.us

The district has an extensive "Resource Recovery" Web page: www.pasco.k12.fl.us/recycle/

80 Percent Waste Diversion

Oak Grove Elementary School in Sebastopol, California is a rural K-5 primary school with a population of 300 students and approximately 16 teachers. The school's lead custodian, with enthusiastic support from staff, students, teachers, the community, and private partners, initiated the recycling efforts. Involvement of so many stakeholders has ensured that the program met and exceeded its expectations, resulting in an 80 percent waste diversion rate. Oak Grove has gone from generating 32 cubic yards per month of trash to just four cubic yards. The school started the program in 1992, not to save the Earth, but rather to save the school district money. The students provide about 12 to 15 hours of volunteer labor per week. Garbage rates have been reduced by \$1,400 per year. Revenues are generated from marketing redemption containers. The school receives no additional

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funding for its program, and it requires a minimal amount of staff time. Oak Grove School has not only reached its own waste reduction goals, but it has also helped the community reduce more waste by influencing parents to recycle more.

Each class and office has a set of four containers for compostable material, paper, mixed recyclables, and trash. Fourth-graders collect the containers from the rooms each day. Custodial staff sort the commingled materials for transport by a local recycling hauler. In the cafeteria both milk and juice cartons are separated and recycled. The cafeteria has a program to distribute unserved food to migrant workers, the homeless, and the after-school program. Food is boxed up after lunch and distributed by school staff.

The school has instituted grasscycling and maintains a compost pile for other yard wastes, soiled paper, and some food wastes. Not only has this reduced wastes and lowered costs associated with handling and disposal of the grass clippings, it has cut maintenance costs associated with fertilization and watering. The school's compost is used as a soil amendment around the school grounds, as well as student gardens. The school purchased a shredder and compost bins with grant funding. Oak Grove School also sponsors a community drop-off and accepts recyclables from the community. Collected redemption containers help fund the school in-house collections.

Oak Grove Elementary School
8760 Bower Street
Sebastopol, CA 95472

707-823-5225

<http://www.ogusd.org/>

National Green School Winner

Students at West Geauga High School in Chesterland, Ohio built an outdoor classroom area with native plants, recycled plastic benches, and bridges on a nature trail through the woods near the school. Getting students outside has motivated the student body to reduce litter and appreciate their environment more. The students started a newspaper, bottle and can recycling program, collecting more than 100 pounds of bottles and cans each week. They have also started a campaign to encourage use of reusable water bottles. The school has switched more than 400 incandescent bulbs to fluorescents and started a CFL recycling program. The students also helped four other schools start outdoor classrooms. The school was the 2009 national grand prize winner in the Student Conservation Association (SCA) "Green Your Schools" contest, winning \$5,000.



West Geauga High School
13401 Chillicothe Road
Chesterland, OH 44026

440-729-5950

www.westgeauga.k12.oh.us

Green Pandas

Gilford Elementary School in Gilford, New Hampshire has the assistance of three dedicated teachers and the "Green Pandas," the fourth grade recycling group. Each Wednesday the students split into four groups of about three students each to begin their collection, starting with paper. As the collected paper is emptied into bags, it is checked by adults for any contaminants. Next the students collect the plastic bottles and cans from the cafeteria. It takes the Pandas approximately one hour to collect about eight large bags of paper. The collected materials are stored until the school custodian takes them to the Town Transfer Station. For America Recycles Day the students held a special community collection for plastic containers. The Pandas also have a worm composting bin. The Green Pandas bring their environmental message to the community by composing and performing skits at Gilford's monthly Show Cases. The Gilford Middle and High Schools have also started recycling programs.

Gilford Elementary School
76 Belknap Mt Road
Gilford, NH 03249

603-524-1661

<http://www.ges.gilford.k12.nh.us/>

Going Green

Trunk Butte School in Chadron, Nebraska is going green by focusing on the second "R" in "Reduce, Reuse, Recycle." The school is reusing items that would normally be placed in the landfill and turning them into functional tools, art, and shelter. Keep Chadron Beautiful is challenging the Whitney Rural School in Whitney, Nebraska to a contest with other area schools to decrease the amount of trash by recycling more.

Chadron Public Schools
5240 Highway 20
Chadron, NE 69337

308-432-3717

<http://www.chadronschools.org/vnews/display.v/ART/4af35806c8efe>

"Cash for Cans"

Students of Mitty P. Locke Elementary participate in the Great Aluminum Can Round-Up Cash for Cans recycling program. Children, parents, staff, and several area businesses work together to make the program a success. Thursday is the big "Can Day" when students work in teams to sort, count, bag, and load the aluminum cans into a truck. Weekly and grand totals are reported to the student body and staff through the school's "Sharing Wall" and via daily announcements on the intercom. Notices are sent to parents to keep them informed and involved in the recycling efforts. More than 6,300 pounds of aluminum cans were recycled in one year. Funds received are spent on student projects, local charities, and environmental organizations.

Mitty P. Locke Elementary School
4339 Evans Avenue
New Port Richey, FL 34652

727-774-3100

<http://locke.pasco.k12.fl.us/lockesite/About.html>

Environmental Warriors Encourage Recycling

Through a service-learning program, Waterford High School students in Waterford, Connecticut collaborated with developmentally disabled peers to improve their school recycling efforts. They also started collecting organic materials for a new composting program. Additionally, they redesigned the brochure for their town's recycling program.

Waterford High School
20 Rope Ferry Road
Waterford, CT 06385-2894
Kathy Racette

860-437-6956

kracette@waterfordschools.org
www.waterfordschools.org

Sixth Graders Lead the Way

Sixth grade students at Mabel-Canton Elementary School in Mabel, Minnesota wanted to increase school recycling, so they take turns helping other students separate their plastic milk cartons for recycling. Students collect the cartons in large garbage bags for weekly collection by a local hauler. The sixth graders also take turns volunteering one hour during recess time every two weeks to collect school paper for recycling. The students decorated recycling boxes for each classroom.



Mabel Canton Public School
316 W. Filmore Ave.
Mabel, MN 55954

507-493-5422

www.mabelcanton.k12.mn.us

Biodiesel from School Kitchen Grease

Berkshire School in Sheffield, Massachusetts is making biodiesel out of the kitchen grease from the school's dining hall. The fuel is to be used to power the schools fleet of diesel consuming machinery like lawn mowers and utility vehicles. Berkshire School is a Student Conservation Association "Green School" winner.

Berkshire School
245 North Undermountain Road
Sheffield, MA 01257

413-229-8511

www.berkshireschool.org

Cell Phone Recycling at School

Olathe South High School is dedicated to the environment. Teachers have a goal to not only keep the school environmentally friendly but to educate students about the environment. The school collects plastic bottles, batteries, and other materials. Olathe Students Going Green have a blog for discussing "green" student issues (<http://teachers.olatheschools.com/oshsgoesgreen/2007/12/10/hello-world/>).

Olathe School District
14160 Black Bob Road
Olathe, Kansas, 66063

913-780-7000

<http://teachers.olatheschools.com/oshsgoesgreen/>

Rebuilding Computers for Cameroon

The Cultural, Technological, Environmental Exchange student group at West Ottawa High School in Holland, Michigan has rebuilt and donated more than 1,500 computers over the past ten years to students in the West African nation of Cameroon. Students donate their weekend free time to contribute to the effort. Students dismantle, upgrade and network donated computers destined for Cameroon. Students and faculty also use the computers to learn about data and word processing, computer maintenance, and employment skills.

West Ottawa Cultural, Technological, Environmental Exchange
3685 Butternut Drive 616-994-5214
Holland, MI 49424

Mike Jaeger jaegerm@westottawa.net
<http://www.westottawa.k12.mi.us/schools/westottawahighschool/>

Salvaging Usable School Supplies

Middle schools in Montgomery County, Maryland hold a special drive to recover and reuse school supplies, clothes, and other goods left in lockers when students leave for the summer. Student volunteers clean out students' lockers at the end of the year and usable school supplies are sent to needy students in other states and overseas. From the lockers of 35 middle schools, one year's collection netted about \$50,000 worth of notebooks, pencils, calculators, and other miscellaneous items, including a closet unclaimed coats.

Learn Shop, Inc. 301-942-1074
P.O. Box 1754
Wheaton, MD 20915-1754

www.learnshop.org

Comprehensive School Recycling and Community Drop-off

Calico Rock High School in Calico, Arkansas recycles paper, cardboard, plastic bottles, and aluminum cans. The school used a grant to start a community recycling center on its elementary school campus. This center has 20 volunteers and is open two days per week. Items accepted include paper, cardboard, plastic bottles, and steel and aluminum cans.

Calico Rock High School 870-297-3745
301 College Street
Calico Rock, AK 72519

<http://pirates.k12.ar.us/>

Students Initiate Recycling

The fifth and sixth grade students at Lancaster Central Schools in Lancaster, New York initiated a recycling program to collect paper, cardboard, glass, plastic bottles, and milk cartons. To raise awareness and support, students designed posters and submitted an article to the local newspaper. Lancaster Central Schools reuses school furniture, such as television brackets, for creative uses including shelving units and bench supports.

177 Central Avenue 716-686-3200
Lancaster, NY 14086
Dennis Weist

dweist@lanaster.wnyric.org

www.lancasterschools.org

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Worms in School

West Side School in Healdsburg, California diverts 15-20% of the school's waste stream by composting lunch time food waste. The program was initiated by a parent volunteer who helped the school build four worm composting bins. The Sonoma County, California K-6 school with approximately 130 students, sells its sifted and bagged compost at a local farmers' market. The program teaches the children sustainable practices and has raised \$1000 a year consistently for the school.



Also in Sonoma County, Apple Blossom Elementary School, with student population of 300, reduced its trash disposal needs by two-thirds in just three months through worm composting. Students are assisted by Oak View Charter High School students in managing the program. Funded by initial grants from the Sebastopol Rotary Club and matched by a private donor, the Compost Club helped the school raise \$1,000 to start the program. Sonoma Compost donated the lumber for the bins. Vegan food scraps are fed to the worms; remaining food scraps are collected by a pig farmer. Compost is bagged and sold in scrap cloth materials. Parents and students participate in the harvest, bagging, and labeling of the finished soil amendment.

The Compost Club
P.O. Box 664
Cloverdale, CA 95425

707-922-5778
info@compostclub.org
www.compostclub.org

More Worms...

The Laytonville Unified School District in Mendocino County California composts lunch scraps in worm bins. The worms and other waste reduction activities in the District have reduced garbage by at least 60 percent. Custodial staff took the lead to implement this innovative program.

Laytonville Unified School District
150 Ramsey Rd.
Laytonville, CA 95454

707-984-6108
<http://layt.k12.ca.us/>

Waste-Free Wednesdays

Blue Oak School in the town of Napa, California, has made waste reduction a priority by implementing "Waste-Free Wednesdays." The program aims to reduce lunchtime waste while encouraging greater environmental awareness. The school also sponsors an audit of environmental practices in school operations and a student-driven Middle School recycling program.



Blue Oak School
1436 Polk Street
Napa, CA 94559

707-261-4500

http://www.blueoakschool.org/school_programs/curriculum_enrichment/environmental_education/index.aspx

Local Partnerships to Recycle

The Palo Verde Unified School District, a rural district located in the Mojave Desert, has joined the City of Blythe, a prison, and a waste hauler to recycle milk and juice boxes and cardboard. Proceeds from cardboard recycling go to the prison program where laborers sort and bale the material for recycling.

Palo Verde Unified School District
295 N. 1st. St.
Blythe, CA 92225

760-922-4164

<http://www.pvUSD-bly.k12.ca.us/>

Food Scraps for Local Farm Composter

Marshwood Great Works School, a 4/5 grade school with about 400 students in South Berwick, Maine, is sending their milk cartons and daily food waste to a local farm compost operation. The school recycling team assists with the schools efforts. The school switched from disposable plastic utensils to reusable flatware; compostable sugar cane bowls are used at the salad bar instead of plastic. The program has been so successful that three other schools have joined in the composting program.

Marshwood Great Works School
49 Academy Street
South Berwick, Maine 03908

207-384-4010

<http://www.msad35.net/mgw/>

Paper Recycling

At Wahoo High School in Wahoo, Nebraska an English teacher implemented a paper recycling program at Region V schools (vocational rehabilitation program). Twice a week the Region V workers pick up the paper from all three public schools and send it to a paper vendor.

Wahoo High School
2201 North Locust Street
Wahoo, NE 68066-1093

402-443-4332

www.wahooschools.org

Food Choice Program Reduces Waste

North Plains Elementary School in North Plains, Oregon implemented a "food choice" program in the school cafeteria resulting in a significant reduction in food wastes. Previously, all hot-lunch eaters were provided a tray with the same food. Program changes included: providing two or three entrees to choose from each day; introducing child-size "self service bars" stocked with uncooked fruits, vegetables and bread products; allowing students to accept or decline hot foods; and monitoring foods thrown out and revising ordering and production amounts accordingly. Average participation in the meal program increased from 61 to 73%, while the average cost of food per meal dropped from \$0.85 to \$0.71. Food discarded per tray dropped 47% and consumption of fresh fruits and vegetables increased significantly.

North Plains Elementary School
32030 Northwest North Avenue
North Plains, OR 97133-6146

503-844-1630

www.hsd.k12.or.us

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Comprehensive School Recycling

The Sussex-Wantage Regional School District in rural Sussex County, New Jersey (K-8) continues to improve its program to recycle paper, cardboard, plastic, glass bottles, and tin and aluminum cans. The District now recycles nearly 11,000 pounds of commingled containers and 43,000 pounds of paper annually.

Sussex-Wantage RSD
27 Bank Street
Sussex, NJ 07461

973-875-3175

www.swregional.org

Recycling and Rap

As part of their efforts to focus on giving back to the community, Wentworth Intermediate students have collected "Coats for Kids" and used books for rural schools in northern Maine. They sponsor a bottle drive for charity. The students also started a paper recycling program. The Wentworth Intermediate School Rappers wrote and performed their Earth Day Rap: *"The sky is high and the ocean is deep, but we can't treat the planet like a garbage heap. Don't wreck it, protect it, keep part of it wild, and think about the future of your great grandchild. Recycle, bicycle, don't you drive by yourself, don't buy those plastic products on the supermarket shelf. Boycott, petition, let the big business know, that if we mess it up here, there's no where else we can go. Don't shrug your shoulders, say, 'What can I do?' Only one person can do it, and that person is you!"*

Benjamin F. Wentworth Intermediate School
9 Wentworth Drive
Scarborough, ME 04074

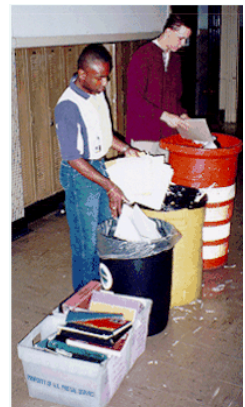
207-730-4600

www.scarborough.k12.me.us

Locker Cleanout Success

At the Navajo School in Okmulgee Oklahoma, school locker cleanout resulted in the collection of fifteen recycling bins full of paper (three contained reusable paper or notebooks), one bag of plastic, and one bag of aluminum. One box full of reusable school supplies was also collected and two boxes of books. The Technology Students Association resold the supplies the following year. Only one bag of trash resulted. Sponsors provide prizes to participating students and media coverage.

In less than one hour, the Okmulgee High School Science Club collected twenty boxes of paper and one box of plastic for recycling. Reusable items included three boxes of clothes and one box of school supplies. Like the Navajo School experience, this project produced one small bag of trash.



Okmulgee Public Schools
415 West 3rd Street
Okmulgee, OK 74447-3200

918-758-2075

www.okmulgee.k12.ok.us

“We Always Recycle”

Potter Street Elementary School students in Bainbridge, Georgia partnered with the Decatur County Seminole Recycling Center to collect nearly 30 tons of paper, 5 tons of plastic, and 12 tons of cardboard in six years. Other schools in the school district are now recycling. Students in the “We Always Recycle” project are working on recycling more plastics for their "Pack Our Plastics Shed Monthly Contest."

Potter Street Elementary School
725 Potter Street
Bainbridge, GA 39819

229-248-2253

<http://www.decalur.k12.ga.us/pse/recycling%20home.htm>

School Offers Community Recycling

Cold Hill Elementary, a school of 350 students in Loudon, Kentucky has doubled its recycling since inviting the community to recycle at the school. In the first month, 2,400 pounds of materials went to London’s Recycling Center. Materials accepted include paper, cardboard, aluminum cans, plastic bottles and shopping bags. Recycling bins are located around the school for convenient recycling. For its leadership in recycling, the Cold Hill Elementary School earned the region’s PRIDE Environmental Education Project of the Month Award. “Cold Hill Elementary is proving that students have the power to make recycling a way of life for us all,” said PRIDE’s Karen Engle.

The school began recycling to develop students’ awareness of their impact on the environment and build habits for improving the environment. Students learn why recycling is important through a presentation about recycling that teachers show to all students. Students, faculty, and staff help manage the recycling program. Fifth-graders in the Student Technology Leadership Program (STLP) graph the amount recycled by the school and post the information on the school’s web site.

Cold Hill Elementary
4012 West Laurel Road.
London, Kentucky 40741

606-862-4632

<http://www.laurel.kyschools.us/schools/coldhillelementary/STLP%20Site/>

Talking Trash

Cedar Creek Middle School in Cedar Creek, Texas is “talking trash” and going green by participating in a recycling pilot project sponsored by Keep Bastrop County Beautiful. The school has a paper recycling program, but is participating in the pilot to increase its efforts and help establish sustainable recycling at all schools in the district. Future plans include adding cardboard and metal recycling as well. Plans are also in place to offer members of the Cedar Creek community the opportunity to bring their recyclables to the school. Student organizations actively participate in the Eagle Pride Recycling Project by managing the classroom recycling boxes and setting out the large bins for curbside pickup each week.

Cedar Creek Middle School
125 Voss Pkwy.
Cedar Creek, TX 78612

512-332-2626

<http://mail.bastrop.isd.tenet.edu/~ccmsweb/index.html>

Team Conservation

Tri Valley High School in Grahamsville, New York has a comprehensive agricultural and conservation program that includes schoolwide recycling and composting. The schools "Conservation Management Mission Statement" states: "Our goal is to introduce, teach and model a multitude of skills necessary for today's students to become environmentally aware, adept and employable citizens within their community. It is our hope that the knowledge they gain will be passed on to others so they too may become stewards of our mother earth. See it, do it, teach it...think globally, act locally."

Tri Valley High School, Agriculture Department
34 Moore Hill Rd.
Grahamsville, NY 12740
Robert Hayes

845-985-2296 x4214

<http://www.trivalleycsd.org/webpages/sfritz/index.cfm>

Tips for Replication

- Find a dedicated and motivated individual to initiate school recycling, with additional support people ("Recycling Team") for sustaining and expanding the program.
- Before targeting materials for diversion, evaluate the schools waste stream, existing waste reduction efforts, and the resources available, including staff and local recycling options.
- Consider partnerships with suppliers and local businesses to reduce costs through efficient transportation of recyclables.
- Work closely with the custodial and kitchen staff to address the types and volumes of waste, and to get their input and assistance.
- School and district administrative support.
- Involve all potential stakeholders from the start, including them in the initial development and decision-making process. This will serve to increase participation, program efficiency, and success.
- Consult with local haulers and local and regional solid waste staff before deciding on a program. Their expertise can help the program be cost effective, may provide creative hauling ideas, and the obtaining of recycling containers.

Other Websites of Interest

- [DeKalb Going Green!](http://www.dekalb.k12.ga.us/go-green/): <http://www.dekalb.k12.ga.us/go-green/>
- [Ohio School Council Waste and Recycling](http://www.osconline.org/index.php?option=com_content&view=article&id=49&Itemid=57):
http://www.osconline.org/index.php?option=com_content&view=article&id=49&Itemid=57
- [Ohio School Recycling](http://ohiorecyclingchallenge.com/Results.aspx): <http://ohiorecyclingchallenge.com/Results.aspx>
- [Recycling Works, San Mateo County, CA](http://www.recycleworks.org/schools/resource_lists.html):
http://www.recycleworks.org/schools/resource_lists.html
- [RE3](http://www.re3.org/coordinators.htm): <http://www.re3.org/coordinators.htm>
- [U.S. Environmental Protection Agency School Resources](http://www.epa.gov/waste/conserve/tools/localgov/sectors/school.htm):
<http://www.epa.gov/waste/conserve/tools/localgov/sectors/school.htm>
- [Creating Less Trash at School](http://www.reduce.org/#success): <http://www.reduce.org/#success>
- [Keep American Beautiful](http://www.kabman.org/): <http://www.kabman.org/>
- [Waste Free Lunch Posters and Other Materials](http://www.epa.gov/osw/education/lunch.htm): <http://www.epa.gov/osw/education/lunch.htm>
- [National Institute of Environmental Health Sciences Kids Page](http://kids.niehs.nih.gov/recycle.htm):
<http://kids.niehs.nih.gov/recycle.htm>
- [Students for Solar Schools](http://studentsforsolarschools.org/): <http://studentsforsolarschools.org/>
- [Green School Contest](http://www.thesca.org/contest/green-your-school-winners): <http://www.thesca.org/contest/green-your-school-winners>

NERC's [Rural School Waste Reduction, Recycling, and Composting Tip Sheets, Case Studies, and Webinar Presentations](http://www.nerc.org/documents/#SchoolWaste) are available for free download (<http://www.nerc.org/documents/#SchoolWaste>).

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