Commissioned by the London Borough of Barking and Dagenham

ADDRESSING PLATE WASTE

IN SCHOOL SETTINGS

Drawing on insights from the pupil-led Food Waste Audit at Dorothy Barley Junior Academy, this report captures the figures, conversations and recommendations emerging from this pilot project. It concludes with a practical, school-ready framework and resources to support a partnership-driven approach across local schools to tackle food waste, inspire behaviour change and accelerate the shift towards a low-carbon, healthy and fair food system.



Pilot Period: March 2026

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INTRODUCTION

This project supports London Borough of Barking and Dagenham (LBBD) school communities to measure, understand and reduce food waste in school kitchens. This contributes data to the ReLondon Food Purchasing Commitment, which LBBD has signed along with catering provider BD Together (BDT) to shift to a low carbon, healthy and fair food system and serve low carbon school meals [11].

BD Together have committed to measuring the food waste incurred in their kitchens, while the LBBD Food Education Network proposes to work with teachers and pupils to measure ‘plate waste’ in school canteens using the “Yes to Taste No to Waste Schools Project Framework” and to support engagement in wider sustainability and behaviour-change objectives across school communities.

This project report is a step towards developing a better understanding of the challenges a London primary school faces in reducing their edible food waste and consists of a food waste audit commissioned by LBBD. The audit took place at Dorothy Barley Junior Academy School, Dagenham in March 2026.

CONTEXT

Dorothy Barley Junior Academy (DBJA) is part of the REAch2 Academy Trust (Raising Educational Achievement for Children). In May 2017 it was graded “good” in all areas by Ofsted [1]. As a REAch2 school, DBJA has committed to a number of sustainability objectives which includes developing children’s knowledge of the importance of environmental sustainability, the championing of conservation and bio-diversity enrichment, and to making a significant reduction to the school’s carbon footprint by 2027 [2].

To achieve this, and with the committed leadership of the school’s Head Teacher Cathy Leicester, the school has a sustainability policy and action plan, and has embedded ecological literacy and environmental sustainability into the core curriculum. Cathy Leicester trained to be an expert leader with Climate Wise Schools and the school’s sustainability champion Gemma Alter trained to be an expert teacher with the same organisation. All staff have completed the Carbon Literacy training provided by the Carbon Literacy Trust Project.

With this focus and pioneering attitude, DBJA is an ideal location for a pilot plated food waste audit and for an exploration of approaches to reducing this waste. In addition, DBJA is a member of the Eco-Schools network; part of Keep Britain Tidy. In preparation for this project, the school was provided with resources created for schools by Groundwork “Yes to Taste, No to Waste”[3].

As a state school in London, all pupils of Dorothy Barley Junior Academy are entitled to free school meals as part of Mayor Sadiq Khan's Universal Free School Meals policy; an initiative launched in 2023 and extended until September 2026, which provides free, healthy lunches to all London state primary school pupils [4].

With an overall roll of approximately 300 pupils (Years 3-6), 210 pupils regularly choose to eat free school meals, with a further 90 pupils opting to bring their own lunch from home. Parents order their children's daily meal choices each school day via an app designed for this purpose. Alternatively, they can block-order their children's meals using the same app.

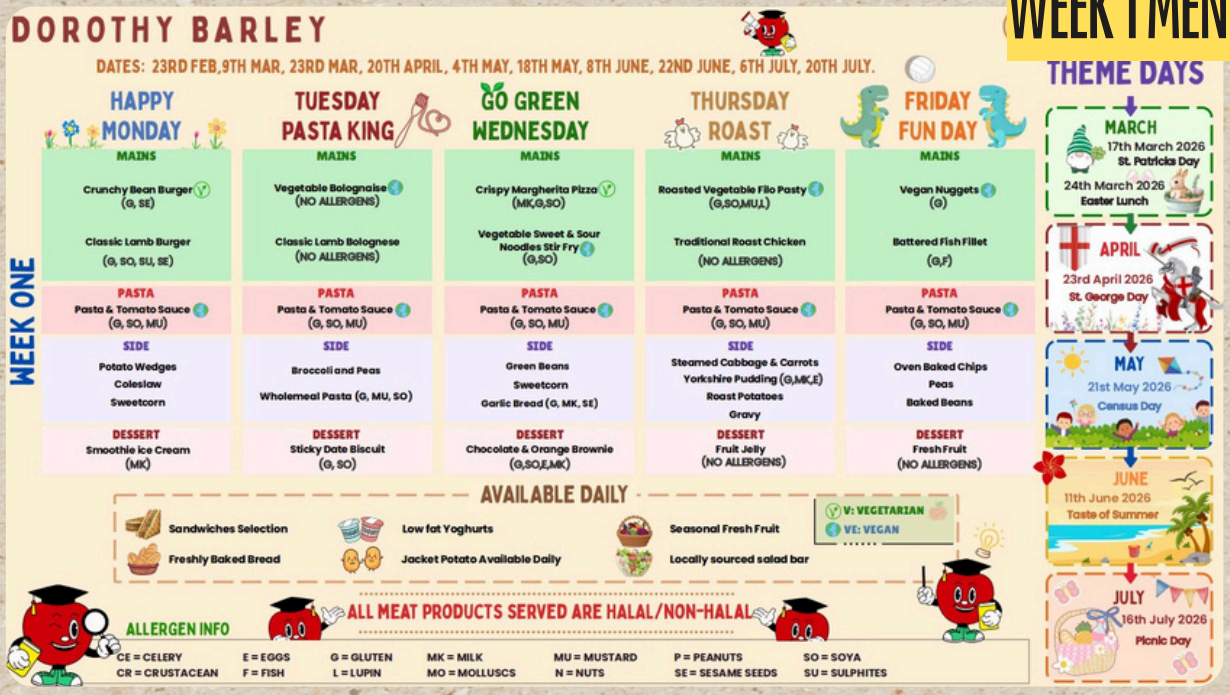
The extent to which children are consulted in this process is unknown; anecdotally, children in Year 6 are more likely to take responsibility for ordering their own meals than those in Year 3. Parents may have aspirations for what their children consume and may order accordingly. This may conflict with what pupils themselves wish to eat, inadvertently contributing to food waste when the parent-selected meal is not consumed. Further qualitative research would be needed to better understand meal selection practices and their contribution to food waste.

A two-week rotating menu is provided biannually by the council-owned catering firm BD Together (BDT), which supplies over 16,000 meals to schools in the borough [5]. BDT gained Bronze accreditation in The ProVeg School Plates Awards, which recognises the healthiest and most climate-friendly school menus across the UK (10). Head Chef Sue Pyne regularly communicates with BDT with feedback and requests based on observations of how individual meals are received by pupils. This responsive approach plays an important role in monitoring and potentially adjusting which meals are offered to pupils. However, the two-week menu, once agreed with the school, is largely set.

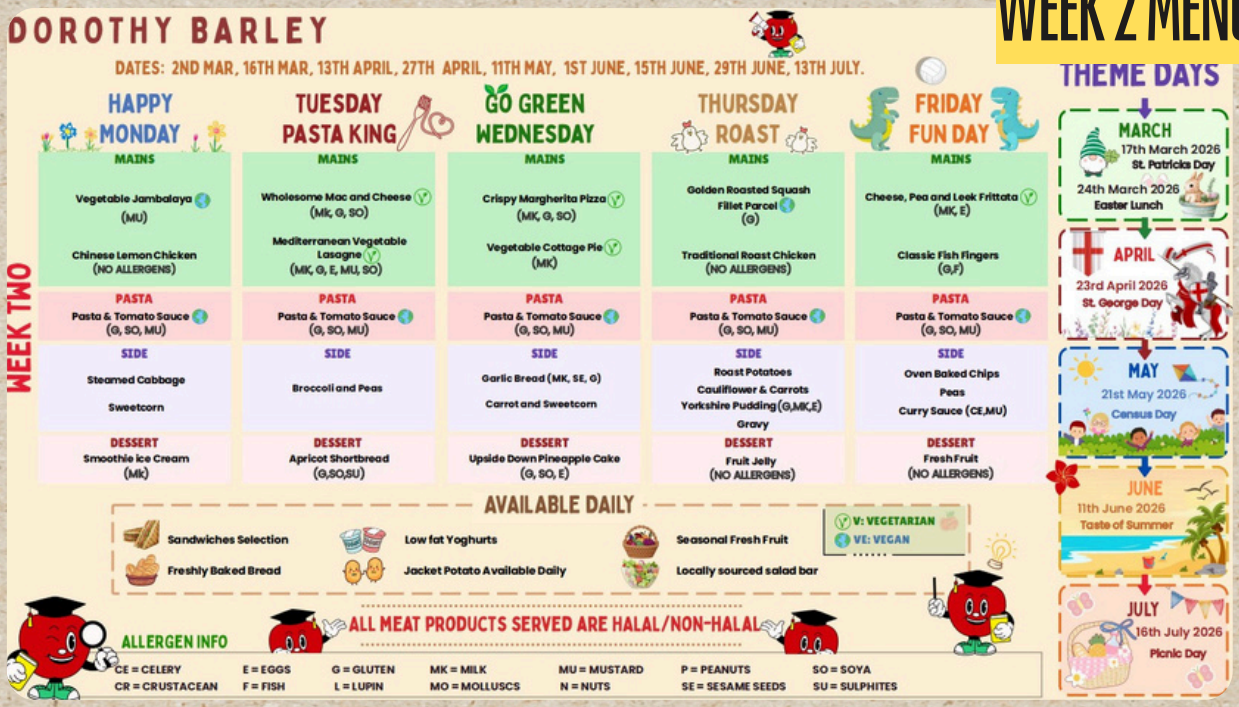


LUNCHTIME MENU MARCH-JULY 2026

WEEK 1 MENU



WEEK 2 MENU



APPROACH

Led by Kathleen Wenn and Nadine Clair, and following recommendations of the “Yes to Taste, No to Waste” toolkit, 8 pupils were recruited (2 from each Year Group) and trained as ‘food waste warriors’ to assist in the weighing of edible food waste. Additionally, food waste warriors gain feedback from pupils about their experiences in the school canteen. Food waste warriors were directly engaged in this way to increase their sense of ownership, confidence and achievement. For example, a number of food waste warriors, on their own initiative, advocated for reducing food waste with other pupils while they ate their lunches together.

Waste bins, bags and scales were provided for each Year Group and set up in the canteen for use during the lunch hour. A staff member was asked to take photographs of the food waste as regularly as possible. The Head Chef provided the weekly menus for cross referencing with these photos and with the observations collected by pupils and staff and shared in a weekly online meeting.

FLATBED SCALES WERE ABANDONED AFTER THE FIRST WEEK AS PUPILS AND STAFF FOUND THEM DIFFICULT TO USE.



IMAGE 1:

Each Thursday morning, staff, food waste warriors (except in week one), and the auditing team met online to debrief and share insights and feedback on the previous week. This established a responsive mode of operation, enabling us to resolve issues quickly. For example, during the first week of measuring, a flatbed weighing scale was used; however, it proved cumbersome and difficult for the pupils to use due to the weight of the waste bags. A luggage scale with a hook to hang the food waste bags was used instead, which provided an easier way for pupils to measure the waste accurately. This weekly check-in also enabled additional qualitative data collection. This would be used to triangulate the data along with any comments written by pupils and the staff's photographs of food waste.



IMAGE 2



IMAGE 3

EASY TO READ HAND-HELD SCALES

EXAMPLES OF FOOD WASTE DURING THE PERIOD OF THE AUDIT.



IMAGE 4

Edible waste was measured by Year Group and logged on a paper record attached to the dining hall wall. At the end of each week, this log was sent electronically to the auditing team so that the data could be compiled and interpreted. In addition, Food Waste Warrior pupils were asked to keep diaries of their observations and take part in short weekly online discussions with staff and auditors. In addition, in week 1, a single-question survey was conducted by a proactive waste warrior to determine whether pupils would prefer a sandwich, a wrap, or a roll, following the observation that wraps were disproportionately wasted compared with other options.



IMAGE 5

EXAMPLES OF FOOD WASTE DURING THE PERIOD OF THE AUDIT.

NB:Edible food waste in this context is food that has been served to pupils but not eaten.

The waste measurements supplied were added to a database which would subsequently be translated into user-friendly graphics to be shared with the school to enable staff and pupils to reflect on what edible food had been wasted and why. Staff suggested using the existing Dojo system to encourage pupils to contribute to a Year Group reduction in food waste. The Year Group with the greatest food waste reduction at the end of the pilot would be rewarded collectively with Dojo points which can be exchanged for privileges like extra play time or a uniform-free day. Dojo is a points based system designed to promote positive behaviour in the classroom. This competitive element was introduced in the second week of measurement.



IMAGE 6

A "WASTE WARRIOR" PUPIL NOTES DOWN THE WEIGHT OF A YEAR GROUP'S FOOD WASTE FOR THE DAY

DATA

The data accounted for daily food waste per year group, including the number of meals ordered daily. The data collected and shared each week is presented in table 1.

TABLE 1: FOOD WASTE RECORDS, MEALS ORDERED AND TOTAL WEEKLY FOOD WASTE PER YEAR GROUP

Period	Days	Waste (kg)	Meals ordered (units)	Waste (kg)	Meals ordered (units)	Waste (kg)	Meals ordered (units)	Waste (kg)	Meals ordered (units)
Week 1	Monday	4.25	60	5.30	54	4.50	59	5.15	53
Menu 1	Tuesday	6.45	61	7.05	54	8.00	58	6.65	51
	Wednesday	4.50	63	4.40	53	3.63	57	3.60	51
	Thursday	5.00	59	4.65	59	5.00	54	5.00	55
	Friday	6.73	60	4.50	54	5.00	54	5.00	54
	Weekly total	**26.93**	**303**	**25.90**	**274**	**26.13**	**282**	**25.40**	**264**
Week 2	Monday	2.10	66	2.20	52	2.52	54	3.63	49
Menu 2	Tuesday	4.40	56	4.48	53	4.13	57	4.71	46
	Wednesday	4.28	57	4.30	51	3.92	51	2.95	56
	Thursday	5.71	59	5.44	51	3.39	51	4.64	48
	Friday	5.49	43	3.59	39	3.98	35	3.07	35
	Weekly total	**21.98**	**281**	**20.01**	**246**	**17.94**	**248**	**19.00**	**234**
Week 3	Monday	4.32	58	4.88	56	3.82	53	2.96	59
Menu 1	Tuesday	6.46	57	5.38	53	5.82	54	3.15	46
	Wednesday	3.29	58	2.61	53	2.83	51	3.26	56
	Thursday	4.80	58	4.64	56	4.47	54	4.96	54
	Friday	7.60	59	5.76	55	6.20	55	4.92	56
	Weekly total	**26.47**	**290**	**23.27**	**273**	**23.14**	**267**	**19.25**	**271**

Note: Value in blue was missing from data, the mean of four days of the correspondent week was used

RESULTS

As seen in Table 2, the total amount of food waste generated in the pilot was 275.5 kg across all four year groups during three weeks. In week 2 (W2), the lowest total food waste of the pilot was observed; however, the number of meals ordered that week are 10% lower than the average of the other weeks.

When normalising the results to account for the disparity in meals ordered, it can be seen that W2 is still the week with the lowest amount of food waste generated. **Please note that on W2, the menu changed to option 2 (menu 2) and also scales were changed, which adds to the potential uncertainties of these results.**

TABLE 2: TOTAL WEEKLY AND PILOT FOOD WASTE

	W1 - Menu 1	W2 - Menu 2	W3 - Menu 1	Total Pilot
Food waste (kg)	104.36	78.93	92.13	275.42
Meals ordered (units)	1123	1009	1101	3233
Normalised food waste per orders	0.093	0.078	0.084	0.085

Figure 1(below) shows the weekly food waste generated per year group for this three-week pilot. Across all year groups, week 1 (W1) shows the highest food waste in the pilot, while week 2 (W2) shows the lowest in almost all year groups. The only exception is Y6; W2 and W3 show relatively similar values in absolute terms (Figure 1a), while W3 is the lowest when normalised by meals ordered (Figure 1b).

When accounting for the total food waste generated, in absolute terms (Figure 1a), on a weekly basis, there is very little difference between year groups (with Y6 being the exception). However, when accounting for the meals ordered, we can see different trends. Y3 was the only group in which food waste increased on W3 to levels higher than on W1. Y4 and Y5 show very similar trends and food waste values across all pilots.

Overall, in absolute terms (Figure 1a), W2 shows reductions of 18% (Y3) to 31% (Y5) compared to W1, whereas, when normalised, reductions are more moderate, ranging from 12% (Y3) to 22% (Y5) (Figure 1b). In addition to menu changes, a lower number of meals were ordered, and changes on the scales in W2 were due to holidays that affected some meal options, e.g., St Patrick's Day, Eid Al Fitr.
In W3, food waste in absolute terms is lower than in W1 (though still higher than in W2), but the range is narrower, from 2% (Y3) to 24% (Y6). When accounting for the meals ordered, food waste increased in Y3 (3% from W1 levels), while the largest reduction was seen in Y6 (26%). There is one exception: the food waste generated by Y3 pupils slightly increased on W3 compared to W1.

FIGURE 1A: TOTAL WEEKLY FOOD WASTE PER YEAR GROUP

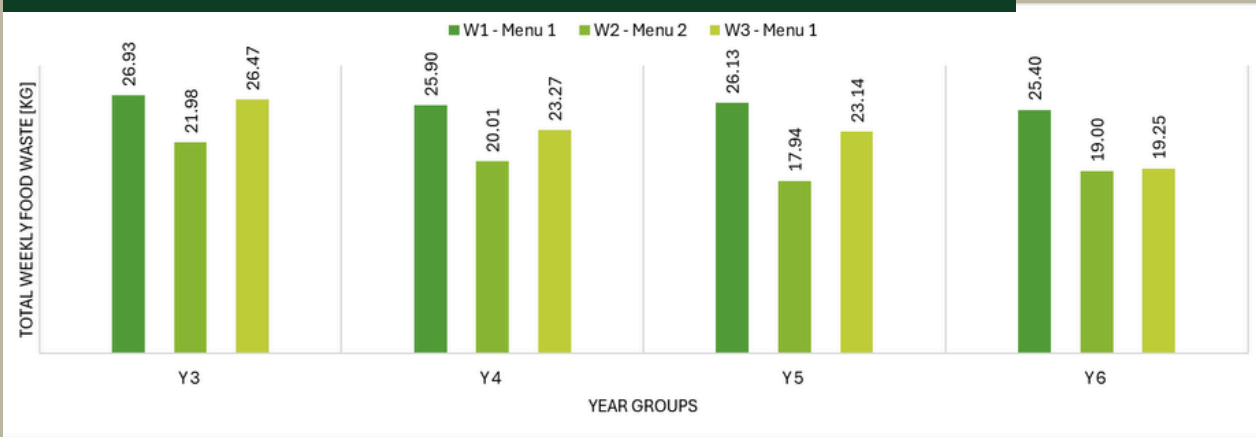
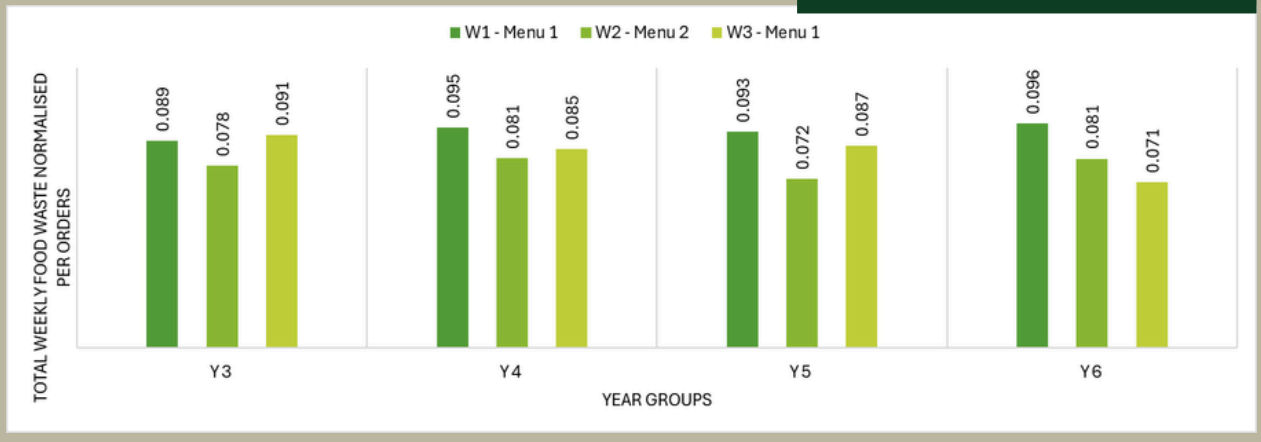


FIGURE 1B: TOTAL WEEKLY FOOD WASTE PER YEAR GROUP NORMALISED PER ORDERS



The total food waste generated from kids plates can be converted to equivalent meals wasted, considering the weight of an equivalent meal as 270g [3]. Figure 2 shows the equivalent meals wasted. The total equivalent meals wasted is 1,020, which represents a weekly average of 340 equivalent meals. As expected, Y6 has the lowest amount of meals equivalent wasted, estimated at 236 during the whole pilot. They are closely followed by Y5 and Y4, with 249 and 256 meals wasted, respectively. Finally, Y3 is the group wasting more equivalent meals, calculated at 279 meals (during the pilot).

FIGURE 2: MEALS EQUIVALENT WASTED EACH WEEK, PER YEAR GROUP, DURING THE PILOT

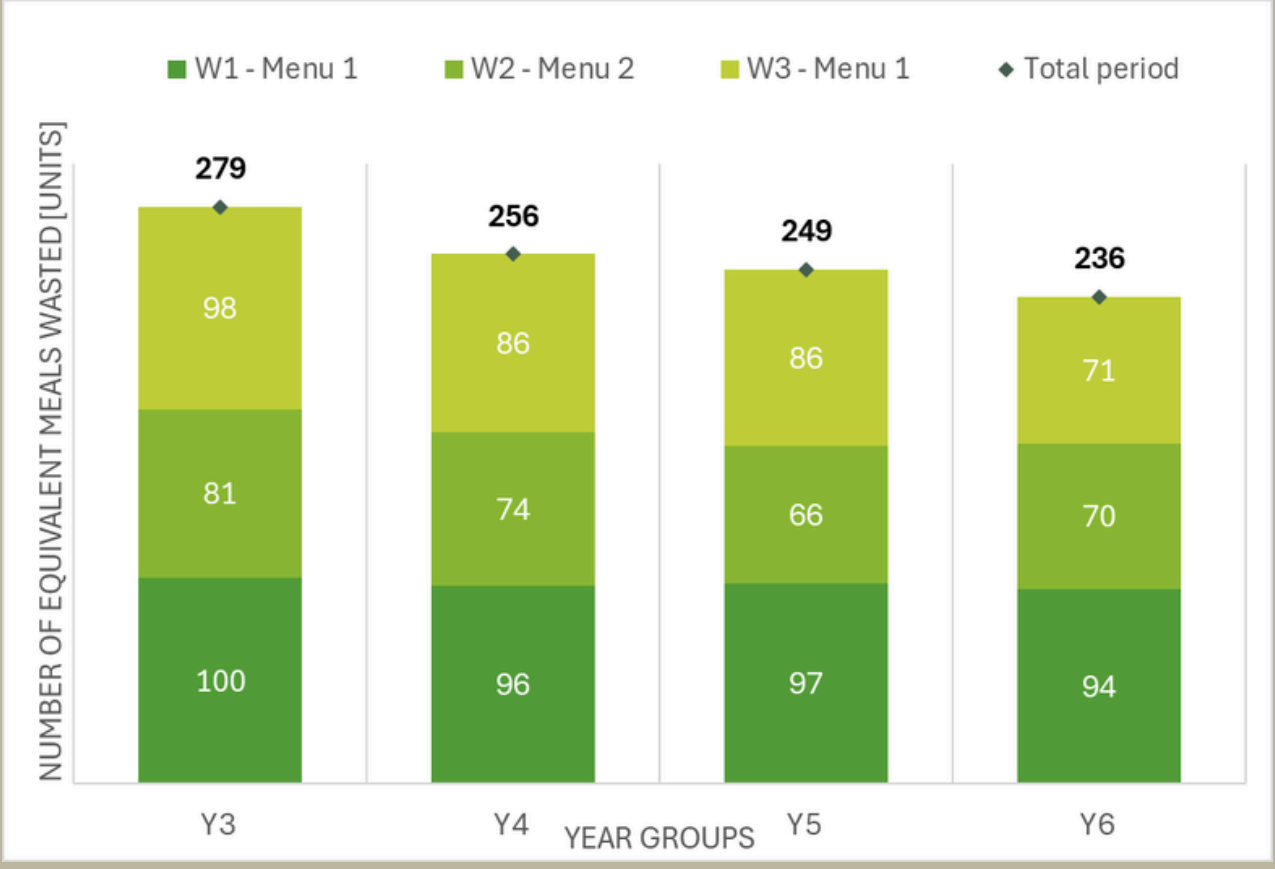


Figure 3 shows the comparison of food waste, in absolute (a) and normalised (b) values, with the daily food options of both menus (Menu 1 and Menu 2).

In addition to observing the lower waste presented in week 2, we could also see that food options from Menu 2 on Mondays and Tuesdays seem to produce lower waste rates than those offered by Menu 1.

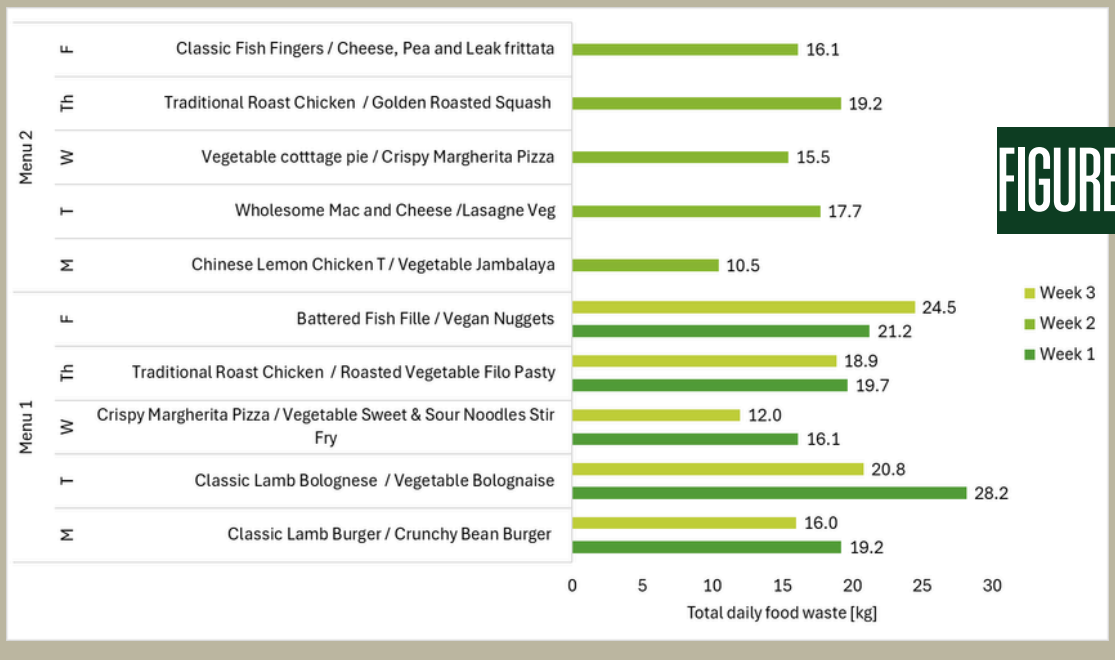


FIGURE 3A

Figure 3a: Total daily food waste against menu option, which in the figure only refers to the daily main course of the menu. For more details about the menu options see page 6.

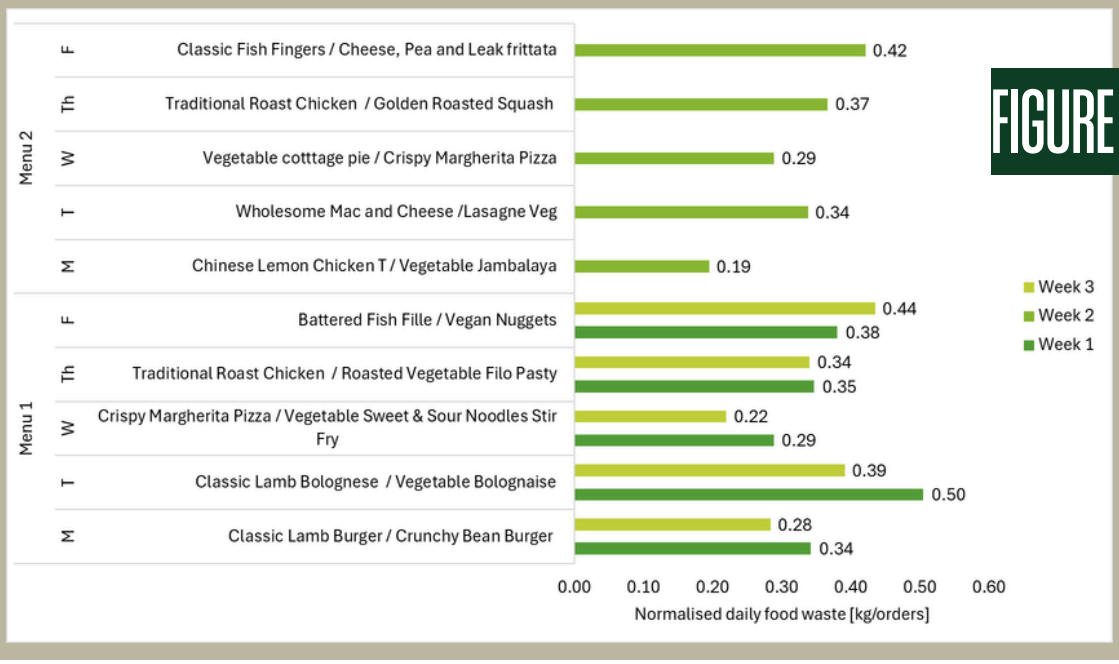


FIGURE 3B

Figure 3b: Daily normalised food waste against menu options, which in the figure only refers to the main course of the menu. For more details about the menu options, see page 6

DISCUSSION AND RECOMMENDATIONS

The edible food waste audit of plated food provided Dorothy Barley Junior Academy with an opportunity to measure and reflect upon both the amount of food being wasted and some of the reasons why pupils choose not to eat particular items. While the pilot was limited in duration, the combination of quantitative data, staff observations, pupil voice and weekly reflective discussions generated valuable practical insight into behaviours within the dining hall and wider opportunities for change.
Drawing on feedback shared by staff, Food Waste Warriors, canteen representatives and discussions with BD Together, three connected themes emerged as the most likely contributors to plated food waste:

1. **Meal choice and pupil participation**
2. **Familiarity, confidence and food acceptance**
3. **Time pressure and the lunchtime environment**

These themes point not only to immediate opportunities for reducing waste, but also to longer-term behaviour change across the school community. The recommendations below are organised around these themes, followed by wider whole-school opportunities to support a more sustainable food culture.

THEME 1:
MEAL CHOICE AND PUPIL PARTICIPATION

Food waste may be influenced by how meals are selected and the extent to which pupils are involved in those decisions. Staff observations suggested that older pupils were often less likely to waste food, which may reflect greater autonomy in choosing their own meals. This was seen on the data collected from Y6 (see Figure 1 and Figure 2).

Where parents select meals, choices may understandably be shaped by what they hope their child will eat, rather than what the child feels ready or willing to eat on that particular day. Although this was not directly measured during the pilot, short surveys or focus groups could help explore whether the current ordering process contributes to or reduces waste.

Pupils also highlighted the importance of familiarity when making choices. One pupil noted that children were "eating more of the food (burger) because they know what it is." This suggests that recognisable meals, or clearer communication about unfamiliar dishes, may improve uptake.

Where particular menu items are consistently associated with higher levels of waste, a rapid and coordinated response between the school kitchen and catering provider may help prevent repeated avoidable waste. This could include reviewing presentation, portion size, menu wording or the use of tasting opportunities before reintroducing the item.

RECOMMENDATIONS

- Review the meal ordering process from a pupil and parent perspective.
- Include images and short descriptions within the ordering system.
- Use surveys or focus groups to understand how ordering choices influence waste.
- Gather regular pupil feedback on meals and dining experiences.
- Provide clear ways for pupils to decline items they are unlikely to eat.
- Where feasible, allow pupils to return for an item later if they reconsider.
- Consider smaller initial portions with the option for more.
- Strengthen rapid feedback loops between the school kitchen and catering provider when repeated waste patterns emerge.

THEME 2:

FAMILIARITY, CONFIDENCE AND FOOD ACCEPTANCE

Some waste appeared linked to pupils being unfamiliar with certain foods. Where a meal feels unfamiliar in taste, texture, smell or appearance, children may reject part or all of what is served, particularly when new dishes are introduced without prior exposure.

Both pupils and staff highlighted the value of encouraging children to try foods before dismissing them. One staff member noted, "You have to try it before you say you don't like it," while pupils suggested offering small samples so children can taste foods without committing to a full portion. This indicates that low-pressure encouragement, tasting opportunities and gradual exposure may help reduce waste and support nutritional guidelines.

Repeated exposure is also important, as some pupils may need to encounter a food several times before accepting it. The emphasis should therefore be on curiosity and building familiarity rather than on pressure to like a food immediately.

Confidence with food can also be developed beyond the dining hall. Linking menu items to curriculum learning, simple nutritional messages, assemblies, or food-growing activities may help pupils build stronger connections with food and its origins. Pupils spoke positively about planting tomatoes at school, suggesting gardening can support curiosity and engagement.

RECOMMENDATIONS

- Introduce tasting or taster sessions before or alongside new menu items.
- Re-offer foods over time without pressure, recognising that acceptance can develop gradually.
- Encourage staff to use language that promotes trying foods without coercion.
- Use sensory learning approaches that explore colour, texture, smell and taste.
- Link food themes to curriculum learning where appropriate.
- Include simple age-appropriate nutritional messages linked to menu items.
- Develop gardening or growing opportunities within the school.
- Use assemblies or enrichment sessions with chefs, nutritionists, waste professionals or sustainability practitioners.
- Celebrate curiosity and positive engagement with new foods.

THEME 3:

TIME PRESSURE AND THE LUNCHTIME ENVIRONMENT

The lunchtime environment can strongly shape eating behaviour. Where pupils feel rushed, distracted or eager to leave for activities, meals may be eaten quickly or left unfinished. One pupil observed that some children waste food “so they can go outside and play for more time.”

The same pupil also reflected that pizza may generate less waste because it is “quite a quick meal.” This suggests that reducing waste is not only about the food itself, but also about whether children have enough time to eat it comfortably. Meals that require more time, concentration or cutlery may be disadvantaged within a rushed lunchtime routine.

A protected and calmer dining experience may therefore be an important waste reduction strategy. Evidence from wider research suggests that longer seated lunch periods (e.g., 20 min) can support improved food consumption and lower waste [12]. Staff also reflected positively on previous flexible arrangements, such as school-packed lunches eaten outside under the gazebos. They noted that pupils were often happy to eat while socialising with friends in a more relaxed environment. This highlights the importance of social and environmental factors in meal completion.

RECOMMENDATIONS

- Consider adapting the existing dining period to support a dining culture that encourages mindful eating, ultimately ensuring that pupils have adequate, uninterrupted time to eat.
- Review timings of lunchtime clubs, transitions or activities that may create pressure to leave early.
- Promote a calm and positive dining environment (Posters, School Culture).
- Explore flexible eating arrangements, where appropriate and safe, that allow pupils to eat comfortably while socialising (e.g., outdoor lunch)
- Consider whether some menu items require additional time or support to be eaten successfully.
- Encourage routines that allow pupils to finish meals before moving to the next activity.

OVERARCHING THEME

WIDER WHOLE-SCHOOL OPPORTUNITIES

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WHOLE-SCHOOL OPPORTUNITIES



The pilot also highlighted opportunities to strengthen a broader culture of sustainability and shared responsibility around food. Long-term change is most likely when food waste reduction is embedded across school life rather than treated solely as a catering issue.

Pupils demonstrated awareness not only of food waste, but of wider environmental issues. One child reflected that plastic placed in food bins can take “over 400 years to break down.” This suggests that food waste initiatives can also create valuable learning opportunities around packaging, recycling, waste systems and sustainable consumption.

As a school with existing sustainability commitments, Dorothy Barley Junior Academy is well placed to build on current practice. There may be scope to extend learning already taking place in upper year groups to younger pupils, particularly where links between food waste, climate, finance and health are less explicit.
There may also be value in strengthening links between school and home so that conversations about food waste, healthy choices and sustainability continue beyond the school gate. Simple take-home activities, shared challenges or family resources may help reinforce behaviour change. Information about community-based initiatives such as food sharing apps or local redistribution schemes could also be signposted where relevant.

The school already operates a community fridge, demonstrating practical commitment to redistribution and community support. Further partnerships with local organisations may create additional opportunities to ensure appropriate surplus food is used well. The continuation of pupil leadership roles such as Food Waste Warriors, combined with regular monitoring and celebration of progress, could further strengthen impact over time.

OPPORTUNITIES FOR CHANGE

1. BUILD FOOD WASTE THEMES INTO WIDER CURRICULUM ACTIVITIES ACROSS YEAR GROUPS.
2. EXTEND LEARNING ON SUSTAINABILITY, FOOD SYSTEMS AND WASTE TO YOUNGER PUPILS WHERE APPROPRIATE.
3. INCLUDE PACKAGING, RECYCLING AND ENVIRONMENTAL EDUCATION ALONGSIDE FOOD WASTE WORK.
4. STRENGTHEN SCHOOL-HOME ENGAGEMENT AROUND FOOD HABITS AND WASTE REDUCTION.
5. USE TAKE-HOME CHALLENGES OR FAMILY-FRIENDLY TEMPLATES TO ENCOURAGE PARTICIPATION.
6. CONTINUE PUPIL LEADERSHIP INITIATIVES SUCH AS FOOD WASTE WARRIORS.
7. BUILD ON THE COMMUNITY FRIDGE MODEL AND EXPLORE FURTHER REDISTRIBUTION PARTNERSHIPS.
8. CONTINUE MONITORING FOOD WASTE TRENDS OVER TIME TO INFORM FUTURE ACTION.
9. CELEBRATE PROGRESS AND RECOGNISE COLLECTIVE ACHIEVEMENT ACROSS THE SCHOOL COMMUNITY.



LIMITATIONS

There are a number of important limitations to be considered when interpreting anything from the data gathered. Following a list of key limitations.

TIME (This factor accounted for four issues)

a. The audit took place over three weeks at every lunchtime, which is a very limited period to explore exactly what happens to the waste, when, and why.
b. The school runs a two-week menu; hence, there is an issue with comparison and understanding of the weekly behaviours.
c. There were also some menu changes during the time period, e.g., St Patrick's Day, and a reduction in food orders coinciding with important celebrations, e.g., Eid Al Fitr.
d. The audit had to be completed during the lunch hour, the focus of the audit was limited to the overall amount of waste rather than the nature of the waste (e.g., sandwich vs salad vs main dish, etc), as disaggregated data would have required more time and space, people and containers to separate and weigh different types of food waste.

MEALS ORDERED VS MEALS EATEN:

a. There is no data regarding how many children each day opted for something different from what they had originally ordered, or for any pupil who didn't want/pick up the meal ordered. Additionally, we do not have access to the food that is returned to the kitchen (meals ordered and prepared but not served).

LACK OF IMAGES:

a. Only plated food waste was audited. A small number of photographs provided limited visual information, which was triangulated with the day's menus and anecdotal information from the pupils and staff present at the weighings. However, under ideal conditions, photos of everyday food waste for each year group would have aided an examination of the nature of the wasted food.

PILOT DESIGN:

a. As the pilot lasted only three weeks, the results cannot be used to draw any firm conclusions. For example, the drop seen in week 2 occurred during a week with a menu change, accompanied by a 10% drop in orders.

CHANGE OF SCALES:

a. Changes in scales from the first week to the rest of the trial could have affected the accuracy of the readings through both human and tool intrinsic errors.

CONCLUSION

It is recommended that a whole-school approach be taken to food waste reduction to achieve a long-term transformation of school culture around consumption.

To carry out an effective audit of plated food waste, the following is required:

1. **Resources:** dedicated staff to oversee and ensure that data (numerical, photos and journals) are well recorded, kept and securely shared. Similarly, integrating or rotating a larger number of students into the food waste recording could help raise awareness, increase ownership, and boost overall buy-in among diverse pupils.

2. T**imeframe:** We suggest collecting data over the entire term to provide more accurate, nuanced information. We can randomise this weekly to aid implementation.

3. **Standardisation:** standardised data collection so that comparisons between school sites can be made.

4. **Data sharing among all actors:** insights and actions can be enhanced by engaging with all available data across the school meals system, e.g., meals ordered, kitchen food waste, meals not consumed and returned to the kitchen. These data could be made easily available for a whole food waste quantification and analysis.

5. **Make time for dialogue to delve into the root causes of food waste.** This study collects anecdotes from participants in the pilot weekly catch-ups. A more comprehensive and well-designed qualitative study could aid understanding of the root causes of food waste, enable the co-creation of new interventions, and identify potential changes in the school food environment.

For a full resource kit, including detailed framework, posters and aides, download the Food Waste Audit Toolkit - LBBD School Canteens.



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