A Guide for Implementing a School Recycling Program

Reduce, Reuse, and Recycle are the key components to a comprehensive school waste reduction program. This guide focuses on recycling, but does not discount the importance of reduction and reuse.

Table of Contents

Background

WHY IS RECYCLING IMPORTANT?

Recycling reduces the amount of waste going into a landfill, helping to prolong its useful life.

Thirty percent of the waste disposed in the United States each year is recovered and recycled or composted, fifteen percent is burned at combustion facilities, and the remaining fifty-five percent is disposed of in landfills. (Source: U.S. E.P.A.)

Recycling saves energy.

It takes 20 times more energy to make aluminum from bauxite ore than using recycled aluminum. (Source: Aluminum Association).

Recycling creates jobs.

A recent study conducted by Project Performance Corporation in McLean, Virginia, concluded that in northeast and southern states, activities associated with recycling employ over 2.5 percent of the manufacturing workforce. Projected nationally, then, this study suggests that about 1 million manufacturing jobs and over $100 billion in revenue are possible through recycling and remanufacturing activities.

Recycling saves natural resources.

Products made from recycled material slow the depletion of non-renewable resources such as metal ores, oil, and natural gas, and reduce the encroachment of new mining and drilling operations on sensitive lands.

Recycling reduces pollution.

Two hundred million gallons of used oil are improperly disposed of each year. (Source: EPA) Used motor oil often turns up in our rivers, lakes, and streams. Properly recycling the motor oil from one oil change protects a million gallons of drinking water – or a year's supply for 50 people. (Source: American Petroleum Institute)

Recycling provides raw materials for industry.

Industry has invested millions of dollars in developing technologies for processing and manufacturing recovered materials. Newspapers collected in Virginia are used to produce 100% recycled newsprint. Carpet manufacturers need PET plastic soda bottles which they turn into a fiber for their product. A product called plastic lumber is manufactured in Virginia and uses recycled plastic bags.

Recycling makes a difference.

A school recycling program is a hands-on, interdisciplinary lesson that educates students about the environment, personal responsibility, community action, and solid waste management. School recycling programs not only impact students and their families but also impact communities and the overall waste diversion in a community.

Step 1: Do your Homework

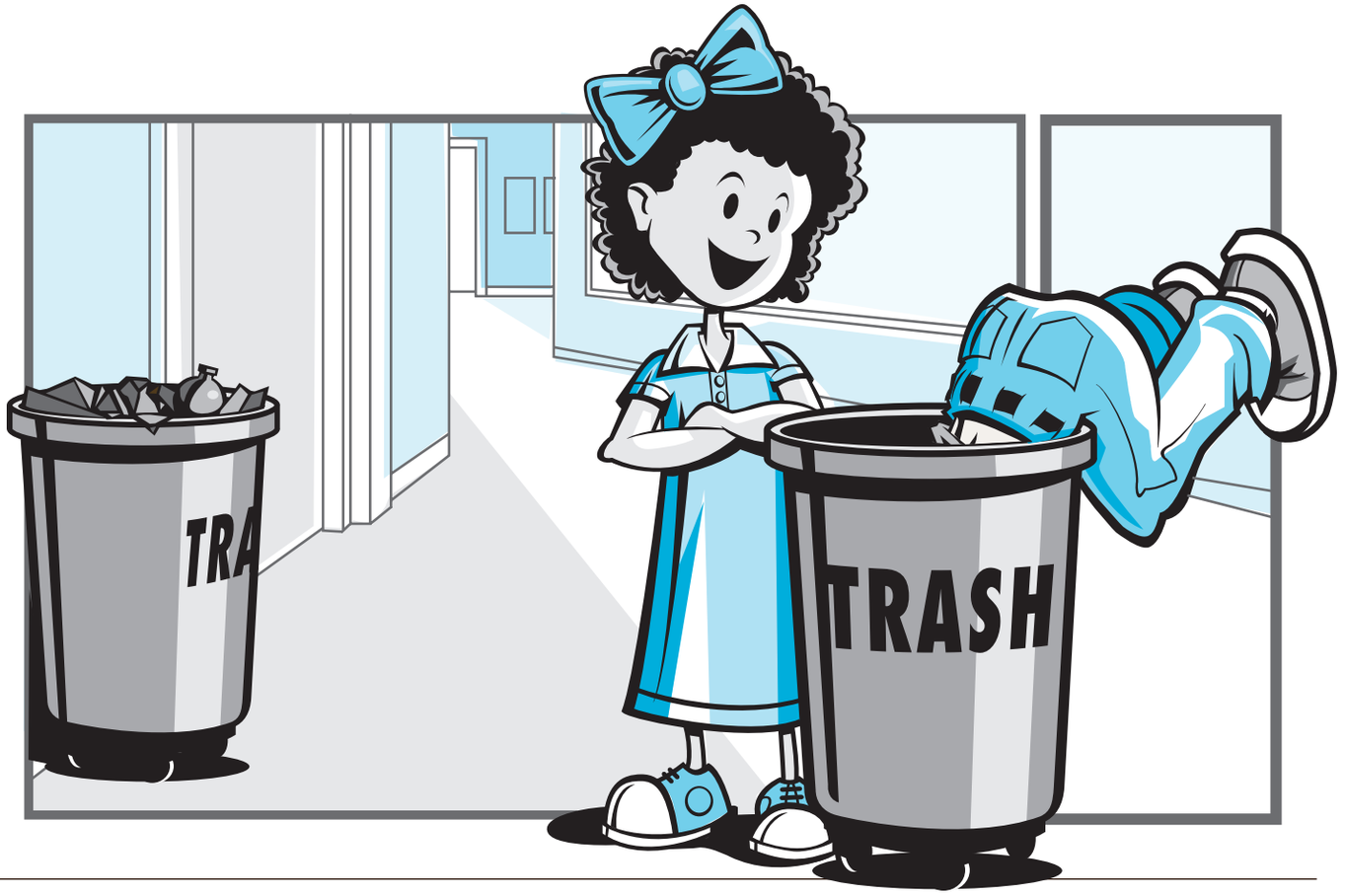
A. ASSEMBLE A TEAM

Planning for your school recycling program must include the custodial staff, students, teachers, parents, school administrators and a representative of a local community recycling program or Keep America Beautiful representative to ensure the success and sustainability of your program. Student organizations, such as the National Honor Society, Beta Club, Builders Club, 4-H Club, or environmental/ecology clubs are often successful at maintaining school recycling efforts.

TIP: *Sustaining a recycling program can be a challenge in some schools, especially those with transient populations. One way to ensure the continuation of the recycling program is to create a recycling notebook or scrapbook of all your local contacts, participating staff members, grants or in-kind donations received along with the organization it was received from, and a general history of your recycling program (events, activities, competitions, etc.) When key people in your recycling program leave, this notebook will provide important information for others to use.*

B. ANALYZE THE TRASH

Conducting an assessment of your school's waste stream can identify the type, quantity, and/or origin of the potential recyclable materials. This information can assist your team with formulating school recycling goals and procurement of recycling containers and/or other needed materials. Students should complete the assessment with guidance from a teacher(s). An assessment can be done simply by recording the contents of an individual classroom, or a sampling of classrooms can participate in an assessment by sorting and weighing discarded trash. Once the trash is sorted and 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, computer labs, offices, cafeteria and other parts of your school will lead to a more accurate estimate of the total amount and type of waste in your school.



Trash Calculation Method

*The following three assessment parts can be completed in the same week.

Part 1: How much waste does the school produce?

1. Weigh a typical classroom's trash at the end of each day for one 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 the cafeteria, library, teacher work room, office and other school areas and add the results to the total amount of trash from classrooms to obtain a monthly total. (Hint: This may not be possible at some schools due to the enormous amount of waste generated, lack of storage areas in the school for the waste, and sanitary issues). Work closely with your custodial staff to estimate other areas of your school. Have custodians count the number of bags of trash collected from each area of your school during one school day. Ask them to sort and weigh one bag of trash from each of those areas to aid with estimation. In addition, a custodian may be able to estimate the weight of the recyclables disposed of in other areas of your school.

Examples:

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

Part 2: What is the composition of school waste before recycling?

1. Separate the waste from the classroom trash bin into the following seven categories. If possible, do this waste separation activity for other areas of the school, such as the cafeteria, offices, library/media center, etc.
   - **a.** Paper: newspaper, notebook paper, magazines, boxes, wrappers
   - **b.** Plastic: disposable food service products (plates – e.g. Styrofoam, cups, cutlery), product wrappers, food and beverage containers, markers
   - **c.** Glass: marbles, food and beverage containers
   - **d.** Metal: paper clips, staples, aluminum foil, food and beverage containers
   - **e.** Food: classroom snacks, cafeteria food waste (Idea: Since most food waste is generated in the cafeteria, have the students, teachers, and staff separate food waste from other waste for one week in the cafeteria. The team could do this by locating waste bins labeled: *Food Waste Only* and *Other Waste*. Additionally, team members could monitor the bins during breakfast (if available) and lunch all week to ensure that the waste is separated properly for the analysis.)
   - **f.** Wood: toothpicks, cedar chips, blocks, pencils
   - **g.** Other: rubber bands, fabric, balloons, mixed material (e.g. plastic and metal) products
2. Weigh the separated waste.
3. Average the weight of each trash category.
4. Convert to a percentage.
5. Record the data on a chart and graph the results.

TIP: *Contact VRA for more detailed information about how to conduct a school solid waste audit at 804-302-4231.*

Part 3: How much of the school's waste can be recycled?

1. Separate recyclable materials out of each category from Step 1 (this should be materials that can be recycled in your community) in a typical classroom at the end of each day for one week. Remember, just because a product can be recycled doesn't mean that it is being recycled in your community.
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. If possible, do the recyclable separation for other areas of the school, such as the cafeteria, offices, library/media center, etc.
4. Multiply by the number of classrooms and add the weight from the library, cafeteria, teacher workroom, office and other school areas to determine the amount of recyclable materials that your school will produce in a month.
5. The recycling team should collect all the results from Part 1-3 and set a school recycling goal(s) based on the results. Additionally, the team should display the results (and/or charts/graphs) in a prominent location in the school.

WASTE DISPOSAL IN VIRGINIA

- In Virginia, 195 facilities including composting facilities, waste transfer stations, energy recovery facilities (incineration) and municipal landfills manage more than 25 million tons of solid waste.
- Approximately 17.9 million tons originates within Virginia, and 7.3 million tons originates from other jurisdictions, including Maryland, New York, New Jersey, Washington D.C. and North Carolina.
- Based on the current disposal rate, Virginia's existing solid waste landfills could be used for about 17.3 years before reaching capacity.

Source: Virginia DEQ

C. IDENTIFY A HAULER FOR YOUR RECYCLABLE MATERIAL

IT IS CRITICAL to determine how the recyclable material will be removed from your school. The following steps must be taken before a successful recycling program can begin.

FIRST DO THIS: Review Your School's Waste Hauling Contract

Why? Because you can't look for something better if you don't know what you've got. And you can be sure your current hauler is familiar with your current waste hauling contract. Don't enter negotiations without becoming informed.

Ask the school's district building and grounds manager, custodial staff, administration or other school personnel about the waste hauling contract. Sample questions should include:

- Who is the waste hauler?
- Where can I get a copy of the contract?
- How much does the waste hauler charge for trash pickup? Is this a flat fee or a container "pull" price?
- What size containers are used?
- How often are the containers picked up?
- How much trash by weight and/or by volume is disposed of per month or per school year?
- Can the waste removal contract be renegotiated during the contract term?
- Does the waste hauler currently provide a recycling service for the school? If so, what is being recycled? If not, can recycling be provided?
- What is the cost for the current hauler to provide recycling services to the school?
- Are other haulers available to provide the services?

THEN DO THIS: Contact Local Collectors, Processors, and/or Markets

Why? As a non-profit, you may be able to negotiate better terms by contacting other local collectors or end users directly than a private business could, even though the volume of materials you deliver will be relatively small. Be aggressive and shop around; Virginia has strong markets for recyclable materials and you've got what they want.

A few places to look for local collectors, processors and markets include:

- Virginia School Recycling Online Toolkit www.vrarecycles.org
  Visit our website for a list of companies that help Virginia schools recycle.
- Earth 911 www.earth911.org
  You can also search for companies on Earth 911 by entering your zip code to access a database of recycling and conservation information.
- Yellow Pages www.yellowpages.com
  Search for "recycling" and find companies in your area by using the online yellow pages.
- Macredo www.macredo.org
  This organization's mission is to identify, promote, and implement projects and programs that enhance recycling and economic development opportunities on a regional basis.

TIP: *Recycle non-traditional materials such as batteries, cell phones, eyeglasses, and/or inkjet printer cartridges/toner cartridges. Visit www.vrarecycles.org for a list of companies that can help you recycle non-traditional items. Additionally, recycle the natural way and COMPOST!*

Recycling Lingo: (Here are some key terms you need to know.)

COLLECTORS (haulers) pick-up recyclables from curbside containers and/or drop off facilities.

PROCESSORS receive recyclable material, process the material (example: baling the material), and sell the material to a market.

MARKETS are places that will take the recyclable material and make it into a usable commodity.

TIP: *Adding recycling services to the school's current waste hauling contract may increase the overall costs and may not be the most economical method for recycling materials.*

If there are no local recycling services in your school district or county in which your school is located then traditional recycling at your school may not be practical. Students, parents, and school staff should contact local government officials to discover if recycling can become a reality in your community – educate your local leaders about the benefits of recycling.

D. ESTABLISH A RECYCLING GOAL

The recycling team should collect the waste data from Step 1; Section B and set a school recycling goal(s) based on the data. Make sure the goal is attainable and start slowly. Make sure the material or materials you identify for recycling can be managed and processed locally.

E. GETTING APPROVAL – SELLING YOUR PROGRAM

After completing your homework, make sure the program is supported by the administration and/or district. The success of a strong recycling program depends on the support of your administration. Strong administrative support can provide credibility to your program and designated staff time and/or money for the program. Student achievement and economics heavily influence administrative decisions. Make sure your team creates a program proposal that connects the recycling program to the appropriate state teaching standards and showcases potential economic benefits (money saved and/or earned by your program).

Once administrative approval is granted and your goals are set, your team is ready to move forward.

Step 2: Organize the recycling collection and storage system

TIP: *Paper products constitute the highest percentage of the municipal solid waste disposal stream in Virginia. Many school recycling programs begin with paper.*

A. MAP THE SCHOOL

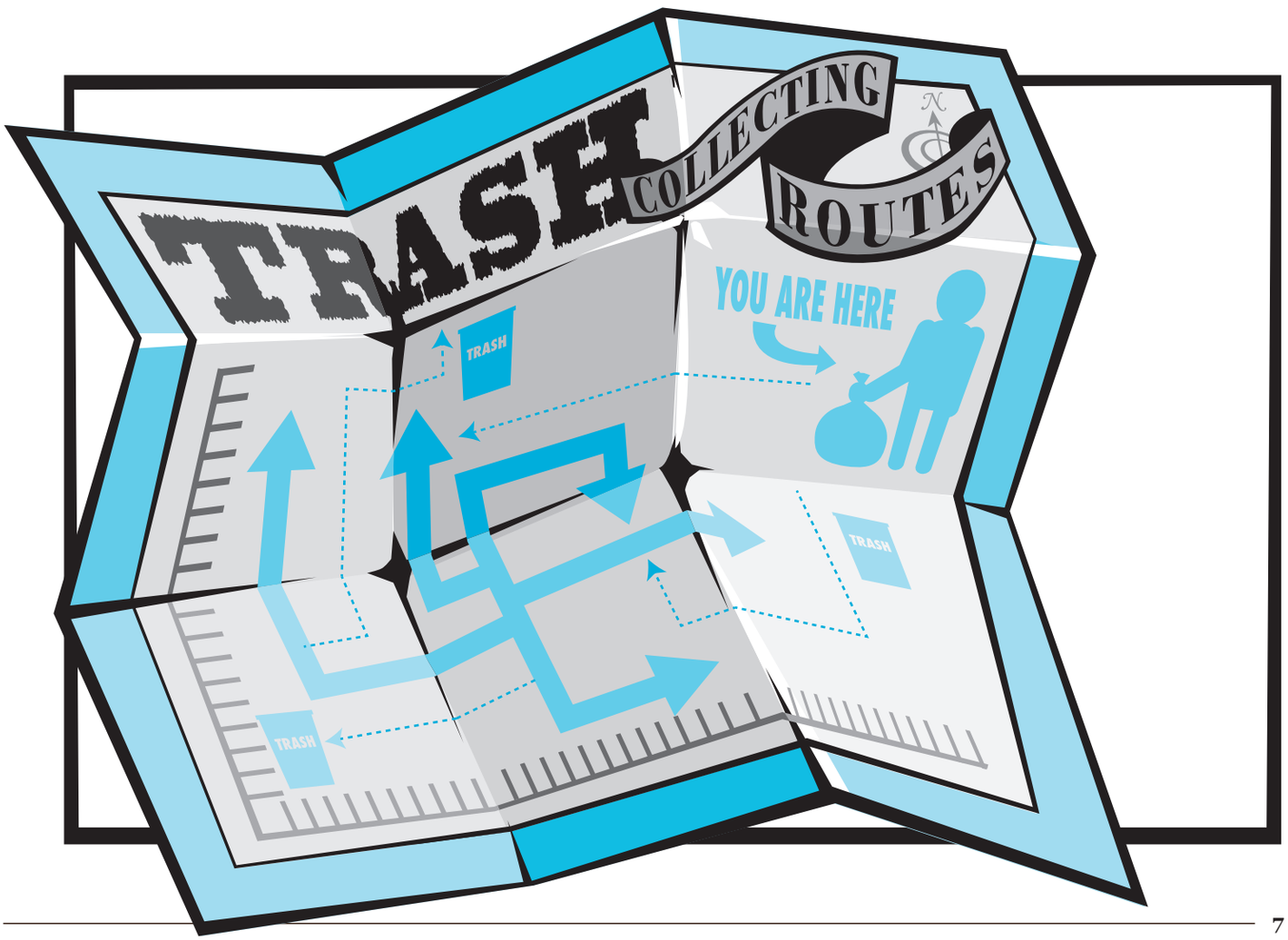
The custodial staff will know where trash is being discarded. The team should shadow the custodian and map the trash collection route or location of the trashcans in classrooms, offices, library, and cafeteria. Determine the space needed (inside the classrooms and for outside storage) to implement the recycling program. This will help the team determine how many bins to make and/or purchase and the ideal placement of the recycling containers in your school. Share the map of the proposed recycling container locations with parents, students, teachers, and school administration for feedback.

TIP: *Have the students map the school as a lesson in local geography.*

B. QUESTIONS TO PONDER ABOUT STORAGE AND COLLECTION SYSTEMS FOR RECYCLABLE MATERIALS

- What type of collection containers will be needed for the classrooms, halls, storage areas, etc.?
- Will the recyclable materials be picked up by a hauler? As an alternative, will a designated person (school staff member, parent, and/or high school student) from the school deliver the recyclable materials to the processor? (The second should be the last option because one person can leave the school and replacements must be found which is not always an easy task).
- Does the school have indoor space to use as a collection and storage center? If not, is there space for a large outdoor container?
- How will the recyclable materials be moved from the classrooms to the collection and storage areas?
- How will the collection and storage bins be moved outside for pickup?
- How will the custodian be involved?
- Who will be responsible for moving the recyclables to the storage area from the library, cafeteria, teacher work area, office and other areas of the school?
- If an outdoor recycling bin is needed, will there be room for the truck to maneuver and empty the container?
- How will contamination of the recyclable materials be prevented?

TIP: *Students must be well educated when recycling bins are located in the cafeteria where contamination is very likely. A short list of common contaminants include: food and items covered with food waste; medical or hazardous waste; facial tissues and snack packages. Check with your local recycling facility for a complete list of contaminants.*



C. CONTAINERS FOR RECYCLABLE MATERIALS

TIP: *Develop a budget for your program. Potential start-up costs of your school recycling program may include:*

- *Recycling containers/bins*
- *Signage*
- *Staff and teacher training*
- *Awards/incentives*
- *Miscellaneous materials*
  (example: posters, bulletin board decorations, books, lesson/activity material, etc.)

The classroom collection bins can be as simple as a large, decorated cardboard box (copy paper boxes work well); larger rolling bins, which can be pushed to the main storage bin; wheel barrows (or an old donated cart/buggy from a local discount or grocery store) also work well for transporting recyclable materials to their indoor or outdoor storage containers.

Items to consider when purchasing recycling collection containers for schools:

Indoor Collection containers

- Size needs to be appropriate for space and length of time between collections
- Leak-proof container
- Well marked and/or eye catching (signage)
- Common size so special trash bags won't have to be purchased (if trash bags are necessary) and the container should have a method to hold the bag in place
- Lid is able to be secured to prevent theft or damage
- Specially designed lids that limit/prevent contamination (example: lids designed with circles that limit entry to soda bottles and/or cans)

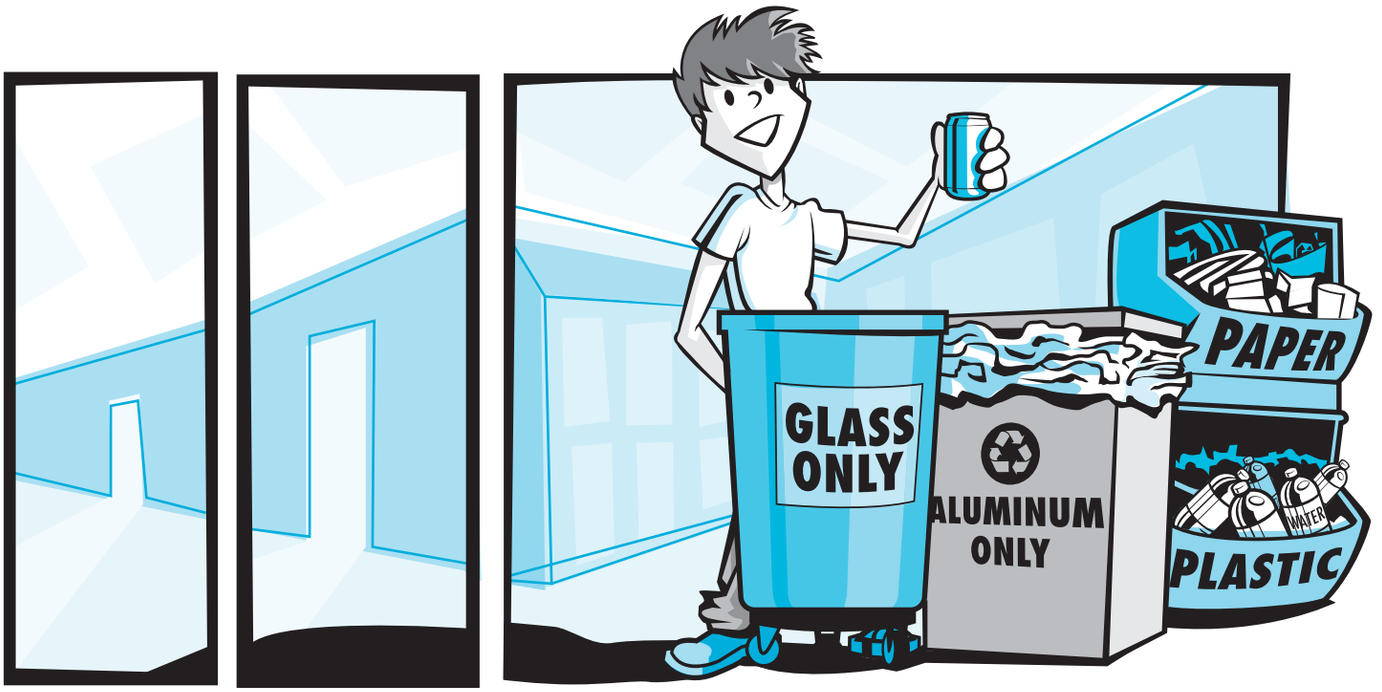
Outdoor Collection Containers

- Contain drainage holes for rain
- Lid and container is able to be secured/locked to prevent theft or damage (yet able to be moved for cleaning)
- Animal proof
- Weather (sun and wind) resistant
- Well marked and/or eye catching (signage)
- Specially designed lids that limit/prevent contamination (example: lids designed with circles that limit entry to soda bottles and/or cans)

**Permanent outdoor collection containers may not be necessary at your school; for special outdoor events your school could use normal trash cans that have been designated recycling containers for the event – signage will be needed.*

Once collection containers are secured, record their locations on the school map from Step 2; Part A and post the map in prominent locations throughout the school so students, teachers, staff, and visitors are able to locate the recycling containers.

Visit www.vrarecycles.org for a list of recycling container companies.



TIP: *Periodically, grant funding opportunities can be found for recycling programs at the Virginia Recycling Association's website, www.vrarecycles.org. In addition, local businesses may donate containers or reduce the cost of purchasing recycling containers. Some recycling processors and/or markets in the state pay schools for their recyclables and provide recycling containers (example: paper products and aluminum cans) but don't depend on a recycling program to provide funds for the school. Many recycling programs are created and maintained not to raise money but to raise awareness of solid waste issues.*

D. MOVING RECYCLABLE MATERIALS

The recyclable materials must be transported to storage facilities either inside or outside the building. The team must make arrangements for collection and storage. The following are ideas for moving recyclable materials:

- Assign a student from each classroom 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.
- Any student organization or recycling club can assume the responsibility of moving the recyclable materials.
- If the custodial staff participates, then they may be able to move the larger storage bins outside for pickup or delivery.
- If the recyclables are not collected through a recycling company from the school directly, parents, teachers, and/or high school students may have to transport the recyclables to a local drop-off facility.

Safety Tips to Remember:

If recyclable materials are going to be stored indoors, make sure they are placed in accordance with State and local fire codes.

Some general guidelines for bin placement include:

- Recyclable materials should not be stored in the boiler room or near electrical equipment.
- Indoor recyclable storage containers should be located in a room with a sprinkler system.
- Visible or easy access/location for students, teachers, parents, and staff.
- Location inaccessible to insects or other animals.
- Classroom containers should be emptied as often as possible.

Step 3: Educate and Promote

This is the most important step for the success of an enduring school recycling program.

An environmentally conscious team and school are critically important to your recycling program. When your program is approved and steps 1 and 2 are complete, it is important to educate your student body, teachers, school staff, and parents about the benefits of the program.

TIP: *Creating a recycling logo, slogan, and/or theme is a creative and unified way to promote your program. This can be done by students each year or during the initial start-up year.*

The entire school will need information on how and what to recycle. Presentations, made at a school assembly or in individual classrooms, should include the following: the locations of the collection and storage bins, the materials that can be recycled, how the system will work and the benefits of recycling. Remember that each school year students, teachers, school staff, and parents will need information about the program. Most importantly, recycling programs should be based on the state teaching standards (SOLS) to ensure sustainability and to ensure support from the school district and parents.

Create a unique way to promote your school's recycling program.
Promotion ideas include:

- Bring in guest speakers
- Take a field trip to a recycling facility
- Distribute recycling information to students, teachers, school staff, and parents
- Print articles in the school newspaper or newsletter
- Construct a recycling website
- Create a recycling bulletin board
- Record audio and/or visual announcements/commercials that describe the recycling program
- Have a contest between classes or grade levels
- Produce a school play about recycling and present at a PTA/PTO meeting and/or school assembly
- Use a national event to launch or promote a recycling program (example of annual events: America Recycles Day on November 15 and/or Earth Day on April 22)

TIP: *Award or dedicate funds generated by the school recycling program to a special school environmental project.*

Step 4: Begin Recycling!

If the above steps have been followed, your well-designed and supported recycling program is off to a GREAT start! Don't forget to keep the goal(s) with all the milestones surpassed in a prominent spot in your school to motivate the students, teachers, parents, and staff to achieve the goal. The goal(s), along with the results, is a powerful tool to include in a grant or award application.

Step 5: Evaluate, Expand, and Celebrate the Recycling Program

Evaluate: Review the recycling program and goal at least once a year. There is always room for improvement. Provide a survey to teachers, students, school staff, and parents for ideas about improving your program (example survey items: container appearance, use, and location; adequate education/promotion; collection frequency, etc.). Remind the school administrators to evaluate the waste hauling and/or recycling contracts. *A good recycling program may decrease the cost of trash removal.*

TIP: *The recycling team should determine how to handle holiday and summer vacation recycling.*

Expand: Once the recycling program is operating effectively, the team may investigate additional ways to reduce, reuse, and/or recycle. In addition, research "Green" school initiatives (e.g. water conservation, energy conservation, air quality improvements, etc.).

Consider adding composting to your program. Nature already recycles by composting. Two-thirds of the garbage in Virginia's landfills could have been composted. For more information on composting contact the Virginia Recycling Association at 804-302-4231 or online at www.vrarecycles.org.

Celebrate: Recognition awards should be given to outstanding individual, class, and/or grade level recyclers. In addition, recognition and appreciation should be given to the recycling team members. Organize an event or festival (or use Earth Day – April 22) to celebrate reaching and/or surpassing the school recycling goal. Additionally, please let us know about your school's recycling program; 804-302-4231. Your school can become a model for others in the state. Lastly, apply for local, state and/or national awards to recognize your school recycling program.

Local Awards: Contact your local Keep America Beautiful affiliate: visit www.vrarecycles.org for a complete list of affiliates.

State Awards and Competitions: Complete a Virginia Recycling Association award application at www.vrarecycles.org. *These award programs or competitions are time sensitive and the application may not be posted continuously.*

National Awards: Complete a Keep America Beautiful award application at www.kab.org (click "About us" on the tool bar and scroll down to "Awards"). The National Recycling Coalition (NRC) also has an annual award program, visit www.nrc.recycle.org for additional information (one of the NRC award categories is for Outstanding School Programs). *Remember: These award programs are time sensitive and the application may not be posted continuously.*

Additional information can be found at www.vrarecycles.org.

Did You Know?

- Each American generates 4.5 pounds of trash each day. (Source: United States Environmental Protection Agency).
- Enough paper is collected for recycling each year to make a train of box cars 7,600 miles long – this would be equivalent to traveling from Virginia to Washington state, back to Virginia, and over half way back to Washington state again (Source: American Forest & Paper Association).
- Enough aluminum cans were recycled last year to fill a hollow Empire State Building 24 times (Source: Novelis).
- About 3,500 20 oz. PET soft drink containers could carpet the average living room (15'x 17'). (Source: National Association for PET Container Resources – NAPCOR)
- Each year, steel recycling saves the energy equivalent to electrically power about one-fifth of the households in the United States (or about 18 million homes) for one year (Source: Steel Recycling Institute).
- Because recycled glass melts at lower temperatures, furnaces aren't required to operate at the higher levels needed to melt raw materials which leads to decreased energy consumption and increased energy savings (Source: Glass Packaging Institute).
- More than 70% of all corrugated boxes are collected for recycling. (Source: American Forest & Paper Association).
- Over 120,000 aluminum cans are recycled every minute in the United States (Source: Novelis).
- When you recycle your used paper, paper mills will use it to make new newspaper, notebook paper, paper grocery bags, corrugated boxes, envelopes, magazines, and cartons. Recycled paper is also used to make things you may not have thought of, such as animal bedding, compost, kitty litter, and insulation (Source: American Forest & Paper Association).
- Recycling a ton of plastic saves the energy equivalent of 1,000 to 2,000 gallons of gasoline. (Source: Ohio Department of Natural Resources)

RESOURCES FOR RECYCLING AND RECYCLING EDUCATION

Books

50 Simple Things Kids Can Do To Recycle, The Earthworks Group, 1994.

Recycle! A Handbook for Kids, by Gail Gibbons. Boston: Little, Brown and Company, 1992.

The Recycler's Handbook: Simple Things You Can Do, Berkeley, California: Earthworks Press, 1990.

Activity Guidebooks

The Quest for Less, Grades K – 6, Environmental Protection Agency, 2000. This is a teacher's guide to reducing, reusing, and recycling. Download the guide at www.epa.gov/epaoswer/osw/kids/quest/index.html

Project Learning Tree Environmental Education Activity Guide, Pre K-8, American Forest Foundation, 1996. This guide provides hands-on, interdisciplinary activities for students to investigate environmental issues and encourages students to make informed, responsible decisions. For PLT workshop information, visit www.plt.org *This guide is only available through the workshop.*

Waste In Place, Grades K-6, Keep America Beautiful, Inc., 1997. This is a collection of thirty-five activities designed to help students make informed decisions about solid waste issues. Contact Virginia Recycling Association at 804-302-4231 or online at www.vrarecycles.org for information about Waste in Place workshops.

Online

For more Web-based resources, check out the School Recycling Guide section of Virginia Recycling Association's site at www.vrarecycles.org.