Understanding Plastics Waste

Through Service-Learning

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What Is Service-Learning?

Service-learning provides a framework for students to meet their learning objectives while engaging with and addressing the needs of their community. Teachers can foster broader academic discussions via the interactive nature of service-learning and, through our resources, enable students to learn about local, national and global issues and become agents of change. By combining classroom learning with meaningful service, students develop a stronger understanding of local and global issues while engaging in actions that help to make a difference, each experience reinforcing the other.

The Impact of Service-Learning

Through service-learning, students have the opportunity to take action while working toward their learning goals. The result? World change!

In 2017/2018, WE Schools around the world contributed over $260 million in social value* to their communities, countries and the world:

$8.3 million raised for local causes	**$5.8 million** raised for global causes	**10.8 million pounds** of food collected for local causes	**10.5 million hours** volunteered for both local and global causes

* Social value = total money raised for local and global causes + value of food collected + the value of hours volunteered at a standard valuation rate.

The Plastic Waste Problem

There is a lot of plastic pollution in the environment impacting our oceans, wildlife, our surroundings and us. But plastic is a valuable material. It is crucial for the safe and efficient distribution of our products, and it has a lower carbon footprint than many alternative materials. So, it has its place. But that place is definitely not littering our streets, rivers and oceans. It is, however, inside the circular economy—where it is reused, recycled or composted. And where it is kept in a loop, to stop it from ever finding its way into the environment.

High Production

Between 1950 and 2015, humans have produced 8.3 billion metric tonnes of plastics. Most of those plastics now sit in landfills for an incredibly long time.

Instant Waste

Approximately 40 percent of plastics produced are single-use plastics that are discarded right away. This creates an abundant amount of unnecessary waste.

High Resistance

Plastics take a long time to decompose, if they do at all. For example, plastic bottles take about 450 years. Many plastics are non-degradable and, instead of decomposing, they break down into microplastics.

Pollution

Plastic pollution affects everyone. It's seeping into our oceans, entering into the food chain and ultimately coming back to us in a harmful way, such as microplastics in the food we eat.

Exploring Strategies

Before diving into the issue of plastic consumption, discuss with your students the following strategies for tackling plastic consumption: no plastic, less plastic and better plastic. This is an exploratory activity that you can use to introduce the topic to students and encourage critical and creative thinking.

On the next three pages are Strategy Sheets that focus on each of the different strategies for your discussion. They include an introduction to the strategy, facts and questions that will help guide your class activity.

The Three Strategies:

NO Plastic: This strategy is all about eliminating single-use plastic.

LESS Plastic: This strategy is all about reusing and refilling products. When you use packaging multiple times, you reduce the environmental impact.

BETTER Plastic: This strategy is primarily about getting citizens/students to recycle better and more, because when we recycle better, plastic has a chance of getting a new life.

Instructional Methods

- Jigsaw discussion
- Group work
- Reading and note-taking

Materials

- Notebooks or notepaper
- Writing utensils
- Front board

Estimated Time

45 minutes for discussion

STEP 1

Divide participants into groups. Photocopy and distribute the following Strategy Sheets and assign one to each group. Tell everyone that they will explore the issues described on their group's card. Remind them that they each will need paper and a writing utensil.

STEP 2

In groups, have participants read their Strategy Sheets aloud and discuss the questions listed on the back. Participants should take notes on what they discuss.

STEP 3

As a class, discuss the questions on the board. Everyone should take notes as their peers present. Ask participants if they have any questions about what they've learned. Then ask the group:

- Why do you think it's important to do all three strategies, not just one or two?
- How can you learn more about the issue?
- How can you share what you've learned about this issue?
- Who can you spread awareness to?

Strategy 1

No Plastic

Plastic permeates almost every aspect of our lives, it's found in many of our daily essentials such as our computers, food containers and vehicles. Some of those are what's known as "single-use" plastics, items that are used only once and will never be reused before they are thrown away. Single use plastics are items like straws, coffee stirrers, soda and water bottles, and most food packaging like candy wrappers, lids, Styrofoam and fast food packaging. Although it may be difficult to avoid, that doesn't mean we can't. All it takes is time and some thoughtful actions to slowly but surely eliminate single-use plastic from our lives.

Single-use plastic bags and styrofoam takeout containers can take up to 1,000 years to decompose.

Facts

- Globally, almost a million single-use plastic beverage bottles are sold every minute.
- Almost half of all plastic developed has been made since 2000.
- California was the first state in the U.S. to ban disposable plastic bags.
- The state of Maine has a ban on single-use polystyrene containers.

Discussion Questions

1. What do you think needs to be done to eliminate single-use plastic use worldwide?
2. What are some ways you can personally eliminate single-use plastic from your daily life, at school and in the community?
3. Is life without single-use plastic possible? Why or why not?

Strategy 2

Less Plastic

Reducing our plastic use is also a step toward a plastic-free world. When we are more thoughtful and even creative with the plastic products we use, we are consciously minimizing the plastic waste that would otherwise end up in landfills. We don't have to take one giant step first either, it's the little actions that we can do to make a huge impact at the end of the day.

Forty percent of the plastic produced is used once and then discarded.

Facts

- By using reusable drink containers an average person can eliminate the need for 100 disposable bottles per year. (Recycling Coalition of Utah)
- The U.S. EPA has estimated roughly 42 percent of all greenhouse gas emissions are caused by the production and use of goods, including plastic products and packaging. By reducing and reusing plastics, we'll reduce our carbon emissions.
- Shoppers in the United States use almost one plastic shopping bag per resident per day. That's an average of one person using 365 plastic bags a year.

Discussion Questions

1. What are some creative ways you can reduce and reuse your plastic?
2. How can you encourage others to use less plastic by filling and reusing products?
3. What are some obstacles you think you would face when reducing your plastic use?

Strategy 3

Better Plastic

When plastic is not handled correctly, it goes to landfill and transforms into microplastics. Microplastics are small pieces of plastic that occur in the environment as a consequence of plastics that are not recycled correctly. When plastics are handled correctly (properly recycled, collected and processed), they can be transformed, re-purposed and given a new life!

Plastic not recycled correctly ends up in landfills. Better recycling can help give them a new life and reduce waste.

Facts

- Plastic microfibers have been found in drinking water systems and in the air.
- The incineration of plastic produces carbon dioxide, which affects climate change.
- Most recycled plastics are only recycled once or twice before being disposed of.
- Around 40 million tons of microplastics are washed up, buried or resurface along shorelines worldwide.

Discussion Questions

1. What are some negative environmental effects and consequences of throwing away plastics instead of recycling them?
2. How have plastic waste and pollution affected your life?
3. What are some small and big actions you can do to improve your own recycling habits.

No Plastic

Despite the benefits of using plastic in our everyday lives, there are many long-term, harmful effects, too. What happens to single-use plastic items after we're done with them? The answer: they sit in landfills for years and years, harming our environment and ourselves. That's why working toward a no-plastic lifestyle is crucial to improving our earth.

Fast Facts about Plastics

• Every year, around 18 billion pounds of plastic waste from coastal areas are found in our oceans.	• Most plastics are non-degradable, meaning they cannot decompose and, instead, break down into smaller and smaller particles called microplastics.
• Microplastics contain chemicals that flow into the oceans.	• Aquatic species ingest microplastics, causing them to starve and die.
• Approximately 8 percent of global oil production is used to make plastic and power the manufacturing of it.	• By 2050, the use of oil in manufacturing plastic will increase to 20 percent.

Leading a Plastic-free Life

Living without plastic is easier said than done but even the smallest actions can make a big impact. Here are some steps you and your students can follow to eliminate plastic from your day-to-day and help keep the planet green!

1. Substitute single-use plastic items with reusable items.

Instead of using items such as plastic grocery bags, straws or take out drink cups, opt for reusable products. For example, use a cloth or reusable grocery bag, metal or glass straws and bring a reusable cup to restaurants or coffee shops.

2. Buy products that don't have single-use plastic packaging.

Many groceries, toiletries and other items have a protective plastic cover. Try to purchase items that don't have single-use plastic. For example, pick your own produce at the grocery store instead of the pre-packaged produce.

3. Bring your own items to reduce plastic consumption.

Whether it's shopping or eating out, carry your own reusable items. For example, bring a canvas tote bag when grocery shopping to replace plastic bags.

Activity

Plastics Tracker

When we work together, we can make an even bigger difference than we could alone. Use this activity as a way to help your students eliminate plastics from their daily lives. Tracking their progress in a visual, tangible way, will help them develop the improved habits of removing plastics from their day-to-day.

STEP 1

Choose one of these three ways you and your students want to eliminate plastics in your lives:

1. Substitute single-use plastic items with other products
2. Buy products that don't have single-use plastic packaging
3. Bring your own reusable items

STEP 2

Set a timeline for when you'd like to complete this activity to see how many plastics you can eliminate from your life within that time frame. E.g., two weeks, one month, etc.

STEP 3

Create a tracker at the front of the classroom or distribute one for each student to track how many times they've completed their chosen action and calculate how many plastic items were saved from entering landfills. Here's an example of what it can look like:

Name	Action	# of times in 2 weeks	Plastics saved
Jenna	Brought my own utensils for lunch	5 times	5 plastic forks and knives saved from landfills

STEP 4

Your Program Manager will reach out with a short survey for you to fill out on how many plastics you and your class were able to save from going into the garbage.

Less Plastic

Eliminating all plastics in our lives isn't an easy feat, but we can also try to reduce the amount of plastics we use. From opting to use metal straws instead of plastic ones to reusing shopping bags, there are still many opportunities to use less plastic, to help keep our planet green and our oceans blue.

Fast Facts on Unilever

Some larger organizations like Unilever already have plans in place to help reduce their plastics footprint and help consumers reduce their plastics use. Their goal is to advance to a circular economy, an economic system that aims to eliminate waste and promote the continued use and lifespan of resources.

- By 2025 Unilever will cut their use of virgin plastic in half.
- By 2025 Unilever will use 100 percent reusable, recyclable or compostable plastic packaging.
- By 2025 Unilever will collect and process more plastic than they sell.

Activity

The Four R's to Rethinking Plastic

As a class, use this activity to help students rethink how they're using plastic, ultimately reducing their plastics use.

STEP 1

Write the following statement at the front of the classroom:

To reduce our plastic use, it's important to take a moment to consider an alternative.

STEP 2

In four different spots around the classroom, put up signs or labels with the following titles:

Refuse	**Reduce**	**Re-use**	**Recycle**

STEP 3

Explain to the classroom that these are four different ways they can rethink how they use plastic:

Refuse Ask for alternatives that can be used again.	**Reduce** Reduce your plastic footprint by reducing the amount of plastic products used.	**Re-use** Try to re-use it where possible and dispose of responsibly.	**Recycle** Choose items that are recyclable to reduce additional material ending in our landfills and oceans.

STEP 4

Ask students to go around the class and write down different ways they can implement each action. For example:

Refuse Say no to single-use plastic products like straws.	**Reduce** Carry a reusable water bottle.	**Re-use** Refill a plastic water bottle.	**Recycle** Wash and recycle every plastic item you're done using.

Better Plastic

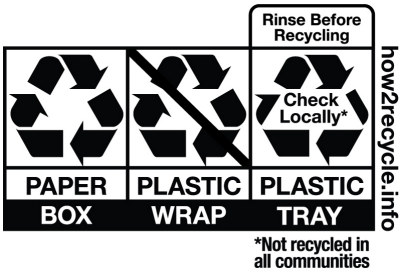
Sometimes we can't avoid using plastic, and that's okay. By moving toward a future that uses better plastic—plastic that is fully recyclable, reusable or made with recycled plastic—we can still help keep our planet green. Businesses, communities and local governments are coming together to empower the next generation with knowledge of how to recycle and reuse plastic. Together, we can make a huge impact.

Reading Symbols

Recycling items correctly can be a challenge. Different recycling programs, unclear labels and misleading recyclability claims can result in improper recycling practices. How2Recycle is a standardized labeling system that provides recycling instructions on products, empowering consumers across North America with the knowledge to properly dispose of their used plastic items.

Encourage students to look out for labels like the ones below so they're empowered to recycle correctly to reduce contamination and improve their recycling habits.

Learn more at **how2recycle.info**.



Virgin Resources vs. Recovered or Post-consumer Recycled Content

There's a lot of confusion about what recycled and post-consumer recycled content is and how it's better than other plastics, as well as what virgin resources are.

Virgin resources are resources used for the first time, and their extraction, processing and use require a lot of energy and can pollute the environment. To conserve natural resources, companies can practice resource recovery—extracting used materials and energy from waste and reprocessing them for reuse. For example, oil is a virgin natural resource that is extracted and processed from the ground to create plastic. By using recycled content instead of oil when creating plastic, a company is saving materials from being wasted, protecting natural resources, conserving energy and preventing pollution from occurring.

Plastic Waste and Pollution

Plastic has become an everyday staple because of its many benefits. It also plays a large role in the economy and corporate supply chains. However, the world is facing a plastic waste and pollution crisis, and it's critical that we rethink the way we make and use this material. By learning about the different issues surrounding plastic, we can take steps toward tackling these problems for a greener tomorrow.

Single-use Plastic

Single-use plastics are items that are used only once and will never be reused before they're thrown away. These include straws, coffee stirrers, soda and water bottles, and most food packaging, such as candy wrappers, lids, Styrofoam and fast food packaging.

Microplastics

Most plastics don't decompose but photodegrade, meaning that they slowly break down into smaller parts known as microplastics. On land, microplastics are more common because of the high UV radiation that breaks down larger plastics faster. In oceans, the temperature is much cooler and there is less UV exposure, slowing the process down.

Plastics Pollution

From individual littering to poor waste management systems to corporate mass-production of plastic waste, everyone plays a part in the current problem. Waste leaks into the environment, filling our oceans and our landfills.

Activity

Better Plastics Discussion

Together with your class, use this activity to help students understand why it is important to recycle and know what can be recycled. Through collaborative work, research and discussion, students will have a better grasp on the topic.

STEP 1

Learn more about recycling properly in your community.

Recycling rules	Recycling access	Plastic waste and pollution

STEP 2

Give each group time to research their topic. If students are having difficulty, guide their research with prompting questions such as:

- What is the issue?
- Why is it important?
- Who does it affect?
- What causes the issue?
- How does it impact the environment?
- What are the economic impacts? Societal impacts?
- How are organizations around the world tackling this issue?

Students can use the following resource to help get them started on their research: **recyclingpartnership.org/blog-recycling-curriculum-grades-k-3/**.

STEP 3

Have each group present their findings to the rest of the class.

Activity

Tracking Your Commitment

Your challenge is to change how you use single-use plastic, whether that's not using it at all, reducing the amount you use or using alternatives. Select one type of action you are committing to, or maybe commit to all three in some way.

We want you to track how many pounds of single-use plastic you used to use and how your commitment has changed this calculation. We've included a chart on the next page to help you calculate your pounds of plastic.

Single-use plastic item	Pounds
4 x 1 gallon milk jugs	1 pound
130 plastic bags	1 pound
9 x 2 liter plastic bottles	1 pound
250 plastic forks	1 pound

Definitions

- **Material Use**
  What do you want to decrease or stop using or use better?
- **Duration**
  How long will you do this for?
- **Use Before**
  Number of times you used this material before beginning the activity.
- **Pounds of Plastic Before**
  Approximate total weight of the plastic you used before making this commitment.
- **Use After**
  Number of times you used this material after commitment.
- **Pounds of Plastic After**
  Approximate total weight of the plastic you used since making the commitment.

Activity

Tracking Your Commitment

Together with your class, fill out the chart below to track your single-use plastics reduction. Now let's start tracking your impact!

	Activity Type	Material Use	Duration	Use Before	Lbs of Plastic Before	Use After	Lbs of Plastic After
Example	[ ] no plastic [x] less plastic [ ] better plastic	Single-use water bottles	[x] week [ ] month [ ] other	20	5 lbs	10	2.5 lbs
	[ ] no plastic [ ] less plastic [ ] better plastic		[ ] week [ ] month [ ] other				
	[ ] no plastic [ ] less plastic [ ] better plastic		[ ] week [ ] month [ ] other				
	[ ] no plastic [ ] less plastic [ ] better plastic		[ ] week [ ] month [ ] other				
	[ ] no plastic [ ] less plastic [ ] better plastic		[ ] week [ ] month [ ] other				
	[ ] no plastic [ ] less plastic [ ] better plastic		[ ] week [ ] month [ ] other				
	[ ] no plastic [ ] less plastic [ ] better plastic		[ ] week [ ] month [ ] other				

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