Primary School Food Survey 2009

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Glossary

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<th>Acronym</th>
<th>Definition</th>
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<tbody>
<tr>
<td>CWT</td>
<td>Caroline Walker Trust</td>
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<tr>
<td>DCSF</td>
<td>Department for Children, Schools and Families</td>
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<td>DEFRA</td>
<td>Department of Environment, Farming and Rural Affairs</td>
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<td>DfES</td>
<td>Department for Education and Skills</td>
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<td>FSA</td>
<td>Food Standards Agency</td>
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<td>GOR</td>
<td>Government Office Region</td>
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<td>LAs</td>
<td>Local Authorities</td>
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<td>NDNS</td>
<td>National Diet and Nutrition Survey</td>
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<td>NI</td>
<td>National Indicator</td>
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<td>NMESSs</td>
<td>Non-milk extrinsic sugars</td>
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<td>SFT</td>
<td>School Food Trust</td>
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<td>SMRP</td>
<td>School Meals Review Panel</td>
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<td>SPSS</td>
<td>Statistical Package for Social Science</td>
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<td>TNS-bmrb</td>
<td>Taylor Nelson Sofres-British Market Research Bureau</td>
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Executive summary

From September 2008, all primary schools in England were required by law to meet the new food-based and nutrient-based standards for school food provision. The School Food Trust has carried out a survey in England to assess the impact of the standards on catering provision and pupil food selection and consumption by pupils taking a school lunch. In addition, the food consumption of pupils bringing packed lunches was evaluated.

This report presents findings from a nationally representative sample of 139 primary schools in England which provided information on catering provision at lunchtime, and information on food selections of 6,690 pupils having school lunches and 3,481 pupils bringing packed lunches; ages four to 12 years. The data was collected between February and April 2009; 6-8 months after the expectation that all primary schools catering provision would be fully compliant with the new standards for school food. This survey replicates a similar survey carried out in 151 primary schools in England in 2005.

The aims of this survey were to assess:

(1) catering provision of food and drink at lunchtime
(2) pupils’ choices and consumption of food at lunchtime (including packed lunches)
(3) the nutrient content of school lunches
(4) compliance of provision with the standards for school food.

The main findings are described below:

Contract and specifications, catering service and eating environment

- Only 18% of contractual documents were received from schools; based on this small sample it was difficult to draw up any conclusions.
- The catering service was usually provided by LA-in house (56%). The most common type of contract was fixed cost/fixed price (41%).
- The average cost of a paid meal and a free school meal was £1.81.
- No associations were found between types of catering provider, all aspects of the eating environment (i.e. menu characteristics, promotion of healthy eating, healthy eating messages etc.), patterns of food and drink taken by pupils having school lunches with compliance of school lunches with the standards.
- The majority of head teachers and caterers reported that their school lunches were fully compliant with all the food-based and nutrient-based standards. However this was not the case when actual compliance was measured in schools.

School lunch provision, selection and consumption

- Since 2005 and after the final food-based and nutrient-based standards became law for primary schools in England in September 2008, lunchtime food provision and food consumption are now substantially healthier.
• Compared to 2005, schools in 2009 provided **more** fruit, fruit-based desserts, vegetables and salad, water and fruit juice, and **fewer** condiments, starchy foods cooked in fat, snacks and confectionery.

• Compared to 2005, **more** pupils in 2009 took water, vegetables and salad, fruit juice, fruit-based desserts, fruit, starchy foods *not* cooked in fat, milk, yogurt and milky drinks, and **less** pupils took ‘non-fruit-based desserts’, condiments and non-permitted food and drink items (e.g. snacks, confectionery).

• Pupils in 2009 chose an average of 2.2 portions of fruit and vegetables from their recommended ‘five a day’.

• The average plate wastage of food and drink taken by pupils in 2009 (24%) did not differ from 2005 (23%). Highest levels wasted were for fruit, vegetables and salad; varying from one-third to one-fifth. Caterers should therefore find more ways: to provide fruit and fruit-based desserts, to include vegetables in recipes, and to encourage pupils to finish the vegetables served.

• The sodium content of an average school lunch provided in 2009 was higher than the recommended standard; although the sodium content of meals taken and eaten by pupils in 2009 was roughly one-third lower than in 2005. More effort is needed to reduce the use of products high in sodium (e.g. canned products in brine, stock, etc.)

• Caterers still find it challenging to meet the minimum iron and zinc content of an average school lunch; both were below the recommended minimum levels set by the nutrient-based standards.

**School lunches versus packed lunches**

• Compared to pupils bringing packed lunches, a greater proportion of pupils taking school lunches took water, salad and vegetables, and fewer pupils took non-permitted drinks, confectionery, meat products and dairy items. Conversely, pupils bringing packed lunches have more fruit, fruit juice and dairy items (such as cheese, yogurt and fromage frais).

• Over 90% of pupils taking a school lunch ate food or drink containing vegetables or fruit (including fruit juice) compared with only 58% of pupils bringing packed lunches.

• Pupils taking school lunches ate 1.6 portions of fruit and vegetables, whereas pupils bringing packed lunches ate only 1 portion.

• Pupils who consumed packed lunches ate significantly **more** fat, saturated fat, non-milk extrinsic sugars, sodium, calcium, iron and vitamin C and **less** protein, vitamin A, fibre and zinc than pupils who ate school lunches. Children should therefore be encouraged to take school lunches instead of taking packed lunches.
1 Introduction

1.1 Background

The prevalence of childhood obesity in the UK has substantially increased since 1995, with 16% of girls and 17% of boys ages 2-15 years reported to be obese (defined as BMI>95th percentile of the 1990 UK reference population). School meals play an important role in children’s diet; lunches typically contribute between one-quarter to one-third of children’s daily intake of energy and nutrients. In 2009, take-up of school lunches in primary schools was 39.3%; representing an average of 1,636,833 primary school children having schools meals every day.

Improving the quality of school meals is vital for improving children’s health, especially in the effort to decrease levels of obesity and future risks of related diseases such as diabetes and hypertension. Furthermore, improvements in diet may benefit children’s concentration, behaviour and academic performance. Two randomised controlled trials assessing the impact of improving school food and dining environment showed that healthier eating is associated with better concentration, engagement and ability to learn in the classroom in both primary and secondary school pupils. Findings from the Avon Longitudinal Study of Parents and Children (ALSPAC) linked improvements in nutrition in childhood with improvements in health outcomes and school attainment after controlling for potential confounders including social class, parents’ education. It is vital, therefore, that school meals provide sufficient energy and nutrients to support children’s nutrition, growth and development, and academic achievement, and lay the foundations for healthy eating in adulthood.

In April 2001, the Department for Education and Skills introduced food based standards for school meals to improve their balance and nutritional quality. A survey in 2005 of lunchtime food provision and consumption in primary schools in England showed that the nutritional profile of school lunches was poor; over half of pupils lunches consisted of dishes high in fat, starchy food cooked in fat or oil (e.g. chips) and drinks containing sugar, and consumption of fruit and vegetables was below recommended levels. In response to concerns about the poor quality of school meals and increasing levels of childhood obesity, the government established the School Meal Review Panel (SMRP) to revise guidelines for school meals and to set standards for the nutritional content of school lunches. The panel proposed changes that would maximize the availability of healthier items such as fruit and water, prohibit or restrict foods or drinks high in salt, sugars and fat such as confectionery, crisps and high sugar fizzy drinks, and limit the availability of deep fried food from being served at school.

From September 2008, catering provision in all primary schools in England was required to be fully compliant with the new food-based and nutrient-based standards for school lunches. Thirteen food-based standards are intended to increase access to healthier foods such as fruit, vegetables and bread, and to limit the availability of less healthy foods such as confectionery, snacks and high sugar drinks. For example, at least one portion of fruit and one portion of vegetable must be provided at lunchtime for every pupil having a school lunch, and starchy food cooked in fat should not be provided more than three times a week across the school day. Fourteen nutrient-based standards complement the food-based standards, ensuring that provision, for example, contains appropriate amounts of energy, adequate iron, and not too much fat, sugar or salt.
History of school meals and related policy

- **1980** – Education Act means that LAs only obliged to provide free school meals.
- **2001** – Minimum nutritional standards for schools re-introduced.
- **2004** – Cross Government team call for ‘review of minimum nutritional standards’ in the Healthy Living Blueprint for Schools.
- **September 2005** – School Meals Review Panel releases report ‘Turning the Tables: transforming school food’ released contain proposals for new school lunch standards to improve the nutrition of school pupils.
- **2005** – 1st National survey of primary school meals conducted.
- **September 2005** – School Food Trust established.
- **May 2006** – Food-based and nutrient-based standards put forward for legislation.
- **September 2008** – Food-based and nutrient-based standards are law in primary schools.

1.2 Aims

Since September 2008, all primary schools in England should comply with the new food-based and nutrient-based standards for school food. To assess the impact of the introduction of new school food standards, the School Food Trust carried out a survey of a nationally representative sample of primary schools in England to assess:

(1) catering provision of food and drink at lunchtime
(2) pupils’ choices and consumption of food at lunchtime (including packed lunches)
(3) the nutrient content of school lunches
(4) compliance of provision with the standards for school food.

The present findings are compared with those from a similar survey carried out in 2005 in a nationally representative sample of 7,058 pupils attending 151 primary schools in England."
2 Methods

2.1 Survey partners
The survey was commissioned and funded by the School Food Trust (SFT), in collaboration with Taylor Nelson Sofres British Market Research Bureau (TNS-bmrb) and Nutrition Works!

Ethical approval was granted by Kings College London Research Ethics Committee: reference CREC/07/08-211.

2.2 Sampling and recruitment

2.2.1 Selecting the schools
A random sample of 290 primary schools in England was selected by TNS-bmrb researchers from the Department for Children, Schools and Families (DCSF) database EduBase in August 2008; with the aim of recruiting 150 schools. The sample was stratified according to region, school stage, school type and postcode.

Schools included primary and middle deemed primary schools in England. Community, Voluntary Aided, Voluntary Controlled and Foundation Schools were also included in the sample. Schools were excluded if they contained less than 100 pupils, and if they had taken part in the previous survey of Primary School Meals (2004/05), or the School Lunch and Behaviour Study.

2.2.2 Recruitment of schools
Schools were initially contacted by letter in September 2008. Information sheets for both the Head teacher and Caterer, along with school reply forms (confirming school’s consent to take part in the study) were collected from those wishing to participate. Follow-up telephone calls were then made to the schools to ascertain if they wish to participate.

2.2.3 School response rate and sample characteristics
Of the 290 eligible schools approached, 145 schools (50%) agreed to take part; 107 schools declined, 38 schools did not respond, 6 schools later withdrew. Three schools did not have a school meal provision, and were included only in the analysis of packed lunches. One school did not permit packed lunches and so were included only in the analysis of school lunches. The final sample included 139 schools spread evenly across all nine government regions, with catering provision that matched patterns seen nationally; 136 of these were included in the analysis of school lunches and 138 were included in the analysis of packed lunches.

The 139 schools were spread geographically, although schools in the North West were less likely to participate, while schools in London and in the North East particularly were more likely to take part. The main reason for not participating was that schools claimed to be too busy to take part or that they were not interested. Appendix 5 describes school recruitment by Government Office Region (GOR), and Appendix 6 lists reason schools refused to participate in the study.

2.2.4 Recruitment of pupils
Each day, across the entire lunchtime, interviewers approached 10 pupils having a school lunch. Pupils were selected from all service points or rooms. This procedure was repeated each day. If a child was selected who had participated previously during the week, the next child in the queue was then approached.

Five pupils having packed lunches were also approached each day.
2.2.5 Pupil response rate and sample characteristics

A total of 6,743 school lunch forms were returned for processing. Of these, 53 (0.8%) were not included in the final data as they were either refusals or their forms had been completed incorrectly by the interviewers. Analyses was therefore conducted on 6690 pupils (3,247 boys; 3,339 girls; 104 sex not recorded); from 136 of the schools an average of 49 per school.

A total of 3,488 packed lunch forms were returned for processing. Of these seven (0.2%) were excluded because they included either a mixture of food from school and from home, or they were not fully completed by the interviewer. Hence, analyses was conducted on a total of 3,481 pupils (1,610 boys; 1,818 girls; 53 sex not recorded) from 138 of the schools an average of 25 per school.

2.3 Data collection and tools

Fieldwork was conducted at lunchtime for five consecutive days at each school between February and April 2009. Fieldworkers attended and completed a two day briefing session on recording and weighing food and drink items provided at lunchtime, and recording information about what items pupils took and ate at lunchtime. Appendix 7 provides a description of tools and resources used.

2.3.1 Food inventory & portion weights booklet

The food inventory and portion weights booklet recorded descriptions and weights (measured twice to the nearest 2g) of all foods and drinks offered each day by the school caterers at lunchtime. The number of portions of each food and drink item, and number of pupils served each day was also collected.

2.3.2 Eating environment questionnaire

This questionnaire recorded features of the school dining room such as whether menus were displayed, how food was presented, whether staff encouraged children to eat healthily, and whether specialist diets were catered for. A questionnaire was completed for all schools (100%).

2.3.3 School caterer and head/bursar /LEA telephone Interview

The telephone questionnaire was used to obtain details of the school food service including when food was offered, numbers of meals served, proportion of free school meals, availability of other food in school; the nature of the contract; and cooking practices particularly relating to the use of salt and fat. Information on cooking methods was used to assist with the coding of food items and recipe analyses.

A total of 118 head teacher/bursar (87%) and 124 caterer (91%) telephone interviews were completed.

2.3.4 Tray check sheet

The tray check sheet recorded individual lunchtime food and drink choices for each child individually. Weights of any items left over were recorded to the nearest 2g, and a note was made when a pupil had a second helping of any food or drink item.

2.3.5 Box check sheet

The box check sheet described items in the child’s lunchbox or bag. Leftover weights of each item were recorded to the nearest 2g.
2.3.6 Pupil questionnaire
The pupil questionnaire was used to record day of the week, age, gender and school year.

2.4 Statistical analysis
All statistical analyses were performed using the Statistical Package for Social Science (SPSS for Windows version 15)\(^\text{13}\). Chi-squared tests were used to assess differences in food group availability between years (2009 vs. 2005). Independent sample t-tests were used to compare differences in nutrients taken or eaten by different groups of pupils (e.g. infants vs. juniors) and between school lunches and packed lunches. A finding was regarded as statistically significant when \( p<0.05 \).

2.5 Food-based analysis of provision

2.5.1 Compliance with the food-based standards
Compliance with the standards was assessed against published regulations\(^\text{11}\). Compliance with the food-based standards was analysed in two ways: planned provision and actual provision. Planned provision related to provision of food and drink at lunchtime based on data provided from full menu cycles (typically three weeks); actual provision related to 5-day direct observations of school lunches. Standards which required assessment over two or three weeks, such as those for meat products and oily fish, could not be assessed in relation to actual provision.

113 (83%) full menu cycles were obtained by which compliance across the whole menu cycle could be assessed (planned provision). Completed inventories (actual provision) were recorded in all 136 schools serving school meals.

2.5.2 Assessment of individual standards across the inventory
Assumptions used for assessing compliance with each of the following food based standards are described in detail below.

**Fruit:**
Fruit juices, pieces of whole fruit, fruit wedges and fruit salad were counted as one portion per serving, and fruit based desserts (containing an average of 40% fruit) were counted as 0.4 portions per serving. All fruit portions available were added together to create the total number of portions of fruit available each day:

- e.g., ten 200 ml servings of fruit juice (=10 portions), five bananas (=5 portions), five fruit salads (=5 portions), ten fruit-based desserts (10 x 0.4=4 portions) = 24 portions of fruit.

Total portions of fruit per day were them compared with the total number of pupils catered for. If one or more days did not provide sufficient fruit to allow at least one portion to be available per pupil per day, then the fruit standard was classed as ‘not met’. Where it was unclear how many portions of fruit were available, the standard was classed as ‘possibly met’.

**Vegetables:**
Vegetables and salad were counted as one portion per serving, composite dishes containing vegetables (containing an average of 28%) were counted as 0.3 portions per serving These were then added together to create the total number of portions of vegetables available each day.
Similar to the fruit standard calculation, total portions of vegetables per day were then compared with the total number of pupils catered for. If one or more days did not provide sufficient vegetables to allow at least one portion to be available per pupil per day, then the vegetable standard was classed as ‘not met’. Where it was unclear how many portions of vegetables were available, the standard was classed as ‘possibly met’.

**Starchy food cooked in fat or oil and deep-fried foods:**
Information from caterers on recipes, cooking methods and products was used to determine whether schools met this standard. If insufficient information was obtained to determine whether or not a food should be classified as a starchy food cooked in fat or oil or a deep-fried food (or both) then the standard was classified as ‘possibly met’.

**Salt and condiments:**
Information on availability, method of service, (served by the caterer or pupils’ self served), portion weights of condiments and the availability of salt to pupils were used to determine if this standard was met.

**Healthier drinks:**
If information on specific ingredients and the proportion of ingredients within ‘healthier drinks’ could not be determined then the standard was classed as ‘possibly met’.

### 2.6 Nutrient-based analysis of provision

#### 2.6.1 Data preparation

**Nutrient databank**
The School Food Trust version of the Food Standards Agency Nutrient Databank was used to provide the energy and nutrient data on food composition.

**Coding**
A unique code was allocated to each food and drink item by choosing the closest item on the databank, taking into account the following:

- the state of the food, e.g. fresh, frozen or cooked
- the cooking methods used, e.g., baked, fried or boiled,
- the medium used to cook the food item, e.g., blended vegetable oil
- water and vitamin and mineral losses that occurred during the cooking process.

Codes allocated to items on the inventories were then repeated on the corresponding items as noted on the pupils’ tray checks. This allowed the individual lunch items that pupil’s had chosen to be identified and analysed.

If a similar item was not available, a new code was assigned and data taken either from manufacturers or other food composition data, or a new recipe created.

**Food group classification**
School lunch items were categorised into one of 22 different food groups defined in Appendix 6. To allow comparisons with data collected in 2005, the 2005 data were recoded to match the new food group classification.

Packed lunch items were categorised into one of 16 food groups defined in Appendix 7.

**Missing portion weights**
Two typical portions of each item provided at lunchtime by the school were weighed to the nearest 2g and an average computed. Where no information on portion weight was
recorded, the average weight of similar items across all schools was used. Three per cent of portion weights were estimated in this way, and these typically included condiments, water and non-permitted drinks.

**Missing portion numbers**
For each food and drink item recorded on the inventory, the number of portions available to pupils, on that day, was also recorded.

Where the number of portions served was missing for a given item, an average number of portions served per pupil was calculated for each of the following food groups:
- Main dishes
- Carbohydrate accompaniments (e.g. pasta, rice)
- Vegetables
- Salads
- Condiments
- Fruit
- Dessert
- Water
- Other drinks
- Sandwiches
- Starchy food cooked in fat or oil
- Non permitted products

Estimation from the school was used if the school had information on at least five other observations in the same food group. Where a school had less than five observations per portion number, an average number of portions per pupil was imputed from data from all other schools; a portion number was imputed - based on the average number of portions per pupil from all other schools. Nine per cent of portion numbers were estimated, and these typically included fruit juice, water, other drinks and condiments.

**Appendix 8** provides a description of measured versus estimated portion weights and portion numbers.

**Recipe information**
Recipes and information about cooking methods and products were obtained from school caterers, catering companies and LAs. A total of 40% of recipes from all food items were obtained. Missing recipes were therefore either created, or similar recipes from other schools were used based on detailed information about the composition of each dish which was collected by fieldworkers.

It was also necessary to create recipes for sandwiches. Using a combination of information from schools and standard portions weights of food items\(^a\) a varied list of

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sandwiches was created with different proportions and types of bread, fillings, spreads and salads appropriate to use for all schools. This method was also used for salads and some pizzas.

2.6.2 Data checking

Data including food and drink provided by schools, lunch chosen by pupils and food and drink left over, was recorded by trained TNS-bmrb fieldworkers, and checked by a team of nutritionists. A range of acceptable weights and portion numbers for each item was checked, taking into account whether an item was served as an accompaniment, main dish, a half portion size, and the number of pupils being served that day.

Pupils having a school lunch that chose to have a second helping (0.3%) were assumed to be taking half the weight of the first helping. Children who did not return their leftover food or drink items to be weighed were assumed to have consumed all their meal. Where weight eaten (calculated by subtracting leftover weight from the allocated portion weight for each item taken) resulted in a negative value, it was assumed that the pupil had eaten none of that particular item. Occurrences of negative weights were rare (0.05% amongst school lunches, 0.2% amongst packed lunches), and these were spread across a variety of food and drink items.

Consistency and accuracy of food coding with the databank was checked for all items. This involved comparing food codes (from the inventory and tray check/box check) with food names (from the databank), and food groups (149 food groups from the databank) with the final allocated food groups as in section 3.6.1.

2.6.3 Compliance with the nutrient-based standards

Compliance of school meals with the nutrient-based standards was based on actual provision (i.e. school lunch data collected over five days of fieldwork). Because separate nutrient-based standards are available for infant and junior aged pupils, these have been reported separately.

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b This occurred in instances where, due to variations in the amount served, the left-over weight (typically of a food of which a pupil had eaten none or very little) was greater than the average weight of the food served.
3 Contracts and Specifications

3.1 Response rate

Of the 136 schools that had a meal service, a total of 13 contractual documents were received covering 25 (18%) schools. The response rate (18%) was much lower than that observed in the previous study on school meal provision in primary schools in England carried out in 2005 (74%).

Ten of the documents received were Service Level Agreements (SLAs) drawn up by local authority catering services; one was a specification drawn up by a local authority; one was a leaflet summarising the services to schools provided by a local authority; and one was menu planning guidance issued by a local authority catering service provider and used for training and implementing the nutrient-based and food-based standards for school lunches.

3.2 Content of documentation

The documents were examined for evidence of healthy eating relating to: compliance with the nutrient-based and food-based standards, menu variety, procurement practices, and a whole school approach to healthy eating.

The length and level of detail of the documents varied and ranged from two to 61 pages describing anything from the proposed catering service to defining and specifying every aspect of service delivery. The SLAs covered from one to ten years and most were drawn up between 2006 and 2009. One document dated back to 2004 and statements relating to the school food standards were outdated.

3.2.1 References to standards for school food

Twelve of the 13 documents made some reference to standards for school food. The remaining document simply stipulated that ‘all catering services would comply with all legislation’.

Within the 12 documents referring to the standards:

- the standards for lunches appeared more frequently than the food-based standards applying to ‘outside lunch services’
- the level of detail and specificity varied enormously. Most documents did not have hard evidence that lunch menus and any additional services met the standards.

“The meals will be planned, prepared and served in compliance of the National Standards for School Meals”

“The County Catering Services will provide a selection of freshly cooked food items that meet the published food standards for food on schools”

The documents generally contained more detail on functional aspects of catering such as hygiene, catering staff, disposal of kitchen waste, food service times and use of premises, process and actions rather than on the standards related to good nutrition.

Only two documents included sample menu plans for lunch, nutritional analysis output, and lists of foods and drinks to be served at breakfast and mid-morning break.
Finally, there seemed to be some misunderstanding around interpreting the standards:

- one document translated the food-based standards into a visual list, but the deep-fried standard was omitted and the wording on the bread standard inferred that bread with added fat was permitted. Also, the healthy drinks standard was worded differently from that issued within the School Food Trust’s guidance, resulting in ambiguity over which drinks were permitted.

- one document inferred that nutrient-based standards applied to services other than lunch.

- one SLA used the School Meals Review Panel report rather than the updated standards issued by the School Food Trust.

### 3.2.2 Monitoring standards

Most of the documents reviewed made some reference to monitoring of the catering service. This usually consisted of an area catering manager visiting schools (with variable frequency, from twice each term to annually) and reporting to the school and local authority.

Only two of the documents examined gave further information on how the food-based or nutrient-based standards would be specifically monitored:

- One document reported that trading standards would carry out random sampling to check the nutritional quality of school lunches.

- One SLA included a 20 point audit checklist, including one criterion which required a percentage of healthy and nutritious food that is low in fat, sugar and salt.

- One specification reported that the standards would be monitored by the School Nutrition Action Group, the local authority nutritionist, and Ofsted.

Overall, there was little specificity within the documents examined on monitoring either the food-based or nutrient-based standards.

### 3.2.3 Evidence of compliance

Four of the 13 documents included evidence of compliance with school food standards:

- One SLA had confirmation from the specialist dietician that their services were compliant with the standards.

- Included within the training material provided by one local authority was a bar chart output from nutritional analysis software demonstrating compliance.

- One specification stated that the ‘Contractor shall provide the authorised officer with standard recipes and nutritional analysis of every recipe’. This is not, strictly, evidence of compliance with the standards, although the information would be necessary to determining compliance.

### 3.2.4 Menu variety

A criticism of the nutrient-based standards is that they limit cooks’ creativity, and drive caterers towards using set menus which are rarely changed due to the complexity of the menu planning process.
Menu cycles were referred to in six of the 13 documents. In one specification, the menu cycle was two weeks; in all the other documents menu cycles were three weeks. Frequency of change of the menu cycle was mentioned in four documents, and this ranged from termly to annually. Some documents made it clear that menu variations to meet the needs of vegetarians or those with special needs as a result of medical, ethical or cultural factors would be available. Based on these small numbers, it is difficult to draw any conclusions other than that three quarters of the local authorities who provided documents did not deem it important to communicate to schools how often they would change their menu cycles. This could be interpreted as either the catering providers not wanting to be tied down to the frequency of changing menus, or a perception that schools did not require this level of detail.

3.2.5 Procurement
Since the 2005 survey, there is increased evidence of development of procurement practices, particularly relating to:

- using local suppliers (but usually with the caveat ‘where financially viable’)
- using fresh produce
- avoiding or removing genetically modified food stuffs
- avoiding mechanically recovered meat
- working towards achieving the Soil Associations ‘Food For Life’ targets of at least 75% of all food consumed over a week made from unprocessed ingredients; at least 50% meat ingredients sourced from local regions; at least 30% of food served should be from organic sources.

Locally/regionally sourced produce was mentioned in six of 13 documents; whereas in the 2005 survey local sourcing of produce was referred to in only 10% of the documents collected. In addition, a sample menu within one SLA specified two organic products (organic meatballs and organic sausages). The specification cited the Food Standards Agency’s Target Nutrient Specifications for manufactured foods used in schools; but it was unclear whether the contractor would be required to procure products which met these specification or whether they should simply ‘work towards’ procurement of compliant products.

3.2.6 Whole school approach
A whole school approach is important for pupils to receive consistent messages about all aspects of health. Reference to school catering supporting classroom learning and wider school promotion of healthy eating was made in 11 of the 13 documents.

“The catering team will assist the school in promoting healthy eating”

“We (the caterers) will implement the Local Authority’s school food strategy to maximise the potential of schools in the Local Authority to promote healthy eating for pupils and the wider community and to ensure all interested parties across the city work together to promote healthy eating for children”

The documents reviewed varied in content and because the sample was small, it was difficult to make any detailed - comparisons with findings from the 2005 survey.
4 The catering service and eating environment

4.1 Catering service

Information about the school meal service and school food policy was collected through telephone interviews with the school cook or catering manager (124 completed) and with the head teacher or bursar (118 completed). The principal provider of school catering services was LA in-house (Table 1). Two schools reported having another type of service provider (such as using another school). The catering provision matched patterns seen nationally.

There were no significant differences found between type of catering provider and patterns of food and drink taken by pupils, or compliance of school lunches with the standards.

<table>
<thead>
<tr>
<th>Provider of school meal service</th>
<th>Number of schools</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA in house</td>
<td>59</td>
<td>50</td>
</tr>
<tr>
<td>School in house</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>School contracted private contractor</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>LA contracted private contractor</td>
<td>41</td>
<td>35</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

Base: 118

The majority of schools had fixed cost/ fixed price contracts for their school meals service (Table 2). Of the 118 head teachers that completed the survey, 58 expected not to make a surplus from their catering service, 16 expected to operate at a deficit and 18 expected to make a surplus.

<table>
<thead>
<tr>
<th>Type of contract</th>
<th>Number of schools</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed cost/fixed price</td>
<td>56</td>
<td>47</td>
</tr>
<tr>
<td>Profit and loss/break even</td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td>Management fee/cost plus</td>
<td>16</td>
<td>14</td>
</tr>
<tr>
<td>Don't know</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

Base: 118

In most schools, pupils entered the dining room by year, with the order being rotated so that the same year was not last every day (Table 3).

<table>
<thead>
<tr>
<th>How pupils entered the dining room</th>
<th>Number of schools</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>By form/year (rotated)</td>
<td>72</td>
<td>61</td>
</tr>
<tr>
<td>By form/year (same order each day)</td>
<td>28</td>
<td>24</td>
</tr>
<tr>
<td>Another way</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>All at once</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Don't know</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

Base: 118

Pupils generally paid for their school meals either by a fixed price each day in the dining room, or in advance (Table 4). Smart cards/cashless and cash cafeteria systems were not widely used.
### Table 4 How pupils paid for their school meals

<table>
<thead>
<tr>
<th>How do children pay for their meals</th>
<th>Number of schools</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed price (ticket on the day)</td>
<td>44</td>
<td>36</td>
</tr>
<tr>
<td>Fixed price (ticket in advance)</td>
<td>41</td>
<td>33</td>
</tr>
<tr>
<td>Smart card/cashless</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Cash cafeteria</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Don't know</td>
<td>19</td>
<td>15</td>
</tr>
</tbody>
</table>

Base: 123

The average value of free school meal was £1.81 (sd=0.26), and for paid meals was £1.81 (sd=0.24). These data were obtained from 89 and 110 schools respectively. Pupils entitled to a free school meal had the same choice as pupils paying for their meals. Seventy eight percent of the school caterers reported that catering staff could not identify which pupils were registered for a free school meal.

#### 4.2 Compliance

Head teachers and caterers were asked about compliance of their school lunches with the final food-based and nutrient-based standards (Table 5). Responses showed that 68% of head teachers and 86% of caterers believed their school lunch to be fully compliant with the food based standards, and 61% of head teachers and 79% of caterers perceived their school lunches to be fully compliant with the nutrient-based standards.

Over 90% of head teachers and caterers believed the lunches they served were nearly or fully compliant with all the food-based and nutrient-based standards although objective assessment of the menus suggested otherwise.

### Table 5 Head and caterer perceptions of lunchtime compliance with the food-based and nutrient-based standards

<table>
<thead>
<tr>
<th>Level of compliance</th>
<th>Food–based standards</th>
<th>Nutrient-based standards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Head teacher*</td>
<td>Caterer*</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Fully compliant</td>
<td>75</td>
<td>68</td>
</tr>
<tr>
<td>Nearly compliant</td>
<td>28</td>
<td>25</td>
</tr>
<tr>
<td>Not compliant</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Don’t know</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

* 118 Head teachers and 124 caterer telephone interviews completed; 110 head teachers and 109 caterers answered the question on perception of their food and drink provision and overall compliance with the food-based standards, and 95 head teachers and 112 caterers answered the question on perception of their food and drink provision and overall compliance with the nutrient-based standards

#### 4.3 Eating environment

Information about the eating environment was obtained using a brief questionnaire focussed on the dining room environment and collected by interviewers at lunchtime on one day of the fieldwork visit. Data were collected from all schools that participated in the survey (Table 6).

Almost all schools (n=135, 97%) provided pupils with access to free drinking water at lunchtime. Almost all (125; 90%) of schools’ dining spaces were used for other activities, including PE, teaching, and drama. Seventeen (13%) schools reported not permitting pupils who had packed lunches to sit in the same area as pupils who were eating school lunches.

Menus were displayed in 59% of schools. Few schools (less than 30%) displayed characteristics of the menu, such as description of dishes, labelling of dishes etc. Promotion of healthy eating was mainly in the form of posters (by 65% of schools).
although other promotional material was used (e.g. display boards, education style, leaflets and stickers). Evidence of commercial marketing was limited to 20% of schools.

There was a trend for a greater proportion of pupils to take fruits and vegetables in schools promoting increased intake of fruits and vegetables. No associations were found between any other aspects of the eating environment and either the profile of foods chosen by pupils or compliance with the standards.

**Table 6 Assessment of the lunchtime eating environment in 136* primary schools in England**

<table>
<thead>
<tr>
<th>Eating environment characteristics</th>
<th>Number of schools</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Menu displayed in dining room</td>
<td>80</td>
<td>59</td>
</tr>
<tr>
<td>Evidence of commercial marketing</td>
<td>27</td>
<td>20</td>
</tr>
</tbody>
</table>

**Promotion of healthy eating**

- Posters: 88, 65%
- Display boards: 34, 25%
- Education style: 29, 21%
- Stickers: 17, 13%
- Leaflets: 7, 5%

**Menu characteristics**

- Description of the dishes: 39, 29%
- Suitability for special diets (e.g. vegetarian, Halal): 26, 19%
- Contains e.g. fruit, vegetables, oily fish etc...: 21, 15%
- Promotion of ‘healthier’ choice: 15, 11%
- Nutritional information: 13, 10%
- Exciting or promoting names for the dishes: 5, 4%
- Ingredients list: 6, 4%
- Organic: 6, 4%
- Allergy information: 3, 2%

**Healthy eating messages**

- Eat more fruit and/or vegetables (e.g. five a day): 77, 56%
- Balanced diet (e.g. eatwell plate): 51, 38%
- Drink more milk: 12, 9%

**Source of healthy eating materials**

- School: 41, 30%
- School Food Trust: 34, 25%
- Food company: 21, 15%
- NHS: 14, 10%
- School caterer: 11, 8%
- Pupils: 11, 8%
- Food Standards Agency (FSA): 5, 4%
- British Nutrition Foundation (BNF): 1, 1%

**Pupils’ involvement in aspects of lunchtime**

- Clearing or wiping tables: 33, 24%
- Helping younger pupils: 16, 12%
- Serving other pupils: 8, 6%
- Sweeping floors: 7, 5%
- Putting water on tables: 6, 4%
- Laying tables: 4, 3%

* 3 schools did not have a school meal service and were excluded from analysis
4.4 Health-related schemes and activities

Most head teachers reported that they were participating in one or more health-related schemes (e.g. Healthy Schools, School Fruit and Vegetable Scheme) (Table 7). There were no differences, however, in either the profile of food served or the degree of compliance with the standards between schools signed up to a scheme versus those that were not.

<table>
<thead>
<tr>
<th>Scheme</th>
<th>Number of schools</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy schools</td>
<td>114</td>
<td>84</td>
</tr>
<tr>
<td>School fruit and vegetable scheme</td>
<td>98</td>
<td>72</td>
</tr>
<tr>
<td>Whole school food policy</td>
<td>89</td>
<td>65</td>
</tr>
<tr>
<td>School milk scheme</td>
<td>88</td>
<td>65</td>
</tr>
<tr>
<td>Salt policy</td>
<td>80</td>
<td>59</td>
</tr>
<tr>
<td>Let’s get cooking</td>
<td>42</td>
<td>31</td>
</tr>
<tr>
<td>Million meals</td>
<td>24</td>
<td>18</td>
</tr>
<tr>
<td>Food for life partnership</td>
<td>9</td>
<td>7</td>
</tr>
</tbody>
</table>

Of 118 head teachers who were interviewed, 105 (89%) reported that cookery lessons were available to pupils as part of their curriculum, and a further six reported that they were planning to introduce cookery lessons in the next academic year.
5 School lunch: provision, selection and consumption

The following is the full report available separately as “Primary school food survey 2009 1. School lunch: provision, selection and consumption”.

Overview

By September 2008, all primary schools in England were required by law to meet new food-based and nutrient-based standards for school food provision. The School Food Trust has carried out a survey to assess the impact of the standards on catering provision and pupil food selection and consumption in a nationally representative sample of 136 primary schools in England. The survey replicates a similar survey carried out in 151 primary schools in 2005.

Compared with 2005, caterers now provide a more healthy lunch, including more vegetables and salad, starchy foods not cooked in fat (like pasta and rice), fruit, fruit juice, and fruit-based desserts, and fewer desserts without fruit, chips and other starchy foods cooked in fat, and no crisps or confectionery.

By limiting the range of foods to healthier options, pupils now take healthier lunches. For example, the average meal taken now contains over two portions of fruit and vegetables, and is lower in fat, sugar and salt. In consequence, pupils eat healthier meals at lunchtime. For example, fat provides about 29% of lunchtime energy (well below the 35% maximum allowed), and saturated fats provide around 11% (meeting the target). The average sodium content of a meal has dropped by almost one-third since 2005. Reassuringly, average wastage did not increase, as some had feared.

This Research Report is the first of three that the Trust plans to publish relating to this survey. The next one will be on packed lunches, and the third one will be a full report including further information on data collection tools and methods, contracts and specifications and catering service and eating environment.

Background

Since September 2008, all primary schools in England have been required by law to comply with new standards for school lunch. The purpose of this legislation is to enable pupils to eat more healthily at lunchtime and throughout the school day. These standards replace the food-based standards introduced in 2001. The 2001 standards helped to ensure that healthy food and drink options were available throughout the lunch service, but did nothing to limit the range of less healthy options available. Nor did they address the provision of food across the school day. The new standards balance the range of choice toward healthier options, and include non-lunch provision. For example, a portion of fruit and vegetable must be provided at lunchtime for every pupil having a school lunch. Chips can be served occasionally, but not every day, as before.
Aims of the overall survey

- Observe and record the provision of all food and drink in the dining room
- Observe and record the food and drink choices of a random sample of pupils having a school lunch
- Determine the consumption and wastage of all food and drink served
- Measure the consumption of food and drink from packed lunches
- Assess the nutrient content of school lunches and packed lunches
- Assess compliance of provision with the food-based and nutrient-based standards for school food
- Ask catering providers and head teachers about the arrangements for provision and school policies relating to healthy eating

How the data were collected

The study was carried out by a consortium of workers from the School Food Trust, Nutrition Works!, and Taylor-Nelson-Sofres. A nationally representative sample of 6690 pupils in 136 primary schools in England was recruited between February and April 2009 to assess the lunchtime eating habits of primary school pupils. A further 3481 pupils who brought packed lunches were also recruited. Caterers provided planned menus as well as other information relating to catering practices. Head teachers were interviewed by telephone about school food policies and finances.

Between February and April 2009, trained field workers collected observations at lunchtime on five consecutive days at each school. Each day, fieldworkers made a list of all food and drink served at lunch time and recorded the number of portions of each item provided. They weighed and recorded typical portion weights, and recorded the number of pupils catered for. They then observed and recorded the food and drink items taken and eaten by 10 randomly selected pupils having a school lunch. When pupils had finished their lunch, they returned their trays to the field workers who then recorded and weighed leftovers. For a further five randomly selected pupils who brought a packed lunch to school, field workers recorded the weights of each item of food and drink eaten (allowing for food left over). Caterers were asked to provide copies of their school lunch menus and recipes (with details of ingredients and cooking methods).

The present results are compared with those from a similar study carried out in 2005 in a nationally representative sample of 7058 pupils attending 151 primary schools in England.

Food and drink provided by caterers at lunchtime

Figure 1 compares the pattern of food and drink provision in 2009 with 2005. Based on direct observations of what was available at lunchtime, each bar in the figure shows how many different types of food or drink were provided in a given food group as a percentage of all items provided by the caterer. For example, in 2005, 18% of all types of food and drink provided were a vegetable or an item of salad; in 2009, this had increased to 22%. Healthier foods promoted by the new standards, such as vegetables and salad, fruit, starchy foods not cooked in oil, milk and yogurt, water, fruit juice, and fruit-based desserts, together represented a 12% greater share of the types of food and drink provided in 2009 compared with 2005. Conversely, foods regarded as less healthy (including ‘other’ desserts (i.e. not containing fruit), condiments, starchy food cooked in fat, and non-permitted items such as savoury snacks, confectionery, chocolate, soft

Findings on packed lunches and the impact of catering practices and school policies on lunchtime catering provision and consumption will be presented in subsequent Research Summaries.

This is based on a count of the types of food and drink offered, not the number of portions, as this was not measured in 2005. The percentage of healthier food portions served in 2009 is likely to be higher.

Condiments include ketchup, mayonnaise, chutney, and other sauces (not salt and pepper).
drinks) together represented 12% less of the types of items provided in 2009 compared with 2005. Although these changes seem relatively small, they underpin a substantial move toward healthier food selection, as shown in Figure 2.

![Figure 1. Percentage of types of food and drink items provided by caterers at lunchtime, by food group, primary schools, England, 2005 and 2009](image)

All differences were statistically significant at p<0.01 except main dishes and baked beans. Vegetables and salad included raw and cooked vegetables (but do not reflect the contribution from vegetables in main dishes). Fruit based desserts contained an average of 40% fruit. Base (schools): 2005: 151; 2009: 136

**Food and drink selected by pupils at lunchtime**

The main purpose of introducing stricter regulations relating to school food was to change the balance of food and drink available at lunchtime toward healthier options. Figure 2 shows the impact of these changes on pupils' food selection. Based on direct observations of what was on pupils' trays, the figure compares the percentage of pupils having a school lunch who took items of food and drink from specific food groups in 2005 and 2009. The changes, on average, have been in what could be deemed a 'healthy' direction. For example, in 2009, 74% of pupils took servings of vegetables and salad, compared with 59% in 2005. Similar trends were seen for starchy foods not cooked in fat, water, fruit, milk and yogurt, fruit-based desserts, and fruit juice. In contrast, fewer pupils took the less healthy options: 'other' desserts, starchy foods cooked in fat, non-permitted items (savoury snacks, confectionery, chocolate, sweetened soft drinks), and condiments.

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§§ Items not permitted under the regulations. Two schools were cooking with confectionery (e.g. chocolate chips) at lunchtime, and eight provided squash, or milkshakes with excess amounts of sugar.
Figure 2. Percentage of pupils having a school lunch who took specific items of food and drink, by food group, primary schools, England, 2005 and 2009

*All differences were statistically significant at p≤0.001 except for main dishes and baked beans. Vegetables and salad included raw and cooked vegetables (but do not reflect the contribution from vegetables in main dishes). Fruit based desserts contained an average of 40% fruit. Base (pupils): 2005: 7058; 2009: 6690

Figure 3 summarizes the change in the percentage of pupils taking items in a specific food group between 2005 and 2009 (equal to the differences in the percentages shown in Figure 2). For example, in 2005, 29.5% of pupils took water with their lunch; in 2009, this had increased to 51.3%. Thus, the graph shows that 21.8% more pupils took water to drink in 2009 than in 2005. Similarly, about 15% more pupils took vegetables or salad in 2009 compared with 2005, 9% more took fruit juice, and so on. In contrast, 4% fewer pupils having a school lunch took ‘other’ desserts (non-fruit-based desserts); 6% fewer took condiments; 7% fewer took starchy foods cooked in fat (chips, potato wedges, roast potatoes, etc.); and 7% fewer pupils took items from the non-permitted group at lunchtime. These changes represent significant advances toward healthier eating at lunchtime amongst primary school pupils.

Figure 3. Change in the percentage of pupils having a school lunch who took specific items of food and drink, by food group, primary schools, England, 2009 compared with 2005

*All differences were statistically significant at p≤0.001 except for baked beans. Vegetables and salad included raw and cooked vegetables (but do not reflect the contribution from vegetables in main dishes). Fruit based desserts contained an average of 40% fruit. Base (pupils): 2005: 7058; 2009: 6690

*** Two schools were cooking with confectionery (e.g. chocolate chips), and eight were providing squash or milkshakes with excess sugar to drink.
Food and drink eaten by pupils at lunchtime

5.1 Consumption by food group

The food and drink that pupils ate at lunchtime was measured by direct observation. Field workers noted the food and drink taken by each pupil in the sample; the weight of a standard portion was based on direct measurements made in each school; and the amount of food left over by each pupil was weighed.

Table 8 shows the percentages of pupils who took food and drink from specific food groups, and the average amounts of food and drink taken and eaten by those who took the items. The percentages in the table reflect those shown in Figure 2 for 2009.

Pupils in 2009 were taking a healthier balance of foods compared with pupils in 2005. Their selections included plenty of meat, poultry, fish and main dishes with protein. Only 11% of pupils took meat products (sausages, burgers, sausage rolls, etc.), reflecting their reduced availability at lunchtime. Over half of pupils took vegetables (this does not include the vegetables contained in mixed dishes) and almost a quarter took salad. About 40% took fruit or a fruit-based dessert. Over half of pupils had plain water to drink.

### Table 8. Percentage of pupils taking specific food and drink items, weight as taken, weight as eaten, and wastage, by food group, primary schools, England, 2009

<table>
<thead>
<tr>
<th>Food Group</th>
<th>Pupils taking %</th>
<th>Weight as taken mean g</th>
<th>sd*</th>
<th>Weight as eaten mean g</th>
<th>sd</th>
<th>Plate wastage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat, poultry, fish</td>
<td>33.1</td>
<td>58.7</td>
<td>27.7</td>
<td>48.5</td>
<td>26.6</td>
<td>10.6</td>
</tr>
<tr>
<td>Protein &amp; carbohydrate</td>
<td>9.3</td>
<td>113.3</td>
<td>52.6</td>
<td>86.4</td>
<td>52.7</td>
<td>28.1</td>
</tr>
<tr>
<td>Protein &amp; vegetable</td>
<td>9.3</td>
<td>107.1</td>
<td>35.2</td>
<td>77.6</td>
<td>46.1</td>
<td>30.5</td>
</tr>
<tr>
<td>Protein, carbohydrate &amp; vegetable</td>
<td>21.4</td>
<td>113.6</td>
<td>62.9</td>
<td>85.0</td>
<td>59.9</td>
<td>29.6</td>
</tr>
<tr>
<td>Protein other</td>
<td>6.6</td>
<td>37.2</td>
<td>18.5</td>
<td>31.5</td>
<td>18.7</td>
<td>6.0</td>
</tr>
<tr>
<td>Carbohydrate &amp; vegetable</td>
<td>5.4</td>
<td>101.8</td>
<td>52.5</td>
<td>69.6</td>
<td>51.8</td>
<td>33.7</td>
</tr>
<tr>
<td>Carbohydrate</td>
<td>60.4</td>
<td>86.0</td>
<td>56.3</td>
<td>61.5</td>
<td>49.6</td>
<td>25.7</td>
</tr>
<tr>
<td>Starchy foods cooked in oil</td>
<td>42.4</td>
<td>74.0</td>
<td>30.7</td>
<td>59.1</td>
<td>33.7</td>
<td>15.4</td>
</tr>
<tr>
<td>Vegetables</td>
<td>57.1</td>
<td>60.0</td>
<td>27.2</td>
<td>39.1</td>
<td>28.5</td>
<td>22.1</td>
</tr>
<tr>
<td>Salad</td>
<td>22.9</td>
<td>40.8</td>
<td>25.1</td>
<td>30.3</td>
<td>24.5</td>
<td>11.6</td>
</tr>
<tr>
<td>Baked beans</td>
<td>15.6</td>
<td>85.2</td>
<td>22.9</td>
<td>74.5</td>
<td>27.9</td>
<td>11.0</td>
</tr>
<tr>
<td>Sandwiches</td>
<td>8.4</td>
<td>84.9</td>
<td>55.2</td>
<td>66.3</td>
<td>52.7</td>
<td>19.2</td>
</tr>
<tr>
<td>Fruit</td>
<td>22.9</td>
<td>80.3</td>
<td>43.7</td>
<td>56.4</td>
<td>42.6</td>
<td>25.1</td>
</tr>
<tr>
<td>Fruit-based dessert</td>
<td>16.2</td>
<td>82.9</td>
<td>33.3</td>
<td>64.9</td>
<td>39.6</td>
<td>18.8</td>
</tr>
<tr>
<td>Other dessert &amp; dessert accompaniment</td>
<td>61.0</td>
<td>85.8</td>
<td>52.7</td>
<td>74.7</td>
<td>52.7</td>
<td>11.8</td>
</tr>
<tr>
<td>Milk, yoghurt &amp; milky drinks</td>
<td>20.0</td>
<td>134.9</td>
<td>52.6</td>
<td>110.3</td>
<td>56.3</td>
<td>24.7</td>
</tr>
<tr>
<td>Fruit juice</td>
<td>14.8</td>
<td>132.7</td>
<td>48.3</td>
<td>114.0</td>
<td>52.4</td>
<td>19.0</td>
</tr>
<tr>
<td>Water</td>
<td>51.3</td>
<td>124.0</td>
<td>30.5</td>
<td>93.6</td>
<td>47.6</td>
<td>31.8</td>
</tr>
<tr>
<td>Condiments</td>
<td>16.9</td>
<td>48.2</td>
<td>34.0</td>
<td>44.4</td>
<td>33.2</td>
<td>3.9</td>
</tr>
<tr>
<td>Non- permitted drink</td>
<td>3.0</td>
<td>145.9</td>
<td>29.7</td>
<td>123.2</td>
<td>47.2</td>
<td>22.7</td>
</tr>
<tr>
<td>Dessert containing confectionery</td>
<td>0.6</td>
<td>48.8</td>
<td>21.4</td>
<td>43.5</td>
<td>23.5</td>
<td>5.5</td>
</tr>
</tbody>
</table>

Base: 6,690 pupils

* The differences between the weight as taken and the weight as eaten were computed item by item within each food group, so the values are not equal to the differences between the averages as given in the table.

** sd: standard deviation

Of the food and drink taken, pupils left about 24% as plate waste."

Reassuringly, this was little changed from 2005 (23%), and not substantially higher as some had feared.16 Wastage varied by type of item. Unsurprisingly, it was lowest for items like meat products, baked beans, and dessert containing confectionery, but even items like chips and starchy food cooked in oil were wasted (about 21%). The highest average wastage

15 Overall percentage plate waste was calculated as the mean of the plate waste of every item (weight of food or drink not eaten by a pupil divided by the weight of the food or drink served). This is likely to be a slight overestimate, as some measurements included containers (e.g. yogurt pots) which could not readily be weighed separately from the wasted food itself during the weighing process in the dining room.
was seen for vegetables, carbohydrate and vegetable dishes, fruit and salad. This suggests that more needs to be done to encourage pupils to finish eating the vegetables, salad and fruit which have been taken.

One of the key objectives of the food-based standards was to ensure that every pupil had access to one portion of fruit and one portion of vegetables at each meal. Table 9 shows the average number of portions\(^\text{†††}\) of vegetables and fruit taken and consumed. On average, pupils were taking over two portions of fruit and vegetables per day. When all sources of fruit and vegetables were taken into account, across all pupils, an average of 2.2 portions were taken and 1.6 portions eaten.

Amongst ‘consumers’ (those pupils who took an item), an average of 2.3 portions were taken and 1.8 portions eaten. These findings are conservative, as there is a small contribution of vegetables in sandwiches and pulses in mixed dishes that could not be taken into account because of lack of recipe data. About 35% of pupils consumed at least two portions of fruit and vegetables on a given day, and over half consumed at least one and a half portions. This represents a substantial move toward the goal of the legislation to ensure that every pupil has two portions of their “five a day” from a school lunch.

### Table 9. Number of portions of vegetables and fruit taken and eaten, by food group, primary schools, England, 2009

<table>
<thead>
<tr>
<th>Food or drink</th>
<th>As served</th>
<th>As eaten</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% taking</td>
<td>Consumers only</td>
</tr>
<tr>
<td>Vegetables, salad or dishes with vegetables</td>
<td>74.3</td>
<td>1.6</td>
</tr>
<tr>
<td>Baked beans and pulses</td>
<td>32.4</td>
<td>0.9</td>
</tr>
<tr>
<td>Fruit or fruit-based desserts</td>
<td>38.5</td>
<td>1.5</td>
</tr>
<tr>
<td>All foods containing vegetables, salad, baked beans, pulses or fruit (excluding fruit juice)</td>
<td>92.0</td>
<td>2.3</td>
</tr>
<tr>
<td>Fruit juice</td>
<td>14.8</td>
<td>0.8</td>
</tr>
<tr>
<td>All food and drink containing vegetables, baked beans, pulses or fruit (including fruit juice)</td>
<td>93.4</td>
<td>2.3</td>
</tr>
</tbody>
</table>

Base: 6690 pupils

### 5.2 Nutrient intake

Table 10 shows the mean energy and nutrient content of school meals “as taken” and “as eaten” in 2009. The values are shown separately for Infant and Junior pupils because the energy and nutrient requirements (“Nutrient-based standard”) differ by age group. With few exceptions, the average meal “as taken” met the standards (shown in bold). This is a remarkable achievement on the part of school catering services across England.

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\(^{†††}\) One portion of vegetable=40g; one portion of fruit =40g.
One portion of fruit juice=150ml; one portions of beans and pulses=40g. Fruit juice, and baked beans and pulses count as maximum of one portion per day.
Composite dishes contained an average of 28% vegetables; fruit based desserts contained an average of 40% fruit.
Proportion of baked beans to pulses as served=0.97
Table 10. Comparison of mean nutrient intake from school lunch taken and eaten by 2990 Infant pupils and 3696 Junior pupils with the nutrient-based standards, primary schools, England, 2009

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Infants As taken</th>
<th>Infants As eaten</th>
<th>Juniors As taken</th>
<th>Juniors As eaten</th>
<th>Nutrient-based standard</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Mean</td>
<td>Mean</td>
<td>Mean</td>
<td></td>
</tr>
<tr>
<td>Energy (kcal)</td>
<td>490</td>
<td>378</td>
<td>465-514</td>
<td>503</td>
<td>410</td>
</tr>
<tr>
<td>Protein (g)</td>
<td>18.9</td>
<td>14.6</td>
<td>5.9</td>
<td>19.3</td>
<td>15.7</td>
</tr>
<tr>
<td>Carbohydrate (g)</td>
<td>71.5</td>
<td>54.6</td>
<td>65.2</td>
<td>72.7</td>
<td>58.9</td>
</tr>
<tr>
<td>NMES (g)*</td>
<td>13.9</td>
<td>11.3</td>
<td>14.3</td>
<td>14.4</td>
<td>12.4</td>
</tr>
<tr>
<td>Fat (g)*</td>
<td>16.0</td>
<td>12.6</td>
<td>19</td>
<td>16.8</td>
<td>13.9</td>
</tr>
<tr>
<td>SFA (g)*</td>
<td>6</td>
<td>4.8</td>
<td>6</td>
<td>6.4</td>
<td>5.3</td>
</tr>
<tr>
<td>Fibre (g)</td>
<td>5.4</td>
<td>3.9</td>
<td>3.9</td>
<td>5.3</td>
<td>4.1</td>
</tr>
<tr>
<td>Sodium (mg)*</td>
<td>526</td>
<td>419</td>
<td>357</td>
<td>556</td>
<td>465</td>
</tr>
<tr>
<td>Vitamin A (µg)</td>
<td>344</td>
<td>242</td>
<td>140</td>
<td>327</td>
<td>243</td>
</tr>
<tr>
<td>Vitamin C (mg)</td>
<td>25.1</td>
<td>18.0</td>
<td>10.5</td>
<td>22.3</td>
<td>16.8</td>
</tr>
<tr>
<td>Folate (µg)</td>
<td>68.2</td>
<td>50.2</td>
<td>35</td>
<td>64</td>
<td>49.9</td>
</tr>
<tr>
<td>Calcium (mg)</td>
<td>206</td>
<td>163</td>
<td>158</td>
<td>208</td>
<td>173</td>
</tr>
<tr>
<td>Iron (mg)</td>
<td>2.4</td>
<td>1.8</td>
<td>2.1</td>
<td>2.4</td>
<td>1.9</td>
</tr>
<tr>
<td>Zinc (mg)</td>
<td>2.2</td>
<td>1.6</td>
<td>2.3</td>
<td>2.2</td>
<td>1.8</td>
</tr>
</tbody>
</table>

Percent energy from:

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Protein</th>
<th>Carbohydrate</th>
<th>NMES*</th>
<th>Fat*</th>
<th>SFA*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>16.1</td>
<td>55.3</td>
<td>10.2</td>
<td>28.2</td>
<td>10.6</td>
</tr>
<tr>
<td></td>
<td>16.2</td>
<td>55.0</td>
<td>10.7</td>
<td>28.3</td>
<td>10.7</td>
</tr>
<tr>
<td></td>
<td>16.0</td>
<td>54.8</td>
<td>10.2</td>
<td>28.8</td>
<td>10.8</td>
</tr>
<tr>
<td></td>
<td>16.0</td>
<td>54.6</td>
<td>10.2</td>
<td>29.0</td>
<td>10.9</td>
</tr>
</tbody>
</table>

Base (pupils): Infant: 2990; Junior 3696; 4 pupils could not be identified by year group and were not included in the analysis

* To meet the standard, mean nutrient content should be below the value shown
- No standard for percent energy to be met from protein
Values shown in **bold** = standard met

Energy “as taken” met the standards in Infants but not in Juniors, and the energy content of an average meal as eaten was below the standard in both groups. This may not be inappropriate, given the need to reduce overweight and obesity, but more needs to be done to examine this issue (see section below on Challenges).

The average meals “as taken” and “as eaten” by both Infants and Juniors met the standards for percentage energy from carbohydrate, non-milk extrinsic sugars (NMES), fat and saturated fat. Again, this is a remarkable achievement on the part of the caterers in providing meals with a healthier balance of sources of energy.

While the Infant meals “as taken” met the standard for iron, Junior meals “as taken” did not, and the average meals “as eaten” for both Infants and Juniors did not meet the standard for iron. The zinc content of the average meals “as taken” and “as eaten” was below the standards for both Infants and Juniors. Caterers have been working hard to increase the iron and zinc content of lunchtime meals, but clearly more work needs to be done.

Although meals “as eaten” did not meet the standards so consistently compared with “as taken” (Table 10), there were many improvements (typically greater in Infants than in Juniors) in comparison with the nutrient content of average meals eaten in 2005 (Figure 4). The most consistent differences between 2005 and 2009 were decreases in the NMES, fat, saturated fat, and sodium content of an average school lunch, and increases in the levels of vitamin A, folate and fibre and (in Infants) vitamin C and calcium. For example, the average Infant lunch “as eaten” had 30% more vitamin A in 2009 compared with 2005 (due largely to the increase in vegetable content), and 20% less fat.
The average meal in 2009 contained almost one-third less sodium compared with 2005, a substantial shift toward the standard. Because both sucrose (ordinary sugar) and fructose (fruit sugar) contribute to NMES, the decrease in NMES hides the fact that consumption of sucrose has declined even more markedly and the consumption of fructose (from fruit juice) substantially increased. Values for zinc were not computed in 2005 so cannot be included in the figure.

Figure 4. Percentage mean difference in the nutrient content of an average meal as eaten, 2009 compared with 2005, energy and nutrients, primary schools, England, by age group

*All differences between 2005 and 2009 were statistically significant at p≤0.05 except Juniors: carbohydrate, calcium and vitamin C which were not different. Base: (pupils): 2005: Infant 3035, Junior 4023; 2009: Infant 2990, Junior 3696

Compliance with nutritional standards for school food

The final food-based and nutrient-based standards introduced in primary schools in England in 2008 provide benchmarks for caterers to provide food and drink that will enable pupils to have balanced, healthy meals at lunchtime. Compliance with the standards in law relates to planned provision. For 113 schools that provided full menu cycles, it was possible to determine if the food-based standards had been met in relation to planned provision. It was not appropriate to include the planned provision for 23 schools, for which additional information on recipes and cooking practices was needed.

It was also possible to assess actual provision against the standards in order to see how well actual provision matched up with planned provision. Because the data for actual provision related to only one week of direct observations in the dining room, standards which required assessment over two or three weeks (meat products, oily fish) could not be assessed in relation to actual provision.

5.3 Food-based standards

The majority of schools met most of the standards based on planned provision§§§ (Figure 5). The percentages in the figure show the sum for schools that either definitely met the standards or that were likely to be meeting standards (based on information provided by the caterer about recipes, product information and cooking practices).

The lowest percentages were for meat products and starchy food cooked in oil – some schools were still serving sausages, burgers and chips more often than they should. The lapses, however, were usually relatively minor (one or two items in the planned provision

§§§ Based on menu cycles of between one and four weeks provided by the school caterer
over the amounts stipulated by the standards). Even where standards were met less often, however, the evidence suggests that there was good engagement by the caterers with the food-based standards. For example, in 2005, starchy foods cooked in oil (including chips, roast potatoes, etc.) were served almost every day – an average of 4.4 days per week. In 2009, this had fallen to 3.4 days per week; the standard is not more than three times per week.

Actual provision**** complied reasonably well with the standards also. Only for two items, vegetables and fruit,†††† was provision less likely to meet the standards than planned provision (Figure 5). For vegetables, this shortfall was minimal: 58% of schools met the standard fully, a further 20% provided on average at least 90 portions of vegetables per 100 pupils, and only 7% of schools provided less than 80 portions per 100 pupils. This arose partly because they were trying to avoid wastage. For fruit, the shortfall was greater: 12% of schools provided a portion of fruit per pupil every day; a further 22% provided at least three-quarters of a portion; a further 34% at least half a portion; and only about one-third of schools were providing less than half a portion of fruit per pupil per day. In spite of the shortfall in meeting the standards for vegetables and fruit, it is important to bear in mind that on average, pupils were taking over two portions of fruit and vegetables at lunchtime (Table 9). Clearly, if the standards were met more often, more pupils would be likely to eat two portions of their “five a day” at lunchtime. Clearly, more still needs to be done to help caterers provide especially more fruit, and to encourage pupils to eat more fruit.

There were still some issues with compliance for condiments and extra bread, but these arose typically from a lack of clarity on the part of the caterer about how often these items should be provided. Overall, the level of compliance with the food-based standards was good, and reflects a major shift in patterns of food provision since their introduction.

**** Based on an inventory of actual provision in the dining room made by direct observation
†††† Compliance with the fruit standard included portions of fruits, fruit juice and fruit based desserts (containing an average of 40% fruit). Compliance with vegetables included portions of salad, raw and cooked vegetables, and composite dishes including vegetables (containing an average of 28% vegetables).
5.4 Nutrient-based standards

The mean energy and nutrient content of an average school lunch was compared with the nutrient-based standards for primary schools. The calculation of an average school lunch was based on actual provision observed in the dining room over one week.

Over 80% of school catering provision met the standards for protein, carbohydrate, dietary fibre, vitamins A and C, folate and calcium. Around one-half of schools met the standards for fat, iron and zinc, and a further 14%-19% were within ±10% of standard.


<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Standard mean ± se*</th>
<th>Met standard</th>
<th>Within ±10% of standard</th>
<th>Not within ±10% of standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy (kcal)</td>
<td>504-557</td>
<td>626.3 ± 13.0</td>
<td>136 (100)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Protein (g)</td>
<td>7.5 ± 0.5</td>
<td>23.7 ± 0.5</td>
<td>117 (86)</td>
<td>6 (8)</td>
</tr>
<tr>
<td>Carbohydrate (g)</td>
<td>70.6 ± 1.8</td>
<td>90.3 ± 1.8</td>
<td>46 (34)</td>
<td>15 (11)</td>
</tr>
<tr>
<td>NMES (g)</td>
<td>15.5 ± 0.6</td>
<td>19.0 ± 0.6</td>
<td>73 (54)</td>
<td>23 (17)</td>
</tr>
<tr>
<td>Fat (g)</td>
<td>20.6 ± 0.6</td>
<td>21.1 ± 0.6</td>
<td>37 (27)</td>
<td>22 (16)</td>
</tr>
<tr>
<td>Saturated fat (g)</td>
<td>6.5 ± 0.2</td>
<td>8.0 ± 0.2</td>
<td>128 (94)</td>
<td>5 (4)</td>
</tr>
<tr>
<td>Fibre (g)</td>
<td>4.2 ± 0.1</td>
<td>6.4 ± 0.1</td>
<td>26 (19)</td>
<td>10 (7)</td>
</tr>
<tr>
<td>Sodium (mg)</td>
<td>499 ± 18.3</td>
<td>674.3 ± 18.3</td>
<td>135 (99)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Vitamin A (µg)</td>
<td>175 ± 17.7</td>
<td>505.7 ± 17.7</td>
<td>136 (100)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Vitamin C (mg)</td>
<td>10.5 ± 1.5</td>
<td>37.1 ± 1.5</td>
<td>136 (100)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Folate (µg)</td>
<td>53 ± 1.9</td>
<td>86.1 ± 1.9</td>
<td>132 (97)</td>
<td>3 (2)</td>
</tr>
<tr>
<td>Calcium (mg)</td>
<td>193 ± 9.4</td>
<td>279.6 ± 9.4</td>
<td>112 (82)</td>
<td>14 (10)</td>
</tr>
<tr>
<td>Iron (mg)</td>
<td>3.0 ± 0.1</td>
<td>3.0 ± 0.1</td>
<td>65 (48)</td>
<td>19 (14)</td>
</tr>
<tr>
<td>Zinc (mg)</td>
<td>2.5 ± 0.1</td>
<td>2.7 ± 0.1</td>
<td>73 (54)</td>
<td>26 (19)</td>
</tr>
</tbody>
</table>

Base: 136 schools

The standards met least often were for energy, non-milk extrinsic sugars (NMES), and sodium. The energy content of the average school meal is above the standard. The reason for this is not immediately obvious, and more analysis will be undertaken to assess the contribution of portion size and the provision of energy dense items like desserts, deep fried products, and meat products. Although many schools did not meet the standard for sodium, it is important to note that the sodium content of meals “as taken” and “as eaten” is about one-third lower than in 2005. This reflects substantial changes in the use of fresh rather than pre-prepared foods, as well as a response by food manufacturers to reduce the levels of salt. More needs to be done to encourage these trends.

The average meal met about 10 out of the 14 standards and over 50% of schools consistently met 9 of the 14 standards. The vast majority of schools provided an average lunch that met between 7 and 10 standards (117 schools, or 86%) or more than ten standards (17 schools, or 13%); only two schools provided an average lunch that met fewer than 7 standards. A further 5% to 26% of schools were within ±10% of the standards.

When a school met a given standard, it was more likely that pupils in that school would take and eat meals that were healthier. For example, in schools that met the standard for NMES, 74% of pupils took a meal that also met the standard, and 80% of meals as

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* Although compliance with the standards should be assessed on the basis of planned provision, it was felt to be more useful to use the more comprehensive data for actual provision in all 136 schools over one week rather than to limit the analysis to the 113 schools for which full data on planned provision were available. Additionally, the expectation is that planned and actual provision should be closely aligned to pupils’ selection of food and drink. Weekly variations in the nutrient content of planned and actual provision were believed to be similar, and therefore the differences in the nutrient content of planned vs actual provision were likely to be small. This is therefore a conservative view of compliance with the nutrient-based standards.
eaten met the standard. In schools that did not meet the standard, the values were 52% and 62%, respectively. There is therefore a direct relationship between the school meeting the standard and the proportion of pupils taking and eating healthier meals.

Within the standards, notionally ‘less healthy’ items can still be provided, but there are restrictions on the frequency with which they can be served. ‘Starchy foods cooked in fat’, for example, can still be provided up to three times per week across the school day, and the average provision is now only just above this level (3.4 days per week). On the days when these foods were served, however, caterers were likely to provide lots of portions, and in consequence, pupils were more likely to take them. So for example, although only 3% of the types of food provided were starchy foods cooked in fat (Figure 1), they represent 8% of all the foods taken by pupils.

Overall, the findings suggest that primary school caterers have made very significant progress towards providing lunches which meet both the food-based and nutrient-based standards. It is important to remember that the field work for the survey was carried out only six months after the deadline for meeting the standards had passed.

**Challenges**

The success in encouraging more pupils to take healthier items at lunchtime (Figure 2 and Figure 3) and to take and eat more healthy lunches (Table 8 and Table 9) was achieved through a combination of legislation to change the balance of provision toward healthier options and the work of the Trust to support the development of skills and to change attitudes across a wide range of stakeholders. There are, of course, further changes that need to be made to provide food and drink fully compliant with the standards and to encourage pupils to make consistently healthy choices at lunchtime.

Caterers need to:
- Continue to reduce the number of times that starchy foods cooked in fat and meat products are provided
- Increase the range of ways in which fruit and fruit-based desserts are provided
- Encourage more pupils to take fruit and fruit-based desserts at lunchtime
- Find more ways to include vegetables in recipes
- Increase the iron and zinc content of recipes and meals

Pupils need to be encouraged to:
- Take more portions of fruit
- Eat more of the vegetables and fruit taken
- Choose alternatives to starchy foods cooked in oil and meat products even when they are on the menu

It is not clear whether the low energy content of meals as eaten means that some children may not have had enough to eat at lunchtime, or if the pupils on average have energy requirements that are below the nutrient-based standard. In light of the need to reduce levels of overweight and obesity, more needs to be done to explore whether or not the energy content of meals taken and eaten at lunchtime is consistent with the energy needs of the pupils, and to link with the “me size meals” encouraged by Change4Life. Additionally, a consultation on energy requirements by the Department of Health is currently under way.

**Conclusions**

The findings in this report provide strong evidence that lunchtime food provision and food consumption in primary schools in England have changed substantially for the better since 2005. A good proportion of schools have catering provision that meets both
the food-based and nutrient-based standards. This is a very significant achievement on the part of the caterers. Improvements need to be made in terms of the level of compliance with some standards (e.g. for iron and zinc) and in encouraging pupils to make healthier food choices at lunch time in line with the improved pattern of provision.

On balance, these findings suggest that primary school pupils in 2009 who had school lunches were responding positively to the changes that had been made in lunchtime provision of food and drink. Take up of school lunch in the schools in this sample was 43%, above the value reported for primary and special schools in the annual survey for 2008-2009 (39.3%). This suggests that healthier food is not a barrier to increasing take up in primary schools. Most important, pupils were taking and eating substantially more healthy school meals compared with pupils in 2005.

**Research and reporting**

The research was designed and carried out by Michael Nelson, Dalia Haroun, Clare Harper, Lesley Wood, Jo Nicholas and Lesley Stevens of the School Food Trust, members of the TNS research team (Gillian Prior, Louise Hall, Susie Smyth, Camilla Huckle), TNS research nutritionists (Laura Scruby, Cara Monahan) and Jenny Poulter of *Nutrition Works!*. This Research Report was prepared by Michael Nelson, Dalia Haroun, Clare Harper and Lesley Wood. Copies are available from the School Food Trust website: [www.schoolfoodtrust.org.uk](http://www.schoolfoodtrust.org.uk)
6 Packed lunch: selection and consumption
The following is the full report available separately as “Primary school food survey 2009
2. School lunches versus packed lunches report”.

Overview
By September 2008, all primary schools in England were required by law to meet new food-based and nutrient-based standards for school food provision. The School Food Trust has carried out a survey in a nationally representative sample of 139 primary schools in England to assess the impact of the standards on catering provision and pupil food selection and consumption by pupils taking a school lunch. In addition, the food consumption of pupils bringing a packed lunch was evaluated.

Healthier food and drink items were chosen and eaten more frequently by pupils taking a school lunch than those bringing a packed lunch, and packed lunches often included items now restricted in school lunches. Average nutrient intakes from school lunches as eaten were more often in line with healthy eating recommendations than intakes from packed lunches. These findings are consistent with previous research on packed lunches, suggesting that while school lunches have improved following introduction of the new standards, packed lunches have not. These findings support the ongoing work of the Trust to promote the take-up of school meals.

Background
Primary school pupils may either take a meal provided by the school or bring in their own packed lunch from home. Take-up of school meals in primary schools during 2008-2009 was 39.3% with the vast majority of the remainder bringing a packed lunch.3

Since the 1980s, parents have increasingly viewed packed lunches as more nutritious than school meals,20 although some parents hold the opposite view.21 22 23 Studies conducted before and after the introduction of the 2006 food-based standards found that packed lunches typically contained fewer fruits and vegetables and more sources of sugar, saturated fat and sodium than school lunches,21,23 although they often provided more calcium and iron.24 Packed lunches eaten by children from low income households were typically of poorer nutritional quality.25

With the introduction of the mandatory food-based and nutrient-based standards26 in September 2008, primary school food at lunchtime has improved compared with 2005.27 These standards do not apply to packed lunches brought from home, although a good number of primary schools have introduced packed lunch policies to support healthier eating and offer clear guidance and an opportunity to improve food consumed by all pupils.28 Research carried out in 200630 assessed the quality of school lunches in 1294 8-9 year-old pupils across the UK and reported that packed lunches were still generally of poor nutritional quality; only 1% of packed lunches met all of the final food-based standards for England.26

The present study is the first national survey in England to compare school lunches and packed lunches following the introduction of compulsory nutritional standards for school
lunches in primary schools in September 2008. Based on direct measures of lunchtime consumption in a nationally representative sample of 139 state-maintained primary schools in England, the findings highlight the key differences between 6,690 school lunches and 3,481 packed lunches.

**Aims of the overall survey**

The survey was undertaken to:

- observe and record the provision of all food and drink in a sample of school dining rooms
- observe and record the food and drink choices of a random sample of pupils having a school lunch
- determine the consumption and wastage of all food and drink served
- measure the consumption of food and drink from packed lunches
- assess the nutrient content of school lunches and packed lunches
- assess compliance of provision with the food-based and nutrient-based standards for school food

**6.1 How the data were collected**

The study was carried out by a consortium of workers from the School Food Trust, TNS-BMRB and Nutrition Works!

A nationally representative sample of 139 primary schools in England was selected. The food choices and nutrient intake of 3,481 pupils bringing a packed lunch (1,610 boys; 1,818 girls; 53 sex not recorded) in 138 schools and 6,690 pupils (3,247 boys; 3,339 girls; 104 sex not recorded) taking a school lunch in 136 schools were recorded. Fieldwork was conducted over the lunchtime period on five consecutive days at each school between February and April 2009. Each day, trained fieldworkers randomly selected five packed lunch pupils and ten school lunch pupils and observed, weighed and recorded all their lunch items and leftovers.

Further details on the collection methods of school lunch data along with findings about school lunches can be found in the Primary School Lunch Food Survey 2009: 1. School lunch: provision, selection and consumption.

**Food and drink eaten by pupils at lunchtime**

Based on direct observations of what pupils ate, Figure 6 compares the percentage of pupils who ate specific types of food and drink, by food group, according to whether they took a school lunch or brought a packed lunch. A greater proportion of pupils taking school lunches ate more of ‘healthier’ items and fewer ‘less healthy’ items. For example, 66% of pupils taking school lunches took servings of vegetables and salad compared with only 8% of pupils bringing packed lunches. Similar trends were seen for water. Far fewer pupils taking school lunches ate confectionery, non-permitted drinks and snacks.

Of the 84% of pupils bringing packed lunches that had sandwiches, 51% had savoury fillings without salad, 13% with salad, and a further 20% had sandwiches with a sweet filling (jam, chocolate spread, etc.), whereas 35% of pupils taking school lunches had vegetables in mixed dishes. In contrast, more packed lunch pupils ate dairy products (e.g. cheese, yogurt, milk, milky drinks), and a higher percentage ate fruit or fruit-based desserts.

---

Findings on food and drink provision, choices of pupils having a school lunch, consumption and wastage, and assessment of compliance of provision with the food-based and nutrient-based standards for school food have been presented in a previous research summary.

One school in the final recruited sample served only school meals, no packed lunches were permitted.

Three schools in the final recruited sample did not have a school meals service.
Non-permitted snacks
Confectionery
Non-permitted drinks
Meat products
Fruit juice
Condiments
Dairy, milk, yogurt and milky drinks
Fruit and fruit-based desserts
Water
Vegetables and salad

Figure 6 Percentage of pupils eating food and drink items, by food group, by type of lunch, * Primary schools in England, 2009
Base: 3481 pupils bringing packed lunches; 6690 pupils taking school lunches.
Fruit included fruit-based desserts provided at school lunches (containing an average of 40% fruit)
*All differences were statistically significant at p<0.001.

Fruits and vegetables
Table 12 shows the average number of portions of vegetables and fruit†††††† eaten by pupils taking school lunches compared to pupils bringing packed lunches.

Over 90% of pupils taking a school lunch ate food and drink items containing vegetables, salad, pulses or fruit (including fruit juice) compared with only 58% of pupils bringing packed lunches.

Amongst ‘consumers’ (those pupils who ate an item), an average of 1.7 portions of fruit and vegetables were eaten by pupils bringing packed lunches and pupils taking school lunches. When all sources of fruit and vegetables were taken into account (including fruit juice, pulses, and baked beans), both groups ate an average of 1.8 portions. When average across all pupils and all sources of fruit and vegetables, however, those taking school lunches ate more portions (1.6) compared with pupils eating packed lunches (1.0 portion). Thus, pupils having school lunches appear to be closer to the goal of the legislation which ensures that every pupil has access to two portions of fruit and vegetables each day at lunchtime.

Compared with pupils taking school lunches, a greater proportion of pupils bringing packed lunches consumed fruit or fruit-based dessert (41% vs. 36%). Amongst ‘consumers’, pupils eating packed lunches who had fruit in their lunchbox had more (1.8 portions of fruit) compared with pupils taking school lunches (1.2 portions). This was mainly in the form of fruit portions.

†††††† One portion of vegetable=40g; one portion of fruit =40g.
One portion of fruit juice=150ml; one portions of beans and pulses=40g. Fruit juice, and baked beans and pulses count as maximum of one portion per day.
Composite dishes contained an average of 28% vegetables; fruit based desserts contained an average of 40% fruit; sandwiches contained an average of 9% salad.
Proportion of baked beans to pulses as served=0.97.
Table 12. Number of portions of vegetables and fruit eaten, by food group, by type of lunch, Primary schools in England, 2009

<table>
<thead>
<tr>
<th>Food or drink</th>
<th>School lunch</th>
<th>Packed lunch</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% eating</td>
<td>Consumers only</td>
</tr>
<tr>
<td>Vegetables, salad or dishes with vegetables</td>
<td>70.4</td>
<td>1.2</td>
</tr>
<tr>
<td>Baked beans and pulses</td>
<td>30.6</td>
<td>0.8</td>
</tr>
<tr>
<td>Fruit or fruit-based desserts</td>
<td>36.1</td>
<td>1.2</td>
</tr>
<tr>
<td>All foods containing vegetables, salad, baked beans, pulses or fruit (excluding fruit juice)</td>
<td>89.2</td>
<td>1.7</td>
</tr>
<tr>
<td>Fruit juice</td>
<td>14.5</td>
<td>0.7</td>
</tr>
<tr>
<td>All food and drink containing vegetables, baked beans, pulses or fruit (including fruit juice)</td>
<td>91.0</td>
<td>1.8</td>
</tr>
</tbody>
</table>

Base: 3,481 packed lunch pupils; 6,690 school lunch pupils
*All differences in % eating between groups were found to be statistically significantly at \( p \leq 0.008 \)
** Differences in consumers between the groups were found to be statistically significantly at \( p \leq 0.03 \)

Mean energy and nutrient intakes

Table 13 shows the mean energy and nutrient intakes of pupils eating a school lunch or a packed lunch.

The average meal consumed by pupils eating school lunches and packed lunches met the standards for protein, fat and vitamin C (shown in bold). Neither group of pupils met the standard for iron, zinc, fibre and folate. Only the packed lunch group met the standard for calcium.

The average packed meal eaten by pupils contained a higher percentage of energy from NMES and saturated fat than expected from the standards, but these standards were met in the average school lunch eaten by pupils.

The nutrient content of an average packed lunch contained more carbohydrate, NMES, fat, saturated fat, vitamin C, sodium, calcium, and less protein, fibre and zinc, than a school meal. The higher mean carbohydrate consumption found in the packed lunch group can be attributable, at least in part, to the higher intake of NMES (mainly from fruit juice). The difference in the amount of these nutrients between pupils eating a packed lunch and those consuming a school lunch increased with age, suggesting that as pupils get older, the difference in the amount of these nutrients consumed increases between the two groups (table not shown).

The energy content of an average meal eaten was below the standard in both groups. This is based on school lunch contributing around one third of a pupil’s daily calorific intake, but may not be inappropriate considering the increased prevalence of childhood obesity.
Table 13. Mean energy and nutrient intake, by type of lunch, Primary schools in England, 2009

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Nutrient-based standard</th>
<th>School lunch (n=6690)</th>
<th>Packed lunch (n=3481)</th>
<th>Difference</th>
<th>sd</th>
<th>sd</th>
<th>sd</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mean</td>
<td>mean</td>
<td>mean</td>
<td>mean</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy (kcal)</td>
<td>530</td>
<td>396</td>
<td>179</td>
<td>453</td>
<td>179</td>
<td>57</td>
<td></td>
</tr>
<tr>
<td>Protein (g)</td>
<td>7.5</td>
<td>15.2</td>
<td>7.1</td>
<td>13.5</td>
<td>6.4</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td>Carbohydrate (g)</td>
<td>70.6</td>
<td>57.0</td>
<td>26.5</td>
<td>64.6</td>
<td>25.9</td>
<td>-7.5</td>
<td></td>
</tr>
<tr>
<td>NMES (g)</td>
<td>15.5</td>
<td>11.9</td>
<td>10.6</td>
<td>18.2</td>
<td>13.6</td>
<td>-6.2</td>
<td></td>
</tr>
<tr>
<td>Fat (g)</td>
<td>20.6</td>
<td>13.3</td>
<td>8.6</td>
<td>17.4</td>
<td>9.4</td>
<td>-4.2</td>
<td></td>
</tr>
<tr>
<td>SFA (g)</td>
<td>6.5</td>
<td>5.0</td>
<td>3.7</td>
<td>6.6</td>
<td>4.1</td>
<td>-1.5</td>
<td></td>
</tr>
<tr>
<td>Fibre (g)</td>
<td>4.2</td>
<td>4.0</td>
<td>2.2</td>
<td>2.8</td>
<td>1.6</td>
<td>1.3</td>
<td></td>
</tr>
<tr>
<td>Sodium (mg)</td>
<td>499</td>
<td>444</td>
<td>283</td>
<td>629</td>
<td>309</td>
<td>-185</td>
<td></td>
</tr>
<tr>
<td>Vitamin A (µg)</td>
<td>175</td>
<td>243</td>
<td>330</td>
<td>117</td>
<td>187</td>
<td>126</td>
<td></td>
</tr>
<tr>
<td>Vitamin C (mg)</td>
<td>10.5</td>
<td>17.3</td>
<td>16.9</td>
<td>25.9</td>
<td>30.3</td>
<td>-8.5</td>
<td></td>
</tr>
<tr>
<td>Folate (µg)</td>
<td>53</td>
<td>50.1</td>
<td>26.4</td>
<td>38.3</td>
<td>28.9</td>
<td>11.8</td>
<td></td>
</tr>
<tr>
<td>Calcium (mg)</td>
<td>193</td>
<td>168</td>
<td>122</td>
<td>213</td>
<td>121</td>
<td>-44</td>
<td></td>
</tr>
<tr>
<td>Iron (mg)</td>
<td>3.0</td>
<td>1.9</td>
<td>0.9</td>
<td>2.0</td>
<td>1.0</td>
<td>-0.1</td>
<td></td>
</tr>
<tr>
<td>Zinc (mg)</td>
<td>2.5</td>
<td>1.7</td>
<td>1.0</td>
<td>1.5</td>
<td>0.8</td>
<td>0.2</td>
<td></td>
</tr>
</tbody>
</table>

**Percent energy from:**

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>60%</th>
<th>11%</th>
<th>35%</th>
<th>11%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein</td>
<td>16.1</td>
<td>5.9</td>
<td>12.1</td>
<td>4.2</td>
</tr>
<tr>
<td>Carbohydrate</td>
<td>54.8</td>
<td>10.7</td>
<td>54.1</td>
<td>9.8</td>
</tr>
<tr>
<td>NMES</td>
<td>≤11%</td>
<td>10.7</td>
<td>8.4</td>
<td>15.0</td>
</tr>
<tr>
<td>Fat</td>
<td>≤35%</td>
<td>28.7</td>
<td>10.4</td>
<td>33.9</td>
</tr>
<tr>
<td>SFA</td>
<td>≤11%</td>
<td>10.8</td>
<td>5.4</td>
<td>12.7</td>
</tr>
</tbody>
</table>

Base: 6,690 pupils taking a school lunch (from all 136 schools); 3,481 pupils taking a packed lunch (from 135 of the schools)  
sd – standard deviation  
Difference=School lunch-packed lunch  
All differences between school lunch and packed lunch were found to be statistically significant at p ≤0.001

**Conclusions**

The findings in this report provide clear evidence that on balance, lunches provided by schools are more healthy than lunches brought from home.

Because the contents of packed lunches is not regulated (except in a small number of primary schools which strictly enforce packed lunch policies), pupils who eat packed lunches on average consume more meat products (e.g. sausages, meat pies, pasties) and non-permitted food and drink items (e.g. drinks high in sugar, and snacks high in sugar and salt), all items which schools either restrict or ban at lunchtime under the new mandatory standards for school meals. As a result, pupils who eat packed lunches typically have higher average intakes of sugar (NMES), fat, saturated fat and salt than those taking a school lunch. Our findings are consistent with previous research undertaken in primary schools assessing the quality and nutritional content of packed lunches. Findings repeatedly show that the quality and nutrient content of packed lunches is inferior to those from school lunches, again containing food and drink items which are high in fat, sugar and salt 29,30

Conversely, pupils who bring a packed lunch have more fruit, fruit juice and dairy items (such as cheese, yogurt and fromage frais), resulting in higher average intakes at lunchtime of vitamin C and calcium compared with pupils taking school lunches. However, the popularity of such items in packed lunches is also contributing to the greater amounts of sodium, fat, saturated fat and NMES present compared with school lunches.
Our findings support the ongoing work of the School Food Trust (the Trust) to promote the take up of school meals, particularly through efforts to increase knowledge surrounding free school meal eligibility for low-income families.

**Challenges**

The introduction of legislation to change the balance of provision of school lunches toward healthier options, together with the Trust's continued efforts to support the development of skills and to change attitudes across a wide range of stakeholders, has resulted in a positive shift in the nutritional profile and quality of school food and drink available compared with 2005. Food and drink items provided in packed lunches are not covered by the food-based or nutrient-based standards, and in consequence packed lunches often contain foods high in fat, salt and sugar. This contradicts the messages on healthy eating at school (in both the classroom and the dining room), and makes the job of encouraging more pupils to have school lunches more difficult.

In a bid to improve the eating habits of pupils in school and the profile of packed lunch items (to bring them in line with the nutritional standards for all school food), it is recommended that schools:

- Introduce a whole school food policy to promote consistent provision across all food consumed at school, including food brought from home
- Enforce packed lunch policies which promote healthier eating
- Promote school meals as the simplest way to achieve healthy eating at lunchtime and to increase take up.

Developing a school food or packed lunch policy would help to achieve consistent provision across all food and drink consumed at school (including items brought from home) and would enable all children to benefit by addressing the gap between the nutritional content of packed lunches and school lunches. The Trust has produced a Packed Lunch Policy Toolkit which outlines six steps to develop and implement a healthy packed lunch policy within schools. It provides information, advice and guidance on how to develop a healthy packed lunch policy; engage pupils in the development process; marketing; reviewing and monitoring the success of the policy; and includes examples of compliant menus and recipes. Adoption of such a policy should encourage more pupils to choose healthier alternatives, by having more salad, vegetables and fruit at lunchtime and reducing the number of drinks, snacks and confectionery high in fat, sugar and salt.

Ideally, children should be encouraged to take school lunches rather than opting for packed lunches. This would ensure that they have access to a range of healthy food and drink items, thus helping them to choose and consume energy appropriate and nutrient dense meals at lunchtime. However, as long as pupils continue to bring packed lunches, it is important that schools are helped to develop appropriate policies consistent with wider Government strategies for healthy living and to support the Change4Life initiative which aims to reduce the prevalence of childhood overweight and obesity.

**Research and reporting**

The research was designed and carried out by Michael Nelson, Dalia Haroun, Clare Harper, Lesley Wood, Jo Nicholas and Lesley Stevens, with additional help from Laura Sharp of the School Food Trust, members of the TNS research team (Gillian Prior, Louise Hall, Susie Smyth, Camilla Huckle), TNS research nutritionists (Laura Scruby, Cara Monahan) and Jenny Poulter of Nutrition Works! This Research Report was prepared by Clare Harper, Jo Pearce, Dalia Haroun, Lesley Wood and Michael Nelson. Copies are available from the School Food Trust website: [www.schoolfoodtrust.org.uk](http://www.schoolfoodtrust.org.uk)
7 Overall conclusions

The main findings are described below.

Contract and specifications, catering service and eating environment

- Only 18% of contractual documents were received from schools; based on this small sample it was difficult to reach any conclusions.
- The catering service was usually provided by LA-in house (56%). The most common type of contract was fixed cost/fixed price (41%).
- Both the average value of a free school meal and the average cost of a paid meal was £1.81.
- No associations were found between types of catering provider, aspects of the eating environment (such as menu characteristics, promotion of healthy eating, healthy eating messages etc.), patterns of food and drink taken by pupils having school lunches with compliance of school lunches with the standards.
- The majority of head teachers and caterers reported that their school lunches were fully compliant with all the food-based and nutrient-based standards. However this was not the case when compliance was measured in schools.

School lunch provision, selection and consumption

- Since 2005 and after the final food-based and nutrient-based standards became law for primary schools in England in September 2008, lunchtime food provision and food consumption are now substantially healthier.
- Compared with 2005, schools in 2009 provided more fruit, fruit-based desserts, vegetables and salad, water and fruit juice, and fewer condiments, starchy foods cooked in fat, snacks and confectionery.
- Compared with 2005, more pupils in 2009 chose water, vegetables and salad, fruit juice, fruit-based desserts, fruit, starchy foods not cooked in fat, milk, yogurt and milky drinks, and fewer pupils chose ‘non-fruit-based desserts’, condiments and non-permitted food and drink items (e.g. snacks, confectionery).
- Pupils in 2009 chose an average of 2.2 portions of fruit and vegetables from their recommended ‘five a day’.
- The average plate wastage of food and drink taken by pupils in 2009 (24%) did not differ from 2005 (23%). Highest levels of waste were for fruit, vegetables and salad, varying from one-third to one-fifth of the initial weight.
- The sodium content of an average school lunch provided in 2009 was higher than the recommended standard, although the sodium content of
meals taken and eaten by pupils in 2009 was roughly one-third lower than in 2005.

- Caterers still find meeting the minimum iron and zinc content of an average school lunch a challenge; both were below the recommended minimum levels set by the nutrient-based standards.

**School lunches versus packed lunches**

- Compared with pupils eating packed lunches, a greater proportion of pupils taking school lunches chose water, salad and vegetables, and fewer pupils chose non-permitted drinks, confectionery, meat products and dairy items. Conversely, packed lunches contained more fruit, fruit juice and dairy items (such as cheese, yogurt and fromage frais).

- Over 90% of pupils taking a school lunch ate food or drink containing vegetables or fruit (including fruit juice) compared with only 58% of pupils bringing packed lunches.

- Pupils taking school lunches ate 1.6 portions of fruit and vegetables, compared with pupils eating packed lunches who ate 1.0 portion.

- Pupils who consumed packed lunches ate significantly more fat, saturated fat, non-milk extrinsic sugars, sodium, calcium, iron and vitamin C and less protein, vitamin A, fibre and zinc than pupils who ate school lunches. Children should therefore be encouraged to take school lunches rather than packed lunches.
8 Recommendations

Following the introduction of standards for school food, results from this survey provide evidence that school lunches have become healthier. However, there still remain a number of changes that need to be made so that schools provide food and drink fully compliant with the standards.

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 50% of schools are still failing to meet the standard for restricting provision of starchy foods cooked in fat or oil and meat products.</td>
<td>Caterers need to reduce the number of times they provide starchy foods cooked in fat (e.g. chips) and meat products (e.g. sausages); instead they should provide starchy foods not cooked in fat (e.g. baked potato).</td>
</tr>
<tr>
<td>Schools are still struggling to meet the standard for providing at least one portion of fruit and one portion of vegetable per pupil per day.</td>
<td>Caterers need to try to increase the range of ways in which fruit and fruit-based desserts are provided; and find more ways to include vegetables in recipes.</td>
</tr>
<tr>
<td>Around 50% of schools provided the recommended minimum levels of iron and zinc.</td>
<td>Caterers need to increase the iron and zinc content of recipes and meals by using iron-rich and zinc-rich foods, and by modifying their existing recipes to use alternative ingredients higher in iron and zinc.</td>
</tr>
<tr>
<td>An average school lunch in 19% of schools was below the maximum level for sodium set by the final nutrient-based standards. In general levels of sodium were one third lower than in 2005.</td>
<td>Caterers need to continue not using salt in cooking, use less of prepared products and products high in sodium (such as canned products in brine, stock etc.); instead cook using fresh products and use herbs for seasoning.</td>
</tr>
<tr>
<td>Many of the head teacher and caterers reported that their provision was fully compliant with the standards for school food, yet most of the schools were not.</td>
<td>Under the new legislation, catering provision in primary schools in England is required to be fully compliant with the standards for school food. The belief that provision was compliant could be partly due to caterers not understanding or misinterpreting the standards.</td>
</tr>
<tr>
<td>Training to increase awareness and understanding of all aspects of the standards should be made available to all head cooks and caterers.</td>
<td>Standards should be made clearer especially those in relation to starchy foods cooked in fat and meat products.</td>
</tr>
<tr>
<td>School lunches are healthier than packed lunches; the latter contain more fat, sugar and salt.</td>
<td>Schools should try to promote take-up of school meals and free-school meals so that children are encouraged to take school lunches rather than opting for packed lunches.</td>
</tr>
<tr>
<td>It is recommended that schools enforce packed lunch policies and use the Packed Lunch Policy Toolkit developed by the School Food Trust to promote and encourage pupils to eat more healthily.</td>
<td></td>
</tr>
</tbody>
</table>

Table 14. Challenges faced by schools and pupils, and recommendations
9 Acknowledgements

We would like to thank everyone who has contributed to this survey, in particular:

- TNS nutritionists (Laura Scruby, Cara Monahan, Kay Dilley)
- TNS interviewers
- School Food trust researchers (Jo Nicholas, Lesley Stevens, Erin Needham, Ellen Lever)
- Local authorities
- The school catering providers
- The pupils, head teachers, catering managers, school cooks and school staff.

This project was commissioned and funded by the School Food Trust

10 Publications

A list of papers sent for publication can be found in Table 15.

<table>
<thead>
<tr>
<th>Table 15 List of papers sent for publication</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Title</strong></td>
</tr>
</tbody>
</table>
Appendix 1. The final food-based standards

The 13 compulsory final food-based standards for primary school lunches. Deadline for implementation of these standards for primary schools in England was September 2008.

<table>
<thead>
<tr>
<th>Element</th>
<th>Food/Food Groups</th>
<th>Provided, Restricted, Prohibited</th>
<th>Food-based standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 and 2</td>
<td>Fruit and vegetables</td>
<td>Provided</td>
<td>Not less than two portions per day per pupil must be provided; at least one should be vegetables or salad and at least one should be fruit.</td>
</tr>
<tr>
<td>3</td>
<td>Oily fish</td>
<td>Provided</td>
<td>Oily fish such as mackerel or salmon must be provided at least once every three weeks.</td>
</tr>
</tbody>
</table>
| 4       | Meat products     | Restricted | A meat product (manufactured or homemade) from each of the four groups below may be provided no more than once per fortnight across the school day, providing the meat product also meets the standards for minimum meat content and does not contain any prohibited offal:

- **Group 1**: Burger, hamburger, chopped meat, corned meat;
- **Group 2**: Sausage, sausage meat, link, chipolata, luncheon meat;
- **Group 3**: Individual meat pie, meat pudding, Melton Mowbray pie, pie, pasty or pastie, bridie, sausage roll;
- **Group 4**: Any other shaped or coated meat product

Starchy food cooked in fat or oil should not be provided more than three times a week across the school day. Bread with no added fat or oil must be provided on a daily basis. 

| 5       | Starchy food cooked in fat or oil Bread | Restricted | No more than two deep-fried food items, such as chips and batter-coated products, in a single week across the school day. No salt shall be available to add to food after the cooking process is complete. Salt shall not be provided at tables or service counters. |
| 6       | Deep-fried food | Restricted | No salt shall be available to add to food after the cooking process is complete. Salt shall not be provided at tables or service counters. |
| 7       | Salt and condiments | Restricted | Condiments, such as ketchup and mayonnaise, may only be available in sachets or individual portions of not more than 10g or 1 teaspoonful. Savoury crackers and breadsticks can only be served with fruit, vegetables or dairy food as part of a school lunch. |
| 9       | Snacks | Restricted | Snacks such as crisps must not be provided. Nuts, seeds, vegetables and fruit with no added salt, sugar or fat are allowed. Dried fruit may contain up to 0.5% vegetable oil as a glazing agent. |
| 10      | No Confectionery | Prohibited | Confectionery such as chocolate bars, chocolate-coated biscuits and sweets must not be provided. Savoury crackers and breadsticks can only be served with fruit, vegetables or dairy food as part of a school lunch. |
| 11      | Cakes and biscuits | Restricted | Cakes and biscuits are allowed at lunchtime but must not contain any confectionery. |
| 12      | Drinking water | Provided | Free, fresh drinking water should be provided at all times. |
| 13      | Healthier drinks | Provided | The only drinks permitted during the school day are plain water (still or sparkling); skimmed, semi-skimmed or lactose-reduced milk; fruit juice; vegetable juice; plain soya, rice or oat drinks enriched with calcium; plain fermented milk (e.g. yoghurt) drinks; combination drinks; flavoured milk. Tea, coffee and low calorie hot chocolate are also permitted. Note: The School Food Trust strongly encourages schools to provide drinks that are unsweetened, unfortified and additive free. |

Base: 13 compulsory final food-based standards.

Be aware of nut allergies [www.allergyinschools.co.uk](http://www.allergyinschools.co.uk)
Appendix 2. The nutrient-based standards

The 14 compulsory nutrient-based standards for primary school lunches; separated by infants and juniors.

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Min/Max</th>
<th>Proportion of recommended daily intake nutrients</th>
<th>Infants Aged 4-6 School years R,1,2</th>
<th>Juniors Aged 7-10 School years 3-6</th>
<th>Average Aged 4-10 School years R-6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy (kcal)</td>
<td>EAR</td>
<td>30% ± 5%</td>
<td>465-514</td>
<td>529-585</td>
<td>504-557</td>
</tr>
<tr>
<td>Protein (g)</td>
<td>Min</td>
<td>30% RNI</td>
<td>5.9</td>
<td>8.5</td>
<td>7.5</td>
</tr>
<tr>
<td>Carbohydrate (g)</td>
<td>Min</td>
<td>50% food energy</td>
<td>65.2</td>
<td>74.2</td>
<td>70.6</td>
</tr>
<tr>
<td>NMES (g)</td>
<td>Max</td>
<td>11% food energy</td>
<td>14.3</td>
<td>16.3</td>
<td>15.5</td>
</tr>
<tr>
<td>Fat (g)</td>
<td>Max</td>
<td>35% food energy</td>
<td>19</td>
<td>21.6</td>
<td>20.6</td>
</tr>
<tr>
<td>SFA (g)</td>
<td>Max</td>
<td>11% food energy</td>
<td>6</td>
<td>6.8</td>
<td>6.5</td>
</tr>
<tr>
<td>Fibre (g)</td>
<td>Min</td>
<td>30% calculated reference value</td>
<td>3.9</td>
<td>4.5</td>
<td>4.2</td>
</tr>
<tr>
<td>Sodium (mg)</td>
<td>Max</td>
<td>30% SACN recommendation</td>
<td>357</td>
<td>595</td>
<td>499</td>
</tr>
<tr>
<td>Vitamin A (µg)</td>
<td>Min</td>
<td>35% RNI</td>
<td>140</td>
<td>175</td>
<td>175</td>
</tr>
<tr>
<td>Vitamin C (mg)</td>
<td>Min</td>
<td>35% RNI</td>
<td>10.5</td>
<td>10.5</td>
<td>10.5</td>
</tr>
<tr>
<td>Folate (µg)</td>
<td>Min</td>
<td>35% RNI</td>
<td>35</td>
<td>53</td>
<td>53</td>
</tr>
<tr>
<td>Calcium (mg)</td>
<td>Min</td>
<td>35% RNI</td>
<td>158</td>
<td>193</td>
<td>193</td>
</tr>
<tr>
<td>Iron (mg)</td>
<td>Min</td>
<td>35% RNI</td>
<td>2.1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Zinc (mg)</td>
<td>Min</td>
<td>35% RNI</td>
<td>2.3</td>
<td>2.5</td>
<td>2.5</td>
</tr>
</tbody>
</table>

RNI= Reference Nutrient Intake
EAR= Estimated Average Requirement
SACN= Scientific Advisory Committee on Nutrition
Appendix 3. School recruitment by region

Table 18 Issued sample of primary schools and those who participated, declined, withdrew or no response was received by Government Office Region (GOR).

<table>
<thead>
<tr>
<th>GOR</th>
<th>Participated</th>
<th>Declined</th>
<th>Withdraw</th>
<th>No Response</th>
<th>Issued Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>East Midlands</td>
<td>10</td>
<td>7</td>
<td>11</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>East of England</td>
<td>14</td>
<td>10</td>
<td>13</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>London</td>
<td>26</td>
<td>19</td>
<td>12</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>North East</td>
<td>14</td>
<td>10</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>North West</td>
<td>10</td>
<td>7</td>
<td>18</td>
<td>17</td>
<td>1</td>
</tr>
<tr>
<td>South East</td>
<td>22</td>
<td>16</td>
<td>15</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>South West</td>
<td>14</td>
<td>10</td>
<td>8</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>West Midlands</td>
<td>15</td>
<td>11</td>
<td>17</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>Yorks &amp; Humber</td>
<td>14</td>
<td>10</td>
<td>10</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>139</td>
<td>100</td>
<td>107</td>
<td>100</td>
<td>6</td>
</tr>
</tbody>
</table>

Base: Issued sample of 290 Primary schools; 136 schools participated; 3 packed lunch only schools excluded; 107 schools declined; 6 schools withdrew; 38 schools gave no response.

Appendix 4 Reasons schools refused to participate

Table 19 Reasons why schools did not wish to participate

<table>
<thead>
<tr>
<th>Reason for refusal</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not interested in taking part in surveys or telephone interviews</td>
<td>33</td>
<td>31</td>
</tr>
<tr>
<td>Too busy</td>
<td>25</td>
<td>23</td>
</tr>
<tr>
<td>No reason given</td>
<td>18</td>
<td>17</td>
</tr>
<tr>
<td>General staffing difficulties</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Catering staff issues</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Catering manager or Head cook refused</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Involved in other similar surveys or healthy eating schemes</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Do not do hot food, only packed lunches</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Kitchen is being refurbished</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Other (Ofsted inspection imminent, building work due to commence, some classes walk to another school for their lunch so it may be too complicated)</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>107</td>
<td>100</td>
</tr>
</tbody>
</table>

Base: Issued sample of 290 Primary schools; 107 schools declined.

Appendix 5. Data collection tools

Table 20 Data collection tools used to assess compliance with food and nutrient-based standards

<table>
<thead>
<tr>
<th>Data Collection Tool</th>
<th>Main Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food inventory and portion weights booklet</td>
<td>To record all food and drink items on offer each day in the school dining room. In addition, two portion weights of each food and drink item available were recorded along with the number of portions of each item available and the number of pupils being catered for on each day</td>
</tr>
<tr>
<td>Tray check sheet</td>
<td>To record all food and drink items chosen by pupils each day for school lunches and to record leftover weights.</td>
</tr>
<tr>
<td>Box check sheet</td>
<td>To record descriptions and weights of food and drink brought from home by pupils and leftover weights of all items.</td>
</tr>
<tr>
<td>Pupil questionnaire</td>
<td>To record demographic details of pupils such as: age, school year and sex.</td>
</tr>
<tr>
<td>Eating environment questionnaire Head telephone interview</td>
<td>To assess the potential of the dining room as an environment to encourage healthy eating. To obtain information on opinions of the catering provision.</td>
</tr>
<tr>
<td>Catering manager or Head cook telephone interview</td>
<td>To obtain information on opinions of the catering provision.</td>
</tr>
<tr>
<td>Other resources</td>
<td>Copies of full menu cycles and recipes</td>
</tr>
</tbody>
</table>
### Appendix 6. Food group classification for school lunches

**Table 21  Food and drink items classified into 22 food groups**

<table>
<thead>
<tr>
<th>Food group</th>
<th>Foods included</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Meat, poultry, fish</strong></td>
<td>Beef, chicken, fish, oily fish, pork, bacon, ham</td>
</tr>
<tr>
<td><strong>Meat product</strong></td>
<td>Corned meat, sausages, sausage rolls, burgers (that are not economy), chopped meat, kebabs meat pies (double crust), pasties, meat puddings, meatballs, chicken/turkey nuggets, coated chicken</td>
</tr>
<tr>
<td><strong>Protein &amp; carbohydrate</strong></td>
<td>Pasta bake</td>
</tr>
<tr>
<td><strong>Protein &amp; vegetable</strong></td>
<td>Beef and vegetable casserole</td>
</tr>
<tr>
<td><strong>Protein, carbohydrate &amp; vegetable</strong></td>
<td>Dishes made of a combination of meat/cheese/Quorn, vegetable and rice/pasta/couscous/potato, cheese and tomato pizza</td>
</tr>
<tr>
<td><strong>Protein other</strong></td>
<td>Cheese, eggs, Quorn</td>
</tr>
<tr>
<td><strong>Carbohydrate &amp; vegetable</strong></td>
<td>Pasta Neopolitan, pasta with vegetables, rice with vegetables</td>
</tr>
<tr>
<td><strong>Carbohydrate</strong></td>
<td>Rice, pasta, noodles, potato, bread, couscous</td>
</tr>
<tr>
<td><strong>Starchy foods cooked in oil</strong></td>
<td>Chips, roast potatoes, potato waffles, croquettes, sauté potatoes, potato wedges, garlic bread, friend bread, friend rice, Yorkshire puddings (including toad in the hole), pancakes, doughnuts</td>
</tr>
<tr>
<td><strong>Vegetables</strong></td>
<td>Cooked vegetables e.g. carrots, broccoli, peas, sweet corn</td>
</tr>
<tr>
<td><strong>Salad</strong></td>
<td>Lettuce, cucumber, tomatoes, raw vegetables e.g. grated carrots, sweet corn</td>
</tr>
<tr>
<td><strong>Baked beans</strong></td>
<td>Baked beans</td>
</tr>
<tr>
<td><strong>Sandwiches</strong></td>
<td>School sandwiches including wraps</td>
</tr>
<tr>
<td><strong>Fruit</strong></td>
<td>Fruits (canned, dried or fresh), fruit salad</td>
</tr>
<tr>
<td><strong>Fruit dessert</strong></td>
<td>Dessert made with fruit (average of 40% fruit) eg. fruit crumble</td>
</tr>
<tr>
<td><strong>Dessert &amp; dessert accompaniment</strong></td>
<td>Biscuits, pies, cakes and pastries, puddings, sponges, custard, ice cream</td>
</tr>
<tr>
<td><strong>Milk, yogurt &amp; milky drinks</strong></td>
<td>Milk including flavoured milk &amp; milkshakes (≥ 90% milk, &lt; 5% added sugar or honey), yogurt, fromage frais</td>
</tr>
<tr>
<td><strong>Fruit juice</strong></td>
<td>Fruit Juice (100% fruit juice, or diluted with water, not including blackcurrant juice)</td>
</tr>
<tr>
<td><strong>Water</strong></td>
<td>Water (still or carbonated; unsweetened, unflavoured)</td>
</tr>
<tr>
<td><strong>Condiments</strong></td>
<td>Gravy, savoury sauces and condiments e.g. ketchup, mayonnaise etc...</td>
</tr>
<tr>
<td><strong>Non-permitted drink</strong></td>
<td>Squash, soft drinks, blackcurrant juice, milkshakes (&lt; 90% milk, ≥ 5% added sugar or honey)</td>
</tr>
<tr>
<td><strong>Non-permitted snack, confectionery &amp; dessert containing confectionery</strong></td>
<td>Crisps, chocolate chip desserts, cereal bars</td>
</tr>
</tbody>
</table>
### Appendix 7. Food group classification for packed lunches

#### Table 22: Food and drink items classified into 16 food groups

<table>
<thead>
<tr>
<th>Food group</th>
<th>Foods included</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sandwiches (any savoury filling) with salad</strong></td>
<td>Sandwiches with any type of bread containing cheese, cream cheese, ham, pork, beef etc and containing salad/vegetables (any combination of lettuce, tomato, cucumber, coleslaw, roast vegetables or other salad ingredient).</td>
</tr>
<tr>
<td><strong>Sandwiches (any savoury filling) without salad</strong></td>
<td>Sandwiches with any type of bread containing cheese, cream cheese, ham, pork, beef and not containing any salad ingredient.</td>
</tr>
<tr>
<td><strong>Other sandwiches</strong></td>
<td>Jam, peanut butter, chocolate spread or plain butter/spread sandwiches</td>
</tr>
<tr>
<td><strong>Other savoury dishes</strong></td>
<td>Curry, rice salad, pasta salad, plain bread (no spread), crackers served with cheese or any other main meal type dishes</td>
</tr>
<tr>
<td><strong>Meat products</strong></td>
<td>Sausages, sausage rolls, corned meat, burgers (that are not economy), chopped meat, kebabs, individual meat pies, pasties, meat puddings, meatballs, chicken/turkey nuggets, coated chicken and sandwiches containing any of these items.</td>
</tr>
<tr>
<td><strong>Vegetables or salad</strong></td>
<td>Raw vegetables e.g. lettuce, cucumber, tomatoes, raw vegetables e.g. grated carrots, sweet corn or cooked vegetables e.g. . carrots, broccoli, peas, sweet corn</td>
</tr>
<tr>
<td><strong>Fruit</strong></td>
<td>Fruits (canned, dried or fresh), fruit salad</td>
</tr>
<tr>
<td><strong>Cakes, desserts or biscuits</strong></td>
<td>Biscuits (not chocolate coated), pies, cakes and pastries (not containing confectionery), puddings(not containing confectionery), sponges, chocolate dessert containing cocoa but not chocolate.</td>
</tr>
<tr>
<td><strong>Dairy</strong></td>
<td>Yoghurt, fromage frais, cheese, cheese strings etc</td>
</tr>
<tr>
<td><strong>Milk and milky drinks</strong></td>
<td>Milk including flavoured milk &amp; milkshakes (≥ 90% milk, &lt; 5% added sugar or honey).</td>
</tr>
<tr>
<td><strong>Fruit juice</strong></td>
<td>Fruit Juice (100% fruit juice, or diluted with water, not including blackcurrant juice)</td>
</tr>
<tr>
<td><strong>Water</strong></td>
<td>Water (still or carbonated; unsweetened, unsflavoured)</td>
</tr>
<tr>
<td><strong>Condiments</strong></td>
<td>Gravy, savoury sauces and condiments e.g. ketchup, mayonnaise etc...</td>
</tr>
<tr>
<td><strong>Non-permitted drinks</strong></td>
<td>Squash, soft drinks, blackcurrant juice, milkshakes (&lt; 90% milk, ≥ 5% added sugar or honey)</td>
</tr>
<tr>
<td><strong>Non-permitted snacks</strong></td>
<td>Crisps, crackers (served without cheese), salted or roasted nuts, cheese nibbles etc</td>
</tr>
<tr>
<td><strong>Confectionery</strong></td>
<td>Chocolate, sweets, biscuits containing or coated with chocolate/chocolate chips, cake containing confectionery, yoghurt/desserts containing chocolate pieces</td>
</tr>
</tbody>
</table>
Appendix 8. Portion weights and portion numbers: measured versus estimated

Table 23 Portion weights and portion numbers; measured versus estimated

<table>
<thead>
<tr>
<th>Portion weights</th>
<th>Porton numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Measured</td>
</tr>
<tr>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Meat, poultry, fish</td>
<td>618</td>
</tr>
<tr>
<td>Meat product</td>
<td>135</td>
</tr>
<tr>
<td>Protein &amp; carbohydrate</td>
<td>216</td>
</tr>
<tr>
<td>Protein &amp; vegetable</td>
<td>221</td>
</tr>
<tr>
<td>Protein, carbohydrate &amp; vegetable</td>
<td>411</td>
</tr>
<tr>
<td>Protein other</td>
<td>367</td>
</tr>
<tr>
<td>Carbohydrate &amp; vegetable</td>
<td>224</td>
</tr>
<tr>
<td>Carbohydrate</td>
<td>1657</td>
</tr>
<tr>
<td>Starchy foods cooked in oil</td>
<td>463</td>
</tr>
<tr>
<td>Vegetables</td>
<td>1164</td>
</tr>
<tr>
<td>Salad</td>
<td>2232</td>
</tr>
<tr>
<td>Baked beans</td>
<td>211</td>
</tr>
<tr>
<td>Sandwiches</td>
<td>719</td>
</tr>
<tr>
<td>Fruit</td>
<td>2451</td>
</tr>
<tr>
<td>Fruit dessert</td>
<td>303</td>
</tr>
<tr>
<td>Dessert &amp; dessert accompaniment</td>
<td>1298</td>
</tr>
<tr>
<td>Milk, yogurt &amp; milky drinks</td>
<td>918</td>
</tr>
<tr>
<td>Fruit juice</td>
<td>394</td>
</tr>
<tr>
<td>Water</td>
<td>631</td>
</tr>
<tr>
<td>Condiments</td>
<td>408</td>
</tr>
<tr>
<td>Non-permitted drink</td>
<td>49</td>
</tr>
<tr>
<td>Non-permitted snack, confectionery</td>
<td>18</td>
</tr>
</tbody>
</table>
Appendix 9. Questionnaires

a) Head teacher questionnaire

TELEPHONE: CATI QUESTIONNAIRE

<table>
<thead>
<tr>
<th>Job Number</th>
<th>Primary School Meals Research Project. Semi-structured Telephone Interview with Bursar/Head/LEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of survey</td>
<td>150</td>
</tr>
<tr>
<td>Questionnaire Version Number</td>
<td>150 Head teachers</td>
</tr>
<tr>
<td>Quotas</td>
<td>Need 100% response rate</td>
</tr>
</tbody>
</table>

Hello I am calling from TNS on behalf of the School Food Trust. May I speak to INSERT RESPONDENT NAME FROM SAMPLE please?

READ OUT
Hello I am calling from TNS on behalf of the School Food Trust who are conducting the Food in Primary Schools in England research study that your school is taking part in. As part of this research, I am calling to conduct an interview with you about food provision at your school. Is now still a convenient time to do the interview?
Yes
No – Rearrange appointment
IF YES CONTINUE, IF NO REARRANGE APPOINTMENT FOR ANOTHER TIME

Can I just check you work at PLEASE INSERT NAME OF SCHOOL FROM BACKGROUND SAMPLE?
Yes
No

And you are the PLEASE INSERT JOB DESCRIPTION FROM BACKGROUND SAMPLE?

SCHOOL FOOD PROVISION

READ OUT
The first few questions are about school food provision, including at lunchtime and at other times of the school day.

Q1a What type of meal service is provided at lunchtime at your school?
READ OUT, SINGLE CODE ONLY
Hot meals provided
Sandwich/cold meals provided – available to all pupils
Sandwich/cold meals provided – available to FSM pupils only
No meals provided
Other SPECIFY BOX

IF ANSWER TO Q1a IS NO MEALS PROVIDED GO TO Q10 OTHERWISE CONTINUE

Q1 Who provides the school’s catering service at lunchtime?
READ OUT, SINGLE CODE ONLY
LA in-house service
LA contracted private contractor SPECIFY NAME OF CONTRACTOR BOX
School contracted private contractor SPECIFY NAME OF CONTRACTOR BOX
School in-house service
Other SPECIFY BOX

Q2 Is the school catering budget?
READ OUT, SINGLE CODE ONLY
Delegated by the LA
Held by the LA
Other SPECIFY BOX

IF ANSWER TO Q2 IS DELEGATED BY THE LA OR OTHER GO TO Q2A, OTHERWISE GO TO Q3

Q2A How does your school manage the catering budget?
READ OUT, SINGLE CODE
Manage your own budget and purchase service
Return the catering budget to the LA as your provider
Don’t know
Other SPECIFY BOX

Q3 Which of the following parties is the catering agreement or contract between?
READ OUT, SINGLE CODE
School and LA (individual contract)
School and LA (group contract)
School and private contractor (individual contract)
School and private contractor (group contract)
School and directly employed catering staff
No contract
Other SPECIFY BOX

Q4 Which of the following statements best describes how the catering agreement is organised financially?
READ OUT, SINGLE CODE
Fixed cost/fixed price – where the school pays an agreed cost for a specified service, and therefore costs can vary if the number of pupils having lunch changes
Management fee/cost plus - the costs of providing the service are paid by the provider and recharged, with a management fee, to the school
Profit and loss/breakeven - the provider has control over the menu and pricing – they receive no subsidy from the school and the service is paid for by pupils
Other SPECIFY BOX
Don’t know

Q5 In principle, do you expect school catering to?
READ OUT, SINGLE CODE
Operate at a deficit
Break even
Make a surplus
Q6 For the 2008-2009 financial year, do you expect your school catering service to?
- Operate at a deficit
- Break even
- Make a surplus
- Other SPECIFY BOX
- Don't know

ASK IF MAKE A SURPLUS SELECTED FOR Q5 OR Q6, OTHERWISE GO TO Q9

Q7 Does the profit go back into the catering service or does it go to other services in the school?
- Catering service
- Other services in the school SPECIFY BOX
- Don't know

Q9 Are you aware of a written specification/contract for the school meals service in your school?
- Yes
- No

IF YES TO Q9, GO TO Q9A
OTHERWISE GO TO Q10

READ OUT THE FOLLOWING
We would be very interested in seeing any part of the specification (i.e. a contract) which relates to food service, food procurement or nutrition, for example menu choice, portion size, percentage of items prepared on site, range of fresh vegetables, nutrition and, or healthy eating. We would also like to see any part that relates to meeting and monitoring the school food standards.

Q9A Would you be able to send us a copy of the relevant sections of the specification that relates to food service, food procurement and nutrition and meeting and monitoring standards?
- Yes
- No

IF YES, PLEASE CAN YOU POST/EMAIL THIS TO Clare Harper, TNS, 222 Grays Inn Road, London, WC1X 8HB?Clare.Harper@tns-global.com GO TO Q10

IF NO, PLEASE GO TO Q9B

Q9B Please can you tell us the name and phone number of who we should we contact to obtain the specification?
OPEN ENDED QUESTION PLEASE INSERT A TEXT BOX

Q10 Which, if any, of the following other food services are provided at your school?
- Breakfast
- Mid-morning break
- Tuckshop
- Vending machine
After school snacks or meals
Other SPECIFY BOX
None of these
Don't know
IF ‘NONE OF THESE’ OR ‘DON’T KNOW’ GO TO Q16, OTHERWISE GO TO Q10A

FOR EACH MENTIONED IN Q10
Q10A You said ‘SERVICE Q10’ was provided at your school. Who runs this service? Please provide a name and contact details.
READ OUT, CODE ALL THAT APPLY
THE SCHOOL NAME AND CONTACT DETAILS BOX
A catering provider NAME AND CONTACT DETAILS BOX
Parents NAME AND CONTACT DETAILS BOX
Pupils NAME AND CONTACT DETAILS BOX
A charity NAME AND CONTACT DETAILS BOX
Other SPECIFY BOX
Don’t know

FOR EACH MENTIONED IN Q10
Q10B Please describe the types of food and drink items that are typically offered during the ‘SERVICE Q10’ service. PLEASE INSERT A TEXT BOX
Don’t know

PART 2 SCHOOL FOOD STANDARDS INCLUDING ALL INSTRUCTIONS AND Q11-Q15A HAS BEEN MOVED BETWEEN PART 6 AND 7 BETWEEN Q45 AND Q51.

PART 3 SCHOOL FACILITIES AND LUNCHTIME ARRANGEMENTS
READ OUT
The next few questions relate to school facilities and lunchtime arrangements

Q16 What time does the lunch period start and finish?
Start time
PLEASE ENTER TIME AS HH.MM
PLEASE INSERT A TEXT BOX
Finish time
PLEASE ENTER TIME AS HH.MM
PLEASE INSERT A TEXT BOX

Q17 How long is the lunch period for the average pupil?
PLEASE ENTER NUMBER IN MINUTES
PLEASE INSERT A TEXT BOX
Don’t know

Q18 How is the lunchtime period organised at your school?
READ OUT, SINGLE CODE
Same lunch period for all pupils, entry to dining facilities not staggered
Same lunch period for all pupils, entry to dining facilities staggered (e.g. by year group)
Different groups/years of pupils have lunch periods starting at different times which are rotated
Different groups/years of pupils have lunch periods starting at different times which are not rotated
Other SPECIFY BOX

Q21 How adequate is the dining-space for the number of pupils that use it? Using a scale where 1 is fully adequate 4 is inadequate
Q22 Have you implemented any strategies to offset any difficulties you have experienced with the dining space? For example staggering sittings etc?
OPEN ENDED QUESTION PLEASE INSERT A TEXT BOX

Q23 Is the dining area used only for dining or is it multi-use (e.g. PE, teaching etc.)?
PLEASE CODE ONE ANSWER
Used only for dining
Multi use SPECIFY BOX
Don't know

Q19 Where do pupils who bring packed lunches eat?
PLEASE CODE AS MANY AS APPLY
Dining area
Other dedicated dining space e.g. school hall
Outside
Classroom
Other SPECIFY BOX

Q20 Can pupils eating school meals and those eating packed lunches eat together?
READ OUT, SINGLE CODE
Yes – they can mix together
Yes – they use the same dining space but don’t mix together
No
Don’t know

Q20A Where are packed lunches stored prior to lunchtime in your school?
READ OUT, SINGLE CODE
In classrooms (in racks, boxes) – not chilled
In classrooms (in racks, boxes) – chilled
In dining area (in racks, boxes) – not chilled
In dining area (in racks, boxes) – chilled
They stay with pupils
Other SPECIFY BOX
Don’t know

Q24 Who, apart from catering and kitchen staff, is on duty in the dining room at lunchtime in a supervisory role?
READ OUT, PLEASE CODE AS MANY AS APPLY
Teaching staff
Senior management
Classroom support staff
Dining room supervisors/school meal assistants
Other SPECIFY BOX

FOR EACH MENTIONED IN Q24
Q24A How many ‘INSERT Q24’, on average, are usually present in the dining room at lunchtime?
PLEASE ENTER NUMBER
PLEASE INSERT A TEXT BOX
Don’t know
Q25 What is the role of the lunchtime supervisory staff?
READ OUT, PLEASE CODE AS MANY AS APPLY
Behaviour management
Environment management (clearing tables, litter etc)
Queue management
Education of pupils about healthy eating
Promotion of school meals
Supervision of packed lunch contents
Other SPECIFY BOX

Q26 Which one of the following best describes the role of the teachers/senior management in the dining room?
READ OUT, SINGLE CODE
They supervise but do not eat
They supervise and eat in the dining room
They eat their lunch in the dining room but do not supervise
They collect lunch from the dining room but eat elsewhere
There are no teaching staff in the dining room
Other SPECIFY BOX

IF THE TEACHING STAFF AND, OR SENIOR MANAGEMENT DO EAT IN THE DINING ROOM, GO TO Q27, OTHERWISE GO TO Q28

Q27 Which one of the following best reflects their food choices
READ OUT, SINGLE CODE
Choose from the same menu as the pupils
Choose from an alternative menu
Choose additional options, e.g. sandwiches
Bring their own lunch
Other SPECIFY BOX

Q28 What role do pupils play during the lunch service?
PLEASE CODE AS MANY AS APPLY
None
Help with food preparation
Help with service
Help with clearing up
Help supervise others
Other SPECIFY BOX

PART 4 TAKE UP
READ OUT
Now I will be asking you a few questions about the take up of school lunches.

Q29 What is the average daily take up of school meals at your school (including paid and free meals) so far this term?
PLEASE ENTER-PERCENTAGE
PLEASE INSERT A TEXT BOX
Don’t know

Q30 In your school this term, what is the number of pupils on roll?
PLEASE ENTER NUMBER
PLEASE INSERT A TEXT BOX
Don’t know
Q31 In your school this term, how many pupils are registered for free school meals?

Please enter number

Please insert a text box

Don't know

Q32 In your school this term, on average, how many pupils have paid school lunches each day?

Please enter number

Please insert a text box

Don't know

Q33 In your school this term, on average, how many pupils have a free school meals each day?

Please enter number

Please insert a text box

Don't know

Q34 What is the current amount allocated by the local authority to the school per pupil per day for a free school meal?

Please enter number as £.pp

Please insert a text box

Don't know

Q34A What is the value in the dining room of a free school meal?

Prompt – This is the value up to which a child can spend each day

Enter amount as £.pp

Please insert a text box

Don't know

Q34B What is the current price to pupils of a paid school lunch at your school?

Enter amount as £.pp

Please insert a text box

Don't know

Q34C Have you used, in the past 12 months, any strategies to improve the take up of free school meals?

Open ended question please insert a text box

Q35 Have you used, in the past 12 months, any strategies to improve the take up of school meals?

Open ended question please insert a text box

---

**PART 5 SCHOOL APPROACH**

Read out

The next section is about the school’s approach to food and healthy eating.

Q35A In your school, is there a named person with responsibility for all aspects of food in school?

Please code one answer

Yes

No

If yes go to Q35B, otherwise go to Q49

Q35B What is their name?

Please insert a text box
Q35C What position do they hold?
Governor
Other
PLEASE INSERT A TEXT BOX

IF FOR Q35C THE ANSWER DOES NOT RELATE TO A GOVERNOR GO TO Q35D, OTHERWISE GO TO Q49

Q35D Is there a governor with responsibility for all aspects of food in school?
PLEASE CODE ONE ANSWER
Yes
No

IF YES GO TO Q35E, OTHERWISE GO TO Q49

Q35E What is their name?
PLEASE INSERT A TEXT BOX

PART 6 POLICIES

Q49 Does your school have a whole school food policy?
PLEASE CODE ONE ANSWER
Yes
No
IF YES, GO TO Q49A, OTHERWISE GO TO Q50

Q49A How long has this policy been in place?
PLEASE ENTER NUMBER (MONTHS AND YEARS)
OPEN ENDED QUESTION PLEASE INSERT A TEXT BOX

Q50 Which of the following best describes what policies are in place in your school to regulate the types of food and drink items that pupils can bring into the school?
READ OUT, SINGLE CODE
There is no policy
The policy covers all food and drink brought into the school
The policy covers packed lunches only
Other SPECIFY BOX
Don't know

Q46 Is your school part of the National Healthy Schools Programme?
PLEASE CODE ONE ANSWER
Yes
No
IF YES GO TO Q46A, OTHERWISE GO TO Q47

Q46A Has your school achieved National Healthy Schools status?
PLEASE CODE ONE ANSWER
Yes
No
IF YES GO TO Q46B OTHERWISE GO TO Q47

Q46B When was this achieved?
PLEASE ENTER DATE (MONTH AND YEAR) PLEASE INSERT A TEXT BOX

Q47 Is your school currently signed up to/registered for/involved in any of the following programmes/initiatives?
READ OUT, PLEASE CODE AS MANY AS APPLY
School fruit and vegetable scheme
School milk scheme
Million Meals
Food For Life Partnership
Let’s Get Cooking

FOR EACH OF THESE ANSWERS PLEASE HAVE OPTIONS YES, NO, DON’T KNOW

Q48 Is your school currently involved in any other initiatives related to food, healthy eating or nutrition?
Yes SPECIFY BOX
No
Don’t know

Q48A What is the availability of outlets for pupils to buy food on their way to and from school?
READ OUT, SINGLE CODE
No outlets available
Only one or two outlets available
Some outlets – depends on route to school
Several outlets near the school
Lots of outlets on all routes, including vans
Don’t know

Q36 Does your school have a group that that typically might include teachers, pupils, caterers, Governors and parents and which focuses specifically on food and nutrition? In some schools they are called School Nutrition Action Groups.
PLEASE CODE ONE ANSWER
Yes
No
Don’t know
IF YES GO TO Q36A, IF NO OR DK GO TO Q37

Q36a How often do they meet?
PLEASE CODE ONE ANSWER
Monthly
Twice a term
Yearly
Other specify box
Don’t know

Q37 How often, if at all, does your School Council discuss food or healthy eating?
Would you say it is?
READ OUT, SINGLE CODE
Monthly
Twice a term
Yearly
It has never discussed it
Don’t know

Q38 Is the catering manager involved in any groups that meet to discuss school food?
PLEASE CODE ONE ANSWER
Yes
No
Don't know

IF YES GO TO Q38A OTHERWISE GO TO Q39

Q38A Which groups, please specify?
SPECIFY BOX

Q38B How often do they meet?
OPEN ENDED QUESTION PLEASE INSERT A TEXT BOX

Q39 Are lunchtime supervisors involved in any groups that meet to discuss school food?
PLEASE CODE ONE ANSWER
Yes
No
Don't know

IF YES GO TO Q39A, IF NO GO TO Q40

Q39A Which groups, please specify?
SPECIFY BOX

Q39B How often do they meet?
OPEN ENDED QUESTION PLEASE INSERT A TEXT BOX

Q40 Have you done anything in the last 12 months to find out what pupils think of the lunch service?
READ OUT PLEASE CODE AS MANY AS APPLY
School council discussions
Comments box/book
Survey
Special event (to promote school meals)
Other SPECIFY BOX
No
Don't know

IF NO GO TO Q41, OTHERWISE GO TO Q40A

Q40A If so, how often are pupil’s views sought?
OPEN ENDED QUESTION PLEASE INSERT A TEXT BOX

Q41 Have you done anything in the last 12 months to find out what parents think of the lunch service?
READ OUT PLEASE CODE AS MANY AS APPLY
Comments box/book
Survey
Special event (to promote school meals)
Other SPECIFY BOX
No
Don't know

IF NO GO TO Q42, OTHERWISE GO TO Q41A

Q41A If so, how often are parents’ views sought?
OPEN ENDED QUESTION PLEASE INSERT A TEXT BOX
Q42 Have you done anything in the last 12 months to find out what Governors think of the lunch service?
READ OUT PLEASE CODE AS MANY AS APPLY
Comments box/book
Survey
Special event (to promote school meals)
Other SPECIFY BOX
No
Don't know

IF NO GO TO Q43, OTHERWISE GO TO Q42A

Q42A If so, how often are parents' views sought?
OPEN ENDED QUESTION PLEASE INSERT A TEXT BOX

Q43 How do you communicate with parents about school food?
READ OUT PLEASE CODE AS MANY AS APPLY
Information on school profile/website
Newsletters/leaflets sent home to parents
Menus sent home
Parents’ evening
Taster sessions
Parents invited for lunch
Other SPECIFY BOX

Q44 Have any of the following received any training in nutrition or healthy eating in relation to school food in the last 12 months?
READ OUT, PLEASE CODE AS MANY AS APPLY
Governors
Head teacher
Teaching staff
Dining room staff
Lunchtime supervisors
FOR EACH ANSWER THE Options are yes, no, don’t know

IF YES TO ANY IN Q44, GO TO Q45, OTHERWISE GO TO Q11.1

FOR EACH MENTIONED IN Q44
Q45 Please can you briefly describe the training provided?
(PLEASE DELETE PREVIOUS INSTRUCTIONS AND REPLACE)
PROMPT – WHO WAS THE TRAINING PROVIDED BY AND WHAT DID IT COVER
OPEN ENDED QUESTION PLEASE INSERT A TEXT BOX

SCHOOL FOOD STANDARDS
READ OUT
The next few questions are about school food standards. There are now food-based and nutrient-based standards for school lunches and food-based standards for school food other than lunch.

Q11.1 Before this interview, were you aware of the Governments food-based standards for school lunches?
PLEASE CODE ONE ANSWER
Yes
No
IF YES GO TO Q11, OTHERWISE GO TO Q12A
Q11 In relation to the food-based standards, would you say that the food provided in your school at lunchtime is …?
READ OUT, SINGLE CODE
- Fully compliant with food-based standards
- Nearly compliant with food-based standards
- Working towards compliance
- Provision is not compliant
- Other SPECIFY BOX
Don’t know, that is the caterer’s job
Don’t know

IF DON’T KNOW GO TO Q12A OTHERWISE GO TO Q11A

Q11A What evidence is there to support your view?
DO NOT READ OUT, CODE ALL THAT APPLY
- No evidence
- School Food Trust School Food Checklist report
- School Food Trust menu checking service report
- Other menu checking service report SPECIFY BOX
- Other paper-based evidence
- Other electronic-based evidence
- Verbal assurance from catering provider
- Written assurance from catering provider
- Verbal assurance from consultant nutritionist/dietitian
- Written assurance from consultant nutritionist/dietitian
- Verbal assurance from software company/consultant
- Written assurance from software company/consultant
- Verbal assurance from Healthy Schools co-ordinator
- Written assurance from Healthy Schools co-ordinator
- Verbal assurance from other SPECIFY BOX
- Written assurance from other SPECIFY BOX
- Written into contract so presume standards are being met
- Other SPECIFY BOX

IF ANY NON-VERBAL EVIDENCE IS SELECTED AT Q11A GO TO Q11B OTHERWISE GO TO Q12A

Q11B Would you be able to send us a copy of the evidence?
PLEASE CODE ONE ANSWER
- Yes
- No
IF YES, READ OUT
PLEASE CAN YOU POST/EMAIL THIS TO Clare Harper, TNS, 222 Gray’s Inn Road, London, WC1X 8HB or clare.harper@tns-global.com

ALL GO TO Q12.1

Q12.1 Before this interview, were you aware of the Governments nutrient-based standards for school lunches?
PLEASE CODE ONE ANSWER
- Yes
- No
IF YES GO TO Q12, OTHERWISE GO TO Q13

Q12 QUESTION AND ANSWERS HAVE CHANGED PLEASE AMEND

Q12 In relation to the nutrient-based standards, would you say that the food provided in your school at lunchtime is …?
RECOMMENDATION

READ OUT, SINGLE CODE
Fully compliant with nutrient-based standards
Nearly compliant with nutrient-based standards
Working towards compliance
Provision is not compliant
Other SPECIFY BOX
Don’t know, that is the caterer’s job
Don’t know

IF DON’T KNOW TO Q12 GO TO Q13 OTHERWISE GO TO Q12B

Q12A What evidence is there to support your view?
DO NOT READ OUT, CODE ALL THAT APPLY
No evidence
Table or graph from catering provider
Table or graph from consultant nutritionist/dietitian
Table or graph from other SPECIFY BOX
Other paper-based evidence
Other electronic-based evidence
Verbal assurance from catering provider
Written assurance from catering provider
Verbal assurance from consultant nutritionist/dietitian
Written assurance from consultant nutritionist/dietitian
Verbal assurance from software company/consultant
Written assurance from software company/consultant
Verbal assurance from Healthy Schools co-ordinator
Written assurance from Healthy Schools co-ordinator
Verbal assurance from other SPECIFY BOX
Written assurance from other SPECIFY BOX
Written into contract so presume standards are being met
Other SPECIFY BOX

IF ANY NON-VERBAL EVIDENCE IS SELECTED AT Q12A GO TO Q12B OTHERWISE GO TO Q13

Q12B Would you be able to send us a copy of the evidence?
PLEASE CODE ONE ANSWER
Yes
No
IF YES, PLEASE CAN YOU POST/EMAIL THIS TO Clare Harper, TNS, 222 Gray’s Inn Road, London, WC1X 8HB or clare.harper@tns-global.com

ALL GO TO Q13.1

Q13.1 Before this interview, were you aware of the Government’s food-based standards for food other than lunch?
PLEASE CODE ONE ANSWER
Yes
No
IF YES GO TO Q13, OTHERWISE GO TO Q14

Q13 In relation to food-based standards for food other than lunch, would you say that the food provided in your school at times other than lunch is …?
READ OUT, SINGLE CODE
Fully compliant with other than lunch standards
Nearly compliant with other than lunch standards
Working towards compliance
Provision is not compliant
Not applicable – no other food services
Other SPECIFY BOX
Don’t know, that is the caterer’s job
Don’t know

IF DON’T KNOW OR NOT APPLICABLE TO Q13 GO TO Q14 OTHERWISE GO TO Q13A

Q13A What evidence is there to support your view?
DO NOT READ OUT, CODE ALL THAT APPLY
No evidence
SFT School Food Checklist report
SFT menu checking service report
Other menu checking service report SPECIFY BOX
Other paper-based evidence
Other electronic-based evidence
Verbal assurance from catering provider
Written assurance from catering provider
Verbal assurance from consultant nutritionist/dietitian
Written assurance from consultant nutritionist/dietitian
Verbal assurance from software company/consultant (cf NASP)
Written assurance from software company/consultant (cf NASP)
Verbal assurance from Healthy Schools co-ordinator
Written assurance from Healthy Schools co-ordinator
Verbal assurance from other SPECIFY BOX
Written assurance from other SPECIFY BOX
Written into contract so presume standards are being met
Other SPECIFY BOX

IF ANY NON-VERBAL EVIDENCE IS SELECTED AT Q13A GO TO Q13B OTHERWISE GO TO Q14

Q13B Would you be able to send us a copy of the evidence?
PLEASE CODE ONE ANSWER
Yes
No
IF YES,
PLEASE CAN YOU POST/EMAIL THIS TO Clare Harper, TNS, 222 Gray’s Inn Road, London, WC1X 8HB or clare.harper@tns-global.com

IF AT Q10 ANY SERVICE OTHER THAN LUNCH IS MENTIONED ASK Q14
Q14 Some of the food-based standards apply across the school day. Who is the person with responsibility for co-ordinating different providers to ensure these standards are met, and how do they achieve this?
OPEN ENDED QUESTION PLEASE INSERT A TEXT BOX

Q14A Who monitors food provision in your school?
PLEASE CODE ALL THAT APPLY
School
Caterer
LA representative
Healthy Schools coordinator
Independent consultant
Other SPECIFY BOX
Don’t know, that is the caterer’s job
Don’t know
Not monitored
IF NOT MONITORED GO TO Q15, OTHERWISE CONTINUE

Q14B Can you tell me a little about how food provision is monitored within the school?
PROMPT— BY SAYING HOW OFTEN, WHAT KIND OF METHODS OR TOOLS ARE USED?
OPEN ENDED QUESTION PLEASE INSERT A TEXT BOX

Q15 Who monitors compliance with school food standards in your school?
PLEASE CHOOSE ALL THAT APPLY
School
Caterer
LA representative
Healthy Schools coordinator
Independent consultant
Software company/consultant
Other SPECIFY BOX
Don’t know, that is the caterer’s job
Don’t know
Not monitored
IF NOT MONITORED GO TO Q51 OTHERWISE GO TO Q15A

Q15A Can you tell me a little about how the standards are monitored within the school?
PROMPT IF NEEDED — BY SAYING HOW OFTEN, WHAT KIND OF METHODS OR TOOLS ARE USED?
HOW OFTEN ARE MENU CYCLES ASSESSED?
OPEN ENDED QUESTION PLEASE INSERT A TEXT BOX

PART 7 FOOD EDUCATION AND COOKERY SKILLS

READ OUT
The last few questions are about food education and cookery skills in your school.

Q51 Is practical cookery currently available to pupils as part of the curriculum?
PLEASE CODE ONE ANSWER
Yes
No
IF NO TO Q51 GO TO Q51A OTHERWISE GO TO Q52

Q51A Are you planning to introduce practical cookery sessions as part of the curriculum in this or the next academic year?
PLEASE CODE ONE ANSWER
Yes
No
Don’t know

Q52 Is practical cookery currently available to pupils as an extracurricular activity?
PLEASE CODE ONE ANSWER
Yes
No
IF NO GO TO Q52A OTHERWISE GO TO END NOTE

Q52A Are you planning to introduce practical cookery sessions as an extracurricular activity in this or the next academic year?
PLEASE CODE ONE ANSWER
Yes
No
Don't know

END NOTE:
READ OUT
Thank you very much for your help with the primary school meals study and for giving the time to complete our questionnaire. Your help in this important national study is extremely valuable to us.
b) Caterer questionnaire

TELEPHONE: CATI QUESTIONNAIRE

<table>
<thead>
<tr>
<th>Job Number</th>
<th>Methodology</th>
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<td>Name of survey</td>
<td>Questionnaire</td>
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<td>Primary School Meals</td>
<td>Cati</td>
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<td>Questionnaire Version Number</td>
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<tr>
<td>Sample Description</td>
<td>Caterers at schools. Need 100% response rate.</td>
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<tr>
<td>Quotas</td>
<td>None – except need 100% response rate.</td>
</tr>
</tbody>
</table>

Hello I am calling from TNS on behalf of the School Food Trust. May I speak to INSERT RESPONDENT NAME FROM SAMPLE please?

READ OUT
Hello I am calling from TNS on behalf of the School Food Trust who are conducting the Food in Primary Schools in England research study. Your Head teacher has agreed your school should take part in this important research and as part of this I am calling to conduct an interview with you about the meals provided at your school. Is now still a convenient time to do the interview?
Yes
No – Rearrange appointment
IF YES CONTINUE, IF NO REARRANGE APPOINTMENT FOR ANOTHER TIME

Please can you confirm your school name is INSERT SCHOOL NAME FROM SAMPLE and that I am speaking to INSERT RESPONDENT NAME FROM SAMPLE?
Yes
No – Wrong school
No - Different respondent name

IF YES, CONTINUE, IF NO – WRONG SCHOOL OR DIFFERENT RESPONDENT TERMINATE INTERVIEWER AND CONTACT EXEC

What is your position at the school?
OPEN ENDED QUESTION
PART 1

The first few questions are about the catering service that you provide.

Q1 At which of the following times in the school day DO YOU PROVIDE a catering service?
READ OUT, SELECT ALL THAT APPLY
Breakfast
Morning break
Lunch
After school
Other times SPECIFY BOX

FOR EACH MENTIONED IN Q1 EXCEPT LUNCH
Q1A Please describe the types of food and drink items that are typically offered during the ‘SERVICE Q1’ service.
OPEN ENDED QUESTION
Don’t know

Q2 Do you provide food at any other times e.g. community event or parents evening?
PLEASE CODE ONE ANSWER
Yes
No
IF YES, PLEASE DESCRIBE
OPEN ENDED QUESTION

Q3 On average this term, how many paid meals do you usually serve to pupils each day at lunchtime?
WRITE IN NUMBER
OPEN ENDED QUESTION

Q4 On average this term, how many free meals do you usually serve to pupils each day at lunchtime?
WRITE IN NUMBER
OPEN ENDED QUESTION

Q5 On average this term, how many meals do you usually serve to teachers/staff each day at lunchtime?
WRITE IN NUMBER
OPEN ENDED QUESTION

Q6 How do the pupils pay for their meals?
READ OUT, SINGLE CODE
Cash cafeteria
Fixed price (ticket) – in advance
Fixed price (ticket) – on the day
Smart card/cashless
Don’t know
Other SPECIFY BOX
IF ‘CASH CAFETERIA’ SELECTED GO TO Q8. IF ‘SMART CARD/CASHLESS’ SELECTED GO TO Q7, OTHERWISE GO Q9

Q7 Does the smart card system give information on the lunch options that pupils have bought?
Please code one answer
Q8 Which of these best describes what free school meal pupils can choose from the cash cafeteria with their entitlement?
READ OUT, SINGLE CODE
Main/set meal (two-course)
Any combination
Other SPECIFY BOX

Q9 In the dining room, how do the catering staff know which pupils are registered for free school meals?
READ OUT, SINGLE CODE
The catering staff do not know
Free school meal pupils have a token/pass/card that they hand to the cashier
There is a list of free school meal registered pupils at the counter/till
Other SPECIFY BOX
Don't know

Q14 Is the choice available to pupils receiving free school meals the same as that available to other pupils?
PLEASE CODE ONE ANSWER
Yes
No
IF NO GO TO Q14A, OTHERWISE GO TO Q15

Q14A Please describe fully the difference in choice available to free school meal pupils and that for other pupils.
OPEN ENDED QUESTION
PLEASE INSERT A TEXT BOX

Q15 What items does a meal include?
READ OUT, SELECT ALL THAT APPLY
Main course/protein element
Starchy accompaniment (e.g. potatoes, rice, pasta)
Vegetables OR salad
Vegetables AND salad
Bread
Water
Drink other than water
Dessert OR fruit
Dessert AND fruit
Other SPECIFY BOX

Q16 Do pupils have a choice of main meal?
PLEASE CODE ONE ANSWER
Yes
No
IF YES GO TO Q17, OTHERWISE GO TO Q18

Q17 How many of each of the following options are available each day?
Main course/protein element
WRITE IN NUMBER
PLEASE INSERT A TEXT BOX
Starchy accompaniment
WRITE IN NUMBER
Q18 Are pupils encouraged or required to take (i.e., have on their plate) all the components of the meal?

Encouraged
Required
No, it is their choice

IF ENCOURAGED OR REQUIRED GO TO Q18A, OTHERWISE GO TO Q18C

Q18A Please describe how they are encouraged/required

OPEN ENDED QUESTION

Q18C Are condiments available to pupils taking a school lunch?

Yes
No
Don’t know

IF YES TO Q18C GO TO Q18D, OTHERWISE GO TO Q18G

Q18D Which of the following are available?

Tomato ketchup
Salad cream
Mayonnaise
Other SPECIFY BOX

Q18E For each of the condiments selected, above, how and by whom are they served to the pupils? Do pupils serve themselves or are they served by the caterer/lunchtime assistants?

<table>
<thead>
<tr>
<th>Pupil self service</th>
<th>Served by caterer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condiment</td>
<td></td>
</tr>
<tr>
<td>Tomato ketchup</td>
<td></td>
</tr>
<tr>
<td>Salad cream</td>
<td></td>
</tr>
<tr>
<td>Mayonnaise</td>
<td></td>
</tr>
<tr>
<td>By spoon</td>
<td>By spoon</td>
</tr>
<tr>
<td>Sachet</td>
<td>Sachet</td>
</tr>
<tr>
<td>Pump / dispenser</td>
<td>Pump / dispenser</td>
</tr>
<tr>
<td>From original bottle</td>
<td>From original bottle</td>
</tr>
<tr>
<td>By spoon</td>
<td>By spoon</td>
</tr>
<tr>
<td>Sachet</td>
<td>Sachet</td>
</tr>
<tr>
<td>Pump / dispenser</td>
<td>Pump / dispenser</td>
</tr>
<tr>
<td>From original bottle</td>
<td>From original bottle</td>
</tr>
</tbody>
</table>

Please code for each
Q18F For each of the condiments selected above, how often are they made available to the pupils?
PLEASE CODE FOR EACH

<table>
<thead>
<tr>
<th>Tomato ketchup</th>
<th>Salad cream</th>
<th>Mayonnaise</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available every day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available with certain meals</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Q18G How is water made available to the pupils at lunchtime?
READ OUT, SELECT ALL THAT APPLY
Jugs are on the dining tables
Pupils collect their water at the serving counter
Water dispensers and, or water fountains in the dining room
Water is not available
Other SPECIFY BOX

IF ‘WATER IS NOT AVAILABLE’ IS SELECTED GO TO Q19, OTHERWISE GO TO Q18H

Q18H For each option selected above, do?
READ OUT, SELECT ALL THAT APPLY
Pupils help themselves
Pupils request assistance from lunchtime supervisors
Other SPECIFY BOX

Q19 What is the length of the school menu cycle?
READ OUT, SINGLE CODE
1 week
2 weeks
3 weeks
4 weeks
Other SPECIFY BOX

Q20 How often is a new menu cycle introduced?
READ OUT, SINGLE CODE
Each school term
Seasonally (e.g. summer, autumn)
Yearly
Other SPECIFY BOX

Q20B What, if any, special diets do you currently cater for within your normal menu?
READ OUT, SELECT ALL THAT APPLY
Vegetarian
Religious or ethnic diets (e.g. Halal or Kosher) SPECIFY BOX
Nutrition condition (e.g. diabetic)
Allergies and intolerances
Other SPECIFY BOX

Q21 If requested, what special diets are you able to cater for?
READ OUT, SELECT ALL THAT APPLY
Vegetarian
Religious or ethnic diets (e.g. Halal or Kosher)
Nutrition condition (e.g. diabetic)
Allergies and intolerances
Other SPECIFY BOX
IF NONE AT Q21 GO TO Q23 OTHERWISE CONTINUE

Q22 How far in advance do pupils or their parents need to order a special meal?
READ OUT, SINGLE CODE (PROMPT: E.G FOR A VEGETARIAN CHILD)
No need to order in advance
On the day
Previous day
Weekly
Termly
Other SPECIFY BOX

PART 2                     FACILITIES AND LUNCHTIME ARRANGEMENTS
READ OUT
The next few questions relate to facilities and lunchtime arrangements

Q23 What sort of catering facilities, if any, does the school have?
READ OUT, SINGLE CODE
Full production kitchen (IF NECESSARY where all food can be prepared/cooked from scratch on the premises)
Regen or mini kitchen (IF NECESSARY where some food is partly or fully prepared/cooked on site, using bought in or pre-prepared products)
No facilities for food preparation or regeneration – hot food transported in from another school
No facilities for food preparation or regeneration – hot food transported in from another source other than a school
No facilities for food preparation or regeneration – sandwich/cold food only
Other SPECIFY BOX
Don’t know

Q24 How many meal sittings are there at lunchtime?
DO NOT READ OUT, SINGLE CODE
1
2
3
4+

Q25 At lunchtime, how do those pupils taking a school lunch and those pupils taking a packed lunch come into the dining room?
READ OUT, PLEASE CODE FOR EACH

<table>
<thead>
<tr>
<th></th>
<th>Pupils taking a school lunch</th>
<th>Pupils taking a packed lunch</th>
</tr>
</thead>
<tbody>
<tr>
<td>By form/year same order each day</td>
<td></td>
<td></td>
</tr>
<tr>
<td>By form/year in rotation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All at once</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In another way</td>
<td>SPECIFY BOX</td>
<td>SPECIFY BOX</td>
</tr>
<tr>
<td>Don’t know</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Q26 Where do pupils having school meals sit in the dining room?
READ OUT, SINGLE CODE
They sit wherever they like
They sit in class groups
They sit in mixed age groups (e.g. in house groups or deliberately mixed age groups)
They sit where they like within a set area

Q27 Are there any problems serving the pupils in the time available at lunchtime?
PLEASE CODE ONE ANSWER
Yes
No
IF YES TO Q27 GO TO Q27A, OTHERWISE GO TO Q28

Q27A Please explain
ENTER DETAIL
PLEASE INSERT TEXT BOX

PART 3 COOKING METHODS

READ OUT
The next few questions relate to cooking methods

Q28 Is the food you serve…? READ OUT, SINGLE CODE
Made on the school premises
Made elsewhere and reheated from frozen on the school premises
Made elsewhere and reheated from chilled on the school premises
Made elsewhere and transported hot to the school premises
Other SPECIFY BOX

IF SELECTED “THE FOOD IS MADE ON THE SCHOOL PREMISES” GO TO Q29
OTHERWISE FOR EACH MENTIONED IN Q28 GO TO Q28A

Q28A Where is the food made?
READ OUT, SINGLE CODE
Another school SPECIFY BOX FOR NAME OF SCHOOL AND COOK CONTACT DETAILS
Caterer’s central production unit SPECIFY BOX FOR COOK CONTACT DETAILS
Other SPECIFY BOX
GO TO Q36

Q29 What fats and oils do you use for………………..

ROWS
Frying (shallow & deep)
Cakes & puddings
Pastry

COLUMNS
Vegetable oil
Hard block margarine
Lard
Packet Mix ONLY SHOW FOR CAKES AND PUDDINGS AND PASTRY
Veg shortening ONLY SHOW FOR CAKES AND PUDDINGS AND PASTRY
Butter
Other SPECIFY BOX

Q30 Do you usually use fresh, frozen and/or canned vegetables?
READ OUT, SELECT ALL THAT APPLY
Fresh
Frozen
Q31 Do you usually make mashed potatoes from ....?  
READ OUT, SINGLE CODE  
Fresh potatoes  
Instant potato mix  
Frozen mashed potato  

Q32 Do you usually add milk and/or butter and/or margarine to your mashed potatoes?  
READ OUT, SELECT ALL THAT APPLY  
Milk  
Butter  
Margarine  
None  

Q33 Do you usually put butter or margarine on the hot vegetables?  
READ OUT, SINGLE CODE  
Butter  
Margarine  
Neither  

Q34 Do you usually put butter or margarine on boiled potatoes?  
READ OUT, SINGLE CODE  
Butter  
Margarine  
No  

Q35 What type of milk do you usually use in cooking?  
READ OUT, SINGLE CODE  
Full fat/whole  
Semi skimmed/half fat  
Skimmed  
Other SPECIFY BOX  

Q35A Do you usually make custard from .....?  
READ OUT, SINGLE CODE  
Custard powder, sugar and fresh milk  
Instant mix and water  
Other SPECIFY BOX  

Q35B Do you have any type of policy written down about using salt in cooking?  
PLEASE CODE ONE ANSWER  
Yes  
No  
IF YES GO TO Q35C, OTHERWISE GO TO Q35D  

Q35C Please describe the policy on using salt in cooking.  
OPEN ENDED QUESTION  

Q35D Do you usually add salt to the water when you are cooking ..........  
READ OUT, SELECT ALL THAT APPLY  
Vegetables  
Potatoes  
Rice  
Pasta
Q35E Do you usually season recipes/dishes with salt?
PLEASE CODE ONE ANSWER
Yes
No
IF YES GO TO Q37F, OTHERWISE GO TO Q36

Q35F How do you measure the salt you use?
OPEN ENDED QUESTION

Q36 Do you usually buy in sandwiches and filled rolls or make them on the premises?
PLEASE CODE ONE ANSWER
Buy in
Make them on the premises
N/A - no sandwiches/filled rolls available
IF ‘MAKE THEM ON THE PREMISES’, GO TO Q37, OTHERWISE GO TO Q39

Q37 Do you usually use spread on bread/rolls/sandwiches?
PLEASE CODE ONE ANSWER
Yes
No
IF YES, GO TO Q38, OTHERWISE GO TO Q39

Q38 What spread do you usually use on bread/rolls/sandwiches?
READ OUT, SINGLE CODE
Low/reduced Fat spread
Soft margarine/spread
Sunflower/high polyunsaturated fat spread
Hard block margarine
Butter
Other SPECIFY BOX

Q39 What type of bread/rolls do you usually use?
READ OUT, SELECT ALL THAT APPLY
White
High fibre white
Brown
Wholemeal
Other SPECIFY BOX
Don’t use

Q40 What type of mayonnaise/salad cream do you usually use?
READ OUT, SINGLE CODE
Ordinary
Low/reduced fat
Don’t use

Q43 What type of yoghurt do you usually provide?
READ OUT, SINGLE CODE
Full fat
Low/reduced fat
Fat free
Other SPECIFY BOX

Q44 Do pupils have access to salt that they can add to their food?
PLEASE CODE ONE ANSWER
Yes
PART 4   HEALTHY EATING ACTIVITY
The next few questions relate to activities and promotions related to healthy eating

Q45 In your school, how is the menu promoted to pupils?
READ OUT, SELECT ALL THAT APPLY
It is put up in the dining room
It is put up elsewhere in the school
It is given to pupils in advance (e.g. in class)
It is sent home to parents
Other SPECIFY BOX

Q46 In your school in the last 12 months, have any of the following strategies to promote school meals been used?
READ OUT, SELECT ALL THAT APPLY
Tasters/tasting sessions for pupils
Tasters/tasting sessions for parents
Parents invited for school lunch
Other SPECIFY BOX

Q46A Can you think of any additional ways in which school meals have been promoted in your school in the last 12 months?
Yes
No
IF YES GO TO Q46B, OTHERWISE GO TO Q47

Q46B Please describe
OPEN ENDED QUESTION
PLEASE INSERT TEXT BOX

Q47 In the last 12 months, have any of the following strategies been used at lunchtime to encourage pupils to select more fruit, vegetables or salad?
READ OUT, SELECT ALL THAT APPLY
Given free with other choices
Promoted as ‘healthier’ options
Rewards are offered for eating them
Other SPECIFY BOX

Q47B How is fresh fruit made available to pupils on a daily basis?
READ OUT, SELECT ALL THAT APPLY
Whole fruit available
Segments/pieces of the same fruit available
Segments/pieces of a variety of fruits available
Whole fruit is prepared to provide segments/pieces of the same fruit on demand
Other SPECIFY BOX

Q48 Are any rewards offered to pupils for selecting or eating a new food?
READ OUT, SELECT ALL THAT APPLY
No
Stickers or badges
Stamp cards
Verbal praise or encouragement
Privileges
Other SPECIFY BOX
Q49 In your school, have you done anything in the last 12 months to find out what pupils, parents or governors think of the service? Such as……………

ROWS
Pupils
Parents
Governors

COLUMNS
Comments box/book
Survey
Special event
Other SPECIFY BOX
None of these

IF ANY OF THE COLUMNS SELECTED AT Q49, FOR ANY OF THE ROWS, ASK Q49A, OTHERWISE GO TO Q50

Q49A Did you make any changes as a result?
READ OUT, SINGLE CODE
Yes
No
None necessary
IF YES GO TO Q49B, OTHERWISE GO TO Q50

Q49B Can you tell me a bit about the changes that were made please?
OPEN ENDED QUESTION

PART 5 THE CONTRACT
READ OUT
The next few questions relate to the catering contract

Q50 Who employs you?
READ OUT, SINGLE CODE
School
Contractor/Private catering company
Local Authority in-house service provider
Other SPECIFY BOX

Q51 How many catering/serving staff work in the kitchen each day?
WRITE IN NUMBER
PLEASE INSERT A TEXT BOX

Q52 I would like to contact your Line Manager to obtain a copy of any contract relating to the catering service. Please can you give me their details?
Name
OPEN ENDED QUESTION
Position/job title
OPEN ENDED QUESTION
Telephone number
OPEN ENDED QUESTION
Telephone number
OPEN ENDED QUESTION

PART 6 SCHOOL FOOD STANDARDS
READ OUT
The next few questions relate to school food standards

Q53 Before this interview, were you aware of the Government's food-based standards for school lunches?
PLEASE CODE ONE ANSWER
Yes
No
IF YES GO TO Q53A OTHERWISE GO TO Q54

Q53A Would you say that the food provided in your school at lunchtime is …?
READ OUT, SINGLE CODE
Fully compliant with food-based standards
Nearly compliant with food-based standards
Working towards compliance
Not compliant
Other SPECIFY BOX
Don’t know
IF DON’T KNOW GO TO Q54 OTHERWISE CONTINUE

Q53B What evidence is there to support your view?
DO NOT READ OUT, CODE ALL THAT APPLY
No evidence
School Food Trust School Food Checklist report
School Food Trust menu checking service report
Other menu checking service report SPECIFY BOX
Other paper-based evidence
Other electronic-based evidence
Verbal assurance from employer
Written assurance from employer
Verbal assurance from consultant nutritionist/dietician
Written assurance from consultant nutritionist/dietician
Verbal assurance from Healthy Schools co-ordinator
Written assurance from Healthy Schools co-ordinator
Verbal assurance from other SPECIFY BOX
Written assurance from other SPECIFY BOX
Other SPECIFY BOX

IF ANY NON-VERBAL EVIDENCE IS SELECTED AT Q53B GO TO Q53C OTHERWISE GO TO Q54

Q53C Would you be able to send us a copy of the evidence?
PLEASE CODE ONE ANSWER
Yes
No
IF YES, READ OUT
PLEASE CAN YOU POST/EMAIL THIS TO Clare Harper, TNS, 222 Gray's Inn Road, London, wc1x 8hb or clare.harper@tns-global.com?

Q54 Before this interview, were you aware of the Government’s nutrient-based standards for school lunches?
PLEASE CODE ONE ANSWER
Yes
No
IF YES GO TO Q54A, OTHERWISE GO TO Q55
Q54A Would you say that the food provided in your school at lunchtime is …?
READ OUT, SINGLE CODE
Fully compliant with nutrient-based standards
Nearly compliant with nutrient-based standards
Working towards compliance
Not compliant
Other SPECIFY BOX
Don’t know
IF DON’T KNOW GO TO Q55 OTHERWISE CONTINUE

Q54B What evidence is there to support your view?
DO NOT READ OUT, CODE ALL THAT APPLY
No evidence
Table or graph from employer
Table or graph from consultant nutritionist/dietician
Table or graph from other SPECIFY BOX
Other paper-based evidence
Other electronic-based evidence
Verbal assurance from employer
Written assurance from employer
Verbal assurance from consultant nutritionist/dietician
Written assurance from consultant nutritionist/dietician
Verbal assurance from Healthy Schools co-ordinator
Written assurance from Healthy Schools co-ordinator
Verbal assurance from other SPECIFY BOX
Written assurance from other SPECIFY BOX
Other SPECIFY BOX

IF ANY NON-VERBAL EVIDENCE IS SELECTED AT Q54B GO TO Q54C OTHERWISE GO TO Q55
Q54C Would you be able to send us a copy of the evidence?
PLEASE CODE ONE ANSWER
Yes
No
IF YES,
READ OUT
PLEASE CAN YOU POST/EMAIL THIS TO Clare Harper, TNS, 222 Gray’s Inn Road, London, wc1x 8hb or clare.harper@tns-global.com?

Q55 Before this interview, were you aware of the Government’s food-based standards for food other than lunch?
PLEASE CODE ONE ANSWER
Yes
No
IF YES GO TO Q55A, OTHERWISE GO TO Q56

Q55A Would you say that the food provided in your school at times other than lunch is …?
READ OUT, SINGLE CODE
Fully compliant with other than lunch standards
Nearly compliant with other than lunch standards
Working towards compliance
Not compliant
Not applicable – no other food services
Other SPECIFY BOX
Don’t know
IF DON’T KNOW OR NOT APPLICABLE GO TO Q56 OTHERWISE CONTINUE

Q55B What evidence do you have to support that view?
DO NOT READ OUT, CODE ALL THAT APPLY
No evidence
SFT School Food Checklist
SFT menu checking service
Other menu checking service SPECIFY BOX
Other paper-based evidence
Other electronic-based evidence
Verbal assurance from employer
Written assurance from employer
Verbal assurance from consultant nutritionist/dietitian
Written assurance from consultant nutritionist/dietitian
Verbal assurance from Healthy Schools co-ordinator
Written assurance from Healthy Schools co-ordinator
Verbal assurance from other SPECIFY BOX
Written assurance from other SPECIFY BOX
Other SPECIFY BOX

IF ANY NON-VERBAL EVIDENCE IS SELECTED AT Q55B GO TO Q55C OTHERWISE GO TO Q56

Q55C Would you be able to send us a copy of the evidence?
PLEASE CODE ONE ANSWER
Yes
No
IF YES, READ OUT
PLEASE CAN YOU POST/EMAIL THIS TO Clare Harper, TNS, 222 Gray’s Inn Road, London, wc1x 8hb or clare.harper@tns-global.com?

IF AT Q1A ANY SERVICE OTHER THEN LUNCH IS MENTIONED ASK Q56

Q56 Some of the food-based standards apply across the school day. How do you co-ordinate with different providers to ensure these standards are met?
OPEN ENDED QUESTION

ASK ALL
Q56B Who monitors the catering service in your school?
PLEASE CODE ALL THAT APPLY
School
Caterer
LA representative
Healthy Schools coordinator
Independent consultant
Other SPECIFY BOX
Don’t know
Not monitored
IF NOT MONITORED GO TO Q60, OTHERWISE CONTINUE

Q56C Can you tell me a little about how the catering service is monitored within the school?
PROMPT—BY SAYING HOW OFTEN, WHAT KIND OF METHODS OR TOOLS ARE USED?
OPEN ENDED QUESTION

Q57 Who monitors compliance with school food standards in your school?
PLEASE CODE ALL THAT APPLY
School
Q57A Can you tell me a little about how the standards are monitored within the school?
Prompt—by saying how often, what kind of methods or tools are used? How often are menu cycles assessed?
Open ended question

PART 7 TRAINING
Read out
The next few questions relate to training

Q58 Have you undergone any training related to healthy eating or healthy cooking in the last 12 months?
Please code one answer
Yes
No
If yes go to Q58A otherwise go to Q59

Q58A Who was the training provided by?
Open ended question please insert a text box

Q58AA What did it cover?
Open ended question please insert a text box

Q58B Did you make any changes as a result of this training?
Please code one answer
Yes
No
If yes go to Q58C otherwise go to Q59

Q58C Please describe the changes made.
Open ended question please insert a text box

Q59 Have you undergone any other training in the last 12 months?
Please code one answer
Yes
No
If yes go to Q59A otherwise go to end note

Q59A Who was the training provided by?
Open ended question please insert a text box

Q59B What did it cover?
Open ended question please insert a text box

Q59C Did you make any changes as a result of this training?
PLEASE CODE ONE ANSWER
Yes
No
IF YES GO TO Q59D OTHERWISE GO TO END NOTE

Q59D Please describe the changes made.
OPEN ENDED QUESTION

END NOTE:
READ OUT
Thank you very much for your help with the primary study and for giving the time to complete our questionnaire. Your help in this important national study is extremely valuable to us, thank you again, goodbye.
c) Eating environment questionnaire

FACE TO FACE: CAPI QUESTIONNAIRE

<table>
<thead>
<tr>
<th>Methodology</th>
<th>Face-to-face</th>
</tr>
</thead>
<tbody>
<tr>
<td>If face-to-face</td>
<td>In school</td>
</tr>
<tr>
<td>Questionnaire</td>
<td>Capi</td>
</tr>
<tr>
<td>Sample Size</td>
<td>150</td>
</tr>
<tr>
<td>Sample Description</td>
<td>150 Schools</td>
</tr>
</tbody>
</table>

**PART 1 DINING AREA CHARACTERISTICS**

Q1 Is there anywhere else within the school that pupils can purchase food at lunch time?
(PLEASE TICK ALL THAT APPLY)
Yes – in the dining room
Yes – elsewhere in the school
No
IF NO GO TO Q3, OTHERWISE GO TO Q2

Q2 Please describe where pupils can purchase food ...
OPEN ENDED QUESTION

Q3 Do pupils who bring packed lunches sit in the same area as those who eat school lunches?
(PLEASE TICK ONE BOX)
Yes – at the same tables
Yes – at separate tables
No

Q4 Is there any artwork on the walls in the main dining room? (e.g. pictures, art or murals).
Yes
No

Q5 Are there any lunchtime rules for pupils displayed in the main dining room?
Yes
No

Q6 Is the dining room used only for dining or is it multi-use (e.g. PE, teaching etc.)?
Used only for dining
Multi use
Don't know
Q7 Are pupils involved in any aspect of the lunch service?
(PLEASE TICK ALL THAT APPLY)
No
Laying tables
Putting water on tables
Serving other pupils
Helping younger pupils
Clearing or wiping tables
Sweeping floors
Other SPECIFY BOX

PART 2 THE MENU

Q8 Is the menu displayed in the main dining room?
Yes
No
IF YES GO TO Q9, OTHERWISE GO TO Q11

Q9 Can pupils easily see the menu as they queue for lunch?
Yes
No

Q10 Does the menu have any of the following?
(TICK ALL THAT APPLY)
Pictures or photographs of the food
Cartoon characters
Is in colour

Q11 Does the menu contain information about food? Such as:
(TICK ALL THAT APPLY)
Description of the dishes
‘Exciting’ or promoting names for the dishes
Any nutritional information
Organic
Suitability for special diets, e.g., Halal, vegetarian etc.
Allergy information, e.g., contains nuts etc.
Promotion of ‘Healthier choice’
Ingredients list
‘Contains’ e.g., fruit and vegetables, oily fish etc.
Meals from different countries (e.g., themed days)
None
Other SPECIFY BOX

FOOD PROMOTION

Q12 Is there any commercial marketing/advertising in the dining room(s)? E.g., brands such as Flora etc.
Yes
No
Q13 Is there any evidence of the promotion of healthy eating?
(TICK ALL THAT APPLY)
None seen
Posters
Leaflets
Education style promotion
Display boards
Stickers
Other SPECIFY BOX

IF ‘NONE SEEN’ SELECTED GO TO Q16, OTHERWISE GO TO Q14

Q14 What kind of healthy eating message is being promoted?
SELECT YES OR NO FOR EACH OF THE FOLLOWING:
Eat more fruit and, or vegetables (e.g., 5-A-Day)
Balanced diet (e.g., the Eatwell plate)
Drink more milk
Other SPECIFY BOX

Q15 Who are the materials produced by?
(TICK ALL RELEVANT OPTIONS)
Don’t know
Food company
School
Pupils
School Food Trust (SFT)
Food Standards Agency (FSA)
British Nutrition Foundation (BNF)
School caterer
Other SPECIFY BOX

Q16 Are there any special promotions on this week? e.g. free piece of fruit.
Yes
No

IF YES GO TO Q17, OTHERWISE GO TO Q18

Q17 Please describe the special promotion(s) this week ...
OPEN ENDED QUESTION

<table>
<thead>
<tr>
<th>Quality</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hot food is being served hot</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cold food is being served cold</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual dishes/accompaniments look fresh e.g. vegetables have retained their colour, sandwiches have not dried out</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual dishes/accompaniments look colourful</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Q18 How would you rate the quality of the food at the service counter? Please rank from 1 ‘strongly agree’ to 4 ‘strongly disagree’
Q19 How would you rate the presentation of the food at the service counter? Please rank from 1 ‘strongly agree’ to 4 ‘strongly disagree’

<table>
<thead>
<tr>
<th>Presentation</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service counter is clean</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual dishes/accompaniments are presented well in suitable serving dishes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Younger pupils can see the choices available</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Q20 What type of labelling is there for the food at the service counter?
(TICK ALL THAT APPLY)
Description of the dish
‘Exciting’ or promoting names for the dishes
Any nutritional information
Organic
Suitability for special diets, e.g., Halal, vegetarian etc.
Allergy information, e.g., contains nuts etc.
Promotion of ‘Healthier choice’
Ingredients list
‘Contains’ e.g., fruit and vegetables, oily fish etc.
Meals from different countries (e.g., themed days)
None
Other SPECIFY BOX

Q21 Can you see any evidence of catering staff or dining room supervisors doing any of the following?
(TICK ALL THAT APPLY)
Please lay out as grid

COLUMNS
catering staff
dining room supervisors

ROWS
Ensuring or encouraging pupils to take all meal components
Encouraging healthy eating, e.g., by asking the pupils to select healthier options or recommending that they eat their vegetables
Encouraging pupils to finish their main meal components before eating dessert
Encouraging pupils to finish their meal/meal components before leaving the table
Encouraging pupils to try new foods
Carrying out tray/lunch box checks
Talking to the pupils
Managing the queue
Sitting with pupils
Behaviour management
Enforcing rules
Wiping tables
Removing rubbish
Sweeping floors
Other SPECIFY BOX
Q22 On average, what proportion of pupils have vegetables and/or salad on their plate?
(Please tick one box)
- All
- More than half
- About half
- Less than half
- None

Q23 On average, what proportion of pupils have fruit on their plate?
(Please tick one box)
- All
- More than half
- About half
- Less than half
- None

Q24 Do all pupils have access to drinking water in the dining area (e.g. water jugs on tables, water fountain)?
- Yes
- No

Q25 Are pupils served food on …
(Please tick one box)
- Airline style trays
- Plastic plates/bowls
- China plates/bowls
- Other [Specify box]
Appendix 10. Inventory and traychecks

JN 178782 Primary School Meals survey

Food & Drink Inventory and Portion Weights

Fieldwork start date

<table>
<thead>
<tr>
<th>Day</th>
<th>Month</th>
<th>2009</th>
</tr>
</thead>
</table>

School Name


Assignment Number

Use the Day 1 number for the Weigher.

Interviewer name


Q1. To head cook:

Do you serve different size food portions to infant and junior children?

Yes [ ]

No [ ]

N/A [ ]
### DAY 1

**INFANT Size Portion**

<table>
<thead>
<tr>
<th></th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
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</thead>
</table>

#### 10.1.1.1 Day of the week (cross) 

#### 10.1.1.2

- Write a full inventory of **ALL** food and drink items available today and a description of the way in which each portion is served in the left hand column.
- Ask how many portions of each food have been made by the caterers, and how many children have been catered for in total today.
- Weigh 2 portions of all food/drink items each day and write these in the “weight” columns.
- If the school serves different sized portions for infant and juniors, ask to be served two infant portions of all meal components of the day, including desserts and drinks.

Q. How many children in total have you catered for today?  

<table>
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<tr>
<th>Food or drink and portion size description</th>
<th>Number of portions made today</th>
<th>Weight 1 grams</th>
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<tbody>
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</tbody>
</table>
**DAY 1 Continued….**

<table>
<thead>
<tr>
<th>Food or drink and portion size description</th>
<th>Number of portions made today</th>
<th>Weight 1 grams</th>
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ASK CATERER ‘WHEN THE LAST FEW CHILDREN CAME INTO LUNCH TODAY HAD YOU RUN OUT OF ANY FOOD ITEMS?’ WRITE IN NAME OF ITEMS OR NONE HERE:

<table>
<thead>
<tr>
<th>Total Number of Items</th>
<th>Selector Initials:</th>
<th>Weigher Initials:</th>
</tr>
</thead>
</table>
### Day 2
#### Junior Size Portion

<table>
<thead>
<tr>
<th>Day of the week (cross)</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
</table>

10.1.1.4

- Write a full inventory of ALL food and drink items available today and a description of the way in which each portion is served in the left hand column.
- Ask how many portions of each food have been made by the caterers, and how many children have been catered for in total today.
- Weigh 2 portions of all food/drink items each day and write these in the “weight” columns.
- If the school serves different sized portions for infant and juniors, ask to be served two junior portions of all meal components of the day, including desserts and drinks.

Q. How many children in total have you catered for today?  

<table>
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</tbody>
</table>
**DAY 2 Continued….**

<table>
<thead>
<tr>
<th>Food or drink and portion size description</th>
<th>Number of portions made today</th>
<th>Weight 1 grams</th>
<th>Weight 2 grams</th>
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ASK CATERER 'WHEN THE LAST FEW CHILDREN CAME INTO LUNCH TODAY HAD YOU RUN OUT OF ANY FOOD ITEMS?' WRITE IN NAME OF ITEMS OR NONE HERE:

Total Number of Items _______ Selector Initials: _______ Weigher Initials: _______

DAY 3

INFANT Size Portion

Monday Tuesday Wednesday Thursday Friday

10.1.1.5 Day of the week (cross) 2

10.1.1.6

- Write a full inventory of ALL food and drink items available today and a description of the way in which each portion is served in the left hand column.
- Ask how many portions of each food have been made by the caterers, and how many children have been catered for in total today.
- Weigh 2 portions of all food/drink items each day and write these in the “weight” columns.
- If the school serves different sized portions for infant and juniors, ask to be served two infant portions of all meal components of the day, including desserts and drinks.

Q. How many children in total have you catered for today? ______

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DAY 3 Continued…

<table>
<thead>
<tr>
<th>Food or drink and portion size description</th>
<th>Number of portions made today</th>
<th>Weight 1 grams</th>
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<tbody>
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</tbody>
</table>
ASK CATERER 'WHEN THE LAST FEW CHILDREN CAME INTO LUNCH TODAY HAD YOU RUN OUT OF ANY FOOD
ITEMS?' WRITE IN NAME OF ITEMS OR NONE HERE:

<table>
<thead>
<tr>
<th>Total Number of Items</th>
<th>Selector Initials:</th>
<th>Weigher Initials:</th>
</tr>
</thead>
</table>

**DAY 4**

**JUNIOR Size Portion**

<table>
<thead>
<tr>
<th>Food or drink and portion size description</th>
<th>Number of portions made today</th>
<th>Weight 1 grams</th>
<th>Weight 2 grams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eg. 2 grilled pork sausages or 1 ice cream scoop of cheesy mashed potato, or 1 cup of plain water</td>
<td>2</td>
<td></td>
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</tr>
</tbody>
</table>

- Write a full inventory of ALL food and drink items available today and a description of the way in which each portion is served in the left hand column.
- Ask how many portions of each food have been made by the caterers, and how many children have been catered for in total today.
- Weigh 2 portions of all food/drink items each day and write these in the “weight” columns.
- If the school serves different sized portions for infant and juniors, ask to be served two junior portions of all meal components of the day, including desserts and drinks.

Q. How many children in total have you catered for today? 

*Please fill in the number of children catering for today.
**DAY 4 Continued….**

<table>
<thead>
<tr>
<th>Food or drink and portion size description</th>
<th>Number of portions made today</th>
<th>Weight 1 grams</th>
<th>Weight 2 grams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eg. 2 grilled pork sausages or 1 ice cream scoop of cheesy mashed potato, or 1 cup of plain water</td>
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</tbody>
</table>

| 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 |
ASK CATERER ‘WHEN THE LAST FEW CHILDREN CAME INTO LUNCH TODAY HAD YOU RUN OUT OF ANY FOOD ITEMS?’ WRITE IN NAME OF ITEMS OR NONE HERE:

<table>
<thead>
<tr>
<th>Total Number of Items</th>
<th>Selector Initials:</th>
<th>Weigher Initials:</th>
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</table>

**DAY 5**  
**INFANT Size Portion**

<table>
<thead>
<tr>
<th>Day of the week (cross)</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
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</thead>
</table>

- Write a full inventory of ALL food and drink items available today and a description of the way in which each portion is served in the left hand column.
- Ask how many portions of each food have been made by the caterers, and how many children have been catered for in total today.
- Weigh 2 portions of all food/drink items each day and write these in the “weight” columns.
- If the school serves different sized portions for infant and juniors, ask to be served two infant portions of all meal components of the day, including desserts and drinks.

Q. How many children in total have you catered for today?  

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<thead>
<tr>
<th>Number of portions made today</th>
<th>Weight 1 grams</th>
<th>Weight 2 grams</th>
</tr>
</thead>
<tbody>
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<td>Food or drink and portion size description</td>
<td>Eg. 2 grilled pork sausages or 1 ice cream scoop of cheesy mashed potato, or 1 cup of plain water</td>
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</table>

ASK CATERER 'WHEN THE LAST FEW CHILDREN CAME INTO LUNCH TODAY HAD YOU RUN OUT OF ANY FOOD ITEMS?' WRITE IN NAME OF ITEMS OR NONE HERE:

<table>
<thead>
<tr>
<th>Total Number of Items</th>
<th>Selector Initials:</th>
<th>Weigher Initials:</th>
</tr>
</thead>
</table>
ASK THE FOLLOWING TO PUPILS YEAR 3 AND ABOVE (aged 7 or older):

1. How many days a week do you usually have a school lunch? (Please tick one box.)
   1 2 3 4 5

2. Why do you have a school lunch and not a packed lunch?

3. How tasty is your lunch today? (Please draw a circle around the face that shows how you feel about school lunches)
   Brilliant! 🌟🌟🌟🌟 Horrible!

4. After you got to school this morning, but before lunch, have you had anything to eat or drink today?
   Yes No

If yes, please describe and tick the boxes which apply to each item of food or drink

<table>
<thead>
<tr>
<th>Food/drink description</th>
<th>Brought from home</th>
<th>Purchased on the way to school</th>
<th>Purchased at school</th>
<th>Provided by the school</th>
<th>From a friend or classmate</th>
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</thead>
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</tbody>
</table>
Q. How many different items are on the child’s tray?  A..................

<table>
<thead>
<tr>
<th>WHAT IS THE ITEM CALLED?</th>
<th>LEFTOVER WEIGHT (g)</th>
<th>2nd helping?</th>
</tr>
</thead>
<tbody>
<tr>
<td>(DESCRIBE FULLY – CHECK THIS AGAINST THE INVENTORY)</td>
<td></td>
<td>X yes, blank no</td>
</tr>
</tbody>
</table>

**MAIN MEAL FOODS**
e.g. 2 pork sausages, 1/2 slice buttered white bread

- 2 grilled pork sausages
- boiled white rice with peas and sweetcorn mixed
- 1 scoop of cheesy mash
- mixed salad – lettuce, cucumber and tomato

**CONDIMENTS AND/OR SAUCES**
e.g. gravy, tomato ketchup

**DESSERTS/FRUIT**
e.g.
- 2 slices apple (quarters)
- ½ a kiwi fruit
- rice pudding
- custard

**DRINKS**
e.g.
- semi-skimmed milk in cup
- water in cup

**ANYTHING ELSE?**

<table>
<thead>
<tr>
<th>B - COUNT ITEMS IN THIS COLUMN</th>
<th>CHECK SAME NUMBER IN A &amp; B &amp; INITIAL</th>
</tr>
</thead>
</table>
If child is aged 7 or older, ask questions 1-4 on front of this sheet. Otherwise, thank and end.
###ASK THE FOLLOWING TO PUPILS YEAR 3 AND ABOVE (aged 7 or older):

1. How many days a week do you usually have a packed lunch? *(Please tick one box.)*

   - 1
   - 2
   - 3
   - 4
   - 5

2. Why do you have a packed lunch and not a school lunch?

3. Who decides what is in your lunch box? *(Please tick one box.)*
   - You
   - Parent / Guardian
   - Both

4. How tasty is your lunch today? *(please draw a circle around the face that shows how you feel about school lunches)*
   - Brilliant!
   - Happy
   - Neutral
   - Sad
   - Horrible!

5. After you got to school this morning, but before lunch, have you had anything to eat or drink today?
   - Yes
   - No

*(If yes, please describe and tick the boxes which apply to each item of food or drink)*

<table>
<thead>
<tr>
<th><strong>Food/drink description</strong></th>
<th>Brought from home</th>
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<th>From a friend or classmate</th>
</tr>
</thead>
</table>
Q. How many different items are in the child’s lunch box?  

<table>
<thead>
<tr>
<th>IS THE ITEM PACKAGED OR HOME MADE?</th>
<th>WHAT IS THE ITEM CALLED? (DESCRIBE and INCLUDE BRAND NAMES WHERE AVAILABLE)</th>
<th>BEFORE WEIGHT (g)</th>
<th>LEFTOVER WEIGHT (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCK HM</td>
<td>e.g. dark chocolate 2 finger kit kat, pot of potato salad with mayonnaise and chopped chives, half slice white bread with spread</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOOD e.g. - sandwich, 2 whole slices of granary bread, spread &amp; sliced cheddar cheese. - pot of strawberry petit filous</td>
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<tr>
<td>DRINKS</td>
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</tbody>
</table>

B - COUNT ITEMS IN THIS COLUMN  
CHECK SAME NUMBER IN A & B & INITIAL

If child is aged 7 or older, ask questions 1-5 on front of this sheet. Otherwise, thank and end.
12 References


14 The Food Standards Agency. NDNS Databank.

In a survey of school waste, WRAP reported a figure of 46% for food waste in primary schools (quoted in the Times Education Supplement – Scotland, 4 Dec 2009), but this was expressed as the percentage of total waste that was food, not the percentage of food taken by pupils that was wasted. It included food from morning break (e.g. free fruit) as well as food at lunchtime.

www.nhs.uk/change4life/Pages/MakeChangeMeSizeMeals.aspx

www.sacn.gov.uk/reports_position_statements/reports/draft_energy_requirements_report_scientific_consultation_-_november_2009.html


33 The Meat Products (England) Regulations 2003. Available at: