WATER PLANET CHALLENGE

Rethinking Waste

A Service-Learning Guide

Written by Cathryn Berger Kaye, M.A.

In partnership with
INTERNATIONAL BACCALAUREATE

Accumulated waste is a mounting global problem.

A Resource of EarthEcho Expeditions

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Published by EarthEcho International

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Page 4 Service + Learning = Service-Learning and page 24 Stage 5 adapted from *A Kids' Guide to Climate Change & Global Warming: How to Take Action!* by Cathryn Berger Kaye, M.A., © 2009. Used with permission of Free Spirit Publishing Inc., Minneapolis, MN: 800-735-7323; www.freespirit.com. All rights reserved.

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Special thanks to:

- **Sara Hartwell** of the United States Environmental Protection Agency's Office of Resource Conservation and Recovery for her review of this Action Guide.
- **Nate Ivy** at the Alameda County Office of Education for providing examples from the Service-Learning Waste Reduction Project. For more waste-busting ideas, visit http://schools.stopwaste.org.
- **Maggie Chumbley** and **Manuel Maqueda** of Plastic Pollution Coalition for the Colegio Bolivar story.

For information about this publication please contact:
EarthEcho International
2101 L Street NW
Washington, DC 20037
202.350.3190

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About This Action Guide

This Water Planet Challenge ***Rethinking Waste*** Action Guide offers an opportunity to engage students in a service-learning process. Participating in service-learning is an ideal way for youth to increase both knowledge and skills transferrable to many learning situations. As you review the document, consider that the youth involved—whether through a classroom, an afterschool program, or a youth-serving organization—will be integrating many academic standards as they investigate the waste issues in their everyday lives, in their school and community, and with a global perspective. Based on their findings and further information gathered during investigation, the first stage of service-learning, they will develop a plan to recommend reasonable changes in their families, schools, and community and then move to taking action. Throughout this process, be sure to engage the students in reflection, as this solidifies their learning and establishes personal and affective connections to what they are discovering. The section on demonstration allows students to consider all of the service-learning stages they have experienced and develop ways to tell their stories. Be certain to review What's Next on page 25, for ideas of where to go from here.

Also central to this publication are additional websites—including www.WaterPlanetChallenge.org—and other EarthEcho Expeditions-related resources that add layers of knowledge to what is provided. These are all options for further exploration during or following the implementation of this Action Guide.

This Action Guide centers on the complex issues of waste management, its impact on water, and ways youth can participate in service-learning resulting in community benefits. Be certain to examine the wide range of ideas and topics surrounding this topic. Extensive research continually adds to the body of knowledge. New ideas are being implemented in many communities. Draw upon your local and national community organizations, government agencies, and businesses to expand your resources. References are noted for this publication and additional resources can be found on page 45. Additional Water Planet Action Guides may be found on www.WaterPlanetChallenge.org.

If you are an educator or adult coordinator: As you are planning, consider that the time it takes to implement this Action Guide will vary. Allowing for this to be a part of your lessons over one to three weeks may be reasonable. If done as part of an afterschool program, this framework can extend from two to four weeks. In a summer intensive, one to two weeks can be spent on this unit with additional ideas to extend further.

If you are a student or youth participant: This Action Guide invites you to think about how your everyday actions impact the world around you. By looking closely at how your actions with waste affect water and other aspects of your life, you are developing essential 21st century skills and knowledge. This topic is one that is ongoing through all societies and has much room for innovation and development.

Keep in mind this is the beginning: This Action Guide centers on rethinking waste and related issues that you can study at school and have an immediate impact on at home, in school, and as you extend these ideas into the larger community. Join in. Share your ideas and talents. Take familiar and new topics and look at them in different ways and with an open mind. Discover fresh watery ideas. Our water planet will be grateful.

take the challenge!

Portions of this Action Guide are excerpted or adapted from *Going Blue: A Teen Guide to Saving Our Oceans, Lakes, Rivers, & Wetlands* by Cathryn Berger Kaye with Philippe Cousteau and EarthEcho International (Free Spirit Publishing, 2010). This award-winning book is filled with additional information that opens our eyes to many water-related topics.

ARE YOU UP TO THE CHALLENGE?
A message from Philippe Cousteau
Co-Founder of Earth Echo International

Every day we throw something *away*. A half-eaten apple, an empty plastic water bottle, a candy wrapper, you name it. Other times we discard notebook paper, a broken pen, several batteries. What happens to this waste? Where is away? Can you guess how much trash and garbage we discard on an average day? (Find the answer on page 6.) And why is waste an important part of the Water Planet Challenge?

What we discard as waste has plenty to do with water and other natural resources. Accumulated waste is a mounting global problem. As human population numbers climb, more people generate trash and garbage. This accumulation has significant impact on our interrelated systems of land, air, and water.

Unfortunately oceans also battle trash, tons of trash. We know trash left as litter makes a mess. Litter can be carried by wind or rain into street drains and then travel through pipes that empty into creeks, lakes, and rivers—direct pipelines flowing into our oceans. In some communities, waste is dumped into natural waterways on purpose, impacting marine life, damaging coastal areas, and much more.

How do we know waste is a problem? Since the 1950s, a concentration of marine debris (mostly plastic) has been gathering in the central Pacific Ocean. Known as The Great Pacific Garbage Patch, this mess has grown to more than twice the size of Texas. Massive waste piles that no one is cleaning up can be found in every ocean today. Even though much of this hunk of junk is just under the surface and not always visible, our marine life is tragically affected.

Even when waste is carefully placed in school trash cans or kitchen garbage compactors, we can be adding to the existing problem facing our planet's water and overall health. The majority of waste today ends up in *landfills*, often ginormous receptacles that have become dumping grounds around the globe. The non-organic matter takes up space and, particularly where safety regulations are lacking, may cause toxins to enter groundwater. Land lls can over ow and create *blow off*, where trash is blown out of the bounds of land lls and ends up in water systems as litter. Additionally, the movement of our waste requires energy and water as we transport huge quantities to distant places, sometimes even faraway countries. Sometimes we burn or *incinerate* waste. With minimal regulations, incineration can result in toxic particles causing air pollution which then also enters water. In reality, though we say, "I am throwing this away," there is no such place. What we discard always goes somewhere.

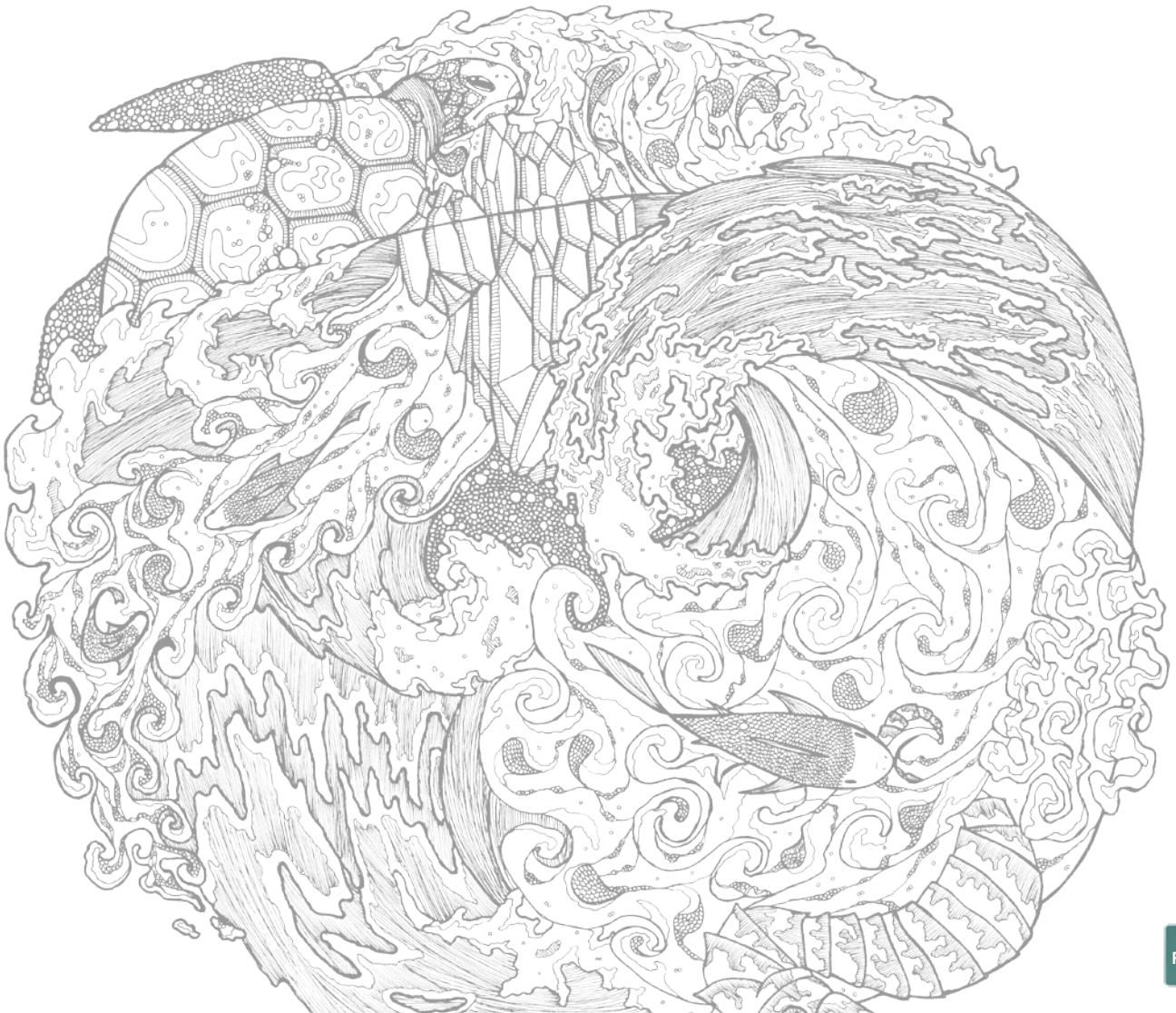
You probably have heard people say *you can make a difference.* The truth is you already make a difference. With every apple core you toss, depending if it ends up in a landfill or compost, you make a difference. Every single action has consequences. What do you want the results of actions you take every single day to be? How can you make a positive difference?

I am sure you have heard *reduce, reuse, recycle* when it comes to items we toss.

This Water Planet Challenge is adding another element, perhaps the most important for our future: ***rethink***. This is already happening. Kids, teens, and adults are coming up with innovative ideas and approaches to this age old problem. New strategies are found on every continent. In this guide you will meet some "rethinkers."

So why get involved and why now? Simple reality—your help is needed. Being part of team Water Planet is in your best interest to preserve our home for generations to come. And the biggest reason is this: because you can. You have the ability to make a world of difference.

And we want you to think BIG. To assist you, EarthEcho International has partnered with the International Baccalaureate Programme for this Action Guide to provide this resource in multiple languages for greater participation. We look to youth to provide new ideas for returning more and more waste to our natural systems of reuse that do not deplete our precious resources. Think of ways you can help trash stay gone, permanently. You might even cut down on how much stuff you use in the first place. Now that you have gotten involved in the Water Planet Challenge, stay involved. Being part of making our world a better, safer, healthier planet for everyone is the ultimate challenge.



Service + Learning = Service-Learning

Service: Service means contributing or helping to benefit others and the common good.

Learning: Learning means gaining understanding of a subject of skill through study, experience, or an exchange of ideas.

Service-Learning: The ideas of service and learning combine to create service-learning. Investigation, preparation, action, reflection, and demonstration are the five stages of service-learning. By understanding how each stage works, you can be more effective in making plans to help in your community.

The Five Stages of Service-Learning

Stage 1: Find Out → Investigate: Begin the service-learning process by asking, "What resources do we have in our group? What are our skills and talents?" Then investigate in your community to find out how to assist with trash and garbage to reduce waste in our water systems and in landfills. Find a local problem you can help solve, and in the process, rethink how we manage waste.

TRASH IS NEWS!

The issue of waste management is a hot topic in every community. Turn your service-learning experience into a news story. Using video, photos, writing, or any combination of these, produce and submit a story to your school newspaper and to local media. Many media outlets welcome youth developed stories. Citizen Journalism is growing! Inform others, share resources, or make front page news of youth as effective change agents.

Stage 2: Dive In → Prepare: What do you need to know to be well informed about waste? Finding out can involve other people and organizations, reading newspapers or watching a video, and brainstorming ideas. All this planning leads to . . .

Stage 3: Get Going → Act: Set your plan in motion! Remember that action is the total of many small parts of a well-designed plan. The action can be direct (joining a TerraCycle Brigade to significantly reduce waste at school—more on page 19), indirect (setting up trash containers so others will dispose of their trash properly), advocacy (making radio ads to promote recycling), or research (gathering data about trash accumulation for your city council).

Stage 4: Think Back → Reflect: During ALL the stages it's important to pause and consider: How is this going? What am I learning? Anything need to be changed? Checking in through reflection keeps us on track as we connect our thoughts, feelings, and actions.

Stage 5: Tell it → Demonstrate: Tell the story of what happened! Report the data! Show the photos! Be bold and loud and let others know what youth can do as contributors. Remember to document every stage of service-learning beginning with investigate so you will have all you need to tell your story completely.

Stage 1: Find Out —>INVESTIGATE

What is there to know about waste? How can you find out? What if the aim was to significantly reduce what ends up as waste altogether? Whether you are aiming for short-term activity or a long-term solution, authenticating the need is the place to start. What is the need in your own backyard? How will you find out? That's investigation. Participate in *Action Research* using four methods: media, interview, survey, and observation and experience. Use the document *Gathering Information About a Community Need* in the Rethinking Waste Resources section on page 27.

Media: What websites have local information about waste and your waterways? What newspapers cover local environmental issues? Any blogs about waste issues? Find out about TerraCycle at www.TerraCycle.com.

Interview: What organization is responsible for waste management in your community? Is large- (or small-) scale composting going on? Who could you interview to find out more? Have you heard about someone in a distant place or youth involved at another school? Technology can be helpful for long-distance interviews.

Survey: A community survey can help you quickly find out what concerns your community and how members may be willing to help. Who is already recycling? Who wants to reduce? A few basic questions and you are ready to start.

Observation: Take a waste audit, in fact, take three. Using the *ReThinking Waste Audit Part 1: What I Waste* on page 29, log in every item you toss during a 24-hour period. Then do a home audit with assistance from family members using the *ReThinking Waste Audit Part 2: My Household* on page 32. With the *ReThinking Waste Audit, Part 3: At School** on pages 33–36, divide into groups and determine who will assess what is discarded by a few sample classrooms, the cafeteria, administration offices, or other key areas. Review the documents for ways to quantify and categorize what you find. We will be returning to these audits and using them when we get to Stage 3: Action, starting on page 19.

Investigating your Skills and Talents!

As you begin to learn more about the community issue, also find out the skills and talents of all the members of your group. Take a Personal Inventory by interviewing each other about your interests, skills, and talents. Make a list. Does someone like to write? Great for putting together a press release. Any photographers? Needed for documentation. Any shoppers? Excellent for getting the best prices on materials. Find a *Personal Inventory* document in the Rethinking Waste Resources section on page 27.

**For any school audit, be certain to obtain permission and assistance where needed. Seek guidance to be certain that you avoid contact with any potentially hazardous materials.*

We already know waste is an issue everywhere. We know this issue impacts our oceans and waterways. Investigating the issue helps you understand the topic from many angles, reveals the exact action needed in your area, and guides you in creating your plan.

Consider the information you learned. What is a pressing need you can address? As you continue to learn more in the next section, Prepare, your ideas will develop. Examples of what youth are already doing can be found in the Get Going –> ACT section of this Action Guide on page 19.

A Pause for Reflection – Discuss in pairs or small groups:

- Your favorite part of investigation.
- A new fact or idea that you think is important.
- A skill or ability you have that will be helpful as you move forward in preparing and taking action.

A World of Waste

TRASH TALK

What's the difference between waste, trash, and garbage? While these terms are often seen as synonyms for the same material, consider these distinctions for the purpose of this Action Guide.

Waste is unwanted materials that have no basic or further use to the consumer.

Garbage is rapidly decomposing waste, such as food and paper; many kitchens have a "garbage disposal."

Trash is solid waste that does not easily decompose; a "trash compactor" reduces the *size* of trash, not the *composition.*

Litter is the improper disposal of any waste.

Can you imagine a world without waste? Envision a time before manufacturing when we only used what we could find around us. Whatever waste we made returned to nature, reentering our natural systems. As industry, transportation, technology, and consumerism developed, availability of goods has increased to the point that we can acquire a range of merchandise and foods from around the world. What we purchase comes wrapped and protected with paper and plastic—yet more waste. Is it any wonder that volumes of trash and garbage have resulted?

How much waste do we generate? In 2010, Americans generated about 250 million tons/227 million tonnes of trash and recycled and composted over 85 million tons/77 million tonnes of this material; that's about a 34.1 percent recycling rate. This means in America our average individual waste generation is about 4.43 pounds/2.01 kilograms per person per day, and 2.92 pounds/1.32 kilograms of that amount is not recycled or composted.[1]

Are we wasteful as a globe? This topic is so important that in 2012 the World Bank completed a study entitled What a Waste: A Global Review of Solid Waste Management. They found that municipal solid waste (MSW) is an increasing by-product of an urban lifestyle. According to the study, ten years ago there were 2.9 billion urban residents worldwide who generated about 0.64 kg/1.41 pounds of MSW per person per day (0.68 billion tonnes/0.75 billion tons per year). Today these amounts have increased to about 3 billion urban residents generating 1.2 kg/2.65 pounds per person per day (1.3 billion tonnes/1.43 billion tons per year). By 2025, this will likely increase to 4.3 billion urban residents generating 1.42 kg/3.13 pounds per capita per day of municipal solid waste (2.2 billion tonnes/2.4 billion tons per year).[2]

Is there a connection between waste and water? Only 1 percent of Earth's water is fit for consumption by all living creatures, including plants and animals. Preserving our waters is essential for life. When any of our waterways, including groundwater, face pollution or tainting from any source—including waste—this deserves our attention. Knowing that our streams, lakes, wetlands, and rivers all flow into our oceans offers the reminder that this swirling orb we call home is an interconnected system. As populations continue to increase across the globe, mounting waste creates mounting impact. What exactly are these impacts? What are the current options for reducing the amount of waste we generate and managing waste to reduce the impact? How is rethinking waste crucial to the future of our healthy water planet?

Waste in the World

What's the municipal solid waste (MSW) story where you are in the world? Using the United Nations website, UN Data: A World of Information, you can easily access a "snapshot," figures regarding how much waste is collected in many countries. For example, in Brazil, in 2008, 87% of the country had municipal waste collection; in 2007, 51,432,000 tonnes/56,694,075 tons of waste was collected. To find out about your country, go to http://unstats.un.org/unsd/environment/Questionnaires/country_snapshots.htm

WHY IS TRASH A PROBLEM FOR OUR WATERS?

People once thought the oceans were an excellent place to dispose of waste without consideration to the harm this might cause. Waste was transported offshore and dumped (aptly called *offshore dumping*) until legislation established restrictions that now protect our oceans from this intentional dumping. Still, our waste management methods can impact our oceans in specific ways:

- **Solid waste *blow off*** occurs when excess waste from landfills or transports fall off or are *blown off* and enter our interconnected water or drainage systems, eventually ending up in the oceans.
- **Surface and groundwater runoff and leaching** from unregulated waste disposal sites cause contamination of local waters.
- **Hauling large volumes of trash** to disposal sites creates CO2, a cause of ocean acidification.
- **Significant greenhouse gas emissions**, notably methane—a significant contributor to the bigger climate change picture facing our planet—are byproducts of some waste treatment and disposal.
- **Waste accumulation in our oceans** has been growing since the 1950s, resulting in trash gyres such as the Pacific Garbage Patch. These sprawls show evidence of the improper disposal of waste worldwide; since these are in international waters, no country is willing to take on the massive cleanup necessary.

TRASH ON THE MOVE

How much trash is moved from one place to another for disposal? Every day, New York City alone sends 10,500 tons/9,100 tonnes of residential waste to landfills in places like Ohio and South Carolina. Find out: Does your trash stay local or is it on the move? What additional environmental impact does this have to our air and our waters? [3]

Yet we seem to have more and more waste all the time. Stuff, and the packaging stuff comes in (more stuff), is all around us. And a lot of that stuff is designed to ultimately be thrown away. But just because it was intended for disposal, do we really have to waste it?

CAN WE SIMPLY WASTE LESS?

"Stuff" as we know it can have a lifespan beyond our initial use. Consider that each item is a composite of multiple parts, or *raw materials*, assembled to create an item that meets a need. Some items can be used again and again, like a sweater handed down to younger siblings. Other items can be deconstructed with parts of the item used in other ways; this extends the *life cycle* of the discreet parts while minimizing manufacturing or mining of natural resources to make more parts, which always requires energy and water.

Are you using Life Cycle Thinking when it comes to WASTE? Now is the time! According to the European Council Joint Research Centre Institute for Environment and Sustainability, "Life Cycle Thinking (LCT) and Assessment (LCA) seek to identify possible improvements to goods and services in the form of lower environmental footprints and reduced use of resources across all life cycle stages. This begins with raw material extraction and conversion, then manufacture and distribution, through to use and/or consumption. It ends with re-use, recycling of materials, energy recovery, and ultimate disposal. All impacts are taken into account, irrespective of where they occur."[4] Our green future depends upon this sort of innovative thinking, or *rethinking*, so the waste we create is managed with the highest level of efficiency and environmental consideration.

DOES RECYCLING HELP? LET ME COUNT THE WAYS!

Recycling has become a more commonplace term and practice across the globe; according to the U.S. Environmental Protection Agency, this has multiple benefits. Do these pluses apply where you are?

- **More jobs leading to economic development**
- **More energy security**
- **Less greenhouse gas emissions**
- **Refuse diverted from landfills**
- **More natural resources for future generations**

Consider that recycling aluminum cans saves 95 percent of the energy required to make the same amount of aluminum from virgin sources. For each can recycled, this is enough energy to run a television or computer for three hours. Recycling one ton/0.91 tonnes of paper saves the equivalent of 17 trees and 7,000 gallons/26,497 liters of water. Learn more at www.epa.gov/osw/conserve/tools/localgov/benefits/

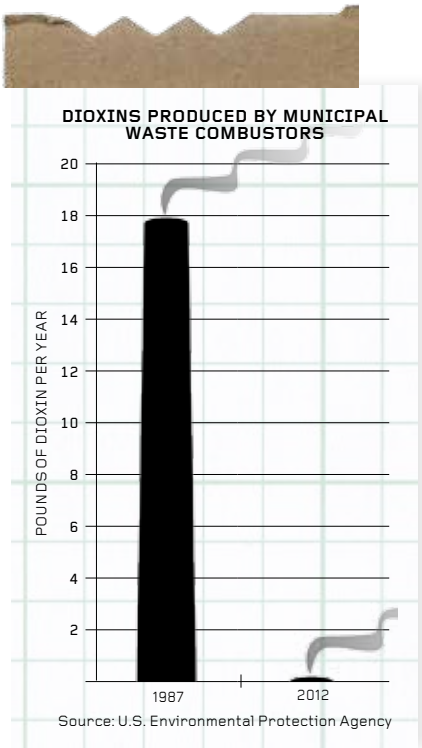
As you read this guide, discover more about ***reuse, recycling,*** and ***upcycling*** and how you can participate. And consider ***source reduction***—having *less stuff*: having *less* stuff may be sufficient, and having *more* can create excessive waste. While reading about additional critical waste-related issues, consider how each continues, in a variety of ways, to impact our waters both directly and indirectly.

WHAT ADDITIONAL CRITICAL ISSUES SURROUND THIS WASTEFUL TOPIC?

Most of our waste is disposed of through two methods: burn or bury. Burning is done through *incineration*; burying is done in *landfills*. In fact, more than two thirds of all waste ends up in landfills or incinerators. Each has benefits; each has problems. Our waste management systems are constantly being improved and overhauled. Governments and private sector industries continually look for ways to enhance methods that protect both people and the environment, including the impact to our water systems. Still, issues remain. What are they?

INCINERATION LEFTOVERS

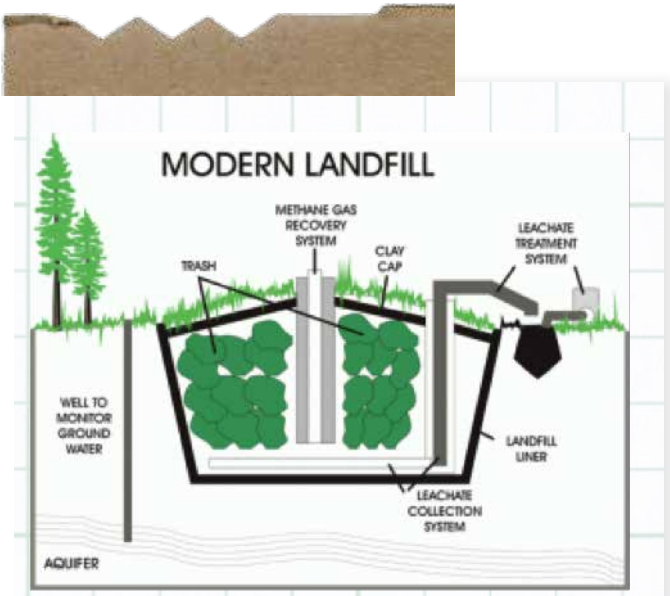
Trash that is incinerated or burned creates a solid residue called *bottom ash*, similar to the ash you find in a domestic fireplace. The amount of ash is typically between 25-30 percent by weight of the original waste, and 10 percent by volume. Ash from incinerators, or municipal waste combustors, still requires disposal and may end up in landfills. The burning of waste may add carbon dioxide to the atmosphere (which contributes to ocean acidification) and may release toxins, such as dioxins; some of these toxins are created by the incineration process, pollute the atmosphere, and are transported by water and ocean currents. Some people think combustion that turns waste-to-energy (WTE) makes more sense than burying waste. Progress is being made. Modern WTE facilities produce far less dioxin and other pollutants than their predecessors. For example "... municipal waste combustors are estimated to have emitted collectively nearly 18 pounds/8.16 kilograms of dioxin toxic equivalents in 1987, but under EPA regulations they are now expected to emit less than 1/2 ounce/14 grams per year."[5] Read on for more about WTE.



Waste-to-Energy: In European countries, including Denmark, Germany, and the Netherlands, newly engineered incineration plants are converting local trash into heat and electricity. These plants have dozens of filters to catch pollutants, from mercury to dioxin, which would have been released into the atmosphere just ten years ago. According to a *New York Times* article, the plants have, "Not only reduced the country's energy costs and reliance on oil and gas, but also benefited the environment, diminishing the use of landfills and cutting carbon dioxide emissions. The plants run so cleanly that many times more dioxin is now released from home fireplaces and backyard barbecues than from incineration."[3] According to the United States Environmental Protection Agency (EPA), as energy production goes, WTE produces fewer greenhouse gases than other energy sources: Per unit of electricity produced, the MSW combustion facilities generate less GHGs than coal or oil, but slightly more GHGs per unit energy than natural gas.[5]

BURYING WASTE

Perhaps once upon a time people thought if waste was out of sight it was gone, a "bury it" approach. With this mindset, we extract raw materials, invest energy and water in processing and production, then bury these same products in a hole in the ground (now called landfills), the very definition of waste. What if instead we alter our mindset and look toward extending the life cycle of the raw materials (you are getting close to learning more about this, see An Interview with Tom Szaky on page 17), or aim for energy recovery? And what about the land used for landfills? With global populations growing, land is at a premium. Relegating property that could be used for residences, commerce or agriculture to landfills or trash heaps can compromise industry and minimize opportunities. Will an increase in off shore landfills be in our future?



The bottom of a typical landfill is lined with high density polyethylene (HDPE) plastic to protect the surrounding environment. Photo: eia.doe.gov

An Offshore Landfill: In 1999, the small island nation of Singapore created the world's first offshore landfill. This environmentally friendly waste disposal plant run by Singapore's National Environment Agency is expected to be in operation beyond 2045. Made of two small islands and sea space, the Semakau landfill accumulates incinerator ash and non-incinerator waste that is creating an ecological island made almost entirely of waste. Innovative engineering keeps the surrounding water pollution free. Now the new growing island has thriving ecosystems made of sea grass meadows, coral reefs, and sandy shores; the mangroves serve as a habitat for a variety of birds, fish, and plants. Since July 2005, the Semakau landfill has been a public recreation space enjoyed by naturalists for its rich biodiversity.[6] Could the idea of offshore landfills be a promising solution for waste? What impact might this have for our waterways? Is the offshore landfill solution applicable only to land-scarce cities or in any city with expanding urbanization?

The Reality of Dumps

They still exist: places where trash and garbage are *dumped* on top of land often with little or no regulation. The largest dump in the world currently is outside Rio de Janeiro, Brazil. There, self-designated pickers, *catadores*, search for recyclable material to sell. For more information view the documentary *Waste Land* or visit www.wastelandmovie.com.

HEALTH FACTORS

Before the mid 1980s, landfills in the United States were suspected of contaminating groundwater used for drinking or creating gases that may have comprised public health. Common contaminants found in groundwater near these landfills are *chlorinated solvents*. Some of these solvents, such as tetrachlorethylene, trichloroethylene, and vinyl chloride, can pose a cancer risk at high exposure levels.[7] Since the mid 1980s, U.S. government regulations have aimed to prevent environmental contamination of surface water, groundwater, soil, and air. Still, across the globe, not all landfills are created equally. In Bangalore, India, for example, increasing populations and technological success is threatening the community well-being. By *not* following scientific landfill practices, groundwater contamination is occurring and 300 lakes have been impacted. With the last local landfill about to close, where will the 4,000/3,628 tonnes tons of garbage generated daily go?[8]

NIMBY: Not-In-My-Backyard: With the concern for health impact, the location of waste treatment and disposal facilities also has a cost. The idea of NIMBY, *not-in-my-backyard*, represents the movement to prevent plants near residences and schools, for safety and for property values. Still the waste exists, and one response has been for more developed countries to ship waste to less-developed countries adding to their societal challenges. In

many parts of the world, a sector of the population are waste pickers who scavenge through dumps for any materials such as metals, glass, or plastic to sell or trade for profit. While this sector can reduce waste in a system, the negative effects of disease, poverty, and abuse of workers is a hefty cost to pay.

MOUNTING COSTS

Who pays for waste management? We do. Municipal governments draw upon public dollars to pay for all that is required to collect or process the cans, boxes, and plastic bags we readily toss "away." Some local governments do not provide trash and recycling services, and residents are required to contract separately through independent companies. By reducing the quantity of waste, we save money. How can this be achieved? Reduced consumption, reuse, recycling, public awareness campaigns, and even *pay as you throw* initiatives that aim to get people to pay attention to this mounting concern.

Pay-As-You-Throw: In the United States, residents in most cities pay for waste collection through property taxes or a fixed rate, regardless of how much trash they toss. With pay-as-you-throw programs, residents who toss less, pay less. This creates an economic incentive to recycle and compost more and reduce waste.

WHAT DOES ALL THIS WASTE ADD UP TO?

If we think all this waste will just vanish when we throw it "away," take another look. By now you can see that trash is anything but gone. So what do we do now? **Rethink!**

BEFORE YOU TRASH, READ THIS: AN INTERVIEW WITH TOM SZAKY, FOUNDER AND CEO OF TERRACYCLE

What can be done with items used and ready to be discarded? You have heard the phrase "reduce, reuse, recycle." Perhaps we need to revise this phrase to be: reduce, reuse, recycle, **rethink**. Since 2003, TerraCycle has been offering unique innovations for waste reduction as the creators of the world's first products made entirely from and packaged entirely in waste. **Tom Szaky** is also the author of the book *Revolution in a Bottle: How TerraCycle Is Redefining Green Business*.

WHAT WAS THE IMPETUS FOR BEGINNING TERRACYCLE?

At the time, I was thinking about garbage differently and wondering, "If garbage does not exist in nature, why is it in the human system?" This led to me create a business that brings a solution to the concept of waste.

WHAT MAKES TERRACYCLE UNIQUE?

We focus on recycling things that are traditionally unrecyclable—not traditional items such as bottles or paper. We recycle chewing gum, cigarette butts, chip bags, even dirty diapers! In 2013 we are launching a collection of chewing gum products in Brazil, made from both chewing gum packaging and *used* chewing gum. Used chewing gum—which is made from a majority of rubber polymers—can be melted into a plastic.

In the United States, we collect 43 unique categories of waste that include pens, chip bags, and flip-flops. All items we collect were never previously recycled on a large scale—we identified the first use or solution in the world for these items. We have a team of scientists and designers. Our scientists create recycling-based solutions for the trash. The designers look at how to upcycle and directly reuse the collected material. The items we work with are not municipally recyclable; all items traditionally considered non-recyclable.

WHAT IS *UPCYCLING*, AND HOW IS *UPCYCLING* DIFFERENT FROM *RECYCLING*?

At TerraCycle, we believe that used objects have three values: **material, form,** and **intention**. I will explain using a takeaway coffee cup.

1. The *material* or the *composition* is the paper and plastic.
2. The *form* or *features* are its shape and colors, like the shape of a coffee cup.
3. The *intention* is what you want to use it for, to hold your coffee.

Considering the value of the material, form, and intention, you have five possible solutions.

SOLUTION #1: LANDFILL IT. With a landfill, you don't value any of the three aspects of waste. This is the worst solution.

SOLUTION #2: BURN. Only the caloric or energy value of the material is used when you burn waste. Plastic has okay energy value. Food waste has none. After landfills, this is the second worst solution.

Both of these solutions—landfill and incineration—are *linear solutions*, they move in one direction only. We can, however, move waste from these two linear solutions to three circular solutions that you may process more than once.

SOLUTION #3: RECYCLING. You don't value the form or intention with recycling, you only value the material or composition. You destroy the shape and make something else from the form. This is 96% of what we do at TerraCycle.

SOLUTION #4: UPCYCLING. Three percent of what we do at TerraCycle is *upcycling*. With upcycling, we value two of three aspects of waste: the form and material. Then we purposely do not value the intention. For example, when juice pouches become pencil cases we have a great solution; it just doesn't value the original intention of the item.

SOLUTION #5: REUSE! I give you my shoes, you wear them. You value all three components: material, form and intention. You are using my shoes for the original purpose. This is the best solution. Another good example is using yogurt cups—originally designed to hold a product—to make seed starters by filling them with worm compost.

TerraCycle aims to move people from the linear solutions of landfill use and incineration to circular solutions of reuse, then upcycling, then recycling.

WHAT NEW PRODUCTS HAVE RESULTED FROM THIS WORK?

We have backpacks and lawn chairs made of used juice pouches. Chip bags become plastic bins. Now we are re-purposing cigarette butts, the most littered item in the world. In America, 38% of all litter is cigarette butts. Through our new initiative launching in France and Germany, we collect used cigarettes and sterilize them with radiation. Next we shred and separate the organic matter (ash, tobacco, paper) from the inorganic (filter, packaging). The organic is composted and the inorganic is melted into a plastic to become another product.

HOW IS THE WASTE BROUGHT TO MARKET?

We collect the waste and convert it into raw materials, which are then sold to companies that use the waste in their products. Those companies then sell the products into retail. For example, Olivet makes coolers that use TerraCycle Chip Bag plastic and YakPak makes bags from billboards we collect. These new items are bought by consumers and used.

When these same items become waste you can put them back into the same collection program that spawned them. So this cycle keeps going around in a circle as long as people choose to participate. This is the real difference between the *linear* waste solutions with a one-way ticket to a landfill or incinerator.

DOES PURCHASING TERRACYCLE OR OTHER REMADE ITEMS MAKE A DIFFERENCE?

By supporting these remade items, what are we saying as consumers? The vote we cast every day for the products we buy is perhaps the most important vote we have as citizens. We do this again and again, over and over, every day; we vote with our money. So by collecting waste through TerraCycle, or buying products made from waste by TerraCycle, you are voting for what we represent: a world without waste.

CAN THE IDEA THAT "I CAN RECYCLE IT" BE AN EXCUSE FOR OVERCONSUMPTION?

I completely disagree with this idea. Recycling is a solution, not an answer. The real answer is *don't buy stuff*. Recycling is in no way an excuse. It would be like someone smoking a cigarette. Providing a solution for what to do with the cigarette butt and packaging, the resulting waste, doesn't justify smoking. But if a person is smoking or using chip bags or other items that would be part of the waste stream, let's at least do something useful with the waste.

WHAT ABOUT REUSE DO WE NEED TO UNDERSTAND?

Most important to understand is this: what is out there in the world is a reflection of what we buy. When we purchase something, we are voting for more of these things to exist. We all like to buy; we feel good making purchases and it's hard to stop buying. I buy things. However there is a macro truth in this idea of buying less and less. If this seems extreme, consider this approach: Instead of buying *cheap disposable*, buy *expensive durable*. With a cheap disposable pen, you use up the ink and toss it in the trash (trash usually = landfill). Now, instead of the cheap disposable pen, you buy a more expensive pen. When the ink runs out, you fill it up with ink and reuse the same pen *again and again*. Durable facilitates reuse. This offers the potential of a better feeling throughout the use of that product. Durable lasts a long time, doesn't really become waste, and stays in the reuse cycle.

WHERE ARE WE HEADED WITH WASTE AND GARBAGE IN FIVE YEARS? IN TEN YEARS?

Where we are going is not a good place. We have increasing populations. Per capita, we have more and more garbage. Our options?

1. More companies like TerraCycle will emerge and more will grow. The companies will solve more and more of our waste concerns. However, we—these companies—are not the answer.

2. Hopefully people will buy differently, buy less, and buy more durable/reusable products.

3. We are going to see resource constraint as our planetary natural resources continue to decrease. These resources will become more expensive and less available. As we run out of oil and plastic becomes ten times more expensive than before, we all, as consumers, will be forced to change our trajectory.

Since we seem to be unable to conserve on our own, I cheer for the day of option 3, fewer resources. I believe this change in behavior by necessity will be best for the planet in the long run.

WHAT ROLE HAVE YOUTH PLAYED SO FAR WITH TERRACYCLE?

TerraCycle offers free programs in 22 countries to collect various items. The vast majority of our 35 million collectors are kids—about 30 million—and not because we target them; they

seem to be willing and eager participants. This is all good news; kids are our future. They will be on the planet much longer. What they learn through participation in TerraCycle provides essential information for choices they will make now and for years to come, and along the way they can influence their parents.

TERRACYCLE IS A FOR-PROFIT COMPANY. WHAT IS THE ROLE OF FOR-PROFIT COMPANIES IN ENVIRONMENTAL SUSTAINABILITY?

We are a for-profit company, a social enterprise. We want to demonstrate how you can create a good social business in the for-profit sector, which lets us grow faster. I do believe there is plenty of room in the for-profit world for doing social good. This can and hopefully will inspire other such ventures.

WHAT IS YOUR MEASURE OF SUCCESS?

Our measure of success is how much waste we collect and recycle, how many people participate, how much money we donate to non-profits, and how much waste we keep out of the current waste stream.

HOW DO WE GET INVOLVED NOW?

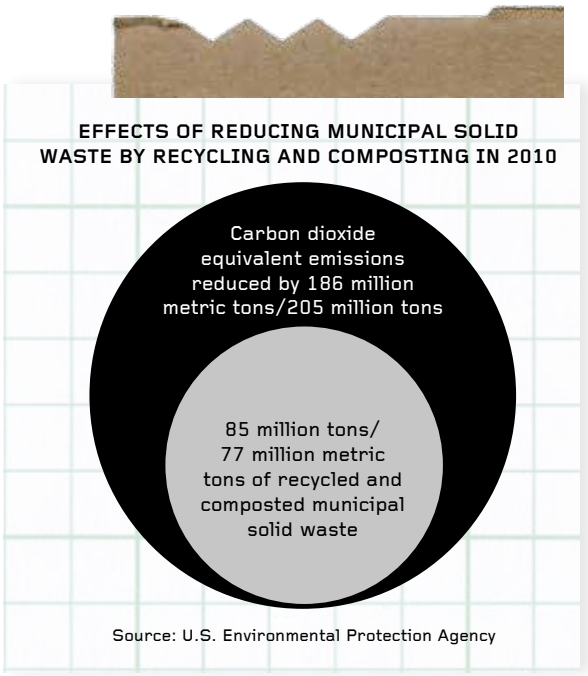
Go to www.TerraCycle.com, choose a type of garbage to collect, and then join what we call a Brigade. The information for how to collect and send items to TerraCycle is easy to follow. Also, be sure to see all the countries where we are located. Consider getting involved as an intern in an office. We welcome youth involvement! And of course you can begin by simply thinking about garbage differently and working in whatever country you call home.

BEING LESS WASTEFUL: IDEAS AND POSSIBILITIES

Check out these ideas, strategies, and out-of-the-box initiatives to spark your own thinking about waste.

DO WHAT WE KNOW WORKS: KEEP RECYCLING

You know the drill now: use less, reuse, upcycle, and then **recycle**. In 2010, in the U.S., according to the Environmental Protection Agency (EPA), combined efforts added up to the recycling and composting of over 85 million tons/77 million tonnes of municipal solid waste (MSW). This provided an annual benefit of more than 186 million metric tons/205 million tons of carbon dioxide equivalent emissions reduced, comparable to removing the emissions from over 36 million passenger vehicles. The ultimate benefits from recycling are cleaner land, air, and water, overall better health, and a more sustainable economy. Recycling and composting more than 85 million tons of MSW saved more than 1.3 quadrillion BTU of energy, the equivalent of over 229 million barrels of oil. Recycling just one ton of aluminum cans conserves more than 207 million BTU, the equivalent of 36 barrels of oil, or 1,665 gallons/6302 liters of gasoline.[1] Can we do better? Brazil has the highest rate of aluminum can recycling in the world, 98.3%. Over 98 of every 100 cans produced in Brazil are recycled, equating to two million cans recycled per hour. The system is so efficient that the can used one day will likely be back on a shelf somewhere as a can again within 33 days.[9] Back in the US, the statistics show plenty of room for improvement where plastics are concerned: in 2010, 31 million tons/28 million tonnes of plastic waste was generated and only eight percent of the total plastic waste was recovered for recycling.[10] And (get ready for this) Americans throw away 25,000,000 plastic beverage bottles every



hour.[11] Clear to see, plastic bottles add up. Reusable waters bottle campaign, anyone? Check out the Water Planet Action *Guide Out the Spout* for ideas about campaigns to reduce single-use water bottles in your school and community.

PRODUCT STEWARDSHIP

Who shares responsibility for the health and environmental impact of products? According to the idea being promoted through Product Stewardship, producers bear primary responsibility. All over the globe, companies are discussing how manufacturers and industries can be actively involved in practices that reclaim raw materials whenever possible. For example, in 2002, only 3.8 percent of total carpet discards were recycled in the United States. Now, by adopting product stewardship practices, this industry aims to increase the amount of recycling (to 20-25%) and reuse (to 3-5%) of post-consumer carpet and reduce the amount of waste carpet going to landfills.[12] Find out about advances in product stewardship in your country or with the products you purchase.

E-WASTE TAKEBACK PROGRAMS

When consumer electronics end up in landfills, that's a huge waste for several reasons. First, public safety. In unregulated, unlined landfills more common in developing nations, toxins from electronic waste, or e-waste, run the risk of leaching into groundwater over time. Another reason: electronics contain useful components that could be reused or recycled, decreasing the need to mine virgin resources for new gadgets. In order to make sure your e-waste is optimized for recovery, look for a reuse or domestic recycling program whose disassembly of your gadget won't exacerbate toxin exposure. Be aware that the process of reclaiming precious metals like gold, silver, and copper from devices is itself toxic, and some companies have moved such recycling operations oversees where restrictions may be less; however, the environmental impact may still be considerable.

A CLOSED LOOP SYSTEM

Of the 1200 dumpsites in South Africa, one is capturing attention *and* methane gas: the Mariannhill Landfill Conservancy. With residents willingly living nearby, Mariannhill's Closed Loop System works for people and the environment, including birds. The landfill consists of several cells, each with a four-tier barrier system that protects soil and water table from pollutants. The process includes a Leachate (a by-product of decomposing waste) Treatment Plant that supplies water for dust control on site and irrigates vegetated areas. A Plant Rescue Unit salvages indigenous vegetation along with the soil removed when cells are constructed. The Clean Development Mechanism strategy at the landfill captures methane gas to generate electricity for the area. Mariannhill hosts between 60 and 120 students on weekly visits to learn about waste management, reducing waste, promoting biodiversity, and conservation. And birds come also, with 187 different bird species spotted by environmentalists, hikers, and families who picnic on site.[13]

CAPTURING LANDFILL GAS

How have landfill facilities changed over time? Landfill gas (LFG) has been known as toxic. However, in some facilities LFG has been collected and utilized for heat or electricity generation. This process of burning LFG alters the majority of hazardous LFG air pollutants through the combustion process. Plus, using LFG to produce electricity lessens the need to generate electricity at traditional power plants and reduces air pollution from these plants.[14]

WHAT WE WEAR

If it's torn beyond the point of being stylish, out of date, the wrong size, or just sitting unused in your closet, that article of clothing may have another life waiting beyond your wardrobe. Maybe an item could be reused by someone else and would be a good candidate for donation or a consignment shop (many of which will pay you cash for your clothes). T-shirts can be turned inside out and re-messaged or reinvented altogether as pillows,

purses, and skirts. Jeans can even be used as insulation for houses. The Cotton From Blue to Green campaign works with schools to collect used denim that is turned into insulation for homes built by Habitat for Humanity: www.cottonfrombluetogreen.org.

BAN THE BAG (AND OTHER STUFF)

Did you know:

- In 2002, Bangladesh became the first country to ban plastic bags. Since then other countries have joined (Italy was the first in Europe) and cities across the globe have similar bans.
- As of January 1, 2013, Concord, Massachusetts, is the first city in the United States to ban the sale of single-use plastic water bottles.
- Beginning October 1, 2012, Haiti banned the importing, manufacturing, and marketing of black plastic bags and polystyrene foam cups, plates, trays, and other containers that clog waterways, clutter streets, and harm wildlife.[15]
- In 2012, Miami Beach banned hotels from giving out plastic drinking straws in order to keep them off beaches. In the United Kingdom, environmentalists started Straw Wars (watch their video at www.StrawWars.org) to encourage restaurants to reduce the billions of straws discarded every year, adding to landfills and littering oceans. Read about Be Straw Free on page 20, a youth-led campaign.

First Bundanoon, now Concord

In 2009, the Australian town Bundaboon enacted a ban on the sale of single-use water bottles in 2009. Now, as of January 1, 2013, Concord, Massachusetts is the first United States city to ban sale of single-serving PET (Polyethylene terephthalate, a thermoplastic polymer resin) plastic water bottles of one liter or less.[16]

However, if banning the *plastic* bag means using a *paper* bag, rethink again. Research shows that paper bags have a larger environmental impact (with the exception of marine debris) than do plastic bags.[17] So what's the big idea? How many times a bag is reused has a tremendous factor on the environmental footprint. Therefore: carry a *reusable* cloth bag. Some designers have been clever enough to make reusable bags small enough to put in a purse or pocket so you always have one at the ready. Think ahead—going shopping for *any item*? Bring your bag!

A PAUSE FOR MUSIC

Cateura, Paraguay, is basically a city built atop a landfill. Many residents are recyclers and scavengers searching the city's landfill for goods to sell. One recycler took found items and engineered an orchestra—violins, cellos, and other recycled instruments to create (drum roll please): The Recycled Orchestra, an entire orchestra made from recovered trash. A film, *Landfill Harmonic*, due out in 2014, will "show how trash and recycled materials can be transformed into beautiful sounding musical instruments, but more importantly, it brings witness to the transformation of precious human beings." View the trailer for this upcoming movie and see teens playing instruments made from oil cans and wood at http://vimeo.com/52711779

"The world sends us garbage; we send back music."

—Flavio Chavez, Landfill Harmonic Orchestra Director

"My life would be worthless without music."

—Student member of orchestra

A ZERO WASTE CITY

San Francisco became the first city in the United States to require all homes and businesses to participate in recycling and compost collection programs. More than 78% of all material collected is being recycled, diverting 1.6 million tons/1.45 tonnes from the landfills annually. That's double the weight of the Golden Gate Bridge. Now they want to

completely reverse the norm: replace the throw-it-away culture we live in to become the world's first Zero-Waste Town by 2020.[18] Stay tuned!

THE TIP OF THE ICEBERG OR WASTE PILE?

WHAT IS ORGANIC WASTE?

Waste originating from plant or animal sources, like tree trimmings, table scraps, and paper, which may be broken down by other living organisms.

These ideas are samples of innumerable ways people are waking up to the fact that we can manage waste more effectively and in harmony with our environment. The alternative? We could be overcome with trash and garbage and its risky impact to the health of people and the planet. Hungry for more? Then it's time for a look at *food waste*.

FOOD? WHAT A WASTE!

Organic waste is the single largest contributor to landfills in the United States. We only recycle or recover 2.8% of food waste and 57.5% of yard trimmings, also organic waste.[11] Does this matter? Consider these facts:[19]

- Americans trash 40 percent of our food supply every year, valued at about $165 billion.
- Food waste is the single largest component of solid waste in U.S. landfills.
- There has been a 50 percent jump in U.S. food waste since the 1970s.
- Just a 15 percent reduction in losses in the U.S. food supply would save enough food to feed 25 million Americans annually.

Where is the waste coming from? Sellers are discarding $15 billion annually in unsold fruits and vegetables alone. In U.S. homes and restaurants, portions are too big, typically two to eight times larger than the government's standard serving recommendation. And leftovers are not eaten.

According to the report America Trashes Forty Percent of Food Supply published by the National Resource Defense Council, "Wasted food also translates into wasted natural resources, because of the energy, water, and farmland necessary to grow, transport, and store food. About half of all land in the U.S. goes to agriculture; some 25 percent of all the freshwater consumed in this country, along with four percent of the oil, goes into producing food that is never eaten. Moreover, uneaten food accounts for 23 percent of all methane emissions in the U.S.—a potent climate change pollutant."

Landfill gas emissions include high concentrations of methane produced when recyclable yard wastes, food wastes, and papers decompose in a landfill. In fact, U.S. landfills are among the single greatest contributors of global methane emissions. Methane produced by landfills is characterized by the EPA as "a major greenhouse gas . . . [that] is 20 to 30 times more potent [in its greenhouse effects] than CO2 on a molecule-per-molecule basis."[21]

FOOD WASTE MAKES NEWS

"In Europe and North America, 280 to 300 kilograms (620 to 600 pounds) of food per person are wasted each year. That is more than twice the figure for developing regions like sub-Saharan Africa and Southeast Asia. In developing countries, the problems are slightly different. Because of inadequate technology, most of the waste occurs before it gets to the consumer, while the food is being grown, processed and distributed." The Battle Against Food Waste, *New York Times*, January 15, 2012

A LUNCH WASTED

Did you know that 24 to 35 percent of school lunches end up in the trash bin? What will **you** do about this?[20]

What can we do? What kind of information do communities need to change our behaviors? Is composting an option at school or at home? Can municipalities be convinced to begin composting programs?

AN INTERVIEW WITH WAYNE KOECKERITZ, FOUNDER OF FOOD WASTE DISPOSAL IN CHARLESTON, SOUTH CAROLINA

Food Waste Disposal reduces the negative impacts of waste generation by providing collection and composting services for pre- and post-consumer food waste and organic waste.

WHAT DO WE NEED TO UNDERSTAND ABOUT FOOD WASTE?

First, let's strip the onion layer back and think about what it takes to grow food. For the majority of agriculture in the U.S, we use a tremendous amount of water and fertilizer, made of petrochemicals or phosphorous, that has to be mined. Then the food ends up on our table and we eat this food for nutritional value. Then our food waste is thrown in a landfill where it rots and the resources are locked away forever. Many people assume since food is biodegradable it is harmless when breaking down in the landfill. Not the case. Rotting food creates methane, a potent greenhouse gas, and takes up valuable space in the landfill, which is designed to entomb things. Waste doesn't go "away."

LANDFILLS = METHANE PRODUCTION = GREENHOUSE GASES

Landfills are the number three leading contributor of methane. Fifteen percent of all methane emissions are generated by landfills.

WHAT'S THE BENEFIT OF COMPOSTING INSTEAD OF PLACING THIS GARBAGE IN THE LANDFILL?

When you compost you return the value of the waste right back into the soil by making rich fertilizer that can then be used to grow more food. This makes a continuous cycle. We reduce the amount of energy used for equipment as well as fresh water and other resources that are diverted to growing crops. And we dramatically reduce the amount of methane made by food rotting in landfills. Composting is nothing new! It's been forgotten. We have a throw-it-away mentality. Compost is a clean process that is a win-win for all.

WHAT IMPACT HAVE YOU SEEN FROM THIS NEW WASTE MANAGEMENT STRATEGY?

We began operations in 2012. We collect compostable items well beyond what can be placed in a backyard compost bin—all sorts of organic materials like waxed paper and certain compostable plastics. Remember, if it was once alive, it can be composted. Customers include hotels, restaurants, universities, and schools. At local elementary schools, kids sort and separate their food after lunch and are becoming educated about composting in the process.

This effort is all about partnerships. The county collects yard debris; this is needed since composting is three parts carbon (that's from yard debris) and one part nitrogen (with the source being food waste). In just 12 months, over 1 million pounds/453,592 Kilograms of food waste will be composted and avoid being buried.

This makes a huge difference. By doing a waste audit, Charleston County determined that 19% of what was going in the landfill was food waste, and 14% was recyclable paper that could also be composted. Also yard debris is now being composted. This collaboration is expected to extend the life of the Charleston landfill by at least 22 years.

A Landfill's Lifespan

What is the expected lifespan of a landfill near you? Why is there a need to think about extending the lifespan of existing landfills that we have?

WHERE DO YOU SEE COMPOSTING FITTING INTO A GREEN ECONOMY?

Our green economy is not just about solar panels and wind turbines. It's also about getting down and dirty and hauling food waste. We have this notion about getting food from farm-to-table. We also can think about table-to-farm. This may challenge our presumption that dumping is the best thing to do with our waste. Instead, think about composting. It's the right thing to do.

FOOD RECOVERY

Yes, definitely, composting, returning food to natural systems and soil, is a valuable and necessary win-win enterprise. What about other options of *food recovery:* the collection and distribution of wholesome food for people in need. Does day old bread really belong in a dumpster? Or a piece of bruised fruit? Places like grocery stores and bakeries throw food like these away every day by the tons. Food recovery programs collect food destined for disposal from stores and restaurants and get them to people via food banks, soup kitchens, and other social service providers. Some stores even informally support *dumpster diving* (the practice of retrieving food that has been discarded) by using plastic bags or other methods to keep all edibles they discard safe from contamination and or separating edibles from other garbage. The U.S. Environmental Protection Agency reports that 33 million tons/nearly 30 million tonnes of food waste was sent to U.S. landfills in 2010; this makes food waste the single largest category of landfilled trash.[22] Notice all the options that are part of the Food Recovery Hierarchy. How can you encourage food recovery options from source reduction to composting? Hint: Read about the Food Scrap Challenge in the Action section.

TIME FOR DISCUSSION

Use the Discussion Circle documents in the Resource Section on pages 36–37 for a sit-down conversation of the interviews with Tom Szaky and Wayne Koeckeritz, as well as other information introduced in this guide. Follow the directions from *Discussion Circle Roles* on page 36 and use the *Discussion Circle* on page 37 to take notes.

A Pause for Reflection – Occasionally as you Prepare, generate different ways to reflect. A few ideas:

"the frog does not drink up the pond in which he lives."

—Sioux proverb.

- Spend a few minutes talking about how the quote relates to rethinking waste.
- As a group, make a list of all the progress being made. Look at the list compiled during the Personal Inventory. What skills and abilities are developing that could be added?
- Often we have heard the phrase, "just throw it *away*." Where is *away*? Has your understanding of where waste goes changed?

Stage 3: Get Going —› ACT: Plans to be made and Action Taken

Are you ready for action? Begin by reviewing your audits. Check out what the individual and collective information reveals about waste in your stream. Use the document Rethinking Waste Audit Part 4: Assessment to create a consolidated list of the waste items you found in all three audits (personal, home, school).

Now for the exciting part: the Rethink! Next to each item, consider the **raw material** that is now available for reuse. Draw or describe how that material could be reused or recycled. For example, cotton t-shirts are made of fabric (material). An idea for reuse could be back packs. What is the material of juice bags? How could this be made into something new? Look for solutions you can DIY (do-it-yourself) or consider a solution with a partner like TerraCycle by registering as a waste Brigade member and sending items that will be deconstructed into raw materials and re-purposed. (See www.TerraCycle.com for more information.) Add to your list of ideas as you read the examples below. Refer to this worksheet as you collaborate to determine what emerges as possible needs, opportunities and a course of action.

Consider what kind of action you will take. There are four types of service-learning action. As you read about each type, think about and discuss ways you can influence how people think about and take action regarding waste in your school and community. Use the *Plan for Rethinking Waste* document on page 39 to generate ideas for each kind of action, write down who will do what by when, create a timeline, and prepare a central message.

DIRECT ACTION

Direct action means coming into direct eye-to-eye contact with people or having a direct influence on the environment, whether habitat or animals. If you join a TerraCycle Brigade or identify other local resources to assist with recycling common or hard to recycle items, you are taking direct action to make change that is visible and ongoing within your school and your community.

JOIN A TERRACYCLE BRIGADE

Schools, youth organizations, or almost any group, can register at www.TerraCycle.com and begin collecting. Check on their world map to see all of their locales. Find the details to get started on the website. As you will see, the steps are so easy! The results are powerful. And funds raised can be used to promote additional service-learning initiatives at your school or for other causes.

For You to Do: Interested in trying your own hand at upcycling? TerraCycle has DIY (do-it-yourself) instructions for some pretty amazing transformations at http://www.terracycle.com/en-US/do-it-yourself-projects.html.

INDIRECT ACTION

Indirect actions have benefits and results that we don't see firsthand, though we know good is being done. This can be accomplished in a variety of ways. Provide needed information by creating community resources and brochures about composting or recycling in several languages. Or write an ABCs of Waste Coloring Book for younger kids to get them involved and excited.

TGIF is an example of student-led indirect service leading to advocacy.

TGIF: TURNING GREASE INTO FUEL

Students in Westerly, Rhode Island, learned that oil from ships and cars isn't the only threat to our waters; cooking oil is a problem, too. When people pour grease down a sink drain, it pollutes the water system. They discovered that

used cooking oil can be turned into a fuel called *biodiesel*. Biodiesel can also be used to heat the homes of families in need, plus it emits less carbon dioxide than other kinds of heat. So the students asked local restaurants to donate their grease to be recycled into biodiesel. They set up recycling containers and now have over 108 restaurants participating. Next they met with state legislators and convinced them to pass the Used Cooking Oil Recycling Act. As of January, 2012, all businesses in Rhode Island must recycle their cooking oil.

For You to Do: Take another look at the interests, skills, and talents of all the students involved in this process. How can these be combined to produce a product or make a website that can be a resource for others?

ADVOCACY

Advocacy is all about giving voice to a cause. What would you like others to know? What message matters to you? Who needs to hear about the reasons we all benefit from reuse, recycling, upcycling, and reducing our "stuff"? Advocacy can be accomplished: person-to-person; through media, including video, letters to the editor, or posters; or with a campaign that sends a memorable message that leads to action.

BE STRAW FREE

Plastic drinking straws may seem like no big deal. But people around the world use millions of straws every single day and tons of them end up in the ocean. Shouldn't someone do something about this? Meet Milo Cress. He started the Be Straw Free campaign. He asked people who run restaurants to offer people straws rather than always putting them in drinks. Soon, restaurant owners who joined Milo's campaign reported that their customers were using up to 80 percent fewer straws! Milo also helped to create bestrawfree.org. He reached out to people who make, sell, and use straws. Schools and businesses in the United States, Canada, and Malaysia signed up to help. He hopes people everywhere will try to be straw free and he encourages others to join him in taking action.

For You to Do: What item do you see that is used once and tossed in your community? Straws? Single-use water bottles? During the Trash Audits, did you come across a particular waste item that could be lessened through public education or by approaching local merchants? Join a cause like Be Straw Free or start one of your own, then use your voice and get a campaign going.

RESEARCH

While you have already completed various kinds of research, consider if there is more to be done in this action stage. Continued research may either inform ways you can educate others, or produce needed information or data for decision makers in your school or community. Doing research as part of your action plan will equip you to be informative and persuasive—all helpful in making change happen. Research often leads to . . . action!

If you looked at litter around the globe, you would see more cigarette butts than anything else. People litter about 4.5 trillion cigarette butts each year. Many of them end up in our oceans.

PLANT YOUR BUTTS

Students at Huakailani School in Kailua, Hawaii, pick up trash three times a year in their community. One time, they noticed a lot of cigarette butts. Within several blocks, they counted almost 2,000 butts. They conducted research to find out more. They asked people why they tossed their butts on the ground. The most common answer was, "These butts are so small, they can't matter." Wrong! Wind and rain carry cigarette butts into the water supply and eventually the ocean. The butts contain poisons that can kill sea animals and plants. The students decided to provide planters where people could "plant" their butts instead of tossing them on the ground. With further research, they wrote a grant and got money for their cause. They bought 20 planters and put quarry sand inside (not beach sand, since it's harmful to remove sand from the beach). They

decorated each one with paint and wrote "Plant Your Butts Here." Then they placed them outside shops and restaurants. During the next cleanup, only 700 cigarette butts were found. Research led to action.

For You to Do: Consider how research could advance your cause. Create a Research Team to dig up more information on your cause to advance whatever kind of service you decide to do. Too many cigarette butts by a local playground? Perhaps this is grounds for a city initiative banning smoking in public parks. Also, use research to find out what youth are doing across the globe. Adapt ideas to fit your community and culture. Be an advocate for change!

The Food Scrap Challenge: Alameda County, California

Is food your thing? As food waste has become an unfortunate norm in the United States and elsewhere in the world, the time is ripe for action. Feast on this story from Alameda County, California, where teens are learning and rethinking with a smorgasbord of opportunities.

Food scraps and compostable food-soiled paper (pizza boxes, cardboard lunch trays, fast food wrappers) account for approximately 30% of all waste that Alameda County buries in its landfill. Put another way, citizens of Alameda County send nearly 49,000 garbage trucks worth of compostable materials weighing over 340,000 tons/308,443 tonnes to the dump each year. Fortunately, Alameda County runs the largest food scrap program in the country. Residents are provided with curbside green bins for food scraps and plant trimmings, which are collected by waste haulers and transported to commercial composting operations. By using the green bin for food scraps at home, families can turn food scraps into useful compost that helps to grow more food, reduces the impact on landfills, and reduces greenhouse gas emissions. Even with these resources, student surveys reported varying levels of access to green bins and participation in the program. Across the county, 48% of students reported that their family regularly throws food scraps directly in the garbage, while only 32% regularly use the green bin. Other families use the garbage disposal (8%), place scraps in a compost pile at home (6%), or do something else with the scraps, like feed pets, chickens, or worms (6%). Countywide, only 51% of students were certain that they had access to a green bin where they live.

Enter the Food Scrap Challenge, organized by the Service-Learning Waste Reduction Project. During the 2011-2012 school year, over 500 students from six cities in Alameda County signed up with over 90% of participating students pledging to take actions to help their families reduce the amount of food waste headed to the landfill. What can be done? The project coordinators suggest the following.

STOP FOOD WASTE BEFORE IT STARTS BY:

1. Buying only what you need.
2. Paying attention to food expiration dates.
3. Saving leftovers and eating them the next day.
4. Using food trimmings for soups and broths.
5. Donating excess food.

KEEP FOOD SCRAPS OUT OF THE LANDFILL BY:

1. Setting up a container in the kitchen to hold food waste until it can be taken to the green bin, home compost system, or worm bin.
2. Remembering that the curbside green bin (where available) can handle all types of raw or

cooked vegetables, meats, and food soiled paper. Basically, if it was once alive, it can go in the green bin. At the end of meals, scrape plates for diversion to the green bin.

3. Feeding raw vegetable scraps to home compost systems and worm bins.

AND WHAT DID THE STUDENTS DO AT SCHOOL? VISIT HTTP://SCHOOLS.STOPWASTE.ORG TO LEARN MORE ABOUT HOW:

- Recent immigrants at Oakland International High School use a "Food Share" box to reduce food waste before it starts.
- Horner Jr. High's Go Green Commissioners organized a tray stacking campaign to cut the overall volume of trash and reduced food waste in the garbage by 30%.
- Motivated by findings from a comprehensive waste audit that revealed that 80% of the items in the trash at Castro Valley High School could be composted or recycled, students created a humorous animated and narrated video to promote recycling on campus and to raise awareness about a planned food scrap diversion program slated to launch the next school year.
- Castlemont's Sustainable Urban Design Academy's students investigated the basics of a food system by distributing food scraps and other compostables from lunch into four composting streams: raw leftover vegetables are fed to worms, certain other leftover food is fed to chickens, some is placed in the school's traditional compost pile, and the rest is diverted to the county's organics program.
- Kennedy High School equates "going green" with "saving green" by reducing garbage service in half compared to last year. In the last four years, Kennedy students expanded recycling, added green waste service for kitchen food scraps, and integrated environmental programming into classes. The reduced service is saving the campus $400 per month in hauling fees.

"Yo No Soy" Colegio Bolivar Spreads the Word on Plastic

It's Academic! Here's an example of a school that started with studies in an academic class and, with student initiative, took action! Read and determine what kind of action they took.

Do our choices matter? Global studies students at Colegio Bolivar, a K-12 American bilingual school in Cali, Columbia, investigated climate change, international climate talks, cap and trade, alternative energy, biodiversity, and pollution. One particular context-rich activity (interviews with environmental activists) launched students into taking action regarding plastics. They designed and implemented a three-week visual media campaign to create awareness about plastic pollution in the middle and high school. It began with simple, thought-provoking images accompanied by the message, "Yo No Soy" ("I Am Not"). The second phase used shocking images of the effects of plastic pollution and asked viewers questions like "Soy Irrespetuoso?" ("Am I Disrespectful?"), "Soy Egoista?" ("Am I Selfish?"), "Soy Ignorante?" ("Am I Ignorant?). Phase three encouraged the community to acknowledge their own power and goodness with pictures of teachers and students demonstrating their commitment to plastic-free habits, such as carrying refillable water bottles. Other students made videos, met with administrators, created a dress of plastic, and took all the plastic cups disposed of at school in 24 hours and strung them in the cafeteria with information about the problems of plastic pollution. Because of student initiative, the school's administrators, teachers, and students are taking steps to make their school free of disposable plastic.

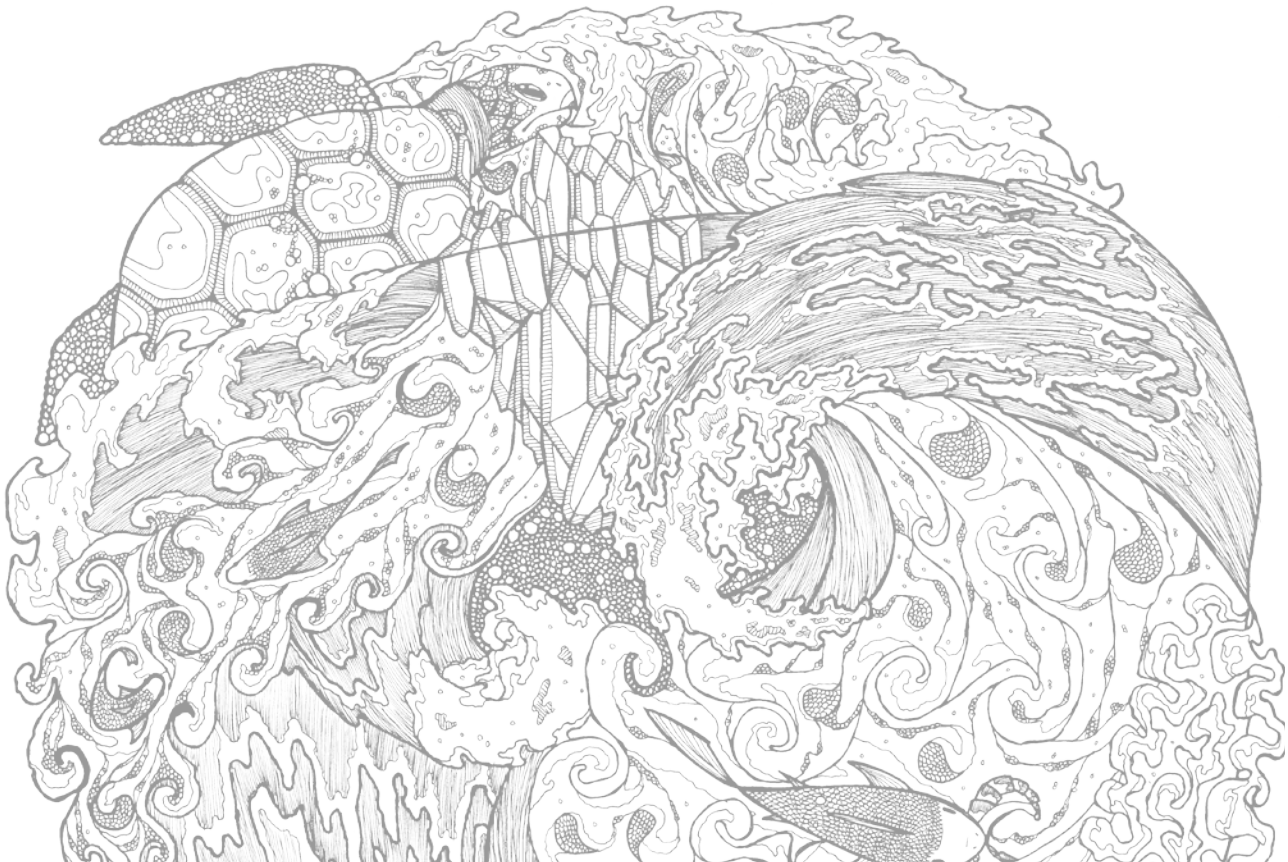
LET THE PLANNING BEGIN!

Using the *Plan for Rethinking Waste* document found on page 39, collect ideas for all four types of action. Clarify roles and responsibilities and create your key message. Next, use the *Service Learning Proposal* document on page 40 to articulate the purpose, plan, and overview of what will occur. This is helpful to inform others, confirm permissions as needed, and request funds or resources to move these ideas forward. Be sure to use the *Progress Monitoring* document on page 41 to notate how the plans progress and where change is being observed. By monitoring progress along the way, you can troubleshoot more effectively, adjust strategies, and keep a written record of what is working as you reflect and demonstrate your overall success.

A Pause for Reflection–While taking action, reflection helps confirm the direction you are headed or can assist if changes are needed

Putting a plan into action has great rewards and can also provoke more thoughts and more ideas. Be sure to take time and consider:

- What is going well? What is something you did not expect?
- How have the plans changed as you have been moving forward? What skills have you developed along the way?
- What will you remember about what you have done in five years? How did you contribute?
- What images come to mind when you think of waste? Has this changed through taking action? Create a visual to represent your ideas before Rethinking Waste and your ideas now.



Stage 4: Think Back —> REFLECT

Yes, you have been reflecting all along. However now make the time to consider all of your thoughts, ideas, feelings, and questions and put them all together using the *Four Square Reflection Tool* in the Rethinking Waste Resources Section on page 43.

Stage 5: Tell It —> DEMONSTRATE

What a story! Think of all you have done and all you have learned. You have put your plan into action and seen the results. Now it's time for demonstration—the stage when you show others what you've learned about trash, garbage, litter, and what we can do about this through your well-planned contribution to the community. This demonstration of your service-learning can take any form you like: letters, articles, pamphlets, artistic displays, performances, or media presentations.

To help you make the most of your demonstration, answer these questions:

- Who is your audience?
- What do you most want to tell them about what you learned and how you learned it?
- What do you most want to tell them about how you provided service?
- Are there any community partners who you might like to participate in the demonstration?
- What form of demonstration would you like to use?

Consider all the skills and talents of your group and use as many as possible as you come up with ways to demonstrate. Be sure to incorporate information and the processes you used during all the different stages. Include images—a picture is worth a thousand words.

Sharing what you have learned and accomplished is a way to inform and inspire others. Sometimes students have done school or community presentations or returned to the Chamber of Commerce to tell what happened. They have written newspaper articles or press releases, or created websites. Be sure to look at the *Telling Your Story: Message Guidelines* in the Rethinking Waste Resources section on page 44.

Report Your Findings

Keep track of all your findings and share the story of your experiences. You may find your partners are eager for writings, video, and photos of how your action has made impact. Make news! Consider these questions to help frame what you create.

- How many people were involved?
- What is different because of your taking action on behalf of this water planet?
- What is different now because you and others are *Rethinking Waste*?

The information you contribute will help promote these ideas about our collective responsibility to other youth and educators across the globe. Understanding waste issues in your community and those that others are facing will lead to bigger and better solutions. Together we can tell a BIG story about the BIG impact of many Rethinking Waste efforts. Remember you are part of a much larger effort that we can all celebrate. There are plenty of big, impressive (sometimes scary or overwhelming) numbers about the collective impact of many small actions. Things like 2 million plastic bottles being tossed every five minutes or 1,000,000 trees cut down every year. Let's work together to tell a different kind of story, one about how much we can accomplish by working together by each doing a small part.

WHAT'S NEXT?

Congratulations! You have completed the Water Planet Challenge: Rethinking Waste. However, this is only the beginning. You may want to find ways to stay actively involved with helping in your community and continue to apply your talents, skills, and knowledge to creating a healthier planet. What are other kids doing? Here's a few excerpts of Kids in Action from *Going Blue: A Teen Guide to Saving Our Oceans, Lakes, Rivers, & Wetlands* (Free Spirit Publishing, 2010).

Location: Minneapolis, Minnesota, United States
Hazardous Chemicals? Not in My Water!

How can families and communities learn about how the products they purchase affect their health and environment? Students in grades 6-8 at The Blake School in Minneapolis decided to teach them. They made an inventory of products in their home, researched how hazardous the products were depending on their chemical content and their environmental effects if disposed of improperly, and then learned proper disposal methods. Students labeled these products in their homes and presented their research to families and other students in the community. Parents expressed amazement to learn they were using potentially toxic chemicals in their household, even in common cleaning products, and what their effects are on humans and other organisms in the surrounding environment. The results of the Blake students' efforts? A community of smarter shoppers who know how to make informed decisions when purchasing household items and also when disposing of them. In the long run, these actions will increase the health of local waterways and send a message to manufacturers that consumers want environmentally friendly products.

Check out the Water Planet Challenge *Down the Drain* Action Guide for more on what we "sink" every day!

Location: Chagrin Falls, Ohio, United States
Go Green—Drink Tap

In Chagrin Falls, Ohio, the youth board of Community Partnerships for Youth created an awareness campaign about the destructive nature of disposable water bottles culminating in a Go Green Water Tasting. Stationed in a shopping center, the kids invited passersby to taste two water samples, choose the one they liked best, and then guess which sample was bottled water and which came from the tap. The tasters overall preferred tap water and guessed incorrectly that it was bottled water. Students gave out Go Green—Drink Tap T-shirts, bumper stickers, and reusable water bottles. Sharing facts in the community and in school raised awareness that not only is tap water better for the environment, it also tastes better than bottled water.

For more about what comes out your tap, look at the Water Planet Challenge Action Guide *Out the Spout.*

Location: Alameda, California, United States
Save the Bay

The San Francisco Bay is the largest estuary on the west coast of the Americas and serves many important natural functions. The bay also faces numerous challenges—–from pollution to overdevelopment. Area students are involved in a wide range of projects investigating the bay and local creeks, while examining the human practices that can harm or help the bay. What's being done? In honor of Earth Day, science students at Wood Middle School in Alameda, California, took their concerns to the beach. They learned about the process of bioaccumulation, in which

How can we clean up pollution? Check out the Water Planet Action Guide *CleanUP* and get started!

small sea creatures mistake microscopic bits of plastic for food and are poisoned when they ingest it. The students cleaned up a quarter-mile long segment of beach next to their school, removing and cataloguing all types of trash.

Have any ideas?

Your group may want to consider any of these examples, expand your service-learning efforts, or start a media campaign to raise community awareness on another water-related topic. Most important of all: teach by example. What YOU do will spread the word. Make good choices. Use less. Reuse. Reduce. Watch what you purchase. Recycle. Rethink. Spread the word.

Citations

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Rethinking Waste Resources

Here are the documents that have been mentioned while reading this guide. These next pages provide tools that will help you during the different stages as you investigate, prepare, plan, take action, reflect on what you did, and tell your story during demonstration. And remember, additional resources can be found at www.EarthEcho.org.

1. Personal Inventory
2. Gathering Information About a Community Need
3. Rethinking Waste Audit Part One: What I Waste
4. Rethinking Waste Audit Part Two: My Household
5. Rethinking Waste Audit Part Three: At School
6. Discussion Circle Roles
7. Discussion Circle
8. Rethinking Waste Audit Part Four: Assessment
9. Plan for Rethinking Waste
10. Service Learning Proposal
11. Progress Monitoring
12. Sample Press Release
13. Four Square Reflection Tool
14. Telling Your Story: Message Guidelines

Interests, skills, and talents—we all have them. What are they?

Interests are what you think about and what you would like to know more about—for example, outer space, popular music, or a historical event like a world war. Are you interested in animals, movies, mysteries, or visiting faraway places? Do you collect anything?

Skills and talents have to do with things you like to do or that you do easily or well. Do you have an activity you especially like? Do you have a favorite subject in school? Do you sing, play the saxophone, or study ballet? Do you know more than one language? Can you cook? Do you have a garden? Do you prefer to paint pictures or play soccer? Do you have any special computer abilities?

Work with a partner and take turns interviewing each other to identify your interests, skills, and talents and to find out how you have helped and been helped by others. Then, compile a class chart of your findings. This will come in handy on your service learning journey.

Interests: I like to learn and think about . . .

Skills and talents: I can . . .

Being helpful: Describe a time when you helped someone.

Receiving help: Describe a time when someone helped you.

What does your community need?

Use the questions in the following four categories as guides for finding out. As a class, you might agree to explore one topic, for example, how kids get along at school, hunger and poverty, or an environmental concern. Or you might decide to learn about general needs at school or in the surrounding area. Form small groups, with each group focusing on one category and gathering information in a different way.

Finding out about:

Media

What media (newspapers—including school newspapers, TV stations, radio) in your community might have helpful information? List ways you can work with different media to learn about needs in your community.

Interviews

Think of a person who is knowledgeable about this topic in your area—perhaps someone at school or in a local organization or government office. Write four questions you would ask this person in an interview.

An interview with _____

Questions:

1.

2.

3.

4.

Gathering Information About a Community Need

INVESTIGATE

Survey

A survey can help you find out what people know or think about a topic and get ideas for helping. Who could you survey—students, family members, neighbors? How many surveys would you want completed? Write three survey questions.

Who to survey:

How many surveys:

Questions for the survey:

1.

2.

3.

Observation and Experience

How can you gather information through your own observation and experience? Where would you go? What would you do there? How would you keep track of what you find out?

Next Step: Share your ideas. Make a plan for gathering information using the four categories. If you are working in small groups, each group may want to involve people in other groups. For example, everyone could help conduct the survey and collect the results. Compile the information you learn into a list of community needs.

WASTE LOG: What do you throw away in a single day?

Use this table to keep track of what you dispose of in a 24 hour period. For each item, make a note of **the** item (**what** you disposed of), quantity (**how much** of it there was), and date/time (**when** the disposal occured). Also write down the location (**where** you were) and disposal method (**how** you disposed of each item—trash can, recycling bin, etc.).

START DATE/TIME: **END DATE/TIME:**

Item(s) Disposed Of	Quantity	Date/Time	Location	Disposal Method
Ex. Notebook Paper	3 sheets	6/2/12 9:55 AM	School, Math, Room 208	Trash can

ReThinking Waste Audit
Part 2: My Household

INVESTIGATE

WASTE LOG: What does your household throw away in a single day?

Use this table to keep track of what your household disposes of in a 24 hour period. For each item, make a note of the item (**what** has been disposed of), quantity (**how much** of it there is), location (**where** in the house the disposal occured), and disposal method (**how** you are disposing of each item —trash can, recycling bin, etc.).

START DATE/TIME: **END DATE/TIME:**

Item(s) Disposed Of	Quantity	Location In Home	Disposal Method
Ex. Glass juice bottle	1	Kitchen	Recycling bin

WASTE LOG: What is being wasted at school?

Inventory what is being discared in various areas of your school using the following table:

Location in School	Item(s) Disposed Of	Quantity	Disposal Method
Classroom 1			
Classroom 2			
Classroom 3			

WASTE LOG: What is being wasted at school?

Inventory what is being discared in various areas of your school using the following table:

Location in School	Item(s) Disposed Of	Quantity	Disposal Location
Restroom			
Cafeteria			
Office			

WASTE LOG: What is being wasted at school?

Inventory what is being discarded in various areas of your school using the following table:

Location in School	Item(s) Disposed Of	Quantity	Disposal Location

Discussion Circle Roles

PREPARE

Form groups of four to discuss the information found throughout this guide.

Assign each person in the group one of the four "connector" roles below. Each connector's job is to lead a portion of their group discussion about the content from a specific point of view. He or she asks the questions listed (along with others that come to mind) and encourages group members to respond. Each person leads his/her share of the conversation for four minutes, allowing approximately one minute for each person to answer, and one minute for the connector to answer as well. Write notes and ideas on the *Discussion Circle* on page 37.

To begin, review these tips for effective group discussions:

- Use active listening skills.
- Ask questions.
- Take turns speaking.
- Welcome all comments.

PERSONAL CONNECTOR

Ask questions that connect the content to group members' experiences, such as:

1. What does this information have to do with you or others you know?
2. Are you reminded of any information you knew already or ideas or situations you have heard about before?
3. How have you or people you know resolved similar situations?

WASTE CONNECTOR

Ask questions that connect this content to other information you know about rethinking waste, such as:

1. What new ideas did you learn about rethinking waste?
2. What situations described are you familiar with from personal experience?
3. What additional questions do you now have about rethinking waste?

SERVICE CONNECTOR

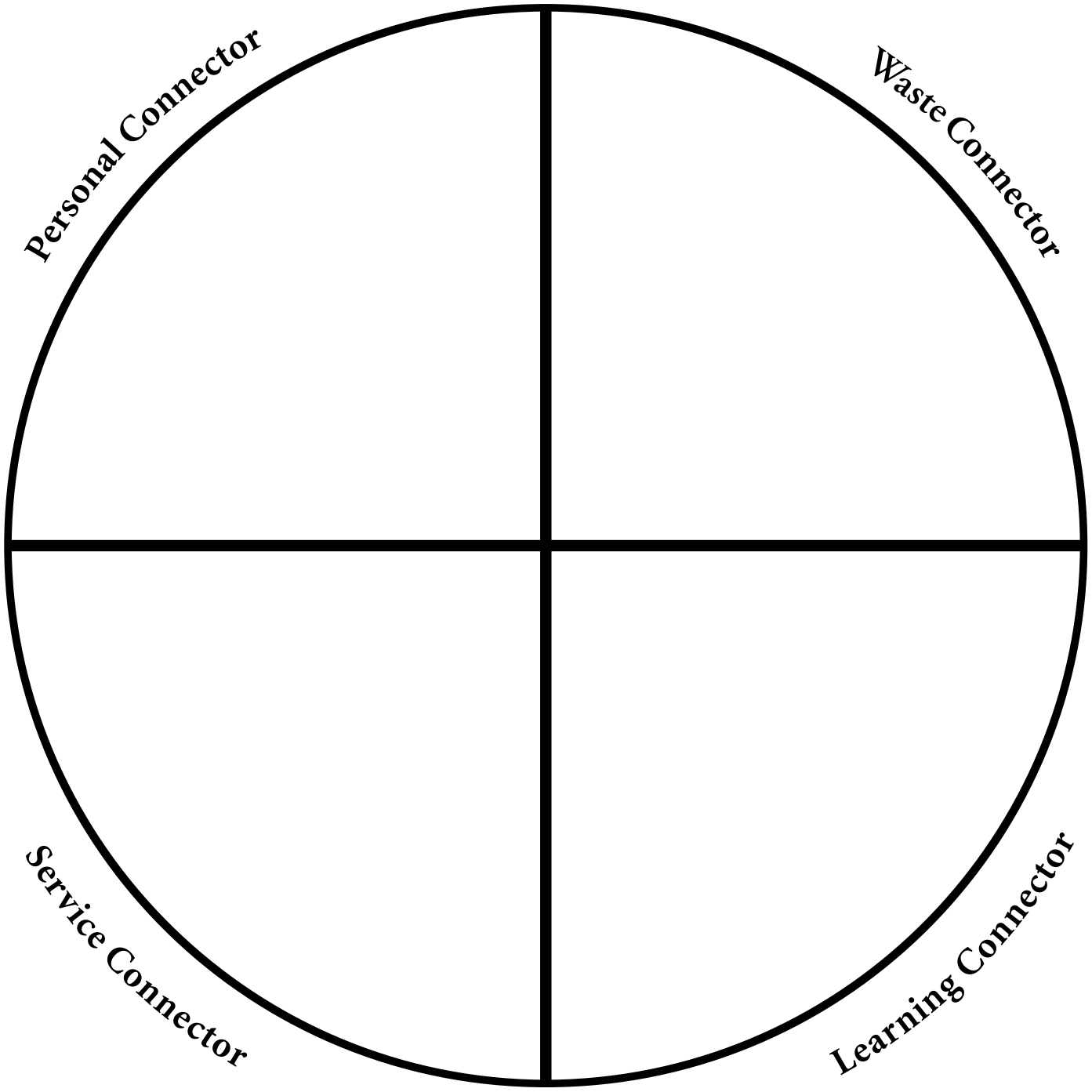
Ask questions that connect this content to ideas for service plans, such as:

1. What needs to be fixed in the situations described?
2. Did any noteworthy, helpful action take place in what you have read?
3. What service ideas did you think of when you read this?

LEARNING CONNECTOR

Ask questions that connect this content to learning opportunities, such as:

1. What would you like to learn more about as a result of this content?
2. What related topics have you learned about or experienced in school?
3. What do you think people your age would learn from reading this interview or hearing these facts?



ReThinking Waste Audit
Part 4: Assessment
ACTION

What Materials Do You Have Access To?

Instead of thinking about trash as a problem to be solved, what if we viewed trash as an opportunity, an untapped resource? Look back over the three Waste Audits you've just completed: personal, household and school. What items do you have access to in moderate to large quantities? How might these items be the materials for something new? Determining what you have to work with will help you figure out what types of "Rethinking" action will make the most sense for you.
Hint: Visit www.TerraCycle.org to see solutions already in place that you can join or be inspired by.

RETHINKING WASTE

Items	Draw or Describe ReUse or Recycle Possibilities

t shirt
↓
backpack

juice packs
↓
totebag

energy bar wrappers
↓
clipboard

food packaging
↓
garbage can

plastic bottles
↓
jacket

gum wrappers
↓
purse

other ideas?

WATER PLANET CHALLENGE

Plan for Rethinking Waste

PREPARE

Direct Action	Indirect Action
Set Up a Program to Compost Cafeteria Waste!	Provide a Resource for Others! Create a Guide to Composting!
Advocacy	**Research**
Use Media, PSAs, and Signage to Promote Precycling, Recycling, and Upcycling	Collect Data to Evaluate the Cost Savings to Implement Curbside Recycling Home Composting

Who...	Will do what...	By when...	Supported by...

Mark Your Timeline

Create Your Main Message on this Banner that Sells Your Ideas. Be Memorable!

Students or class:

Teacher:_____

School:_____

Address:_____

Phone:_____ Fax:_____ Email:_____

Project name:_____

Need—Why this plan is needed:

Purpose—How this plan will help:

Participation—Who will help and what they will do:

Students:

Teachers:

Other adults:

Organizations or groups:

Outcomes—What we expect to happen as a result of our work:

How we will check outcomes—What evidence we will collect and how we will use it:

Resources—What we need to get the job done, such as supplies (itemize on back):

Signatures:

What progress monitoring methods will you use?

- ☐ Observation
- ☐ Data Collection
- ☐ Interviews
- ☐ Surveys

Other Methods:

- ☐
- ☐
- ☐

Date _____
Step One: Establish your baseline—what is the need?

Date _____
Step Two: What noticeable changes have been made?

Date _____
Step Three: What other changes have taken place?

Date _____
Step Four: Describe evidence of your progress.

Date _____
Step Five: Provide a summary of your findings.

Sample Press Release

FOR IMMEDIATE RELEASE:

Stop Being a Waste! → *catchy title*

May 1—Washington, DC—Every day each person (including YOU) contributes about two bags of waste to our mounting trash problem.

→ *compelling information*

With cooperation from the Mayor's office, 50 students from Eco-High have launched a campaign in partnership with TerraCycle to reduce what gets tossed in landfills every day.

→ *mayor's name*

At the City's Enviro-Fair, these students will host a Waste-In to show how hard to recycle items can be upcycled (yes, UPcycled!). → *who*

Date: Tuesday, March 1 → *when*

Time: 9 a.m. – 3 p.m.

Location: Meridian Hill Park, 1550 W Street NW, Washington, DC

→ *where*

For details, contact: Zoe Starfish at 202-000-0000 or zoestarfish@bluemail.com

→ *contact information*

Our efforts are being conducted as part of EarthEcho International's Water Planet Challenge. "Whether we live near a coast or hundreds of miles inland, we are all connected to the ocean. Reducing waste is essential to protecting our waterways and other natural resources," said Philippe Cousteau, co-founder and CEO of EarthEcho International. Waste is one of the most pervasive issues currently facing our society with growing populations and mounting trash and garbage. With innovative and creative ideas, our communitiees can become part of the solution." → *compelling quote*

Four Square Reflection Tool

REFLECT

What happened?	How do I feel?
Ideas?	**Questions?**

Telling Your Story: Message Guidelines

If you want people to listen to what you have to say and remember the important points, tell a story. Think of your actions taken to Rethink Waste as a great story waiting to be told.

Here is a quick guide to telling memorable stories:

- **Opening:** Paint a picture with words. *Pile up all the chip bags from a weeks worth of school lunches and you will have a tower of junk*. Always remember to show the images you want them to remember. Make a memorable impression.
- **Background:** Provide the basic overview and context of the story you want to tell; be sure to mention what you have done is part of the Water Planet Challenge.
- **Create Interest:** This is part of your story that holds your audience's attention. Compelling facts, human interest anecdotes, including comments, and surprising statistics capture the reader. They make your story compelling and make a lasting impression.
- **Resolution:** Every story has a strong ending. Let people know what they can do and how they can become involved. Create relevance by moving the reader toward taking action.

Communicating important messages:

- Keep your story simple.
- Be authentic.
- Make the information relevant. Give your readers a reason to care.
- Vary the length of your sentences.

Read your story aloud. Make sure this is your voice, your story, your message.

For More Information

On the Internet

The Algalita Marine Research Foundation is a California-based organization studying the impact of plastic marine pollution. Their easy-to-use classroom handouts address the affects of plastics in our environment. Their Sea Lab processes trash samplings picked up on their ocean excursions, and students attending their Environmental Charter High School research beach sand to determine the amount of plastic particles in it, called the "plastic load." www.algalita.org

NOAA Marine Debris Program is part of the National Oceanic and Atmospheric Administration (NOAA), a division of the U.S. government. The program has funded and supported over 140 projects working with partners addressing marine debris. www.marinedebris.noaa.gov

Ocean Conservancy, sponsors of the International Coastal Cleanup, was founded in 1972 to promote healthy and diverse ocean ecosystems and oppose practices that threaten oceanic and human life. They strive for sound, practical policies that protect our ocean and improve our lives through cooperation between governments, businesses, scientists, policymakers, conservation organizations, and citizen advocates. www.oceanconservancy.org

Plastic Pollution Coalition, a global alliance of individuals, organizations, and businesses working towards a world free of plastic pollution and its toxic impact. http://plasticpollutioncoalition.org/

Surfrider Foundation, founded by Malibu, California surfers, is a nonprofit organization dedicated to the protection and enjoyment of our oceans, waves, and beaches. Visit their website for more on clean water, healthy beaches, beach access, and special places. www.surfrider.org

the Bookshelf

50 Things You Can Do to Save the Ocean by David Helvarg (New World Library, 2006). This well-researched book explores simple, everyday actions that protect and restore the ocean, from recycling plastic to buying locally-grown produce. It also addresses issues of runoff pollution, wetland destruction, coral reef damage, and overfishing. Foreword by Philippe Cousteau. Nonfiction, 208pp., all grades.

American Wasteland: How America Throws Away Nearly Half of its Food (and What We Can Do About It) by Jonathan Bloom (DaCapo Press, 2010). For waste enthusiasts this readable fact-filled book written by a journalist uncovers the epidemic of waste and what creative minds are doing to come up with workable solutions. Nonfiction, 366 pp., grades 9-12.

For Adult Coordinators

Welcome! Whether this is your first venture into service-learning or you are a seasoned veteran, many thanks for all you are doing for the students and the Water Planet Challenge: Rethinking Waste. Participating in service-learning is an ideal way for students to increase both knowledge and skills transferable to many learning situations. This research-based teaching method affords the integration of many academic standards as well as opportunities for social and emotional development. Through teamwork and community collaborations, students can increase their understanding of reciprocal partnerships and the important role they have in improving society for everyone right now.

Feel free to visit www.WaterPlanetChallenge.org for more information.

Interested in more information and resources about service-learning? Several books that have been referenced throughout this publication can be helpful. All have been written by Cathryn Berger Kaye and are available through Free Spirit Publishing (www.freespirit.com) including:

- ***The Complete Guide to Service Learning: Proven, Practical Ways to Engage Students in Civic Responsibility, Academic Curriculum & Social Action***, Second Edition (Free Spirit Publishing, March 2010)
- ***A Kids Guide to Climate Change and Global Warming: How to Take Action*** (Free Spirit Publishing, March 2009)
- ***Going Blue: A Teen Guide to Saving Our Oceans & Waterways*** written with Philippe Cousteau and EarthEcho International (Free Spirit Publishing, July 2010)

About the Partners

The International Baccalaureate

Founded in 1968 the International Baccalaureate (IB) is a not-for profit foundation, which offers four high quality and challenging educational programmes for a worldwide community of schools. For more than 40 years, IB programmes have gained a reputation for their rigour and high academic standards, for preparing students for life in a globalised 21st century, and for helping to develop citizens who will create a better, more peaceful world. Currently there are over 1 million IB students attending nearly 3500 schools in more than 143 countries. To learn more, please visit www.ibo.org.

EarthEcho International

EarthEcho International is a leading environmental non-profit organization committed to youth engagement, action, and leadership through education. EarthEcho helps young people everywhere understand the critical role we play in the future of the planet through the one thing that connects us all – water. EarthEcho International was founded by siblings Philippe and Alexandra Cousteau in honor of their father Philippe Cousteau Sr., son of the legendary explorer Jacques Yves Cousteau. In 2013, the organization launched EarthEcho Expeditions, an exciting new initiative that leverages the rich Cousteau legacy of exploration and discovery to bring science education alive for today's 21st century learners. For more information about EarthEcho International, visit www.earthecho.org.

About the Author

Cathryn Berger Kaye, M.A., a former classroom teacher, is president of CBK Associates, International Education Consultants. She is the author of *The Complete Guide to Service Learning* and an interactive workbook series with Free Spirit Publishing, *Service Learning for Kids: How to Take Action*. Her books *Going Blue: A Teen Guide to Saving Our Oceans, Lakes, Rivers, & Wetlands* and *Make a Splash! A Kids Guide to Saving Our Oceans, Lakes, Rivers, & Wetlands* both written with Philippe Cousteau and EarthEcho International demonstrates her commitment to caring for our planet. Known for highly engaging workshops and keynote addresses, Cathryn promotes educational experiences which inspire student engagement, social and emotional development, and academic success through service-learning. She works within K-12 settings, and with university faculty and youth service organizations in the United States and around the world. For more information visit www.cbkassociates.com.