Don't Be Trashy: Recycle

By Beth Roessner

» Recycling has been around for decades—so long that we may be taking this waste-management strategy for granted.

It has been ingrained in our brains since a very young age to seek out a recycling bin. (And, when we can't find one, we may even feel a twinge of guilt.) Recycling as a waste-management strategy has been around for decades. Although it may be an annoyance to constantly separate recycling items from trash and to manage separate receptacles, we may not fully realize the impact recycling has.

Recycling doesn't just cut down on the amount of waste that is sent to landfills and incinerators. The act of recycling helps to conserve natural resources like timber, water and minerals, and decreases pollution as well. The practice saves energy and increases economic stability as domestic sources for materials are tapped. Recycling also helps create jobs in the recycling and manufacturing industries.

The desire to recycle is there: 94% of Americans want to recycle more but, due to lack of infrastructure, widely varying municipal recycling programs and low awareness of recycling best practices, more than half of recyclable materials from U.S. households are lost to landfills, according to the Recycling Partnership.

"We believe everyone has the right and should have the ability to live in a green and healthy community," explains Randy Hartmann, senior director of affiliate operations at Keep America Beautiful. "Recycling is a part of that."

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RELEVANCE OF RECYCLING

Americans produce a lot of trash. From the most recent data compiled in 2015, the U.S. collected 262 million tons of municipal solid waste (MSW) over that year, and approximately 68 million tons of it was recycled, according to data from the U.S. Environmental Protection Agency (EPA). Combined with the amount composted, there was approximately a 35% recycling and compost rate. By comparison, in 1960, just 5.6 million tons of MSW were recycled of the 88.1 million tons that were collected.

"Recycling is more relevant today than it ever has been," maintains Hartmann. As American consumption continues to increase, recycling is one small step to reduce our carbon and energy

WHAT'S YOUR NUMBER?

If you turn over your plastic bottle, odds are you will see a little triangle made of arrows with a number in the middle. That number has nothing to do with recycling: The number refers to the type of resin that is in that product. The numbers reflect the seven different kinds of plastics on the market. Check with your local recycling program to learn exactly what numbers are accepted. For extra information about recyclables, see this month's Bonus Web Content at *schoolnutrition.org/snmagazinebonus*.

PLASTIC #1:
Polyethylene terephthalate Picked up by most recycling programs, this clear plastic is used to make soda bottles, mouthwash bottles, salad dressing containers and water bottles. It is considered safe but is known to allow bacteria to accumulate.

PLASTIC #2:
High-Density Polyethylene Typically opaque, this plastic is considered safe and has a lower risk of leaching. It's found mostly in milk jugs, household cleaner containers, juice bottles, shampoo bottles, etc.

PLASTIC #3:
Vinyl This plastic is used to make food wraps, plumbing pipes and detergent bottles and is seldom accepted by curbside recycling programs. These plastics used to but may still contain phthalates, which have been linked to numerous health issues.

PLASTIC #4:
Low-Density Polyethylene From squeezable bottles to shopping bags, clothing to carpet and even bags for frozen foods, breads and wraps, curbside recycling programs have not been known to pick these up.

PLASTIC #5:
Polypropylene One of the safer plastics, this is now being more accepted by curbside pickup. You find this plastic in yogurt containers, ketchup bottles, syrup bottles and medicine bottles.

PLASTIC #6:
Polystyrene This is Styrofoam, which has a bad reputation for being hard to recycle. Because of that, it can be bad for the environment. This kind of plastic does pose a health risk because it leaches toxic chemicals—especially when heated. Most recycling programs won't accept it. You'll find this in egg cartons, meat trays and disposable dishware.

PLASTIC #7:
Miscellaneous These are resins that don't fit into other categories, some of which contain the toxic bisphenol-A (BPA). You'll find these plastics in computer and phone cases, sunglasses, large water bottles and even bullet-proof materials.

footprints. The raw materials produced through recycling—more on that later—help fulfill manufactures' needs.

The disconnect, however, is getting *more* people to recycle. The two main barriers to recycling are access (or lack thereof) and the understanding of why the process is critical.

About 3 in 10 Americans (28%) say it is a best practice in their community to recycle, while about a fifth of American's (20%) live in communities that don't encourage recycling, according to a 2016 survey by the Pew Research Center. Curbside collection is most common in larger cities and towns, while about 40% of rural residents do not have access to curbside recycling.

But just because people have access to these programs, doesn't mean they are always utilized. That's the disconnect and the constant battle, says Hartmann—trying to change perceptions and behaviors around recycling.

"People need to know when they recycle, it does make a difference," he explains. "When they recycle that plastic bottle, it's going into a park bench or another plastic bottle. It is getting reused and it is making a difference."

THE RECYCLE CYCLE

There are numerous ways for recyclables to be collected, which includes curbside collection, drop-off centers and deposit or refund programs. **Single-stream collection,** also known as "fully commingled," is a hodgepodge of recyclable materials. There is no need to sort recycled materials—paper, bottles, cans, cardboard, etc.—as it all goes into the same receptacle. Even small electronics—curling irons, coffee makers, radios, etc.—with the cords cut off are acceptable. (And if a container is filthy, give it a quick rinse, and be sure it is empty.)

Once collected by a state's waste management corporation, materials are transported to a Materials Recovery Facility (MRF) to be sorted and later transported to another facility for processing. The U.S. has over 630 MRFs that can clean, sort and bale hundreds of thousands of tons of recyclables per day.

Once deposited by dump trucks, a large mechanical claw grabs the material and drops it into a spinning drum, which distributes the recyclables onto a conveyor belt. Plastic bags, coat hangers and other items are manually removed. Star-shaped discs (aka star screens) remove corrugated cardboard. As the material travels down the conveyor belt, it is inspected again by workers who pick out contaminants (don't worry—we'll chat about these). Another set of star screens remove different grades of paper, then, plastic, glass and aluminum fall through the screens and roll down onto the main belt.

The glass, plastic and aluminum are sorted along the conveyor belt via an assortment of sifters, magnets and lasers. The final machine on the conveyor belt creates large, identical bales of each of the materials.

The remnants of materials at the end of this process are called residuals—things that *cannot* be recycled. The less residual allowed by a recycling plant, enables the plant to make more money as disposing of residuals comes at the cost of the recycling plant.

Now, here is where things get dramatic and political: The U.S. as well as other developed countries, have shipped their recycling waste directly to China for years, instead of sorting and processing on their respective home soils. Plastic waste has been the most prevalent: about half of all plastic waste intended for recycling in 2016 (14.1 million metric tons) was exported by nearly 125 countries. China took most of it—over 7.3 million metric tons—from 43 countries. Since 1992, in fact, China has imported 106 million metric tons of plastic waste, which accounts for 45.1% of all cumulative imports, according to a recent study published in *Science Advances*. But heightening tensions since 2013 and new restrictions enacted in January 2018 changed that, and we're no longer able to export to China. (It's predicted that 111 million metric tons of plastic waste will be displaced by 2030 because of the restrictions, states research in *Science Advances*.)

As a result, the U.S. is working hard to develop the technology and plants to sort through plastics, glass and paper products. The biggest issue facing U.S.-based plants, however, are plastics. They are challenging to recycle because of their wide variety of uses, additives and blends, and there are properties that limit the number of times they can be recycled. (Unlike glass, steel and aluminum, which can be recycled endlessly.)

Slowly but surely, American MRFs are catching up and implementing technology to separate out those materials to a standard that manufacturers in the U.S. can use them.

FREQUENT CONTAMINATION

You've probably heard how recycling gets "contaminated," but what exactly does that mean? **Contamination** in recycling is when misplaced items threaten the safety and integrity of the recycling system. America doesn't have the separation infrastructure to keep up with people's desire to recycle common household containers and products, so

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1. ____ prevents more Americans from recycling.
- ☐ Lack of infrastructure
- ☐ Varying recycling programs
- ☐ Low awareness
- ☐ All of the above

2. MSW stands for ____.
- ☐ Manufactured Soiled Waste
- ☐ Manageable Solid Waste
- ☐ Municipal Solid Waste
- ☐ Manmade Sullied Waste

3. About a fourth of Americans live in communities that do not recycle.
- ☐ True ☐ False

4. ____ goes into single-stream recycling programs.
- ☐ Only paper products
- ☐ Paper, bottles, cans, cardboard, etc.
- ☐ Select plastic items
- ☐ Only metal and glass

5. ____ sorts and later transports recyclable materials.
- ☐ Materials Recovery Facility
- ☐ Managed Receptacle Facility
- ☐ Municipal Recycling Facility
- ☐ Manageable Recovery Facility

6. Everything can be recycled.
- ☐ True ☐ False

7. In 2016, ____ million metric tons of plastic waste were intended for recycling.
- ☐ 6.2 ☐ 12.5
- ☐ 14.1 ☐ 111

8. ____ are examples of plastic contaminants.
- ☐ Appliances with the cords cut off
- ☐ Newspaper bags, dry cleaning bags and shopping bags
- ☐ Metal lids
- ☐ Diapers

9. There are ____ varieties of plastic resins.
- ☐ four
- ☐ five
- ☐ six
- ☐ seven

10. Recycling is necessary due to its ____.
- ☐ importance
- ☐ impact
- ☐ value
- ☐ all of the above

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contamination happens frequently.

A major contaminant? Plastic shopping bags, like the ones you get at grocery stores. Those guys have no place in your typical recycling bin. (These also include plastic zipper bags, newspaper bags and dry-cleaning bags—all of these can be recycled at retailers or MRFs who provide separate bins.)

"What happens when it goes into that cart on the curb, it goes into the recycling stream, into the MRF and then it gets wrapped around all the gears and belts—everything that is automated to separate all those materials," explains Hartmann. "Then, that MRF has to shut down to clean the equipment." The clog backs up the system, and material starts to run over, and ultimately, those materials do not get separated. Therefore, plastic bags *must* be collected separately.

There are different kinds of plastics—seven to be exact—that may make their way to an MRF, but not all are recyclable. (*See* What's Your Number *on page 68*.) Mixed plastics run through the entire sorting process, and because not all are recyclable, it can slow down the entire process. As plastics move through the line, they can become sandwiched between paper and other materials separated for recycling, which lowers the overall value of these separated materials. Some MRFs will sort all the mixed plastics into a single bale and ship to another facility that works solely with plastics. In other situations, these bales may end up at the landfill or sent to a waste-to-energy incinerator.

Hartmann notes that recyclers should ask their local community about what plastics are accepted. Not all seven varieties of plastics are accepted at every MRF, however, most are still recyclable in some capacity.

RECYCLE AND ROCK IT

Recycling is still relevant, but many people have a disconnect knowing and truly understanding the value in the process. Yes, we all know it's *important* to recycle, but without directly seeing the impact, it can be hard to constantly justify the **value.** Nevertheless, know that each time you add cardboard boxes, emptied cans and glass bottles into your recycling bin, you are making a difference. **SN**

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