

Case study

Make a Meal of It Mission: Narberth School

Date: Autumn term 2017

Class: Dosbarth Mr Pearce, Y4 &5 pupils

Introduction and food waste data collection

For their Make a Meal of It Mission, pupils from Mr Pearce's class initially completed a whole-school lunchtime food waste audit. They weighed food waste from school lunches during one week, with a small group of pupils from the class recording the results each day (Figure 1). This provided the baseline data for their Mission and was followed by a second food waste audit (Figure 2) after they had implemented their Action Plan.

At Narberth School lunch is served to infants (foundation phase and KS1) at the first sitting, followed by KS2. Pupils weighed the food waste from each sitting separately (table 1), this allowed them to identify any difference between age groups when they analysed the data. [Pembrokeshire school lunch menus](#) are planned by the central catering service in a 3-weekly cycle. The initial and final food waste audits were planned to take place when the same weekly menu was being served. This is not essential but did allow for direct comparisons to be made and was a 'control' measure.

Date	What is on the menu today?	Number of infants having school dinner	Infants (weight of food waste in Kg)	Number of juniors having school dinner	Juniors (weight of food waste in Kg)	Total (weight of food waste in Kg)
9/10/17	Meatballs and pasta, Garlic bread or Jacket potato	58	2kg	88	7.2kg	9.2kg
10/10/17	Chicken wrap, Diced potato	57	2.4kg	105	7.4kg	9.8kg
1/10/17	Chicken and mash, carrots and broccoli.	56	2.8kg	99	6.2kg	8.00kg
12/10/17	Lasagne Garlic bread	57	2.5kg	93	7.9kg	10.4kg
13/10/17	Fishcake or pizza And chips and Rice pudding	69	2.4kg	110	7.5kg	9.9kg
Totals:		297	11.7kg	495	36.2kg	47.3kg
Average:		59	2.3kg	99	7.2kg	9.5kg

Figure 1. Initial week food waste audit

Date	What is on the menu today?	Number of infants having school dinner	Infants (weight of food waste in Kg)	Number of juniors having school dinner	Juniors (weight of food waste in Kg)	Total (weight of food waste in Kg)
6/11/11	Sausage in a roll with chips and beans.	52	2kg	85	2.5kg	4.5kg
7.11.17	Chicken wrap beans and diced potatoes	55	1kg	93	5.5kg	6.5kg
8.11.17	Chicken dinner	57	2.4kg	91	6.5kg	8.9kg
9.11.17	Lasagne or jacket potato	53	2.9kg	89	7kg	9.9kg
10.11.17	Pizza, Chips and beans	61	3kg	95	6.3kg	9.3kg
Totals:		278	12.1kg	453	27.8kg	39.9kg
Average:		56	2.4kg	91	5.6kg	8.0kg

Figure 2. Final week food waste audit

In addition to weighing the food, pupils made more detailed observations of the food wasted each day. From the example in Figure 3 (below) we read that the infants wasted more garlic bread than the KS2 pupils. Whilst from KS2 more jacket potatoes were wasted, with the pupils noting that the potato skins were largely wasted. This may indicate different food preferences between the age groups and could assist with menu planning to reduce the amount of food wasted.

Food Waste Observations

Food description	Estimated percentage of the waste		Notes / diagram - Thursday
Sweet corn	5	4	large bread bags not much children waste the stuff
garlic Bread	50	10	
peas	5	1	
Beans	10	15	
LaZanya	4	4	
salt potato	26	70	

Figure 3. Daily food waste observations

Make a meal of it Mission - Action Plan

What is the problem?	What are we going to do?	Who is involved?	When are we going to do it?	Have we been successful?
Almost 50kg of food is being wasted.	Give the infants stickers if they finish all their food.	Sainsburys and dosbarth Mr Pearce	Monday 6 th November	X / ✓
Certain foods are wasted more than others	Questionnaire to pupils to find out why.	Pupils and Dosbarth Mr Pearce	Monday 6 th November	✓
Portion Sizes	Interview kitchen staff and discuss portion sizes	Questionnaire team & kitchen staff	Friday 27 th October	✓
Children do not know why wasting food is bad	An assembly for whole school on food waste & letters to parents	Whole school, parents & assembly team	Friday 27 th October	✓

Figure 4. Action Plan

The Action Plan

Following the first food waste audit Mr Pearce's class identified four problems and wrote their Action Plan (Figure 4). Some of their actions involved further research, such as questionnaires and interviews, as well as things they would do, such as a whole-school assembly and giving infants stickers for finishing their food.

In class, Mr Pearce and the pupils found out more about food waste using the Make a Meal of It Mission class pack. They investigated several aspects, including rationing and food in the Second World War and the quantities and types of food wasted in the UK today. In groups they found out more about food waste and created their own Food Fact Files and a class presentation for the whole school assembly they delivered (Figure 5).

Make a meal of it mission!



Dosbarth Mr Pearce

More than 8 million in UK struggle to put food on table, survey says



BUT

Food Waste

- 1.3 billion tonnes of food is wasted in the world every year
- UK households threw away £13 billion worth of food in 2015



Guess how many



are thrown away each day in the UK?



1,100,000

9 for each person in the whole of Pembrokeshire every day

Guess how many



are thrown away each day in the UK?



3,300,000

27 slices for each person in Pembrokeshire every day OR 1 for every person in Wales

Guess how many



are thrown away each day in the UK?



24,000,000

197 slices for each person in Pembrokeshire every day (same as 10 loaves)

Look at these numbers!

Did you contribute to these?

The top 15 wasted foods in the UK
(Figures show portions wasted on average, daily)

- SLICES OF BREAD - 24,000,000
- GLASSES OF MILK - 1,900,000
- POTATOES - 1,800,000
- CARBONATED SOFT DRINKS (Young pop) - 4,200,000
- CHEESE - 1,300,000
- RICE AND PASTA - 1,200,000
- SLICES OF MEAT - 1,000,000
- HOME MADE MEALS - 1,000,000
- TOMATOES - 1,000,000
- SAUSAGES - 1,000,000
- BANANAS - 1,000,000
- APPLES - 1,000,000
- LOAVES OF BREAD - 1,000,000
- YOGHURTS - 1,000,000
- EGGS - 1,000,000

What are the problems with throwing all this food away?

Food production uses lots of fossil fuel...



Cost

Some families could save as much as £60 every month by eating more of what they buy.



Did you know?
In one week at school we wasted nearly 50kg of food!

That's the same weight as the average adult octopus!



What could we do to reduce the amount of food we throw away?



Please help us bring this number down!



We will be investigating how much food is wasted the first week after half term!

Figure 5. Assembly powerpoint

A group of pupils questioned the School Cook (Figure 6), interestingly some of their answers correlate with the findings from the food waste audit. Specifically, that many children don't eat jacket potato skins and that roast dinners are not so popular. As with the menu, portion sizes are decided by the central catering team rather than school lunch staff. The School Cook suggests children should be given more time to eat lunch and should be given more encouragement to eat their food, this was echoed by parents (see below). The School Cook thought that food waste was similar in all schools and that reducing food waste would save a significant amount of money.

1. How do you decide the food portions? They are decided for us.
2. How do you think we can reduce food waste? Encourage children to eat more and have more time allowance.
3. What do you think the most popular and least popular foods are?
Pizza day is always popular, but curry and roast not so much.
4. Do you think we waste a lot of food compared to other schools in Pembrokeshire? No more than anywhere else.
5. Are there any foods we could change to reduce food waste? Probably not but encourage to eat skin on jacket potato.
What foods do you think are most wasted in Narberth school? The skin of jackets.
7. Who do you think wastes the most in the school? KS2
8. How much money do you think we could save if we reduced food waste? 20%
9. How often do you clean the cups? Daily.

Figure 6. Q&A with School Cook



Figure 7. Letter to parents

Some pupils wrote a letter which went home to all parents (Figure 7), to tell them about school lunchtime food waste and ask for parents' suggestions to reduce this food waste. They received some helpful suggestions including; rewards/house points/stickers for finishing meals; smaller portions; longer to eat lunch; asking pupils what they would like to eat; pre-ordering lunches; pupils take leftovers home for later; donate surplus food to charity/food bank; use food waste for composting for the school allotment or for pig swill.

Other pupils were also questioned and came up with many suggestions to help reduce school lunchtime food waste. These included; waiting until everyone in class has finished lunch before going for breacktime; prizes or stickers for finishing food; food waste house points for finishing food with an end of year prize for the class who have wasted the least; themed food for special occasions; compost; playtime before lunch so children are in less of a rush to get out after eating lunch; pupils to ask for less food if they won't eat it; stickers underneath the plate that you can only get if you eat all your food; stop serving regularly wasted foods and serve something else; get a school pet to eat all the food waste; cooking club with leftover ingredients; changing food names to something more fun for the infants; make a powerpoint on food waste.

Some of the class made their own food waste top trump cards (Figure 8), as a fun way of thinking about food waste. Others designed stickers (Figure 8) which could be given as rewards for pupils, especially the infants, for finishing their lunch. Posters were another way of raising awareness around the school (Figure 10), especially near the canteen, with some drawn by hand and others created on the class computers with images found online.

<p><u>Cucumber</u></p> <p>waste each yr 33000 tonnes. money each yr £56 million. carbon 22,000 tonnes. water 353 tonnes. Shelf life 14 days.</p> <p><u>peppers</u></p> <p>waste each yr 18000 tonnes. money each yr £62 million. carbon 2500 tonnes. water 397 tonnes. Shelf life 14 days.</p> <p><u>Smoothies</u></p> <p>waste each yr 120000 tonnes. money £150 million. carbon 100 tonnes. water 1018 tonnes. Shelf life 365 days.</p> <p><u>onion</u></p> <p>waste each yr 55000 tonnes. money each yr £78 million. carbon 500 tonnes. water 271 tonnes. Shelf life 14 days.</p>	<p><u>Apple</u></p> <p>waste each yr 8400 tonnes. money each yr £89 million. carbon 700 tonnes. water 821 tonnes. Shelf life 30 days.</p> <p><u>Lish</u></p> <p>waste each yr 22000 tonnes. money £320 million. carbon 5100 tonnes. water 1750 tonnes. Shelf life 7 days.</p> <p><u>Rice</u></p> <p>waste each yr 40000 tonnes. money each yr 68 million. carbon 3800 tonnes. water 2172 tonnes. Shelf life 365 days.</p> <p><u>fortito</u></p> <p>waste each yr 40000 tonnes. money each yr £130 million. carbon 1500 tonnes. water 214 tonnes. Shelf life 14 days.</p>
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Figure 8. Top Trump cards



Figure 8. Sticker designs



Figure 10. Posters (continued following 2 pages)

Food waste in the UK

Did you know?: Every year in the UK we waste 7 million tonnes of food and drink, do you think this is OK?

If you didn't waste food, you could save up to £470 a year, bread, fruit and vegetables are most commonly thrown away.

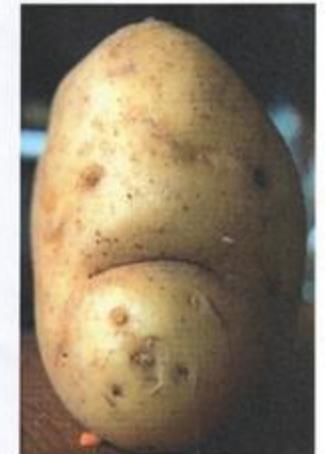
How do you think we could help save food waste?

If you have any suggestions put it in your class suggestion box.

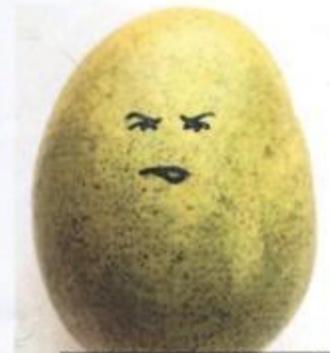
Some people don't have any food and would love even the most tiniest of portions that you waste. How can you help?



IT DOESN'T
MATTER WHAT
I LOOK LIKE I
TASTE THE
SAME.



DON'T
WASTE
YOUR
FOOD! EAT
IT ALL UP.



PIC•COLLAGE

FOOD WASTE FACTS!

DO YOU THINK WE CAN REDUCE FOOD WASTE?

SOME FOOD WASTE TURNS INTO COMPOST SO WE CAN PUT IT IN OUR GARDEN.

IN FACT 13,000 OF FRUIT JUICE IS WASTED PER YEAR!

LOVE FOOD hate waste

40% OF THE FOOD WE WASTE IS FRESH FRUIT!

DID YOU KNOW 1.3 BILLION TONS OF FOOD ARE WASTED EVERY YEAR!

SAVE FOOD

For Narberth School

Eat IT ALL



Narberth
ArBerth

Dont waste

Mr. carrot

Mr potato



Eat me!



Dont rush!
Out of the
Hall!

were eatable!



Homework – fridge thermometers

Simple fridge thermometers were given to the class by the Make a Meal of It project (Figure 11). Pupils took the fridge thermometers home and recorded the results of using them for homework (Figure 12). For most pupils who tried them, they found their fridge was already the correct temperature. Three pupils found they wasted less food. As two of these pupils didn't adjust their fridge temperatures this reduction may be attributed to their classroom research into food waste rather than using the fridge thermometer.

Figure 11. Fridge thermometer, front and back

Homework – Fridge Thermometer feedback

To monitor the effectiveness of the fridge thermometer I would like to know if you have changed your fridge thermostat as a result?

Pupil	Fridge thermostat (temperature control)			1 - Any other comments? 2 - Is food lasting longer? 3 - Are you wasting less food?
	No change	Cooler	Warmer	
1		X		Food lasting longer
2	Ok			No mummy eats it all
3	X			No
4	X			1 – No. 2 – Yes. 3 – Yes.
5	X			1 – No. 2 – No. 3 – Yes.
6	X			Been away on holiday nothing in fridge.
7	X			We haven't had to change it once. It's a new fridge that maybe why we haven't had to change it.

Figure 12. Fridge thermometer feedback

Results

When the class conducted the second food waste audit they found little change in the types of food that were most wasted. From their more detailed observations they found that jacket potatoes and bread/garlic bread remained the most wasted foods. As there was no change in the menu this is unsurprising. However, the average amount of food wasted per pupil did reduce slightly, from 60g per pupil to 50g per pupil. There was significantly less food waste overall in the second week, however there was also a dip in the number of pupils eating school lunches during the week which accounts for this overall reduction. Anecdotally pupils across the school are now more aware of the problem of school waste and it did stimulate some discussion at home too.

The class compiled a folder of evidence and work to document their Make a Meal of It Mission, this has been given to the Eco Committee. The Eco Committee may choose to focus on food waste reduction and consider what more can be done in school to continue reducing waste. Further food waste audits could be conducted in future terms and/or years, with observations and comparisons made between data.

