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Zero Waste Schools

ACTIVITY GUIDE

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Building Zero Waste Communities
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A note of gratitude to the dedicated and talented educators and artists that made this project possible, with the hope of contributing to a healthier planet, now and in the future, for all living things.

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Who is Eco-Cycle?

Eco-Cycle, located in Boulder County, Colorado, is one of the oldest mission-based, non-profit recycling and Zero Waste organizations in the United States. Our mission is to "innovate, implement, and advocate for local and global Zero Waste solutions to foster a more regenerative, equitable, and climate-resilient future." Eco-Cycle's school recycling, composting, and environmental education programs are among the most innovative and comprehensive in the nation. They have won many local, state, and national awards since the program's inception in 1987. This *Zero Waste Schools Activity Guide* includes over three dozen different waste-reduction projects. These projects have been successfully implemented by Eco-Cycle for over three decades in preschool through high school settings.

What is Zero Waste?

Striving for Zero Waste (reducing, reusing, recycling, and composting) significantly reduces our impact on natural systems by decreasing natural resource extraction, energy and water consumption, transportation emissions, and greenhouse gas emissions. Zero Waste addresses the habits, systems, and infrastructure that determine how we make, consume, and dispose of everything that we use. Through local Zero Waste actions, we can have a direct and positive impact on some of the biggest global challenges of our time — resource depletion, air and water pollution, human health risks, and the loss of wildlife and ecosystems.

Currently, our production system is often a one-way trip for natural resources. We start by extracting resources from the Earth and manufacturing them into the things we need and want. Eventually, we dispose of these things into a dump, landfill, or as litter, fouling the land, air, and water. When we need new products, we extract more natural resources, as if there is an infinite supply. Striving for Zero Waste means extracting fewer natural resources and reusing already extracted resources over and over again.

Reducing, reusing, recycling, and composting are tools that provide tremendous benefits to the environment and to human health. They are solutions that are easy to implement and that are becoming increasingly accessible to all of us. There is no better way to change society's wasteful habits than by educating and engaging children and their families, and there is no better time than now.

Using this Guide.

The different waste-reduction projects featured in this guide are applicable to schools, camps, and other settings that serve preschool through high school youth. The guide is arranged in four sections: *Waste-Reduction Activities*, *Recycling Activities*, *Composting Activities*, and *Motivators and Rewards*. A glossary is also included. Each chapter or project stands on its own and can be printed or downloaded separately. Combining several projects, or adding projects over time, will bring your group or school closer and closer to Zero Waste in creative and low-cost ways, diverting more and more of our planet's precious natural resources from the landfill.

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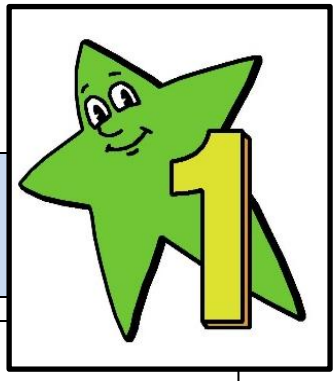
WASTE-REDUCTION ACTIVITIES

Eco-Wise School Supplies



Snapshot
This project provides an easy way for busy parents to support ecological principles in the rush of back-to-school buying.

Objective: Students, families, and staff will research, promote, and purchase recycled, reusable, non-toxic, and sustainable school supplies.

Age Groups: K-12th grade

Setting: Schools, homes, retail stores

Project Duration:
- Research and promotion: 5-10 hours in spring semester
- Activity: 1 week in subsequent fall semester

Materials:
- Internet access
- Phone access
- Printer access
- Box for collecting participation slips
- Prizes
- Chart paper
- Markers

Why This Project Matters:

Increasing the purchase and use of sustainable school supplies lessens the negative impact of resource extraction on the planet. It will also contribute to the success of the recycling industry and increase landfill diversion. When consumers buy recycled, reusable, non-toxic, and sustainable products, they send a message to manufacturers in support of sustainable industries.

Project Summary:

Students and staff will work together and learn about the impacts of waste on the environment and the importance of purchasing sustainable products. Parents will receive a list of stores and websites where sustainable school supplies are available. Student and classroom incentives will encourage the purchase and use of sustainable products.

Implementation:

The research and promotion for this activity is conducted during the spring semester of a school year in preparation for the prize drawing in the fall of the following school year.

Awareness activities to do with a student group:
- Discuss the difference between the terms *recyclable*, *recycled*, and *reusable*. (See glossary for definitions.)
- Review other relevant vocabulary like *non-toxic*, *sustainable*, *upcycled*, *eco-friendly*, etc.
- Discuss what the phrase "closing the loop" means. For the recycling industry to thrive, we must collect recyclables and purchase recycled products. If recycled products are not purchased, the companies that manufacture these products will not survive, our collected recyclables will be overabundant, and some will be discarded into landfills. Discuss how consumer demand affects other sustainable products. (If we don't purchase them, companies won't make them!)

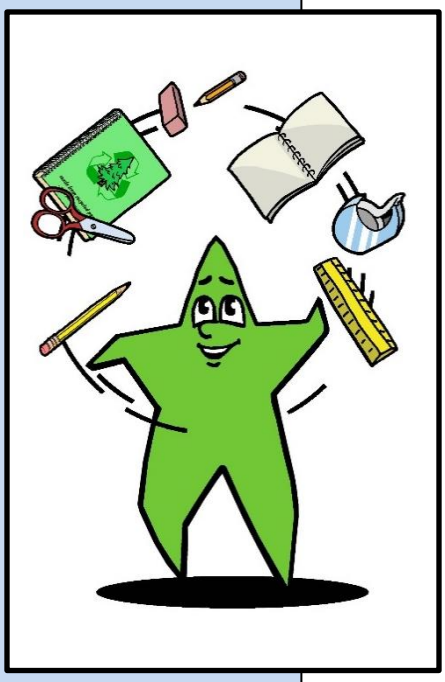
- Consult a globe or world map to track down where items in a classroom come from (look for *"Made in _____"* labels on common items). Talk about the environmental impacts of importing goods from other countries (such as the energy used to transport items to the U.S.).

Promote (spring) *and purchase or use* (summer and fall) *eco-wise school supplies:*

- In the spring, create a checklist of typical school supplies (see below for suggested list). By phone or site-visit, have students survey local stores to locate available recycled, reusable, non-toxic, or sustainable options (e.g., art supply stores, department stores, discount stores, office supply stores, grocery stores, hardware stores, etc.). When surveying, look for these key phrases: *Made in USA, Sustainably Harvested, ____% Post-Consumer Recycled Materials, Alternative fibers* (banana stalks, hemp, sugar cane stalks, mango, coffee), *Reusable, BPI Certified Compostable, Repurposed, Non-Toxic, Made from Recycled Materials,* etc.
- Conduct internet searches for companies that manufacture/sell eco-friendly school supplies and other products. In addition to using the phrase *school supplies* in the search engine, include the key phrases mentioned above, as well as these: *Recycled, Green, Sustainable, Eco-Friendly*.
- From this research, create a chart featuring retail stores and websites with the eco-friendly products they offer. Include the mention of other eco-friendly options, such as reusing school supplies from last school year and repurposing parents' unused office supplies from home.
- Incentivize local stores to stock more sustainable products by informing them that a list of retail stores providing eco-friendly school supplies will be posted on the school website and/or shared via school newsletter.
- Create the page on the school's website (and/or newsletter) that includes the chart of participating stores and websites and the items they carry, as well as some eco-facts about resource consumption and sustainability.
- On each classroom school supply list (that is shared with families at the end of spring semester for summer purchasing), include a link to the school's website page of eco-friendly school supplies and where to find them.

Extensions:

- Write letters to local businesses about why it is important to offer eco-friendly products.
- Find funding (grants, PTA, local businesses, local government, etc.) to provide a savings bond or gift certificate to one student randomly drawn from participating student entries.
- Expand the project beyond the school to include other schools in your district or community.



- During the first week of the fall semester, have teachers send home a form for students to fill out which includes their name, teacher's name, and three eco-friendly products they are using or have purchased for back-to-school. They can return their slip and receive a small prize (consider credits in school reward system or recycled pencils, which can be purchased in bulk).
- At the end of the first week of school, the classroom that is using the most eco-friendly school supplies (by tally of collected slips) gets a classroom reward (e.g., treat, party, extra recess, etc.). Announce the winning class to the school community.

Below is a list of typical school supplies. Check each teacher's supply list for unique requests and try to locate an eco-friendly alternative for each item:

- Loose-leaf lined paper
- Spiral notebooks
- Composition notebooks
- Binders
- Dividers
- Book covers
- Folders
- Post-it notes
- Bookmarks
- Pens
- Pencils
- Markers
- Highlighters
- Colored pencils
- Paint brushes
- Glue
- Tape
- Labels
- Tissues
- Pencil/art boxes
- Construction paper
- Locker accessories
- Journals
- Notepads
- Copy paper (reams)
- Calculator
- Protractor

- Compass
- Drawing paper
- Sketch books
- Backpacks/School bags
- Lunch boxes/bags
- Food/snack containers
- Batteries
- School Planner (customized and ordered by school)

Assessment:

- Tally the number of students who acquired at least three eco-friendly school supplies and calculate its percentage of the student population.
- Create a graph of the number of students per grade that are using eco-friendly school supplies and graph the types of supplies as well.
- Use these graphs to make announcements and create posters to educate and encourage students to continue their participation when new supplies are needed.
- Each school year, compare new graphs to the previous year's graphs and note any differences.

Related Activities:

Purchasing Policy 1: Classroom Policy – Chapter 17
Purchasing Policy 2: School/District Policy – Chapter 17

Waste-Free Lunch 1: Classroom Challenge

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Snapshot
This classroom challenge can significantly cut the volume of lunchtime trash and will provide strategies that empower students to reduce food waste and disposable packaging.

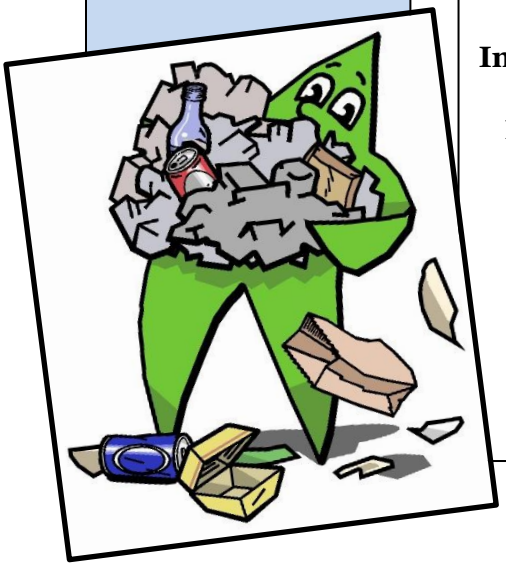
Objective: Students will learn new ways to reduce lunchtime waste.

Age Groups: 3rd-6th grade

Setting: Classroom and cafeteria

Project Duration: Two weeks

Materials:
- Bathroom scale
- Garbage bags
- Chart paper
- Examples of single-use, disposable packaging (chip bags, zip top baggies, juice pouches, etc.)



Why This Project Matters:

The average child produces a significant amount of lunchtime waste over the course of a school year in the form of uneaten food and disposable food packaging. The volume (and cost) adds up quickly for schools because they are responsible for disposing of lunchtime waste for hundreds of students daily. A typical student lunch might include single-use plastic bags, disposable utensils, non-recyclable drink pouches, or single-serving items that come in their own disposable package. Without a doubt, lunch is the main trash-making time of the school day.

Project Summary:

This classroom challenge is designed to bring attention to the amount of lunchtime trash produced by the class and the materials that make up that trash. Students will examine typical single-use packages, think about why they are popular, and brainstorm less wasteful replacements. They will be able to witness their progress by weighing their lunch trash before, during, and after the challenge.

Implementation:

1. Inform students that they will be starting a lunchtime trash challenge and will need to collect some data before beginning the project. For one full week prior to starting the challenge, assign one or two students to collect the class's trash at the end of lunchtime each day. This should include trash items from both home-packed and school-made lunches. (Students must finish their drinks or pour them out before putting containers into the trash bag.)

2. On each day of data collection, have the trash-collecting students bring the lunch trash back to the classroom to be weighed. One easy technique is to have a student hold the bag while standing on a bathroom scale and record the total weight. Then subtract the student's weight from the total recorded weight to get the trash weight. On graph paper, record and chart the weight of the class's lunch trash each day for five days and share with students. In addition, examine the types of items that are in the trash with the class. Save some of the items until you have a variety of examples to facilitate the discussion below.
3. After the final weight has been recorded, have a discussion with the class about the types of trash items that were collected. These might include uneaten food, plastic wrappers, plastic baggies, napkins, drink containers, straws, paper lunch bags, etc. Show examples of the single-use packages. Ask students to discuss the advantages and disadvantages of these items. For example:
    - Advantages: convenient, contains food so it can be stored and transported, keeps food clean and fresh
    - Disadvantages: creates more waste, uses natural resources to produce, costly
4. Ask students to think about lunch packaging alternatives that would keep food clean, fresh, and transportable without resulting in as much waste. For example: reusable containers, recyclable containers, reusable lunch bags/boxes, recyclable aluminum foil, reusable water bottles, etc. Ask students which natural resources they think are saved by using recyclable and reusable packaging instead of disposable packaging. Ask about other environmental benefits that might result from using these alternatives (fewer landfills, less litter, etc.).
5. Challenge students to reduce their lunchtime trash. If they bring a lunch from home, ask them how they might pack each food item so there is no trash left over (pack only reusable or recyclable containers). Other ways to reduce waste include taking uneaten food home, using cloth napkins, bringing drinks in reusable bottles, etc. If they buy school lunch, ask them how they might reduce the trash from their hot lunch (eat all their food, take only items they know they will eat, use only one napkin, recycle milk cartons, etc.).
6. On each day of the challenge week, weigh the lunch trash just as before. Record and chart the weights on graph paper, then share with students.

Extensions:

- Have students create a presentation about their Waste-Free Lunch Challenge to share with and inspire other classes to implement a challenge of their own. This may include samples from a typical school lunch (disposable packaging) and a waste-free lunch (reusable and recyclable packaging).
- Continue to weigh lunch trash once a week after the challenge to encourage the continuation of new waste-reduction behaviors.

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7. If the daily weights during the challenge are lower (or higher) than those prior, have the class discuss what they think is (or isn't) working. If the daily weights are similar/no change, ask the class what changes they have tried and brainstorm more waste-reducing ideas.
8. At the end of the challenge week, calculate the average of that week's weights and compare it to the average weight before the challenge. Ask students how many of them will continue trying to pack waste-free lunches. Encourage them to commit to the rest of the school year (or beyond)!
9. If funds or donations are available, reward a successful Waste-Free Lunch Challenge with a prize drawing for reusable lunch bags, water bottles, or sandwich wraps. Or, to acknowledge everyone's efforts, reward the class with extra recess time, a special game, or a waste-free treat for each student.

Assessment:

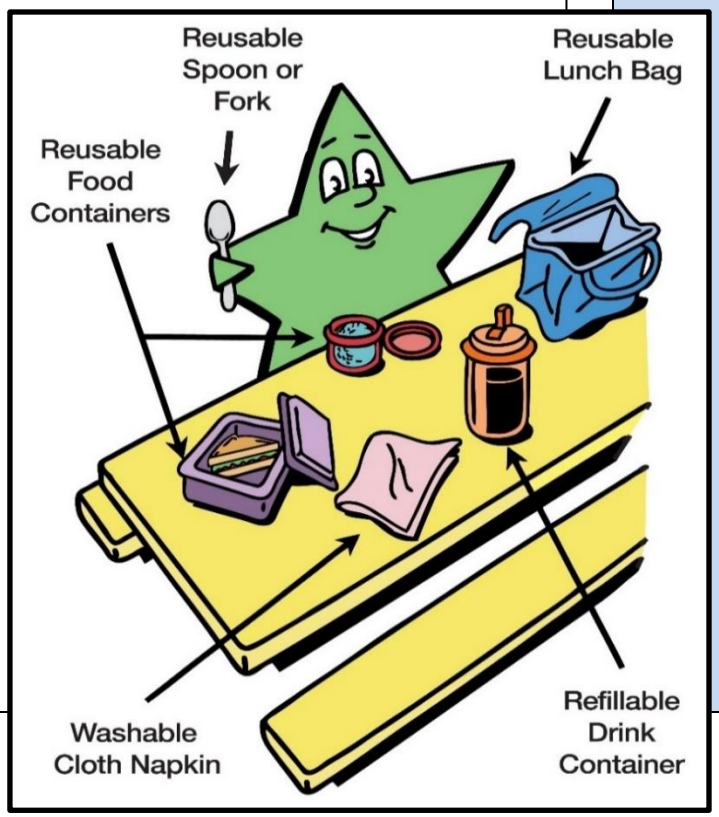
Use the lunch trash weights before, during, and after the challenge to assess the project's success.

Related Activities:

Waste-Free Lunch 2: School Contest – Chapter 2
Waste-Free Lunch 3: Durables in the Cafeteria – Chapter 2
Take a Bite Out of Food Waste – Chapter 4
Making Cloth Napkins – Chapter 13

Extensions:
(continued)

- This chapter assumes that the school has a recycling program. See Chapter 18 if your school does not recycle and would like to get started. Starting a school composting program is another way to significantly reduce lunch trash. See Chapters 23, 24, and 25 for three different ways to compost at school.



Waste-Free Lunch 2: School Contest

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Snapshot
This contest can significantly cut down on lunchtime trash for the entire school and can empower students to actively reduce food waste and disposable packaging.

Objective: Students will learn strategies to reduce the volume of lunchtime waste.

Age Groups: K-12th grade

Setting: Cafeteria

Project Duration: 2 weeks

Materials:

- Bathroom scale
- School lunch menu
- Poster decorating supplies
- Premade posters (or posterboard)
- Prewritten audio announcements and family newsletter insert
- Internet access for researching environmental impacts of waste

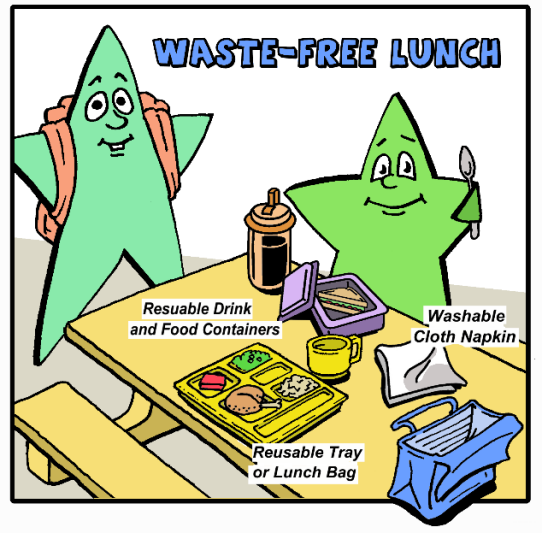
Why This Project Matters:

Convenience products are, well, convenient. It is easy to become dependent on them, and nowhere is this more evident than in the school lunchroom. A typical lunch might include single-use plastic bags, plastic wrap, drink pouches, plastic utensils, paper napkins, and single-serving items that are individually wrapped. What is the environmental cost when we rely so heavily on these disposables? Landfill space consumption, natural resource extraction, energy use, and pollution, for a start. Lunchtime at school is one of the biggest impacts a school has on the environment.

Project Summary:

A Waste-Free Lunch Contest is an easy project with a big impact. It makes a great Earth Day activity. All students can participate, whether they bring a packed lunch from home or buy their lunch at school. The contest is designed to be facilitated between several competing schools or to have grade-levels compete within the same school. Lunch trash is weighed before and during the contest to see how much students can reduce their waste. The school or grade-level with the greatest reduction wins!

Ways to involve a student group:
A student sponsor group can help promote the contest within the school whether the contest is between several schools or between grade-levels within a school. Find a student group that is interested, such as student council, eco-club, a science class, or a leadership group.



Implementation:

Recruit three to six schools (or grade-levels) for the contest. The five-day period that each school chooses to conduct their Waste-Free Lunch Contest may not be the same for all schools, but the whole contest should not span more than a month. (Competing grade-levels in one school should conduct the contest during the same week so that the lunch menu is the same for everyone.) Keep a record of each school or grade-level's success and report a winner after all have completed their contest week.

1. Identify the participating schools or grade-levels and the student sponsor group(s) that will be promoting the contest. Coordinate with each school's administration (or grade-level teaching teams) to determine the five-day time range for the contest.
2. Ask office staff responsible for the school newsletter to include contest information and waste-free lunch tips in the newsletter right before the contest (see sample below).
3. Schedule and facilitate 30-to-60-minute meetings with the student sponsor group(s).
    - Inform and motivate sponsor group members by sharing why this contest matters. Have students research facts and statistics about the environmental impacts of trash (natural resource consumption, litter, landfill space, air and water pollution, etc.).
    - Explain to the sponsor group(s) that they are responsible for advertising the contest to their school community. Supply them with premade posters and announcements (see samples below).
    - Allow students to decorate posters and practice reading announcements. Encourage them to add their own drawings and phrases to the posters ("Eat all of your food!" or "Recycle as much as you can!").
    - Have students create a 30-minute kick-off presentation that introduces the school community to the contest, identifies reasons why this project is important, and displays examples of school-made and home-packed wasteful and waste-free lunches.
    - Create a timeline for promotions. Plan to display the posters one week before the contest begins and share the announcements on the two school days prior to the kick-off event. Schedule an all-school kick-off assembly (or grade-level presentations) to be held on the school day before the contest officially begins.

Extensions:

- Have the student group act as "waste goalies" in the lunchroom during the contest, guiding fellow students to place their recyclable items in the recycling bin and encouraging them to eat their food or take uneaten food home for a snack.
- Implement "Waste-Free Wednesdays" as a challenge to keep the message of lunchtime waste reduction in students' minds throughout the school year.
- Take weights randomly throughout the school year and compare with the contest weights. Share results as audio or video announcements.

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4. Meet with the custodians at each school (and/or grade-level teams) to explain the project and determine the procedure for setting aside the lunch trash for weighing. Take two or more pre-contest-week weights to establish a baseline of normal daily lunchtime trash. Take two or more weights during the contest week (including the last day of that week) to determine if and by how much the trash weight has been reduced. Check the school lunch menu calendar before setting dates for weighing. Avoid days that have special hot lunches, like Thanksgiving feasts, for example.
5. To weigh the lunch trash, stand on a bathroom scale while holding each trash bag and record the total weight of each. Subtract your own weight from these numbers to get the total weight of the trash. Divide the trash weight by the number of students at lunch each day to establish a per-capita weight. Determine the percentage of overall trash reduction by subtracting the average contest-week per-capita weight from the average pre-contest-week per-capita weight. Then, divide this difference by the average pre-contest per-capita weight. For example:

    1.1 lbs. (average pre-contest-week per-capita weight)
    – 0.8 lbs. (average contest-week per-capita weight)
    0.3 lbs. (weight reduction per-capita during contest)

    0.3 divided by 1.1 = 0.27 ➡ 27% reduction in trash

    The school or grade-level with the greatest percentage of reduction is the winner! Prizes can range from cash awards for an entire school to pizza parties, extra recess, juice pops, or principal recognition for the winning grade-levels.
6. Summary of project tasks and timeline:
    - Recruit schools or grade-levels.
    - Choose contest dates for schools or grade-levels.
    - Identify a student sponsor group at each school.
    - Prepare contest info for family newsletter; meet with sponsor group(s) to prepare posters, announcements, and grade-level presentations or assemblies.
    - Take one or more pre-contest trash weights at each school or for each grade-level.
    - Schedule kick-off assemblies or grade-level presentations for the day before the contest begins.
    - Display posters a week before and start announcements two days before the contest begins.
    - Take two or more weights during each school's contest week (including the last day of the contest).
    - Determine winners and award prizes.

Extensions:
(continued)

- This chapter assumes that the school has a recycling program. See Chapter 18 if your school does not recycle and would like to get started. Starting a school composting program is another way to significantly reduce lunch trash. See Chapters 23, 24, and 25 for three different ways to compost at school.

Assessment:

Weighing the lunch trash before and during the contest can serve as the project's assessment. If possible, do occasional pop-interviews with kids in the lunchroom throughout the rest of the school year to see if they are still employing the waste-reduction ideas they learned from the Waste-Free Lunch Contest.

Related Activities:

Waste-Free Lunch 1: Classroom Challenge – Chapter 2
Waste-Free Lunch 3: Durables in the Cafeteria – Chapter 2
Take a Bite Out of Food Waste – Chapter 4
Making Cloth Napkins – Chapter 13

Sample Waste-Free Lunch Tips for Newsletter

Follow These Tips to Reduce Lunch Waste at School!

Home-Packed Lunches

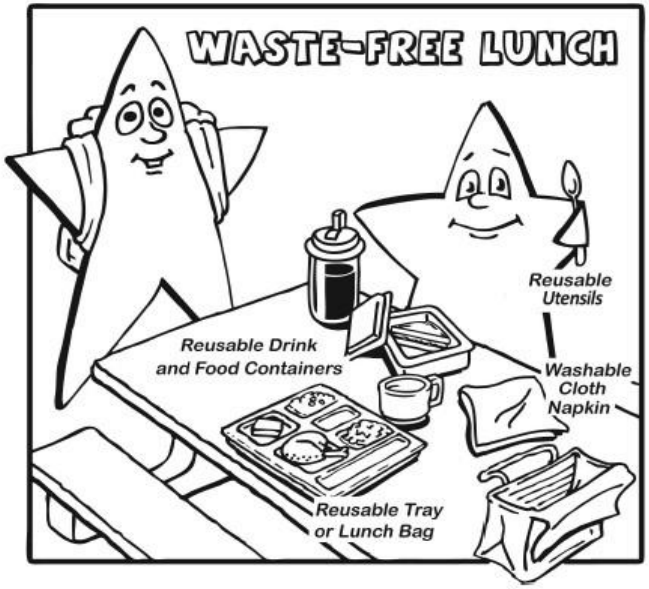
- Cut cloth napkins from old fabric.
- Fill reusable drink containers from bulk jugs.
- Choose recyclable drink containers like plastic bottles, metal cans, or paper cartons/juice boxes.
- Use washable containers in place of zip-top bags.
- Wrap food in recyclable foil instead of plastic wrap.
- Reuse metal or plastic eating utensils.
- Return school utensils to the cafeteria if they accidentally come home.
- Bring uneaten food back home for a snack.

School-Made Lunches

- Recycle empty drink cartons, bottles, and cans.
- Eat your lunch for good nutrition.
- Compost leftover food, napkins, and food boats.
- Return any reusable utensils, trays, plates, bowls, or cups to the kitchen for reuse.
- Place uneaten fruit and packaged food in the share bin, when available.

Waste-Free Lunch Week

REDUCE Lunch Trash **RETURN** Reusables



REDUCE
REUSE
RECYCLE
COMPOST

Printable Waste-Free Lunch Week Poster

Sample Waste-Free Lunch School Contest Announcements

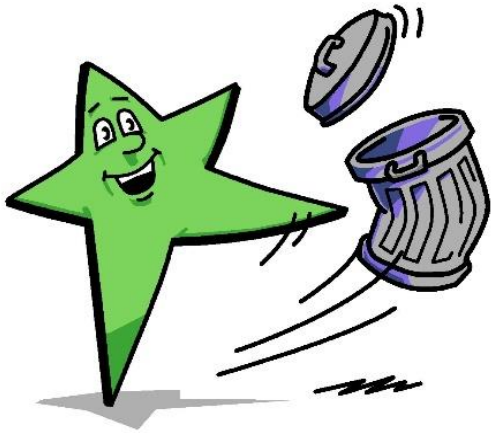
Two school days before the contest begins: Next week our school's Waste-free Lunch Contest begins. Most of a school's trash is made at lunch time. If you bring your lunch, try to pack it so that you make as little trash as possible. Here are some ideas: bring your lunch in a reusable lunch bag or lunch box, recycle or reuse your drink container, and bring your food in bags or containers that can be reused or recycled. Food waste is also a big part of our garbage. It is important to eat all your food instead of wasting it by throwing it away. Or save it for a snack that you can eat later. If you get a school lunch, it is also important to return all your reusables back to the kitchen. We need everyone to participate!

One school day before the contest begins: One third of garbage in America is packaging. Normally we throw a lot of packaging away at lunch time. If you bring your lunch from home, pack your food in reusable or recyclable containers. If you eat a school lunch, make sure to return all reusables back to the kitchen. You can help the earth every day by making less lunch trash. Don't forget! Help us to win the contest next week!

First day of the Waste-Free Lunch Contest Week: Today begins our school's Waste-Free Lunch Contest Week. Did you know that everything we have comes from nature? Every time we throw something away, part of nature is polluted or used up. You can help the earth by throwing away as little packaging as possible, and by returning all your reusables to the kitchen. You can help the earth and yourself by eating all your food for good nutrition. Look to see what things other students are doing to make less lunch trash. See if you can make your lunch even more waste-free.

Mid-way through the Waste-Free Lunch Contest Week: Americans fill 64,000 garbage trucks every day! We make twice as much trash each day as most other people in the world! No wonder we have a big garbage problem! Cutting our lunch trash really makes a big difference. Help us win the contest by making as little lunch trash as you can. Here are some reminders: bring your lunch in a reusable lunch bag or lunch box, recycle or reuse your drink container, and bring your food in bags or containers that can be reused or recycled. It is also important to eat the food in your lunch (or save it for later) instead of throwing it away.

Last day of the Waste-Free Lunch Contest Week: Today is the last day of the Waste-Free Lunch Contest. We hope you had fun thinking of ways to make less garbage. Remember, just because the contest is over doesn't mean you have to stop making less trash. We hope you will continue to keep our earth healthy by using less packaging and yourself healthy by eating the nutritious food in your lunch. Please also help the kitchen staff by always returning your reusables to the kitchen to be washed and used again! Waste-Free is the way to be!



Waste-Free Lunch 3: Durables in the Cafeteria

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Snapshot
Celebrate the use of durable trays, utensils, and more in the cafeteria. Reusing these washable items reduces waste, protects natural resources, saves energy, and can even save money!

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Objective: Raise students' awareness of the environmental advantages of the durable, washable items used in their cafeteria and encourage their participation in keeping them out of the trash!

Age Group: K- 12th grade

Setting: Cafeteria

Project Duration:
- Preparation: 45-min meeting
- Implementation: 1-5 lunch periods

Materials:
- Poster board
- Markers
- Pencils
- Paper
- Examples of the durable food service items in the cafeteria

Why This Project Matters:

School nutrition programs provide billions of meals each year to students nationwide. These meals can be served using reusable food service items, disposable food service items, or a combination of the two. When a school serves meals using durable dishes, trays, cups, and utensils, trash volumes are drastically reduced. Using durables protects natural resources, saves energy, and may save money for the school or district!

Project Summary:

Some lucky schools already use durable, washable plates, forks, and cups in the cafeteria. Some are currently making the switch from items like disposable plastic utensils and polystyrene trays to reusable, washable options. And some have even replaced individual milk cartons with bulk milk dispensers and reusable cups! Whatever the case at your school, don't let these environmental wins go unnoticed by students and staff. Through announcements, posters, and lunchroom monitoring, this project uses the efforts of a student group to bring awareness to cafeteria washables.

Implementation:

1. Assess which food service items in the cafeteria are currently reusable. If items are newly being implemented, see #6 below.
2. Choose a student group to implement promotions (student council, individual class, grade level, eco-club, etc.).
3. Meet with the group in the cafeteria and explain the goal of their work: to help students and staff understand that by using durable, washable items in the cafeteria, the school is taking care of the environment. Show students examples of the school's washable food service items and brainstorm ideas for how the reusables help save natural resources, reduce waste, and potentially save money.

4. Have students mathematically determine the cost and waste savings. For example: If every student in the school used one disposable tray and one disposable utensil during lunch, how many of those items would be thrown away each day? What would this add up to in quantities thrown away for an entire school year?
    - Work with cafeteria or food services staff to find out the cost of durable trays and utensils versus disposable trays and utensils for an entire school year's use. Factor in the durables use over several years and that a percentage are lost each year when students accidentally throw them away.
    - If possible, determine the cost savings from both the use of durables and the reduction of lunch trash (which translates to cost savings on trash hauling)! Operations staff can help with this calculation.
    - Explain that even though energy and water are used to make and wash durables, studies have shown that a significant amount of energy is saved over time when compared to the daily disposal and manufacturing of single-use food service items.
5. Students can use the information gained from this discussion to create posters, announcements, skits, newsletter articles, and more, to educate their school community. Consider also creating a display in a central location to highlight the cafeteria washables.
6. Lunchroom monitoring: The annual loss of durables from students accidently throwing them away adds to the annual cost of using the durables. When washable items are being newly introduced in the cafeteria, students may accidentally throw away a higher quantity merely out of habit of dumping their entire tray. Have sponsor students take shifts monitoring the cafeteria trash cans during lunchtime to remind other students to return their durables to the washing station. Reminders from peers are an effective way to change behavior.

Assessment:

Visit students at their lunch tables with a pop-quiz. Ask them to share one or more ways the washable cafeteria items help the environment.

Related Activities:

Waste-Free Lunch 2: School Contest – Chapter 2
Refillable Water Bottle Project – Chapter 3
Making Cloth Napkins – Chapter 13

Extensions:

- Implement a similar project to celebrate the reusable containers, utensils, and napkins that students are bringing in homemade lunches.

Refillable Water Bottle Project

eco-cycle®

https://bit.ly/eco-cycle-zero-waste-schools-guide

Snapshot
When a school building has easy access to stations for refilling durable water bottles, students and staff are more likely to use them.

Objective: Students and staff will understand that disposable water bottles contribute to trash, litter, and the depletion of natural resources. They will have increased access to locations that allow them to easily refill reusable water bottles in their school building.

Age Groups: K-12th and adults

Setting: School building

Project Duration: Two-day kick-off event plus ongoing usage

Materials:

- Supplies for new water bottle-filling stations
- Posterboard
- Copy paper
- Markers
- Tape

(Continued next page.)

Why This Project Matters:

Every year in the U.S., billions of plastic beverage containers are sold. Most of these bottles end up landfilled, incinerated, or littered. One of the most purchased beverages is bottled water. Disposable plastic water bottles are a huge and growing waste problem, as is plastic pollution in general.

Project Summary:

This project makes it easy for students and staff to refill reusable water bottles during the school day by outfitting the school building with bottle-friendly water-filling stations.

Implementation:

There are two phases to this project: the filler installations and the kick-off campaign.

Water jug

"Gooseneck" spout

Several options exist for the filler installation. The least expensive option is to purchase several large, insulated water jugs and place them in designated areas (cafeteria, gymnasium, etc.). These also work well for special events. The moderately expensive option is to purchase and retrofit "gooseneck" spouts on existing water fountains. The costliest, but most effective, option is to purchase and install sensor-activated bottle-filling fountains. Since this option can be expensive, identifying a funding source such as a local government agency or foundation would be helpful.

Bottle-filling fountain

The kick-off campaign is a prize drawing designed to be conducted during recess or lunch periods to minimize classroom intrusion. The goal is to motivate students and staff to routinely refill their personal reusable water bottles at the new stations.

Getting started:

1. Identify a school or schools with limited access to sinks or water fountains that accommodate the filling of reusable bottles. The cafeteria and gym are key locations for bottle-filling access.
2. Meet with the principal and custodian of each school to discuss which type of bottle-filling stations (insulated jugs, "gooseneck" spout retrofits, or sensor-activated bottle-filling fountains) would best fit each building.
3. Meet with school district maintenance or plumbing staff to determine the feasibility of desired installation locations within each building (for "gooseneck" spout retrofits or sensor-activated bottle-filling fountains).
4. Once the filler decision has been made, establish a timeline for purchasing and installing the equipment. Negotiate this timeline with each principal and custodian, and with district maintenance staff if needed. Secure funding for the equipment and for any installation labor costs. Order the equipment.
5. Coordinate with each principal to schedule dates for the kick-off (to be held after the installations are complete). Select two dates, one week apart. Tabling for a prize drawing (during recess periods at elementary schools and lunch periods at secondary schools) will be the focus, supplemented by posters and announcements.
6. Have a student group create posters to be displayed above or near the new water bottle-filling stations to draw attention to them. Include researched facts on bottled water and plastic waste.
7. Write announcements that encourage students to bring their reusable water bottles to school during the kick-off weeks (see sample below). Assign a student group or staff member to read them over the PA system on the day prior to and the day of the two selected dates.
8. Create a family letter announcing the project and new equipment and ask school office staff to distribute it to families before the campaign (see sample below).
9. Create grade-level appropriate materials in preparation for the prize drawing. (See more details on each grade-level drawing under *Kick-off Tabling Event, Days 1&2*.)
   Elementary drawing: Design and print stickers for students to adhere to their reusable water bottles. Stickers should have spaces for students to make a checkmark every time they refill their bottle.

Materials:
(continued)

- Reusable water bottles and other items for student prizes
- Pens/pencils
- Water bottle stickers
- Access to internet
- Access to printer
- 2 shades of copy paper for making prize entry slips
- 2 boxes for collecting prize entry slips

Extensions:

- A student group can survey their peers before and after the project, asking questions like: "Do you drink bottled water? If yes, why? Do you recycle your bottle? Reuse it? Do you bring a refillable water bottle to school?" Results can be reported to the school verbally or presented in graph form.

(Continued next page.)

Middle school drawing: Print half-sheet copies of the school map for students to mark where all the water bottle-filling stations are located. On the other side, include a line for students to write one thing they do/will start doing to conserve water and/or reduce waste, as well as lines to write their name, grade, and homeroom (see sample below). (These scavenger hunts will serve as their entry slips for the prize drawing.)
High school drawing: Create an activity instruction sheet (including example photos) to display at a table. The activity will be for students to take photos of themselves filling their water bottles at the new filling stations and then post these photos to the school's social media site. (The post will serve as their drawing entry.)

10. Purchase or request donations for prizes (movie tickets, recycled products, etc.) for students who complete the sticker, scavenger hunt, or selfie activity.
11. Purchase reusable water bottles for a giveaway drawing for students that do not already own one.
12. Make age-level appropriate entry slips for the prize drawings that have lines for students to write their name, grade, and homeroom. Use one color paper for the bottle prize drawing (for all grade-levels) and another color paper for the sticker prize drawing (elementary).
13. Make instructional signage for each prize drawing entry collection box.
14. Compile and organize supplies for the two kick-off tabling days: water bottle stickers, scavenger hunts or photo challenge signage, pens/pencils, entry slips, entry collection boxes, posters, tape, and prizes.

Kick-Off Tabling Event, Day 1:

Elementary school: Have students bring their reusable bottles to the designated table during recess to receive their sticker. Project sponsors (student and/or adult) may then introduce the activity, explaining how to make a checkmark on the lines on the sticker each time they refill their bottle. Instruct students to bring the same bottle (with attached sticker) back to the table the following week to show their checkmarks and be entered into the prize drawing. Alternatively, students who do not own a reusable water bottle may register to win one by filling out an entry slip and placing it in the designated collection box.

Extensions:
(continued)

- Students can create a display to showcase the waste of disposable water bottles. On one side of the case, set a single reusable water bottle. On the other side, stack several disposable water bottles (as many as you can collect and fit). Include facts about the environmental benefits of reusable bottles.

(Continued next page.)

Middle school: At the designated table in the cafeteria, give students the printed school map scavenger hunt and ask them to mark where the new bottle-filler fountains/stations are located. Make sure they also fill out the back (where they will make a pledge to take an action of conserving water or reducing waste) before putting their entry into the prize drawing box. Students who do not own a reusable water bottle can register to win one by filling out a separate entry slip and placing it in the appropriate collection box.

High school: Explain the activity to students who approach a designated table in the cafeteria, showing them the instruction sheet and reminding them about sharing their water bottle-filling selfie on school social media to qualify for the drawing. Their post is their drawing entry. Students who do not own a reusable water bottle can register to win one by filling out a separate entry slip and placing it in the designated collection box.

Kick-Off Tabling Event, Day 2 (one week later):

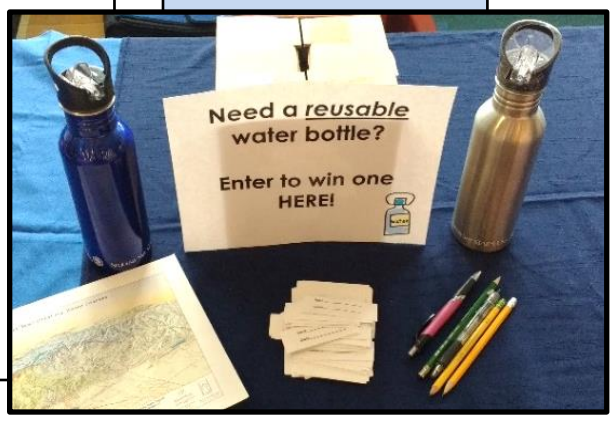
Elementary school: When students return to the table with their stickered water bottles and have made the correct number of checkmarks for refills (equivalent to the number of school days between tabling events), they may enter the prize drawing by filling out an entry slip and placing it in the designated collection box. Continue taking entries for the reusable water bottle drawing as well, placing these in their own box. At the end of the event, randomly choose winners from each collection box and leave prizes with the school office staff to be delivered to the winners (with attached entry slips for easy identification).

Middle school: Facilitate Day 2 the same as Day 1, making sure students who enter are doing so for the first time. At the end of the event, randomly choose winners from each collection box and leave prizes with the school office staff to be delivered to the winners (with attached entry slips for easy identification).

High school: Facilitate Day 2 the same as Day 1, making sure students who enter are doing so for the first time. At the end of the event, randomly choose winners from the water bottle collection box and from the school social media site. Leave prizes with the school office staff to be delivered to the winners.

Extensions:
(continued)

- Create and distribute age-appropriate water-themed coloring pages and activity sheets (word searches, mazes, etc.) to elementary students. These will reinforce the project's water conservation and waste-reduction messages. (See printable coloring pages at the end of this chapter.)



Assessment:

Check for student awareness of the new equipment by surveying students before and after the kick-off campaign about where someone can refill a reusable water bottle in the school. Quiz them as to why this is better for the environment than buying disposable water bottles.

If an automatic bottle-filler fountain with a counter was installed, watch the digital counter to see how many times the unit has been used. Otherwise, assess success by checking in with the custodian about one month after the installation. Ask: "Can you provide usage information for the new equipment? How well was this project received by students, parents, and staff? What feedback have you received?"

Related Activities:

Waste-Free Lunch 2: School Contest – Chapter 2
Waste-Free Lunch 3: Durables in the Cafeteria – Chapter 2
Take a Bite Out of Food Waste – Chapter 4
Making Cloth Napkins – Chapter 13

Key to highlights:

- *Update facts below from a reputable source before sharing with the school community.*
- *Enter specific information pertaining to your event.*

Reusables Rule at Our School!

Reusable Water Bottle Project

Name: _____

Grade: _____

Write your water-saving and/or waste reduction action(s) here:

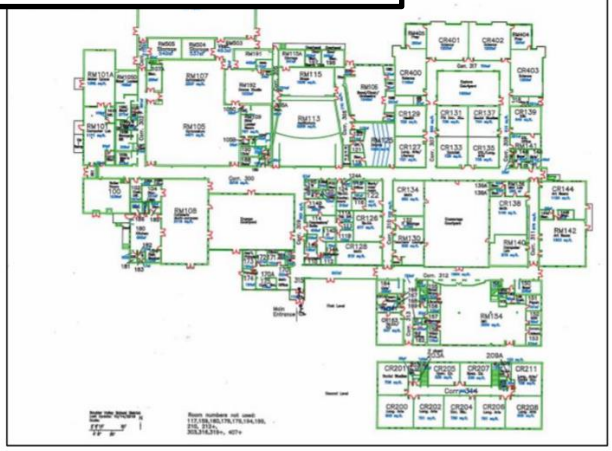
_____

_____

Turn in this sheet at the [facilitator name] table to enter the prize drawing for a FREE [prize]!

Don't forget to do the Water Bottle Filler Scavenger Hunt on the back!

Funded by: [Funder logo(s) here]



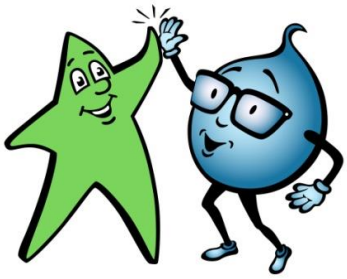
[School name]
Middle School
Scavenger Hunt

Place an 'X' on the map where the [number] new Water Bottle Filler stations are located.

Turn in this sheet at the [facilitator name] table to enter the prize drawing for a FREE [prize]!

Don't forget to include your water-saving action on the back!

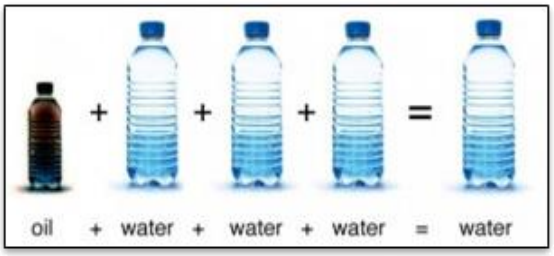
Sample Family Letter



Dear Families,

Americans buy approximately 500 million disposable bottles of water every week. ***Not only is tap water cheaper and held to a higher safety standard than bottled water, but 80% of plastic bottles end up in the landfill, wasting precious resources!*** How much does bottled water really cost us?

- It takes approximately 3 liters of water and ¼ liter of oil to package a 1-liter bottle of water.
- Bottled water consumes approximately 2,000 times more energy than tap water. In 2006, producing bottles for American consumption required the equivalent of more than 17 million barrels of oil, not including the energy for transportation.



- Nearly ¼ of all bottled water crosses national borders to reach consumers, travelling by boat, truck, and train, using fossil fuels for transportation.
- Bottled water costs 10,000 times more than tap water in the US, and more by volume than gasoline or soda. Over 90% of the cost of bottled water is in the bottle, lid, and label.

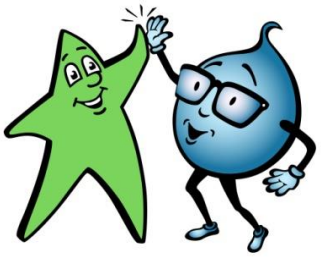
[Funders/participants] have teamed up to help students at [school or district] refill reusable water bottles with fresh, clean tap water instead of using disposables bottles.

[Number] [state-of-the-art bottle-filler fountains] are now installed throughout the school. This will make it easier for students to refill their own reusable bottles.

[Facilitators] will be at [school] on [date(s)] to celebrate this project. Students can visit our table to learn where their water comes from and how they can reduce waste by refilling at the tap. We will also have some great prizes to give away!

Be sure to check out the new bottle-filler stations next time you are visiting the school. This is the latest way that [funders/participants] and [school] are leading us to a Zero Waste future!

Funded by: [Funder Logo(s)]



Sample Announcements

Please read these announcements on the following dates:

[Date *before* Day 1 event]:

- Americans buy 500 million disposable bottles of water every week! That's enough bottles to circle the globe 5 times! Only 20% of these water bottles get recycled—the other 80% end up as litter or in a landfill!
- It's easy for anyone at our school to refill reusable water bottles with tap water instead. [Your region] gets its water from [natural water systems of your local watershed]. This water is cleaned and available to you at the tap (for free) right here at school! Have you seen the water bottle-filler stations? They make it easy to refill your own bottle instead of spending money on bottled water.
- Visit the [facilitators] table tomorrow, **[Date *of* Day 1 event]**, at [designated time period]. If you don't own a reusable water bottle, you can enter a drawing to win one! If you participate in the water bottle-filler activity, you can enter the drawing to win [designated prize]!

[Date *of* Day 1 event]:

- Buying plastic water bottles uses a lot more natural resources than refilling reusable bottles. Did you know that it takes 3 liters of water just to make a 1-liter plastic bottle?
- Help conserve water by refilling a reusable water bottle from our awesome water bottle-filler stations! Be sure to visit the [facilitators] table **today** at [designated time period] to enter the drawings for a chance to win prizes!

[Date *before* Day 2 event]:

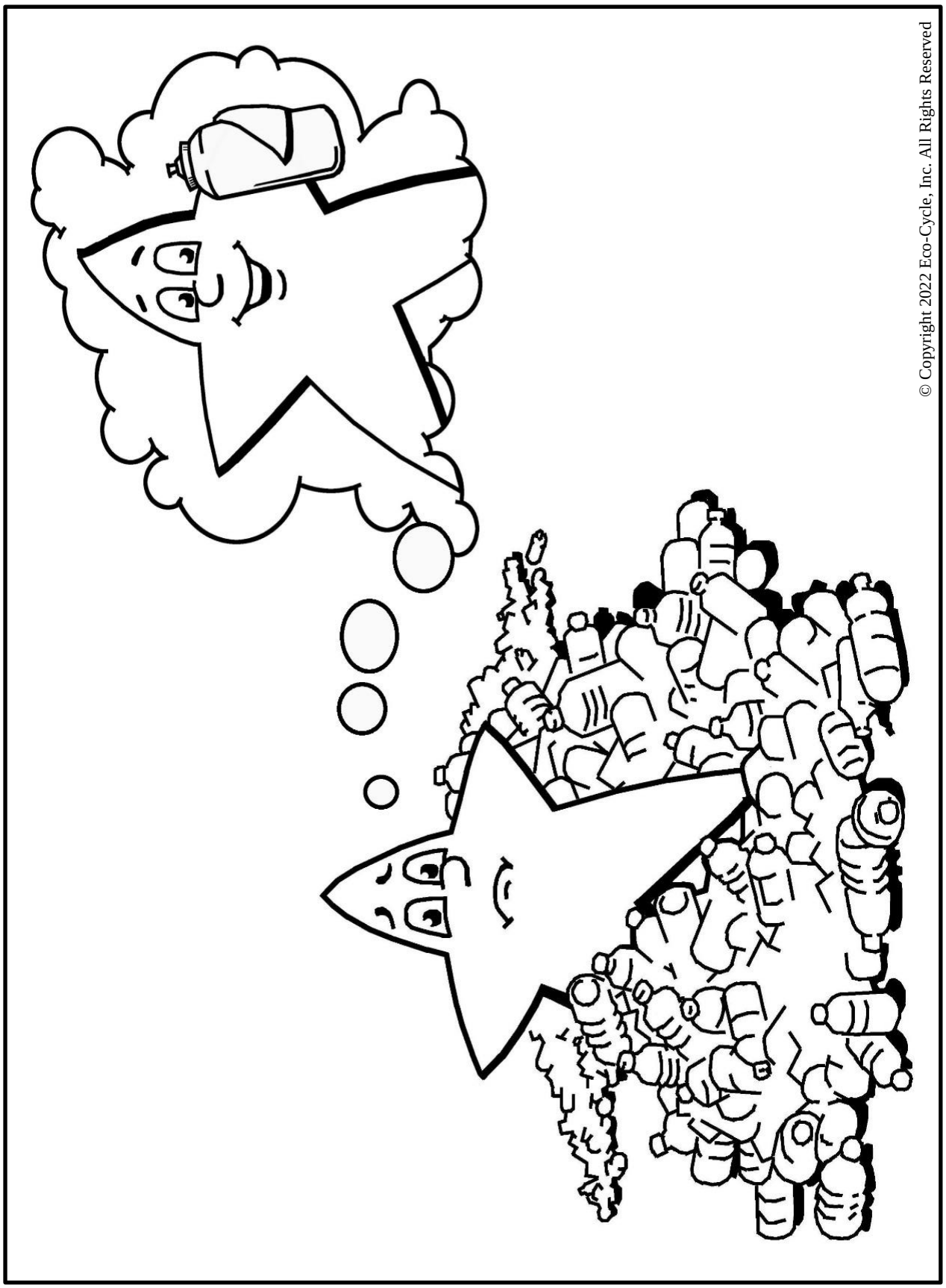
- Did you know that in one year it takes 17 million barrels of oil just to make plastic water bottles for Americans to use once and throw away? That doesn't even include the fossil fuels needed to transport them! Fossil fuels are nonrenewable—once we use them, they're gone! Why waste fossil fuels on packaging and transporting bottled water when we can get free, clean water from the tap?
- At our school, we can save energy, make less waste, and help the environment by refilling water bottles with tap water. We hope you have been using the water bottle-filler stations.
- [Facilitators] will be here again tomorrow, **[Date *of* Day 2 event]**, at [designated time period], so stop by to [show your completed water bottle activity sticker] [to complete your water bottle activity], and you can enter your name to win a [designated prize]! If you don't already have a reusable water bottle, you can also enter to win one!

[Date *of* Day 2 event]:

- Remember to get your water at the tap today! Tap water is tested more often and held to higher safety standards than bottled water. By reusing water bottles instead of buying disposable ones, we can make less garbage and protect our earth.
- Be sure to visit the [facilitators] table **today** at [designated time period] [with your water bottle sticker] to enter the drawings to win great prizes. If you don't already have a reusable water bottle, you might win one!

Funded by: [Funder Logo(s)]

Printable Coloring Pages



Draw yourself and your reusable water bottle.

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Take a Bite Out of Food Waste

Snapshot
This student-led initiative will bring attention to the amount of food (and money) being wasted in school cafeterias.

Objective: Students will have a visual concept of the approximate amount of food being thrown away each day in their school's cafeteria. They will understand that wasting food is wasting natural resources.

Age Groups: K-12th grade

Setting: School cafeteria

Project Duration: One week

Materials:

- Waste bin labeled "Food Waste Only"
- Bathroom scale
- Pictures of food from magazines or internet
- Poster-making materials: posterboard, glue, markers, scissors

Why This Project Matters:

15-50% of school food is wasted daily. That's no surprise since U.S. food waste has been estimated to be up to 50% of the edible food supply. All of that uneaten food equals wasted water, land, and other resources. Buried in a landfill, it will result in the production of methane, a powerful greenhouse gas.

Project Summary:

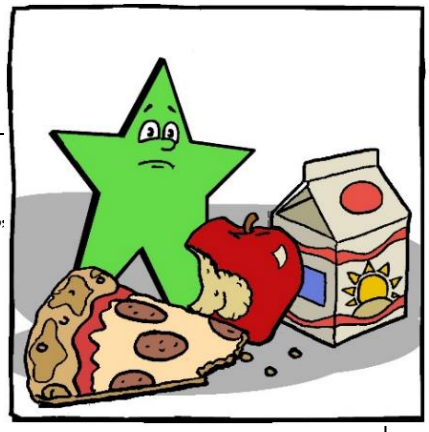
This educational campaign will bring students' attention to the food being wasted in their school cafeteria, regardless of whether the school has implemented a compost collection system. The "Take a Bite Out of Food Waste" campaign may lead to long-term changes that reduce the amount of food waste produced at school, decrease the cost of school waste disposal, and improve students' diets.

Implementation:

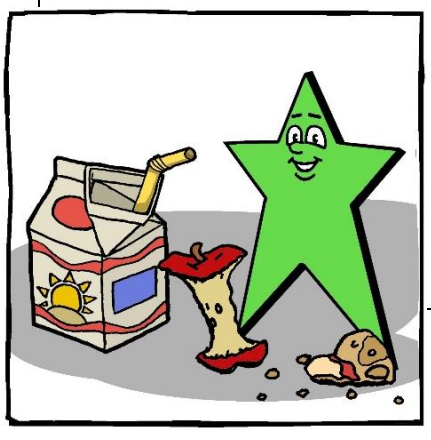
1. Coordinate with school administration and cafeteria staff to select a week for implementation. Ask for a group of student volunteers to help with the campaign.
2. On a day prior to starting the campaign, collect unwanted food in a waste bin labeled "Food Waste Only" during the entire lunch period (see printable example below). Have an adult (staff or parent volunteer) assist students with this task. Include student volunteers while weighing the food waste on a scale and record the amount.
3. Report the pre-project weight to the school community. Use an analogy so students can better grasp the amount (e.g., "Our food waste today weighed 100 pounds! That's like throwing away the weight of two first-graders every day!)

FOOD WASTE ONLY

(uneaten foods from your lunch)



4. With the help of students, write and share announcements for "Take a Bite Out of Food Waste" week. Have students include reminders about which natural resources are used to grow our food (e.g., "Remember, it takes water to grow fruits and veggies! Don't waste water by throwing away food!").
5. Develop messages (emails, newsletter notices, etc.) to send home to families reminding them about the "Take a Bite Out of Food Waste" week. Include tips for packing lunches that may help reduce food waste, such as: foods that you are confident your child will eat, fruit cut into kid-friendly sizes (whole fruit is more likely to be thrown away), smaller portions of each food type, etc. Remind parents that uneaten food equals wasted resources and money.
6. Invite parents to join their kids at lunch during the campaign week so they can experience how lunchtime works in the cafeteria, observe the types of foods being served, and witness how others are reducing food waste.
7. Have students decorate and display posters that include the dates of the campaign and the food waste messages featured in the announcements and family letters.
8. Encourage students to create a visual food waste display representing the typical amount of food discarded by one student vs. the amount made by the whole school. Place it near the cafeteria doors for students to see as they enter.
9. Have a few student volunteers stationed in the cafeteria during lunch time to help remind other students to eat what they take and take what they eat.
10. On the final day of the campaign week, collect and weigh the food waste again. Report the progress to the school community. (If time permits, weigh the food waste every day during the week and chart for students to view.)
11. Develop an age-appropriate questionnaire to find out why students throw away their food. Look at other food trends in the school. Is there a correlation between the meal being served and the amount of food waste being generated? Use the results from this research to help influence student behavior and possibly make changes in cafeteria practices.



Extensions:
Long-term food waste-reduction strategies:

- *Recess before lunch* – Studies show that scheduling recess before lunch can significantly reduce student food waste. Students are more ready to settle down to eat after having a chance to run, play, and exert energy. The school's existing schedule can still be used by reversing the lunch and recess blocks, eliminating the need for additional staffing.
- *Extend lunchtime* – Increasing lunch time by five minutes can make a huge difference in food waste. Throwing away food due to the lack of adequate eating time is one of the most student-cited reasons for why they toss food in the trash.

(Continued next page.)

Assessment:

Ask students questions about where their food comes from while they are enjoying lunch or as they drop their items at the waste station. Ask about the natural resources needed to grow crops for produce and raise animals for meat.

Related Activities:

Waste-Free Lunch – Chapter 2
Conducting a Waste Audit – Chapter 30

Extensions:
(continued)

- *Examine the lunch program*
  – School lunch programs have strict regulations, particularly about which types of foods are served and how many items students must take. Find ways to increase opportunities for students to choose their own items rather than being served pre-chosen foods (such as offering salad bars and self-serve milk stations).
  – Work with kitchen staff on ways they can increase the likelihood of students eating the food they take by identifying popular food choices and exploring ways of preparing similar menu items.
  – Adjusting the serving styles of food may reduce waste (such as providing sliced fruit instead of whole fruit since slices are easier for students to eat).

"One or None" Paper Towel Campaign

Snapshot
Tackle one of the environment's worst enemies: disposable paper towels.

Objective: Student and staff usage of paper towels decreases over time.

Age Groups: K-12th grade

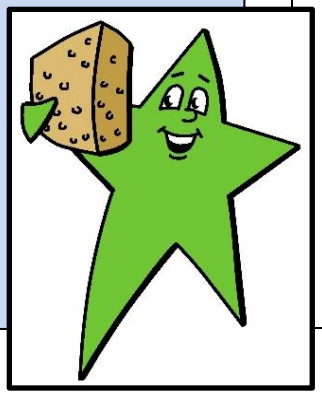
Setting: Classrooms and restrooms

Project Duration: One month or longer

Materials:

- Buckets or boxes for collecting used paper towels
- Rubber gloves for handling used paper towels
- Paper
- Markers
- Tape
- Cloth towels or rags (optional)
- Sponges (optional)

(Continued next page.)



Why This Project Matters:

Billions of pounds of paper towels are used in the U.S. every year. It is safe to say that most of these were made from virgin paper and end up in the trash. Forests around the globe are destroyed to provide us with paper towels. Using trees to produce disposable paper products destroys habitat, consumes fossil fuel energy, creates air and water pollution, and decreases the absorption of carbon dioxide (a greenhouse gas) by forests. Trashing paper towels increases waste and the production of methane (another greenhouse gas) when the discarded towels are entombed in landfills. Reducing paper towel consumption supports a healthier environment.

Project Summary:

It is common for kids to use more paper towels than needed during hand washing and cleaning up messes. This campaign is designed to make kids stop and think about their usage habits. Students will estimate their school's daily paper towel consumption as well as organize school-wide messaging about where paper towels come from and their effects on the environment. The messaging is intended to encourage students to choose only one paper towel (or none) when drying hands and cleaning up.

Implementation:

1. Before starting the campaign, have students survey classrooms and restrooms to see how many paper towels are used in a day.
2. Place an extra trash can, bucket, or cardboard box in each classroom and restroom with clearly marked signage: **FOR PAPER TOWELS & TISSUES ONLY.**
3. Have students monitor these receptacles and estimate how many paper towels are used each day. Wearing gloves, they may move any incorrectly placed paper towels from the trash to the collection container and count and record the total number of towels used.

4. Create (or print samples below) and display signage on every paper towel dispenser with messages such as:
    - "Please, for the trees, only take 1!"
    - "Remember, these are made from trees!"
    - "Please use only one, then compost when done!"
    - "These used to be homes for birds. Take only what you need."
    - "Please use wisely. Or use a sponge instead!"
    - "Save trees and forests! Use a sponge!"
    - "Use one, or none! Help save forests!"
    - "Use one or none! Save trees! Save forests!"
5. Make announcements about the campaign and the signs, including education about the non-recyclability of paper towels (towel fibers are too short to link together to make new sheets of paper). Have students research facts about the value of forests and trees to be included in the announcements and signage.
6. Have students read stories about trees and how animals depend on them. Share these stories with students in other classrooms. (See the Materials section for examples.)
7. Organize a rotation of cloth towels, donated by students or purchased at a thrift store, for use in the classroom. Parent volunteers may take them home for washing.
8. Purchase a supply of sponges for each classroom to use for cleaning off desks and countertops instead of paper towels or disposable wipes (which are non-recyclable and non-compostable).
9. Have students write letters requesting that the school district purchase single paper towel dispensers or air dryers.

Assessment:

Have the student group redistribute the receptacles labeled **FOR PAPER TOWELS & TISSUES ONLY** about a month after the start of the campaign. Determine if paper towel waste has decreased. Do this periodically throughout the school year.

Related Activities:

Paper Reduction Campaign – Chapter 6
Repurposing in the Classroom – Chapter 12
Making Cloth Napkins – Chapter 13

Materials:
(continued)

- Books about forests (for younger students):
    - *The Lorax*
      -Dr. Seuss
    - *The Great Kapok Tree*
      -Lynne Cherry
    - *The Giving Tree*
      -Shel Silverstein
    - *The Tree*
      -Dana Lyons
    - *The Great Paper Caper*
      -Oliver Jeffers
    - *A Tree Is Nice*
      -Janice May Udry
    - *Uno's Garden*
      -Graeme Base
    - *We Planted a Tree*
      -Diane Muldrow
    - *The Busy Tree*
      -Jennifer Ward
    - *The Tree*
      -Neal Layton

Sample Signage:

For

PAPER TOWELS

& TISSUES

ONLY

 **PLEASE,** 

for the trees,

only take 1!

Remember,

these are made

from

 TREES! 

Extensions:

- Hold a contest between grade-levels or classrooms to see who can use the fewest paper towels in a day or in a week.
- Station student monitors by the restroom sinks to give out prize entries to kids who are "caught" using only "one or none" paper towels.
- Provide teachers with small prizes (pencils, etc.) to give students who choose to use cloth towels or sponges to clean up in the classroom.
- Start a campaign to get hand dryers installed in the school. Hold a fundraiser by selling student-made cloth napkins sets (See Chapter 13) to other students and/or families.

Please use only one, then compost when done!

These used to be homes for birds.

Take only what you need.

Please use wisely.

Or use a sponge instead!

Save trees and forests!

Use a sponge!

Use one, or none!

Help save FORESTS!

Use one or none!

Save Trees! Save Forests!

Paper Reduction Campaign

eco-cycle®

https://bit.ly/eco-cycle-zero-waste-schools-guide

Snapshot
Most students are excited to help save forests and the plants and animals that live there. One of the best ways to do this is to simply use less paper.

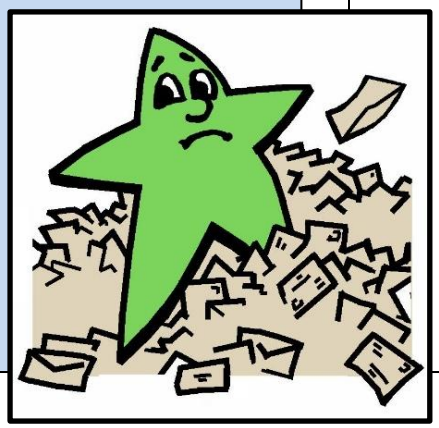
Objective: Students and staff will significantly reduce their paper use at school. Students will be able to state at least one reason why reducing paper usage helps the environment.

Age Groups: K-12th grade

Setting: School building

Project Duration:
- Preparation: 1-3 hours
- Campaign: 1-4 weeks

Materials:
- 17 reams of printer paper for display (optional)
- Poster-making materials

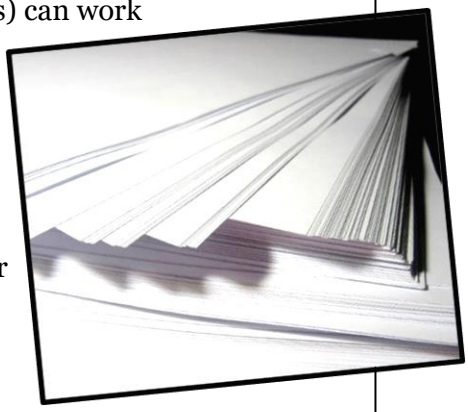


Why This Project Matters:

Trees are not the only casualty of using more paper than we need. The process of making paper also leads to water pollution, air pollution, and the loss of plant and animal habitat. To produce paper, healthy forested lands are often converted into tree farms, including old growth trees in the Pacific Northwest. Because schools use large quantities of paper for teaching and other communications, they can have a substantial positive environmental impact by reducing their paper consumption.

Project Summary:

This campaign may be tailored to a school's individual needs and goals. The school will choose three or more collaborative actions to reduce their paper use. The entire school community (students, teachers, staff, and parents) can work together in achieving these goals.

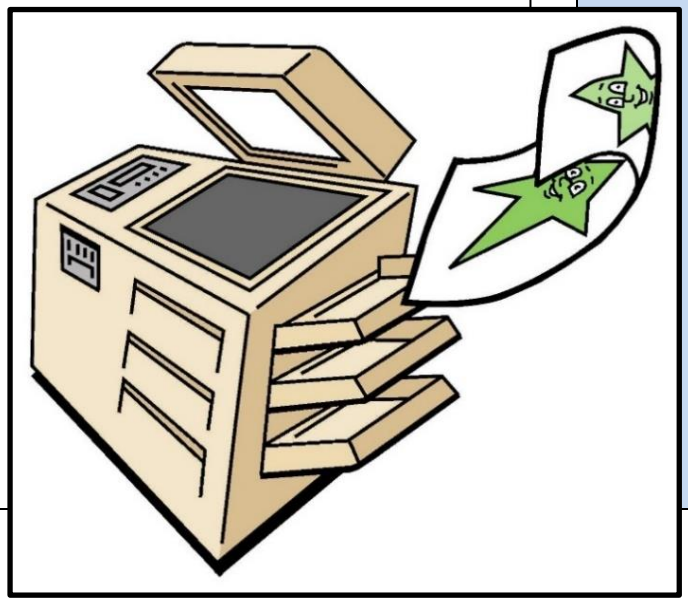


Implementation:

Preparing for the campaign:

- Meet with students, staff and/or parents to identify existing paper usage at school and brainstorm ways to reduce it. Here are some examples of paper reduction:
  - replace paper cups, plates, and napkins in the staff lounge with reusables
  - acquire (via donation or purchase) a set of reusable plates, cups, and utensils for each classroom to be used for parties and school events
  - print/copy on of both sides of the paper
  - use smaller margins on documents
  - collect used paper that still has one blank side for writing/drawing practice paper
  - save and reuse scraps of construction paper for art projects

    - use recycled paper only (100% post-consumer content, if possible)
    - purchase chlorine-free paper products
    - purchase tree-free papers (made from wheat straw, bamboo, or hemp) that grow quickly and are more sustainable
    - use digital media instead of print media for sharing information (teacher resources, school newsletters, etc.)
    - utilize small, portable white boards instead of paper during student seatwork
    - consider fundraisers for digital tablets if your school does not already have them
    - use digital projections of worksheets instead of paper copies for students
    - investigate paperless receipts if there is a school store
    - stock items made from recycled materials (pencils made from newspapers, recycled sticky notes, etc.) in the school store
    - determine the necessity of subscriptions to newspapers, magazines, and periodicals
    - use cloth towels or sponges instead of paper towels to clean classroom surfaces
    - install hand dryers in bathrooms to eliminate paper towels
    - reuse tissue paper and newspaper when shipping packages
    - take steps to reduce junk mail sent to the school
- Decide which three (or more) paper-reducing actions the school community will focus on for this effort. More can be added in a later campaign once this effort is successful.
- Choose the activities and appropriate length of time for the campaign (see ideas below).



Extensions:

- Make recycled paper with student groups. See Making Recycled Paper, Chapter 21.
- In the school store, sell reusable bags made from recycled materials featuring the school's logo.
- Facilitate a cloth napkin making activity. Napkins can be made for sale in the school store. See Making Cloth Napkins, Chapter 13.
- Encourage book reuse through using local libraries, holding a book swap, and/or donating books to charity.

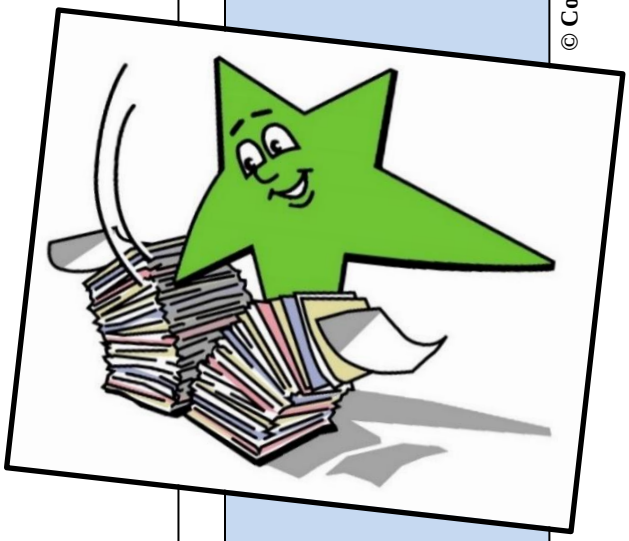
Campaign promotions and kick-off event:

- Have a student group research current data on the amount of paper use, how much ends up in landfills, and on the importance of forests (in relation to clean air, water, soil, and habitats).
- Create a visual by stacking 17 reams of printer paper (as a photo or as a tangible prop) to demonstrate how much paper is made from one 30-foot-tall tree.
- Inform the school community of the new paper-reduction goals through student-created posters, verbal or video announcements, family newsletters, and a kick-off presentation.
- Facilitate a 30-minute kick-off assembly to share information with the school community on the amount of paper being used, the amount that ends up in landfills, the environmental cost of making paper, and what the school will now be working on to conserve paper use. Students may create skits or other visuals for the assembly.
- Conduct an audit of school paper use prior to and periodically throughout the campaign. Report any progress made to the entire school community.

Assessment:

Assessments will vary depending on which goals the school chooses to work towards. If reducing the number of copies made at the copy machine, for example, speak with the school's office manager about checking the copy machine's counter before and after the campaign. If the goal is to use both sides of every piece of paper, audit the recycling bins to see what percentage of the paper has been used on both sides.

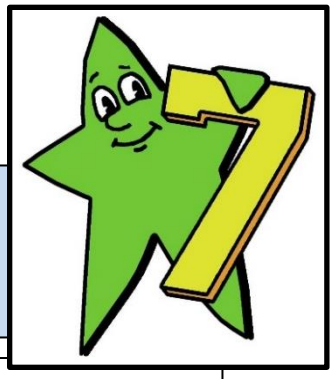
During non-curricular times, such as lunch or recess, survey students by asking what they are doing to reduce their own paper use and why it helps the earth to do so.



Related Activities:

"One or None" Paper Towel Campaign – Chapter 5
Making Cloth Napkins – Chapter 13
Reusing Children's Books – Chapter 14
Making Recycled Paper – Chapter 21

Trimming Holiday Waste



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Snapshot
Winter holiday activities produce more waste than during any other time of year. Creatively reducing holiday waste is both fun and helpful to the environment.

Objective: Students will be able to name one way that holiday-specific waste harms the environment and three ideas for reducing waste during the holiday season.

Age Groups: K-5th grade

Setting: Classroom

Project Duration:
- Preparation: 2 hours
- Classroom Activity: 90 minutes

Materials: See next page.

Why This Project Matters:

Americans generate millions of additional pounds of household waste between Thanksgiving and New Year's Day (25% more than the rest of the year). Holiday celebrations often feature many disposable food-ware items, such as plastic or paper plates, cups, napkins, and utensils. Other common holiday items, like wrapping paper, ribbons, plastic decorations, and brightly colored or foil-lined envelopes, are not recyclable. It all adds up to a lot of trash. Organic wastes, such as holiday trees, wreaths, food, and paper, generate methane gas as they decompose in the absence of oxygen while buried in landfills. Methane contributes to our warming climate.

Project Summary:

From wrapping presents in old calendar pages to choosing reusable decorations, trimming holiday waste is fun and easy. Student groups will first identify common contributors to holiday waste (disposables, wrapping paper, etc.) then brainstorm ideas for reducing these types of waste. They will conclude the project by making their own recyclable wrapping paper and/or creatively wrapping a gift by reusing old items.

Implementation:

Preparation:

1. Gather examples of disposable items and their reusable counterparts (paper/durable plates, paper/reusable lunch bags, paper towels/sponge etc.).
2. Gather examples of disposable holiday items (wrapping paper, cards, garland, etc.)
3. Gather examples of reusable boxes, gift bags, bows, and décor.
4. Create an example of a hand-decorated gift box/bag that reuses items that otherwise would have been trashed.
5. Create an example of a hand-made coupon (e.g., "Redeem for the household chore of your choice" or "Good for 1 picnic in the park").

6. Collect old maps, magazines, and calendars with kid-friendly pictures.
7. Contact local newspaper publishers to see if they have "end rolls". These are the remainders of newsprint rolls that are no longer usable by the printer.
8. Acquire rubber stamps and stamp pads (search thrift stores and garage sales before buying new) (optional).
9. Create fun, winter-themed, nondenominational-shaped stencils from paperboard boxes. These will be used for decorating the wrapping paper.

Lesson and activity:

1. Begin by asking students: "What are the three R's?" (Reduce, Reuse, Recycle)
2. Discuss what each word means.
3. "How do they help the environment?"
4. "What are natural resources?"
5. Explain that we use natural resources every day because every item we have is made from a natural resource (wood and paper from trees, glass from sand, plastic from petroleum, metal from ore/rock). Harvesting natural resources contributes to air, water, and soil pollution. It can also have negative impacts on animal habitat. All of our natural resources are limited.
6. Ask students where they think items go when they get thrown away. Show the landfill diagram. (See printable page below.)
7. Show examples of disposable items and their reusable counterparts (paper plate/durable plate, paper lunch bag/cloth lunch bag, etc.). Ask students which item from each pair would be the better choice to reduce trash and protect natural resources. Discuss why.
8. Discuss types of disposable items that are often used and thrown away during the holiday season. Show examples of wrapping paper, cards, ribbon, paper or plastic cups, plastic utensils, etc.
9. Introduce the term *pre-cycling*. To pre-cycle means to think before you buy to avoid creating waste, or to shop with the Earth in mind. Choosing items that can be reused or recycled instead of ones that are landfill-bound, choosing non-toxic items, and choosing items without excessive packaging are all effective ways to save natural resources.

Materials:

- Paper plate
- Paper cup
- Plastic utensil
- Paper napkin
- Paper lunch bag
- Durable plate
- Durable cup
- Metal utensil
- Cloth napkin
- Reusable lunch bag/box
- Wrapping paper
- Holiday garland
- Holiday card
- Toys with and without packaging
- Reusable boxes, bows, bags, décor
- Scarf/fabric
- Old maps
- Reused large blank paper (newspaper end-rolls, if possible)
- Paperboard boxes (cereal, crackers, etc.)
- Old calendars and magazines
- Scissors
- Glue
- Markers or crayons
- Stamps and stamp pads (optional)

10. Display and discuss the *Seven Principles of Pre-cycling* (see printable page below) and brainstorm examples of each. For younger groups, preview the list ahead of time and prepare tangible examples of each to display during the lesson.
11. Display and discuss the *Waste-Reducing Ideas for the Holidays* (see printable page below). Show examples from the list (reusable boxes, bows, decorations, etc.) as they are introduced.
12. Brainstorm creative ways to wrap gifts with reusable/recyclable materials (boxes decorated with magazine pictures, fabrics used as gift wrap, small gifts wrapped in calendar pictures, greeting cards made into gift tags, etc.). Show the prepared examples of these ideas.
13. Discuss ways to make gifts rather than buying something new and show examples (homemade coupons, artwork, crafts, etc.).
14. Have the students make their wrapping paper and/or wrap a gift with reused items:
    - Cut large rectangles from end rolls or from other unwanted paper or fabric.
    - Have students decorate the blank paper or fabric with crayons, markers, stencils made from old paperboard boxes, stamps, and pages from calendars and magazines.
    - Encourage students to use this wrapping paper or fabric to wrap a gift for someone. Remind them that the paper can be recycled after the gift is opened. Discuss ways the fabric can be reused.
15. Send a digital or hard copy of *Waste-Reducing Ideas for the Holidays* to family members at home.

Assessment:

Have students write a letter to a friend, family member, Frosty the Snowman or other winter or holiday character, telling them why holiday waste is a problem. Ask them to include three ways they learned to reduce waste around the holidays.

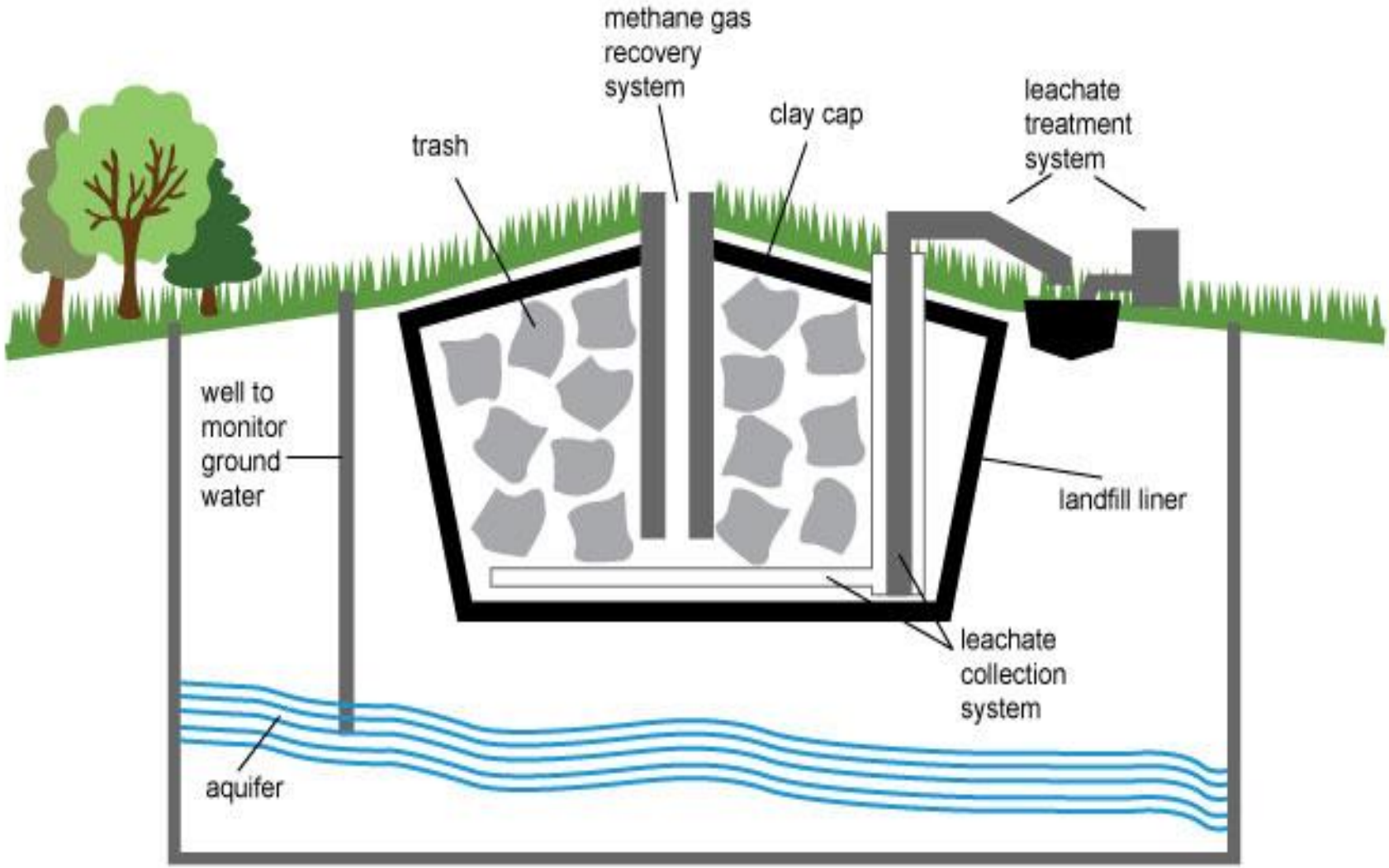
Related Activities:

Getting Artsy with Reuse – Chapter 8
Creative Crayon Recycling – Chapter 20

Extensions:

- Facilitate a coupon-making activity by having students make homemade coupons out of paperboard from empty cereal/cracker boxes to give as gifts to friends or family members.
- Have students share their favorite holiday waste-reducing ideas through announcements, hallway posters, or during the school's holiday program.

Modern landfill



Source: Adapted from National Energy Education Development Project (public domain)

Seven Principles of Pre-cycling:

(Shopping with the Earth in Mind)

1. Avoid buying disposables.
2. Reuse items instead of throwing them away.
3. Buy products and packages made from recycled materials.
4. Look for products in recyclable containers.
5. Avoid products with excessive packaging.
6. Buy in bulk (big containers).
7. Look for products that are less toxic.

Waste-Reducing Ideas for the Holidays

- Choose durable tableware over disposables when hosting parties.
- Find and/or make reusable decorations.
- Take your own bags to the store when buying gifts and supplies.

- Wrap gifts in creative ways by reusing things you already have:
  - Saved wrapping paper and bows
  - Old greeting cards
  - Durable gift bags
  - Shoe boxes, packaging boxes, etc.
  - Comics, magazines, or book pages
  - Scarves, bandanas, other fabrics
  - Outdated calendars and maps

- Use wrapping paper and cards made from post-consumer recycled-content paper.
- Buy gifts that have minimal/no packaging.
- Give gift certificates to movies, restaurants, or help needed by the recipient.

- Give gifts that teach about the environment.
- Reuse an artificial tree, get a live tree that can be planted, or mulch/compost a cut tree after use.

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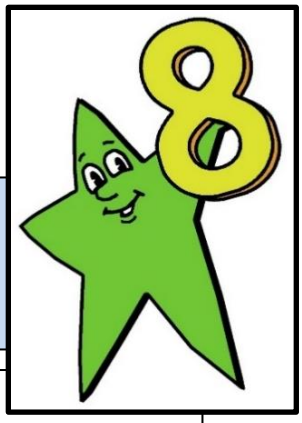
Getting Artsy with Reuse



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Snapshot
By repurposing unwanted items into art supplies, students can create meaningful artwork while reducing waste and conserving natural resources.

Objective: Students will understand that reusing materials to make a sculpture will prevent items from going to the landfill or incinerator, while also protecting natural places.

Age Groups: K-12th grade

Setting: Classroom

Project Duration:
- Collecting materials: 1-3 hours
- Creating sculpture: 1-2 hours

Materials:
- Internet access
- Smocks for clothing protection
- Found objects (non-recyclable, non-compostable)

Why This Project Matters:

More and more, world-renowned artists are discovering what teachers have known all along: discarded materials have endless creative potential, and they are often free! Reuse is an essential step toward achieving Zero Waste. Reusing existing items not only reduces waste, but it also saves natural resources and energy by making it unnecessary to produce new items.

Project Summary:

Most trash cans are full of items that are not recyclable or compostable in your community. Instead of sending them off to the landfill or incinerator, consider them art supplies and get creative! In this activity, students will create a variety of unique sculptures using commonly (or not-so-commonly) discarded items.

Implementation:

1. As a class project, have students research the website of the local recycling and/or compost program, locating the guidelines for accepted recyclables and compostables. Discuss these guidelines as a class.
2. Have students monitor their household and classroom trash bins and collect objects that cannot be recycled or composted. Have them look for items that have interesting shapes or colors that could become part of their sculpture. Allow 2-3 weeks to gather items.
3. If desired, have the sculpture tie into a theme that the students are studying (e.g., the environment, a historical event, current events, an upcoming holiday, a book they are reading, etc.).
4. Before beginning to create the sculptures, facilitate a discussion about the materials the students are reusing.

a. Ask where the materials would have ended up if they were not reusing them (landfill or incinerator).
b. Discuss which natural resources were used to make the materials (plastic from oil, paper from trees, metal from rock/ore, glass from sand).
c. Explain the environment benefits of reusing these materials instead of buying new art supplies:
    i. Fewer natural resources are consumed.
    ii. Plant and animal habitat is saved.
d. Remind students that the main goal is to reuse items that cannot be recycled or composted, giving them one more life before going to the landfill or incinerator.

5. To create the sculptures, provide the students with the following instructions:
    a. The only rule: the entire sculpture must be made from materials that cannot be recycled or composted. All materials must be things that would normally have ended up in the trash. Examples of items to include are plastic straws, frozen food boxes, candy and granola bar wrappers, juice and applesauce pouches, foil/plastic peel-back lids (e.g., single-serving yogurt and applesauce containers), netted fruit bags, disposable utensils, odd-shaped plastic, metal or wood items that can't be recycled, old CDs, colorful plastic bags (if they can't be recycled in your area), broken/irreparable toys, other broken/non-sharp household goods, fabric scraps, etc.
    b. The base of the sculpture is also included in the rule - it must also be made from non-recyclable and/or non-compostable items.
    c. The sculpture may be any size or shape.

Extensions:

- Interview the person in charge of your local recycling program about why certain items can or cannot be recycled.
- Hold an art exhibition at your school to showcase the finished sculptures.
- Have students write a one-page essay about how their sculpture expresses the assigned or chosen theme.

(Continued next page.)

Things to consider:

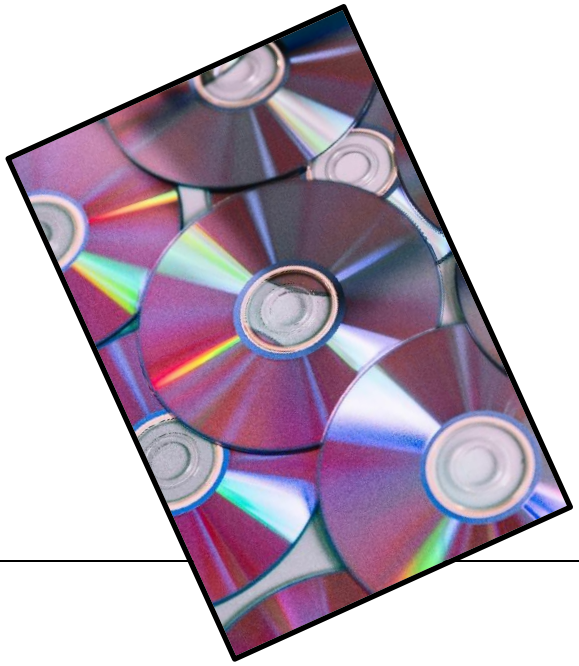
- If preferred, have students work together in small groups to consolidate their trash items and create larger sculptures.

Assessment:

- Ask students to name the discarded items they reused for their sculpture.
- Have them state how reusing these materials is helpful to the environment.

Related Activities:

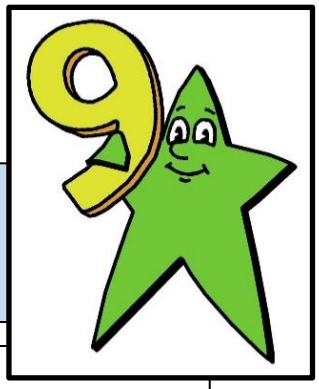
Trimming Holiday Waste – Chapter 7
Repurposing in the Classroom – Chapter 12
Making Cloth Napkins – Chapter 13
Special Materials for Recycling – Chapter 19
Creative Crayon Recycling – Chapter 20



Extensions:
(continued)

- Ask students to take photos of their sculptures from different angles. Have them each compose a presentation slide featuring their photos and a synopsis of how their sculpture relates to the theme. Gather the slides to create a digital art show.
- Have students brainstorm more reuse ideas for these and other items that would otherwise be discarded.

Locker Leftovers/Classroom Cleanout



Snapshot
At the end of the school year, capture unwanted school supplies and more for reuse and recycling.

Objective: Divert as much as possible from the landfill or incinerator during end-of-the-year classroom and locker cleanouts.

Age Groups: K-12th grade

Setting: School building

Project Duration:
- Preparation: 1-2 hours
- Implementation: varies based on school size and chosen project (1-3 days)

Materials:
- School trash, recycling, and/or composting bins
- Boxes or bins for collecting reusable items
- Signage for all bins
- Tables for stations
- Volume-tracking sheets

Why This Project Matters:

Humans are consuming the earth's natural resources at an alarming rate. One reason for this is the common habit of replacing perfectly usable items with new ones. Buying back-to-school supplies is a prime example. Students and their families often purchase new folders, pencils, crayons, notebooks, and other items even though last school year's supplies still have plenty of life in them. Classroom and locker cleanouts during the frenzy and excitement of the last days of school often lead to large quantities of usable school supplies and other personal items being tossed into the trash.

Project Summary:

These two projects have the same goal (an astounding reduction of waste), but slightly different formats based on age groups and school layout. *Locker Leftovers* is designed for secondary schools that utilize lockers for student belongings, and *Classroom Cleanout* is designed for elementary schools where classrooms typically contain student belongings, not lockers. Implementing an organized and structured collection system for reusing and recycling unwanted materials will drastically reduce waste during end-of-the-school-year cleanout sessions. The result is cleaner hallways, emptier trash dumpsters, happier custodians, and a healthier planet.

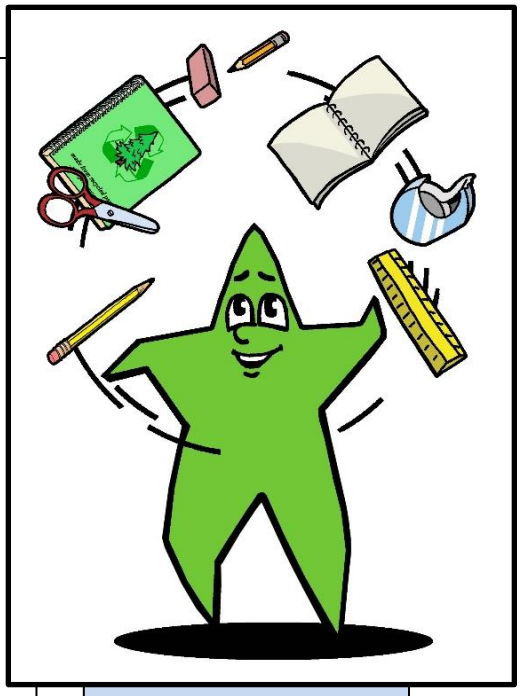
Implementation:

Locker Leftovers (secondary):

1. Coordinate with school administrators and custodians to select a date and time for locker cleanout.
2. Identify a student sponsor group and schedule a meeting for two weeks before the event. A student group will serve as the promotions crew. Student councils, eco-clubs and leadership groups are good options for this task.
3. Prepare the necessary information (when, where, and how) about the event and create an ad for publication in the school newsletter.
4. Do a walk-through of the hallways with the staff member who assigns student lockers. Determine where each grade level's lockers are located and use this when coordinating the classroom release schedule for locker cleanout.
5. After the walk-through, work with the head custodian to plan where the reuse and recycling station tables will be located. Determine how to staff each station (teachers, other staff, students, volunteers, etc.).
6. A few weeks before the event, meet for approximately 30 minutes with the student sponsor group. Take pre-made posters (students may add color/customize) and pre-written announcements for them to promote the event (see printable examples at the end of this chapter). Explain to the group that they are responsible for advertising the project to their school community. Allow students time to decorate the posters and practice reading the announcements during the meeting. Encourage them to customize the posters with phrases such as "Reuse if you can!" or "Recycle all of your used paper!" Students may also generate their own ideas for promoting the project, such as recording and distributing video announcements.
7. Have the group create a timeline for their promotions. Display the posters and start to share the announcements about one week before the cleanout date.
8. Decide how to categorize collected items during the cleanout. Create clear, bold signage for each collection bin (see printable samples at the end of this chapter).
9. Reach out to teachers and departments within the school to see which might be interested in receiving certain items for special projects or to distribute to their students. Create an official order form to track requests. Identify other groups in need that would like to receive the remaining used school supplies (charities, lower-income schools, etc.). Find out which items and quantities are desired by each group and coordinate delivery dates.

Extensions:

- If space is available, store the collected and sorted reusable items during summer break and hold a "Back to School Used School Supplies Sale" as a fundraiser in the fall.



10. On the day of the event, collect as many hallway trash cans and recycling bins as possible and relocate them to the project collection stations, leaving no other options for waste disposal near lockers. Add compost bins if compost is collected at your school. This keeps students from automatically dumping their materials in the trash and funnels them towards the stations for reuse and recycling. Each station should have a table, reuse collection bins, recycling bin(s), trash bin(s), compost bin(s), and signage. (See Station Layout for Locker Leftovers/Classroom Cleanout below.)
11. When the locker cleanout event has concluded, sort any misplaced materials into their correct receptacles and record the total volumes in each category. Deliver items to charities and recycling centers, then share the landfill-diversion volumes with the school community.

Classroom Cleanout (elementary):

1. Coordinate a time frame with school administrators when students will clean out their desks and classrooms. (It may span more than one day.)
2. This project can be successful with or without a student sponsor group. If a student group will be helping with the promotions, schedule a meeting for two weeks prior to the cleanout. If not utilizing a student group, a willing teacher, parent, or staff member can organize the promotions. Promotional tools may include posters and school-wide announcements. (See samples below.)
3. Prepare the necessary information (when, where, and how) about the event and create an ad for publication in the school newsletter.
4. Establish an exchange table for reusable materials in a central location. Decide how items should be separated and make signage (see printable samples at the end of this chapter). Invite all teachers and students to put unwanted school and classroom supplies on the table and to take what they need. Identify a group or groups to receive anything left over (charities, lower-income school, etc.). Find out which items and quantities are desired by each recipient and coordinate delivery dates.
5. Assign someone to occasionally monitor the bins during the event to make sure they do not overflow.
6. When the cleanout event has concluded, sort any misplaced materials into their correct receptacles and record the total volumes in each category. Deliver leftover items.

Assessment:

Total the volume of all materials diverted by the event. Discuss with the head custodian the ways in which they see the program positively benefitting the school and the community. When announcing the success of the project to the school, emphasize this information along with the environmental benefits of the project (less trash, less need for landfills, natural resources and energy saved).

Related Activities:

Repurposing in the Classroom – Chapter 12
Schoolwide Recycling Collection – Chapter 18
Creative Crayon Recycling – Chapter 20

Sample Poster:

Locker Leftovers

Your trash could be

someone else's TREASURE!

Remember to bring reusable & recyclable items to the donation stations during Locker Cleanout!

Sponsored by: [Funder Logo]

Sample Announcements:

*Update similar facts from a reputable source before sharing with the school community. **Enter specific information pertaining to your event.

For several days prior to your Locker Leftovers or Classroom Cleanout event, use these P.A. announcements to motivate and inform the school community. This information can also be used to create banners, posters, and video announcements.

1. We make 292 million tons of waste each year in the United States. An astounding 62% of this waste ends up in landfills or incinerators and only 32% is recycled or composted! You can help the environment and your community by recycling and donating reusable items during Locker Leftovers [Classroom Cleanout]. Look for donation station(s) near your lockers [other location] on [date]. This project is being brought to you by [funder(s)/implementing group(s)].

2. Americans make an average of 4.9 pounds of trash per person per day and only 1.6 pounds of this is recycled or composted! Don't let your school supplies go to waste! Bring reusable and recyclable items (such as paper, pens, notebooks, clothes, and art supplies) to the cleanout station(s) during Locker Leftovers [Classroom Cleanout] on [date].

3. We all throw away millions of tons of recyclable and compostable material every year. About 1/4 of our waste is paper and paper products. Remember that you can donate clean paper and notebooks, along with other recyclable and reusable items at the cleanout station(s) during Locker Leftovers [Classroom Cleanout] on [date].

4. The more trash we have, the more landfills we'll need. Landfills take up space, can pollute groundwater and give off methane gas, which is a potent greenhouse gas. Don't let your school supplies end up in a landfill! Take reusable goods and recyclable items to cleanout station(s) during Locker Leftovers [Classroom Cleanout] on [date].

5. Remember, your trash could be someone else's treasure. Reusing and recycling reduces trash and helps save limited natural resources. Take paper, pens, pencils, books, clothing, art supplies and other reusable or recyclable items to the cleanout station(s) during Locker Leftovers [Classroom Cleanout] on [date]. This project is sponsored by [funder(s)/implementing group(s)].

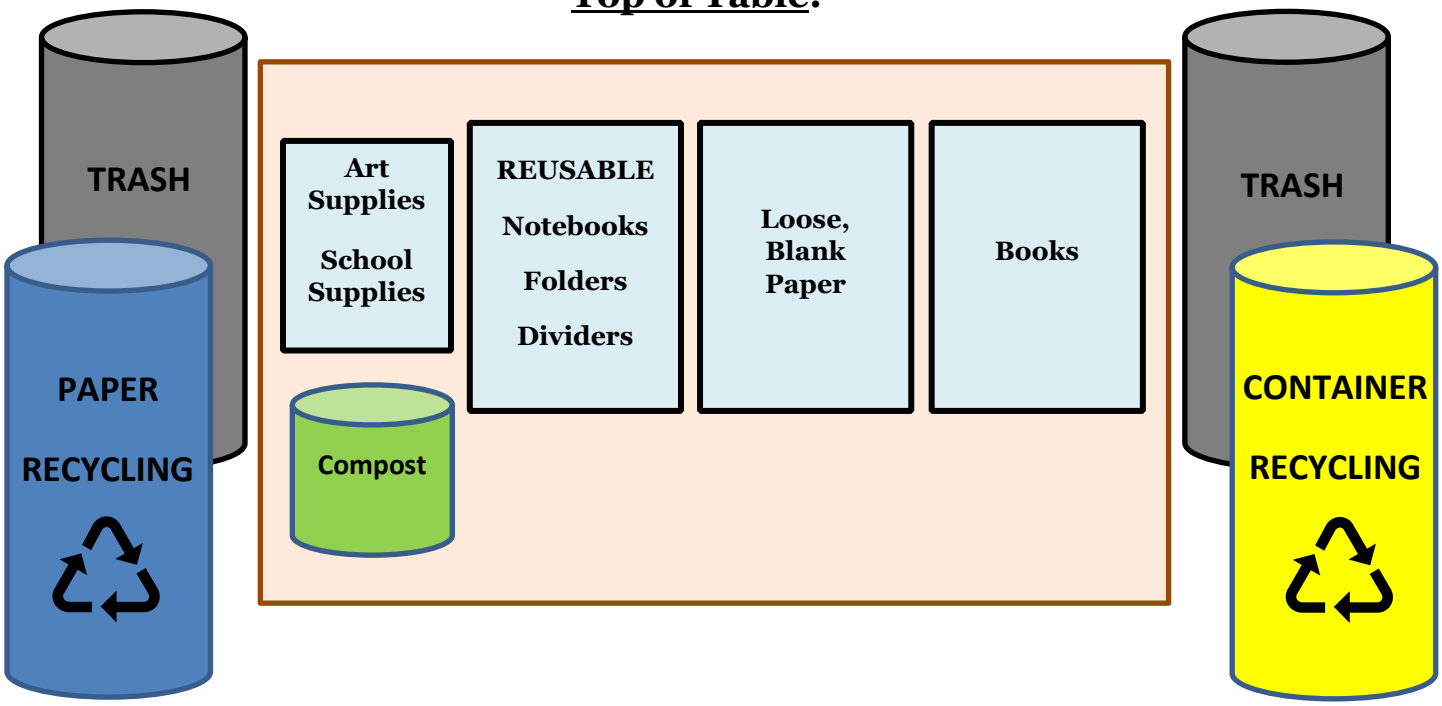
Station Layout for

Locker Leftovers/Classroom Cleanout:

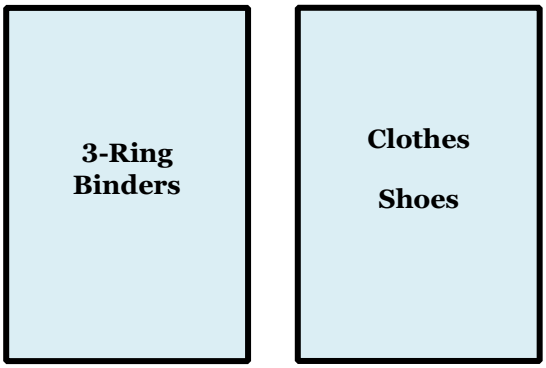
See below for a sample layout of collection bins for the Locker Leftovers or Classroom Cleanout station(s).

Side: **Side:**

Top of Table:



Under Table:



<u>Sample Bin Signage</u>:

Clothes & Shoes

Books

Loose, blank paper

3-ring binders

School Supplies & Art Supplies

REUSABLE Notebooks Folders Dividers

Sample Bilingual Bin Signage:

Clothes
& Shoes

Ropa y
Zapatos

Books

Libros

Loose, blank paper

Hojas de papel
sin escritura

3-ring binders

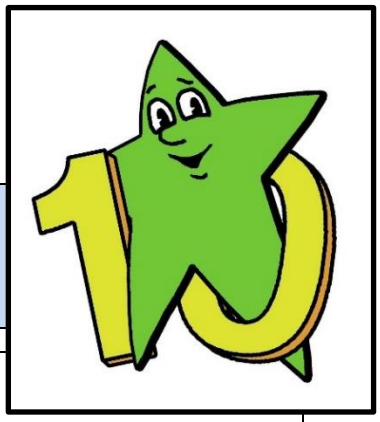
Carpetas de papel
de argolla

School Supplies,
Art Supplies

Utiles Escorlares,
Utiles para la
Clase de Arte

REUSABLE
Notebooks, folders, dividers

REUTILIZABLE
Cuadernos, carpetas,
separadores



Reducing Junk Mail

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https://bit.ly/eco-cycle-zero-waste-schools-guide

Snapshot
By stopping unwanted mail, schools and families can save resources, reduce waste, and support a healthier environment.

Objective: Stop as much unwanted mail as possible.

Age Group: 5th-12th grade, adults (school staff and families)

Setting: School office, staff lounge, homes

Project Duration: Ongoing

Materials:
- unwanted pieces of mail
- internet access
- empty box for collecting mail

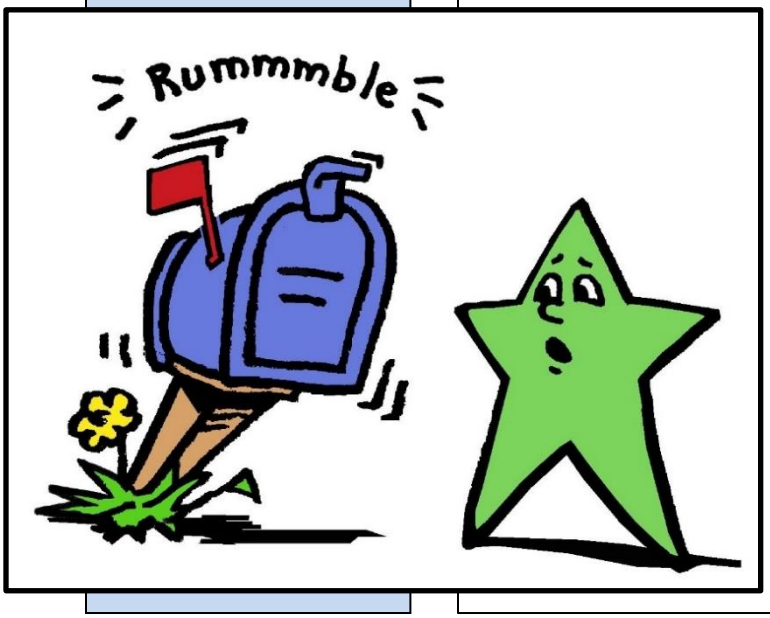
Why This Project Matters:

Junk mail is not only excessive and overwhelming at times, but it also comes at a huge cost to the environment. Hundreds of billions of pieces of physical mail are distributed annually in the U.S. Hundreds of millions of trees are cut and processed to create this mail, much of which will end up in the trash and not recycled. This waste affects our climate as well - the production and disposal of junk mail consumes an enormous amount of energy (and produces air and water pollution!).

Project Summary:

With a small time commitment, it is possible to reduce the amount of unwanted mail that a school and/or family receives. Working with a mail-reduction company or contacting senders directly will drastically reduce the amount of unwanted mail in the delivery system, while conserving natural resources and energy.

Implementation:



1. Begin by collecting unwanted mail in a central location. Place a box labeled *JUNK MAIL* in a common area of the school building, such as a staff lounge, where staff members may deposit any unwanted mail.
2. Choose a method for eliminating the junk mail that staff are receiving. Work with a mail-reduction company (such as Catalog Choice) or call the companies sending the junk mail directly and ask for removal from their mailing lists. Both methods may be employed by an environmental club or parent volunteers.

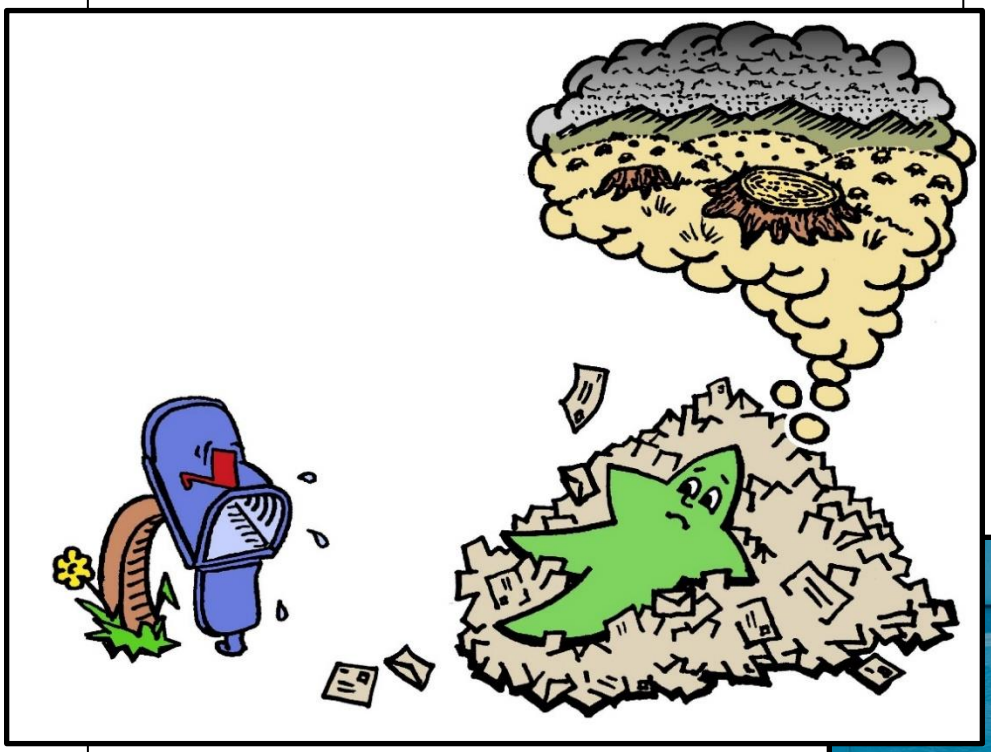
3. If choosing to work with a mail-reduction company, research the options and choose one based on your school's needs and means. Register for service with the company and supply junk mail sender names and addresses from the pieces collected.
4. If choosing to call junk mail senders directly, call each sender and ask to be removed from their mailing list. It may be a few weeks before all mail from a sender stops.
5. As new pieces arrive from new senders not yet submitted to the mail-reduction company, access the account and add their names. Keep a list of senders called directly, so that you do not need to repeat those calls. Different names for the same person may have to be submitted separately.

Assessment:

Unwanted mail will be noticeably reduced after this project.

Related Activities:

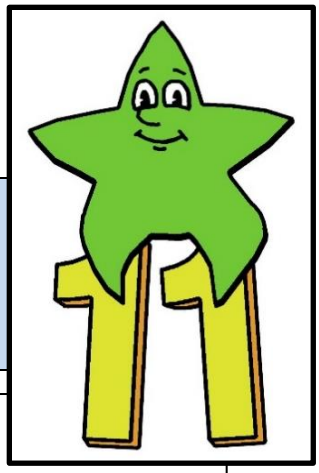
Paper Reduction Campaign – Chapter 6



Extensions:

- Consider involving families by hosting a contest between classes or grade levels. Ask families to sign up for an account with the chosen mail-reduction company or to call junk mail senders directly. Ask them to opt out of at least one or more unwanted mailings. The class or grade with the highest percentage of family participation wins the contest.
- Create a mail-stopping service as a fundraiser. For a small donation, families could send their collected junk mail to a student group and let them register the addresses with a mail-reduction company on behalf of the families.

Zero Waste School Parties and Events



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Snapshot
With a little advanced planning, large (schoolwide) and small (classroom) celebrations at school can incorporate Zero Waste methods, leading to fewer waste items and a healthier environment.

Objective: Little or no trash will be produced during school parties and events.

Age Groups: K-12th grade and adults

Setting: Classroom or larger space(s) on school property

Project Duration:
- Planning meeting: 30 minutes
- Organizing materials and volunteers: 1-2 hours
- Party or event: varies

Materials:
- Waste-reduction tip sheet
- Internet access (for researching party suppliers)
- Reusable or compostable partyware
- Zero Waste Event signage or banner (for all-school events)

Why This Project Matters:

Like the winter holidays, year-round parties and events can produce large volumes of trash. Common party-planning trends often encourage the use of disposable cups, plates, utensils, decorations, and sometimes trinkets or favors, all of which are destined for the landfill. When the party fun is over, bags of waste are discarded, posing further harm to the environment.

Project Summary:

Parents and school staff who plan school parties and events will learn about recyclable, compostable, and reusable options for common party accessories, and will make other party-planning choices with Zero Waste in mind.

Implementation:

Classroom parties:

1. Coordinate a meeting with parents or staff members who are organizing the parties. Allow enough time for questions, brainstorming, and discussion.
2. Provide party planners and teachers with tips on reducing party waste (see Zero Waste Event & Party Tips below).
3. If choosing to use reusables (the least-wasteful option), give organizers a list of discount/thrift stores that stock reusable cups, plates, and utensils (see Checklist for Zero Waste Event & Party Kits below). If choosing to use compostables, give organizers a list of stores/internet sites that stock BPI-certified compostable partyware. Plastic-coated paper plates, bowls, and cups must be kept out of the compost. Plain paper napkins are compostable. Aluminum foil, metal cans, drink cartons and plastic bottles can be recycled. (Juice pouches are not recyclable.)
4. Consider creating or buying reusable party decorations for each class.

5. Coordinate the placement of extra compost collection bins, if needed, and the emptying of those bins into the school compost dumpster (or the transport of the compostables to a compost facility if compost collection is not established at the school).

All-school events:

1. Coordinate a meeting with parents or staff members who are organizing the event(s). Allow enough time for questions, brainstorming, and discussion.
2. Provide party planners with tips on reducing party waste (see printable Zero Waste Event & Party Tips below).
3. Provide organizers with a list of stores/internet sites that stock BPI-certified compostable partyware. Planners may also consider using durable cups, plates and/or utensils if seeking the least-wasteful option (see Zero Waste Event & Party Tips below). Ask for parent volunteers to take and wash reusables at home or utilize the school's kitchen dishwasher if possible. Another option is to have families bring their own reusable cups, plates, utensils, and napkins that they can use and take back home.
4. Plastic-coated paper plates, bowls, and cups must be kept out of the compost. Plain paper napkins are compostable. Aluminum foil, metal cans, drink cartons and plastic bottles can be recycled. (Juice pouches are not recyclable.)
5. Consider creating or buying reusable decorations that could be used at multiple events.
6. Recruit parent, student, and/or staff volunteers to monitor waste stations during the event and assist guests with their waste sorting.
7. Display signage that the event is a Zero Waste event to educate the school community.

Assessment:

Monitor the school's classroom trash and/or trash and compost dumpsters to gauge the success of the project in reducing waste. Let the school community know how successful the effort has been. Success will grow with repeated events and the change in school community culture.

Related Activities:

Trimming Holiday Waste – Chapter 7
Conducting a Waste Audit – Chapter 30

Extensions:

- Save the trash bag(s), if any, from the party or event and conduct a trash audit (see Conducting a Waste Audit, Chapter 30). Discuss with students and staff what was found in the trash and brainstorm ideas for how to avoid those items at future parties or events.
- Have a class or student group monitor the trash, compost, and recycling to prepare a report on the success of the project. Share the report with the party or event planners for future improvement.

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Building Zero Waste Communities

ZERO WASTE EVENT & PARTY TIPS

Use these suggestions to help reduce waste at events:

Reducing and reusing help the Earth the most! Recycle and compost everything you can.

PLATES

- Durable plates can be washed and reused.
- Plain, uncoated paper plates are compostable and generally less expensive.
- Avoid colorfully-decorated plates, which are plastic coated (must be landfilled).

NAPKINS

- Cloth napkins can be washed and reused.
  Students can create their own napkins from bandanas, old-t-shirts or fabric.
- Paper napkins and paper towels are compostable.

TABLECLOTHS

- Wash and reuse cloth or plastic tablecloths.
- Avoid single-use disposable plastic tablecloths (must be landfilled).

UTENSILS

- Durable utensils can be washed and reused.
  Provide finger foods which require no utensils.
- Compostable utensils must be BPI certified.
- Avoid single-use, plastic utensils (must be landfilled).

DRINKS

- Durable cups can be washed and reused.
- Bottles, cans and cartons are recyclable.
  Empty liquids before recycling!
- Compostable cups are available for hot and cold beverages!
- Avoid juice pouches and single-use straws (must be landfilled).

*Look for **BPI certified compostable** cups, utensils, and products.*

COMPOSTABLE IN INDUSTRIAL FACILITIES
Check locally, as these do not exist in many communities. **Not suitable for backyard composting.** CERT # SAMPLE
BPI®

Encourage event attendees to bring their own reusables.

Create Your Own Reusable Kit!

Reusable plates, cups, utensils, napkins and serving ware.

Ask volunteers to wash and return reusable kit materials.

MORE ZERO WASTE TIPS

- *Choose or make reusable decorations.*
- *Prevent food waste. Bring containers to send leftovers home.*
- *Recycle clean, balled-up aluminum foil and aluminum trays.*
- *Compost non-metallic cupcake wrappers.*
- *Avoid plastic wrap and plastic bags.*
- *Reduce packaging waste. Buy in bulk!*

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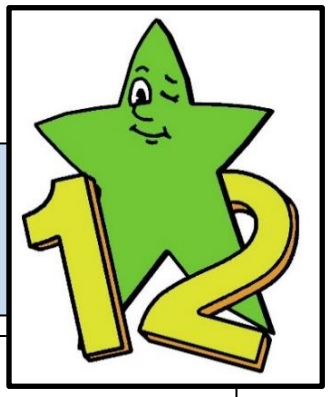
Repurposing in the Classroom



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Snapshot
There are many ways to repurpose discarded items into teaching tools and classroom supplies. Doing so encourages students to develop a conservation mindset.

Objective: Students will be able to discuss and show examples of reusing and repurposing items in the classroom and how those actions benefit the environment.

Age Groups: K-12th grade

Setting: Classroom

Project Duration: Ongoing

Materials:
- Varies by reuse idea
- Chart paper
- Markers

Why This Project Matters:

There is a reason that REUSE comes *before* RECYCLE in the order of the 3 R's (Reduce, Reuse, Recycle): because it is an even *better* way to help the environment!

Reusing items:
- reduces waste. Waste is generated throughout the life cycle of a new product including the extraction of raw materials, the manufacturing process, packaging, distribution, consumption, and disposal.
- saves natural resources (trees, metal ores, minerals, oil, coal).
- keeps materials out of the waste stream, reducing the need for landfills and incinerators and reducing the amount of litter in the environment.
- eliminates the air and water pollution created when making brand-new items or when recycling old items into new.
- results in less hazardous waste.
- helps safeguard wildlife habitats.
- reduces costs.
- preserves the "embodied energy" that was originally used to manufacture an item.

Project Summary:

Teachers may choose from the ideas listed below to set up a classroom where reuse is a priority. Reusing items in the classroom is easy, economical, and provides a good model of Zero Waste practices in action.

Implementation:

1. Have students brainstorm ways that items are currently being reused or repurposed in the classroom. Make a list, post it on a bulletin board, and highlight any reused items that cannot otherwise be composted or recycled.

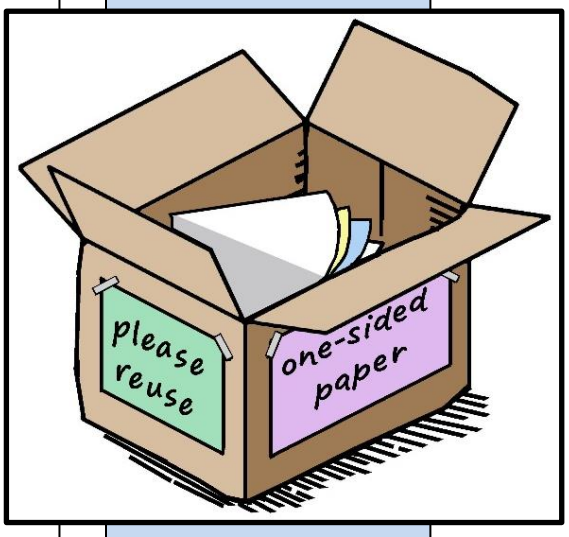
2. Continue brainstorming ways that items *could be* reused in the classroom. Use the list below for ideas if needed.
3. Decide which reuse ideas you would like to implement. Make a list of natural resources saved by reusing each of these items (e.g., reusing the backside of paper saves trees) and post the list somewhere in the classroom. Discuss other environmental benefits (reduces waste, uses less energy than making new products, etc.).

Ideas for reusing and repurposing in the classroom:

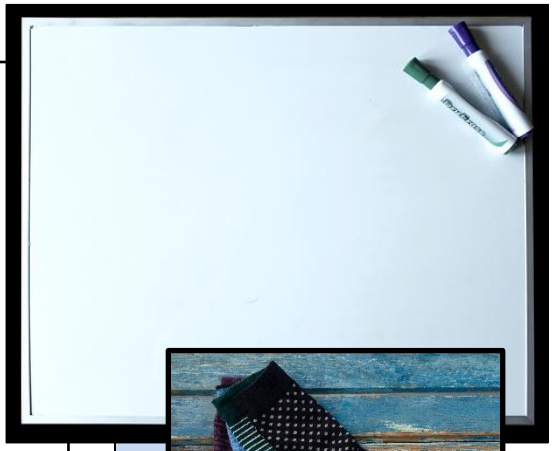
- Establish a tray for collecting one-sided paper (paper with one side printed and the other blank) to be reused as writing/drawing paper for students or as printer paper for teachers.
- Collect scrap paper (including half-sheets) for notes, sketching, practicing math problems, spelling tests, etc.
- Create a bin for collection of colored paper and construction paper scraps to reuse during art projects.
- Collect used plastic zip-top baggies to contain teaching materials for students (baggies should not have contained food prior to reuse).
- Save plastic shopping bags for sending delicate projects home with students, or for litter clean-ups around the school campus.
- Collect small plastic yogurt/applesauce tubs to plant seeds, organize manipulatives, contain paper clips, hold coins during currency units, collect reward tickets, etc.
- Cut chip bags open, wipe clean, then cut into strips and tape into rings to make 'paper' chains for counting days of school or classroom décor (instead of using new construction paper).
- Have students save and decorate tissue boxes for Valentine's Day card collection, or for organizing small desk items, such as erasers and pencils. (Recycle after use.)
- Separate decorative front covers of greeting cards and turn them into gift tags, table tents, name cards, or post cards to pen-pals. (Recycle after use.)
- Use unwanted mugs, tennis ball cans, and paperboard cans (from nuts, hot cocoa, etc.) to contain pencils, markers, scissors, and rulers. These could also be used to collect teaching tools that have small pieces, such as puzzles, building blocks, and manipulatives. If desired, paint or decoupage the outside of the container.

Extensions:

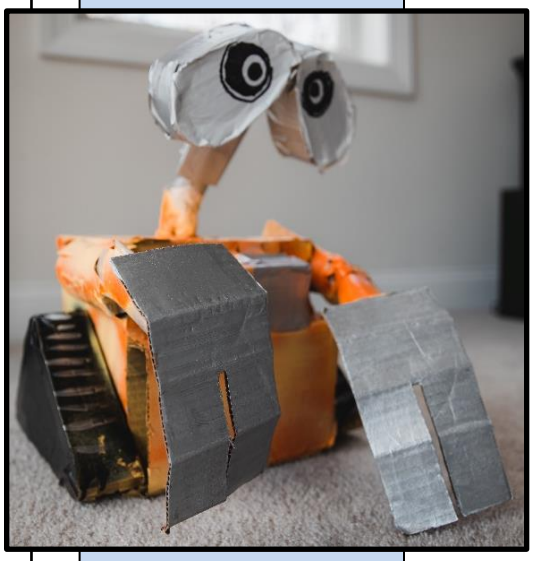
- Have students showcase their class's reuse ideas at an all-school event, such as a back-to-school night, school-wide festival, or assembly.
- Create a display for a prominent hallway or display case exhibiting reuse ideas that also includes facts about reuse and the environment.



- Use orphaned socks (ones that lost their match) for white board erasers.
- Use an old sheet, tablecloth, or fabric remnant as bulletin board backgrounds (they are more fade-resistant than butcher paper).
- Use newspaper to line classroom compost buckets (this keeps the inside of the bucket cleaner for longer and can be composted along with food scraps, tissues, and paper towels).
- Use newspaper instead of butcher paper to cover tabletops when doing messy art projects. (Recycle or compost when finished.)
- Use brown paper grocery bags, calendar pages, magazines, and maps as gift wrap. (Recycle after use.)
- Use chip bags for collecting small trash items in desks. Or cut them open, wipe them clean and use as gift wrap.
- Save plastic or metal gum and mint containers to send baby teeth home when lost at school.
- Use pages from old textbooks, damaged library books, and magazines for collage projects.
- Save large cereal boxes and laundry detergent boxes. Cut off the top and diagonally along the sides to make a library book/folder holder for student desktops. (Recycle after use.)
- Make notebooks/journals from one-sided scrap paper, paperboard boxes (for covers), and pieces of yarn or metal rings (for binding) using a paper cutter and a hole-punching tool.
- Ask a local carpet store for unwanted carpet tiles for use when students sit on classroom floors and auditorium floors during assemblies. Cut up old yoga or exercise mats for the same purpose.
- Instead of purchasing popsicle sticks to make name sticks, collect and wash straws from juice boxes and pouches. Attach photos or drawings of students to each straw. Bottle caps and jar lids can also be used with a photo or drawing of the student placed inside (these can also be turned into magnets).
- Instead of purchasing marbles, use bottle caps in a jar for measuring and rewarding positive classroom behavior.
- Use a milk jug as a watering can for classroom plants and animals' water dishes.
- Invest in a set of party reusables– cups, plates, flatware, and cloth napkins. Students may be able to bring in donations, preferably extras from home or purchased at thrift stores.



- Instead of disposable wipes or paper towels, have rags and sponges on hand for classroom cleaning.
- Hold a "Radical Reuse" session:
    1. Have students collect clean, non-recyclable packaging and supplies from home or school such as: wrappers, zip-top plastic bags, foam trays, straws, juice pouches, chips bags, freezer boxes, plastic 6-pack rings, frozen juice containers, to-go containers, yogurt peel-off lids, empty sticker/label/stamp sheets, dried up markers, abandoned marker caps, etc.
    2. Store these in a special container in the classroom.
    3. Explain to students that these are not recyclable or compostable and would be considered trash, but they are going to be kept out of the landfill by reusing them.
    4. Use these materials to have students create a themed project based on the curriculum being studied. For example:
        - Create an animal (real or fictional) that can live in the rainforest. What adaptations would it need?
        - Design an alpine landscape. What geological features would it have?
        - Construct a new insect. How many legs and body segments must it have?
        - Assemble geometric shapes from items.
        - Represent mathematical concepts like parallel lines.
        - Use straws or marker caps to teach addition and subtraction.
        - Paste images on the undersides of yogurt lids to create the game of *Memory*.
        - Use straws to make a set of *Pick-Up Sticks*.
        - Create mosaics or collages for book report covers from words and photos cut from packaging containers (chip bags and wrappers).
        - Design a machine or robot with moving parts.
        - Use small items to create dioramas or art sculptures.
        - Find ways to make musical instruments from these objects.



Assessment:

Have students write letters to pen-pals or administrators within the school explaining how their class reuses items in the classroom. Each letter should include three or more examples of reuse and explain at least one way that reuse helps the environment.

Related Activities:

Trimming Holiday Waste – Chapter 7
Getting Artsy with Reuse – Chapter 8
Creative Crayon Recycling – Chapter 20

Making Cloth Napkins

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Snapshot
Turning tattered textiles into reusable napkins saves trees and keeps reusable fabric from going to waste.

Objective: Students will understand how the making and disposal of paper napkins increases waste, negatively affecting habitats and depleting natural resources.

Age Groups: K-6th grade

Setting: Classroom or activity space

Project Duration: 30-60 minutes, plus time for background learning and collecting fabric

Materials:

- Unwanted textiles
- Collection bin
- 12”x12” wood or cardboard frames (one per four students)
- Scissors or pinking sheers
- Permanent or fabric markers
- Stamps/pads
- Smocks for clothing protection (optional)

Why This Project Matters:

Every year, millions of trees are cut down to make disposable napkins. Some of these trees are from old-growth forests in North America and around the globe, our last original forests! It does not have to be this way!

Using cloth napkins instead of paper napkins saves trees, reduces waste in landfills, protects animal and plant habitat, saves energy, and reduces air and water pollution.

When cloth napkins are made from unwanted textiles (towels, t-shirts, bedsheets, etc.), the environmental benefits increase because the material gets reused and is not discarded. The consumption of energy and the resources required to manufacture new cloth napkins is also avoided.

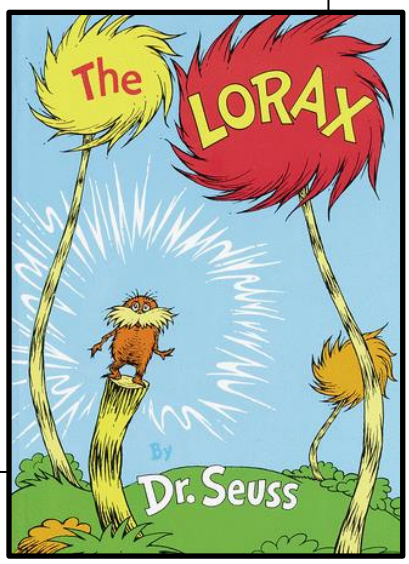
Project Summary:

In this activity, students will make simple cloth napkins using unwanted fabric. They will decorate their napkins with markers and stamps to make their own unique, eco-friendly treasures.

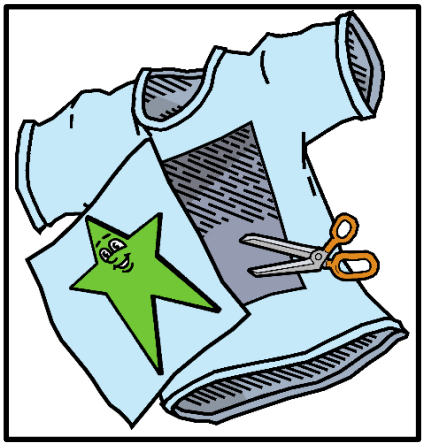
Implementation:

Background learning:

1. Read *The Lorax* by Dr. Seuss and have a discussion comparing ‘thneeds’ with paper napkins.
2. Have students estimate how many paper napkins they use in a week at school and at home. You may also choose to include tissues and/or all disposable paper products that get discarded in the trash.



3. For upper elementary students: Calculate the number of paper napkins used by the school cafeteria in a school year. Ask the school kitchen for an unopened package of paper napkins and find out how many napkins it contains. Then ask how many packages are used in the average school week. To get your estimated total number of napkins used in a school year, multiply: **number of napkins/package x number of packages/week x number of weeks/school year.**
4. Calculate the number of trees used each year to supply your school with paper napkins. Weigh the unopened package of paper napkins in ounces. There are 16 ounces in a pound, and 117 pounds of paper can be made from a 35-foot-tall pulpwood tree. To get your estimated total number of trees used for paper napkins in a school year, multiply: **weight of package in ounces x number of packages/week x number of weeks/school** and divide that number by **16** (ounces/pound). Take this new number in pounds and divide it by **117** (pounds/tree) to get the number of trees used for paper napkins over the course of a school year.



Making napkins:

1. Organize an "Unwanted Textiles Drive" at school or in the classroom. Advertise with announcements, newsletter information, posters, and/or emails to families. Place collection bins in the school lobby or classroom. Ask for used/unwanted (not brand-new) t-shirts, sweatshirts, sweatpants, pajamas, sheets, and towels. (Fleece is not absorbent enough. Cottons work best.) *Specify that fabrics must be clean!* (Another option is to contact a textile or clothing manufacturer, or fabric store, to see if they might donate scrap fabric.)

Extensions:

- Create incentives for student to use their napkins during school lunches throughout the school year.
- Facilitate a "napkin party" to celebrate reuse. Challenge students to bring in all the reusables they will need to eat a snack (container, cup, utensils and of course, napkin). Brainstorm ahead of time which types of snack foods produce minimal trash. Have kids sign up to bring waste-free treats.
- Have students find out how much money their school spends on paper napkins each year. What could that money be used for instead?
- Help students make a set of cloth napkins to give as a holiday gift.

2. Make 12”x12” frames or templates out of wood or used cardboard boxes for students to trace on fabric. Plan to have at least one frame per group of four students.
3. For very young students, cut the fabric into strips 12” wide prior to the activity (so students will only have to make one cut).
4. Before making the napkins, assemble work surfaces (long tables protected with newspaper) and line up extra adult supervision.
5. Help younger students line up the frames with the end of the fabric and trace the line with a marker. Older students can hold and trace the template themselves.
6. After cutting out their napkins, students can decorate them using stamps and markers.
7. Encourage students to take their napkins to lunch daily and to make napkins for their friends and family.
8. Donate leftover, still usable textiles to a thrift store.

Assessment:

Quiz students in the cafeteria or classroom after their napkin-making session. Ask them how using a cloth napkin instead of a paper one helps the environment.

Related Activities:

Waste-Free Lunch 1: Classroom Challenge – Chapter 2
Waste-Free Lunch 2: School Contest – Chapter 2
“One or None” Paper Towel Campaign – Chapter 5
Getting Artsy with Reuse – Chapter 8
Creative Crayon Recycling – Chapter 20

Reusing Children's Books

Snapshot
This project keeps already-loved books out of the landfill and gets them back into the hands of children.

Objective: Used books will be collected and redistributed in a way that benefits the school and/or its students.

Age Groups: PK-12th grade

Setting: School library, classroom, or other locations in the building

Project Duration:
- Planning: 1+ hours, depending on collection type
- Collection time: varies
- Implementation: varies depending on book distribution

Materials:
- Poster-making materials
- Empty cardboard boxes/storage bins

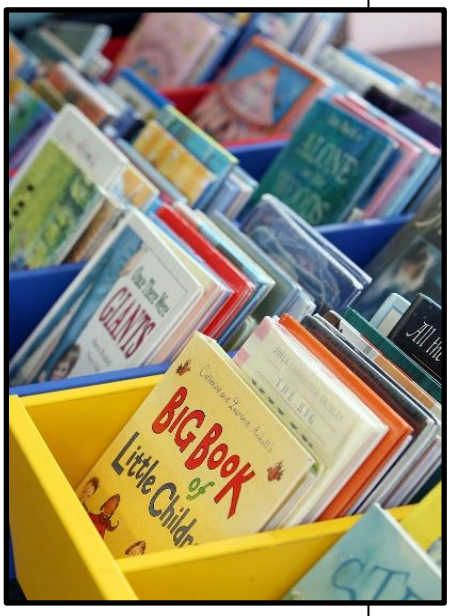
Why This Project Matters:

As kids grow up, parents are often left with shelves of unwanted books. Libraries and school districts often discard perfectly good books to make room for new ones. Many of these unwanted books, especially hard-covered ones, end up in landfills.

Project Summary:

This project begins by focusing on ways to collect used children's books from various sources. Next, it explores ideas about how to use them creatively within the school as an alternative to candy and trinket rewards. The collected books may even be sold as part of a fundraiser, replacing the traditional fundraisers that feature waste-making wrapping paper and candy bars. Most importantly, this project gets these books back into the hands of children.

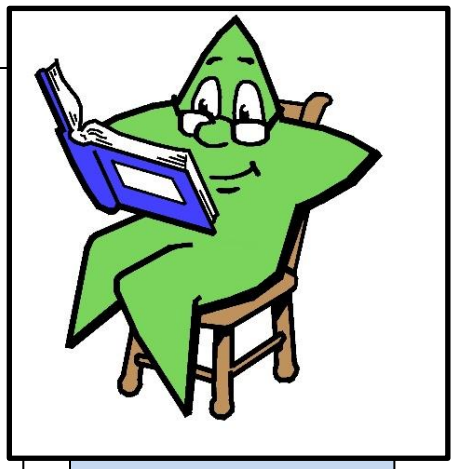
Implementation:



Collecting the books:
The goal is to gather a large quantity of gently-used children's books that are age-appropriate for the school. Inquire with local libraries, reuse/recycling/thrift centers, and the school district warehouse about unwanted books destined for the landfill. If these sources aren't available, run a book drive at the school using the following steps:

1. Ask school office staff to include information about the book drive in the school's newsletter, inviting families to donate.
2. Work with a student group to promote the book drive (create and display posters, make announcements, etc.) using eco-facts and other motivational messages.

3. Set up collection bins in a central location and ask teachers to donate unwanted books from their classrooms.
4. As the books are collected, sort them into boxes by age categories (preschool, primary, upper elementary, etc.) or type categories (picture books, beginning readers, chapter books, etc.).



Redistribution of books:
Now comes the fun part—giving the books to kids! Here are some ideas:

- Host a book sale (to encourage summer reading, raise funds to support the library, etc.).
- Facilitate a book swap.
- Lead a game of Book Bingo.
- Coordinate a Read-A-Thon.
- Place boxes of books in the staff lounge for teachers to restock their classroom libraries.
- Create a Birthday Book Box for kids to choose a book on their birthdays.
- Use books as student rewards or door prizes at school events.

Assessment:

This will vary by chosen project. Request feedback from teachers and administrators when the project is complete. Ask if the books were age-appropriate and if the quality and quantity was acceptable.

Related Activities:

Special Materials for Recycling – Chapter 19

Green Cleaning: Non-Toxic Schools

eco-cycle

https://bit.ly/eco-cycle-zero-waste-schools-guide

Snapshot
Many school buildings, school districts, and even states have begun replacing the hazardous cleaning products used in their facilities with products that are safer for human health and the environment.

Objective: The school building(s) will be cleaned using products and procedures that are safer for the environment and human health.

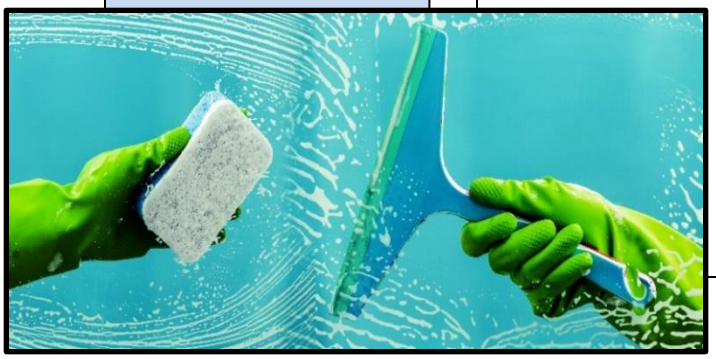
Age Group: Adults (staff, administrators, and parents)

Setting: School building

Project Duration: Ongoing

Materials:

- School district or school building cleaning policies
- Examples of current cleaning products used in the school or district
- Examples of non-toxic alternatives available for school cleaning



Why This Project Matters:

Many conventional cleaning products contain toxic chemicals that cause harm to the environment and human health. The use of these products may contribute to poor indoor air quality and can lead to health consequences including respiratory irritation, headaches, dizziness, asthma, and skin irritation. These chemicals should be used with proper safety equipment, good ventilation, and other necessary precautions to reduce exposure. Most of these products must be disposed of as hazardous waste. The aerosols and residues left behind when these products are applied to school building infrastructure can affect the health of students and staff.

Project Summary:

Schools and school districts can develop purchasing and usage policies to encourage the use of "'green" cleaners. Many vendors now offer non-toxic, effective cleaning products for school buildings. With the help of the administrative and custodial staff, a school or district can make the switch to non-toxic or less toxic products and procedures for specific applications.

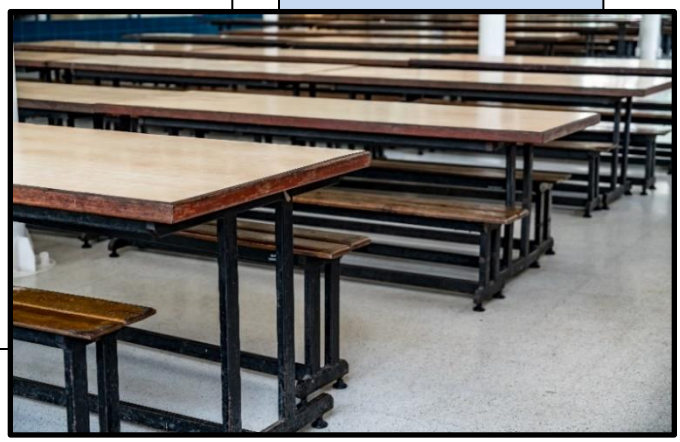
Implementation:

1. Examine current cleaning products that are being used in the school or school district. (Custodial and operations staff interviews can help gather this and other information.)
    - Which products contain toxic ingredients? Which green products are currently in use?
    - Do the products vary by school, or is there a district-wide policy that influences purchasing practices?
    - What sanitation considerations and requirements influence product choice and use?
    - What procedures are in place for the disposal of unused products?

2. Investigate if the school, district and/or state have any non-toxic cleaning regulations or policies for schools. The Environmental Law Institute (www.eli.org) includes an up-to-date and interactive database of laws on a variety of topics, including green cleaning. The State of New York hosts a website devoted to green cleaning, including best practices, purchasing ideas, and training for staff: http://greencleaning.ny.gov.
3. Develop a green-cleaning working group that includes custodial staff, building/grounds maintenance supervisors, school administrators, and parents. The diverse membership of the group will help ensure that multiple perspectives are heard when developing policies and best practices.
4. Have the working group draft proposed usage and purchasing policies for cleaning products. Draft policy examples are available on New York State's website: http://greencleaning.ny.gov.
5. Working with custodial staff, identify a list of products needed for general operations and cleaning (window cleaner, carpet cleaner, floor cleaner, cafeteria dishwasher detergents, etc.). Determine if there are any duplications among products to reduce the total number. For example, if a general cleaner can be used for many different applications, then separate cleaners may be eliminated.
6. Inquire with approved school district vendors about any green alternatives they may have to replace each product used by the school or district. A very comprehensive list of safer cleaning products is available from New York State: https://greencleaning.ny.gov/Product/Default.aspx.
7. Obtain samples of products from vendors and be sure custodial staff receive training on how to use them. Coordinate a pilot project where custodial staff in one or more schools conduct a trial to compare the new green-cleaning products with the existing conventional cleaning products.
8. Request feedback from custodial staff on ease of use and effectiveness. Address potential challenges that may prevent proper cleaning and disposal procedures, such as language barriers, lack of proper cleaning equipment and tools, and/or differences between daytime and evening custodial procedures.

Extensions:

- Report on the school or district's success through presentations at state education conferences and nearby school district custodial meetings.



9. After processing feedback from custodial staff and the working group, launch the broader green-cleaning program. From an environmental standpoint, it is often better to safely use up existing cleaning products before replacing them with the new, less toxic products. However, beginning the summer or school year with the new green-cleaning products before the existing, conventional ones have been used up may be beneficial when considering staff training efficiency.
10. If disposing of unused, conventional cleaning products, inquire with the school district about their protocol for discarding hazardous waste. If no policy exists, identify local hazardous waste disposal/recycling options.
11. Have the green-cleaning working group finalize the purchasing and usage policies for cleaning products along with a list of school district-approved cleaners. Make sure these products are readily available from school district-approved vendors.
12. Notify staff, students, and parents of this positive change by announcing the use of greener cleaners and cleaning procedures in the school or district's newsletter, through posters, P.A. announcements, etc.

Assessment:

Six months after implementation, inquire with custodial staff about their experience with the greener cleaners. Ask if they are still using any conventional, toxic cleaners and if they are utilizing the proper techniques for storage, use, and disposal.

Related Activities:

Purchasing Policy 2: School/District Policy – Chapter 17

Lessening Litter

eco·cycle

https://bit.ly/eco-cycle-zero-waste-schools-guide

Snapshot
While learning about the impacts of litter on our environment through exploration and expression, students can actively educate themselves, their peers, and the greater community.

Objective: Students will understand the threats that litter causes to the natural world and learn ways to reduce and prevent it.

Age Groups: K-12th grade

Setting: Classroom, school environment, greater community

Project Duration: Varies by activity

Materials: Varies by activity

Why This Project Matters:

The presence of litter in both natural and developed areas continues to increase harm to wildlife and people, as well as decreasing the aesthetics of those areas. It has also been found that litter begets litter. Educating youth about the effects that litter has on the environment, and instilling habits of proper disposal, will allow them to connect more to their immediate surroundings and will motivate them to lead in their community by setting an example.

Project Summary:

Discussions, community service projects, and interactive games can be woven together to create a meaningful, lasting experience for students and staff about the behaviors and attitudes surrounding litter and its impacts on our environment.

Implementation:

1. Begin by leading a discussion about litter:
   - What do we already know about litter?
   - Where have you seen it (school grounds, neighborhood, campgrounds, hiking trails, city streets, highways, etc.)?
   - Who has ever witnessed someone littering? How did you respond?
   - How do you feel when you see litter?
   - Who has ever picked up litter?
   - Has anyone ever littered themselves?
   - Is there anything that is OK to litter?
   - Is all litter created on purpose, or is some accidental?
   - What behaviors and values about litter have we learned from our friends and family members?
2. Research and share a few facts about litter by having students research, read facts aloud and/or write facts on the board. Make time for discussion around the reactions to these facts.

3. Choose age-appropriate photos of animals harmed by litter to share with students (do an internet image search for 'animals harmed by litter'). Discuss reactions to the photos.
4. Discuss with students what natural resources are used to make the items that are often found as litter (plastic from oil, metal from rocks or ore, paper from trees, glass from sand). Talk about the benefits to the environment when these items are reused or recycled instead of being scattered throughout the environment.
5. The following activities engage and teach students about the importance of reducing litter. Choose (or have students choose) one or more activities, or create an outline of activities to do throughout the school year.

- **Scavenger Hunt**—Divide the group into teams of 3-4 students. Use the list below (or create your own) of commonly littered items and make a copy for each team. Distribute pencils, clipboards, disposable gloves, and reused plastic grocery bags for collecting the items. Once all teams are fully equipped for the scavenger hunt, set a time limit, establish geographical boundaries, and describe items that are not safe for them to collect (broken glass, syringes, etc.). If desired, provide a treat or classroom reward as a prize to the winning team, or everyone for participating. (Extra points may be given for additional items not on the list.)

  Litter to collect:
  - juice pouches/boxes
  - paper cups with plastic lids
  - plastic straws
  - plastic cups
  - plastic bags
  - candy wrappers
  - lollipop sticks
  - aluminum cans
  - metal bottle caps
  - plastic bottle caps
  - something broken
  - something flat
  - something red
  - something made from paper
  - something made from plastic
  - something made from metal
  - something made from glass (only unbroken!)

Extensions:

- Lead a discussion on specific ways litter is created (intentionally and accidentally) and actions that can be taken to prevent litter (zipping backpacks, buttoning pockets, closing trash can lids, etc.).
- Create a pledge for students to sign that lists litter-preventing habits that they can incorporate into their everyday actions.
- Have students brainstorm other ways to increase litter education and decrease littering behavior in their community.
- Repeat the litter sweep, sort, and graph 6 months after original sweep. Compare results.

- **Litter Sweep, Sort, and Graph**—Supply students with gloves and reused plastic grocery bags for collecting littered items. Set geographical boundaries and a time limit, as well as instruction on what is too dangerous to pick up (broken glass, syringes, etc.). Once the litter sweep has finished, bring items to a table covered in newspaper. Sort items by material type (paper, plastic, metal, glass, other) and record numbers under each category. Then sort items by recyclable, compostable, or trash and record those numbers. Discuss results, make bar graphs or pie charts of the data, and display throughout the school.

- **Sculpture Contest**—Take collected items from Scavenger Hunt or Litter Sweep and have students create sculptures out of the materials. These can be put on display throughout the school as visual reminders of their school community's contribution to the litter problem and to increase awareness about preventing further littering.

- **Map It**—Have students mark on a school map where all outdoor trash and recycling receptacles are located, then document where most of the litter is found. Meet with the principal and head custodian to discuss the relocation or addition of trash and recycling receptacles. (This can be extended to the greater community, such as a park or other public gathering place where litter is often found, meeting with city officials in charge of those places to discuss options.)

- **Write Stories**—Encourage students to write a story about the journey a piece of litter takes from the store (as a new item) to where it ends up in the environment. This could be an actual item they found during the litter sweep or an imaginary one. Students may write individual stories or collaborate to write a story together. A fun way to write a collaborative story is to have one student write the first line and pass it to the next student. The receiving student writes the second line and folds the paper back to hide the first line. When the third student receives it, they can now only see the second line, so they add a third line, fold back the second line, pass it to the next student, and so on.

- **Read Stories**—Read aloud short stories or picture books about litter. Students can play characters in the books by wearing costumes from teachers' closets or thrift stores. Some examples are: *The Wartville Wizard* by Don Madden, *Our Park* by Mercer Mayer, *Lady Lulu Liked to Litter* by Nancy Loewen, *Trash Trouble* by Larry Dane Brimner, and *How Spider Stopped the Litterbugs* by Robert Kraus.

- **How Long Does Litter Last?**—Using the board, list the time intervals found in the right column of the chart below. In a separate list, mix the order of the litter items found in the left column. Have students match up litter items with the time range they think each would remain in the environment before decomposing. After all guesses have been made, rearrange items to their correct positions and discuss why each item might take that amount of time to decompose, as well as other influencing factors (made from organic material such as wool or cotton, thickness, fragility, weight, exposure to wind or water, etc.).

Orange/Banana peel	**up to 2 years**
Wool socks	**1-5 years**
Cigarette butts	**1-5 years**
Paper	**1-5 years**
Plastic bags	**10-20 years**
Leather	**up to 50 years**
Steel cans	**50 years**
Aluminum cans	**80-100 years**
Plastic multi-pack rings	**100 years**
Glass bottle	**1 million years**
Plastic bottles	**forever**
Styrofoam	**forever**

- **Great Pacific Garbage Patch**—With older students, facilitate an internet research session on the gigantic pile of floating plastic litter in the middle of the Pacific Ocean. Collect data and other information and decide how to distribute it (P.A. or video announcements, posters in the hallways, etc.).

- **Poster-Making**—Have students add to the anti-litter campaign by creating posters with statistics, drawings, photos, and messages about picking up and preventing litter.

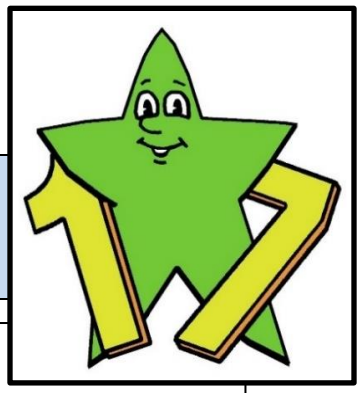
Assessment:

Have students write letters to another class, an adult in their life, or city/county official explaining what they have learned about litter. Letters should include what they recently found out about the litter issue in their community, one reason why litter is a problem for the environment, and suggestions for preventing litter in the future.

Related Activities:

Refillable Water Bottle Project – Chapter 3
Conducting a Waste Audit – Chapter 30

Purchasing Policy 1: Classroom Policy



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Snapshot
With a teacher's guidance, students will draft an Environmental Purchasing Policy for their classroom.

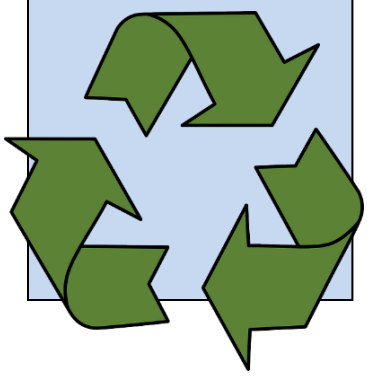
Objective: Students will be able to identify three ways in which the class's Environmental Purchasing Policy helps the environment.

Age Groups: 3rd-5th grade (can be applied to secondary classes as well)

Setting: Classroom

Project Duration:
- Ongoing
- In-class time: 1 hour

Materials:
- Examples of recycled classroom supplies (tissues, notebooks, etc.)
- Chart paper and markers for data tracking
- Paper and pencils for writing letters



Why This Project Matters:

Real recycling involves three steps: collecting the recyclable material, manufacturing it into something new, *and* purchasing those new, recycled products. Without consumer demand for recycled products, the collected recyclables have no use, and the process cannot be sustained. The same is true for non-toxic and sustainably-made products. The availability of these products will only grow if consumers create a demand for them.

Project Summary:

When a teacher or student is purchasing supplies to be used in the classroom, some products will be more environmentally-friendly than others. Explaining the differences between them makes for authentic teaching moments. To make it official, have students write an Environmental Purchasing Policy for the green purchasing of shared classroom supplies such as writing paper, tissues, and pencils.

Implementation:

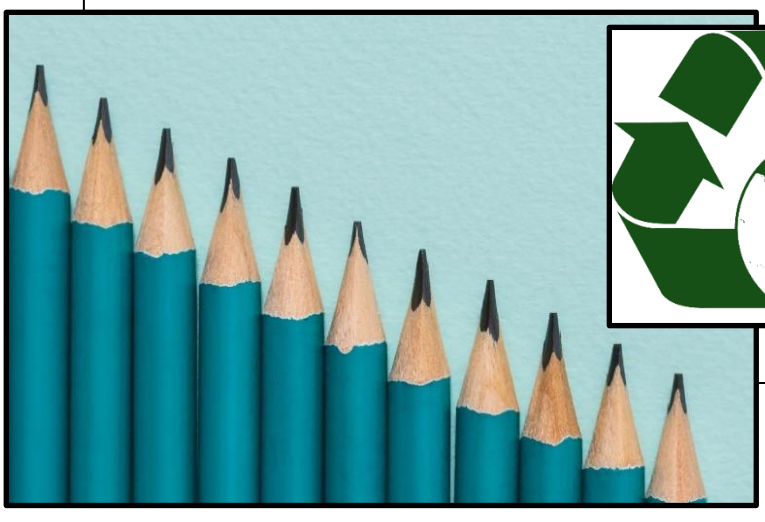
1. Have students track the use of several classroom supplies over a 2–4-week period (such as making a note when a new tissue box or package of pencils is opened, or otherwise noting the quantities used). Then, project the use of these supplies throughout the school year. Discuss which natural resources are used to make the supplies and where the supplies will end up when discarded.
2. Show students what the recycling symbol looks like and how to identify a product that is made from recycled materials (it will usually be written on the package: "made from recycled materials" or something similar). Discuss the difference between "recycled" and "recyclable". Have students create a list of classroom materials that could be purchased as recycled products.

3. Discuss other green purchasing ideas for the classroom. For instance: purchasing large boxes of tissues (recycled, if possible) instead of small packets, buying snacks in bulk containers, using dry-erase boards instead of paper, and choosing sponges instead of paper towels for cleaning. For each shared idea, discuss how this action would benefit the environment (e.g., buying snacks in bulk reduces packaging so fewer natural resources are needed and less trash is created).
4. With students' help, draft a classroom Environmental Purchasing Policy. This policy can apply to supplies for classroom parties, replenishing shared supplies, and even buying individual supplies. (Note: recycled products often cost slightly more than non-recycled. Allow students to choose from several different purchases to fulfill the policy and include purchases that are cost-neutral [such as buying in bulk] so that students from lower-income families are not expected to purchase beyond their means.)
5. Have students draft letters to their families explaining the Environmental Purchasing Policy. The teacher may supplement these letters with a short note explaining the goal of the policy and that it is optional.
6. Revisit the policy throughout the school year to add new ideas, especially those generated by students.

Assessment:
The student letters to their families can serve as the assessment. Instruct students to include at least three examples of how the class's Environmental Purchasing Policy helps the environment.

Related Activities:

"One or None" Paper Towel Campaign – Chapter 5
Paper Reduction Campaign – Chapter 6
Zero Waste School Parties and Events – Chapter 11
Repurposing in the Classroom – Chapter 12
Purchasing Policy 2: School/District Policy – Chapter 17



Extensions:

- Establish other environmental classroom policies, such as requiring reusable water bottles in the classroom, limiting paper towel use to one per hand-drying, and/or creating a sponge use system for cleaning classroom spills (instead of paper towels).
- Hold a "Surplus Supply Exchange Day" (see Purchasing Policy 2, Chapter 17) and solicit/ include donations from families.
- To minimize the purchase of paper:
  - 3-hole punch used paper with 1 blank side for use in binders.
  - Have teaching teams coordinate assignments before making copies to reduce duplication.
  - Ask students to use scrap paper for first drafts of writing assignments.

Purchasing Policy 2: School/District Policy

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Snapshot
School buildings and school districts can implement an Environmental Purchasing Policy to model and achieve a commitment to sustainability.

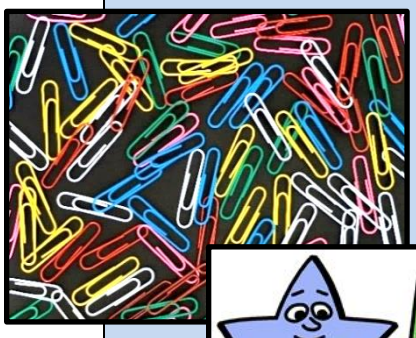
Objective:
Purchasing decisions will be made based on predetermined environmental priorities.

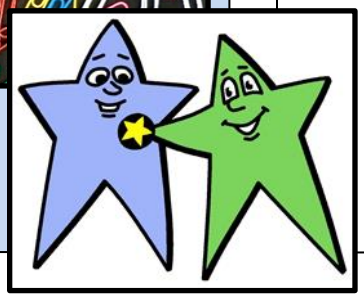
Age Group: Adults

Setting:
Administrative offices

Project Duration:
- Drafting policy: 1-2 hours
- Follow-up: ongoing

Materials:
- Example of an Environmental Purchasing Policy (see sample)
- Records of purchases made within the last 6-12 months





Why This Project Matters:

A sustainable recycling process involves three steps: collecting the recyclable material, remanufacturing that material to form new products, and purchasing the new, recycled products. Without consumer demand for recycled products, the collected recyclables have no use, and the process can't be sustained. The same is true for non-toxic and other sustainably-made products. The availability of these items will only stabilize, and their prices decrease, if consumers create a demand for them.

Project Summary:

In a school or district, many supplies are purchased regularly, from paper and staples to computers and furniture. Creating official green purchasing practices is a great way to model and achieve a commitment to preserving the environment. Many governments, businesses, and school districts have adopted Environmental Purchasing Policies to ensure that money is spent on items and services that support sustainability. Administrators can draft an Environmental Purchasing Policy for the school or district to follow.

Implementation:

1. Meet with administrators to identify purchasing categories and school or district policies related to purchasing (cost limits, bid procedures, etc.). Examples of categories:
   - Office supplies/paper
   - Meetings & conferences
   - Building & construction
   - Landscaping
   - Vehicle fleets
   - Carpets
   - Cleaning
   - Electronics
   - Food services

2. Use purchasing records from the previous 6-12 months to identify frequently purchased items and establish priority products and services. Eco-minded purchasing can include requiring paper to have a certain percentage of post-consumer recycled content, buying in bulk, and giving preference to products with less packaging.
3. Consider improving indoor air quality and its effect on student and staff health by prioritizing non-toxic flooring, building materials, cleaners, and art supplies.
4. Consider changes in food service purchases. Examples include transitioning from individual milk cartons or water bottles to bulk milk or water in reusable cups, sourcing recycled paper napkins, and purchasing washable trays, plates, bowls, and utensils.
5. Investigate cooperative purchasing options. Small offices and districts can reduce costs by coordinating their purchasing with other districts, local governments, or institutions.
6. Consider a 10% rule. Many schools and districts have adopted the rule stating that if an environmentally preferable product is within 10% (or other designated percentage) of the lowest-priced conventional product, the environmentally-safer product is purchased.
7. Finalize an Environmental Purchasing Policy. (See sample policy below.) The Environmental Protection Agency maintains a website dedicated to Environmentally Preferable Purchasing. While intended for the federal government, the site has lots of tools to help implement green purchasing. https://www.epa.gov/greenerproducts

Assessment:

Four to six months after implementation, meet with those who conduct the purchasing and review the policy. Discuss which parts are going well and which need refining. Determine if more products or services can be added.

Related Activities:

Waste-Free Lunch 3: Durables in the Cafeteria – Chapter 2
Purchasing Policy 1: Classroom Policy – Chapter 17

Extensions:

- Coordinate a "Surplus Supply Exchange Day." Before an upcoming office supply order, ask classrooms or offices to bring all unused supplies to a central area (from extra pens and paper to unused furniture) and give all staff access to the free supplies.
- Have office staff work with a student group to gain recognition for their green purchasing. For example, students could interview staff to find out which green purchasing practices they follow and write announcements or school newspaper articles to celebrate the staff accomplishments.

(Sample Policy)

XXXX District

BOARD POLICY

TITLE	PAGE	POLICY NUMBER
	1 of 4	**4-6**
Environmentally Preferable Procurement Policy	EFFECTIVE DATE	REVISED DATE
	9/25/21	
APPROVED BY: Board Action: 09/25/21, Item 4.2		

BACKGROUND

The mission statement of XXXX District reflects a commitment to provide environmental leadership through policy development and program design.
By incorporating environmental considerations into public purchasing, XXXX District can serve this commitment by reducing its burden on the local and global environment, removing unnecessary hazards from its operations, protecting public, student, and staff health, reducing costs and liabilities, and potentially improving the environmental quality of the region. This policy is an effective way to direct the District's effort in procuring environmentally preferable products and services.

PURPOSE

The primary purpose of this policy is to minimize negative environmental impacts of the District's activities by ensuring the procurement of services and products that:

- reduce toxicity;
- conserve natural resources, materials, and energy;
- maximize recyclability and recycled content.

A collateral purpose is to support markets for recycled goods and other environmentally preferable products and services.

DEFINITIONS

The following terms shall have the assigned definitions for all purposes under this policy:

A. **XXXX District** means XXXX District elected officials, staff, and all schools and departments.

B. **Environmentally Preferable Products and Services** means products and services that have a lesser or reduced effect on human health and the environment when compared with competing products that serve the same purpose. This comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, or disposal of the product.

C. **Life-Cycle Cost** means the amortized annual cost of a product, including capital costs, installation costs, operating costs, maintenance costs, and disposal costs discounted over the lifetime of the product.

D. **Practicable** means sufficient in performance and available at a reasonable price.

E. **Recyclable Product** means a product which, after its intended end use, can demonstrably be diverted from the District's solid waste stream for use as a raw material in the manufacture of another product.

F. **Recycled Material** means material and byproducts that have been recovered or diverted from solid waste and have been utilized in place of raw or virgin material in manufacturing a product. It is derived from post-consumer recycled material, manufacturing waste, industrial scrap, agricultural waste, and other waste material, but does not include material or byproducts generated from, and commonly reused within, an original manufacturing process.

G. **Virgin Material** means any material occurring in its natural form. Virgin Material is used in the form of raw material in the manufacture of new products.

POLICY

The XXXX District commits to:

1. Procuring environmentally preferable products and services where criteria have been established by governmental or other widely recognized authorities (e.g.: Energy Star, EPA Eco-Purchasing Guidelines).
2. Integrating environmental factors into the District's buying decisions where external authorities have not established criteria. Examples:
    - replacing disposables with reusables or recyclables;
    - supporting eco-labelling practices by buying products bearing such labels in preference to others (where they are available and provide value for money);
    - taking into account life cycle costs and benefits;
    - evaluating, as appropriate, the environmental performance of vendors in providing products and services;
3. Raising staff awareness on the environmental issues affecting procurement by providing relevant information and training;
4. Encouraging suppliers and contractors to offer environmentally preferable products and services at competitive prices;
5. Encouraging providers of services to consider environmental impacts of service delivery;
6. Complying with all environmental legislative and regulatory requirements in the procurement of products and services.

Nothing in this policy shall be construed as requiring a department, office, school, or contractor to procure products that do not perform adequately for their intended use or are not available at a reasonable price in a reasonable period of time.
Procedures and guidelines may be established as necessary to ensure the continuation of a strong Environmental Procurement Program.

RESPONSIBILITY

All District departments, schools, offices, and contractors shall identify and purchase the most environmentally responsible products and services that are available for the intended purpose and that meet the performance requirements. Factors that should be considered when determining the environmentally preferable good or service include, but are not limited to:

- Minimization of virgin material use in product or service life cycle
- Maximization of recycled products used in product or service life cycle
- Environmental cost of entire product or service life cycle

- Reuse of existing products or materials in product or service life cycle
- Recyclability of product
- Minimization of packaging
- Reduction of energy/water consumption
- Toxicity reduction or elimination
- Elimination of uncertified hardwoods in product or service life cycle
- Durability and maintenance requirements
- Ultimate disposal of the product

Purchasing Division Responsibilities:

1. Develop and maintain information about environmentally preferable products and recycled products containing the maximum practicable amount of recycled materials, to be purchased by departments, schools, offices, and contractors whenever possible.
2. Inform departments, schools, offices, and contractors of their responsibilities under this policy and provide implementation assistance.
3. Institute product testing and trial service to evaluate environmentally responsible alternatives pursuant to established testing guidelines.
4. Require the use of recycled materials and recycled products by incorporating them in bid specifications where practicable;
5. Disseminate information on recycled and environmentally preferable product procurement requirements, specifications, and performance to assist vendors with procurement opportunities with the District.
6. Establish guidelines governing the review and approval of specifications for the procurement of selected materials based on considerations of recycling, energy, and water conservation, life-cycle costing and other environmental considerations.
7. Submit reports of policy impacts on an annual basis.

Environmental Services Department Responsibilities:

1. Support Purchasing in its implementation of this policy by providing training, information when requested, and assistance in the evaluation of the EPP status of a product or service.
2. Support departments and schools in evaluation and analysis of products and services for EPP criteria.
3. Help establish and promote needed environmental procurement legislation.

Department, School, and Office Responsibilities:

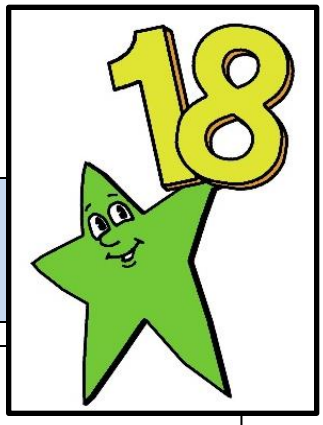
1. Evaluate each requested product and service to determine the extent to which the specifications could include an environmentally preferable option.
2. Ensure that contracts issued by the departments, offices and schools include environmentally preferable products and recycled products wherever practicable.
3. Understand standard at which products are considered environmentally preferable and use in selective criteria.
4. Expand the awareness and use of environmentally preferable products.

Document Review

This policy must be reviewed every three years.

RECYCLING ACTIVITIES

Schoolwide Recycling Collection



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Snapshot
Starting a schoolwide recycling program is an important, effective first step toward Zero Waste.

Objective: Students will be able to distinguish between items that can be recycled in the school's recycling bins and ones that belong in the trash. They will also be able to state one or more ways that recycling helps the earth.

Age Group: K-12th grade

Setting: School building

Project Duration: Ongoing

Materials:

- Examples of recyclable items found at school (classroom/office paper, cardboard, drink containers)
- Collection bins for recyclables (5 to 8-gallon for classrooms, larger for most other areas)
- Signage/labels for bins
- Poster-making materials

Why This Project Matters:

Much of the solid waste produced by people in North America has the potential to be recycled. Different communities offer different recycling opportunities to their citizens, and schools are an important part of these efforts. The benefits of recycling include preservation of natural habitats, reduced air and water pollution, fewer waste items filling up landfills, reduced fossil fuel usage, and increases in available jobs (compared with manufacturing items from virgin materials and landfilling).

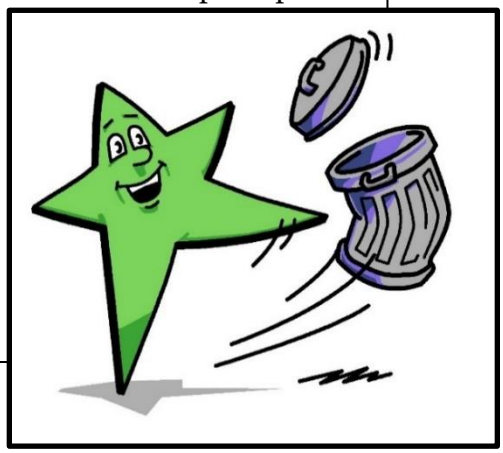
Project Summary:

A successful school recycling program features the efficient collection of recyclable items, regular education of the school community, and the tracking of volumes of recyclables collected. To achieve this success, the school will choose a reliable recycling hauler, acquire recycling bins for distribution throughout the building, provide regular training for students and staff, and communicate the diversion rates to the school community to motivate and encourage participation.

Implementation:

Getting started:

- A teacher, administrator, parent, and/or student group must take responsibility for implementing and maintaining the program. Start by meeting with the school principal to determine the program budget. The main costs are for bins and collection service. When discussing options, consider that the school will be able to reduce its trash hauling service and that those cost savings can be put toward recycling collection fees.



- Find a hauling company to service the school's recycling. Inquire with local trash service providers, the municipal waste department, independent recycling services, etc. Compare bids from several companies and choose one that has a proven track record for reliability. Ask the company about the types of bins they will provide outside of the school for collection (dumpster, carts, etc.), making sure the school has space for these containers. Also ask which materials they accept in their recycling program, and which must be excluded. Finally, ask if they provide volume reporting on the materials collected and request a monthly report to be given to your school.
- Obtain the company's recycling guidelines. This document should detail which items are acceptable for recycling and which are not. Use these guidelines to determine the types of bins you'll need to purchase for use inside the school unless the recycling company provides those as well. In some communities, all recyclables can be placed together in the same container (called "single-stream" recycling), while in other areas paper and cardboard items need to be collected separately from metal, glass, and plastic containers.
- Determine locations within the building where recycling bins would be effective. Main hallways, staff lounges, and the cafeteria are common places. Most schools also include recycling bins in their classrooms and offices.
- Decide how often and by whom these bins will be serviced. Classroom bins are often the responsibility of the teacher and students, while cafeteria and hallway containers are usually a custodial duty. (Teachers and students empty their classroom containers into the larger hall or cafeteria bins, which custodians then service.)
- Signage on and near the bins is crucial. Design adhesive labels with the recycling guidelines (including images if possible) and place them on the lids and sides of each container. Posters displayed above or near the bins are also quite valuable.
- Purchase the recycling bins needed to properly outfit your school. Five to 8-gallon containers are ideal for classrooms; 32-gallon containers are best for hallways and the cafeteria. Bins should be consistently color-coded for easy recognition. Inquire with local businesses about any used or surplus containers that they might be willing to donate.

Extensions:

- Hold a "Recycle Right" contest. With the help of a student group, monitor the recycling bins of individual classrooms or grade-levels. The class or grade with the least contamination wins a prize.
- Conduct an audit of the trash to see what materials are still going to the landfill. With a student group, discuss ways to divert some of this waste by encouraging reducing or reusing. Implement a campaign to spread these waste-reduction ideas. (For example, if several plastic baggies are found in the lunch trash, the campaign could focus on how to pack a lunch using reusable containers.) (See Conducting a Waste Audit, Chapter 30.)

Training and implementation:

- Gather samples representing what can be recycled in the school's new program and use them while training a student sponsor group. Have students create posters to be displayed by the new classroom, hallway, and cafeteria recycling bins. Posters featuring 3-D, tangible examples are very effective.
- Meet with the custodians to review the recycling collection schedule (from the hauler) and how the in-school component of the collection will work. To have a successful program, it is essential that the custodians are supportive and that they also feel supported by the rest of the school community.
- Facilitate a 30-minute training with all school staff before the recycling program is launched.
- Prepare a statement for the school's newsletter announcing the implementation of the program to families.
- Prepare and provide a 30-45-minute kick-off assembly to the school community that outlines why the school is choosing to implement this program, what it will look like, and how they can participate. If possible, give the student group a significant role in the presentation. Incorporate eco-facts about landfills, trash, pollution, and natural resource usage. Show examples of recyclable items and non-recyclable items. Indicate locations of the new receptacles on a school map and have example bins on hand. If recycling bins will be placed in the classrooms, have them available for teachers to pick up on their way back to their rooms.
- Have teachers sign their class up for "mini-refresher presentations" to be given one week after the kick-off assembly. These brief, 20-25-minute in-class sessions provide the important opportunity for students and staff to ask more detailed questions.
- If possible, train parent volunteers to assist students with the proper sorting of recyclables in the cafeteria for the first three weeks of the new recycling system. A student group can also help with this.
- Create inspiring announcements to be read during the first few weeks of the program. A student group may assist with the writing and reading of the announcements. Include reminders about recyclable and non-recyclable items, as well as interesting eco-facts.

Maintaining the program:

- Have student or parent volunteers monitor recycling bins in different areas of the school twice per week for six weeks following the kick-off. If repeat issues arise (e.g., paper napkins ending up in the recycling bin instead of the trash or compost), make announcements and include reminders in the school newsletter.
- For the first year of the program, distribute recycling guidelines to teachers and staff each semester. Afterwards, distribute guidelines at the beginning of each school year and by request.
- Provide the school with the landfill diversion rates received in the hauler's volume reports. This can be shared with the school community as a centralized graph (see tree banner on right), announcements, or in the school's newsletter.
- Have a student group conduct an annual audit of the recycling and trash bins (see Conducting a Waste Audit, Chapter 30) to identify what the school is doing well and what might need improvement. Publicize the results.
- Refresher assemblies and/or in-class presentations every school year, especially for the incoming class of students, is extremely beneficial for maintaining knowledge about and enthusiasm for the program.

Assessment:

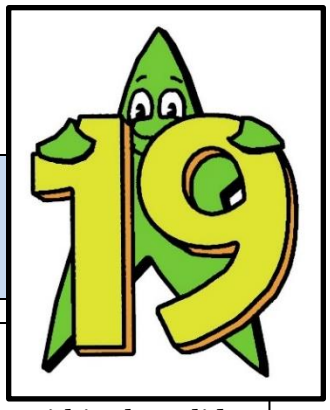
Track and report the volumes recycled over time. To determine student involvement, quiz or survey students in the classroom or at the cafeteria waste stations. Ask questions, such as:

- Name one item that can be recycled at school.
- How does recycling help the environment?
- What do you recycle in your classroom?
- Can a milk carton be recycled?
- What natural resource are you saving when you recycle a can?

Related Activities:

Schoolwide Compost Collection – Chapter 25
Reinforcing Collection Programs Over Time – Chapter 27
Reporting Progress – Chapter 28
Conducting a Waste Audit – Chapter 30
Special Considerations for High Schools – Chapter 35

Special Materials for Recycling



Snapshot
From plastic bags to books to cell phones, students can make a difference by collecting non-traditional items for recycling.

Objective: To divert from the landfill a significant number of hard-to-recycle items through an organized recycling collection.

Age Group: K-12th grade

Setting: School building or greater community

Project Duration: One week to ongoing

Materials:
- Collection bins and signage
- Poster-making materials
- Camera
- Scale (optional)

Why This Project Matters:

There are several categories of discarded items within the solid waste stream, such as paper, plastic, metal, etc. The category of "other", which includes polystyrene foam, shoes, clothing, electronics, wood, rubber, and more, comprises as much as 20 percent of our waste! To achieve a Zero Waste future, diverting these "other" materials from the landfill is essential.

Project Summary:

This activity will outline how to hold a one-time recycling collection of a special material. The chosen material should be one that is not already collected in the community's regular recycling program, or only collected on a limited basis. Special collections of non-traditional recyclables offer a chance to expand the materials being diverted from the waste stream. In some cases, one-time collections of special materials may lead to a permanent collection of the non-traditional recyclable item. Most collection programs are legitimate, but be wary of 'too-good-to-be-true' recycling programs including some fundraisers, mail-in programs, electronic and textile collections, etc. Research the entire process and reviews on the internet before signing on. Find out what happens to the collected materials along their journey, where they are sent for recycling (or reuse), what percentage is actually recycled, and what the final product is. Local programs and businesses that accept used materials are a great place to start. Some support charities or employ people with disabilities, disadvantaged youth, etc. In contrast, some e-waste recycling programs have sent electronics to Asia and Africa where they are being processed in conditions that are unsafe for the workers and the environment. (The Basel Action Network [ban.org] is a reputable source for promoting legitimate e-waste recyclers. They provide a strict set of requirements to verify where and how the electronics are being recycled, and that the process is not causing harm to the environment or human health.) Some textile recyclers and mail-in programs have also been shown to have questionable practices and to be making a high profit on donated materials.

Implementation:

Planning:

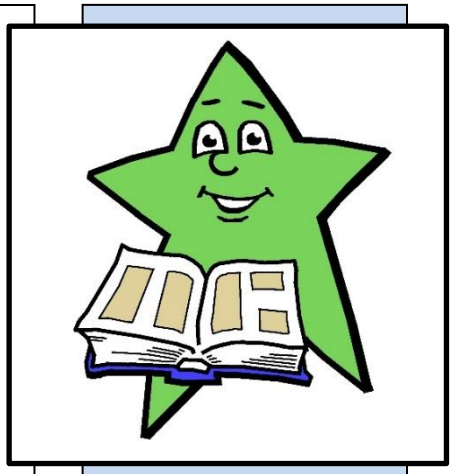
1. A special materials recycling collection makes a perfect project for a student group or club. Identify a group of youth that can help with the collection.
2. Brainstorm possible non-traditional recyclables. Contact local businesses (including those who may be producing an "upcycled" product), charities that collect items, and local trash/recycling programs and facilities for support, ideas, and feasibility. Verify that there is a stable market for the material you decide to collect to ensure it gets recycled. It may also be possible to piggyback on another local collection event (the Lions Club usually has an ongoing collection for used eyeglasses, for example). Other ideas include used clothing, shoes, books, and plastic bags. It is important to consider who pays for the shipping cost (if there is one) when deciding on a material.
3. When considering a material or program, ask what happens to the collected material, where it will be sent for recycling, what percentage is actually recycled, and what the final product is. This information will be useful to verify that recycling of the material is legitimate and beneficial. It can also be used to increase participation when advertising the collection event.
4. Once a material has been chosen, decide on the length and location of the collection event (classrooms, schools, stores within the community, etc.). An event lasting 7-14 days keeps collection time manageable, but if it is a popular item, a weekend may be enough time. The collection may even work better as an ongoing event for the semester or school year. A student group may approach local businesses about sponsoring the expense of shipping the collected materials, and/or for some materials, they could request the usage of their location as a collection site.
5. The material may require cleaning and sorting. Arrange for a method of pick-up from collection points and any storage of the material needed, designate responsibility for collecting, sorting, and shipping, and establish a timeline for each step.
6. With help from students, gather appropriately-sized containers (5-gallon buckets, used boxes, large plastic containers, etc.) for collecting the material. Create standard signage for all collection points throughout the school or community.

Extensions:

- Have students create a life cycle display of the collected material. They can research what natural resources were used to first make the item, how it will be recycled, and what it will become. Ask the material recipient: "What will happen to the new items that are made from our collected material? Will they someday end up in a landfill or could the new items be recycled again?"

Three weeks before the collection:

7. Announce the collection event, including the specific requirements for recycling the chosen material, the date and time duration of the event, and what will happen to the collected material. If it is a school collection where the public will also be allowed to contribute, utilize local media for publicity. When advertising within the school, include mentions on the website and e-newsletters, create and display posters, make announcements, and notify the PTO and student groups. If advertising throughout the local community, request mentions on the town's website and social media, and create newspaper, television, and radio station ads.
8. Students can research and develop short presentations about the chosen material and how it will be recycled. The presentation may be given at an all-school assembly and/or community meetings.



Launching the collection:

9. Distribute collection bins with signage around the school and/or community.
10. Assign responsibility of collection point maintenance to volunteer staff, students and/or families.
11. For a large community event, arrange for local media coverage on kick-off day or take pictures for your own press release.

After the collection:

12. Gather all collected material to one location. If possible, wait 2-3 days after the final day for any late material.
13. Process the materials to the collector's specifications.
14. Measure or weigh the amount of the collected material.
15. Send the material off to be recycled!
16. Celebrate and report success to participants.

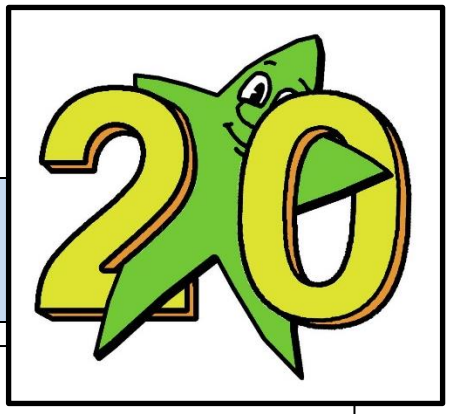
Assessment:

Success can be measured by the amount of material collected or number of people participating. If the collection event will be coordinated annually, the goal is to see an increase each year in the amount of collected material and/or the number of participants.

Related Activities:

Reusing Children's Books – Chapter 14
Creative Crayon Recycling – Chapter 20

Creative Crayon Recycling



Snapshot
Give old, broken crayons a new life in this hands-on recycling project.

Objective: Students will recycle crayons to demonstrate the three steps in the recycling process: collecting a material for recycling, turning it into something new, and using that new finished product.

Age Group: K-5th grade

Setting: Classroom or other meeting space

Project Duration:
- *Method 1*: 1 week or ongoing
- *Method 2*: 1 hour

Materials:
- *Method 1:*
  - Container for collecting crayons
  - Poster-making materials
  - Shipping boxes
- *Method 2:*
  - Container for collecting crayons
  - Muffin tin/molds
  - Oven

Why This Project Matters:

Children will wear down hundreds of crayons over the years they use them, and those stubs are usually put in the trash. Achieving Zero Waste means thinking about how to reuse or recycle every part of the waste stream, even crayons.

Project Summary:

Crayon collection is a fun activity that can be implemented by one classroom, a student group, or the whole school. It is also an opportunity to teach the recycling process: collecting a material, processing it into something new, and using the new products. The project can be implemented in two ways. One method is to collect crayons on a classroom or school-wide basis and then send them to a crayon recycler. Another method is to collect broken crayons and create classroom-made or home-made new crayons by melting and molding the old ones.

Implementation:

Method 1: collecting and shipping:

1. Establish a time frame for collecting and shipping crayons. This could be a week-long event near the end of the school year to coincide with cleaning out classrooms (see Locker Leftovers/Classroom Cleanout, Chapter 9), or an ongoing collection throughout the year. Allow students to bring crayons in from home.
2. Work with Crazy Crayons or another crayon recycler to learn which crayons they want and how to identify them.
3. Establish used-crayon collection stations for the classroom or entire school (students can help with the creation of collection containers and displays). Specify that only broken or unusable crayons are being collected, not crayons that can still be used.

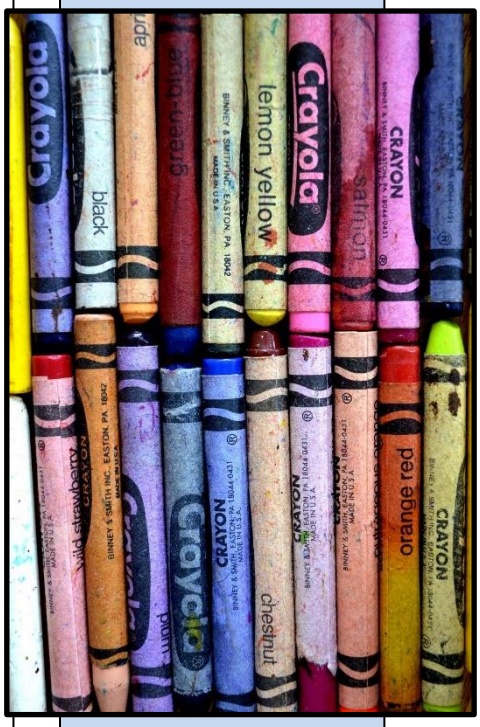
4. Have students write and read announcements during the crayon drive to encourage participation from their fellow students and staff. Students can also create posters showing examples of the kinds of crayons being collected and what they will be made into. These promotional materials should include information about the steps in the recycling process: collecting old crayons, processing them into new, and using the new crayons.
5. Sort through collected crayons, removing unwanted items (pens, trash, etc.). Send the shipment to the recycler.
6. Publicize the results of the collection (amount or weight of crayons collected, participating classes, etc.). A crayon-shaped "thermometer" chart would be a fun way to display this information. As crayons are received, calculate the sums and add to, or color on, the chart to show progress.
7. Find out where new recycled crayon products are sold in your area or on-line. Encourage families to look for recycled crayons (and other recycled school supplies) to "close the loop" of the recycling process by using these recycled supplies (see Eco-Wise School Supplies, Chapter 1).

Method 2: breaking & baking:

1. Establish used-crayon collection stations in the classroom or throughout the school, as described above. The collection could be a week-long event near the end of the school year to coincide with cleaning out classrooms (see Locker Leftovers/Classroom Cleanout, Chapter 9), or an ongoing collection throughout the year. Allow students to bring crayons from home.
2. Find and show students an internet video illustrating the crayon-manufacturing process to better understand what crayons are made from and how they are created in large quantities. Read storybooks about recycling to further their understanding of the process of collection, remanufacture, and using new products made from old (optional).
3. Discuss what natural resource crayons are made from (petroleum or plant-based oil). Bring in other items made from wax for students to examine, compare, etc.
4. Have students help remove all paper wrappers from the crayons. Break crayons into pieces.
5. Preheat the oven to 250 degrees Fahrenheit.
6. Fill the muffin tin with an inch-thick layer of crayon pieces. Colors can be combined or separated depending on your desired finished product.
7. Bake 15-20 minutes, or until the wax is melted.
8. Allow the tin to cool, then pop out the crayons and they're ready for use.

Extensions:

- To share the class's newly made crayons with other students, put together a traveling package that can be lent out to other classrooms. Include the students' drawings of the recycling process.
- After a school-wide collection, investigate the possibility of purchasing some recycled crayons from the recycler. Distribute them as prizes or sell as a fundraiser.



Things to consider:

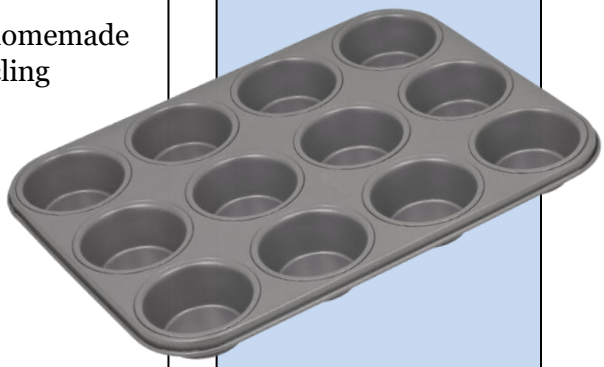
- If you don't have an old muffin tin to devote to crayon making, you can line your regular muffin tin with foil cups.
- Oven-safe, candy-making molds can also be used to create shaped crayons.
- Recycled crayons make a great no-cost gift or party favor.

Assessment:

- *Method 1:* Record the pounds of crayons collected and sent to the recycler.
- *Method 2:* Have students use their collected or homemade crayons to draw pictures of the steps in the recycling process.

Related Activities:

Eco-Wise School Supplies – Chapter 1
Locker Leftovers/Classroom Cleanout – Chapter 9
Special Materials for Recycling – Chapter 19



Making Recycled Paper

eco-cycle®

https://bit.ly/eco-cycle-zero-waste-schools-guide

Snapshot
The classroom becomes a paper recycling factory when students create recycled paper from their discarded worksheets and paper scraps.

Objective: Students will learn about the paper recycling process by making their own sheets of paper.

Age Groups: K-12th grade and adults

Setting: Classroom

Project Duration:
- Preparation: 30-60 minutes
- Activity: 45 minutes

Materials:
- Used classroom paper
- Framed screen(s) (purchased or hand-made)
- Cloth towels
- Sponges
- Plastic bins for holding water
- Blender with lid
- Access to water
- Access to electrical outlet
- Measuring cup
- Newspaper (one sheet per student)

Why This Project Matters:

Paper products make up the largest portion of the waste stream generated in the United States. In addition, billions of trees are cut down each year to make paper for the world's consumption. Considering that a paper fiber can be recycled up to 12 times, recycling paper drastically reduces waste and the cutting of forests to produce new paper.

Project Summary:

For this project, instead of sending used paper to the recycling centers and paper recycling factories, students will each make a new piece of paper from use scrap paper in their classroom. This hands-on project gives students a close look at how new paper can be made from old paper.

Implementation:

Gather materials (1-7 days prior to activity):

1. Collect used paper from the paper recycling bin. If the school does not have a recycling program, establish a collection box in the classroom for students to deposit their used notebook paper and graded worksheets.
2. Purchase papermaking frames at a local craft supply store or construct some by using deep, wooden-edged photo frames (remove glass and other inserts) and soft hardware cloth (screen fabric). Cut the screen material slightly larger than the size of the frame. Using a staple gun, staple the material tautly along the interior of the frame. Another hand-made option is to use an embroidery hoop and hardware cloth. Cut a round piece of material slightly larger than the hoop and secure it tautly in place between the inner and outer loops using the tightening screw.

3. Each papermaking station should have the following: 1 screen, 1 cloth towel (size of a hand towel), 1-2 sponges, and 1 plastic bin. Gather your materials based on the number of stations you need.

Activity:

1. Set up the papermaking station(s), clearing table or desk surfaces of items that you do not want to get wet. Fill the plastic bin with water deep enough to just submerge the screen. Have students tear the used paper into 1-inch pieces. Demonstrate steps 2-8 below before placing students in small groups. If you have enough stations for each group to work simultaneously, you can have older students assist each other at their assigned station. If you only have 1-2 stations, have small groups take turns working at the papermaking station while other groups do seat work as they wait their turn.
2. Create paper pulp by placing a handful of 1-inch paper pieces into the blender jar and add water until it is about 2/3 full. Blend at medium speed until paper and water are thoroughly mixed. Continue adding paper in small amounts and blend until pulp looks like watery oatmeal.

3. Place the screen flat onto the surface of the water in the plastic bin, making sure any latch is secure. Measure 1 cup of paper pulp from the blender jar and pour into the center of the screen, swirling the pulp gently with your fingertips to make sure the pulp has spread evenly over the surface.
4. With both hands, lift the screen out of the water, letting the water drain off. Place the screen flat on the tabletop, paper pulp facing up.
5. Open the latch or screw (if there is one) and lay the towel flat along the pulp's surface. Gently, but firmly, press the sponge on top of the towel to absorb water from the paper pulp, wringing water back into the bin. Make sure to lift and press the sponge evenly on all portions of the pulp, do not rub. Repeat until most of the water has been removed.

Extensions:

- Have students estimate how many sheets of used paper it took to make one sheet of recycled paper.
- Encourage students to make posters or signs (on reused paper, of course) about ways to conserve, reuse and recycle paper at school.
- Papermaking can be a starting point for implementing (or improving) a recycling program at your school. Students can make signs to be displayed throughout the school featuring statistics and facts about paper consumption and recycling. Contact your local recycling company to inquire about how much paper recycling is collected from your school.

(Continued next page.)

6. To remove the pressed paper pulp from the screen, start at one corner and carefully peel back the towel making sure the pulp fibers are adhered to it. Continue until fully removed. (Hint: If the pulp sticks to the screen instead of the towel, lay it back down and continue pressing water out with the sponge, then try again.)
7. Lay the towel with the pressed paper pulp facing up on the table. Place a piece of newspaper on top of the pressed pulp. Slide one flat hand under the towel, palm up, and place the other hand on top of the newspaper. Gently flip the 'paper sandwich' until the newspaper is on the bottom. Place it flat on a dry area of the tabletop.
8. From the corner, carefully peel the towel off the top of the pressed pulp. This time it should stick to the newspaper. (Hint: If the pressed pulp sticks to the cloth towel, gently loosen it from the towel with your fingers as you pull it away.) The pressed paper pulp will need to dry for 24-48 hours on the newspaper, after which the new piece of recycled paper is ready for use!
9. After the demonstration is complete, have small groups of students work together to make their own sheets of paper at designated stations, or on rotation through one papermaking station using steps 3-8 above.
10. Have students write their names on their newspaper sheets for easy tracking. After the new recycled papers have dried, students may peel them off the newspaper and decorate with markers or paints, cut them into shapes, make cards, create bookmarks, and/or use them for another follow-up activity.

Extensions:
(continued)

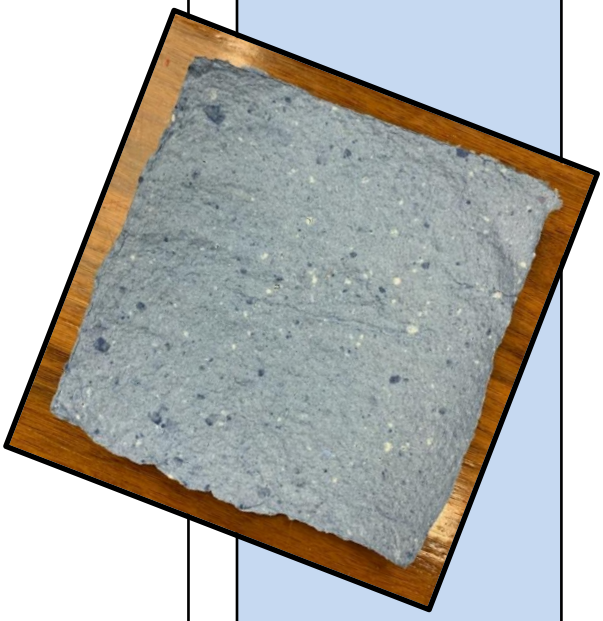
- To decorate your new paper, add any of the following to the wet pulp on the screen before applying the towel and pressing:
  - small pieces of dark or bright-colored paper
  - dark or bright-colored paper pulp shaped by cookie cutters
  - seeds
  - dried flowers
  - leaves

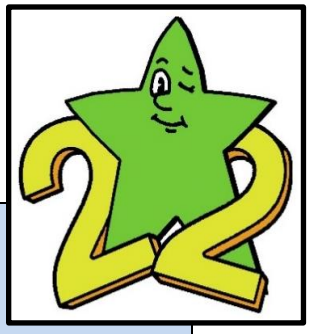
Assessment:

Have students draw a diagram or write a paragraph about the materials and steps needed to make new paper from old paper. Have then write an additional paragraph about why recycling paper is good for the environment.

Related Activities:

Eco-Wise School Supplies – Chapter 1
"One or None" Paper Towel Campaign – Chapter 5
Paper Reduction Campaign – Chapter 6
Reducing Junk Mail – Chapter 10
Schoolwide Recycling Collection – Chapter 18
Creative Crayon Recycling – Chapter 20





Carton/Drink Container Recycling Campaign

Snapshot
This campaign and prize drawing (conducted with multiple schools or grade-levels within a school) can have a significant effect on the volume of drink containers recycled in the cafeteria and throughout the school building.

Objective: Students will learn which drink containers are recyclable and help their grade-level or school increase the volume of containers diverted from the landfill.

Age Groups: K-12th grade

Setting: School building

Project Duration:
- Preparation and campaign: 2 weeks
- Collections: ongoing

Materials:
- Recycling bins
- Posters
- Handouts
- Drink containers (milk/juice cartons, juice box, aluminum can, steel can, plastic bottle, juice pouch)
- Plastic straws from cartons and juice pouches
- Prizes

Why This Project Matters:

The most commonly recycled materials in schools are paper and cardboard. Milk and juice cartons (which are composed mostly of paper fibers) are the most prevalent drink containers in school lunches. To increase the environmental benefits of a school's existing recycling program, adding drink container recycling in the cafeteria and/or classrooms is an important expansion. It greatly increases the variety of materials diverted from the landfill and the types of natural resources saved.

Project Summary:

Through posters, announcements, family letters, and bin distribution, this campaign and prize drawing promotes carton and drink container recycling at school and at home. For significant diversion, cartons are targeted in communities that recycle this packaging. Other drink containers, made of aluminum, steel, and plastic, are usually commingled together with cartons for collection.

Implementation:

This recycling campaign can be conducted as a district-wide project where individual schools participate, or as a school-wide project where individual grade-levels participate. Either way, the project incentivizes schools to fully implement drink container recycling by providing infrastructure (collection bins) where needed, educational messages (posters, announcements, letters), and a motivational prize drawing.

Many schools in the U.S. provide Breakfast in the Classroom programs, which generate more drink containers (usually cartons) in the classroom than schools without the program. Emphasize drink container collections in classrooms if a Breakfast in the Classroom program is in place.

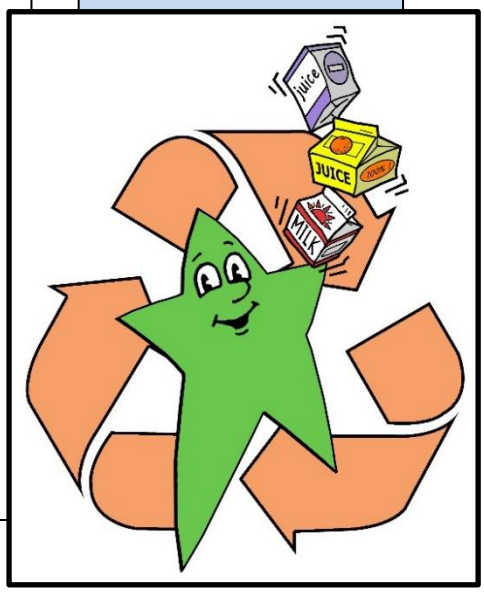
Ways to involve a student group:
A student sponsor group can help promote the campaign within an individual school, whether the contest is being conducted between several schools or between grade-levels in one school. Find a student group that is interested, such as student council, eco-club, a science class, or a leadership group.

Project tasks:

1. At the district level, survey all school head custodians to determine current participation in drink container recycling and if they need additional bins to enhance collections. For a grade-level contest, determine which classrooms and other areas of the school already collect these materials and which need bins. Ideally, collection bins will be placed in classrooms (5 gal.), kitchens (11-20 gal.), staff lounges (11-20 gal.), cafeterias (32 gal.), and school hallways with vending machines (20-32 gal.).
2. Acquire funds or donations to provide the needed containers and prizes for the contest. Determine the prizes based on what will motivate the schools or grade-levels to participate ($200-$500 cash prizes for winning schools; pizza party, principal recognition, or $50-$100 for classroom supplies for winning grade-levels).
3. Distribute a promotional flyer (see sample below) to all schools in the district or all grade-levels in the school.
4. Once all schools/grade-levels have registered, provide them with a prize-drawing checklist (see sample below) and a container-order form. Order the containers and classroom/cafeteria posters needed for all participants.
5. Meet with participating custodians to discuss the specifics of bin placement and emptying procedures. Provide hall, kitchen, cafeteria, and staff lounge recycling bins for distribution, cafeteria poster, and Carton Council's *Carton Recycling in Schools Best Practices Guide* (see below).
6. Provide a family letter and student activity sheets (see below) to each participating school's office manager for distribution to families the week before the contest begins. Include a link to your local recycling center's guidelines. This will encourage more home recycling.
7. Provide PA system announcements (see sample below) to each school's office manager or grade-level coordinators to be read during the contest.
8. If working with a student group, schedule and facilitate 30-60-minute meeting(s) to cover the following:
    - Inform and motivate students by sharing why this campaign matters using the meeting-presentation outline (see sample below).

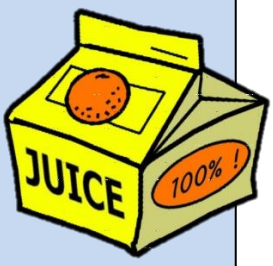
Extensions:

- Have students write an essay or paragraph describing their experiences when promoting recycling at home, to their friends, or to a scout or other youth group.
- Find more information at Carton Council's website: https://www.cartonopportunities.org/schools



- Explain that the students are critical to promoting the campaign to their school community. Supply them with the prize-drawing checklist, PA system announcements, and sample posters (see below).
- Create a timeline to accomplish promotional tasks.

9. For a district-wide or school-wide campaign, coordinate with each school's administration to provide a 15-minute training at an upcoming faculty meeting. Show examples of recyclable and non-recyclable drink containers, the new classroom bins, and classroom-sized posters. Explain the prize drawing (see meeting-presentation outline sample below). Teachers may take their classroom bins and posters when exiting the meeting, or the student group members may distribute them later. Emphasize the importance of distributing the containers and posters, sending out the family letter (with activity sheets attached), and reading the announcements to enable the school to qualify for the prize drawing. (A student group can help with these tasks.)
10. Once each school or grade level has completed the required tasks, have them turn in their checklist as their prize drawing entry. Randomly draw and award the prizes. Announce the winners through school newsletters and social media.
11. Check in for the first several weeks with the administration, custodial staff, and teachers to make sure the ongoing collection system is working. Offer additional support as needed.



Assessment:

Track the number of participants who are recycling cartons and other drink containers by surveying students in the lunchroom and classrooms. Interview custodial staff about changes they see in student and staff behavior, and if they can provide data for the volume of drink containers now being recycled.

Related Activities:

Waste-Free Lunch 1: Classroom Challenge – Chapter 2
Waste-Free Lunch 2: School Contest – Chapter 2
Refillable Water Bottle Project – Chapter 3
Schoolwide Recycling Collection – Chapter 18

Note: When using the following documents to create your own, **green text refers to the district-wide version** of this project, while **blue text refers to the grade-level version.**

Sample Promotional Flyer for Campaign:

Boost Recycling of Drink Containers for a Chance to Win (Prize) for your School/Grade!

__(Sponsor)__ is partnering with your **district**/**school** to save natural resources by increasing drink container recycling at home and at school.

The prize drawing is simple, with a 1-in-___ chance to win!!

Register by (insert date here)!

Call or email (insert contact information here) to register today!

Program Requirements:

Once registered, complete these simple steps to qualify for the prize drawing:

- Identify areas in your **school**/**grade-level** that need additional drink container recycling bins.
- Order and place additional drink container recycling bins in desired locations.
- Send a letter home to families that promotes container recycling (provided).
- Display posters in the cafeteria and classrooms (provided).
- Read three announcements reminding students and staff to recycle containers (provided).
- Schedule a 15-minute recycling refresher presentation **as part of an upcoming faculty meeting**/**for your class**.

That's it! When these tasks are completed, your school/class will be entered into the prize drawing!

Sample Faculty/Grade-Level or Student Group Meeting-Presentation Outline:

Drink Container Recycling Prize Drawing

Materials:

- **Carton and drink container recycling props**
- **Collection containers for cafeteria, classroom, etc.**
- **Posters for cafeteria and classrooms**
- **Prize drawing checklist**

I. Your school/grade-level is participating in our drink container recycling promotion and prize drawing!

A. I'm here today to talk about the prize drawing and to tell you about important/new materials that can be recycled at your school.

B. Lunch is the biggest garbage-producing time of day in most schools, so recycling drink containers is very important. Cartons are the most frequently used drink containers in schools nationwide, so recycling milk and juice cartons at school really helps the environment.

II. Prize Drawing

A. This project is designed to increase awareness about drink container recycling by providing collection bins (if needed), and by sharing reminders and guidelines about what containers are or are not recyclable.

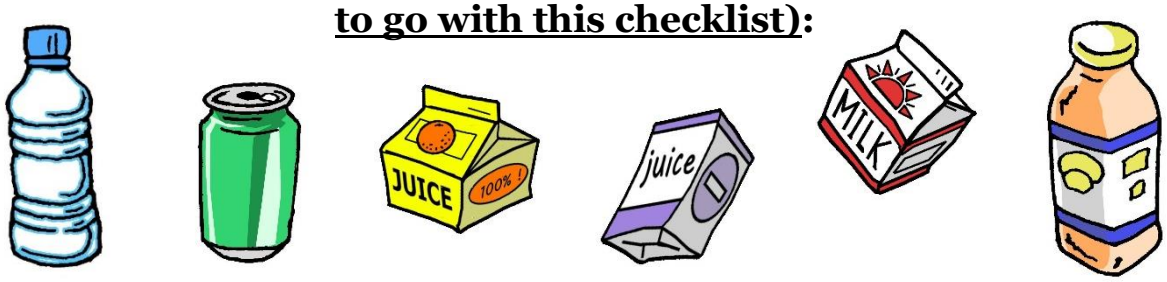
B. The prize drawing is open to all **schools in our district/grade-levels in our school.** Any **school/grade-level** that completes a set of promotional activities for drink container recycling will be able to enter. The prizes are __(prizes)__.
The winners will be randomly drawn from all entries submitted.

C. The following are the promotional activities required of each participating **school/grade-level** (a check list of these activities is provided). In the next few days, new collection bins will be put in place, letters about container recycling will be going home to families, announcements will be read to promote the recycling of cartons and other drink containers, and posters will be displayed in the cafeteria/classrooms.

D. Let's go over how to recycle drink containers properly. (Show and discuss all drink containers that are recyclable in your community, including plastic bottles, steel cans, aluminum cans, and milk/juice cartons. Also, show the project posters and new collection bins that will be placed around the building. Explain that juice pouches and straws are not recyclable. Emphasize that all liquids must be emptied from any drink container before recycling it. In some communities, plastic bottle lids can be put back on the bottle for recycling.)

E. After completing the promotions, your **school/grade-level** will be entered into a drawing for a chance to win a prize (**$300 for one school in the district-wide prize drawing/$50 for two grade-levels in school-wide prize drawing**).
Prize winners will be announced by: __(date)__.

Sample Prize-Drawing Checklist (create a container-order form to go with this checklist):



Drink Container Recycling Prize Drawing

- Complete these steps to qualify for the $300(school)/$50(grade-level) prize drawing.
- Once all the steps are completed, email this document to __(contact)__.
- Winners will be announced on __(date)__.
- Prize-drawing requirements and checklist should be completed and submitted to__(contact)__by __(date)__.

For school-wide campaigns:

___ Ordered and placed drink container recycling bins in staff lounge, cafeteria, and all classrooms. (Contact _(contact)_ for a form with bin size choices, descriptions, and suggested uses.)

___ Large posters were displayed in the cafeteria.

___ Family letter was sent home to all families (including activity sheets).

___ Three announcements were read to the entire school.

___ Mini-posters for the classroom were distributed to all staff.

For grade-level campaigns:

___ Ordered and placed drink container recycling bins in staff lounge, cafeteria, and all classrooms. (Contact _(contact)_ for a form with bin size choices, descriptions, and suggested uses.)

___ Mini-posters were displayed in the classrooms.

___ Family letter was sent home to all families (including activity sheets).

___ Three announcements were read to each class.

That's it!

Your school/grade level is now qualified for the prize drawing!

Sample PA System Announcements:

Drink Container Recycling Prize Drawing

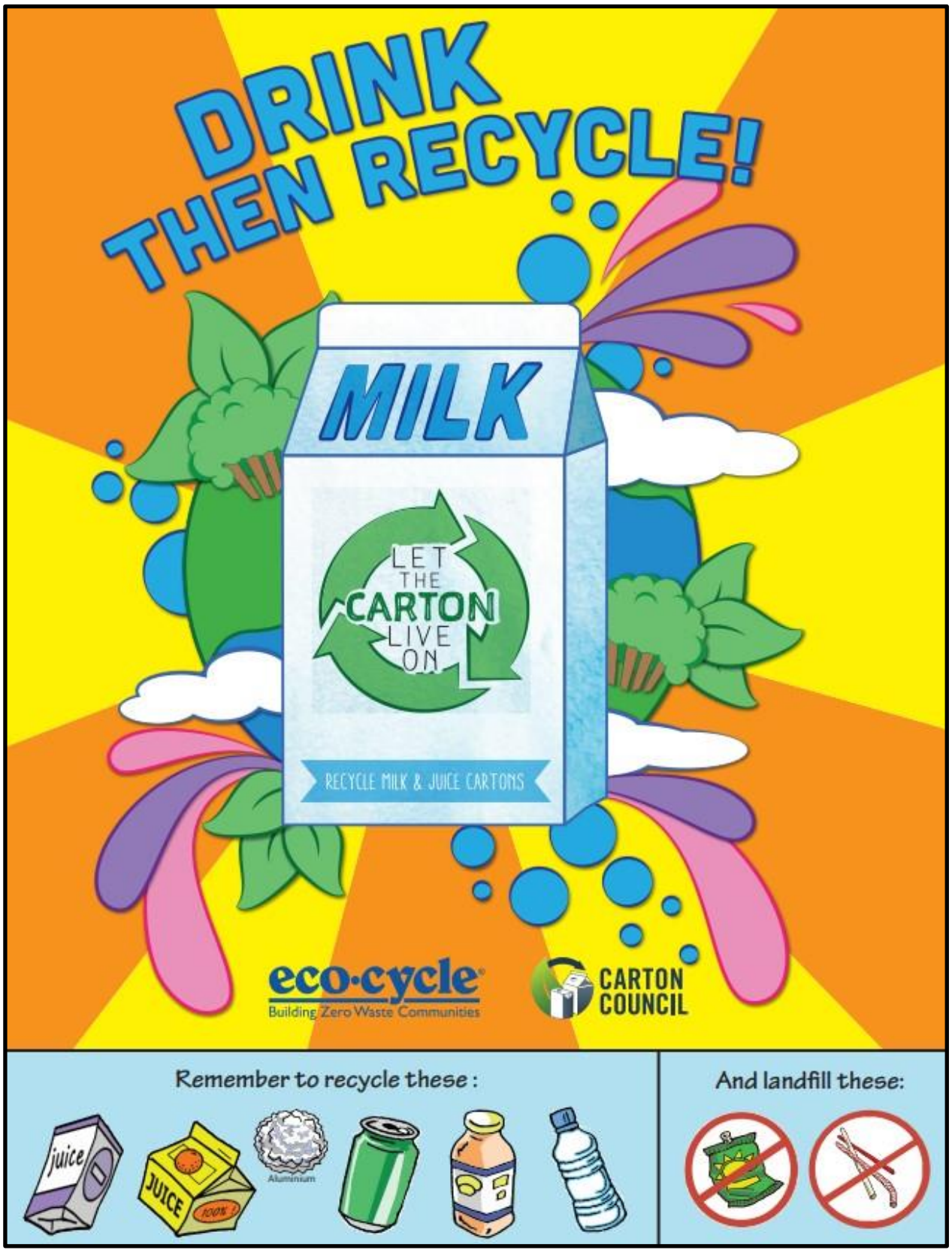
These announcements promote drink container recycling at home and at school.
Please read one per day to the entire school/grade level during the contest week.
This is one of the steps that must be completed to qualify for the prize drawing!

1. Did you know that all types of cartons and juice boxes can be recycled? Put them in the recycling bins at school or at home, along with aluminum cans, steel cans, plastic bottles, glass bottles, and aluminum foil. The paper inside the cartons and juice boxes will be recycled into new tissues, office paper, and even ceiling tiles!

2. Did you know that the average U.S. elementary school uses 53,200 cartons every year? Any cartons or juice boxes that we have at school can be recycled! Lots of foods that you consume at home also come in cartons, including milk, juice, soup, and broth. These cartons can also be recycled, but please make sure that all cartons are empty first! Also, please put any straws in the trash. Straws and juice pouches can't be recycled. Teach your family about recycling cartons and other drink containers at home tonight!

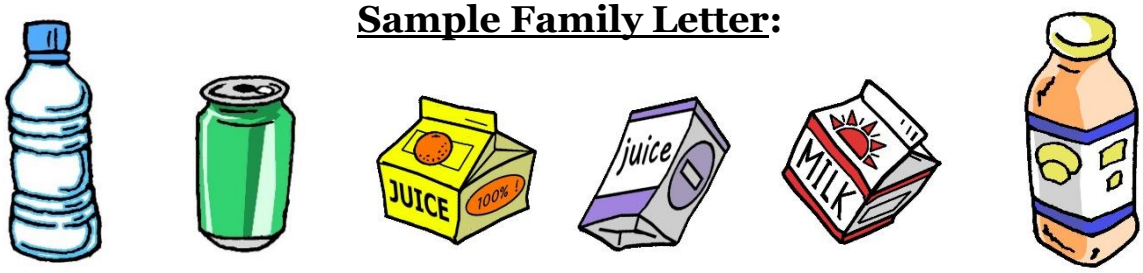
3. Making new paper from the used paper in milk cartons, instead of making paper from trees, makes 74% less air pollution and 35% less water pollution. Of course, recycling cartons and juice boxes also reduces trash. If you like breathing clean air, drinking clean water, and making less trash, put empty cartons and juice boxes in the recycling bin. And, for the sake of the Earth, remember to recycle plastic bottles, glass bottles, steel cans, aluminum foil, and aluminum cans too!

Printable High School Poster:



Printable Elementary Poster:

Sample Family Letter:



Dear Families,

Did you know that cartons for milk, juice, soup, soy milk, cream and more are recyclable at home *and* at school? Your school is partnering with (sponsor) to raise awareness about *recycling all drink containers- from milk cartons and juice boxes to plastic bottles and aluminum cans.* Your school/grade-level is participating with other schools/grade-levels by displaying posters, making informative announcements, and promoting drink container recycling throughout the school building to qualify to enter a prize drawing for (prize)!

Cool Carton Recycling Facts:

- Recycling the paper fiber in cartons results in 74% less air pollution and 35% less water pollution than producing new paper from trees.
- The company ReWall recycles cartons into ceiling tiles, wall panels, and other materials without using glue, chemicals, or water. Each truckload of ReWall building products represents about 300,000 recycled cartons.
- Cartons that contain a layer of aluminum are shelf stable, meaning the food or drink inside doesn't need to be refrigerated, saving energy during transportation and storage.

Recyclable Cartons Include:

Make sure cartons are empty and rinsed.

Please don't flatten!

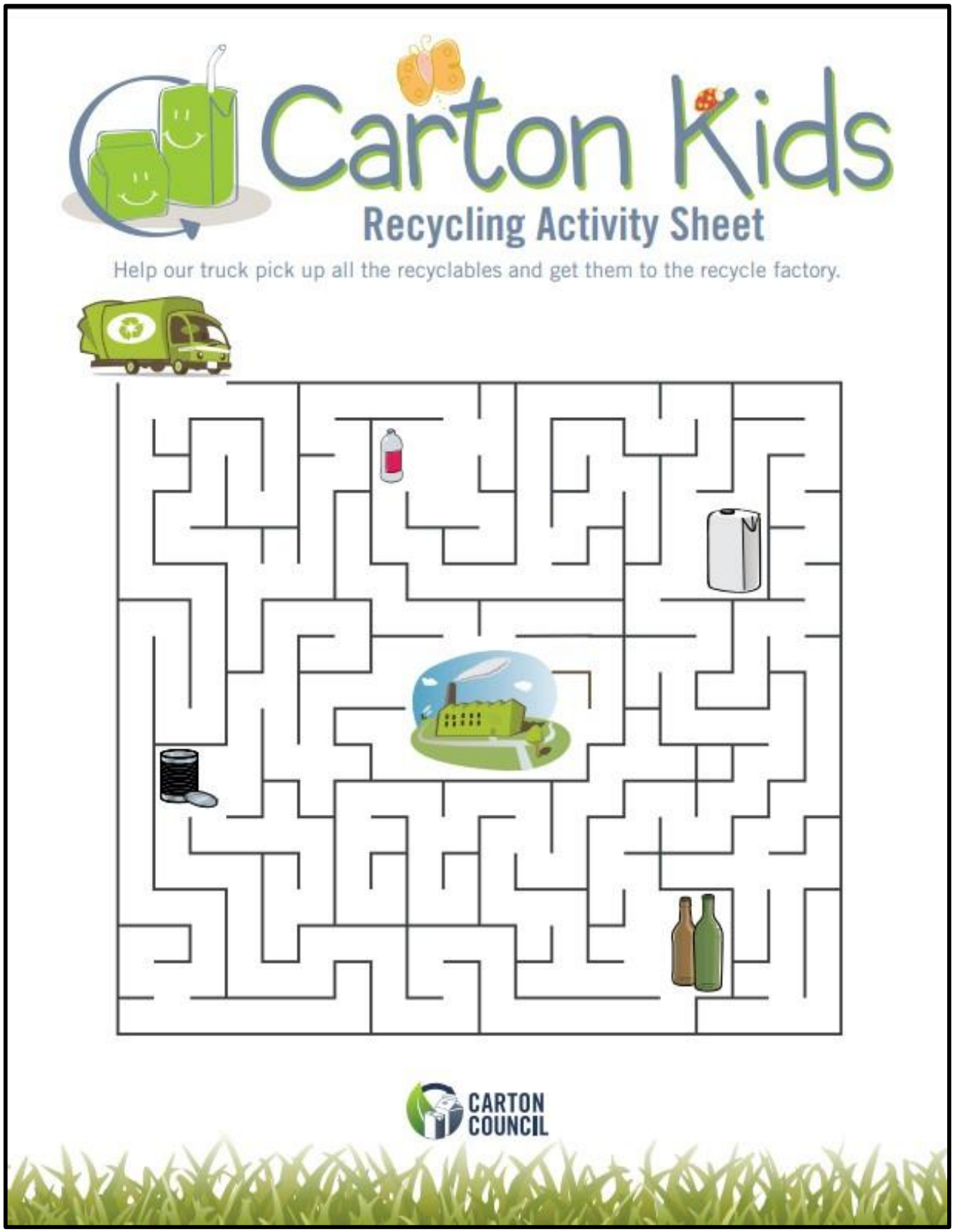
No straws in recycling, please!

Help your family recycle as much as possible by following the current guidelines for recycling in your area. If packing a lunch from home, consider including a reusable or recyclable drink container in lunches. (Include a link to local recycling guidelines.)

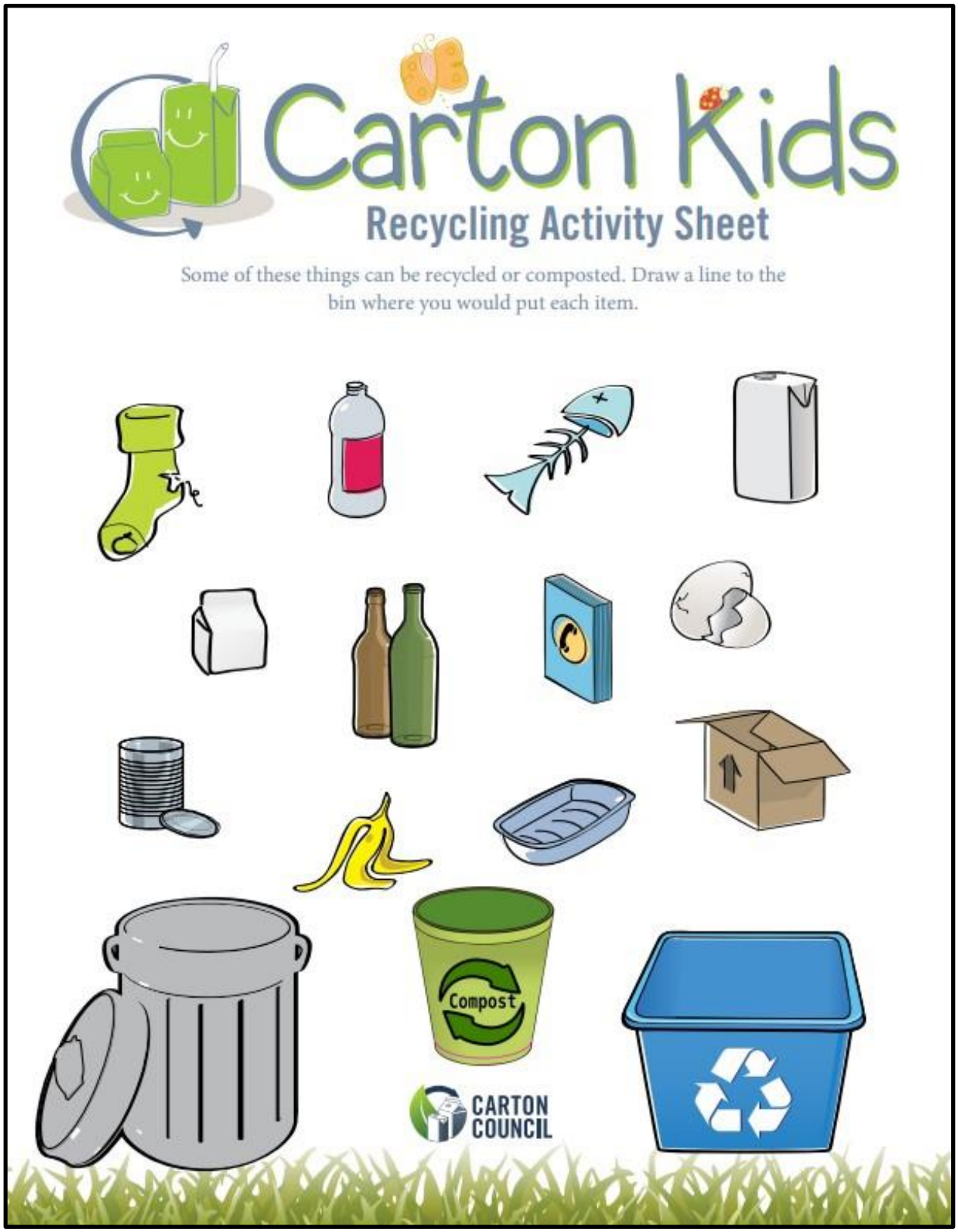
In addition, check out the just-for-fun carton recycling activities for kids following this letter!

Sponsored by:

<u>Printable Upper Elementary Activity (see more Carton Council activities at</u> https://www.cartonopportunities.org/schools**<u>):</u>**



Printable Primary Activity (see more Carton Council activities at https://www.cartonopportunities.org/schools**):**



Sample Pages from *Carton Recycling in Schools Best Practices Guide* by Carton Council (see full guide and other resources at https://www.cartonopportunities.org/schools):

CARTON RECYCLING IN SCHOOLS

Best Practices Guide

GETTING STARTED

Equipment to help with your program

BUCKETS

STRAINERS/ SCREENS

RECYCLING CONTAINERS

SIGNAGE

PLASTIC OR MESH BAGS

LITTER STICKS

PLEASE REFER TO OUR PROGRAM GUIDE FOR DETAILED HELP IN DEVELOPING YOUR PROGRAM.

PROGRAM TIPS

1. Don’t forget an “empty” station

DRAINING RESIDUAL MILK AND JUICE IS CRITICAL TO A SUCCESSFUL RECYCLING PROGRAM. USE A SCREEN (RIGHT) TO CAPTURE ANY WRAPPERS, STRAWS OR FOOD THAT GET TOSSED WITH THE MILK.

PROGRAM TIPS

6. Find your champion

DON'T FORGET TO THANK YOUR CHAMPIONS! CHAMPIONS CAN BE TEACHERS, STUDENTS, PARENTS, FOOD SERVICE DIRECTORS, AND PRINCIPALS.

COMPOSTING ACTIVITIES

Composting with Worms

Snapshot
Vermicomposting (or composting with worms) in the classroom is a practical way to keep common organic materials, such as paper towels and food waste, out of the trash. (And students will love it!)

Objective: Students will understand how vermicomposting works and will be able to identify one way that it benefits the earth.

Age Groups: K-12th grade

Setting: Classroom

Project Duration: Ongoing

Materials:

- Plastic bin (36”x24”x18” or smaller)
- Power drill/bit
- Newspaper
- Spray bottle
- Red wiggler worms (*Eisenia fetida)*
- Fruit/vegetable scraps and non-recyclable paper waste
- Poster paper and markers
- Plastic tarp
- Garden trowel
- Empty bin for finished compost

Why This Project Matters:

School-generated organic wastes, such as food scraps and non-recyclable papers, take up space in landfills and contribute to the production of methane gas. Vermicomposting, or composting with worms, takes some of these materials out of the waste stream and creates a nutrient-rich soil amendment to enhance plant growth. The drivers of this process, worms and other decomposers, are vital members of the soil food web. The process of worm bin building, maintenance, and harvesting provides a valuable learning experience about the nutrient cycle, food webs, and the importance of soil as the foundation of all terrestrial ecosystems on earth. Students also get the added benefit of interacting with live worms and learning about their life cycle!

Project Summary:

Small-scale vermicomposting provides flexibility for teachers to compost in their classrooms without having to gain school-wide support and infrastructure. A classroom worm bin will have the capacity to handle a classroom’s volume of paper towels and food waste from snacks. Maintenance of the worm compost bin will be required, as well as a plan for the finished compost.

Implementation:

Getting started:

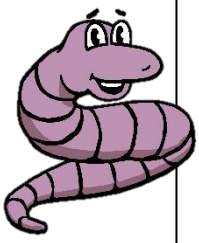
1. Acquire a small plastic bin (with lid), no larger than 36 inches x 24 inches x 18 inches. (Plastic 10-gallon 24”x16”x9” tubs are adequate.) To allow for air flow, drill rows of holes two inches apart along the top half (only) of all four sides. Do the same along the entire lid.
2. Tear newspaper into strips (2-4 inches wide) and loosely fill the bin halfway (this will become worm bedding).
3. Spray the bedding evenly to so that it is moist, but not wet (like a wrung-out sponge).

4. Either locally or via the internet, purchase 1-2 lbs. of red wigglers, specifically *Eisenia fetida*. (Other species of earthworms will not work as well in the worm bin environment.)

5. Once the bin is ready and the worms are present, add them in small, spaced-out handfuls throughout the bin, burying them in bedding.
6. To feed them, bury fruit, vegetable, and paper scraps (such as used paper towels) randomly throughout the bin.

Maintenance:

1. Regularly bury fruit, vegetable, and paper scraps (cut into small pieces) as they are produced by the class, monitoring the bin closely to make sure the volume and rate are not overwhelming the worms. Signs of excessive volume/rate are mold, fruit flies and/or strong odor. A pound of worms can eat approximately 3-4 pounds of food in a week.
2. Make sure to have an ongoing supply of bedding to add when needed (as worms consume it and/or if bin becomes too wet). Shredded newspaper works well, but dried leaves and shredded office paper (plastic-free) can also be used.
3. If necessary, spray the bin with water periodically to keep the bedding moist as described above. There should be no standing water or soggy bedding in the bin.
4. Create and display a poster in the classroom reminding students what is safe for worms to eat (fruit scraps, vegetable scraps, non-recyclable paper) and what is not (plastic, metal, glass).



5. If desired, rotate student care of the worm bin (feeding, monitoring the bin, spraying with water, etc.). Students will require supervision.

Harvesting the finished compost:

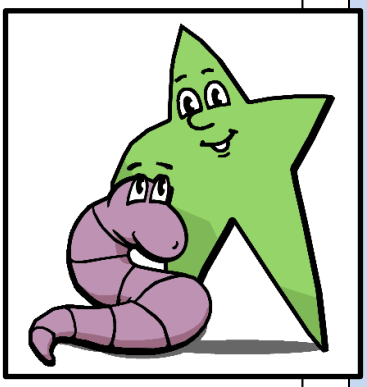
1. After several weeks, the bin will be mainly full of finished compost, which is dark and crumbly, like coffee grounds.
2. Place a tarp on the ground (outside or under a light if possible).
3. Gently empty the contents of the worm bin onto the tarp.
4. Divide contents into several small piles.

Extensions:

- For in-depth tips and classroom activities, reference these curricula: *Worms Eat My Garbage* and *Worms Eat Our Garbage,* both by Mary Appelhof.
- Search the internet for more tips on keeping your bin healthy, trapping any fruit flies, etc.
- Using classroom plants of the same age and species, conduct an experiment comparing growth rates of ones treated with vermicompost (variable) and others not treated with vermi-compost (control).
- Take the worm bin "on the road" to visit other classrooms. This may help recruit others to start their own bin. Populate the new classroom bins with the worm offspring from the original bin.

(Continued next page.)

5. Worms do not like light, so they will travel to the bottom of the piles to avoid it. Sift through the piles and pull out any unconsumed food and paper scraps.
6. Continue sifting through the piles until what remains is mostly finished compost separated from the worms.
7. Collect worms and return them to the worm bin with unconsumed food and paper scraps. The remaining material should be finished vermicompost. Collect and place it into its own separate container.



8. Add fresh bedding (torn newspaper) to the worm bin and dampen bedding with the spray bottle. Make sure to bury unconsumed compostables (food and paper scraps) under the bedding. Return the worm bin to its original site.
9. Mix the finished vermicompost with potting soil (three parts potting soil to one part vermicompost) and apply to garden beds or indoor potted plants. (Straight compost can be used to start seedlings, but once the plants have sprouted, transfer them to the soil/compost mixture because straight compost has a high concentration of nutrients which can burn plants.)

Assessment:

Have the students prepare a presentation for their parents or another class about their worm bin experience. The presentation should include how they built it, specifics of maintenance, the harvesting procedure, how worms turn the waste into compost, and why this helps the earth.

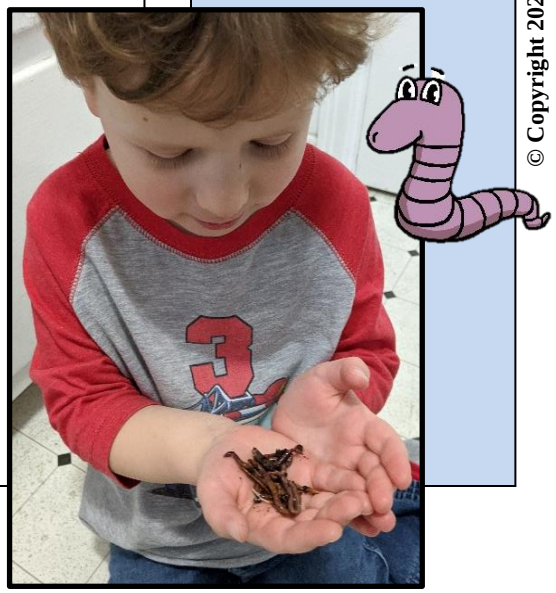
Through the harvesting process, have students evaluate how they are doing, what they have learned, and how they might improve their "worm operation."

Related Activities:

Take a Bite out of Food Waste – Chapter 4
Backyard Composting at School – Chapter 24
Schoolwide Compost Collection – Chapter 25
Worm Bin Composting Workshops – Chapter 26
Conducting a Waste Audit – Chapter 30

Extensions:
(continued)

- Supplement math and science curricula with worm bin activities, such as:
  - Calculate and compare the amounts of food/paper consumed and finished vermicompost produced.
  - Experiment to determine the speed at which food scraps turn into finished vermicompost
  - Calculate and chart worm population growth over time.
- To monitor progress, conduct a waste audit of classroom waste before and after using the worm bin.



Backyard Composting at School

Snapshot
When large-scale industrial composting programs do not exist in a community, an on-site compost pile serves as an alternative option for diverting organic waste from the landfill while engaging students.

Objective: Students will understand what belongs in compost collection bins and be able to identify one or more reasons why composting helps the environment.

Age Groups: K-12th grade

Setting: School cafeteria/kitchen, classrooms, and school grounds

Project Duration: Ongoing

Materials:

- Collection bins for compostables (larger for cafeteria, smaller for classrooms and kitchens)
- Signage/labels for bins
- Outdoor compost bin
- Shovels
- Watering can or hose

Why This Project Matters:

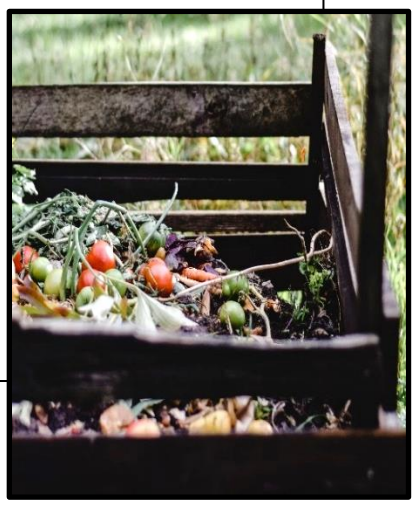
On-site composting of a school's food waste, paper towels, tissues, and other non-recyclable papers can have a significant positive impact on the environment. It not only prevents these organic materials from producing methane while buried in a landfill (methane gas is a byproduct of anaerobic or non-oxygenated decomposition), it also adds nutrients to the soil, improving plant growth. In addition, the presence of compost in the soil increases moisture retention. It also sequesters (or stores) atmospheric carbon within the soil. Composting reduces the production of methane from landfills AND reduces the concentration of carbon dioxide in the atmosphere. Both are important to stabilize the world's climate.

Project Summary:

Schoolyard composting is similar to backyard composting. There are a variety of outdoor methods and bins available. Small-scale would utilize the food and non-recyclable paper waste from 1-2 classes only, whereas large-scale could utilize the same materials from the cafeteria and some, or all, classrooms. Maintenance of the compost bin or pile will be required, as well as a plan for how to use the finished compost.

Implementation:

1. Identify if the project will include the cafeteria/kitchen and classrooms (large-scale) or just a limited amount of material (small-scale).
2. Determine the types of compostable materials to be collected and where they will be collected from. Food waste from the cafeteria/kitchen and classrooms, non-recyclable paper from classrooms and/or the cafeteria, and yard waste (leaves) from the school grounds can all be included.



3. Estimate the volumes of compostables when deciding on the size and type of collection containers and the outdoor compost bin(s)/composting method to use. Coordinate with the principal and maintenance staff to choose the best location on the school grounds for the compost bin(s)/pile.
4. Using a map of the school, identify where compost collection containers should be located. Five-gallon buckets with lids (all the same color, if possible) make wonderful collection containers for classrooms. For larger areas like the kitchen and cafeteria, use 10-gallon or 20-gallon containers, or limit the amount or type of waste collected. Adhere labels to the containers identifying them as compost collection bins. If the containers are all the same color, that will also help distinguish them from trash and/or recycling bins. Establish "waste stations" in classrooms, kitchens, and/or cafeterias (each consisting of a recycling, trash, and compost bin). This cuts down on contamination and makes collection within the building much easier.
5. This type of composting should not include meat, dairy, or bones. Implement methods of keeping these materials out of the collected food waste through labels, signage, and other forms of education and maintenance.
6. Assign duties to students and staff regarding the compost collection system within the school, as well as the maintenance of the compost site. These duties can be performed by different groups. For example, a group of students may take care of in-school collection while a parent group could maintain the outdoor pile or bin(s). Make sure the custodial staff and classroom teachers affected by the program are made aware of the collection system routines.
7. Decide where the finished compost will be used. A compost pile is the perfect complement to a school garden.
8. If multiple grade-levels are part of the program, have a student group create announcements, posters, and signs to kick-off the beginning of the school's compost collection and educate the school community on composting rules. If desired, encourage students to create a skit or short presentation for individual classes or a school assembly to explain how everyone can participate.
9. Hand out classroom compost bins to participating teachers, possibly during a school assembly, if that is part of the kick-off program.
10. To facilitate family involvement, send home a family letter explaining the merits of the project.

Extensions:

- Have students research the different types of compost bins and methods to decide which is right for your project.
- Coordinate a class, grade-level or school-wide event that features the harvesting and spreading of the finished compost.
- Have students research the science behind composting:
  - How do things decompose?
  - What decomposers are part of the compost and soil food web?
  - What other factors are necessary for decomposition?

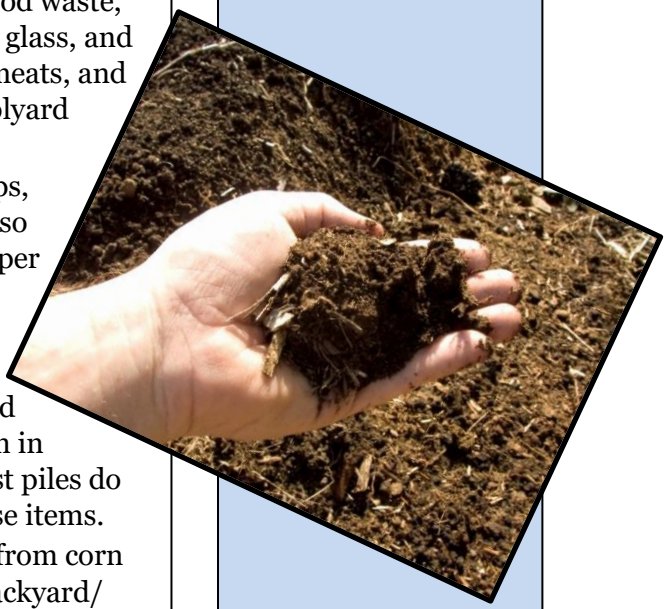
Things to consider:

- If the school has a garden, work with the gardening group to establish the compost site nearby.
- For decomposition to work, the pile needs four elements: carbon (paper, leaves), nitrogen (food waste, manure, grass clippings), water (to the dampness of a wrung-out sponge), and turning (to add oxygen).
- Almost every community has a composting expert. Recruit a parent or community expert to help.
- Consider the project site, local climate, and estimated volume of collected compostables when choosing between a single-bin or a multiple-bin system. Bins can be constructed or purchased from hardware or garden supply stores.
- Classroom or cafeteria bins for collecting compostables should have lids and/or be emptied daily to deter pests.

Keeping compost clean:

When establishing a school compost program, be sure to promote easy-to-understand guidelines that highlight which waste materials are accepted, and which are not. Compost collection programs are growing both in number and in participation throughout the U.S. It has become increasingly important to ensure that the collected materials are truly compostable so that the finished compost does not distribute contaminants, such as plastic, into the greater environment.

- Collected compostables should consist only of food waste, non-recyclable paper, and yard waste. All metal, glass, and plastic must be kept out of the compost. Dairy, meats, and bones are not recommended for backyard/schoolyard composting.
- Plastic-coated paper products such as plates, cups, bowls, and cartons must be kept out of compost so that microplastics are not generated after the paper component of these products breaks down. Microplastics contamination is a major soil and environmental hazard.
- Uncoated paper products, even if they are labeled compostable, are not recommended for inclusion in backyard/schoolyard composting. Small compost piles do not generate the heat needed to break down these items.
- Compostable bioplastics, such as utensils made from corn plastic, are not recommended for inclusion in backyard/schoolyard compost piles because they will not break down.
- See Schoolwide Compost Collection, Chapter 25 for information on composting these materials.



Assessment:

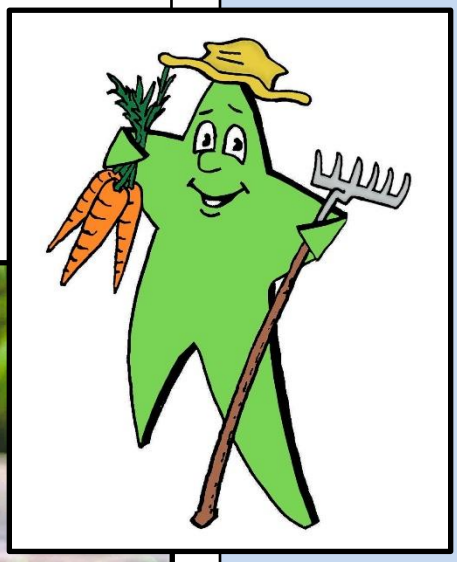
Have the student group perform an audit of one or more waste stations one month before and one month after the program has been implemented. The comparison will help illustrate the success of the program. It will also indicate the level of contamination in the compost bin. (Ideally, less than 10% of the trash bin contents will be compostable items and 0% of the compost bin contents will be trash.) (See Conducting a Waste Audit, Chapter 30.)

When the audit is complete, have the student group report their findings to the school community, with reminders about the benefits of composting to the environment (healthier soil, less waste, reduction in methane production by landfills, etc.).

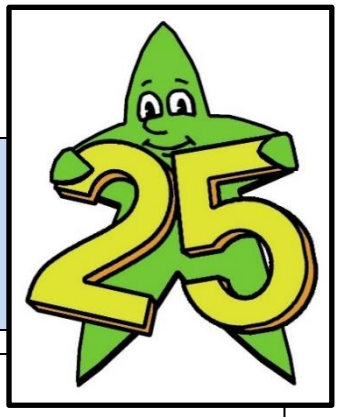
Repeat the trash and compost audit annually or semi-annually.

Related Activities:

Take a Bite Out of Food Waste – Chapter 4
Composting with Worms – Chapter 23
Schoolwide Compost Collection – Chapter 25
Conducting a Waste Audit – Chapter 30



Schoolwide Compost Collection



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Snapshot
The composting option for schools that has the biggest positive impact on the environment is collection for large-scale industrial composting.

Objective:
Approximately 33% of the school's waste will be diverted for composting. Students and staff will be able to identify what items go into the compost collection bins and understand reasons why composting helps the earth.

Age Groups: K-12th grade and adults

Setting: Most or all rooms within the school building

Project Duration:
Ongoing

Materials:
- Collection bins for compostables (5-gallon for classrooms, larger for most other areas)
- Signage/labels for bins
- Examples of compostable items at school
- Poster-making materials

(Continued next page.)

Why This Project Matters:

Approximately one third of a school's waste is organic, compostable materials. This includes food waste, paper towels, tissues, napkins, and other non-recyclable papers such as bright-colored paper and construction paper. When organic materials are landfilled, they decompose without oxygen, producing methane gas. Methane is a greenhouse gas much more potent than carbon dioxide. If organic materials are composted properly in the presence of oxygen, methane gas is not produced. After implementing a successful recycling program, removing compostable items from the landfill-bound waste stream is the next step in a school's work toward Zero Waste and safeguarding the environment.

Project Summary:

Large-scale, community-wide composting has become increasingly available. Schools in these communities may hire a local company to haul their compostables to an industrial facility. The big advantage of this method is that large amounts of food waste, non-recyclable paper and yard waste can be collected and composted off-site, producing the highest waste diversion of any composting strategy. Compostable waste can be collected from the kitchen, cafeteria, hallways, classrooms, and bathrooms. A successful program will include collection, ongoing education, and feedback to the school community.

Implementation:

Getting started:

1. Contact local composting facilities and haulers to see if they offer compost collection to schools (check with the school's current trash and recycling haulers first). Request guidelines from the facility/hauler to learn which materials are accepted in their compost collection. Traditionally, large-scale composting facilities accept all food (including meat, dairy, and bones) and non-recyclable paper (like tissues and paper towels), as well as **BPI-certified** compostable materials. The Biodegradable Products Institute (BPI) provides the only third-party product-verification certification in North America that meets the international ASTM standards for compostability.
2. Identify the school's current trash volume by finding out which day(s) of the week the trash company is scheduled to service the school's trash dumpster. The evening before or the morning of the service, visit the dumpster to get an estimate of how full it is before pick-up. Do this for 4-6 weeks to calculate a good average. Use this data to estimate the volume of compostables that the school will likely produce (approximately 33% of the trash volume). This will help determine the dumpster capacity needed for compost collection.
3. Meet with the school principal or administration to determine a budget for the composting program. Consider that the school will be able to reduce its trash service once the program is established. The saved cost on trash can be put toward the compost collection cost. If the trash hauler also provides compost collection, inquire about the possibility of adjusting the contract to include compostables, suggesting that the fee reduction in trash hauling should offset the new fee for compost collection.
4. Schedule twice-per-week hauling service for the compostables (for after collection begins) to reduce pest and odor issues. Classroom and cafeteria containers should be emptied daily to avoid pests. Bathroom paper towels can be emptied as needed.
5. It is important to remember and remind others that anything that could go into the compost container is currently already in the school's waste stream. There is no increase in the amount of material that is being removed from any area of the school. The material will simply be sorted differently both inside and outside of the building.
6. In areas where trash containers are visited by wildlife, consider wildlife-proof containers or inexpensive locks.

Materials:
(continued)

- Dumpster or another large container for holding compostables until pick-up by a commercial composter

Extensions:

- Purchase bags of finished compost for students to see and touch the final product. Use the compost in school gardens and landscaping.
- Have older students research the science of composting and teach younger students about:
  - the compost/ soil food web
  - the role of water and oxygen in composting
  - the importance of compost adding organic matter to the inorganic components of soil
  - the importance of soil in our daily lives

7. With the head custodian and principal, decide where the compost collection containers should be located throughout the school, and where extra trash containers may be removed. Five-gallon buckets with lids (all the same color) make great collection containers for classrooms and small bathrooms. For larger collection areas like the kitchen, cafeteria, large bathrooms, and hallways, 10-gallon to 32-gallon containers work well. Establish waste stations in all areas where recycling, trash, and compost collection bins are grouped together. Requiring participants to choose between the containers at the station helps to increase participation and create new habits. It also reduces custodial labor with fewer containers to service. Solo trash cans tend to encourage old landfilling habits.
8. Purchase the containers (or solicit donations) and work with custodial staff to set up the building's collection system. To reduce custodial workload, implement a policy where classrooms are responsible for emptying their smaller classroom collection containers into larger hallway or cafeteria compost containers daily. Emptying the classroom container makes a perfect rotating student job that increases student buy-in to the program.
9. Print or purchase adhesive labels with guidelines for each container.

Things to consider:

- Consider implementing the new composting program in October or during second semester of the school year. These are good times to introduce new routines without interfering with the bustle of activity during the start of the school year.
- Use consistent colors for collection containers and signage. Colors that differentiate between trash, recycling, and compost help reduce contamination.
- In children's bathrooms, trash cans may be eliminated altogether. Paper towels are typically the only waste produced and can be collected in a compost container.
- The waste station in the cafeteria may include: a dump bucket for liquids, a recycling bin, a small trash bin, and a large (20-gallon or 32-gallon) container for collecting food waste, paper napkins, paper towels, etc.
- Place a compost collection bin in the school kitchen and educate the kitchen staff about why and how food waste and any non-recyclable paper can be collected.

Keeping Compost Clean:

- When establishing a school compost collection program, be sure to promote clear and easy-to-understand guidelines that highlight which waste materials are accepted, and which are not. Compost collection programs are growing both in number and in participation throughout the U.S. It has become increasingly important to ensure that the collected materials are truly compostable so the finished compost does not release contaminants into the greater environment when applied to soil.
- Collected compostables should consist of food waste, non-recyclable paper, and yard waste only. All metal, glass, and plastic *must* be kept out.

Training and implementation:

1. Gather samples of the items that can be composted in the school's new program and use them to train a student group. Students can then create posters to display by the cafeteria and hallway compost bins that feature 3-D examples attached with the help of a hot glue gun. This type of display is a very effective teaching tool.
2. Work with the student group to create skits, video or audio announcements, and short presentations to launch the new compost collection system and to educate the school community about the composting guidelines, containers, and collection procedures. The environmental benefits of composting should also be emphasized. A 30-minute kick-off assembly covering these elements creates all-school pride in the program. Student group members can participate as presenters in the assembly.
3. If they are not already in place, hand out classroom compost bins to teachers at the end of the assembly.
4. Following the assembly, ask teachers to sign up for a 25-to-30-minute classroom training session within a week of the kick-off event. These in-class sessions will provide more details and allow students and teachers to ask questions.
5. Plan 30-minute training sessions with all types of school staff before the collection program begins. Train teachers to facilitate the student rotation to empty and clean their classroom compost containers and to use the guidelines for compostables collection with their students. Creating one waste station and removing extra trash cans from each classroom makes the program more efficient. The lids for the compost buckets should always be in use.
6. Train parent volunteers to help students sort their waste correctly in the cafeteria for up to six weeks following the program kick-off.
7. Prepare a statement or letter for the school's newsletter announcing the new program to parents.
8. Meet with school custodians periodically in the first few weeks to get feedback and adjust collection details. It is critical to have custodial support for the program.

(continued)

- Purchase only food service ware (cups, plates, cutlery) that have been certified compostable by Biodegradable Products Institute (BPI). This organization uses international standards to certify products. Reference their website to ensure products are truly compostable.
- Plastic-coated paper products, such as plates, bowls, cups, cartons, juice boxes, ice cream cartons, and frozen food boxes must be kept out. Studies have shown that the plastic coatings remain as non-biodegradable microplastic fragments in the finished compost, contaminating the soil on which the compost is applied. Microplastics are a major source of plastic pollution and cause harmful effects on living organisms.

Maintaining the program:

1. Monitor the trash dumpster for three to six weeks after the compost collection is implemented and compare the volumes to the pre-program levels. (See the *Getting started* section above). Record the trash reduction volumes and share with the school community.
2. Monitor the cafeteria collection bins periodically after the kick-off (this can be done by students or parent volunteers). If repeat issues arise (e.g., plastic wrappers in the compost), make an announcement or send home reminders in the school newsletter.
3. Distribute composting guidelines to all teachers and staff. In subsequent years, distribute guidelines at the beginning of each school year and/or as requested.
4. Provide "refresher" assemblies or classroom presentations each year until the new program becomes habit. Incoming student classes should receive education annually. Periodically retrain staff to compensate for staff turnover.
5. Provide regular reports to the school community about the volume of material they are composting and how this benefits the environment. Check with the hauler or school custodian to see if they can generate this information. Share this data as a centralized graph (see Reporting Progress, Chapter 28), announcements, or in the school's newsletter.
6. Have a student group conduct annual audits of the compost and trash bins to see how well the staff and students are doing, and what could be improved (see Conducting a Waste Audit, Chapter 30). Students can then create an awareness campaign based on their findings.

(continued)

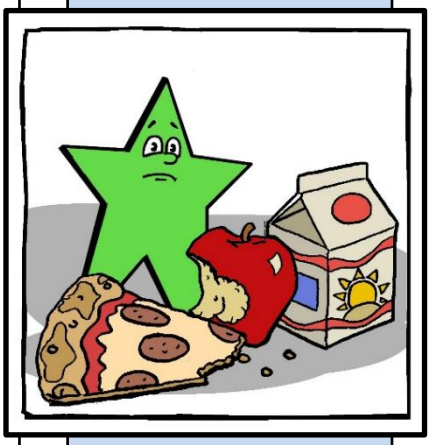
- Beware of purchasing plastic products that are marketed as *degradable* or *biodegradable*. They do not meet international certification or BPI standards for compostability.

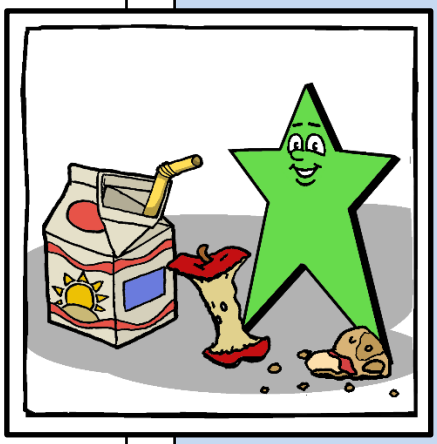
Lining compost containers:

- Compostable bags are available in all sizes to line compost containers. They can be expensive, depending on your project budget. Classroom containers can be lined with newspaper or paper bags. If containers are lined with plastic bags, the bags themselves must be kept out of the compost dumpster and put into the trash.

Assessment:

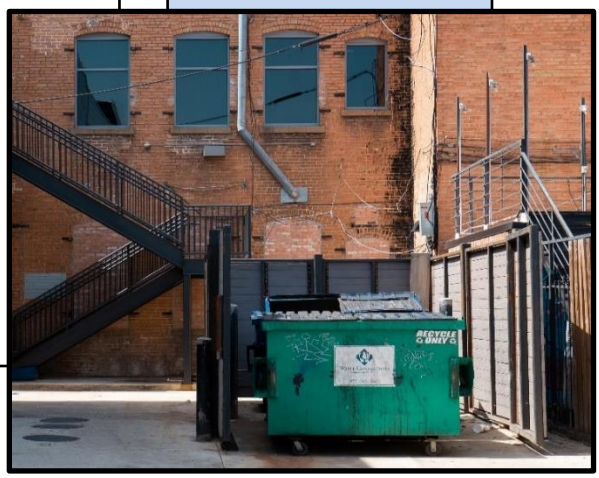
- Monitor the trash and composting dumpsters for reduced trash volumes and increased compost volumes. Look for and record contamination issues.
- In the lunchroom, pop-quiz students at their tables or as they bring items to the compost bin. Ask questions such as:
  - What is one item that can be composted at school?
  - What is one item that should NOT be composted?
  - What compostables did you bring in your lunch today?
  - Can a napkin be composted?
  - Can a paper towel be composted?
  - What do you think about composting?
  - How does composting help the earth?
- When students perform an audit of the trash and compost collection bins (see *Maintaining the program* section above), compostable items should ideally be less than 10% of the trash bin contents, and trash items should make up 10% of the collected compostables. Have the student group create a campaign to report their findings to the school community, including reminders about common sorting mistakes and the benefits of composting to the environment (healthier soil, less waste, reduction in methane generated by landfills, etc.). Video or audio announcements, posters, and short presentations to classes make an effective campaign.



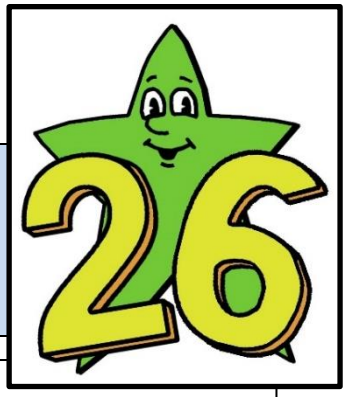


Related Activities:

Take a Bite Out of Food Waste – Chapter 4
Schoolwide Recycling Collection – Chapter 18
Composting with Worms – Chapter 23
Backyard Composting at School – Chapter 24
Reinforcing Collection Programs Over Time – Chapter 27
Reporting Progress – Chapter 28
Conducting a Waste Audit – Chapter 30
Special Considerations for High Schools – Chapter 35



Worm Composting Workshops



Snapshot
Hosting vermicomposting (composting with worms) workshops and providing the needed supplies will encourage teachers and families to try composting in their classroom or at home.

Objective:
Participants will leave the workshop with a prepared worm compost bin and the basic knowledge to maintain it.

Age Groups: K-12th grade and adults

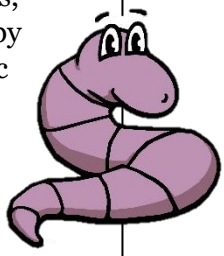
Setting: Cafeteria or other large room

Project Duration:
- Preparation: 2-6 hours
- Workshop: 2-2.5 hours (including set up)

Materials:
- Opaque plastic 10-gallon totes (1 per family or classroom)
- Power drill/bits
- Marker and ruler
- Spray bottles
- Newspaper
- Whiteboard
- Copy paper
- Printer
- Red wigglers (*Eisenia fetida*) (optional)

Why This Project Matters:

Uneaten food and inedible food scraps (fruit peels, eggshells, etc.) add up to a lot of perfectly good worm food! Vermicompost, or the castings left behind from worms, is a natural, nutrient-rich soil amendment that may be used to nourish gardens, yards, and houseplants. Composting also reduces waste by preventing organic materials from entering the anaerobic environment of a landfill where they produce methane gas (a potent greenhouse gas) as they decompose.



Project Summary:

While many people are familiar with backyard composting, vermicomposting is not as well-known. Hosting a worm composting workshop for the school community can be an effective way of sharing an alternative composting method that families can try at home. Vermicomposting can be utilized in almost any living situation, regardless of home size, location, or yard access (apartments, condos, mobile homes, etc.). In addition, teachers attending the workshop may be inspired to vermicompost in their classroom.

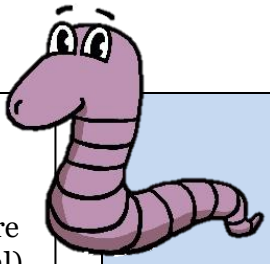
Implementation:

One month before the workshop:
1. Find a presenter to facilitate the worm composting workshop. This may simply be someone who has successfully maintained their own worm bin and can advise others on how to do the same.
2. Choose times and dates for the workshop. Offer an after-school session for teachers and a weeknight/weekend session for families.

3. When workshop participants are given the tools to start a worm bin, they are more likely to follow through with maintaining one. Here are some ideas for getting supplies into the hands of participants:
    - Have supplies available for purchase at the workshop.
    - Obtain a grant/donation and offer supplies for free.
    - Offer supplies at a discounted rate if local hardware or garden stores sponsor the workshop.
    - Have a student group sell supplies as a fundraiser before or during the workshop (see Extensions).
4. Coordinate with the principal for a workshop location within the school (library, cafeteria, art room, or spare classroom). If the school is not available, inquire with community centers, libraries, or local businesses.
5. Advertise the workshops to the school community through hallway posters, in-school announcements, family newsletters, and website/social media posts. Invite a student group to help with these promotions. If desired, open the workshops to the greater community.
6. Coordinate registration for the workshop. Provide contact information for participants to register and ask questions. Requiring registration to occur prior to the event, and sending reminders closer to the event date, leads to higher attendance rates. This also benefits the coordinator when preparing workshop handouts and supplies.
7. Prepare and assemble worm bins for participants:
    - Purchase opaque plastic 10-gallon totes and lids (approximately 24”x16”x9”) to be used as worm bins (one per participant, family, or classroom).
    - Before drilling, prepare an indoor area (or a tarp outdoors) to set up your equipment.
    - On the lids, use a marker and ruler to make two rows of six dots each. Make sure dots are evenly spaced. Using a ¼ inch drill bit, drill holes into the 12 dots.
    - On the short sides of the bins, make two rows of three dots each on the upper half of the bin. On the long sides, make two rows of six dots each, also on the upper half of the bin. Drill holes into these dots.
    - When drilling is complete, sweep up all small shreds of plastic and dispose of them in the trash.
    - Create bedding for one bin by tearing newspaper into 1-inch wide (or thinner) strips. Sprinkle paper strips into a bin covering the entire bottom surface about 3-4 inches deep. This completed bin will serve as an example during the workshop.

Extensions:

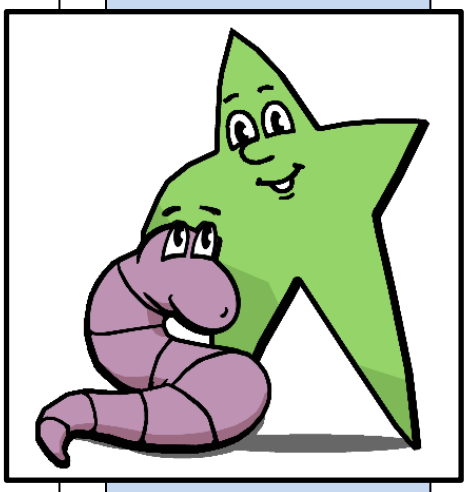
- Create a fundraiser from the sale of red wigglers before or during the worm bin workshop. Have a student group coordinate between the worm farmer and participants. For example: if worms are $10/lb., the student group could take orders for $15/lb. Collecting orders prior to the workshop is beneficial so that the worms can be available to participants when building their bins.
- Provide directions from the internet on how to make a simple fruit-fly trap or make them as part of the workshop.



8. Assemble workshop supplies: information sheets summarizing procedures (see Composting with Worms, Chapter 23), drilled worm bins, stacks of newspaper, spray bottles, red wiggler worms (or information on where to buy them), hand-made fruit fly trap materials (optional), example of a newly completed worm bin, and an established worm bin with worms.

Day of workshop:

1. Assemble workshop supplies (handouts, worm bins, etc.) for easy distribution.
2. Arrange the workshop space with tables and chairs.
3. Create and display signage for the venue with directions to the workshop room or location.
4. Have the presenter facilitate the workshop to include the following:
    - Explain how worm bins were prepared.
    - Have participants prepare bedding from newspaper for their own bin. Demonstrate the right amount of moisture to add to the bedding.
    - Review and demonstrate initial bin set up, maintenance (including feeding and moisture amounts to add), harvesting, and troubleshooting.
    - Go over what can go into the worm bin (food scraps, nonrecyclable paper waste) and what can't go in (metal, plastic, and glass).
    - Provide information on how to order worms (if they are not provided).



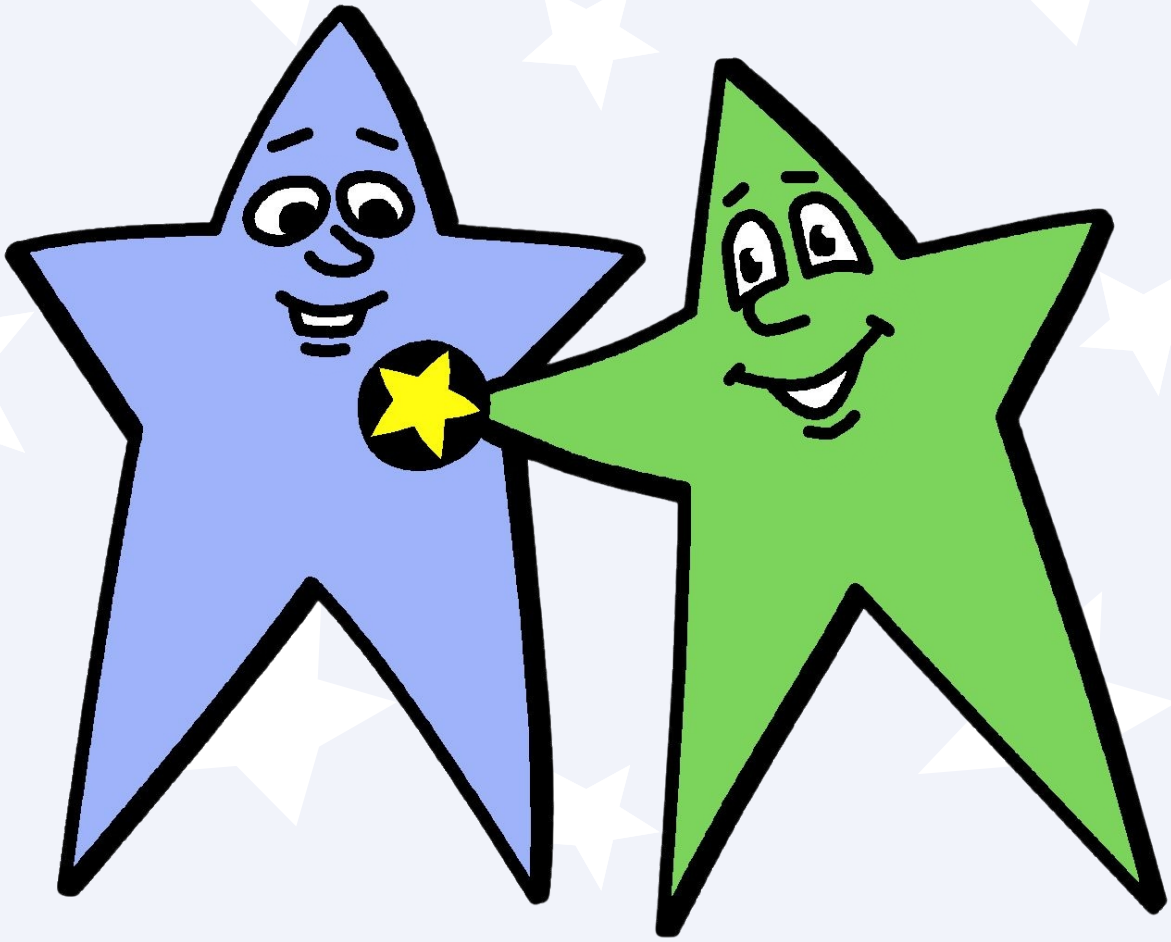
Assessment:

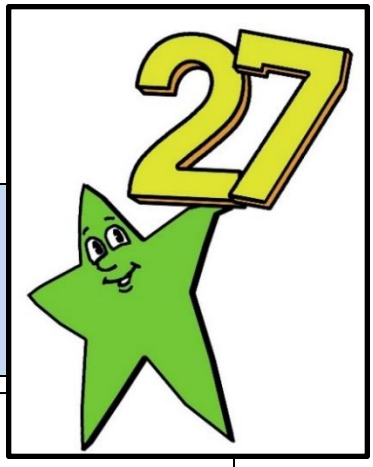
Follow up with participants two to three months after the workshop. Ask if they are still using their worm bin and if they have any questions or concerns.

Related Activities:

Composting with Worms – Chapter 23

MOTIVATORS & REWARDS





Reinforcing Collection Programs Over Time

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Snapshot
Compost collections, recycling collections, and other school waste-reduction programs will be successful when regular training and education are provided.

Objective: Students and staff will be able to accurately sort waste items into the school's recycling, composting, and trash bins. Students and staff will fully participate in sorting their waste for maximum diversion.

Age Group: K-12th

Setting: School building

Project Duration: Ongoing

Materials:
- Dependent on activity

Why This Project Matters:

On average, each North American produces 4-5 pounds of waste per day. Much of this waste has the potential to be recycled or composted if the opportunities exist locally. The environmental benefits of recycling and composting include: less waste being sent to landfills, natural habitat preservation, reduced air and water pollution, healthier soil, reduced fossil fuel consumption, and an increase in available jobs (compared to manufacturing new products from virgin materials and landfilling).

Project Summary:

Over time, recycling, composting, and waste-reduction habits can lose priority in the busy lives of students and staff. A successful school Zero Waste program must include continuous education, training, and fun, engaging special projects.

Implementation:

The following is a list of activities that can help reinforce and reinvigorate an existing Zero Waste program.

- Create and schedule 15-45-minute in-class "refresher" presentations. If possible, provide them to all classrooms in elementary schools and all science (or other subject) classes in secondary schools. During the presentation, demonstrate the use of the school's waste-collection containers by sorting samples of waste items to reinforce *how* to recycle and compost properly. Make sure to also explain *why* the program helps the environment.
- Enlist an art teacher, parent with artistic skills, or a graphic designer to create coloring sheets for primary-grade students. Design the images to illustrate how to sort waste for recycling and/or composting.
- For upper elementary and middle-level students, create word searches or crossword puzzles that integrate recycling and composting concepts. An internet search will provide websites with free puzzle-making tools.

- During lunchtime in the cafeteria, help students sort their lunch waste by having specially-trained students or adults volunteer to be waste goalies at the waste station(s) (to monitor sorting and answer questions).
- Make copies of a school map and instruct students to mark the locations of recycling and/or composting bins. Students can then submit this "scavenger hunt" to be entered into a prize drawing.
- Organize waste-sort relay races. Teams of students can compete as grade-levels or classrooms. The relay-sort race can feature lunch trays with typical lunchroom materials (utensils, imitation food, napkins, milk cartons) or a cloth bag full of items that need to be sorted as recyclable, compostable, or trash. Teams that make the fewest mistakes and complete the relay in the shortest amount of time may win a prize or other reward.
- Whenever possible, have a presence at after-school events like Back-to-School Night. Set up and staff a table with information for students and families about the Zero Waste efforts at the school. Create fun interactive displays, such as: games that require participants to match recyclable items to the natural resources from which they are made (paper to trees, plastic to oil, etc.); an example of a home-packed waste-free lunch verses a wasteful lunch; a container of finished compost for participants to see, smell, and touch; a vermicomposting worm bin to examine; other simple waste-sorting activities such as a "fishing pond" full of waste items and mechanical grabbers to sort items into the proper containers.
- Meet with the school's student council or environmental club to create a waste-reduction campaign. Students may choose to focus on many issues such as: increasing participation in their school's recycling and/or composting collections, reducing the use of disposable plastic in the cafeteria, helping to save the world's rainforests through improving paper and aluminum recycling, or other environmental ideas. Assist with the fact-finding research on their chosen topic to create skits, signage, announcements, videos and/or contests that will draw attention to the issue and provide action ideas.

Extensions:

- Have a student group monitor classroom waste containers and leave each class a friendly report card indicating what was recycled or composted properly, and what was found in the trash that should not have been there. Ask the classroom teacher to share the results with the class. Repeat monthly and publicly acknowledge each class that achieves fewer than five mistakes per audit.

- Many other activities in this guide can also be used to reinforce an existing composting, recycling, or other waste-reduction program. Consider the following:
    - Waste-Free Lunch, Part 1: Classroom Challenge – Chapter 2
    - Waste-Free Lunch, Part 2: School Contest – Chapter 2
    - Waste-Free Lunch, Part 3: Durables in the Cafeteria – Chapter 2
    - Paper Reduction Campaign – Chapter 6
    - Locker Leftovers/Classroom Cleanout – Chapter 9
    - Zero Waste School Parties and Events – Chapter 11
    - Repurposing in the Classroom – Chapter 12
    - Purchasing Policy, Part 1: Classroom Policy – Chapter 17
    - Reporting Progress – Chapter 28
    - Student Sponsor Group Celebration – Chapter 29
    - Conducting a Waste Audit – Chapter 30
    - Compost Delivery – Chapter 32
    - Five and Ten-Year Celebrations – Chapter 33

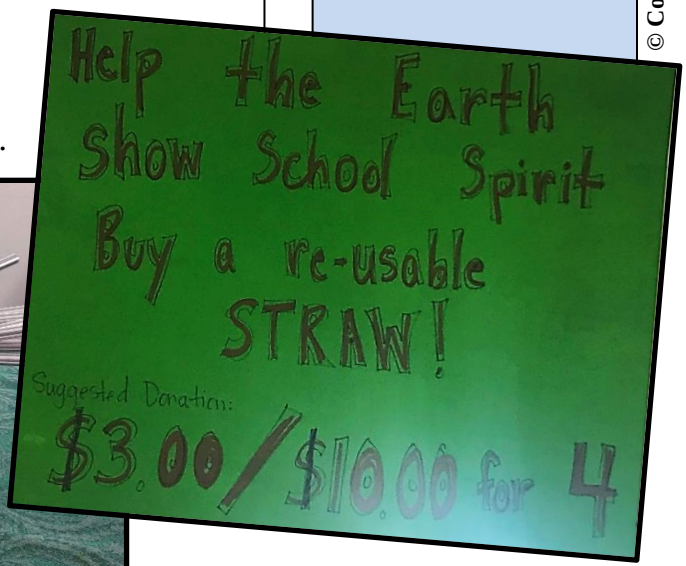
Assessment:

After completing the chosen reinforcement activities, quiz students in the cafeteria or classroom with pertinent questions to assess their knowledge gain. For example:

- Name one item that can be recycled at school.
- Name one item that can be composted at school.
- Where does food waste belong when you're done with it?
- Name one way our school is helping the environment.
- How does recycling help the earth?
- How does composting help the earth?
- What natural resource are you saving when you recycle an aluminum can?

Related Activities:

See final bullet of the Implementation section.



Reporting Progress

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Snapshot
This assessment is a quick and effective way to determine how successful a newly implemented recycling or composting collection program is and where improvement is needed.

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Objective: The analyzed results will show a significant decrease in trash production and a significant increase in the collection of recyclables and/or compostables.

Age Group: K-12th grade and adults

Setting: School dumpsters and classroom (or other meeting area in the school building)

Project Duration:
- Data collection: 2-4 weeks
- Feedback to community: 45-90 minutes

Materials:
- Paper and pen for recording trash, recycling, and/or compost levels
- Spreadsheet software and printer, or chart paper and markers

Why This Project Matters:

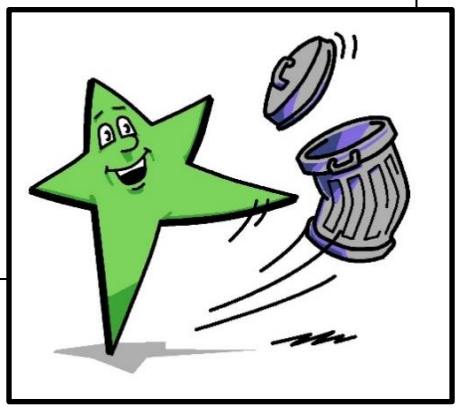
Recycling and composting collection programs can significantly reduce the amount of trash a school or community sends to the landfill. Schools in the US have reached 20-60% diversion rates by making recycling and/or composting easy and accessible.

Project Summary:

Tracking the success of a new recycling or composting collection system requires that waste levels be recorded before and after the program has been launched. The efficacy of the program's operational and educational components is determined by calculating the degree of change in trash, recycling, and/or compost volumes. Sharing the data with the school community encourages continued participation and improvement on their diversion efforts.

Implementation:

1. Record waste levels in the school's dumpster(s) for two to four weeks prior to the new compost and/or recycling collection program's launch. (See sample data recording form below.) For accurate volumes, record the levels just prior to each pickup date and time. Students in a class or sponsor group may assist with the monitoring of the dumpster(s), but the same designated adult should accompany them each time for consistency of results. Calculate the weekly average to determine a baseline.
2. Once the collection program is well established, repeat step 1 to obtain accurate data on how volumes have changed with the program's implementation.
3. If the composting happens onsite and the compostables do not end up in a dumpster, arrange to collect volume data using the internal compost collection bin(s) before they are emptied.



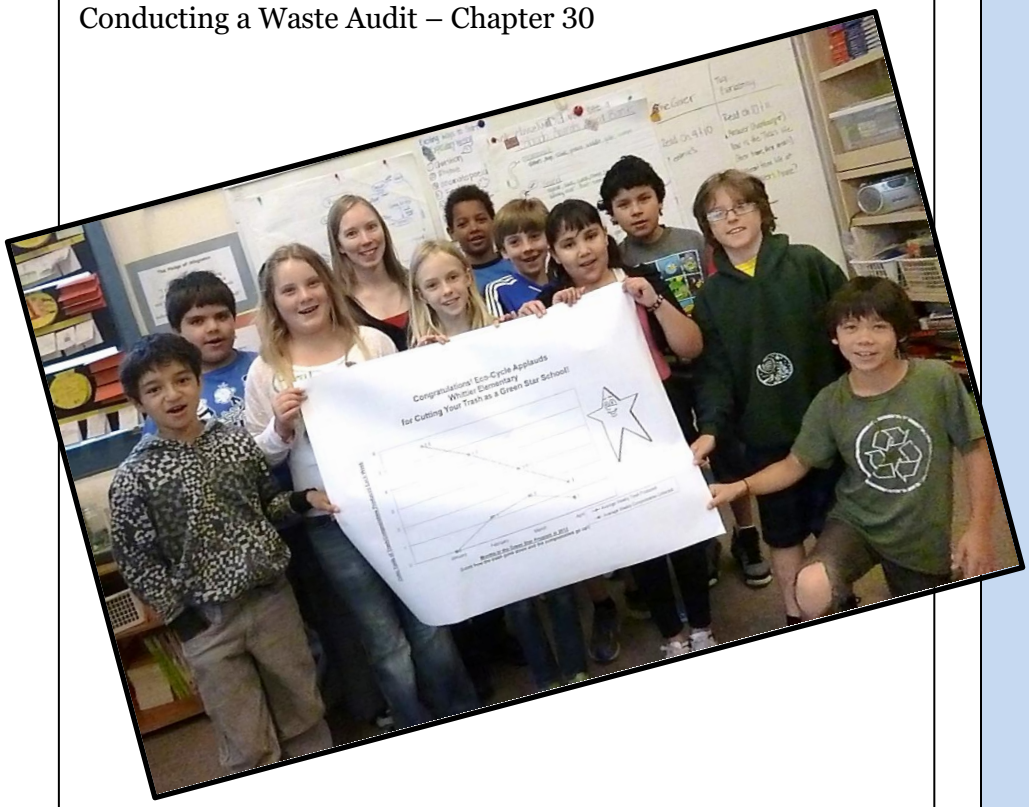
4. Create a chart showing the changes in trash, recycling, and/or composting volume levels over time. Ideally, the trash levels will drop, and the recycling/composting levels will rise. Print or draw the chart in poster-size and display prominently for students, staff, and families to see. Include the chart in the school newsletter and social media. (See sample chart below.)
5. Continue to monitor the school's trash volume until it appears to be permanently reduced. Contact the school's trash hauler to request a smaller-sized trash dumpster and/or reduce the number of pickups per week. The money saved on trash service can fund the hauling of the recycling and/or compost.

Assessment:

The activity itself is an assessment of the new collection system(s).

Related Activities:

Schoolwide Recycling Collection – Chapter 18
Backyard Composting at School – Chapter 24
Schoolwide Compost Collection – Chapter 25
Conducting a Waste Audit – Chapter 30



Extensions:

- Review the following with the student group, finding ways to share the information with the school community.
  - Discuss which parts of the program were successful and which parts could be improved upon next semester or school year.
  - Discuss how to reduce contamination by further educating the school community about proper sorting of recyclables and compostables.
  - Share information on the benefits of the collection program to the environment.
  - Utilize posters, announcements, waste station signage, skits, songs, and/or video commercials to spread the word.

Sample Data Form:

Dumpster Levels for Trash/ Recycling/Compost

School: _____ Data collected by: _____

Audit conducted during the weeks of: _____

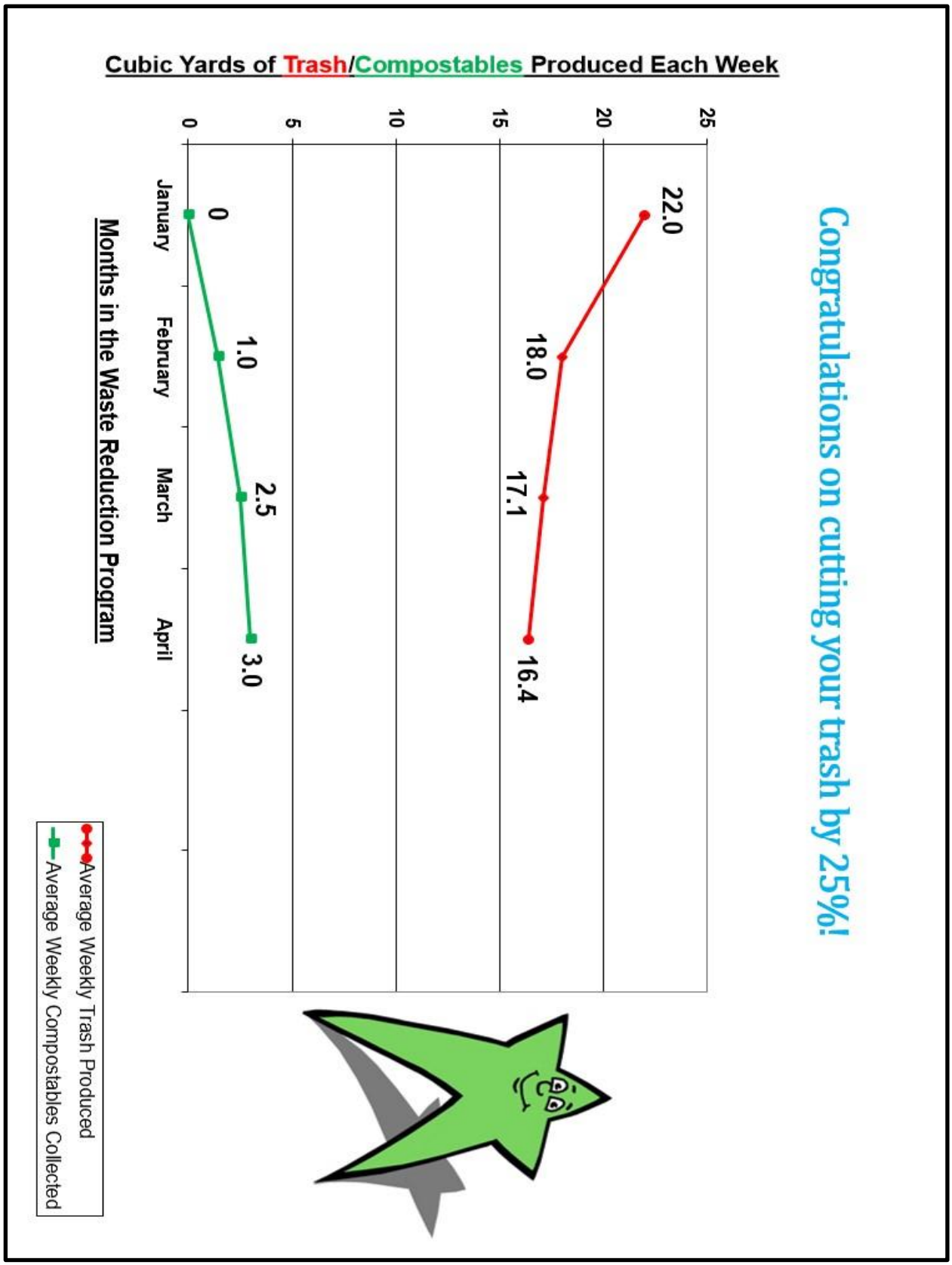
- **Trash is picked up at my school on the following days of the week:** (circle all that apply)
  Monday Tuesday Wednesday Thursday Friday Saturday Sunday
- **Recycling is picked up on the following days of the week:** (circle all that apply)
  Monday Tuesday Wednesday Thursday Friday Saturday Sunday
- **Compost is picked up on the following days of the week:** (circle all that apply)
  Monday Tuesday Wednesday Thursday Friday Saturday Sunday

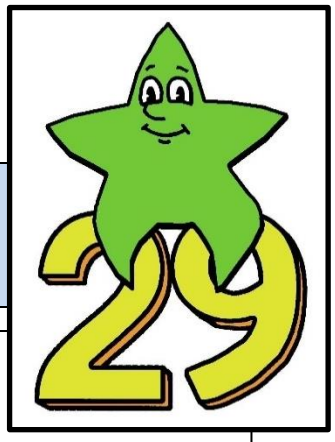
Please record the material collected and the size of each dumpster. *Just prior to each time the dumpsters are emptied*, record the date and how full each dumpster is in the table below. Estimate the fullness level and record one of the following: *EMPTY, ¼, ½, ¾,* or *FULL.*

For accuracy, information must be recorded just prior to each collection by the hauler.

	1	2	3	4
Dumpster Material				
Dumpster Size				
	How Full?	**How Full?**	**How Full?**	**How Full?**
Date				
Date				
Date				
Date				
Date				
Date				
Date				
Date				
Date				
Date				

Sample Dumpster Volume Chart





Student Sponsor Group Celebration

Snapshot
Recognize and reward the effort students have put into their school's waste-reduction program.

Objective: Students will understand that the work they are doing to bring Zero Waste practices into their school is important, appreciated, and worth recognition.

Age Group: K- 12th grade

Setting: Classroom or other meeting area in school building

Project Duration: 30-45 minutes

Materials:

- Waste diversion data collected for the school year (see Reporting Progress, Chapter 28)
- Chart paper and markers
- Homemade cookies or other waste-free treats (check school allergy protocols)

Why This Project Matters:

Zero Waste programs, like recycling and composting collection, can lead to a major reduction in school trash. By recognizing students' efforts in a fun, celebratory way, they are often motivated to help with future Zero Waste projects and to get other students involved.

Project Summary:

This short celebration serves as a review and wrap-up activity for the student group helping to implement a semester or school year of Zero Waste efforts. It is intended to reward the students and to advertise the program's success.

Implementation:

Conduct this celebration after facilitating the Reporting Progress activity in Chapter 28. Students can work on drawing or coloring the charts as part of the celebration. (A final waste audit before the celebration is an alternative way for students to assess the status of the program.)

- Bring cookies or another treat to share with the student group that helped to promote and implement the program. If possible, aim for no packaging (homemade) or packaging that is recyclable or compostable.
- Facilitate a discussion with the students about their experience with promoting the program. Ask which parts they think worked well, and which parts were not as easy or successful. Create a list of ideas for improvements during the upcoming semester or school year.

Assessment:

Students' level of comprehension and ownership of the project will be evident during the discussion about what did and didn't work well from their perspective.

Related Activities:
Schoolwide Recycling Collection – Chapter 18
Backyard Composting at School – Chapter 24
Schoolwide Compost Collection – Chapter 25
Reporting Progress – Chapter 28
Conducting a Waste Audit – Chapter 30

Extensions:

- Ask the school administration to sign certificates for each student to recognize their contribution to the program.
- Ask that students be acknowledged in front of the entire school community, such as at an assembly, on social media, or in the school newsletter.
- Share the group's improvement ideas for the upcoming semester or school year with the school community through announcements, social media, and/or the school newsletter.
- Create a suggestion box to allow other students in the school to contribute their ideas.

Conducting a Waste Audit

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Snapshot
A waste audit to investigate discarded items in the trash, recycling, and/or compost bins around your school will reveal items that are consistently sorted correctly or incorrectly.

Objective: Students will determine which items in the school waste stream need specific attention when educating the school community about the proper sorting of their waste

Age Group: 4th-12th grade

Setting: Cafeteria

Project Duration:
- 30-50 minutes for each audit conducted
- Follow-up time varies

Materials:
- 3-6 large tarps
- Disposable gloves (1 pair/ participant)
- Newspapers
- Category signs
- Sorting guidelines /examples of items
- Cleaning supplies
- Record sheets
- Clipboards and pencils
- Additional adults for assistance

Why This Project Matters:

Collection programs for recycling and composting can only be effective if items are sorted correctly. A load of recyclable or compostable items that contains too many contaminants may be rejected by the sorting facility and sent to the landfill. In addition, when large amounts of recyclable or compostable items are being placed in trash receptacles, waste-reduction programs lose much of their impact and value.

Project Summary:

A waste audit is a tool for determining how well the collection system is going and where more education might be needed. Before a school begins a collection program, a student group may conduct a waste audit to determine a baseline from which to plan next steps. Another waste audit after the recycling or composting collection is implemented, and then again annually, will help determine participation and contamination levels. All receptacles (trash, recycling, and compost) should be audited.

Implementation:

Baseline waste audit (to be conducted before launching recycling or compost collections):

1. Ask custodians to gather 4 large bags of trash, each from a different area of the school: cafeteria, kitchen, hallways, classrooms (collection of several classrooms).
2. Cover the floor or 3-4 large tables with tarps.
3. Place a layer of newspapers on top of each tarp.
4. Arrange a set of category signs (to create a sorting station) for each area where a team of student sorters will work (see sample signs). Each team will sort the waste from a different part of the school.

5. Assign student teams to each station/waste stream category. (Cafeteria and classroom waste is diverse enough that having two teams sorting each type is best.) Supply a pair of disposable gloves to each participant, instructing them not to remove the gloves until you announce that the audit and clean-up are finished.
6. If your school composts restroom waste, this will not be sorted. Remind students, however, that restroom waste should only contain paper towels and facial tissue, no plastic, metal, or glass items. Next, demonstrate the audit procedure by sorting a few handfuls from a bag into piles next to the proper category signs at one station. Hand out guidelines for your school's program and/or show real examples of items. Demonstrate how to use the data sheet to record data (see sample data recording sheet).
7. Assign one student to record the sort results for each team.
8. Have students begin sorting while receiving supervision and assistance from adults. Go over results when done.
9. During clean-up, have students place items into the correct bins (soiled newspaper goes in compost), wipe down tarps and tables, and dispose of gloves in the trash.
10. Ask students to share their findings and anything significant they noticed. Discuss what messages to emphasize when the new collection program begins.

Follow-up waste audit (to be conducted 3-6 months after the baseline audit, then annually to assess participation and contamination levels):

11. Follow the same steps as above, this time making sure to sample the trash, recycling and/or compost bins.
12. After students review their data, discuss a plan to educate the school community about their findings.

Assessment:

Document any changes in the sorting accuracy of the school community over time by comparing audit results.

Related Activities:

Schoolwide Recycling Collection – Chapter 18
Backyard Composting at School – Chapter 24
Schoolwide Compost Collection – Chapter 25
Reinforcing Collection Programs Over Time – Chapter 27
Reporting Progress – Chapter 28

Extensions:

- To educate the school community and improve sorting accuracy, create a campaign using multiple tools to inform them about which materials belong in each bin. Ask the student group to spread the word using skits, videos, posters, announcements, classroom prize incentives, waste-station monitoring in the lunchroom, etc.

Sample Category Signs

Recyclables:
Cardboard/Paperboard

Recyclables:
Newspaper/Magazines

Recyclables:
Containers

Recyclables:
Classroom Paper

Compostables:
Food Waste

Compostables:
Non-recyclable Paper

Landfill:
Food Packaging

Landfill:
Other

Sample Waste Audit Data Recording Sheet

Date: _____ School: _____

- Location of waste source (circle one): **Classroom (#s_____)** **Hallways** **Cafeteria** **Kitchen**
- Type of waste being sorted (circle one): **Trash** **Recycling** **Compost**

Please examine and sort the trash, recycling, or compost sample. In the table below, write down the materials that were found correctly or incorrectly sorted in each waste category.

	Correct	Incorrect
Recycling: Drink Containers • *milk/juice cartons, juice boxes* • *steel containers* • *aluminum cans* • *aluminum foil & trays* • *#1-7 plastic bottles* • *glass bottles/jars*		

Recycling: Paper
• *cardboard*
• *paperboard*
• *newspaper*
• *magazines/book orders*
• *light & white-colored:*
  ○ *paper*
  ○ *sticky notes*
  ○ *envelopes*		

Compost:
• *food waste*
• *paper towels, napkins, tissues*
• *non-recyclable paper:*
  ○ *construction paper*
  ○ *dark/neon paper*
  ○ *brown envelopes*
  ○ *paper bags*
  ○ *small scraps*		

Trash: • *food packaging/wrappers* • *gum/stickers* • *plastic-coated paper products* • *straws/plastic bags/wipes* • *frozen food containers* • *juice pouches* • *recyclables with food in them* • *disposable utensils, plates, cups* • *other:*		

Zero Waste Field Trips

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Snapshot
Field trips are a fun, effective way to introduce students to the Zero Waste initiatives happening in their own community.

Objective: Students will learn how real-world composting, recycling, and other Zero Waste community programs function.

Age Groups: K-12th grade

Setting: Various community facilities

Project Duration:
- Planning: 2-4 hours
- Field Trip: 4-5 hours

Materials:
- Permission slips
- Class list
- First aid kit and student medications
- Worksheets (1 per student)
- Pencils (1 per student)
- Clipboards

Why This Project Matters:

Because so many of the real-world Zero Waste processes happen unseen in our daily lives, a field trip offers participants the chance to witness authentic examples of recycling, composting, and/or other waste-reduction initiatives. Waste issues become real to students, potentially inspiring them to make positive changes in their recycling and composting habits, and in their interactions with packaging, containers, and other solid waste.

Project Summary:

The field trips below give examples of the range of Zero Waste facilities available nationwide for touring. While the infrastructure of communities will vary, similar sites may exist in your area.

Implementation:

1. Plan the field trip at least one month in advance to allow ample time for school district buses to be reserved and/or parent volunteers to be recruited for carpools.
2. Field trips are designed for one class at a time (approximately 30 students). A small group size allows more opportunities for students to see better, hear more, and ask questions. However, all these field trips may be adjusted to accommodate larger groups.
3. Research local facilities and companies that are contributing to the Zero Waste movement. These may include waste hauling companies, compost facilities, environmental/waste management divisions of local government, recycling centers, landfills, grocery stores, used-building-supply sites, local businesses practicing Zero Waste, and recycling factories. See below for suggested combinations of stops to create a cohesive field trip.

4. Contact sites of interest with potential tour dates and times. Inquire if the tour will have a guide or be self-guided.
5. Once a date and times are scheduled for each stop, arrange transportation (school bus, city bus, parent carpool, etc.).
6. Follow the school district's policies for field trips. Contact sites if liability waivers must be signed.
7. Recruit adult chaperones for the field trip (one adult per 5-6 students). Check to see if any of the facilities have requirements for adult-to-student ratios.
8. Before the field trip, conduct a lesson to build students' background knowledge on the places they will be visiting. See below for suggested topics to cover. At the end of the lesson, explain the field trip itinerary, appropriate dress for the day (based on weather and safety), lunchtime procedures, behavior expectations, and what to bring.
9. Thoroughly review safety procedures for each location.
10. Prepare a student worksheet for the field trip including several questions specific to each facility. A worksheet helps focus students' attention and can serve as an evaluation of their learning.

Below are suggested field trip topics and sites to visit:
(Two to three sites can usually be visited in 4-5 hours. This includes time for transportation, lunch, and bathroom breaks.)

Trip focus: dealing with waste wisely (K-12th grade)

- Background information:
  - the environmental benefits of recycling
  - the difference between *reuse* and *recycle*
  - items that can be recycled at home and at school
- Facilities to visit:
  - recycling drop-off center
  - materials recovery facility (MRF) for sorting of recyclables
  - local building materials reuse center (ex: Habitat for Humanity's ReStore) or another local reuse store
  - special recycling center (for specific materials such as metal, batteries, household chemicals, tires, or paint)

Extensions:

- As a follow-up activity, have students write a thank you letter to each location including three or more things they learned at the site.
- Have high school students interview a local business owner on their waste-reduction practices.
- For a student group who supports their school's Zero Waste programs, provide this field trip at the beginning of the year to enhance their background knowledge for the work they will be doing all year long. Another option is to provide the trip at the end of the school year as a reward for their hard work.

Trip focus: waste alternatives and awareness (3rd-12th grade)

- Background information:
  - general solid waste facts
  - how a landfill is designed and operates
  - items that can be recycled at home and school
  - how to "pre-cycle" (choose products in packages that can be reused or recycled, that are non-toxic, or that minimize packaging with bulk buying)
- Facilities to visit:
  - grocery store to conduct a scavenger hunt for less wasteful products (see sample worksheet below)
  - local landfill or solid waste transfer station
  - MRF or recycling drop-off center

Trip focus: community agriculture/composting (K-12th grade)

- Background information:
  - organic vs. conventional farming
  - how the composting process works
  - examples of compostables and non-compostables
- Facilities to visit:
  - community gardens (where compost is being used)
  - agricultural heritage center/farm museum to learn how earlier generations of farmers employed waste-free living
  - organic farm (that utilizes compost as fertilizer)
  - industrial or large-scale composting facility

Trip focus: Zero Waste practices by businesses (high school)

- Background information:
  - define the term Zero Waste
  - highlight companies around the community and around the state/country/ world that implement Zero Waste and other environmentally friendly initiatives
- Facilities to visit:
  - three businesses that are implementing the above (select a variety of types)

Assessment:

Review students' worksheets from the field trip to assess their understanding.

Related Activities:

Reinforcing Collection Programs Over Time – Chapter 27

Sample Scavenger Hunt to Teach Pre-Cycling Concepts

Below is the answer key to a sample *Pre-Cycling Grocery Store Scavenger Hunt Worksheet.* It is identical to the scavenger hunt that students would follow, but it includes answers.

Here are the procedures to follow for a setting up the activity:

- Students are divided into small groups of 5 or less, each with an adult chaperone.
- Each student group is given one copy of the scavenger hunt along with a clipboard and pencils. Students take turns recording answers.
- Each chaperone is given one copy of the answer key to the scavenger hunt to check students' work for accuracy. *(Answers are in green.)*
- Students are reminded of expectations for appropriate behavior in a place of business and rules are established around picking items up from the shelves. (It is best to avoid touching items unless given permission by the adult chaperone. Items must be returned to their places on the shelves exactly as they were found.) Buying groceries or eating during the scavenger hunt is not allowed.
- Go over the seven principals of pre-cycling with the entire group. Establish a meeting place and time that the scavenger hunt will conclude. Communicate this to each group and their chaperone.
- Each group begins the scavenger hunt in a different area/aisle of the store to prevent overcrowding, avoiding areas where other student groups are gathered.

Pre-Cycling Grocery Store Scavenger Hunt Worksheet

Answer the questions below with your group. Discuss each purchasing choice.
Stay with your adult chaperone at all times.
Remember, pre-cycling means shopping with the earth in mind!

Pre-cycling means buying products that are non-toxic, use fewer of the earth's natural resources, and create less trash or pollution. Here are some tips!

- Buy in bulk, or large quantities, to reduce packaging.
- Avoid products with extra layers of packaging.
- Look for containers you can reuse.
- Look for containers you can recycle.
- Look for packaging made of recycled materials.
- Avoid disposables. Buy things that last.
- Buy the least toxic (poisonous) product.

PRODUCE (aisle/location in store)

- How can you use less packaging when buying fruits and vegetables?
  Reuse plastic bags, use cloth or mesh bags, and avoid using bags when possible.

BULK FOODS (aisle/location in store)

- Find the bulk bins in the store where you can buy products like nuts, flour, beans, and rice. How would you package foods from these bins in a way that reduces waste?
  Cloth or mesh bags, bags from home, reusable containers

- How does using only one layer of packaging benefit the earth?
  Less trash in landfills, fewer natural resources used, less energy used to produce packages

- Could these packages be used again? *Yes*

- Name one thing you would like to buy from these bins.
  Answers will vary.

BAKING PRODUCTS (aisle/location in store)

- Locate the flour. List the unit price per ounce of one brand that has different sizes *(Find the price tag on the shelf and look for the smaller number in the bottom left corner of the tag*).

Size	Unit Price Per Ounce
5-lb. bag of flour	
10-lb. bag of flour	

- Which size bag has the cheapest flour per ounce? *The 10-lb. bag*

- Which bag(s) uses less packaging if you need a total of 10 pounds of flour?
  One 10-lb. bag uses less packaging than two 5-lb. bags.

SOUP (aisle/location in store)

- List two kinds of containers for packaging soup:
  Steel cans, paper cartons (aseptic), Styrofoam

- What natural resource do you think each container is made from?
  Steel = rocks/ore, paper = trees, Styrofoam = oil (petroleum)

- Which container can be recycled again and again? *Steel cans*

CEREAL (aisle/location in store)

- List 3 brands of cereal packaged in recycled paperboard. *(*Hint: Look on box tops and bottoms.)* *Any brand marked "made from recycled materials."*
- Can these packages be recycled again when you're done with them?
  Yes
- How do you know a package is made from recycled paper?
  It will have more than just the recycling symbol. It will say "recycled" in writing.

PAPER PRODUCTS (aisle/location in store)

- Most of the paper items here were made from trees. Find the recycled paper products. *(*Hint: They will say "made from recycled paper" on the label.)* List them below.
  Napkins, tissues, toilet paper, paper towels
- How can you tell if paper products have been recycled? *Package will say so.*
- What could you use instead of paper towels and paper napkins?
  Sponges, cloths, rags

LUNCH CONTAINERS (aisle/location in store)

- Find three ways to pack a sandwich for lunch.
  Reusable containers, aluminum foil, plastic bags
- Which of these options could be reused hundreds of times?
  Reusable containers (Aluminum foil can be recycled.)

DETERGENT (aisle/location in store)

- Name a brand of detergent that is packaged in a bottle made from at least 25% recycled plastic. *Check the labels or bottles*
- Now, find a dish soap that is eco-friendly.
  *(*Hint: Look for the word "biodegradable" on the label.)*
  Answers may vary.
- Why do you think eco-friendly soap is better for the earth?
  It breaks down safely in the environment and doesn't cause pollution.

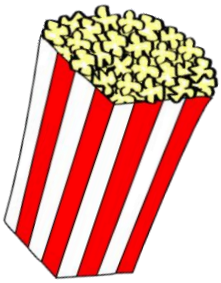
SHAMPOO (aisle/location in store)

- How big (in fluid ounces) is the biggest bottle of shampoo you can find?
  39 ounces (Answers may vary.)

- What natural resource do you save when you buy one large plastic bottle instead of several small ones (buying in bulk)? *Petroleum (oil)*

- Should a plastic cap be recycled separately or attached to an empty bottle?
  It should be screwed on to the empty bottle. (Pump or spray tops are trash.)

POPCORN (aisle/location in store)



- Which kind of popcorn package is the best pre-cycling choice?
  Plastic bottle with raw kernels (It is reusable AND recyclable.)

- Which popcorn packaging would make the most trash?
  Boxes of microwave popcorn (Each serving is individually wrapped.)

JUICE (aisle/location in store)

- List six different kinds of juice drink containers. Put a star (*) by the ones you can recycle. Circle the worst pre-cycling choice(s). *(*Hint: Some single-serving containers may not be in this aisle.)*

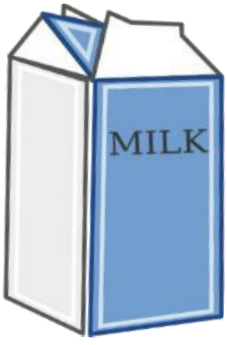
  *glass bottle** *aluminum can** *plastic bottle**

  *juice box** *steel can** *juice pouch*

- What makes a drink container a good pre-cycling choice?
  It is reusable or recyclable.

- Is reusing a container better for the environment than recycling it? *Yes*

DAIRY (aisle/location in store)



- Which milk containers can you recycle?
  Plastic jugs, paper cartons

- Name the natural resource each container is made from.
  Plastic = oil, paper = trees

CHECKOUT COUNTER

- Name two things you can do to save natural resources when choosing the kind of shopping bag you use.
  Use reusable bags like cloth bags or don't use a bag at all.

CHALLENGE

Discuss and write thoughtful answers to these questions.

What would you do to pre-cycle the next time you go to the store?

_____

Why don't more people pre-cycle when they go to the store?

_____

How would you show someone else how to pre-cycle?

_____

Compost Delivery

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Snapshot
For a school that has implemented a compost collection program, providing finished compost for staff and families to use (at home or school) serves as a useful reward and incentive to continue composting.

Objective: Students will understand how the food and paper waste they put into compost bins at their school turns into a valuable soil amendment.

Age Group: K-12th grade and adults

Setting: School parking lot or other vehicle-accessible outdoor space

Project Duration: 2 days

Materials:

- Finished compost (delivered)
- Shovels and hand trowels
- Sturdy plastic bags (used, if possible)
- Poster-making materials
- Informative flyers

Why This Project Matters:

Finished compost is a valuable soil amendment that results in stronger, healthier plants without the use of synthetic chemical fertilizers. Using finished compost and raising awareness about its benefits is just as important for a healthy environment as keeping compostable items out of the landfill.

Project Summary:

A delivery of finished compost to a school that has implemented a compost collection program has enormous benefits to the school community. The finished compost provides a direct link between the food scraps and non-recyclable paper collected at school and the resulting compost. Families and school staff will be able to take the compost home to use on their own yards and gardens. The school may also use it to amend school gardens and landscaping.

Implementation:

1. Contact a local compost facility for prices of finished compost by volume and the cost of delivery.
2. Decide if the finished compost will be used for school grounds and gardens only, or if it will also be offered to families and staff. Order the adequate amount needed.
3. Coordinate delivery dates with school administration. (This project works best in the springtime.)
4. If the finished compost will be applied to school gardens, consider coordinating with student and parent groups to organize a community workday to assist with this project.

5. Coordinate with administration to determine the best location for the finished compost to be delivered. The site should be close to the school so that families will see and remember to come and pick up compost. The site should also be out of the way of all traffic (school buses, student drop-off, delivery trucks, and recycling/waste trucks).
6. Finalize the dates and arrange with the local compost company for delivery and pick up. (It is best if the compost comes in a large roll-off container.) With sufficient advertising to the school community, one or two full school days (including 30 minutes before the school day begins and 1-2 hours after the school day ends) of availability is usually adequate. Establish a pick-up of any remaining compost so the school is not charged for what is not used.
7. Encourage a student group to develop announcements and posters advertising the compost delivery event to the school community. Include reminders to bring shovels and containers (plastic bins, bags, etc.). Determine a quantity limit for each person.
8. Develop other communication pieces to invite families and staff to take finished compost for their own use (school newsletter, email, school website, social media, signage near the entrance and student pick-up/drop-off areas, etc.).
9. Organize volunteers to assist with the compost delivery event, especially during the high traffic times just before the school day begins and right after it ends. Adult volunteers will need to be prepared to answer general questions or pass out literature about compost application, ideas for where to acquire backyard compost bins, local resources for composting workshops (if available), and information about the school's compost collection system. A student group may also assist with shoveling and loading compost into vehicles. If there is a Master Gardener program in your area (often housed with County Extension Agents), they may be able to help. Many Master Gardeners maintain their "master" status by volunteering for community needs.

Assessment:

As students are loading finished compost into their family vehicle or watching it being applied to the school grounds, ask where it came from (help make the connections between their lunchroom apple cores and the dark brown finished compost).

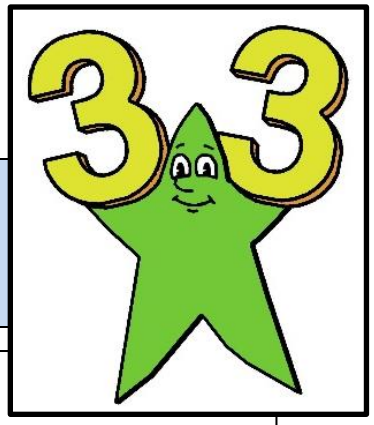
Related Activities:

Schoolwide Compost Collection – Chapter 25

Extensions:

- Create a research project to identify the living decomposers that turn organic waste into finished compost.
- Study other factors necessary for decomposition (water, sunlight, oxygen).
- Have students illustrate the progress of food scraps decomposing into finished compost (the nutrient cycle) by creating and displaying posters using photos and/or drawings near the compost delivery site.

Five and Ten-Year Celebrations



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Snapshot
After a school has been actively working toward Zero Waste for the milestones of five years or ten years, it's time for a week-long celebration!

Objective: Students and staff will be refamiliarized with their school's Zero Waste goals and how these actions help the earth. Everyone will have a renewed sense of the school's Zero Waste mission.

Age Group: K-12th Grade

Setting: School building and recess area

Project Duration: One week

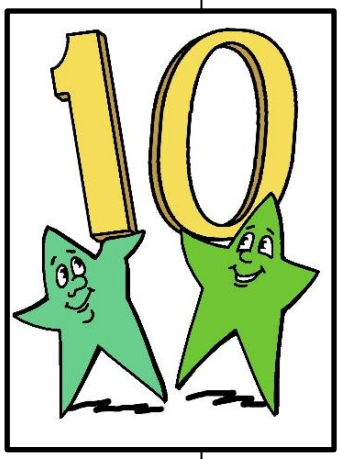
Materials:
- Projector, computer, and audio equipment
- Prizes that reduce waste (reusable or made with recycled content)
- Framed certificate with signatures of officials
- Recess activity supplies (for cloth napkin making or game show spinning wheel)

Why This Project Matters:

After five years or ten years, a school that regularly employs Zero Waste methods has likely avoided thousands of pounds of trash and drastically reduced its ecological footprint. With landfills filling up and natural resources disappearing, this valiant waste-reduction effort makes a real difference for the environment and should be celebrated!

Project Summary:

Once a school has been striving for Zero Waste for five or ten years, enthusiasm and practice may wane amid so many other obligations of school life. This celebration is designed to give the school recognition for its efforts and to reinvigorate participation in Zero Waste projects. The four-day celebration involves an all-school assembly on Day 1, and the reeducation of students and staff on Days 2-4 through classroom presentations and fun Zero Waste activities during recess and lunch.



Implementation:

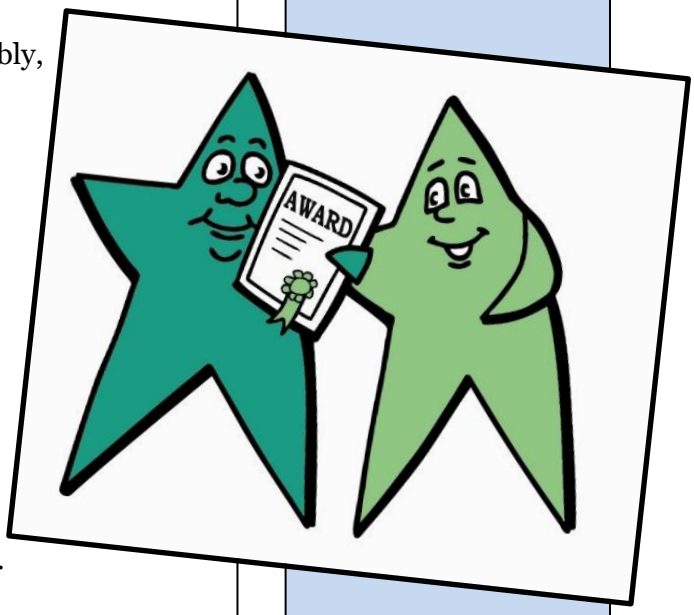
Pre-event:

1. Approximately six months in advance, schedule an all-school assembly with the principal and provide them with an outline of the other celebration activities.
2. Prepare a presentation for the assembly (see Day 1 below). For the 10-year assembly, consider including an animal rehabilitator (such as a birds of prey specialist), an environmental musician, or other special guest. This will help students make connections between their Zero Waste actions and their wider impact on the community and/or wildlife habitat. Schedule the guest presenter as soon as possible.
3. Invite school district and community officials to participate (superintendent, district officials, county commissioners, city officials, etc.).

4. Prepare materials for the recess and lunchtime activities (see below for more details).
5. Organize materials for refresher presentations to be given to each class. The goal of these 25-to-30-minute presentations is to make sure every student knows what can be recycled and/or composted in the school, and to increase participation in other waste-reduction efforts being made by the school community (such as reusing one-sided paper, etc.). It is also an important opportunity for staff and students to ask their own "burning" questions.
6. One month before the assembly, confirm dates, times, and venue (gymnasium, auditorium, cafeteria) with the principal, district officials, community officials, and any special presenter. Ask guests to arrive 15 minutes early. Make sure to ask about any AV or room set-up needs.
7. Print and frame a 5-year or 10-year award certificate for the school (see samples below).
8. Create a sign-up schedule for individual class refresher presentations to occur the few days following the all-school assembly. Send to the school office manager two weeks prior to the celebratory week, asking them to post and share with all teachers. Ask for the principal's support in motivating teacher sign-up.
9. Acquire 5-7 reusable or recycled-content prizes to distribute during the all-school assembly.
10. Acquire a large quantity of small prizes (equivalent to the school population) to distribute to all classes on the last day of the celebration week (e.g., pencils made from recycled newspaper) (optional).
11. Create a list of Zero Waste questions to ask students during the assembly and lunch periods.
12. Write a letter to student families explaining the school's accomplishments and the celebration activities. Ask the office manager to distribute it.
13. Coordinate with the custodian regarding assembly Set up (AV equipment, podium, chairs for officials, stage needs for special guest, etc.) and provide an agenda.
14. Coordinate with office and/or custodian about where to set up the recess activity stations near the playground, requesting the use of 2-4 tables.
15. Gather all items needed for the assembly (presentation, props, framed certificate, prizes, etc.).
16. Create announcements to be read over the PA system during the assembly week.

Day 1: all-school assembly:

1. Set up the stage area, A.V. system, and computer equipment one hour before the assembly.
2. Prepare the 5-year or 10-year certificate in its frame (see samples below). When district and/or community officials arrive, ask them to sign it.
3. Assist special presenter with setting up (if applicable).
4. Once all students and staff are assembled in the meeting space, have the principal introduce the celebration organizer/assembly MC.
5. General outline to be covered by the celebration organizer/assembly MC:
    a. Congratulate the school community and review what it means to be part of the school's Zero Waste program and projects.
    b. Recognize the principal, teachers, custodians, kitchen staff, and students for their different roles in supporting the program.
    c. Ask the dignitaries (district/community officials) to each speak for 2-3 minutes.
    d. Present the school's award certificate to the principal.
    e. For the 5-year assembly, present a slideshow about the specifics of the school's Zero Waste projects. Describe the positive difference the program makes for the community and the environment. For the 10-year assembly, have the special guest present their program.
    f. Wrap up the assembly by asking 5-7 composting, recycling, and/or waste-reduction questions of the students, handing out prizes for correct answers.
    g. Remind teachers to sign up for class refresher presentations and where to find the sign-up sheet.
    h. Review the rest of the celebration week's activities.
6. Collect the class refresher sign-up sheet (or have it emailed to you) once completed.



Days 2-4: reinforcement activities:

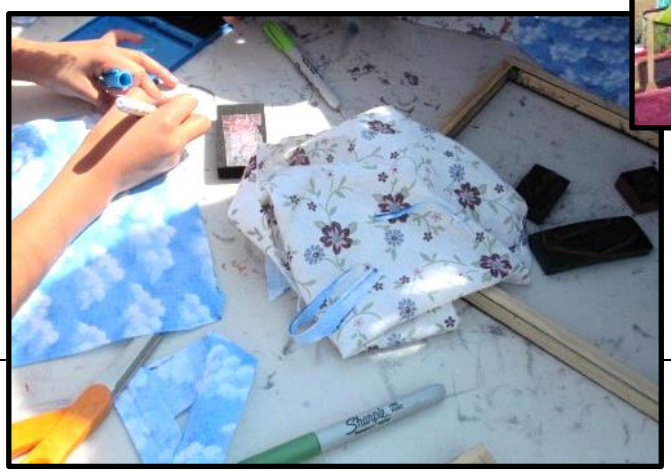
1. Recess activities:
    - 5-year celebration - Facilitate a cloth napkin-making activity (for K-6th grade students) during recesses for two days to allow all students to participate. (See Making Cloth Napkins, Chapter 13.)
    - 10-year celebration - Facilitate a game show activity featuring a spinning wheel with images of waste items attached (can, chip bag, etc.). Students spin the wheel and are then asked a Zero Waste question about the item they landed on. If they get two out of three questions correct, they may enter a prize drawing for movie tickets, school t-shirts, recognition by the principal, etc.
2. Present individual class refresher presentations for teachers at the times registered on the sign-up sheet.
3. During lunch, have adult or student group volunteers pop-quiz students with recycling, reusing, and composting questions. These volunteers can also help monitor the waste station.
4. Have a student group or adult give PA system announcements with motivational messages throughout the celebration week.
5. Consider other activities such as waste-sorting relays, a "Wear Green" day, etc. (See Reinforcing Collection Programs Over Time, Chapter 27 for ideas.)

Assessment:

Asking students questions about their school's Zero Waste program and about how Zero Waste practices help the environment will serve as the project's assessment.

Related Activities:

Making Cloth Napkins – Chapter 13
Reinforcing Collection Programs Over Time – Chapter 27



CONGRATULATIONS

for completing

5 Years

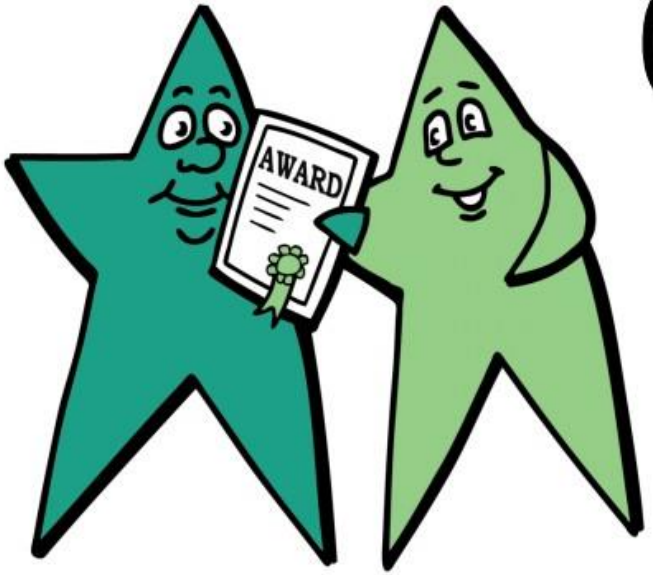
as a

Zero Waste School

Awarder's Signature

Other Signature

Other Signature



CONGRATULATIONS

for completing

10 Years

as a

Zero Waste School

Awarder's Signature

Other Signature

Other Signature

Celebrating Earth Day

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Snapshot
Every year, Earth Day is celebrated on April 22nd. An Earth Day Celebration can be used to kick off or add momentum to your school's Zero Waste efforts.

Objective: Students will celebrate Earth Day as a way of honoring their efforts to protect the environment.

Age Groups: K-12th and adults

Setting: Classroom, School building

Project Duration: Vary by activity

Materials: Vary by activity

Why This Project Matters:

Earth Day was first celebrated in the United States on April 22, 1970 by 20 million people. Today, it is estimated that more than one billion people around the world celebrate Earth Day. According to the Earth Day Network, it is the "largest civic observance in the world". Earth Day is a chance to focus on making positive actions for the environment. Through celebration, children may be inspired to learn more and make changes in their own lives.

Project Summary:

An Earth Day celebration can be used as an opportunity to bring Zero Waste practices to a classroom, school building and/or school community. It can be the public starting point to kick-off a special event or to implement a long-term project. It can also be used as a culminating event for projects such as a Waste-Free Lunch Contest or a special recycling drive. The entire week surrounding Earth Day, known as Earth Week, and the entire month of April, known as Earth Month, extend the celebration and allow for more opportunities to engage in new actions.

Implementation:

1. Choose a Zero Waste project you would like to implement in conjunction with Earth Day. See project ideas below.
2. Decide if a formal kick-off or wrap-up event will be needed for the chosen Zero Waste project. If so, determine if it will be in the form of a school assembly, class party, PA announcement, display case, festival, etc. Consider if any data from project results or progress will need to be collected and reported.
3. Gather materials needed for the project and the kick-off/wrap-up event. Secure a space and time for the event(s), if necessary.

4. Create promotional materials such as posters, announcements, skits, and videos for the class or school community. Emphasize the connection to Earth Day.
5. If it is not possible to implement a large project, Earth Day can still be celebrated with simple activities like singing "Happy Earth Day" (to the tune of "Happy Birthday to You") or enjoying a healthy snack of fruits and vegetables at an Earth Day party. The main goal is to get students thinking about ways they can show appreciation for the environment.
6. When planning Earth Day activities, tie them to science, health, or social studies curriculum. Help students and the school community understand that saving the environment is good for the health of people AND the planet.

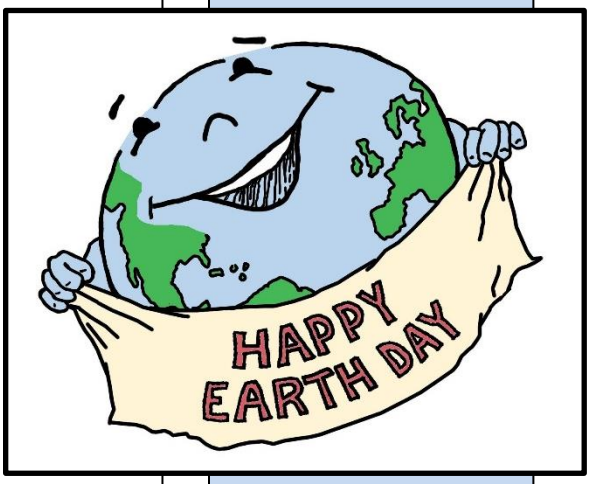
Recommended activities in this Zero Waste Schools Guide to implement and celebrate Earth Day:
Eco-Wise School Supplies – Chapter 1
Waste-Free Lunch – Chapter 2
Refillable Water Bottle Project – Chapter 3
"One or None" Paper Towel Campaign – Chapter 5
Paper Reduction Campaign – Chapter 6
Getting Artsy with Reuse – Chapter 8
Reducing Junk Mail – Chapter 10
Repurposing in the Classroom – Chapter 12
Making Cloth Napkins – Chapter 13
Green Cleaning: Non-Toxic Schools – Chapter 15
Lessening Litter – Chapter 16
Purchasing Policy – Chapter 17
Schoolwide Recycling Collection – Chapter 18
Special Materials for Recycling – Chapter 19
Creative Crayon Recycling – Chapter 20
Making Recycled Paper – Chapter 21
Compost Collection – Chapters 23-25
Conducting a Waste Audit – Chapter 30
Zero Waste Field Trips – Chapter 31
Compost Delivery – Chapter 32

Assessment:

On Earth Day, students will be able to state at least one action they can implement to take care of the Earth.

Extensions:

- Write letters to local businesses or public officials about why it is important to take care of the Earth. Thank them for any new actions they have taken to help preserve our planet's biodiversity and natural systems.



Special Considerations for High Schools

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Snapshot
Starting a schoolwide recycling and/or composting program at a high school is an important and effective step toward Zero Waste that requires special considerations.

Objective: Students and staff will have the tools to properly sort their waste at school. They will understand the multiple ways that recycling and/or composting helps the environment and the importance of reuse as an additional Zero Waste tool.

Age Groups: 9th-12th grade

Setting: School building

Project Duration: Ongoing

Materials:
- Examples of recyclable, compostable, and trash items found at school
- Collection bins for recycling and/or composting (5-8-gallon for classrooms, larger for other areas)
- Signage/labels for bins
- Poster-making materials

Why This Project Matters:

As students progress from elementary school to middle school to high school, it is important to have continuous access to waste-reduction options. High school systems are much more complex than those at the elementary and middle school levels. Larger buildings, open campuses, diverse schedules, and larger student populations must all be considered when designing a successful waste diversion system at the high school level.

Project Summary:

To design a successful program at the high school level, a school must choose a reliable waste hauler, acquire and label recycling and/or compost bins, determine the appropriate locations of the bins, and facilitate an efficient maintenance system. Regular training of students and staff is essential. Regular reporting of waste diversion rates will motivate and encourage greater participation. The concept and practice of reuse is another vital tool in working toward Zero Waste at the high school level.

Implementation:

Getting started:
See Schoolwide Recycling Collection, Chapter 18, and Schoolwide Compost Collection, Chapter 25, for detailed instructions on launching a recycling and/or compost collection system.

Specific things to consider at the high school level:
- Great care must be taken when determining the location for recycling and/or compost bins in a high school building. While recycling bins may be universal, compost bins may need to be limited to locations where food waste and non-recyclable paper are generated the most. Custodial needs and buy-in must be part of any plan. First, consider the type of waste generated in each space.
    - Academic classrooms – Place recycling and/or compost bins in classrooms only if students are permitted to have food and drinks while in class.

    - Art rooms – These classrooms tend to generate compostable papers (paper towels, construction and other art paper) and recyclable papers, making them good locations for both compost and recycling bins.
    - Food prep classrooms – If food is being unwrapped, cooked, and prepared, the generated compostable and recyclable items can be diverted from trash.
    - Science classrooms – These often feature lab areas that would benefit from having a compost bin since they tend to produce large quantities of paper towels.
    - Lunch areas – If students are permitted to eat lunch in spaces other than the cafeteria, consider placing recycling and/or compost bins in these locations, in addition to placing them in the cafeteria. Outside eating areas should also be considered.
    - Restrooms – If paper towel dispensers are installed, a compost bin will be useful in diverting waste. Make sure trash bins are also available to avoid contaminating the compost.
- After determining where recycle and/or compost bins will be effective, collaborate with the head custodian to determine the best collection process. Compost bins with food waste must be emptied daily to avoid pest issues.
- While 'dump' buckets are utilized in elementary and middle school cafeterias to empty liquid from drink containers before recycling, high school cafeterias often have multiple waste stations and 'dump' buckets may not be practical. In educational messaging, stress the importance of emptying all liquids before recycling.
- While it is often effective and practical for elementary and middle school teachers and students to empty classroom recycling, this is not true at the high school level where teachers often share classrooms and are not responsible for any one space. Since students move between classrooms frequently throughout the day, imposing on instruction time for students to transfer waste is often discouraged. Eco-Clubs, special-needs classes, or other student groups work well in this role, utilizing non-instruction time and decreasing any burden placed on custodial staff.
- Clear signage at all grade levels is crucial. Take care in placing posters on the wall above or near the waste stations. When waste bins are rearranged, which is common in high schools, the signs may no longer correspond to the containers they are near. Misalignment of signs and bins may cause an increase in contamination. Large signage on the bins themselves solves this issue.

Extensions:
Expand educational reach by working with various departments, clubs, and subgroups that represent different segments of the school community.

- Sponsor school-wide campaigns or contests that promote reuse of reusable water bottles, lunch containers, unwanted school supplies, etc. ("Choose to Reuse!" campaigns).

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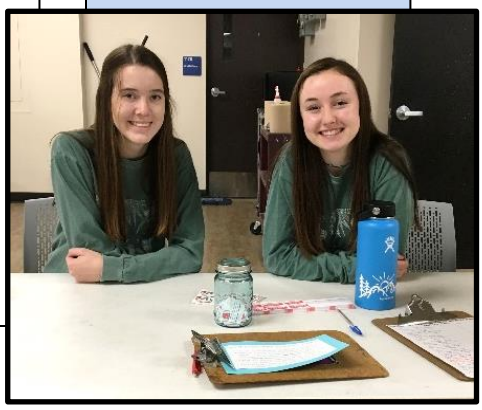

Training and implementation:
See Schoolwide Recycling Collection, Chapter 18, and Schoolwide Compost Collection, Chapter 25, for ideas on educating the entire school community, including working with student groups.

Specific things to consider at the high school level:

- Posters with three-dimensional examples are helpful when educating elementary and middle school students, but they are often less effective and have less longevity in high schools. Instead, consider using signage with photos and realistic images of waste items.
- Utilize peer-messaging opportunities to foster buy-in from the student population including student-produced social media posts, videos, signage, and logos.
- Assemblies are not an effective educational tool for most larger high schools. Consider other avenues such as short presentations in homeroom classes or advisory periods to both launch and retrain in the program.
- Work with school administration to determine the most effective way to deliver information to all students. If presenting in classrooms, choose a subject that all students are required to take every year, such as language arts, social studies, or science.
- Recruit student volunteers to support their peers in sorting waste properly in the cafeteria. Since high school students have variable schedules that sometimes include off periods, some might be available to volunteer during lunch. Various high school clubs require service hours to maintain membership, so this role could provide opportunities for earning those hours.
- High schools with open campus policies, where students may leave campus and return throughout the day based on their schedules, often have increased waste from outside sources (fast food wrappers, cups, etc.). Work with a student group to conduct a waste audit. Determine which of these outside items are the most common and incorporate them into educational messaging.
- While elementary and middle schools may use durable food service ware when striving for Zero Waste, this is not always practical at the high school level. When durables are being used at high schools, coordinate with food service staff, custodial staff, and school administration to determine successful mechanisms for students to return durables to the kitchen.

Extensions:
(continued)

- Work with business classes to promote and design business models which support reuse and/or a circular economy.
- Collaborate with engineering classes to design or redesign products that increase recyclability or reuse.
- Sponsor special art projects utilizing reused or recycled materials for art classes.
- Work with the athletic, art, music, theater, science, or social studies departments on ways to promote Zero Waste messaging to the entire school.

(Continued next page.)

- Utilize screens and monitors in common areas throughout the school to display signage, short videos, and messaging. Librarians will often support this method of education.

Maintaining the program:
See Schoolwide Recycling Collection, Chapter 18, and Schoolwide Compost Collection, Chapter 25, for detailed information on maintaining interest and engagement in the program while also increasing volumes and lowering contamination of the materials collected over time.

Specific things to consider at the high school level:

- Collaborate with administration to determine the most effective mechanism for annual education, especially for incoming freshman. Some schools utilize their Freshman Seminar program. In-person, live-virtual, or pre-recorded presentations given annually can educate each incoming class. Follow-up activities and prize drawings may be used to encourage participation and assess knowledge.
- Continue to support teachers that want to involve their students in the program by providing presentations, field trips, and special projects such as creating announcements, videos, contests, and volunteer opportunities.
- Collaborate with clubs to support Zero Waste during their after-school activities. For example: serve a Zero Waste meal to theater students during rehearsals using reusable or compostable food service ware. Ensure students have access to recycling and/or compost bins during the event.
- Set up a table with literature and recycling/compost/reuse examples in the cafeteria. During lunchtime, engage and educate students as they pass by.
- Continue to check in with custodial staff to develop ongoing best practices specific to their campus.

Assessment:

Work with custodians, haulers, and a student group to track volumes of recycled, composted, and landfilled material. Ask students and staff about how they interface with the program.

Related Activities:

Locker Leftovers/Classroom Cleanout – Chapter 9
Schoolwide Recycling Collection – Chapter 18
Schoolwide Compost Collection – Chapter 25
Conducting a Waste Audit – Chapter 30

Extensions:
(continued)

- Coordinate with booster clubs to purchase items that are recyclable or compostable for school sporting events.
- Support Zero Waste events such as homecoming and prom where the decorations and refreshments create no waste.
- Recruit student clubs like National Honor Society to act as "waste goalies" to help with proper waste sorting in the cafeteria or for sports and other school events. Volunteer hours can be applied to their service hours.

aerobic *adjective*: living, active, or occurring only in the presence of oxygen; example: aerobic respiration

aluminum *noun*: a light, silver-grey metal used to make things like drink cans and foil

anaerobic *adjective:* living, active, or occurring in the absence of free oxygen; example: anaerobic respiration

bauxite ore *noun*: a rock that is used to make aluminum

bioplastics *noun*: plastics made from plant material, often in the form of Polylactic Acid (PLA)

bulk buying *verb*: buying products in large quantities

castings *noun:* nutrient-rich material that looks like soil and is the end-product after earth worms have consumed food waste (see **worm composting**, **vermicompost**)

closing the loop *verb*: production process in which post-consumer waste is collected and remanufactured to make new products for purchase; refers to the "chasing arrows" recycling symbol, with the three arrows representing the three critical stages of successful recycling: collection, remanufacture, and purchase of the new items to be recycled again after use

compost *noun*: a soil amendment made from collected organic waste products that underwent decomposition; a soil amendment that adds nutrients to the soil

composting *verb:* the process of collecting and mixing organic waste such as lawn clippings, leaves, kitchen scraps, nonrecyclable paper, and manure to promote decomposition of the material into humus, a natural soil fertilizer

conservation *noun*: planned management of a natural resource to prevent wasteful use; example: the water-saving methods used in homes, farms, and businesses to ensure there is enough water to share with others and that a water supply is not depleted

consumer *noun*: a person who buys goods or services for their own needs

contaminant *noun*: a polluting substance that makes something impure; something that doesn't belong where it is

cycle *noun*: a continuous process

decompose *verb*: make or become rotten; decay or cause to decay

disposable *adjective*: made to be used once and then thrown away

diversion *noun*: act of keeping waste out of the landfill through reuse, recycling, and/or composting

diversion rate *noun*: a measure of the amount of waste being diverted from the landfill through reuse, recycling, and/or composting

dump *noun*: a location where trash is thrown into a pile without the monitoring and infrastructure needed to protect the surrounding soil, water, air, and/or habitat, and no measures are taken to collect and/or reduce the pollution generated on-site

durable *adjective*: able to be used many times before breaking or being discarded

embodied energy *noun*: the sum of all the energy required to make a product or provide a service; considered as if that energy was incorporated or 'embodied' in the product itself

end market *noun*: the purchaser of a recyclable material that then turns the material into a new, salable product; considered the end of the production process

energy *noun*: power made from using natural resources; examples: digesting food to move your body; using wind power to generate electricity

environment *noun*: the natural world; the world around us

fibers *noun*: long, thin structures; thick-walled cells that give strength and support to plant tissue; example: fibers of wood or cloth used in making paper

finite *adjective*: limited in number or amount

groundwater *noun*: water beneath the earth's surface that supplies wells and springs, and is often used for drinking water

habitat *noun*: the natural home or environment of an animal, plant, or other organism

hazardous waste *noun*: waste material that may pose a threat to human health or the environment, the disposal and handling of which is regulated by federal law

incineration *verb*: process of burning waste which produces air emissions and leftover ash and other solids that must be buried in a landfill

incinerator *noun*: an apparatus for burning waste material at high temperatures until it is reduced to ash and non-burnable solids

inorganic *adjective*: anything that is not alive or recently alive; example: rocks and sand, items made from rocks or sand such as metal and glass

landfill *noun*: a large hole dug into the Earth for disposing of trash by burying and covering with soil, usually engineered to protect the groundwater and air from pollutants generated in the landfill

leachate *noun:* water that has passed through solid waste and may have harmful materials in it; contaminant of ground or surface water

life-cycle analysis *noun*: a method used to evaluate the environmental impact of a product using the sum of the collective impacts from extracting the raw materials, manufacturing the item, transporting the raw materials and finished product, and disposal of the item

litter *noun*: a waste object left where it does not belong, such as in a public space or body of water

materials recovery facility (MRF) *noun*: an industrial facility that sorts, separates, and prepares recyclable materials, which are then sold to individual end buyers or markets for use in manufacturing

methane *noun*: a colorless, odorless, flammable gas which is a main component of natural gas and byproduct of anaerobic decomposition

mulch *noun*: a protective layer used around plants to prevent evaporation

natural resources *noun*: materials such as minerals, air, water, and trees that occur in nature and can be used by humans for survival and/or to make the things they need and want

NIMBY *noun:* acronym for "Not In My Back Yard"; expression of opposition to any development near a neighborhood

organic *adjective*: anything that is alive or was recently alive; example: plants and animals, something made from plants or animals like paper and food

organic waste *noun*: discarded material that came from something that was once alive, such as yard trimmings or food scraps

packaging *noun*: materials used to wrap or protect goods

pollution *noun*: something added to the environment that is harmful or poisonous to living things

post-consumer waste *noun:* waste products that have been generated by consumers

pre-consumer waste *noun*: waste products from a manufacturer that may be put back as feedstock into the manufacturing process

pre-cycle *verb*: the act of reducing potential waste before you make it; shopping with the environment in mind; examples: buying in bulk, buying items in recyclable packaging, using durable and reusable items instead of disposable, buying fewer toxic products

pulp *noun:* a soft, wet mass of fibers derived from rags or wood, used in papermaking

recyclable *adjective*: an item that can be recycled

recycle *verb*: the act of remanufacturing an already-used material or item into a new and usable item

recycled *adjective*: an item that has been remanufactured with used materials as part or all of the feedstock

recycling *noun*: waste products or used objects that are collected to be remanufactured into new items rather than being sent to the landfill

reduce *verb*: make smaller or less in amount, degree, or size

reuse *verb*: to use again or more than once

reusable *noun*: product or object that is designed to be used more than once

single-stream recycling (commingled recycling) *noun*: a recycling system that allows users to place all acceptable materials in the same bin, where the materials will be later sorted and separated at a MRF for shipping to individual manufacturers

solid waste *noun*: materials that are no longer needed or wanted and are disposed of as trash, recyclables, or compostables

source reduction *verb*: the design, manufacture, and use of products to reduce their amount and toxicity; includes minimizing the amount of a product used, extending the useful life of a product, and reducing excessive product packaging

source separation *verb*: the separation of materials at the place where waste is created, such as at home or at school; includes separating recyclable from non-recyclable materials and the separation of organic materials out of the waste stream for composting

sustainable *adjective*: conserving an ecological balance by avoiding depletion of natural resources; method of harvesting or using a resource so that the resource is not depleted or permanently damaged

toxic *adjective:* containing poison which can cause death or other harm to living things

trash *noun*: material to be thrown away; garbage

upcycle *verb*: reuse discarded objects or materials in such a way as to create a product of higher quality or value than the original

virgin materials *noun*: any basic material for industrial processes that has not been previously used; refers to raw natural resources such as trees or metal ore

waste *noun*: leftover materials that we no longer need or want

waste audit *noun*: an inventory of the amount and types of solid waste generated at a specific location to determine how much is landfilled and how much is diverted from the landfill as compost or recycling; inventory of waste conducted for different parts of a facility, the facility overall, or for an entire institution

waste stream *noun*: a term describing the total flow of solid waste from homes, institutions, and/or businesses that must be recycled, composted, incinerated, or disposed of in a landfill

worm composting (vermicomposting) *noun*: the use of earthworms to convert organic waste into fertilizer

yard waste *noun*: leaves, grass clippings, and other organic materials collected from yards and landscaping

zero waste *noun*: a set of principles that focuses on changing the economy from linear (where extracted natural resources are used once and thrown away) to circular (where extracted resources are reused and recycled) through policy, education, and infrastructure adjustments, changing how materials, water, and energy are used when products are made, and by diverting waste from landfills and incinerators through reducing, reusing, recycling, and composting