



Recycling & the Environment

Recycling can:

- Preserve green space and farmland by removing materials from the waste stream and saving space in operating landfills.
- Conserve local and international natural resources when products are created from recyclable materials instead of trees, oil, coal and other virgin natural resources.
- Protect air and water quality.
- Save energy. Less energy is used when products are made from recyclable materials.



The Cuyahoga County Solid Waste District was established in 1989 following the passage of H.B. 592 in 1988. The District's mission is to provide all those who live and work in Cuyahoga County with a cost-effective and environmentally safe solid waste management system.



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CUYAHOGA COUNTY SOLID WASTE DISTRICT ENVIRONMENTAL EDUCATION PROGRAM SUMMARY

The Education Specialist of the District will provide, without charge, classroom presentations on recycling, natural resource conservation and solid waste management related topics through classroom visits. View www.cuyahogaswd.org for a list of presentations, contest offerings, services for educators and groups, and available environmental publications for teachers and students.



BEYOND RECYCLING

Once the recycling program is operating effectively, students may investigate additional ways to reduce waste such as reusing paper, composting cafeteria waste and using non-hazardous products. Furthermore, the students and the school may be interested in becoming more sustainable. The school would further lessen its negative impact on the environment and improve the health of the students and staff. For ideas, like buying recycled content office and school supplies, log on to the District's website and read Green Your School.

Ultimately, the school's recycling program should be a part of a school or school district environmental policy. To encourage a school environmental policy, check out www.clevelandgbc.org/schools/faq.html. Review a sample environmental policy by logging onto Waltham Public Schools, MA at www.city.waltham.ma.us/SCHOOL/WebPage/EMS/EM.htm or www.ciwmb.ca.gov/schools/WasteReduce/Samples/EnviroPolicy.htm.

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This guide is intended to assist student organizations, teachers, environmental clubs and school districts in implementing and maintaining a long term recycling program. For more information, contact the Cuyahoga County Solid Waste District's Education Specialist, Kathleen at 216-443-3731.

A school recycling program is hands-on learning. Students, teachers, the school and the environment benefit from a school recycling program. Students will see that their actions positively impact the environment and will themselves become environmental role models at home. Students also learn from the practical experience of organizing, planning, implementing and maintaining a long term project. Teachers will enhance daily class activities by integrating recycling into the school's curriculum, and the school should reduce the cost of trash disposal.

5 Steps to Implementing a School Recycling Program

#1 DO YOUR HOMEWORK

A. Assemble a Team

Student organizations, such as the National Honor Society, Junior National Honor Society, Student Council, an environmental club or other student organization are successful at maintaining school recycling efforts. The planning for a school recycling program should include the custodial staff, teachers, parents, school administrators and a representative of a local recycling program.

B. Build A Case For School Recycling

Analyze the Trash

A waste assessment of the school's waste can demonstrate the type, quality and origin of the waste and recyclables. This can be done simply by recording the contents of the classroom or office waste basket. Each classroom or a sampling of classrooms can participate in an assessment by sorting and weighing discarded trash. Once the trash is weighed, it can be multiplied by the number of classrooms for an estimate of the amount of trash and recyclable materials being discarded. Adding the waste from the library, staff lounges, offices, storage areas and cafeteria will lead to a more accurate estimate. The assessment will demonstrate the school's recycling opportunity.

**Use Trash Calculation Worksheet on page 6.*

Determine The Potential Savings

A school should be able to save money by recycling. Less garbage being disposed of in a landfill means a lower annual garbage bill. Ideally, a school recycling 20% of its waste should have a decrease by 20% waste disposal cost; however, it depends on how the waste contract was written. To have true savings in trash cost, the school's contract would pay a price per pull and the school would call when the dumpster is full. Note: Many contracts are written on a one pull per week no matter how full the dumpster. It is harder to demonstrate a cost savings with this situation.

When materials are recycled, an environmental cost savings does occur. For example, Cuyahoga County residents recycled 209,875 tons or 23.4% of solid waste from Ohio landfills in 2005. This

effort conserved 571,356 trees and 6,514 tons of non-renewable natural resource. Also, it saved enough energy to power 13,358 homes for one year and reduced air emissions by 67,351 tons. This is pollution that people do not have to pay later to clean up.

Recycling For Cash

Several school recycling programs can earn cash for a designated school program. For example, Abitibi Consolidated will pay a school for recycling over one ton of paper. Schools that promote community use of bins can earn greater amounts of money. Local businesses can even sponsor a bin for a school. Another material that schools can earn cash is aluminum cans. Drop off the cans to a recycler or scrap metal dealer. Instead of collecting, student can sell recycled content products. Fund can be raised to support a new recycling program, expand an existing one or for other environmental program needs. (See fundraising ideas below).

Recycling Fundraising Ideas

Recycling can raise funds to help improve or expand the school's recycling program. Funds can be used to promote recycling to the community or to award students who recycled the most. Schools can even conduct an environmental fundraiser to obtain money to buy recycling bins. Here are some ideas:

- Recycle paper with Abitibi's Paper Retriever Program at www.paperretriever.com.
- Collect aluminum beverage cans and return them to any scrap metal dealer to earn cash.
- Collect blue grocery bags at school through the Enviro-Bag, www.envirobag.com, programs.
- Collect printer ink jet cartridges for recycling. Several companies are involved with cash back programs. Here's one: www.empties4cash.com.
- Race to Recycle is Motorola's cell phone recycling program where accredited schools collect intact cell phones for cash. For more details, view www.racetorecycle.com.
- Sell recycled content pencils. Smencils are made old newspapers and have gourmet scents. Learn more at www.smencils.com.
- Promote a safer home while selling U-Mix-It Safe Spray® kits at www.safespray.com

C. Review the Waste Contract

Ask the school's business or building manager about the school's waste hauling contract. Sample questions should include:

1. Who is the waste hauler?
2. How much does the waste hauler charge for trash pickup? Is this a flat fee or a per container price?
3. What size containers are used?
4. How often are the containers picked up?
5. How much trash by weight and/or by volume is disposed of per month or per school year?
6. Can the waste removal contract be negotiated during the contract term?
7. Does the waste hauler currently provide a recycling service for the school? If so, what is being recycled?

D. Consult With Your Custodian

The custodial staff will know what is being discarded. Meet with the custodian and map the trash collection route including classrooms, offices and the cafeteria. This may help the planning team when locating recycling bins throughout the school.

Note: The custodian may not be able to help the school with moving the recyclable materials, if work duties are limited by their work contract agreement.

The majority of classroom waste is paper, and over 50% of school waste is paper.

Source: Clark County, Washington, 1995-1996 Waste Stream Analysis, August 1996.

#2 DETERMINE WHAT WILL HAPPEN TO YOUR SCHOOL'S RECYCLABLE MATERIALS

It is important to know:

- Can the waste hauler remove the recyclable materials? If so, what type of materials?
- If the waste hauler cannot collect the desired recyclable materials, then a recycler must be contacted. Recycling companies offer recycling services and will guarantee that the school's recycling efforts do not end up in the landfill.
- The recycler will need to know the best estimate of the amount of recyclable materials produced per week or per month, so do a waste assessment.
- Can the recycler remove the recyclable materials? If no, then can the recyclable materials be delivered to the recycler?
- Can the recycler provide containers? If no, determine how much it will cost for indoor and outdoor recycling containers.
- Apply for the District's School Recycling Mini-Grant to help purchase containers and other materials for the school recycling program.



Recyclers may provide:

- Pick-up service depending upon quality and volume of recyclable materials.
- Guidelines on what materials can be recycled and how to prepare recyclable materials.
- Recycling containers.
- Regional recycling contests.
- Educational information on recycling and tours of the recycling facility.

Paper Recyclers

Abitibi Paper Retriever program, www.paperretriever.com. Call 216-961-3900. This program provides outdoor storage bins, pickup and cash back for paper.

Caraustar Recycling, 3400 Vega Ave., Cleveland, OH 44113. Call 216-961-5060.

Gateway Recycling, www.gatewayrecycle.com. Call 216-341-8777.

Recycle Midwest, P.O. Box 8, Gates Mills, OH 44040. 440-423-3580.

Note: For an up-to-date list of paper and other recycling businesses, please check online at www.cuyahogaswd.org.



#3 ORGANIZE THE RECYCLING COLLECTION AND STORAGE SYSTEM

Paper products constitute the highest percentage of school waste and are easy to recycle. Recycling paper should be the first component of the school's recycling program.

To establish a collection and storage system for recyclable materials, answer the following questions:

- What type of collection containers will be needed for the classrooms, halls, storage area, office, etc...?
- Will the recyclable materials be picked up? As an alternative, will a designated person from the school deliver the recyclable materials to the recycler?
- Does the school have indoor space to use as a collection and storage center? If not, is there space for an outdoor bin?
- How will the recyclable materials be moved from the classrooms to the collection and storage area?
- How will the collection and storage bin(s) be moved outside for pickup?
- How will the custodian be involved?
- Who will be responsible to move the materials to the storage area from the office, supply room, cafeteria and teachers' lounge?
- If an outdoor recycling bin is needed, will there be room for the truck to maneuver and empty it?
- How will contamination of the recyclable materials be prevented?



Make a Map of the School

Map the locations of the recycling containers in the school. The classroom collection bins can be as simple as large, decorated cardboard boxes. A large rolling bin can be used as an indoor collecting or storage bin, which can be transported outside. Depending upon the size of the school, several rolling bins might be necessary.

Ideas for moving recyclable materials:

- Assign a student from each classroom or homeroom to empty the classroom bin as part of a daily routine.
- Classrooms can alternate the responsibility of moving the recyclable materials to the main storage bin or outdoor recycling bin.
- Create a recycling club of student volunteers or any student organization can assume the responsibility of moving the recyclable materials.
- If the custodial staff participates, then they may be able collect classroom bins and move the large storage bins outside or transport paper to outdoor recycling bin.

If recyclable materials are going to be stored indoors, contact your municipal fire prevention officer or the fire inspector to ensure compliance with State of Ohio and local fire codes.

Some general guidelines include:

- Recyclable materials cannot be stored in the boiler room or near electrical equipment.
- Indoor recyclable storage containers should be located in a room with a sprinkling system.
- Classroom containers should be emptied everyday.



Storage Bin

Roller Tote



Classroom Bins

#4. EDUCATE & PROMOTE!



An environmentally conscious faculty advisor is critically important to the recycling program. When the program is approved and steps 1, 2 and 3 are completed, the school can start recycling. It is important to educate the student body and other teachers about the program and its benefits.

The entire school will need information on how and what to recycle. Presentations, made to a school assembly or for individual classrooms, should include the locations of the collection and storage bins, how the system will work, a recycling goal and the benefits of recycling. The presentation could even be high tech with a slide show presentation or a video. Remember at the beginning of each school year that both new and old students and teachers will need information on the recycling program.

Create an unique way to promote the school's recycling program. Students and teachers will need to be reminded to recycle.

- Be a role model.

- Bring in guest speakers.
- Have recycling information printed in the school newspaper.
- Create a bulletin board on recycling.
- Run a contest.
- Make public service announcements of the school's recycling goals.
- Write articles about the program for local newspapers.
- Invite the press into the school to promote the program to the community.
- Give special recognition awards to students who set good examples by recycling or to classrooms that have highest rates of recycling.

The Solid Waste District can work with the school to provide recycling information, aluminum can recycling boxes, School Recycling Mini-Grant and prizes for promoting recycling.

#5. EVALUATE THE RECYCLING PROGRAM

Review the recycling program at the end of the school year. There are always ways to improve the program. Survey teachers and students for ideas about improving the program. Record the suggestions to be used the following year.

Remind the school administrators to evaluate the waste hauling and/or recycling contracts. A good recycling program should decrease the cost of trash removal.

Aluminum Can Recycling FACTS:

• When manufacturing new cans from old cans, 20 times more cans may be produced with the same amount of energy.

• In 2005, 51.4 billion cans were collected to be recycled, but around half were thrown away, so out of 10 cans bought, 5 were trash and 5 were recycled.

• It takes 5 tons of bauxite ore to make one ton of aluminum cans and the process creates 5 tons of caustic (toxic) waste called red mud.

• Recycling one ton of aluminum saves the equivalent to 2,350 gallons of gasoline and can run electricity in one home for ten years.

• Air pollution decreases by 97% when aluminum cans are made from recycled cans.

Trash Calculation Worksheet



HOW MUCH WASTE DOES THE SCHOOL PRODUCE?



1. Weigh one classroom's trash at the end of each day for a week.
2. Average the weight of the trash over the five days.
3. Multiply the answer to #2 by 20 to obtain an estimate of trash produced per month for a classroom.
4. Multiply the answer for #3 by the number of classrooms to get an estimate of trash disposed by all classrooms per month.
5. Do steps #1-3 for cafeteria, library, teacher lounge, office and storage areas and add to the total amount of trash from classrooms to obtain monthly total for school trash.

Examples

1. 10 lbs. + 7 lbs. + 5 lbs. + 12 lbs. + 6 lbs. = 40 lbs.
2. 40 lbs. ÷ 5 days = 8 lbs. of waste per day.
3. 8 lbs. x 20 school days = 160 lbs. of waste per month
4. 160 lbs. x 20 classrooms = 3,200 lbs. of waste produced by classrooms per month.
5. 1,800 lbs. waste from other areas + 3,200 lbs. classroom waste = 5,000 lbs. per month.

WHAT DOES SCHOOL WASTE CONSIST OF?

1. Separate the waste from the trash bin into categories of paper, plastic, glass, metal, food and other for five days.
2. Weigh the separated waste.
3. Average the weight of each trash category.
4. Convert to a percentage.
5. Record findings.

HOW MUCH OF THE SCHOOL'S RECYCLABLE MATERIALS ARE BEING DISPOSED IN A LANDFILL?

1. Separate recyclable materials from the rest of the school trash for one week.
2. Weigh the amount in each category and average for the week.
3. Multiply by 20 for the average weight per month for the classroom.
4. Multiply the # of classrooms and add in the weight from the offices and the teacher's lounge to determine the amount of recyclable materials that the school will produce in a month.
5. Record findings to help build a case for recycling.



Resources for Recycling and Recycling Education

Books

50 Simple Things Kids Can Do To Recycle, The Earthworks Group, 1994.
Fun with Recycling, Marion Elliot, 2001.
Garbage, Robert Maass, 2000.
I Heard the Willow Weep, Toni Albert, 2000.
In My Neighborhood Garbage Collectors, Paulette Bourgeois, 1998.
The Garbage Monster, Joni Sensel, 2000.
The Great Recycling Adventure: A Lift-A-Flap Look at Old Things Made New, Jan McHarry, Edmond Davis, and Piers Sanford, 1994.
Johnny & The Old Oak Tree, Rachael P. Paulson, 1995.
Sir Johnny's Recycling Adventure, Rachael P. Paulson, 1999.

District Publications

View online www.cuyahogasd.org/publications.htm

Websites For Students

www.consrv.ca.gov/dor/rre/kids/Ed/Images/images/colorb.pdf
www.environleader.org/kids.html
www.epa.gov/recyclecity
www.florenceco.org/recycle
www.kidsrecycle.org/index.php
www.niehs.nih.gov/kids/home.htm
www.p2pays.org/recycleguys/kids.asp

www.recycleroom.org
www.tappi.org/paperu/welcome.htm

Rex Recycles Activity Book
Nevada EcoNet
Recycle City
Florence County Government, Recycling
Grassroots Recycling Network GOTOBUTTON BM_1_
National Institute of Environmental Health Sciences
North Carolina Department of Environment and
Natural Resources
Steel Recycling Institute
Paper University

Websites For Teachers

www.afandpa.org
www.americanplasticscouncil.org
www.dec.state.ny.us/website/dshm/redrecy/teachall.pd
www.epa.gov/epaoswer/education/quest/index.htm
www.hcdoes.org/sw/pdf/TCNR1stGrade.pdf
www.napcor.com
www.populationeducation.org

www.recycle-steel.org/education.html
www.theteachersguide.com/Recyclinglessonplans.htm

American Forest and Paper Association
American Plastics Council
New York Recycles
Quest For Less
Take Care of Nature's Resources
National Association for PET Container Resource
Sharing a Small World Environmental Activities for
Younger Learners
Steel Recycling Institute
The Teachers Guide

Making paper from recycled paper results in:

74% LESS AIR POLLUTION

35% LESS WATER POLLUTION

58% LESS WATER USE

64% LESS ENERGY USE

Source: EPA
Source: Institute of Scrap Recycling Industries

FACTS: You can use:



People living in urban communities contribute close to 7 pounds of waste per day. The national average is less at around 5 pounds of waste per day.



The number of landfills across the US have decreased from 8,000 in 1988 to 2,400 in 1996.



3.7 million tons of waste is generated in Cuyahoga County and 98% of our waste is exported to other counties and states.



Cuyahoga County has prevented 1.5 million tons of waste from entering landfills through reducing and recycling.



30 million trees' worth of paper are thrown away every year in the United States.



One cup of coffee purchased everyday in a disposable cup is equivalent to 22.75 pounds of trash per year.



Recycling a ton of paper saves enough energy to keep a 100 watt light bulb burning all day for three years.



100 million steel cans are used every day in the U.S.



To make steel cans from recycled steel saves 75% of the energy used to make cans from ore.



22 million tons of aluminum is used to make beverage containers every year worldwide.



It takes 75%-95% less energy to produce cans from recycled cans instead of making cans from bauxite.



Recycling 48 cans is the energy equivalent of conserving one gallon of gas.



224 pounds of corrugated cardboard is generated per person every year.



20.3 million tons of cardboard is recycled, which accounts for nearly 50% of the total paper recycled.



7.4 million tons of newspaper is recycled annually, which is a recycling rate of 55%.



Every ton of 30% post-consumer recycled paper purchased saves:

3000 gallons of water
2050 kilowatt-hours of energy
30 pounds of air pollution
8 full-grown trees
Source: U.S. EPA

Recycling 1 ton of paper saves:

17 trees
6953 gallons of water
463 gallons of oil
587 pounds of air pollution
3.06 cubic yards of landfill space
4077 Kilowatt hours of energy
Source: Weyerhaeuser