



WASTE REDUCTION AND RECYCLING

Project Toolkit



Campus Curbside Recycling



Generation Earth Program

Generation Earth is a Los Angeles County Department of Public Works environmental education program presented by TreePeople. Our goal is to educate and empower youth in Los Angeles County to be an active part of the solution to environmental concerns in their community. We offer do-it-yourself environmental projects that help youth make a positive difference at school, at home, and out in the world. Our programs are built to support the needs of teachers, students, schools and community youth groups.

Generation Earth Project Guides

Generation Earth Project Toolkits are designed to assist teachers and students in the completion of an environmental project. These guides provide the instructions, tools and support materials needed for students to learn about important environmental subjects, and to take steps necessary to complete projects that will positively impact the community.



What is Waste Reduction?

There is no such thing as throwing an item “away.” It all must go somewhere. Being disposed into landfills with our massive amounts of trash are recyclable materials and other reusable resources. The U.S. EPA estimates that 75% of what we throw away is actually recyclable.¹ Instead of landfilling “trash” we could be recycling and reusing these materials as much as possible.

Waste reduction is more than recycling. It also involves stopping waste where it starts by using less items with a lot of packaging, or that are not reusable or recyclable in the first place. The end result is money saved, resources conserved.

Waste in Los Angeles

Waste is a vital issue in Los Angeles County. Every day, each person disposes of approximately 5.0 pounds of trash. In 2015, the 10 million residents, businesses and manufacturers in L.A. County sent over 9 million tons of trash to the landfill.² We generate enough trash to fill the Rose Bowl in just 4 days! These resources are generally transported to one of 10 solid waste landfills around Los Angeles County. What does that mean for you? It costs money to dispose of all this waste, valuable open space is used to create landfills to store the waste, and waste pollutes the environment.

History of Waste in California

In 1989, Assembly Bill 939 (AB 939) was passed. Also known as the California Integrated Waste Management Act, AB 939 required a diversion rate of 50% of all solid waste through source reduction, recycling and composting activities by January 1, 2000.³ In 2012, California adopted AB341 and SB1018 which required that any business or public entity that generates over 4 cubic yards of waste per week must implement a recycling system. Additionally, AB341 set a new goal of a state-wide diversion rate of 75% by 2020.⁴ AB1826 was signed in 2014, requiring businesses, including local jurisdictions, to recycle their organic waste. In 2016, SB1383 established targets to achieve a 50 percent reduction level of the statewide disposal of organic waste from the 2014 level by 2020 and a 75 percent reduction by 2025.

Waste at School

California school districts dispose of large amounts of waste. This waste represents a significant loss of natural resources and school district funds, as well as a potential threat to student/staff health and the environment. The cafeteria is one of the largest areas on campus where waste is produced. Food, trays, cups, cans, and straws are just a few of the items that can be found after each meal served. Classrooms and offices use tons of paper products each year. These materials, in the form of paper, cardboard, envelopes and file folders are expensive and costly. In planning a campus waste reduction program, it is important to create goals that are realistic and progressive. It is vital to establish a good working relationship among students, staff, facilities managers and waste haulers to ensure opportunities for program expansion through purchasing power, new ideas and information.

Campus Recycling Project Toolkit

This toolkit explores the waste on a typical school campus – from what can be found in the trash cans after each meal served, to classrooms and school offices. This exploration will help your group reduce waste on campus by creating goals, relationships with key stakeholders and offering a variety of options to reduce waste on campus, including curbside recycling of paper, bottles and cans.

The Steps!

1. Check This Out

Students explore the subject of waste by working in teams to learn a specific topic related to waste reduction and share what they have learned through the creation of an infographic.

2. Site Assessment and Waste Audit

Using a map of the site, students indicate where there are specific waste-collection elements on campus. They continue the process by conducting a Waste Audit to identify the different types of waste found.

3. Get More Information

The site assessment and waste audit are just part of the waste picture at a site. Students add more information by conducting an interview with key site stakeholders, including the Principal, local Recycling Coordinator, Waste Hauler Contract Manager, and more.

4. Choose a Project

Using the site assessment, waste audits and interview information, students use a dichotomous project tree to determine which recycling project is most appropriate. They will answer specific questions that lead through a process of elimination to reveal specific choices for recycling.

5. Finalize Your Plan & Get Permission

If it is determined that a campus curbside recycling program is the chosen project, students answer specific questions and make decisions that build a plan to share with key stakeholders, including those that provide final permission for the project.

6. Make It Happen

Once permission is given, students follow the steps given to make the project happen!

7. Evaluation

Students complete their project by answering questions that serve to evaluate the process and offer next steps for potentially taking on additional waste reducing projects.

8. Resources

Some resources are provided for materials and support.

CHECK THIS OUT

Students explore the subject of waste by working in teams to learn a specific topic related to waste reduction and share what they have learned through the creation of an infographic.

Procedure

1. Divide students into six working groups. Groups should be as close to equal in size as possible.
2. Pass out a different topic sheet to each group.
3. Each group has 15 minutes to:
 - Learn and discuss the topic
 - Use poster paper and markers to create an infographic answering the questions listed on the topic sheet
4. Each group shares and explains their infographic with the rest of the class.
5. As a class, discuss the need for waste reduction, at home and in the community.

Materials

- Topic Sheets (pages 5 - 9)
- Poster paper or dry erase board – 1 per group
- Markers – 1 set per group



Piles of Paper

Start Here!

Score! Two points! You're doing your homework and make a mistake in the first paragraph. So, you crumple the piece of paper and toss it in the trash. Did you think about the tree that the paper came from?

Create an Infographic that answers the following questions:

- How are paper products created?
- Why is it an issue?
- How much of this paper is wasted in Los Angeles County?
- What is something that can be done on campus to reduce paper waste?



- Trees are harvested and sent to mills and processed into lumber. The wood waste is sent on to paper mills, where it is manufactured into lunch bags, notebooks, paper, magazines, napkins, towels, and the list goes on and on.
- Making paper from raw materials (trees) requires large amounts of water and energy. Pulp and paper manufacturing uses more water to produce a ton of a product than any other industry,⁵ and is the third largest industrial consumer of energy worldwide.⁶ It takes 390 gallons of oil to produce one ton of paper.
- The average American uses seven trees and 680 pounds of paper per year.⁷ Paper products make up about one third of the total waste being produced in the United States.⁸
- Paper made from waste paper is called “post-consumer” recycled paper because it has been used and recycled instead of being landfilled. New paper made from recycled paper instead of trees creates 35% less water pollution and 74% less air pollution, and 75% less energy is used.⁹
- To reduce the amount of paper going to landfills, the first step is to find sustainable alternatives to paper products such as using a reusable canvas bag instead of paper, using cloth napkins instead of paper, purchasing post-consumer products or buying items in bulk to reduce packaging waste. Lastly, collect paper products for recycling.

The Problem with Plastic

Start Here!

When your grandparents were growing up, plastics weren't a big part of their lives. Today, plastics are used for everything from milk jugs and soda bottles to bicycle helmets and auto parts.

Create an Infographic that answers the following questions:

- How are plastic products created?
- Why is it an issue?
- What is the problem with plastic waste?
- What is something that can be done to reduce plastic waste?



- Plastics are made from oil, a non-renewable natural resource limited in supply.
- Manufacturing plastic requires large quantities of water and energy resources. Plastic manufacturing also produces harmful chemicals that if not properly treated may pollute our water and air systems.
- 69% of plastic bottles don't get recycled.¹⁰ In Los Angeles, 10 metric tons of plastic, from bags, to bottles and straws are carried to the Pacific Ocean every day.¹¹
- Plastics do not easily decompose. Even those designed to degrade break down into smaller pieces when exposed to sunlight; therefore, they generally do not decompose when disposed of in landfills.¹²
- Purchasing products with less packaging prevents plastic from becoming litter on the streets and in the ocean. Marine animals sometimes mistake six-pack rings, plastic bags and other plastic items floating in the ocean as food.
- By recycling plastic, it can be used to make other plastic products such as water bottles and food containers into cloth shopping bags and t-shirts. By collecting these products for recycling and then buying new products made from recycled goods, we are fully participating in the recycling process.

Pollution Going Down the Drain

Start Here!

The rectangular openings or “catch basins” at the end of your street are more important than you may realize. Street gutters drain water off the streets through catch basins and storm drains. These openings lead to flood control channels that, in turn, carry the water directly to the ocean. With it goes everything that the water picks up as it travels through streets and into the ocean.

Create an Infographic that answers the following questions:

- What is stormwater?
- Why is it an issue?
- How is motor oil part of the issue?
- What is something that can be done to reduce the effect of urban runoff?



- In urban environments, most rainfall hits our streets and runs across pavement, through gutters, and into storm drains. This water is called urban runoff.
- Storm drains help prevent urban flooding by carrying large volumes of urban runoff through concrete flood channels to the ocean. This water is carried directly to the ocean without treatment.
- Urban runoff is a significant source of ocean pollution. Litter, dog waste, cigarette butts, fast food packaging, plastic shopping bags, pesticides, leaking motor oil – anything on the ground – can end up washed into gutters and carried to the ocean.
- One gallon of used motor oil, poured into the gutter or dripping from a car, can potentially contaminate up to one million gallons of ocean water.¹³ In 2010, 120 million gallons of motor oil were sold in California. Approximately 69% of the oil was recycled, with the remaining oil being improperly disposed of down storm drains, into lakes and streams, or thrown in the garbage.¹⁴
- Eliminating the use of harmful pesticides and fertilizers on plants that will be washed into the street, recycling motor oil, and picking up trash are just some of the ways to prevent polluted urban runoff from reaching the ocean.

There is No “Away”

Start Here!

When we throw things “away”, they don’t vanish into thin air. When our items are tossed into the garbage, they are sent to a landfill. A landfill is a carefully engineered structure, designed to be the final option for disposing waste.

Create an Infographic that answers the following questions:

- What is leachate?
- Why is it an issue?
- Why is methane an issue?
- What can be done to reduce the items that are landfilled?



- Built like a tomb, it is lined on the bottom and sides with thick layers of plastic and clay. As garbage is dumped, it is covered with layers of soil, foam, plastic or crushed glass to prevent litter, as well as water, soil, and air pollution. This also prevents trash from breaking down by minimizing oxygen and moisture levels inside.
- Leachate is the toxic fluid that is formed in landfills when moisture from rain mixes with plastics, chemicals, and other hazardous wastes. This poisonous liquid trickles down to the bottom where it is pumped out and treated. If the plastic liner should fail or be punctured, the leachate could leak into the soil and underground water system, creating a health risk.
- Another issue is methane. When tiny bacteria break down food, paper, clothing, wood, yard waste, or pet waste, gasses are produced and escape into the air. Most of this gas is methane, a greenhouse gas that is 64 times more potent than carbon dioxide.¹⁵ Landfills are the third largest source of man-made greenhouse gas emissions.
- Reducing the amount of items that go to a landfill reduces the risks associated with them. This includes recycling, composting, and collecting household hazardous waste for proper disposal.

Don't Trash the Neighborhood

Start Here!

Ever take a walk in your neighborhood and see abandoned furniture, tires, appliances or other unwanted items dumped in alleys, vacant lots, and other open spaces? Dumping these items is not only ugly; it's unsafe and illegal! People caught illegally dumping trash or unwanted items may be subject to a \$10,000 fine and six months in jail.¹⁶

Create an Infographic that answers the following questions:

- What is illegal dumping?
- Why is it an issue?
- Why is E-waste an issue?
- What is something that can be done to prevent illegal dumping?



- Properly disposing of large items requires the payment of disposal fees to a recycling facility or landfill. Some residents, contractors and waste haulers leave their stuff where ever they want rather than pay these fees. This is illegal.
- Los Angeles County and local cities spend millions of tax dollars to clean up trash and unwanted items left in alleys and streets.
- Illegally dumped trash and unwanted items can attract insects and rodents creating health and safety concerns. Rodents can spread disease, chew through wiring, and otherwise harm the environment and human health.
- Televisions, computers, and other electronic waste (e-waste) have cathode ray tubes, which contain lead. E-waste items are hazardous waste to the environment. E-waste should be donated, properly recycled or disposed of by a certified hazardous waste hauler.
- People caught dumping illegally can be fined up to \$10,000 and jailed for six months. However, it is often difficult for local law enforcement agents to catch these criminals. Citizens who want to help prevent illegal dumping can call law enforcement agencies and report these offenses.
- Periodic neighborhood cleanup projects may discourage illegal dumping. It is believed that illegal dumping is less likely to happen in clean, watched neighborhoods than in areas that continuously have large volumes of trash in streets, sidewalks and in alleys.

Recycling Means Business

Start Here!

Since most of the trash the average person generates every day is a disposable item made from materials that can be pulped, melted, or mixed again into a new item, thus put back into the cycle of use or “recycled”, facilities to process these types of waste were created.

Create an Infographic that answers the following questions:

- What is a MRF?
- How do they work?
- What can be an issue?
- What is something that can be done to support MRFs?



- Materials Recovery Facilities, or MRF's for short, are the recycling factories our items go to when they are picked up as part of a curbside recycling program. They use high-tech machinery to identify and sort out materials so that they can be bundled into a “bale” of high-quality material that is sold to manufacturers to create new materials.
- In a MRF, a waste sorting line uses technology like magnets, optical sorting computers that “see” types of material, tumblers that sift them out by weight and shape, compressed air that blows materials off the line, and vacuums that suck up plastic film. Some even remove labels!
- This technology continues to improve allowing for more items to be recovered. For example, a machine was created for milk cartons and juice boxes. It melts off the plastic coating, separates the paper from aluminum foil layers inside, recovering all three materials. Now, over 50% of MRF's are using this machine.¹⁷
- The use of technology helps in the sorting and recovery process. However, when materials are dirty and non-recyclable items are included, it contaminates the system.
- Rinsing food and liquids from recyclables, and ensuring only recyclable items are included means more efficiency for the MRF's and cheaper service fees to the public.

SITE ASSESSMENT & WASTE AUDIT

Using a map of the site, students indicate where there are specific waste-collection elements on campus. They continue the process by conducting a Waste Audit to identify the different types of waste found.

Procedure

1. Plan to divide into working groups when mapping and auditing the site.
2. Create a map of the site doing the following:
 - Use an existing map, removing any unnecessary information.
 - Download a map of the site from on-line.
 - Create your own map using a large sheet of paper.
3. Make sure each group has a map, Site Assessment Guidelines, Waste Audit Tally Sheet, gloves, and pencil.
4. Have students follow the instructions to locate specific waste-collection elements and mark them on the map. Then, conduct the audit identifying and tallying the type of waste collected.
5. Familiarize students with the areas they are observing and demonstrate how to gather the data, if necessary.
6. Back in the classroom, have groups report on their findings.
7. Create a combined tally of all that was found, representing the site as a whole.

Materials

- Site Assessment Guidelines (page 12)
- Waste Audit Tally Sheet (page 13)
- Pencil
- Gloves
- Map of site

Helpful Hint

Break the site maps into different parts of the campus for each group.

Site Assessment Guidelines

Look for and add the following letter symbols to your site map:

OUTSIDE

- Trash can **X**
- Recycle bin **R**
Indicate whether it is for paper, plastic and/or glass bottles, aluminum cans or all types of recyclables
- Compost bin/Area **C**
- Food waste bin **F**
- Trash dumpster **TD**
Indicate if there is cardboard and other recyclables inside, and how full it is
- Recycling dumpster **RD**
Indicate if there is only cardboard inside, or other recyclables as well

INSIDE

If possible, indicate on your map which classrooms/offices have the following:

- Trash can **X**
- Recycle bin **R**
Indicate which items can be recycled inside
- Ink Cartridge bin **IC**
- Battery bin **B**
- Food waste bin **F**

ALSO INDICATE:

- If any other collection/waste reduction is happening on campus and where.
- If there are any signs or instructions written on or around the bins.
- If any recycling bins are stand-alone or next to a garbage can.

Waste Audit Tally Sheet

Name(s)

Date

Location

- Put on gloves before checking trash cans.
- Under each column keep a tally of how many of each item is found. Place additional items under "other."
 - Items marked with * indicate that these items may or may not be recyclable with your waste hauler.
- Take note:
 - Are garbage cans contaminated with recyclables?
 - Are recycling bins/dumpsters contaminated with garbage?

Trash	Items	Quantity	Notes
	Plastic Wrappers/ Foil Wrappers		
	Chip/Snack Bags		
	Straws		
	Napkins		
	Plastic bags*		
	Other		
Curbside Recyclables			
	Glass bottles/jars		
	Metal/alum. cans		
	Plastic bottles		
	Clean paper/ cardboard products		
	Styrofoam Products*		
	Beverage cartons/ Juice boxes		
	Hard plastic food containers		
	Food soiled paper trays/boxes*		
	Other		

E-Waste	Items	Quantity	Notes
	Cell Phones		
	Electronic toys		
	TV/Computers		
	Other		
Hazardous Waste			
	Batteries		
	Cleaning Products		
	Nail polish/Beauty products		
	Paint		
	Ink Cartridges		
	Other		
Compostables /Green Waste			
	Food Scraps*		
	Grass clippings/ Landscape waste		
	Other		
Food to Donate			
	Unopened packaged food		
	Whole produce		
	Other		
Other			
	Reuseable books / items		
	Textiles, clothes and shoes		
	Other		

GET MORE INFORMATION

The waste audits and site assessment are just part of the waste picture at a site. It is important to find out more information by interviewing key site stakeholders. In this case, stakeholders are people who may affect or be affected by the recycling program.

Procedure

1. Set up interview opportunities with the suggested stakeholders. Feel free to add/subtract interviewees depending on the site.
 - Principal
 - Local/City Recycling Coordinator
 - Waste Hauler Contract Manager
 - On-site Maintenance/Plant Manager
 - Office Manager
 - Cafeteria Manager/Food Service Manager
 - Teachers
2. Divide students into groups to conduct the interviews.
3. Once interviews are complete, have groups share what they learned.

Materials

- Interview questions for each group (pages 16 - 22)
- Pencil/pen

Helpful Hints

Check with the Principal for the names and contact information for the Waste Hauler Contract Manager and others.

In some cases, plant personnel have been separating, collecting, and redeeming CRV containers. This may be a good way to promote recycling, but it doesn't provide the schools with an accurate measure of what is being recycled on their campuses. Also, it provides no incentives to students and misses an opportunity for education and behavior change.

Waste Reduction Interview

Name(s)

Date

Principal

1. Has there previously been a recycling program on campus? If so, what were the successes and failures?
2. Which company or companies currently haul campus waste?
3. Do they offer recycling services?
 - a. If no, could we switch to a company that recycles if it would save the school money?
 - b. If yes, how much does it cost per month for garbage vs recycling?
4. What recycling program would you like to see on campus, given the right help/structure and free or funded resources?
5. Would you consider launching or improving a campus recycling program, if our group creates and presents a complete plan?

Waste Reduction Interview

Name(s)

Date

Local/City Recycling Coordinator

Visit www.lacsd.org/solidwaste/swfacilities/recyclecontact/recyclingcontacts.asp for a list of County Recycling contacts to find your City's Coordinator.

1. Are there currently any programs in place or local partners to support or increase school recycling?
2. Are there any available resources like incentives, speakers, partners, free bins or signs to help schools increase recycling?

Waste Reduction Interview

Name(s)

Date

Waste Hauler Contract Manager

1. Are the waste and recycling materials you collect separated at your facility?
 - Do recyclables need to be in a separate dumpster/bin for collection?
2. What materials can you recycle?

• Beverage cartons?	Styrofoam?	Paper trays with food residue?
• Plastic bags?	Plastic forks?	Napkins?
3. What percentage contamination rate of non-recyclable materials in the recycling bin is too high to accept for recycling?
4. Can you offer any small bins, dumpsters or resources to the school to help increase the waste diversion rate?
 - If yes, what would any associated costs be?
5. If we increased the recycling rate on campus, what savings could be extended to the school?
6. What is the difference between the service/hauling cost for landfill material vs. recycling?
7. What services do you provide for food waste/yard waste?
8. What is the #1 contaminant to your recycling waste stream?
9. Where does our waste go after it is hauled away?
 - Materials Recovery Facility?
 - Transfer Station?
 - Waste to Energy Plant?
 - Landfill? Is it mixed with waste from other schools or other businesses first?

Waste Reduction Interview

Name(s)

Date

On-site Maintenance/Plant Manager

1. What are any current recycling programs you manage or are engaged with on campus?
2. Does anyone collect bottles and cans from the waste stream currently?
 - If yes, would bins specifically for recycling or just bottles and cans placed around the campus be helpful?
3. Do you have a special collection for any hazardous waste such as paint, light bulbs, chemicals, and cleaners?
 - If yes, What items?
Where are they collected?
Where do they go when disposed?
Who is in charge of their disposal?
 - If no, Could we help you create a hazardous waste collection program?
4. What is done with green waste such as grass clippings?
 - Would you consider using a compost program for green waste and/or food scraps?
5. What size and color bags do we currently use on campus for waste bins? Recycling bins?
6. What is the waste and recycling collection schedule on campus currently? Weekly? Daily? Time?
7. If our group were to start or expand on the campus recycling program, would the maintenance team be able to help with the collection of the recyclables from bin and disposal into the right dumpster?
 - What help would you need from students, teachers, and parents to maintain the recycling program?
8. Are there any garbage cans on campus that can be removed to focus the garbage output to fewer areas?
 - If so, can any of these be turned into recycling bins and placed next to another garbage can?

Waste Reduction Interview

Name(s)

Date

Cafeteria Manager/Food Service Manager

1. What is the current disposal system for boxes, food cans, plastic containers and food waste for recycling?
 - If none, would you consider starting a cafeteria kitchen waste recycling program with us?
2. Is food prepared on site or delivered pre-made to the campus?
3. Is there a compost program for cafeteria food preparation scraps?
If no, would you consider letting us help start one?
4. Is there leftover food that could be donated to a charity from any food preparation in the kitchen or any unserved food?
5. What kind of food served from the cafeteria could be shared or donated instead of thrown away?
6. What resources and assistance would you need from us to start or improve a food share or donation program?

Waste Reduction Interview

Name(s)

Date

Office Manager

1. Does the office currently collect recyclables such as ink cartridges, batteries and paper?

- If yes, what items?

Where are they collected?

Where do they go when disposed?

Who is in charge of their disposal?

- If no, would you consider a special recycling program in the office?

2. In the office, does the staff currently print on one or both sides of paper?

Waste Reduction Interview

Name(s)

Date

Teachers

1. Are you currently working on any recycling projects with your class?
 - If yes, please share what you are doing.
2. Would you be willing to have a recycling bin in your classroom?
3. How would your class like to help or participate in a multi-classroom or cafeteria recycling program?
 - Promotion?
 - Auditing/tracking?
 - Contests?
 - Collection?
4. Is there a lot of food waste from your classroom that could be used to feed others in need?
 - If yes, would you be willing to participate in a classroom food share table and donation project.

CHOOSE A PROJECT

Using the site assessment, waste audits and interview information, determine with the group what they would like to achieve at their site using a project tree.

Procedure

1. Share with the class that they can try to recycle all they can, and that there are a variety of recycling projects to choose from. They include:
 - Campus recycling program for bottles, cans, plastic and paper
 - Cafeteria Food Waste Rescue
 - Household Hazardous Waste Collection
 - E-Waste Collection
 - Community Swap
 - Textile Collection
 - Alternative Recycling
 - Resource Reduction
 - Composting
 - Litter Abatement and Campus Cleanup
2. Explain to the group that choosing the right project requires answering some key questions first:
 - How long do they want the project to last?
 - 1 day to 3 months: a short term project that has an end date.
 - Ongoing: a long-term project that is designed to continue beyond the school year.
 - Who is the audience? The main participants of the recycling project will be:
 - Student body
 - Facilities and office staff
 - Community members
3. Continue the process by answering these and more questions while working through the Project Tree. Use what was learned from the site assessment, waste audit and interviews to answer questions that will lead to a suggested project.
4. If the suggested project is curbside recycling of cans, bottles, plastic and/or paper, then continue using this Project Toolkit. Otherwise, get the appropriate Project Toolkit from your Generation Earth Teacher Facilitator.

Materials

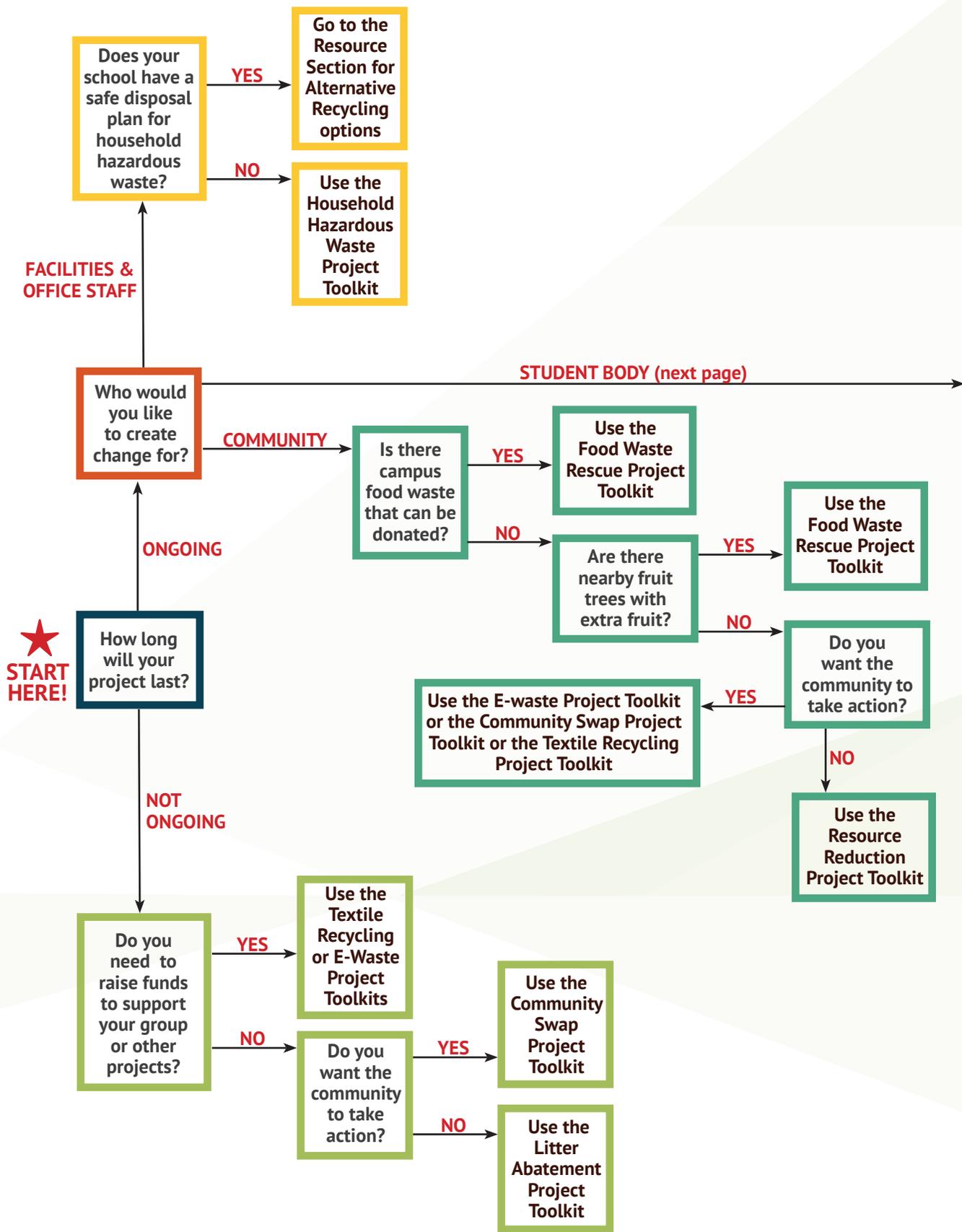
- Site assessments
- Waste Audit Tally Sheets
- Interview answers
- Project Tree (pages 24 - 25)

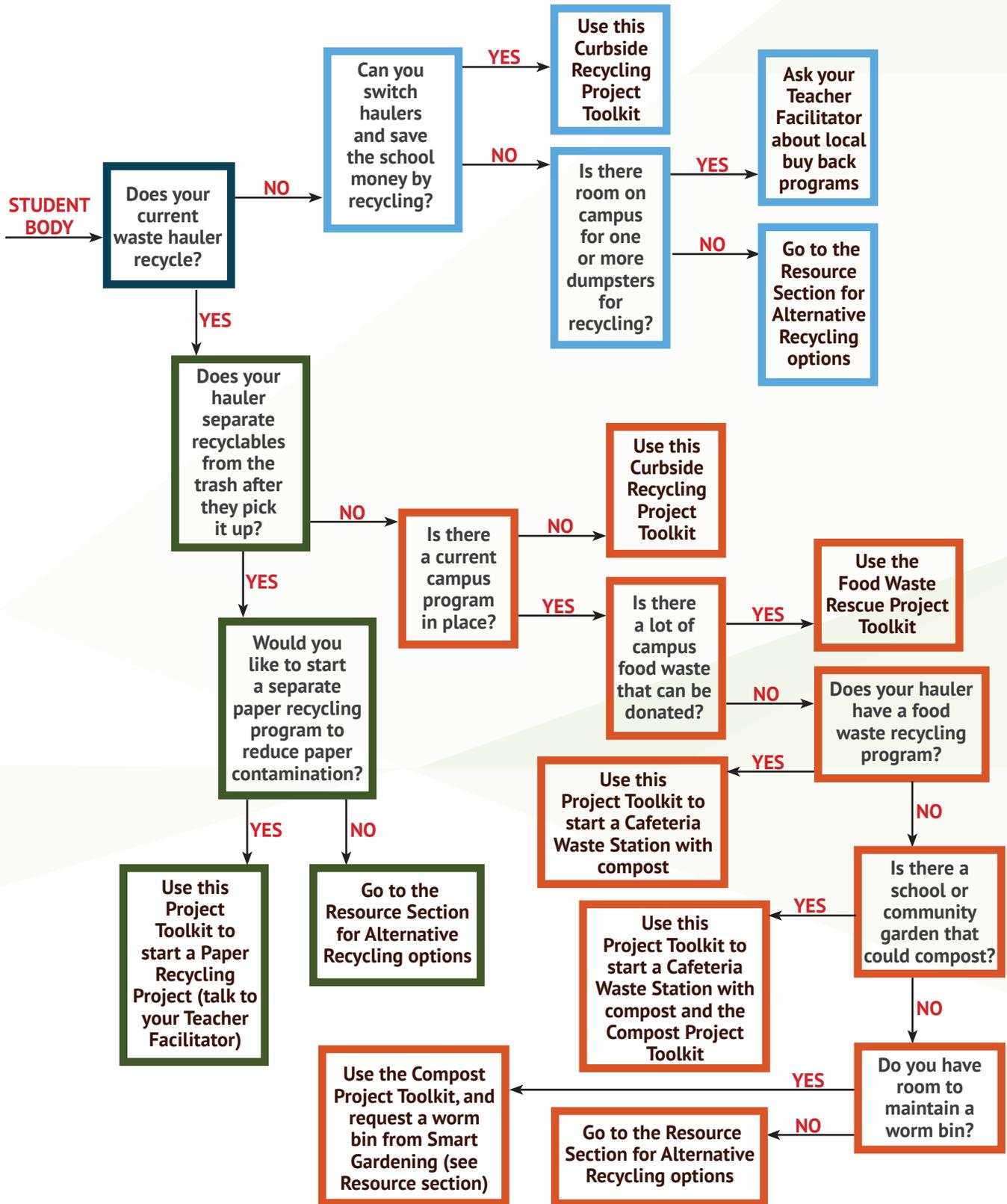
Helpful Hints

Review the Project Tree ahead of time to understand how it flows.

Project Guides

- **Food Waste Rescue:** Unwanted produce collection program.
- **Household Hazardous Waste:** Collection event.
- **Textile Collection:** Permanent or ongoing textile collection.
- **E-Waste Drive:** E-waste collection event.
- **Community Swap:** Goods exchange event.
- **Resource Reduction:** Community educational campaign.
- **Compost:** On-site composting program.





FINALIZE YOUR PLAN AND GET PERMISSION

Now that it has been determined that a campus curbside recycling program is the chosen project, answer specific questions to build a plan to share with key stakeholders.

Procedure

1. Answer the questions to help build a plan.
2. Plan how to use the waste audit quantities, site maps and the interview results, to support the plan.
3. Once students have all the steps thought out and created the plan, have them create a presentation for all the key stakeholders including the Principal, Plant Manager, Teachers, and parents or any other important stakeholders.
4. Hold the presentation and get the permission needed to get started.

QUESTIONS

How will a campus recycling program help the school?

To show how the campus recycling program can help the school, start by determining the campus's current cost per cubic yard for disposing of waste in the landfill, and the projected costs or revenue from your project. Be sure to highlight how your program can:

- Cut the school's garbage costs.
- Generate additional revenues for the school.
- Provide opportunities for school recognition and awards.
- Reduce campus litter and the amount of space taken up by garbage cans.

Materials

- Waste Audit Tally results
- Completed Site Maps
- Interview results

Helpful Hints

Before the presentation have students:

- Practice!
- Be prepared to answer questions
- Know what the roles are of all stakeholders

Cost Per Cubic Yard

To determine the current cost per cubic yard for disposing waste, obtain a copy of the monthly service fees bill from the principal.

- Multiply the number of garbage containers by the size of the container in cubic yards collected during the billing cycle. Repeat for recycling containers.
- Divide the total disposal cost during the billing cycle by the total number of cubic yards of material collected during the billing cycle.

Plant A Seed - Let It Grow

Sometimes if the recycling program doesn't have the necessary support it needs from key stakeholders to be sustainable in the long run, it's best to start small and let it grow.

What is the scope of the project?

Determine which of the following is included as part of the proposed program:

- **Indoor**
 - Classroom recycling
 - Multi-classroom recycling
 - Office recycling
- **Outdoor/campus-wide**
 - Cafeteria recycling
 - Entire campus/facility
 - Other:

What materials are to be collected for recycling?

Determine the type of materials that will be collected and recycled. Some things to consider:

- The easiest and most effective campus-wide waste reduction program collects all the different types of materials your waste hauler can recycle.
- While collecting only bottles and cans can earn some money for the school/club, it misses the opportunity to divert important items like paper, cardboard, or beverage cartons from the landfill, as well as the opportunity to raise awareness about the types of items that can be recycled.

Where will the bins be located?

Depending on the scope of the program, indicate on the map where proposed bins will be located. Consider:

- A garbage can against a wall or in a corner where there is room for a recycling bin to be placed next to it.
- Convenient areas where there is a lot of foot traffic.
- Within the cafeteria, or other eating area as a “cafeteria recycling station.” See page 32 for more information.
- Areas that can be seen and identified easily as you approach, such as near the teacher's desk.
 - Avoid placing bins right next to a door where signs may be ignored or people are distracted while throwing things away.





What bins will be used?

Depending on whether they are used for indoor or outdoor use will help determine what type of bins can be used.

- **Outside**

- Must be a weather appropriate / wind resistant container
- Recycle bins should have lids, so they must be opened to use. This ensures they don't collect unnecessary trash
- A size that fits assigned locations, and will not overflow if used frequently

- **Inside**

- Can be cardboard boxes, milk carton crates or similar creative reuse containers if bins cannot be donated or purchased.
- Try to keep bins uniform across campus, either by color, size and shape, or same type of item used (i.e. ALL are made from decorated cardboard boxes, or ALL are made from baskets, etc.)

What bags are needed to line the bins?

Depending on the materials you are collecting, size of the bin, and collection method, you may need to use clear plastic bags called liners for the recycling bins. Liners come in different thicknesses and sizes. Ask your Generation Earth Teacher Facilitator to help you decide which liner is right for your project.

- Purchase liners that are thick enough to not break easily. We recommend 1.5 mils thick or more
- Liners should be a clear bag that is long enough to wrap around the lid, extend to the bottom when full, and wide enough to wrap around the whole edge of the opening
- Coordinate with your on-site Maintenance/Plant Manager and Principal for purchasing, storing and using these bags

How much will it cost?

Depending on the school district or situation, will depend on what you can get at no cost or what will require funding to get started. Consider the following supplies that may be needed:

- Classroom Bins
- Curbside/outside Bins
- Waste bags
- Signage (paper, markers, lamination)

District Resources

LAUSD

To begin a recycling program at your school, have your Principal reach out to OEHS and request services from the contracted waste hauler, including free bins, dumpsters, and assistance with all elements of setting up a successful waste reduction plan. wastemanagement@lausd-oehs.org
(213) 241-3199.

Other School Districts

To begin a recycling program at your school, have your Principal contact your Administration for policy and resources available.

What is the collection plan?

Create a collection schedule and procedures for a weekly and/or monthly collection.

- **Collection Schedule**

If your student recycling team members are responsible for the collection of recyclable materials, create a schedule including:

- Time and location of pickup
- Location of where the items will be stored and delivered or picked up

- **Collection Procedures**

Create procedures for how the recycled items will be collected, including:

- Bag replacement and area cleanup
- How items will be collected and transported
- Tracking progress for quantity of items recycled
- Determine if some of the recycled items must be delivered to an off-campus location, and if so, who will deliver them and when.

- **Collection Plan Ideas**

The following are ideas to consider when coming up with a collection plan:

- Transport classroom recyclables to bins or dumpsters at the same time after school each week.
- Ask teachers to leave their recycling bins outside of the classroom on designated days to be picked up after school. Bins can be returned to classrooms by janitors.
- Have an Eco-Club dedicate one meeting per month to recycling.
- Check with the Plant Manager to see if the campus maintenance crew can assist in the recycling plan. If yes, make sure all maintenance staff members understand the procedure for replacing bags, keeping the bins in the correct location, and transferring the recyclables to the right dumpster or storage area.
- Create a dedicated recycling team to collect recyclables and/or compost during lunch break every day. Recruit volunteers to assist weekly, and offer service or credit hours for volunteering.

How will the recycling program be promoted?

Determine how the program will be promoted to ensure everyone who is involved with using the bins will be informed of the changes and how to properly recycle, including which items to recycle:

- **Signs**

To keep contamination of recycling bins down and help serve as a reminder to the audience, use signage. When using signs, consider the following:

- Create a visual cue at each of the recycling bins to attract attention.
- Ensure they are easy to read in 2 seconds – large, clear, and limited in word count.
- Make them color coded (blue for recycling, green for compost, black for landfill).
- Utilize pictures of the items that go in the container along with text.
- If necessary, use multiple languages.
- Make them fun.

Promotion

Contact your Teacher Facilitator for help with setting up a cafeteria waste monitor system.

Plan to be part of a back-to-school assembly to share the recycling plan and guidelines each new school year.

• Other Media

A great way to remind your audience is by using more than just signs, consider:

- Morning announcements
- Awareness posters
- Classroom guest speakers
- Youtube videos
- Contests, relay races, recycling olympics
- Recycling station volunteer monitors in the cafeteria
- School newspaper
- Social media
- Assemblies

Who will help?

Sometime a project that seems overwhelming can be supported by outside partners to help. Consider the following:

- Local non-profits that facilitate educational assemblies.
- Local businesses that can sponsor signs, bins, or bags.
- Contests that will reward your school or club for exemplary waste reduction results.
- Grants for resources.
- Parents that can help with collection and more.
- Ask your Generation Earth Teacher Facilitator for guidance and other resources.

What is the sustainability plan?

To keep the program going next year and beyond, determine what can be put in place to ensure that others will continue to recycle? Consider:

- Talk with the Plant Manager or others in decision –making positions about how this can happen.
- Create a plan to ensure the future of the program when students leave the school, or if teachers, plant managers, or the principal leave the school.
- Write a toolkit with instructions for new students and staff, and create a recruitment plan for future students to continue the recycling team. Include ideas for program growth.
- Utilize strong multi-level partnerships with all stakeholders involved. Hold meetings throughout the planning process. Make sure all parties involved are excited to continue to support the program.



MAKE IT HAPPEN!

Once you have permission, it is time to make the project happen! Use the plan created and the following steps to get started.

Procedure

1. Using the Plan as a guide, work with the students to create a task list to accomplish the steps listed below.
2. Using the task list created, have students organize the tasks, grouping similar tasks together.
3. Work with students to put the tasks in order of when they need to be completed and using a calendar, create a timeline.
4. Have students assign themselves tasks to complete following the timeline.

STEPS

Gather Supplies

- Bins
- Promotional posters and signs
- Clear plastic garbage liners
- Gloves

Place Bins and Signs

- Place bins in strategic locations.
 - Use bin liners.
- Display the recycling signage.
 - Signs should be easy to see from 10 feet away, placed over the bin or close to the lid.

Materials

- Recycling Plan
- Calendar
- Paper
- Pencil/pen
- Other supplies depending on the plan

Cafeteria Recycling Station

- If in a cafeteria or eating area with a lot of traffic, create one or more main stations for sorting lunch waste. The easier it is for participants to sort and recycle their waste, the higher the participation rate.
 - Recruit a team of monitors to assist at the stations every day for at least 1 month.
 - Station should include a table for setting down trays while separating items and possibly stacking trays for reducing space needed in bags and dumpsters.
 - Provide a bucket for pouring leftover milk and beverages into before recycling the container.
 - Station should include a recycling bin with a liner and lid.
 - If composting, use a container small enough to carry because food is heavy!
 - If including a food donation program into your cafeteria waste station, provide a cooler or table for food collection.
 - Lastly, include a garbage can, and any other containers you might need for Alternative Recycling projects (See resources section).
- For composting you will need a container small enough to carry away for disposal because food is heavy!
- Display the recycling signage.
 - Signs should be easy to see from 10 feet away, and placed over the bin.
- Line the inside of the bins with the liners.



Sample cafeteria recycling station: liquids bucket, recycling, landfill, compost, and food donations.

Conduct an Awareness Campaign

- Spread the word and get everyone educated and on board!
- For the best results, promote the recycling program in the same week that the bins and signs are placed.
- Conduct classroom visits or an assembly sharing the program and the items to be recycled.
 - Create a game by challenging students to determine which items are trash and which are recyclable. Provide prizes.
- Conduct a poster contest.
 - Challenge students to create posters that teach which items are trash and which are recyclable, why recycling is important, and the importance of conserving resources.
 - Hang posters near the recycling bins and vending machines.
- Keep reinforcing the message for a few weeks at the beginning of the launch.
- Remember to redo the campaign at the beginning of each school year.

Follow Collection Schedule and Plan

- Make the collection process as easy as possible.
 - The easier it is, the greater the chances the project will be maintained.
 - Adjust the schedule /plan as necessary.
- Rinse out bins as necessary if odor occurs or residue is left.
 - Wash the bins lightly with water and eco-safe cleaner.
 - Place the bins outside to air dry with the lid open.

Track Progress

- Keep a log of your progress!
 - How many bags of recycling and compost were created?
 - How many fewer garbage dumpsters or bags were created?
 - If possible, track the weight (ask the Generation Earth Teacher Facilitator for help calculating the weight using number of bags or bins full).
- Create a chart to visually track your results.
 - Display the results where everyone on campus can see.
- Keep track of areas/bins that are not working.
 - Contaminated bins with trash or trash cans that have a lot of recyclables.
 - Make adjustments to location and/or signage and try again.

Reward and Recognize

- Organize a school-wide recycling contest to reward people for recycling, reducing waste, or helping to collect recyclables.
- Clearly promote the contest timeline, reward, rules, and reason.
- Ask local businesses for prize donations.
- Apply to compete in Battle of the Schools, Generation Earth's yearly waste reduction competition.
- Be proud of your work- submit a story about your project to the local newspaper. Submit your results weekly/monthly to Generation Earth and your school principal.
- Invite school district, city, or state public officials to attend a recognition ceremony.
- Tell the Generation Earth staff about your completed projects! Take pictures and tell us your project's story.



EVALUATION

Once students have their recycling program running, have them answer the following questions to evaluate their project and introduce some possible next steps.

QUESTIONS

1. What was the most successful part of the project?
2. What was the least successful?
3. What would you do differently next time?

What's Next?

Another Project Toolkit

Are you interested in another project toolkit? Consider:

- E-Waste Collection Event
- Composting
- Ink Cartridge Collection
- Food Rescue Projects

Battle of the Schools

Now that the school is recycling, consider competing in the Generation Earth Battle of the Schools competition.

- Talk to your Generation Earth Facilitator for more information.

RESOURCES

CALIFORNIA STATE RECYCLING ASSISTANCE

- CalRecycle <http://www.calrecycle.ca.gov>

GRANTS / FUNDING

- EPA: <http://www2.epa.gov/education/environmental-education-ee-grants>
- California Office of Environmental Education: <http://www.cde.ca.gov/pd/ca/sc/oeaintrod.asp>
- Roots and Shoots Mini Grant: <https://www.rootsandshoots.org/minigrant>

PARTNERS

- EPA <https://www.epa.gov/education>
- California Department of Education has the California Regional Environmental Education Community (CREEC) Network: <http://creec.org>
- Los Angeles Conservation Corps assists schools and teachers in implementing programs on their campuses <http://lacorps.org/> or at 213-725-6158

SIGNAGE

- <http://www.printablesigns.net/category/recycle>
- <http://www.recyclereminders.com/Recycling-Signs/Free-Recycling-Signs.aspx>.

Free Materials

LA Shares is a local non-profit materials reuse program that takes donations of goods and materials from local businesses and redistributes them free of charge to schools and non-profits. www.lashares.org

Environmental Information

www.cleanla.com

ALTERNATIVE RECYCLING PROJECT OPTIONS

- **Terracycle:** Collect normally unrecyclable packaging and other items such as markers, chips bags and granola bar wrappers to be recycled or upcycled into new products.
– Set up an account and follow the steps at <https://www.terracycle.com/en-US/>
- **Planet Green Ink Cartridge, Batteries and Portable E-waste Recycling:** planetgreenrecycle.com
– Raise funds by collecting and mailing in e-waste and used ink cartridges.
- **CFL Light Bulb Recycling Information:** http://dpw.lacounty.gov/epd/hhw/uwaste_disposal_CFLs.cfm
- **Trash for Teaching, Upcycling & Creative Reuse Projects:** <http://www.t4t.org/>
- **Re-Book It:** Used book donation through The Last Bookstore.
– Raises funds through the sale of each book for libraries, charities, hospitals and schools.
877-877-4080 <http://rebookit.org/about.html>
- **Other Materials Donation Listing:** <http://www.calrecycle.ca.gov/reuse/links/Art.htm>

REFERENCES

1. <https://www.dosomething.org/us/facts/11-facts-about-recycling>
2. <https://dpw.lacounty.gov/epd/swims/showdoc.aspx?id=6531&hp=yes&type=pdf>
3. <http://www.calrecycle.ca.gov/laws/legislation/calhist/1985to1989.htm>
4. <http://www.calrecycle.ca.gov/Recycle/Commercial/FAQ.htm>
5. <http://cua6.urban.csuohio.edu/~sanda/syl/envpol/materials/GREEN%20FACTS.pdf>
6. <http://energy.gov/eere/amo/forest-products-industry-profile>
7. <http://www.bc.edu/offices/sustainability/what-you-can-do/know-facts.html>
8. <http://clui.org/newsletter/spring-2009/examining-waste-stream>
9. <https://www.wm.com/location/california/ventura-county/west-hills/recycle/facts.jsp>
10. https://www.epa.gov/sites/production/files/2015-09/documents/changng_wste_stream.pdf
11. http://www.biologicaldiversity.org/campaigns/ocean_plastics/
12. <http://science.howstuffworks.com/science-vs-myth/everyday-myths/how-long-does-it-take-for-plastics-to-biodegrade.htm>
13. http://ladpw.org/epd/ea/usedoil/oil_whyrecycle.cfm
14. <http://www.calrecycle.ca.gov/usedoil/info/>
15. <http://www.global-warming-forecasts.com/methane-carbon-dioxide.php>
16. <http://dpw.lacounty.gov/epd/illdump/penalty.cfm>
17. <http://www.earth911.com/inspire/programs-initiatives/carton-recycling-access-reaches-50-across-u-s/>

