

Plastic Waste Solutions

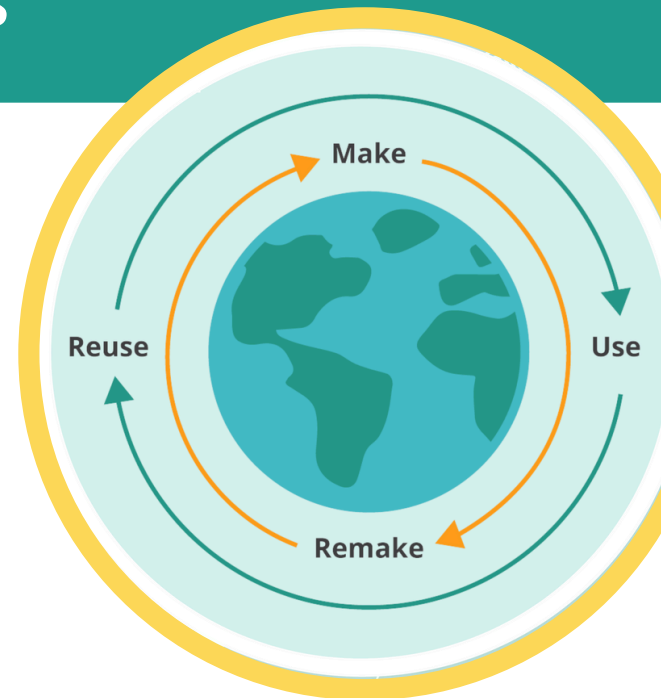
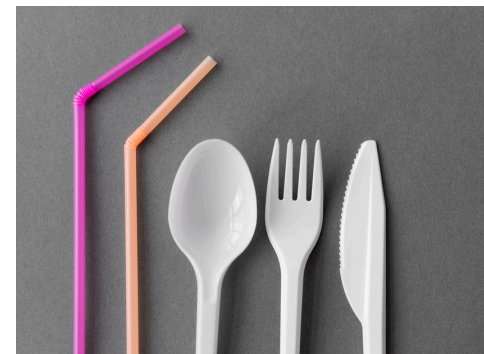
Introduction

To address the issue of plastic waste in our economic system, we need to think of ways to utilize plastic items after use instead of throwing them into landfills. In a circular economy for plastics, we can re-imagine ways how:

- Plastic items can be **eliminated** from our systems where there is no need for them
- Plastic items can be created for **reuse** – by designing them in such a manner that ensures they can be reused, recycled or composted
- Plastic items **circulated** within our economy and out of our environment by repurposing the materials used in the plastic products and packaging

Corporations, governments and consumers should work together to move towards a circular model for the economy that employs these principles. By eliminating unwanted and unnecessary plastic items, corporations can play the part in reducing avoidable plastic from the system.

The single-use plastic items pose the biggest challenge in addressing plastic pollution. Moving away from single-use plastic items towards designing plastic items that can be reused, recycled and composted is crucial. Cities across the globe have worked towards banning the use of single-use plastic items. On December 20th, 2023, the Government of Canada announced the ban for certain single-use plastic items that are hard to recycle. The ban included plastic shopping bags, single use utensils (plastic straws, spoon, fork, and knife), take out containers, and foam cups.



While there are many plastic clean-up efforts happening around the globe, here are examples of some initiatives working to reclaim plastic waste currently found in our environments (Nature Catalysis, 2019):

- Ocean Cleanup is a private environmental organization that is deploying automated plastic collection units in water bodies for clean-up:

 <https://theoceancleanup.com/>

- Alliance to End Plastic Waste is a non-profit working with various partners in government, non-government sectors, industry and local communities to end plastic waste in environment. They are also working with cities to improve their waste management systems:

 <https://endplasticwaste.org/en>

- 4Ocean is certified B-Corporation, who is also working to clean up the plastic polluting our oceans, while also raising awareness and educating the masses:

 <https://www.4ocean.com/>

One might wonder what can we do with all the plastic when it is collected from our environments—from our oceans and municipal solid waste? The industry is still learning ways to innovate and develop new technologies for dealing with all the plastic waste reclaimed from our environments. Recycling of plastic waste is a common strategy across the globe in dealing with all the plastic waste reclaimed from our environments. There are two ways of recycling plastics—either **downcycling** or **upcycling** them.

The traditional recycling methods involves using mechanical ways or incineration to create new products that are usually of lower quality than the original plastic, which is essentially a form of **downcycling**. Another form of recycling is catalytic recycling of plastic waste, which entails using plastic waste as “feedstock for the preparation of value-added materials” (Nature Catalysis, 2019)—this is a form of **upcycling** as we create products of higher value and quality through this method.



Plastic **repurposing** is also another term sometimes used interchangeably with upcycling – it also refers to using discarded plastic waste to create new products of higher value and quality. These methods allow for plastic materials to be **circulated** within the economy and out of our environments. Here are some innovative examples of plastic upcycling:

EcoBricks at Collingwood School Calgary

Collingwood School in Calgary, Alberta has an innovative project, called the “Eco-Brick Project”. The idea comes from Colombia as a response to help low-income families, especially recyclers, to have a home made out of eco-bricks! Each class at the Collingwood School brings an empty 2L bottle, where students fill the bottle with all the non-recyclable plastic - plastic that usually goes to the landfill. It looks easy but it is not! It requires strong muscles to press the plastic inside the bottle, fill out all the corners and end up with a very hard bottle, like a brick. The students have built a couch, a table and chairs with eco-bricks for the entire school to enjoy. As a result of this project, the school’s waste has decreased 70%.



Source: (Collingwood School, 2020)

Here is a link to the project:

 https://www.youtube.com/watch?v=ryGwn_9Ggns

Green Toys

Green Toys® is a US based company that creates toys from recycled plastic milk jars. Using a motto of reduce, reuse and recycle, Green Toys® tracks the number of plastic milk jugs reduced as a primary indicator of their impact. Here is a video on their story:



Source: (Green Toys, 2021)

 <https://www.youtube.com/embed/NDUSQrHXiww?autoplay=1>

Rothy's

Rothy's is a US based retail store that creates women's shoes and bags from recycled plastic. Here is a link to their website:

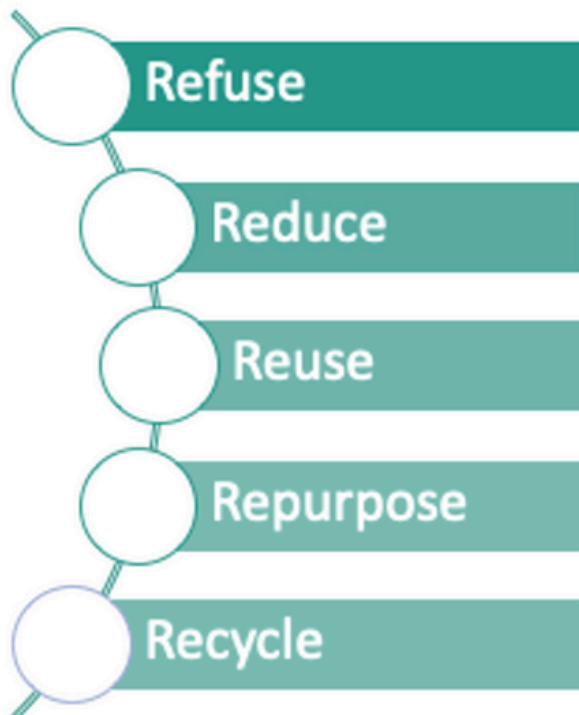
 <https://rothys.com/about>



Source: (Rothy's, 2021)

While companies are doing their part to create a circular economy for plastics, we as consumers can also do our part in adopting the 5 Rs approach, see figure below. Learn more on how you can live sustainably by reducing your plastic footprint by researching ways for applying the 5 Rs model in your lifestyle.

The 5 R's of Mindful Plastic Consumption



- Refuse to consume plastic by opting for environmentally friendly alternatives
- If you can't avoid certain plastic products, then reduce your consumption of them
- Reuse plastic products that you own as much as possible
- Instead of discarding plastics, repurpose them to make other useful products
- Once you have exhausted all ways to use and reuse the plastic, recycle them

References

Collingwood School. (2020). EcoBricks Project. Calgary, Alberta.

Green Toys. (2021). *Green Toys*. Retrieved from <https://www.greentoys.com/>

Nature Catalysis. (2019, November 19). Plastic Upcycling. *Nature Catalysis*, pp. 945-946.

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