

U of T Trash Team

Home Waste Audit (New Year's Edition) Summary

In January 2021, we led our second Home Waste Audit, this time with a New Year's theme. This audit motivated participants with a resolution to reduce household waste.

The Home Waste Audit has two main objectives:

- a. Learn about the waste stream in the municipality where you live. i.e., learn what bins you have (e.g., recycling, landfill, organics) and what goes in each of them.
- b. Decrease your waste footprint and divert waste away from your landfill bin by procuring and using products that you can reuse or that go into the other bins (e.g. recycling).

Waste literacy enables us to make choices about what materials we buy, how we use these materials, and what we do with materials when they reach end-of-life. Combined, these choices can reduce waste and protect our environment. Below, we share the data from our January 2021 Home Waste Audit. The data comes from a 4-week waste audit and four separate surveys:

1. The first survey was completed before the audit began and aimed to understand the perceptions of waste habits prior to auditing waste.
2. The second survey was completed just after the audit began and aimed to increase local waste literacy of participants.
3. The third survey was completed after the audit was completed and aimed to understand changes during the waste audit.
4. The final survey was 2 months post-audit and aimed to understand if participants kept the changes made during the audit.

This year's audit started with 34 participants from three countries, four provinces/states, and eight cities. Canadian participants were from Alberta (St. Albert) and Ontario (Caledon, Etobicoke, Hamilton, Orangeville, Toronto). American participants were from Oregon (Corvallis) and England participants were from London. Overall, 34 participants completed the first survey, 21 the second survey, 15 the third and 7 for the last survey. We had 15 participants complete the 4-week audit.

Perceptions of waste habits prior to participating in the Home Waste Audit

Before participating in the Home Waste Audit, participants were asked in the first survey to estimate the total number of waste items (landfill and recycling) produced per week in their household, and most (73%) estimated that they produced between 51-100 items per week. When this was compared to the Home Waste Audit results, most participants underestimated their waste. Within week 1, 50% of households discarded over 150 items within a week, compared to the 7% who estimated this before the audit (Figure 1).

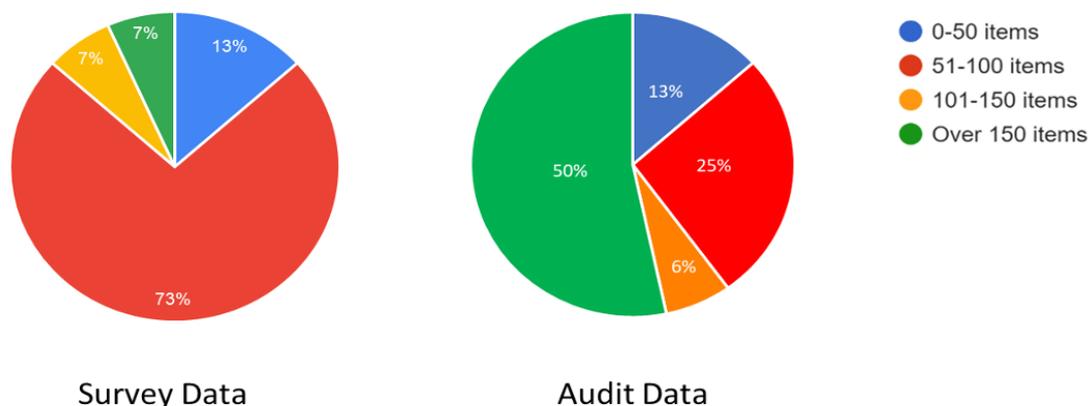


Figure 1. Comparison of survey responses (n=15) and Week 1 waste audit data (n=15) of the estimated and true total number of items thrown away per household each week.

Perceptions of changes in waste throughout the Home Waste Audit

Week 1 instructions were to continue 'business as usual', where participants were instructed to maintain their waste habits as they would normally do prior to auditing their waste. Data collected during the first week was useful to obtain a baseline, from which we could observe how waste habits changed over the course of the Home Waste Audit. During the first week, participants took part in a survey encouraging them to learn about their local waste streams and recycling guidelines through a series of questions about what can and cannot be recycled in their local area. They were also provided with resources including waste reduction tips from the U of T Trash Team. Participants were then challenged to reduce their overall waste in weeks 2-4 (e.g., by purchasing items with less packaging or using reusable alternatives).

When asked about which waste streams were available in their local area, we were pleasantly surprised to see that all participants (of the survey) had curbside pickup of both landfill and recycling waste available (n=20), in addition most had organic waste collection (n= 18). These results also indicated that many of us do not have to go further than our houses to manage our waste effectively, although this is not the case everywhere. While there are some similarities in waste streams, what can be thrown in each waste bin can be quite different among households. 70% of households were able to recycle plastic bags and Styrofoam, but only 10% could recycle black plastics. This demonstrates the differences between materials recovery facilities in each location, and what they can or can't recycle.

At the end of the audit, we followed up with the participants about how they perceived changes to their waste habits over the 4-week period. Throughout the Home Waste Audit, 40% of participants reported that their amount of landfill waste had stayed about the same, and 60% of participants reported that their landfill waste had decreased a little (Figure 2). When asked to reflect on changes in their recycling habits, 26.7% of participants reported that their amount of recycling waste had stayed about the same, and 46.7% of participants that their recycling waste

had decreased a little. Below, we will take a look at what really happened (Figure 2).

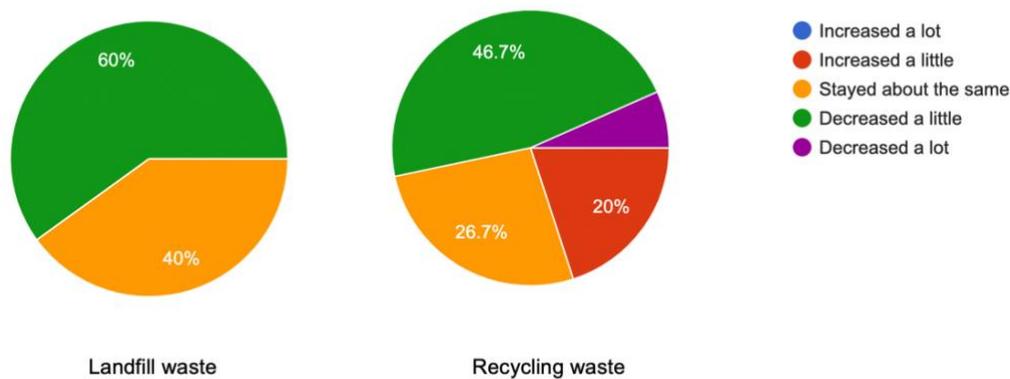


Figure 2. Participants' estimations of how their amount of weekly landfill and recycling waste had changed over the course of the 4-week Home Waste Audit (n=15).

Measured changes in waste throughout the Home Waste Audit

Overall, data collected throughout the 4-week Home Waste Audit demonstrated that total waste among all households did not change during our study. In week 1, total average waste per household (recycling and landfill) was 126 items per week. In Week 4 total waste was 127 items per week (Figure 3). Average total waste per individual increased over the course of the audit, from 51 to 58 items per week.

When separated into different waste streams (Figure 3), landfill waste increased from a household average of 30 items in Week 1, to 34 items in week 4. Recycling waste also increased from an average of 21 items in Week 1, to 24 items in Week 4. In both waste streams, the greatest increase was observed between Weeks 3 and 4.

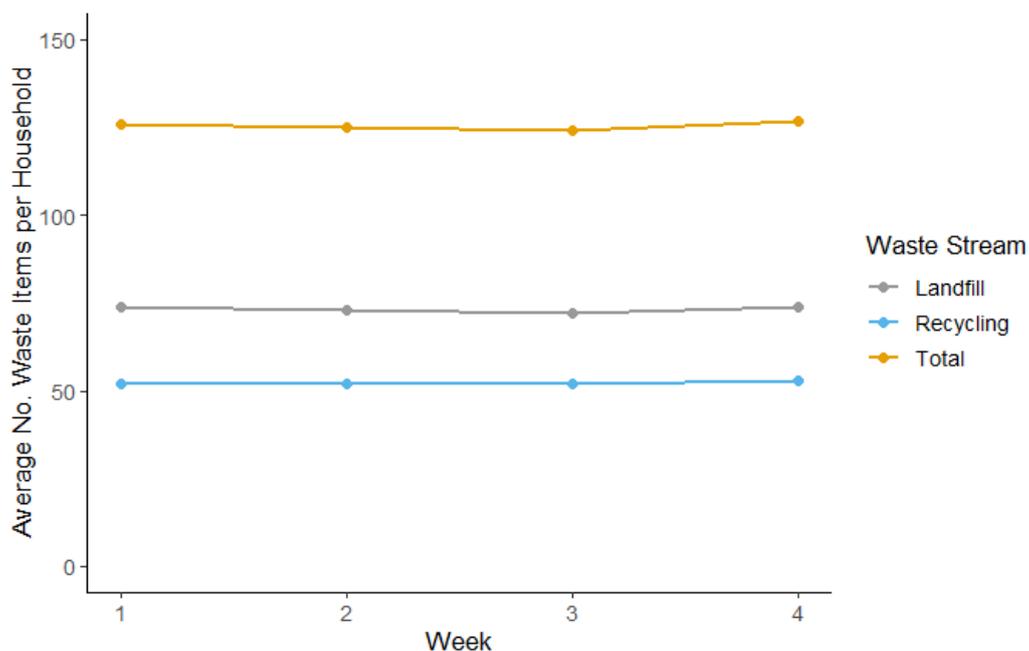


Figure 3. Number of waste items in landfill (grey), recycling (blue) and total waste (landfill and recycling, orange) thrown away per household per week. Numbers averaged across all participating households (n=15).

Home Waste Audit data by material type

When auditing waste, participants categorized items by material type: plastic, paper, metal, glass, mixed materials and other. Throughout all four weeks, the most common material type within landfill waste was plastic (Figure 4). The most common plastic items within landfill waste in Week 1 were soft plastic packaging, dental floss and produce stickers. In Week 4, the top items were soft packaging, dental floss and hard packaging. Throughout the audit the number of plastic items in landfill waste was around twice that of paper. Although total landfill waste remained about the same, the number of mixed materials in landfill decreased and paper and plastic increased.

Within recycling waste, paper was the most common item throughout all four weeks, at around 26 items per week (average among all households) (Figure 5). The most common items within recycling waste were cardboard boxes, paper and toilet paper rolls in Week 1. By Week 4, this had changed to flyers, paper packaging, envelopes and toilet paper rolls. Throughout the 4-week audit, the average number of plastic items put in recycling decreased slightly, while the average number of paper items increased. This indicates that participants might have been purposely choosing to purchase items packaged in paper rather than plastic.

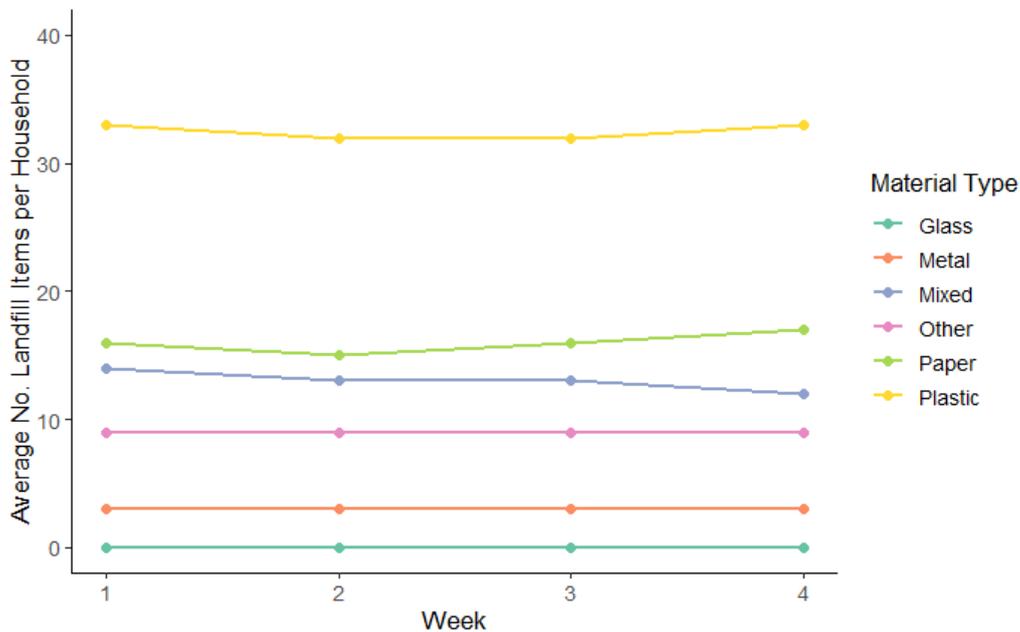


Figure 4. Number of landfill waste items of each material type (glass, metal, mixed, other, paper or plastic) thrown away per household per week. Numbers averaged across all participating households (n=15).

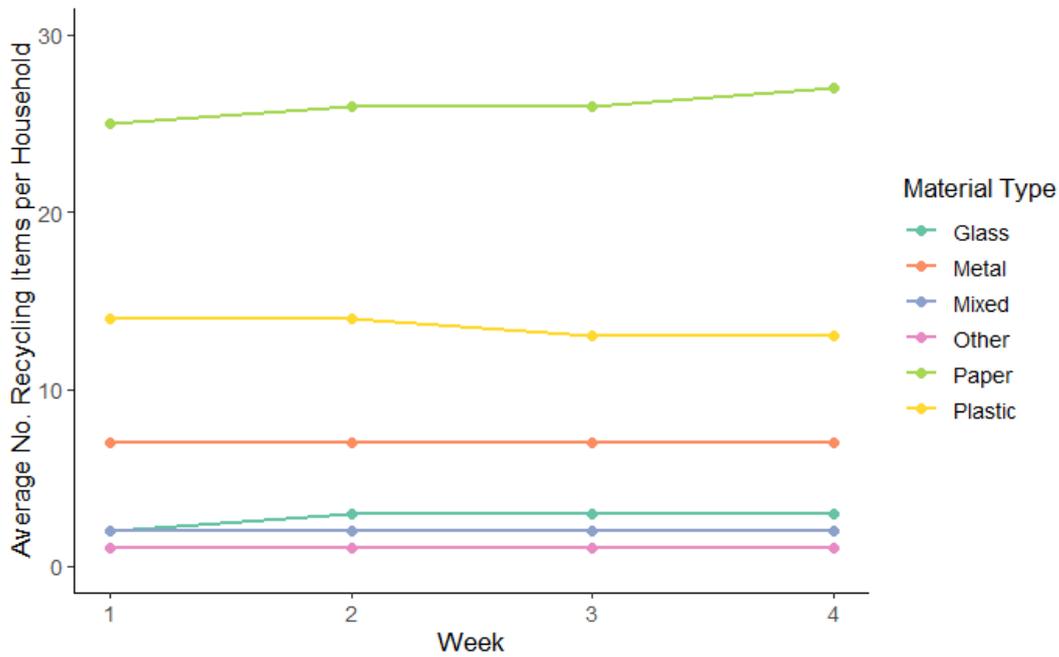


Figure 5. Number of recycling items of each material type (glass, metal, mixed, other, paper or plastic) thrown away per household per week. Numbers averaged across all participating households (n=15).

The Home Waste Audit as a tool to increase waste literacy and change behaviour

One of the questions on the third survey focused on whether the participants learned something new by reading about their local waste streams and taking the surveys. Overall, 95% of participants reported learning something new during the Home Waste Audit. Some participants learned about their waste stream, where different waste items go, and information provided by the city. In terms of materials, people learned the most about Styrofoam. One participant highlighted that Styrofoam could go into the recycling bin in Toronto and other participants from different regions highlighted that Styrofoam can be brought to a recycling depot (Figure 6).

Learning something new



Figure 6. Comments from participants about what they learned during the Home Waste Audit.

When we asked about what changes participants made to their waste habits throughout the Home Waste Audit, 12 out of 15 participants looked for information on how to dispose their waste properly. 7 out of 15 participants upcycled or reused items that would otherwise go to waste, threw items into the recycling bin that they previously would have put in the landfill bin, swapped a single-use plastic item for a reusable alternative, and/or used reusable containers instead of disposable Ziploc bags (Figure 7). Other changes participants made included watching a video clip on waste reduction in the kitchen and walking further to buy products sold without plastic packaging. Some even stopped buying certain products to avoid plastic packaging, and even had an in-depth conversation with family members regarding their consumption habits. Most importantly, participants reported becoming more aware of the waste they produced on a weekly basis.

What changes did you make to your usual waste habits throughout the home waste audit?

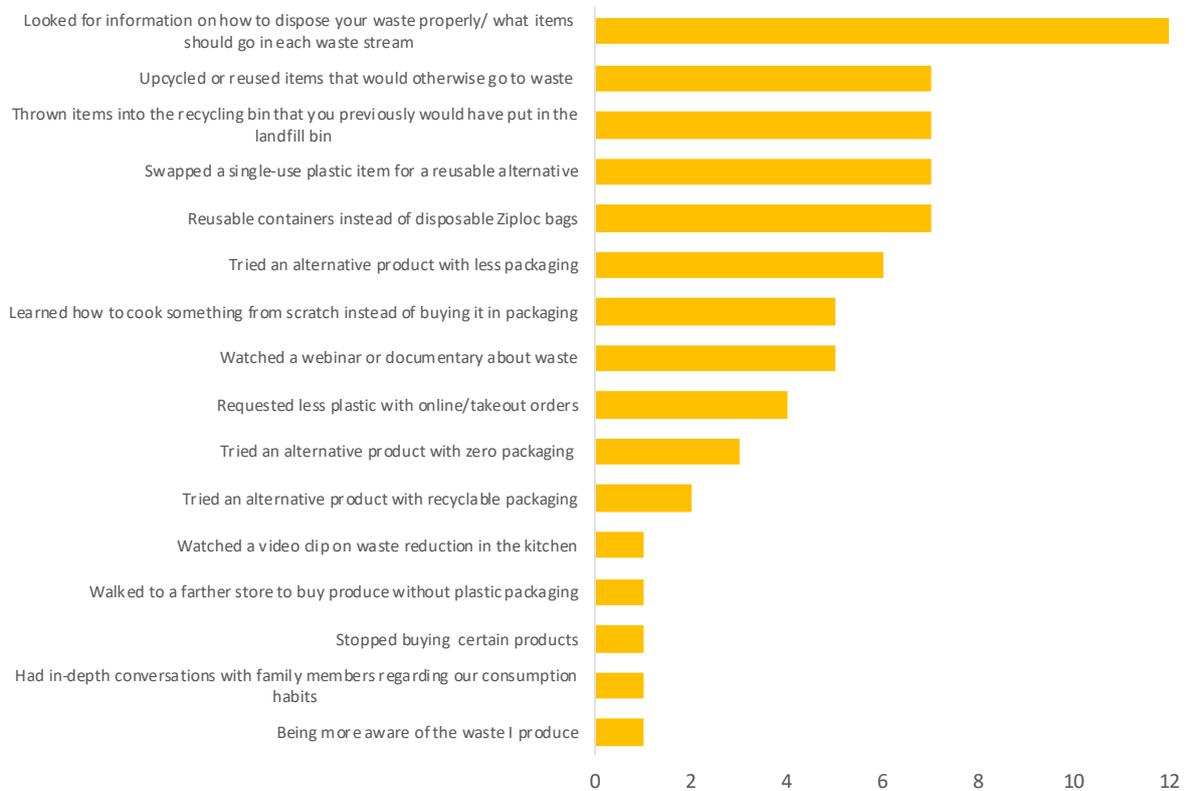


Figure 7. Changes made throughout the waste audit (n=15).

The easiest changes made throughout the Home Waste Audit were remembering which bin to place items in, avoiding single-use plastics and reusing and repurposing items (figure 8).

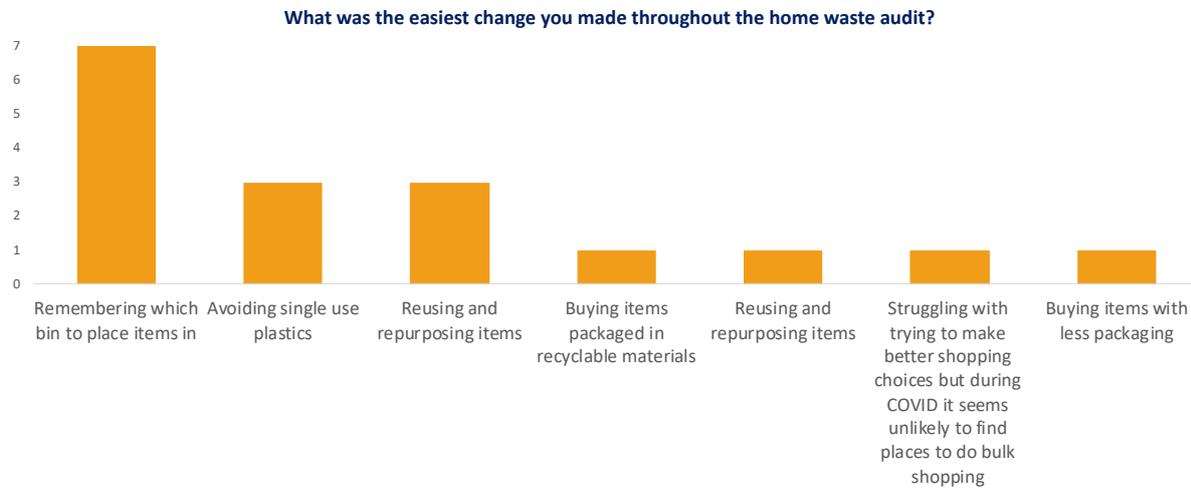


Figure 8. Easiest changes made throughout the waste audit (n=15).

When participants were asked about the most difficult change made during the audit, the top three responses were: buying items with no or less packaging and avoiding single-use plastics. On the other hand, three participants reported avoiding single-use plastics as one of the easiest changes to make. Other difficult changes reported were finding items packaged in recyclable materials and reusing and repurposing items (Figure 9).

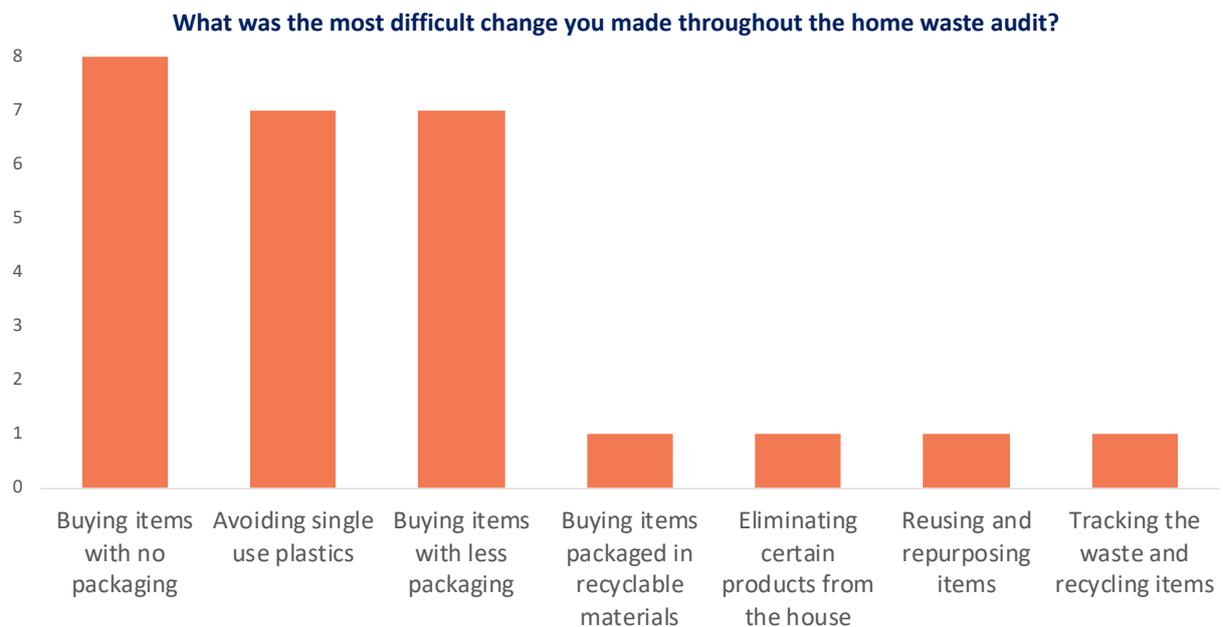


Figure 9. The most difficult changes made throughout the waste audit (n= 15).

Survey results suggested that some or all of the positive changes made during the Home Waste Audit continued after their audit ended. Among participants who replied to the final survey, 71.4% kept some of the changes and 28.6% kept all the changes (Figure 10). Thus, although the number of waste items didn't change overall, this indicates that a Home Waste Audit can be a useful tool to change behaviour. Participating in a Home Waste Audit can also increase waste literacy among non-participants; 57.1% of participants that responded to the final survey indicated that they had shared something they learned with others.

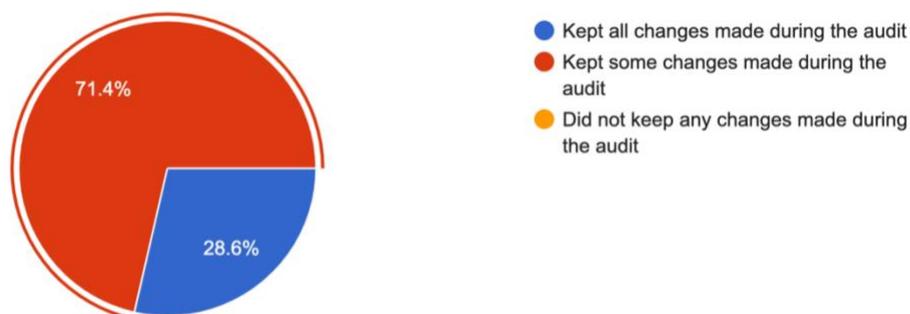


Figure 10. Participants self-reported waste habits from the two weeks after the Home Waste Audit (n=7)

Summary of Home Waste Audit Results

- Most participants underestimated their weekly waste prior to participating in the Home Waste Audit.
- Average household waste (landfill and recycling) did not change throughout the 4-week audit, suggesting a longer audit may be necessary to see measurable change.
- Throughout the audit, the most common material within landfill was plastic. The most common landfill items were plastic packaging and dental floss.
- The most common material within recycling waste was paper, with the most common items being packaging and toilet paper rolls.
- The top three most difficult changes made were buying items with no or less packaging and avoiding single-use plastics.
- Most participants kept some or all changes made throughout the Home Waste Audit.
- Participating in a Home Waste Audit is an effective way to learn about local waste streams, increase waste literacy and initiate behaviour change.

Prepared by:

Hannah De Frond, Rafaela F. Gutierrez, Chelsea Rochman, Susan Debrececi and Cassandra Sherlock.