

# Reducing Plastic Waste: Encourage Customers to Bring Reusable Mugs to La Prima

## Executive Summary

Carnegie Mellon University should do more to achieve its sustainability goals. CMU is currently working towards carbon neutrality, and a significant area it can improve is reducing its massive amount of plastic waste. Trash contributes directly to greenhouse gas emissions which increases its carbon footprint, so reducing waste, specifically plastic would help CMU achieve its sustainability goals. While most restaurants at CMU have switched to compostable food packaging materials, the coffee shops on campus, such as La Prima, still contribute to a lot of the waste.

CMU should encourage La Prima customers to bring in reusable mugs for their coffee to be made in. This could be done by providing a small discount for all customers who bring in a reusable mug or having a monthly raffle. After one semester of attempting to reduce plastic waste at CMU with this strategy, CMU can compare the number of people who now use reusable mugs with the incentive to the number prior to the incentive to decide if the strategy is effective.

## Background and Context

### *CMU's Commitment to Sustainability*

CMU's Sustainability Initiative aims to integrate sustainability into all aspects of the university's operations, ranging from academics to campus operations. The Sustainability Initiative stems from the United Nation's Sustainability Development Goals, which has a list of 17 goals nations should work towards to maintain peace and prosperity on the planet. CMU already has implemented a few initiatives to reduce its environmental impact and has done a great job smoothly integrating its composting and recycling programs onto campus, but there is always more that can be done<sup>1</sup>.

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<sup>1</sup> <https://www.cmu.edu/leadership/the-provost/provost-priorities/sustainability-initiative/index.html>

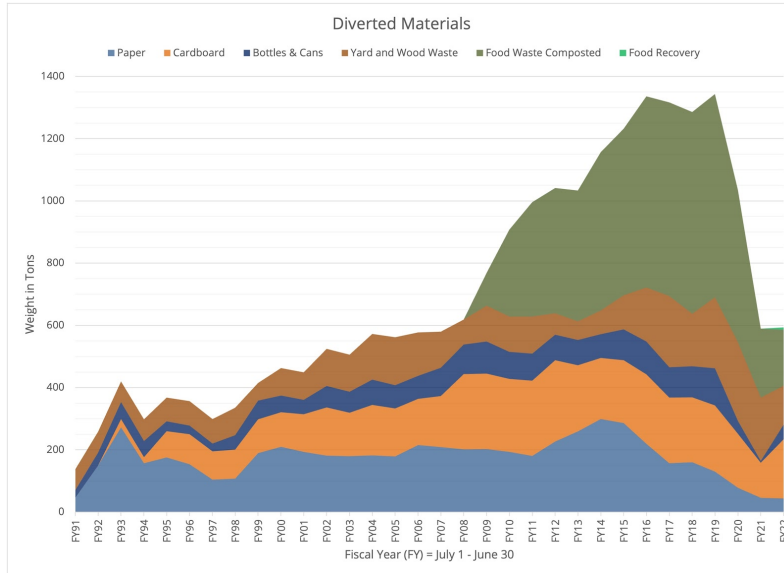


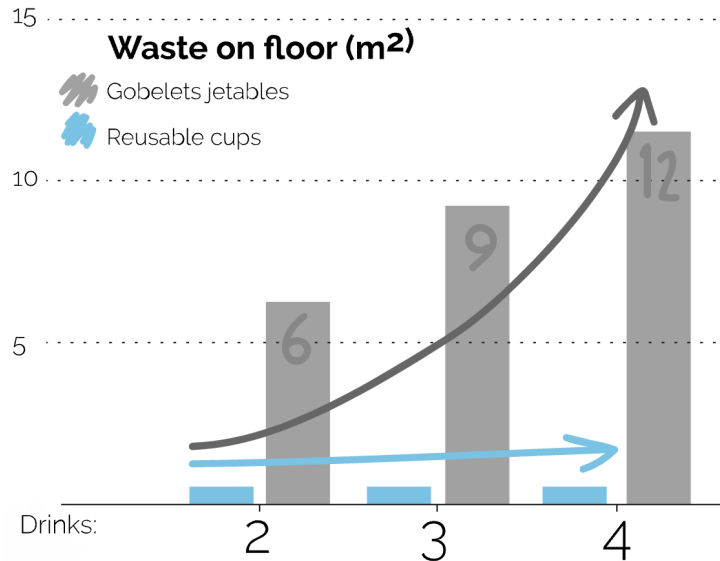
Figure 1: Diagram depicting CMU waste management. The dark blue region represents bottles and cans. A lot of waste does come from paper, cardboard, bottles, and cans, and it can be reduced. Some of this waste could be prevented with the use of reusable mugs at La Prima<sup>2</sup>.

CMU already encourages the use of reusable water bottles by providing water stations designed to easily refill water bottles across campus and even offering discounted reusable water bottles to buy. CMU also already provides education to students, faculty, and staff on the importance of reducing plastic waste and encourages newer ideas to improve CMU’s impact on the environment, so CMU staff should be receptive to new strategies to reduce waste.

**Big Problem of Plastic Pollution**

Plastic pollution is a significant environmental problem that affects the environment as well as human and animal health. Many types of plastic are not biodegradable and last in the environment for thousands of years. Some of the plastic waste ends up in oceans and natural habitats, which harms wildlife and degrades the health of ecosystems. Plastic waste also harms human health, as microplastics that result from plastic breaking down contaminate food sources and can release toxic chemicals into the environment that are harmful to humans.

<sup>2</sup> <https://www.cmu.edu/environment/recycling-waste/index.html>



*Figure 2: Diagram comparing the amount of waste that results from a different number of drinks and different types of cups used. It clearly shows the amount of waste produced by reusable cups is far less than the amount of waste produced by disposable cups (the gobelets jetables)<sup>3</sup>.*

The phrase “Reduce, Reuse, Recycle”, more commonly known as “The Three R’s”, is used to easily tell people how they can minimize their environmental impact. Unfortunately, most people forget that it goes from most impactful to less impactful. Before considering reusing and recycling, it is important to focus on reducing waste. Reducing waste is the most effective way to minimize the environmental impact because reducing waste also decreases the amount of energy and resources required to process and store the waste. The number of plastic cups used can be reduced by simply replacing them with reusable mugs.

Reusing products is the next best option because it reduces the need for new products to be manufactured, which conserves resources, energy, and materials. Unfortunately, not all items can be reused. Recycling should be the last resort, as it requires a lot of energy, resources, and water to process the materials and it still produces waste and emissions. Recycling and reusing are important to keep some materials out of landfills, but they cannot be considered the only solutions.

<sup>3</sup> <https://www.ecoverre.com/sustainable-management>

## ***Effectively Encouraging Certain Behaviours Through Positive Reinforcement***

Certain strategies are more effective at promoting positive behavior changes than others, such as positive reinforcement techniques. Positive reinforcement encourages desired behaviors by providing rewards for those behaviors. When used effectively, it makes the desired behavior more desirable and increases the chance of the behavior repeating. Essentially, providing an incentive for certain good behaviors rather than punishing for bad behavior has proven to be a more effective way to change human behavior. Over time, this desired behavior becomes a habit and most likely will continue even without the incentive of the reward<sup>4</sup>.

Many stores already utilize positive reinforcement to encourage behaviors that are beneficial to them. For example, Starbucks offers a rewards program where customers earn stars for their purchases, which can be redeemed for free drinks or food items. This program encourages customers to Starbucks and possibly become loyal customers. Starbucks also already implemented a 10-cent discount and 25 stars in rewards for customers who bring in their own reusable mugs for coffee at their shop. This encourages customers to become Starbucks members to accumulate rewards, and Starbucks does not lose money from this reward as the 10-cent discount comes from not needing to use the disposable plastic cup.

### **Problem Statement**

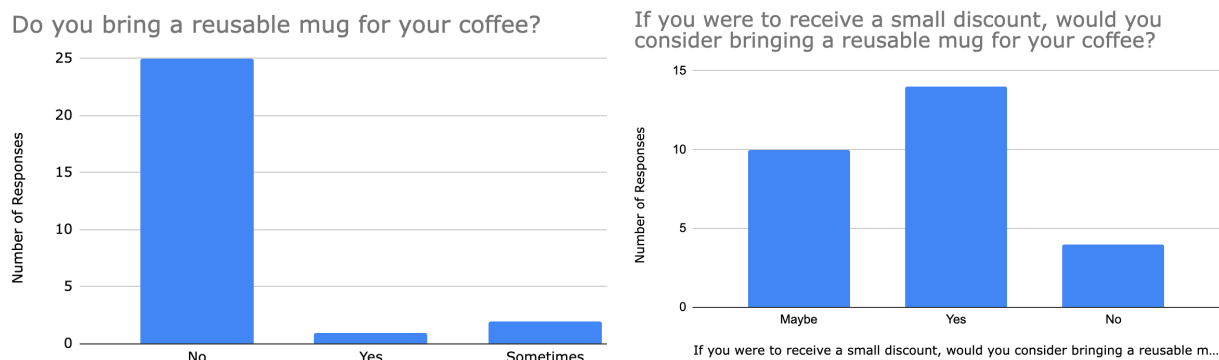
Plastic waste is a huge problem, and CMU needs to do more to reduce plastic waste on campus. The coffee shops on campus would be a great place to start: simply reduce the number of disposable cups used by encouraging customers to bring in their own reusable mugs.

### **How to Encourage Customers to Bring Reusable Mugs**

Consumers on campus would be willing to change their behavior. Most people on campus claim laziness are the main reason they do not do more to reduce their own plastic waste on campus. Most of those people also claimed that an incentive might be enough to push them to overcome their laziness. An incentive provides a predetermined benefit that would make up for the extra effort required to bring the mug and then clean it afterward.

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<sup>4</sup> <https://pubmed.ncbi.nlm.nih.gov/29083709/>

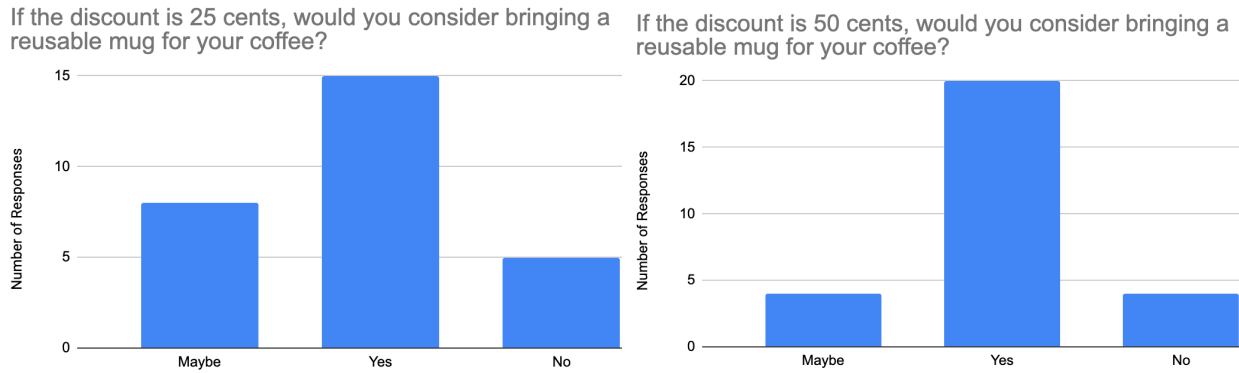


*Figure 3: The survey shows that a majority of La Prima customers do not bring reusable mugs for their coffee but would be willing to change their habits for a discount.*

### ***Solution 1: Provide a Small Discount for Customers who Bring Reusable Mugs***

One simple solution would be to provide a small discount to customers who bring in reusable mugs. This is similar to what Starbucks implemented to encourage environmentally friendly behavior. The incentive Starbucks went with was a 10-cent discount and 25 stars in rewards. Instead of a rewards program, La Prima can simply increase the discount to 25 or 50 cents. Any discount would pique consumers' interest, especially when a majority of those consumers are college students who most likely do not have a steady income. Additionally, this sort of rewards program has worked in different situations, so it is reasonable to infer that it would be successful on a college campus as well.

Not much would change for employees if this discount was implemented. Baristas would continue to make the drinks as they usually do; they would simply pour the drink into the reusable mug for those who brought one. There would need to be an option to add the discount at the cash register so that an employee can easily click that button to apply the discount. Additionally, there would be no loss to La Prima. The money that would have gone towards ordering more disposable cups is now given back to the customer instead.



*Figure 4: The survey shows that a majority of La Prima customers would be willing to bring in reusable mugs for a 25-cent or 50-cent discount.*

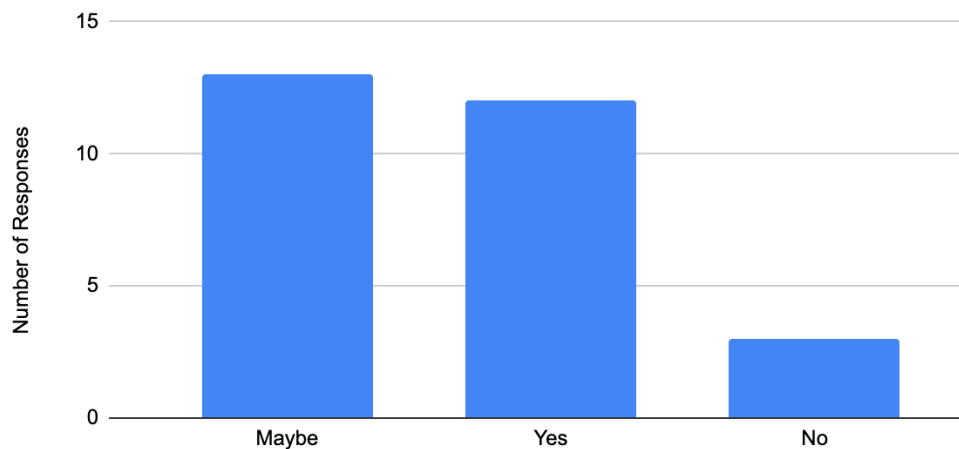
More people would bring in reusable mugs for a larger discount. To get consumers to bring in reusable mugs, La Prima should start with a larger discount, then reduce it to 25 cents after a month. One option for La Prima is to start with Earth Day, April 22nd. On Earth Day, any customer who brings in a reusable mug gets their coffee for 50% of the price. A majority of customers would put in the extra effort for such a discount. For the following two months after Earth Day, customers should get a 50-cent discount. It only takes 66 days for an act to become a habit<sup>5</sup>, so once customers have gotten into the habit of bringing reusable mugs for the discount, La Prima can reduce the discount to 25 cents.

***Solution 2: Set up a Monthly Raffle for Customers who Bring Reusable Mugs***

Another solution could be to have a monthly raffle for customers who bring in reusable mugs. For each disposable cup a customer saves, one raffle ticket under their name would be added. With this solution, the chance of winning would be enough to get customers to “overcome their laziness” and make it a habit to bring reusable mugs to coffee shops. La Prima would be saving money because they would require fewer disposable cups, and the money saved could be put toward the raffle gift.

<sup>5</sup> <https://www.ucl.ac.uk/news/2009/aug/how-long-does-it-take-form-habit>

If you were put into a raffle for bringing a reusable mug, would you consider bringing a reusable mug for your coffee?



*Figure 5: The survey shows that most of La Prima's customers would be willing to bring in reusable mugs to be entered into a raffle.*

An approximately equal number of students claim that a raffle is enough to encourage them to put in the effort to bring reusable mugs to La Prima, so it is a viable solution. While this solution does still keep students thinking about sustainability every time a raffle winner is declared, it would also require more time and energy to implement. It also requires more work employees would continuously have to do.

While Solution 2, is still a feasible and manageable solution, Solution 1 seems to be a lot better to implement and easier for employees.

### **There is Not Much Preventing La Prima to Implement This Plan**

Implementing a policy to encourage customers to bring in reusable mugs would not be very difficult. The main issue would be marketing it to the customers, which is easily done by simply adding a sign at the register or having an employee mention it when ringing customers up. Promoting environmentally friendly behavior would also increase customer loyalty and would bring positive press to the company. Such a plan would not even cost La Prima or CMU Dining Services much, as most of the plan is laid out for them by past examples and it would not require much extra effort on the part of workers to implement this plan, as employees would not actually need to clean the mugs, only use the mugs to make the coffee that they would already make.

To produce less waste on campus and bring CMU closer to its sustainability goals, La Prima should start encouraging more customers to bring in reusable mugs to make coffee in. Simply put a sign in front of the cash register with the word “discount” written in large lettering with the explanation of how if the customer brings a reusable mug to get their coffee in, they would receive a discount on their drink. The “discount” should be enough for most students to take the few seconds to read the sign. CMU could also utilize its mailing lists and the Sustainability Club on campus to help promote its new rewards program at La Prima. There would be minimal to no cost and it would make the environment a better place for everyone on campus.



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