



**Nursery School Meals Project for Hampshire County Council Trading  
Standards Service December 2009**

**Nutritional Interpretation and Findings**

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## Contents

	Page
Introduction	3
Methodology	4
The Guidelines	4
<b>The Nurseries</b>	
Nursery A	9
Nursery B	12
Nursery C	15
Nursery D	18
Nursery E	21
Nursery F	24
Nursery G	27
Nursery H	30
Nursery I	32
Nursery J	34
<b>Summary of Results</b>	37
Summary of main points and recommendations	37
Food Sampling	38
Recommendations for future studies	39
References	40

## **Introduction**

### **Diet and Health**

Healthy eating and physical activity are essential foundations of growth and development in childhood. To help children develop healthy eating patterns from an early age it is important that the food and eating patterns they are exposed to both in and outside the home promote positive attitudes to food and good nutrition (1). Growing children need to eat a variety of foods to ensure they have enough energy and nutrients to grow and develop well. There is evidence that the diets of children under the age of 5 living in Britain are low in vitamins A, C, iron and zinc. Their diets also contain too much salt and cariogenic sugars with poor intakes of fruit and vegetables. Some children also have a low vitamin D status which can lead to poor bone health (2). Obesity, heart disease and some cancers can be linked to diet (3). The prevalence of childhood obesity has increased dramatically between 1993 and 2005 (4). The document *Healthy Weight, Healthy Lives* (2008) states "Introducing children to healthy foods, controlling portion size and limiting snacking on foods high in fat and sugar in the early years can all help to prevent children becoming overweight or obese" (5).

The Caroline Walker Trust (1) states that the number of children who spend time cared for outside the home has risen considerably with an estimated 1.5 million registered childcare places in England in 2005 compared to approximately 637,000 in 1997. 52% of these were in day nurseries, 21% with childminders and 24% in out of school clubs. A significant proportion of the total food eaten by a large number of children, many of whom are under 5 years of age is therefore supplied by day care providers. It is therefore important that children in these settings are provided with nutritionally appropriate food and drink. The Early Years Foundation Stage, (compulsory from September 2008) includes the requirement that all meals, snacks and drinks provided for children must be healthy, balanced and nutritious (5).

### **The Caroline Walker Trust**

The Caroline Walker Trust (CWT) was established in 1988 to improve health through good food choices. The CWT has published nutritional guidelines for children under 5 years of age in child care (1). These apply to all childcare settings including childminders and nursery schools.

### **Hampshire Trading Standards Nursery School Meals Project**

Using the CWT guidelines, this project aims to assess a sample of 10 nurseries across Hampshire to establish whether they comply with the CWT guidelines for the nutritional quality of the meals provided. This is part of a national LACORS study, using an original project undertaken by East Sussex Trading Standards Department in 2007 as a template. The methodology used and format of the nutritional report is therefore based on that compiled by Sarah Almond registered dietitian for the original project (6).

## **Methodology**

10 nurseries across Hampshire were recruited to participate in this project.

### **Sampling**

Each nursery was asked to supply an average sized serving of all food and drinks given to a representative 3 year old throughout the day, for 1 week. The meals and snacks were collected during the week by a member of the Trading Standards department. Food from each nursery was sent to Hampshire Scientific Services to determine the nutritional content. The samples were analysed for energy, protein, carbohydrate, sugars, sucrose, fat, saturated fat, salt, calcium, iron, zinc, and fibre. The results were interpreted by a paediatric dietitian. Each nursery was also asked to supply a copy of the menu for the week analysed, and any other relevant information which related to food provision at the nursery.

### **Questionnaire**

At the same time a short questionnaire (adapted from that previously designed by East Sussex Trading Standards department), was sent out to each of the participating Nurseries. The aim of the questionnaire was to obtain additional information regarding meal provision and nutrition, in relation to the CWT guidelines.

### **Interpretation of results**

Data from the nutritional analysis and the questionnaire was used to investigate how each nursery compared to the CWT nutrient based standards. Areas for improvement were also identified where appropriate. A formal report was produced for Hampshire Trading Standards Department with individual reports for each nursery.

### **Follow up**

A member of the Trading Standards department arranged to visit each nursery with the individual reports to discuss the findings.

## **The Guidelines**

### **Nutrient based standards**

The CWT nutrient based standards for food prepared for 1-4 year olds provide figures for the recommended energy and nutrient content of an average day's food and drink for an average child based on the recommended average nutrient content of meals and snacks provided over a one week period. This comprises:

- Mid morning snack
- Lunch
- Mid afternoon snack
- Tea

Breakfast is not included as it is presumed that this is given at home in most circumstances.

The CWT guidelines are derived from average Dietary Reference Values (7) (DRV's) for boys and girls and additional recommendations for salt intakes (8). The guidelines are based on 70% of a child's DRV requirement for energy and most nutrients, and no more than 70% of the maximum recommended amount of non milk extrinsic sugars (NMES) and sodium/salt. The remaining 30% is

expected to be achieved at home. The recommendations apply to children who attend all forms of childcare including playgroups, nursery units and reception classes.

### **Dietary Reference Values (DRV's)**

The DRV's were published in 1991 by the Department of Health (7) and are benchmark intakes of energy and nutrients that a group of people in a certain age range (and sometimes gender) need for good health.

### **Energy**

Energy is the amount of calories (Kcal) the food will provide when eaten. Energy comes from fat, carbohydrate and protein (and in adults from alcohol). 70% of this for a 1-4 year old child is 903Kcal / day. Young children need diets which are relatively high in energy as they need energy for growth and development as well as for everyday activities.

### **Fat**

Fat provides the most concentrated form of energy in the diet. Fat also provides vitamins A, D and E. Some fat is essential for growth and functioning of the body's systems. Young children need 'essential fatty acids' for healthy development. The optimal amount of fat required is calculated as about 35% of food energy, which equates to 35g / day.

Fats can be divided into *saturated fats* derived mainly from animal sources and *unsaturated fats (including omega – 3 fats)* from plants and fish.

Children under 5 should not be given low fat foods designed for adults (with the exception of semi-skimmed milk after the age of 2 years if children are eating and growing well).

### **Saturated fats**

No guidelines are available for the requirement for saturated fat for young children.

Recommendations for children and adults age 5 and over state that saturates should make up no more than 11% of food energy; however it is known that for children under 5 their intake is usually around 16% due to their necessary milk consumption. Thus 16% has been used as a maximum requirement figure which equates to approximately 15g / day.

### **Carbohydrate**

Carbohydrate describes both starch and sugar in foods. Carbohydrate should provide about 50% of the total energy per day (120.4g / day). Most of this should come from starch, intrinsic sugars (sugars found naturally as part of the cell structure of unprocessed foods such as fruit and vegetables), and sugars found in milk (milk sugars). Foods such as confectionary, chocolate and soft drinks are not necessary in the diet. They provide energy but few other nutrients and can contribute to dental caries. Children do not need sugar for energy but can get all the energy they need from other carbohydrate foods.

### **Non -Milk Extrinsic Sugars (NMES)**

NMES includes table sugar (sucrose) added to drinks such as tea and coffee, cereals, cakes biscuits and the sugar in soft drinks, confectionery and fruit juice including honey, glucose, maltose and fructose. The maximum level of NMES should not be higher than 11% of food energy (equating to 26.6g / day), as these cause tooth decay and provide few nutrients. The analysis for this project was for total sugars and sucrose only. Total sugars includes intrinsic sugars, milk sugars and non- milk

extrinsic sugars and the analysis for sucrose excludes other non- milk extrinsic sugars. Therefore there is no figure for NMES to compare to the CWT guidelines and the total sugars and sucrose analysis cannot be commented upon.

### **Protein**

Protein is needed for growth, maintenance and repair of body tissues .Good sources include meat, poultry, fish, dairy foods, eggs, soya and pulses. The CWT recommends 70% of the DRV should be provided (equating to 11g / day). Most children in Britain eat in excess of their requirement, so although 11g / day is the guideline for this project, it was expected that the levels eaten would be considerably higher.

### **Iron**

Iron is needed for the function of several body systems including the pigment haemoglobin which carries oxygen in red blood cells. Iron is found in meat, fish, poultry, dried fruits and pulses including lentils and chick peas. A diet poor in iron can cause iron deficiency anaemia. Iron deficiency anaemia can lead to lethargy, vulnerability to infection and may affect immediate and long-term intellectual development and behaviour. 84% of children in Britain have iron intakes below the DRV and almost one in five have very low intakes (2). The CWT therefore recommends that 80% of the DRV for Iron should be provided in day-care (5.5mg /day).

### **Zinc**

Zinc is needed by every organ of the body and the immune system. Young children in Britain have been shown to have poor intakes(2). The CWT guideline therefore sets 80% of the DRV (4.3mg /day) as the standard. Zinc can be found in meat, eggs, milk, cheese, wholegrain cereals, pulses and nuts.

### **Calcium**

70% of the DRV for Calcium equates to 260mg /day. Calcium is necessary for many body systems and for building strong bones. Dairy foods are the best source of calcium.

### **Salt**

The main source of salt is from that added to manufactured foods, used in cooking or at the table. High salt intakes can lead to elevated blood pressure in later life. Children who regularly eat foods such as salami, ham, tinned baked beans and spaghetti in sauce and salty savoury snacks are likely to be consuming too much salt.

The salt guidelines from the Scientific Advisory Committee on Nutrition (SACN) are used (8). SACN have set targets for the maximum level allowed in the diet at 2.3g /day; thus 70% of this equates to 1.6g /day. Salt should not be added to the food of under 5's.

### **Fibre**

No guidelines are available for the requirement for fibre for children. Therefore it has been estimated based on the adult recommendation of 18g / day. Proportionately 1-4 year olds require no more than 8.1g / day. Fibre is found in fruits and vegetables, oats, wholegrain cereals and pulses. Caution should be exercised to ensure young children are not given excessive fibre intakes as this can interfere with absorption of some minerals and cause diarrhoea.

### **Incomplete data**

Some of the nurseries did not supply all drinks required for all 5 days for comparison against the CWT nutrient based standards. In these instances average portion sizes (9) and nutritional content (10) per portion were added to the data from the public analyst in order to make each nursery directly comparable.

### **Portion size**

The data for each nutrient from each nursery was formatted to equal an average portion size, in instances when the portion provided by the nursery appeared unusually large or small. This enabled each nursery's meals to be directly compared with the CWT guidelines, against each other and to enable comparisons with the original East Sussex Trading Standards project to be made.

The average weight of food eaten for 1-4 year olds ranges from 445g to 650g / day (range due to age) thus the average portion size used for a day's worth of nursery meals equals 547g / day (6) (table 1).

**Table 1 Nutrient based standards**

Expected Weight(g)	547
Energy (kcal)	903
Fat (g)	35
Saturates	15
Total CHO(g)	120
NME Sugars (g)	26.6
Fibre(g)	8.1
Protein(g)	11
Fe (mg)	5.5
Ca (mg)	260
Zinc(mg)	4.3
Salt(g)	1.6

### **Other standards**

As well as the nutrient based standards listed above, there are a second set of recommendations which are made based on the frequency of food groups offered (Table 2).

### **Starchy Food**

Starchy foods such as bread, pasta, rice, potato, couscous and other cereals should be offered at each meal plus as snacks.

### **Fruit and Vegetables**

Overall 5 portions of fruit and vegetables should be offered per day. They are particularly important for good health because of the vitamins and antioxidants they provide. The best way to offer these is 1-2 portions of fruit as pudding or as a snack and 2-3 portions of vegetables either served as part of a meal or as part of a snack.

### **Meat, Fish and Alternatives**

These should be offered at each main meal, thus in the nursery setting this should be at both lunch and tea.

**Oily Fish**

Oily fish provide omega 3 fats in the diet. These are important for brain development in young children and also good for a healthy heart in adults. Children are recommended to have 1 portion of oily fish per week; however they should not have in excess of this as these fish can contain high levels of mercury which is considered to be toxic.

**Table 2 Other standards**

<b>Food Group</b>	<b>Frequency to be offered</b>
Starchy Food	At each meal plus snack
Fruit	1-2 /day
Vegetables	2-3/day
Dairy	2-3/day
Meat, fish & alternatives	At each meal
Oily fish	Once per week

## The Nurseries

### Nursery A

The nutritional interpretation is based on food available over the full 5 day week.

#### Portion size

- The weight of the sample ranged from 831-964g, with the mean portion size equating to 907g/day. The expected average weight of food for 1-4 year olds is 547g. Therefore the amount of food provided was larger than average.
- For the purpose of nutritional comparison against the CWT guidelines and other nurseries, the nutritional values in the food provided have been adjusted to the average child's portion size of 547g.

#### Nutrient and food based standards

Expected		Actual	Adjusted to expected portion size	✓ or ✗
Weight(g)	547	907	547	✗
Energy (kcal)	903	971	586	✗
Fat (g)	35	33.9	20.4	✗
Saturates	15	13.6	8.2	✗
Total CHO(g)	120	124.8	75.3	✗
Sugars (g)	N/A	70.5	42.5	N/A
Fibre(g)	8.1	11.5	6.9	✗
Protein(g)	11	41.1	24.8	✓
Fe (mg)	5.5	4.8	2.9	✗
Ca (mg)	260	572	345	✓
Zinc(mg)	4.3	4.1	2.5	✗
Salt(g)	1.6	2.1	1.3	✓
Sucrose (g)	N/A	11.8	7.1	N/A
Starchy Food	At each meal plus snack		At meals and 1 snack	✗
Fruit	1-2 /day		3-4/day	✓
Vegetables	2-3/day		3/day	✓
Dairy	2-3/day		3/day	✓
Meat, fish & alternatives	At each meal		At 1 meal only	✗
Oily fish	Once per week		never	✗

#### Positive Comments

- The nursery has a 5 week cycle cooked lunchtime menu, providing a variety of dishes including milk puddings every day, a daily choice of vegetables and red meat at least twice weekly. Seasonal products are used. Most meals are made from scratch and high fat and salt

snack products such as crisps and bought biscuits do not feature on the menu. Children are encouraged to eat in small social groups and hungry children are given the option of second helpings.

- The textures of the meals are adjusted to suit the child's age and ability and children with special dietary needs are catered for. However no menus were included so these cannot be commented on. The nursery reports it is a nut free environment.
- The nursery has a nutrition/healthy eating policy but this was not provided and so cannot be commented on. The nursery provided examples of the guidelines staff follow to ensure mealtimes are happy and relaxed which indicate that praise and encouragement are used to promote good eating habits and to encourage children to try unfamiliar foods.
- Cakes and biscuits are homemade using sugar sparingly. Milk is offered during meals and snacks and water is provided freely throughout the day.
- Fruit and vegetables are offered at meals and snacks.
- Sunflower and olive oils are used which provide poly- and mono-unsaturated fats.
- The salt target has been achieved indicating that the majority of foods are home-made with very little reliance on pre-prepared foods. This is to be commended.

### **Areas for Improvement**

- Once the portion sizes and hence nutritional composition, have been adjusted to compare to an average expected portion size, the energy, fat and carbohydrate content fall below the recommended levels. Fruit and vegetables are over represented, with the afternoon snack comprising fruit and a drink only, low fat spreads being used and the tea- time meal failing to provide meat or non-meat iron rich protein foods daily.
- The afternoon snack comprises fruit and water and the morning snack comprises fruit, vegetables, shreddies and milk. These snacks are too low in energy and high in fibre. They should be adjusted to include foods such as bread, toast, bagels, pitta bread and crackers with butter or margarine or cheese, scones, crumpets, bread sticks/crackers or plain popcorn with dips such as hummus, tzatziki, as well as fruit. This will provide more energy, fat, carbohydrate and a wider choice of foods.
- The evening meal is a snack tea with honey, jam and marmite sandwiches on offer daily. These are not suitable sandwich fillings as they are too high in sugar and salt respectively and are not nutritionally balanced.
- The iron and zinc targets have not been reached. These can be achieved by including iron and zinc rich protein sources at both meals. Currently there is no meat or non-milk vegetarian protein source on offer at tea-time except for ham which is included once per week at most. Egg, fish, poultry or meat fillings can be included in sandwiches. Baked beans could be offered in place of tinned spaghetti on toast. Dried fruit such as raisins or apricots

could be offered as an alternative to fresh fruit. These are more energy dense and a good source of fibre and iron.

- Natural full fat fromage frais or yoghurt with fresh fruit or fruit tinned in juice added to it would be an alternative pudding at the tea- time meal.
- Low fat spreads are used. These are not suitable for children under 5 who require moderate amounts of fat to provide energy and vitamins A and D. A margarine fortified with Vitamin D should be used for baking and as a spreading fat.
- Oily fish do not appear to feature on the menu at all. These should be included once per week as they are a good source of beneficial omega 3 fatty acids and vitamin D.

### **Summary**

- A varied menu is on offer; however there is room for improvement at both tea-time and the afternoon snack. Care should be taken to avoid applying adult healthy eating principles to the nursery menus. The nursery has a healthy eating policy (however this was not returned with the questionnaire) and provides nutrition training for its cook and nursery nurses. The nursery should ensure that the healthy eating policy is in line with the CWT guidelines.

## Nursery B

The nutritional interpretation is based on food available over the full 5 day week.

### Portion size

- The weight of the sample ranged from 621-951g, with the mean portion size equating to 756g/day. The expected average weight of food for 1-4 year olds is 547g. Therefore the amount of food provided was larger than average.
- For the purpose of nutritional comparison against the CWT guidelines and other nurseries, the nutritional values in the food provided have been adjusted to the average child's portion size of 547g.

### Nutrient and food based standards

Expected		Actual	Adjusted to expected portion size	✓ or ✗
Weight(g)	547	756	547	✗
Energy (kcal)	903	858	620	✗
Fat (g)	35	34.3	24.7	✗
Saturates	15	17.3	12.5	✗
Total CHO(g)	120	105.6	76.3	✗
Sugars (g)	N/A	41.7	30.1	N/A
Fibre(g)	8.1	7.6	5.5	✗
Protein(g)	11	31.7	22.9	✓
Fe (mg)	5.5	2.7	2.0	✗
Ca (mg)	260	572	413	✓
Zinc(mg)	4.3	3	2.2	✗
Salt(g)	1.6	2.0	1.5	✓
Sucrose	N/A	5.3	3.9	N/A
Starchy Food	At each meal plus snack		At meals	✗
Fruit	1-2 /day		1-2/day	✓
Vegetables	2-3/day		2/day	✓
Dairy	2-3/day		1-3/day	✓
Meat, fish & alternatives	At each meal		Usually at lunch but not always at tea	✗
Oily fish	Once per week		See comment	✗

### Positive Comments

- The SACN salt target was achieved which is commendable as this is difficult to achieve.

- The nursery caters for children with food allergies although no menus were provided and so cannot be commented upon. There is a daily vegetarian lunchtime choice which is varied and interesting. Children are encouraged to try all foods. They are allowed second helpings if hungry.
- Milk and water are the only drinks provided which will help with dental hygiene.
- The nursery has a nutrition/healthy eating policy but this was not provided and so cannot be commented on.

### **Areas for Improvement**

- On the questionnaire the nursery states that its menus follow the CWT guidelines. However, as is evident from the analysis table, the only nutrients meeting the guidelines are calcium, protein and salt.
- The energy and fat targets are not being met. Young children have relatively high energy requirements compared to their size and therefore need to be provided with nutrient rich foods with moderate amounts of fats in small age-appropriate portions to ensure they receive adequate energy for growth and development. They need to be provided with a varied diet to ensure a wide range of nutrients are consumed. Providing custard, full fat yoghurt or fromage frais as part of the dessert at both meals will improve the energy and fat content of the food provided.
- The vegetarian options provided are varied. Most vegetarian proteins are low in fat. It is therefore important that additional fat e.g. sunflower, rapeseed or olive oils, or margarines are used to ensure these meals contain enough energy and vitamins A and D and E.
- The children are not eating all the food offered, which is probably due to the large portion sizes. Care needs to be taken to offer appropriately sized meals which are energy and nutrient rich to ensure that children are receiving adequate amounts of energy, fat, vitamins and minerals. Adult healthy eating is not applicable to children of this age.
- The tea-time meal is often low in energy and iron and zinc-rich foods. On two days on the menu sampled no meat or alternative non-dairy source of protein was available. Offering a wide variety of protein sources including meat, chicken, egg, fish, nut butters or hummus will increase the iron and zinc content. Providing full fat yoghurt or cheese cubes will increase the energy content.
- The nursery provides a morning snack but does not provide an afternoon snack. This means that children are missing out on an opportunity to eat nutrient rich foods and to refuel with energy. An afternoon snack should be provided to ensure the food provided meets the CWT guidelines.
- The morning snack is low in energy as it comprises fruit only. To increase energy and carbohydrate, starchy foods should be offered at snack-time. Bread sticks, crackers, pitta bread, crumpets, cheese scones or toast spread with margarine, could be provided with fruit

and vegetable pieces plus cheese cubes to provide a more varied and balanced snack both in the morning and afternoon.

- On the questionnaire the nursery states that oily fish is provided once per week. It is unclear whether the fish in the fishcakes of the week analysed was oily fish or white fish. As no other menus from the menu cycle were provided it is not possible to see whether this guideline is met on other weeks. Oily fish could be provided at lunch e.g. as salmon fish cakes or at tea as a sandwich filling or on toast. This will provide a good source of beneficial omega 3 fatty acids and vitamin D.
- On the questionnaire the nursery state that red meat is offered once per week. However on the menu sampled, red meat was not on offer on any of the days.

### **Summary**

- A varied menu is on offer. However the menu should be revised with a view to increase the energy, fat, carbohydrate and mineral content of the meals and snacks to ensure it complies with the CWT guidelines. The nursery has a healthy eating policy although this was not returned with the questionnaire. Training on nutrition is provided to the cook and nursery nurses. The nursery should ensure that its healthy eating policy and nutrition training to staff is in line with the CWT guidelines.

## Nursery C

The nutritional interpretation is based on food available over the full 5 day week.

### Portion size

- The weight of the sample ranged from 713g - 1040g, with the mean portion size equating to 820g/day. The expected average weight of food for 1-4 year olds is 547g. Therefore the amount of food provided was larger than average.
- For the purpose of nutritional comparison against the CWT guidelines and other nurseries, the nutritional values in the food provided have been adjusted to the average child's portion size of 547g.

### Nutrient and food based standards

Expected		Actual	Adjusted to expected portion size	✓ or ✗
Weight(g)	547	820	547	✗
Energy (kcal)	903	934	623	✗
Fat (g)	35	31.9	21.3	✗
Saturates	15	17.0	11.4	✗
Total CHO(g)	120	123.4	82.3	✗
Sugars (g)	N/A	63.1	42.1	N/A
Fibre(g)	8.1	11.7	7.8	✓
Protein(g)	11	38.1	25.4	✓
Fe (mg)	5.5	4.1	2.7	✗
Ca (mg)	260	568.2	379	✓
Zinc(mg)	4.3	3.2	2.1	✗
Salt(g)	1.6	2.8	1.9	✗
Sucrose	N/A	7.1	4.7	N/A
Starchy Food	At each meal plus snack		At meals but not as snack	✗
Fruit	1-2 /day		1-3/day	✓
Vegetables	2-3/day		0-2/day	✗
Dairy	2-3/day		2/day	✓
Meat, fish & alternatives	At each meal		At lunch but not always at tea	✗
Oily fish	Once per week		never	✗

### Positive Comments

- The nursery caters for a variety of special diets and offers a daily vegetarian choice. However details of this were not provided and therefore cannot be commented on.

- The nursery has a catering policy and aims to promote healthy food and provide a positive shared dining experience for its customers.
- Margarine fortified with vitamins A, D and E is used.

### **Areas for Improvement**

- Young children need adequate energy for growth. The food provided is low in carbohydrate and fats and therefore energy and is therefore not adequate to meet the energy needs of this age group.
- On the questionnaire the nursery states that red meat is offered once per week. However on the menu sampled, red meat was not on offer on any of the days.
- Oily fish do not appear to feature on the menu at all. These should be included once per week as they are a good source of beneficial omega 3 fatty acids and vitamin D.
- The nursery only provides a morning snack but does not provide an afternoon snack. This means that children are missing out on an opportunity to eat nutrient rich foods and to refuel with energy. An afternoon snack should be provided to ensure the food provided meets the CWT guidelines. This would lead to an improvement in the nutritional profile of the analysis.
- The morning snack comprises dried fruit only. To increase the carbohydrate content starchy foods should be offered at snack-time. Bread sticks with hummus, crackers and cheese, pitta bread, crumpets, cheese scones or toast with margarine could be provided with fruit and vegetable pieces to provide a more varied and balanced snack both in the morning and afternoon.
- The tea time meal is very limited in variety on most days and nutritionally unbalanced. For example Monday comprises an English muffin, cheddar cheese slice and fruit. A balanced meal needs to contain one food from the meat, fish or alternative non-dairy protein group, one food from the starchy carbohydrate group and some fruit and/or vegetables. The desserts alternate between fromage frais and fruit. More varied desserts such as banana custard, fresh fruit salad and Greek yoghurt, sugar free milk jelly with fruit pieces would enhance the tea time experience and provide a more balanced dessert.
- The iron and zinc targets have not been achieved. Making the changes detailed above regarding the tea and afternoon snack and increasing the frequency that red meat features on the menu from once to 2-3 times per week should rectify this.
- It is not clear from the photos or the menu whether the chicken curry or turkey meatballs and pasta contain any vegetables.
- The nursery uses a number of ready-made foods e.g. turkey meatballs, chicken stock and gravy mixes. These products are usually high in salt. Thursday and Fridays analysis shows that the food provided on these days is high in salt. This is probably due to the gravy and

tuna on Thursday. If the sweet corn is tinned in salted water this will also be contributing. Friday lunch includes macaroni cheese with ham. The photo provided shows ham sandwiches are on offer at tea-time. This will be contributing to the salt level. Reducing the use of salt rich gravies and stocks and limiting the use of salty meats such as bacon and ham will help reduce the salt levels

- The questionnaire states that breakfast cereals used are not fortified with iron. Young children need iron rich food. Fortified breakfast cereals can make a significant contribution to a toddlers iron intake. The breakfast cereals should be changed to iron fortified varieties of which there are many available.
- The catering policy states that the nursery provides balanced nutritious meals as defined by the CWT and Department of Education and Skills. However the criteria it uses as reference are from the school meals guidelines which apply to one meal per day and school age children and not to nursery establishments providing full day care to the under 5's. For example the CWT guide for iron is 80% of the reference nutrient intake (RNI) whereas the nursery's policy states 40% of the RNI will be achieved. The salt target of <2.5g per day again is not suitable for the 1-4 age group where the CWT target is 1.6g maximum. The catering policy as it stands does not provide for the 1-4 year age group. The impression given is that a one size fits all attitude has been adopted. In order to bring the nutritional quality of the meals offered in line with the CWT guidelines for under 5's in child care, the catering policy should be re-written for this age group, distinguishing these nutritional targets from those for older children and adults.
- The nursery does not provide nutrition training for the nursery nurses or cook. The questionnaire returned states that the cooks are self- taught. It would be advantageous if some accredited training was undertaken to allow staff to keep up to date with current nutritional guidelines for this age group.

## **Summary**

The nursery is endeavouring to provide nutritionally balanced meals and has a catering policy. However, the concept of healthy eating appears to be more suitable for older children and adults, which means that young children will not be meeting their nutritional requirements. The lack of afternoon snack and sometimes imbalanced tea-time meals need addressing and the salt content of some of the meals should be reduced.

## Nursery D

The nutritional interpretation is based on food available over the full 5 day week.

### Portion size

- The weight of the sample ranged from 640g - 843g, with the mean portion size equating to 739g/day. The expected average weight of food for 1-4 year olds is 547g. Therefore the amount of food provided was larger than average.
- For the purpose of nutritional comparison against the CWT guidelines and other nurseries, the nutritional values in the food provided have been adjusted to the average child's portion size of 547g.

### Nutrient and food based standards

Expected		Actual	Adjusted to expected portion size	✓ or x
Weight(g)	547	739	547	x
Energy (kcal)	903	724	536	x
Fat (g)	35	23.2	17.2	x
Saturates	15	10.8	8.0	x
Total CHO(g)	120	99.2	73.4	x
Sugars (g)	N/A	44.3	32.8	N/A
Fibre(g)	8.1	8.3	6.2	x
Protein(g)	11	29.3	21.7	✓
Fe (mg)	5.5	3.7	2.7	x
Ca (mg)	260	389	288	✓
Zinc(mg)	4.3	3.3	2.4	x
Salt(g)	1.6	2.0	1.5	✓
Sucrose	N/A	5.0	3.7	N/A
Starchy Food	At each meal plus snack		At meals and snack but only 1 snack available	x
Fruit	1-2 /day		1-2/day	✓
Vegetables	2-3/day		1-3/day	x
Dairy	2-3/day		2/day	✓
Meat, fish & alternatives	At each meal		Most days at both meals but not always	x
Oily fish	Once per week		See comment	x

### Positive Comments

- The nursery has a 4 weekly cycle menu which is varied and interesting. The menu is available for parents to see. The majority of the meals are made from scratch which is reflected by the

average salt content falling below the SACN maximum recommended intake. This is difficult to achieve and should be commended.

- The nursery has a food and nutrition policy which emphasises the importance of staff sitting and eating with the children to provide positive role models and to encourage the children to develop good eating skills and table manners.
- The nursery caters for children with allergies and special dietary needs including vegetarians. However menus for these were not provided and so cannot be commented on.

### **Areas for Improvement**

- The energy, fat and carbohydrate content fall below the recommended levels. Energy and fat are required for growing children to provide energy. Fat also supplies essential vitamins A and E. To improve the fat and carbohydrate levels, it would be beneficial to reduce the proportion of vegetables in the meals and snacks and increase the quantity of other foods.
- There is no afternoon snack provided. If a well balanced afternoon snack is provided this will help increase the energy and nutrient content of the food provided.
- The morning snack mostly comprises fruit and rice cakes. The snack is therefore relatively high in fibre but low in energy. Alternative healthier snack ideas to serve alongside fruit are toast with butter, breadsticks/crackers with dips such as hummus, cheese and crackers, crumpets, cheese or fruit scones.
- The questionnaire states that oily fish is served once per week. However on the week sampled, fish pie (which from the photo is white fish) was the only fish served. Salmon fish cakes feature on week 1 but other weeks do not have oily fish. Tuna, unless fresh, is not an oily fish. Oily fish is an important source of essential fatty acids, energy and vitamins A and D.
- The iron and zinc content of the food provided is low. Providing an iron-rich protein source at every meal e.g. shepherd's pie, roast beef, sardines on toast, scrambled egg on toast, egg sandwiches, will help improve this. Including dried fruit as part of desserts e.g. rice pudding with raisins, stewed dried fruit with custard will also help.
- Not every meal includes vegetables. Including vitamin C rich vegetables at every meal will help increase the iron absorbed from the meal.
- Whole milk is listed as being provided to nursery children but not to 3 year olds who have the choice of squash or water instead. This does not make sense from a nutritional or dental hygiene point of view. Squash contains sugars and acids which can erode the dental enamel in young children, whereas offering milk to all children in the under 5 age group will improve the energy, fat and zinc levels of the meals provided.
- The nursery staff and cooks are not provided with nutrition training. Training regarding nutrition for the under 5's would be beneficial.

## **Summary**

The nursery provides a varied menu. However, several key nutrients fall below the recommended levels. Making a few small changes to the meals, snacks and drinks provided will rectify this.

## Nursery E

The nutritional interpretation is based on food available over the full 5 day week.

### Portion size

- The weight of the sample ranged from 457g - 622g, with the mean portion size equating to 543g/day. The expected average weight of food for 1-4 year olds is 547g. Therefore the amount of food provided was as expected.

### Nutrient and food based standards

Expected		Actual	✓ or x
Weight(g)	547	543	✓
Energy (kcal)	903	672	x
Fat (g)	35	27.2	x
Saturates	15	14.7	✓
Total CHO(g)	120	84.0	x
Sugars (g)	N/A	34.2	N/A
Fibre(g)	8.1	5.1	x
Protein(g)	11	22.6	✓
Fe (mg)	5.5	2.6	x
Ca (mg)	260	418	✓
Zinc(mg)	4.3	2.5	x
Salt(g)	1.6	1.6	✓
Sucrose	N/A	5.4	N/A
Starchy Food	At each meal plus snack	At each meal but not at snack	x
Fruit	1-2 /day	1-3/day	✓
Vegetables	2-3/day	1-2/day	x
Dairy	2-3/day	2-3/day	✓
Meat, fish & alternatives	At each meal	1/day	x
Oily fish	Once per week	Once per week	✓

### Positive Comments

- The nursery has a 5 weekly cycle menu which is varied and interesting. The menu is available for parents to see. The majority of the meals are made from scratch which is reflected by the average salt content meeting the SACN maximum recommended intake of 1.6g. This is hard to achieve and should be commended.
- Oily fish is included once per week which is beneficial in terms of energy, essential fatty acids and vitamins A and D.

- Children with allergies and special dietary needs are catered for but no menus were provided so these cannot be commented on.
- The catering staff receive nutrition training and there is a nutrition policy but this was not provided and so cannot be commented on.
- Children are offered adequate portion sizes with the chance for second helpings if they are hungry.
- Milk and water are the only drinks served which is recommended for good dental hygiene.

### **Areas for Improvement**

- There is no afternoon snack provided. The CWT guidelines recommend both a morning and afternoon snack is included in full day care provision to ensure children have a chance to obtain important energy and nutrients.
- The fat content of the food provided is generally a little on the low side. However on Friday the target was achieved and on Thursday it was almost achieved. A few small changes could be made to increase the fat levels e.g. including cheese cubes or full fat fromage frais or yoghurt at both snacks, adding grated cheese to soups, using a full fat margarine on all breads and crackers (including bread with soup), using small quantities of poly/monounsaturated oils for frying off vegetables and including a protein food at both meals.
- The carbohydrate content of the food is low. This can be improved by including potatoes with meals such as salmon pie and including carbohydrate foods (e.g. toast, bread, crumpets, pitta bread crackers) at snacks as well as meals.
- The energy content of the food is low. This can be improved by making the changes recommended to meals and snacks as above.
- The nursery uses gluten free products for all children if there is a child in the nursery requiring a gluten free diet. This is unnecessary as gluten free versions of the meals can be cooked separately for such children using gluten free products. Gluten free products are relatively expensive and can taste slightly different to their gluten containing counterparts so may not be liked by all children.
- The iron and zinc content of the food is low. This can be improved by including meat, fish, eggs, or pulses at both tea and lunch and by including pulse based dips such as hummus at snack or tea time.
- On some days vegetables are only offered once. This should be increased to twice per day to achieve the CWT recommendation that very young children may only be able to manage small amounts and should be encouraged to have tastes of 5 different fruits and vegetables every day and those over 2 years of age should be offered child-sized portions with all meals and some snacks. This will help improve the fibre content of the meals.

## **Summary**

The nursery obviously puts in a lot of thought and planning to its meals as is evidenced by the varied menu. The salt target has been achieved which is excellent. The nursery has a nutrition policy but this was not included with the returned questionnaire so cannot be commented upon. There are few changes which should be made to improve the energy, fat, carbohydrate, fibre, iron and zinc content of the meals provided.

## Nursery F

The nutritional interpretation is based on food available over the full 5 day week.

### Portion size

- The weight of the sample ranged from 709 - 876g, with the mean portion size equating to 766g/day. The expected average weight of food for 1-4 year olds is 547g. Therefore the amount of food provided was larger than average.
- For the purpose of nutritional comparison against the CWT guidelines and other nurseries, the nutritional values in the food provided have been adjusted to the average child's portion size of 547g.

### Nutrient and food based standards

Expected		Actual	Adjusted to expected portion size	✓ or x
Weight(g)	547	766	547	x
Energy (kcal)	903	986	704	x
Fat (g)	35	33.04	23.59	x
Saturates	15	10.8	7.7	x
Total CHO(g)	120	133.0	94.9	x
Sugars (g)	26.6	80.8	57.6	N/A
Fibre(g)	8.1	8.7	6.21	x
Protein(g)	11	38.5	27.5	✓
Fe (mg)	5.5	4.0	2.85	x
Ca (mg)	260	572	408	✓
Zinc(mg)	4.3	3.46	2.47	x
Salt(g)	1.6	2.48	1.77	x
Sucrose (g)		3.9	2.78	N/A
Starchy Food	At each meal plus snack		At meals and 1 snack	x
Fruit	1-2 /day		1-2/day	✓
Vegetables	2-3/day		2-3/day	✓
Dairy	2-3/day		3/day	✓
Meat, fish & alternatives	At each meal		At each meal	✓
Oily fish	Once per week		Never	x

### Positive Comments

- The nursery has a 2 week menu cycle, offering a cooked lunchtime meal, providing a variety of dishes, a daily choice of vegetables and red meat at least once a week. Seasonal products are used. Most meals are made from scratch and high fat and salt snack products such as crisps and bought biscuits do not feature on the menu.

- The nursery can cater for children who are milk or lactose intolerant. The menu is planned by listening to parent's views on their child's likes and dislikes. There is a daily vegetarian option at teatime which is varied and along similar lines as the non-vegetarian option.
- The children are allowed to serve their own meals under supervision and hungry children are given the option of second helpings.
- Cakes and biscuits are homemade using sugar sparingly. Milk is offered during meals and snacks and water is provided freely throughout the day.
- Fruit and vegetables are offered at meals and snacks.
- The choices of sandwich fillings are on the whole to be commended as they are nutritional balanced, my only concern being that Marmite is a choice daily which could contribute to the elevated sodium intake.
- The amount of sucrose in the diet is exceptionally low.

### **Areas for Improvement**

- Once the portion sizes and hence nutritional composition, have been adjusted to compare to an average expected portion size, the energy, fat and carbohydrate content fall below the recommended levels. Fruit and vegetables are over represented, with the morning snack comprising fruit and a drink only.
- The morning snack comprises fruit, milk or water and the afternoon snack comprises milk or water with a cracker, cookie or pancake like option. These could be adjusted to include foods such as bread, toast, bagels, pitta bread and crackers with butter or margarine or cheese, scones, crumpets, bread sticks/crackers or plain popcorn with dips such as hummus, tzatziki, as well as fruit. This will provide more energy, fat, carbohydrate and a wider choice of foods.
- The iron and zinc targets have not been reached. These can be achieved by including iron and zinc rich protein sources at both meals. Currently red meat is only included once on the menu. Eggs could be included alongside the daily choices of fish, poultry or meat as sandwich fillings. Baked beans on toast could be offered as an alternative to sandwiches at lunch time. Dried fruit such as raisins or apricots could be offered as an alternative to fresh fruit. These are more energy dense and a good source of fibre and iron.
- As the nursery has limited cooking facilities, a way of potentially meeting the sodium recommendation might be to limit the frequency of Marmite being offered as lunchtime sandwich filler.
- Custard could be used in conjunction with the desserts already offered at tea time as a way on increasing the nutritional content of the meal and ensuring the children meet their energy requirements.

- Oily fish do not appear to feature on the menu at all. These should be included once per week as they are a good source of beneficial omega 3 fatty acids and vitamin D.

### **Summary**

A varied menu is on offer; however there is room for improvement at both tea-time and the afternoon snack. Care should be taken to avoid applying adult healthy eating principles to the nursery menus.

## Nursery G

The nutritional interpretation is based on food available over the full 5 day week.

### Portion size

- The weight of the sample ranged from 736-927g, with the mean portion size equating to 835g/day. The expected average weight of food for 1-4 year olds is 547g. Therefore the amount of food provided was larger than average.
- For the purpose of nutritional comparison against the CWT guidelines and other nurseries, the nutritional values in the food provided have been adjusted to the average child's portion size of 547g.

### Nutrient and food based standards

Expected		Actual	Adjusted to expected portion size	v or x
Weight(g)	547	835	547	x
Energy (kcal)	903	991	649	x
Fat (g)	35	39.6	25.9	x
Saturates	15	16.5	10.8	x
Total CHO(g)	120	121	79	x
Sugars (g)	26.6	56.2	36.8	N/A
Fibre(g)	8.1	14.7	9.62	v
Protein(g)	11	38.04	24.9	v
Fe (mg)	5.5	5.36	3.5	x
Ca (mg)	260	654	353	v
Zinc(mg)	4.3	4.4	2.88	x
Salt(g)	1.6	2.18	1.42	V
Sucrose		0.9	0.6	N/A
Starchy Food	At each meal plus snack		At each meal plus snacks	v
Fruit	1-2 /day		3/day	v
Vegetables	2-3/day		2/day	v
Dairy	2-3/day		1 -2/day but not every day	x
Meat, fish & alternatives	At each meal		At each meal	v
Oily fish	Once per week		Once a month	x

### Positive Comments

- The nursery has a 4 week menu cycle which alternates being winter and summer, offering a cooked meal at lunchtime and a snack evening meal, with a great choice of vegetables. The meals are predominantly made from scratch using local fresh products, with an emphasis on

purchasing organic products whenever possible. The SACN salt target was achieved which is commendable as this is difficult to achieve.

- The nursery caters for children with food allergies and provides a daily vegetarian lunchtime choice which is varied and interesting. Children are encouraged to try all foods.
- Milk and water are the only drinks provided which will help with dental hygiene.
- The sucrose content was exceptionally low.

### **Areas for Improvement**

- The energy, fat and carbohydrate content fall below the recommended levels. Energy and fat are required for growing children to provide energy. Fat also supplies vitamins A and E. To improve the fat and carbohydrate levels, it would be beneficial to reduce the proportion of vegetables in the meals and increase the quantity of other foods that provide these nutrients.
- There is no afternoon snack provided. The CWT guidelines recommend both a morning and afternoon snack is included in full day care provision to ensure that children have a chance to obtain important energy and nutrients.
- The morning snack mostly comprises fruit and cracker. This snack is relatively high in fibre but low in energy. Alternative healthier snack ideas to serve alongside fruit are toast with butter, breadsticks/crackers with dips such as hummus, cheese and crackers, crumpets, cheese or fruit scones.
- The fibre content exceeded the CWT recommendation. Young children have relatively high energy requirements compared to their size and therefore need to be provided with nutrient rich foods that are not too high in fibre. High fibre intakes in children of this age are not to be encouraged as can make the meals very bulky, with large portions being needed to meet the nutrient requirements; it can also prevent the absorption of the iron and zinc.
- The iron and zinc content of the food provided is low. Providing iron-rich protein sources at every meal e.g. shepherd's pie, roast beef, sardines on toast, eggs, will help improve this.
- The CWT recommends that dairy foods are offered 2-3 /day. A few small changes could be made to achieve this e.g. include cheese cubes or full fat fromage frais at snack times.
- The CHO content of the food is low. This could be improved by adding carbohydrate foods e.g. toast, crumpets, crackers, pitta breads to snack time.
- The energy content of the food is low. This can be improved by making the changes recommended to the meals and snacks above.
- Oily fish only appeared once on the 4 week summer menu. Oily fish should be included once per week as they are a good source of beneficial omega 3 fatty acids and vitamin D. This could be achieved by adding sardines, mackerel or salmon to the menu.

- The children are not eating all the food offered, which is probably due to the large portion sizes. Care needs to be taken to offer appropriately sized meals which are energy and nutrient rich to ensure that children are receiving adequate amounts of energy, fat, vitamins and minerals. Adult healthy eating is not applicable to children of this age.

### **Summary**

- A varied menu is on offer. However the menu should be revised with a view to increase the energy, fat, carbohydrate and mineral content of the meals and snacks to ensure it complies with the CWT guidelines.

## Nursery H

The nutritional interpretation is based on food available over the full 5 day week.

### Portion size

- The weight of the sample ranged from 628g - 895g, with the mean portion size equating to 714g/day excluding the weight of an evening meal. As this excluded an evening meal the expected weight of food is 397g/day. Therefore the amount of food provided was larger than average.
- For the purpose of nutritional comparison against the CWT guidelines and other nurseries, the nutritional values in the food provided have been adjusted to the average child's portion size of 397g.

### Nutrient and food based standards

Expected		Actual	Adjusted to expected portion size	✓ or ✗
Weight(g)	397	714	397	✗
Energy (kcal)	645	764	425	✗
Fat (g)	25	29.58	16.4	✗
Saturates	7.4	10.76	5.98	✗
Total CHO(g)	86	91	50.5	✗
Sugars (g)	19	36.5	20.2	N/A
Fibre(g)	8.1	5.82	3.23	✗
Protein(g)	7.9	33.24	18.4	✓
Fe (mg)	3.8	3.28	1.8	✗
Ca (mg)	190	526.2	292	✓
Zinc(mg)	2.9	3.65	2.02	✗
Salt(g)	1.1	1.88	1.04	✓
Sucrose(g)		10.88	6.04	N/A
Starchy Food	At each meal plus snack		At each meal plus snack	✓
Fruit	1-2 /day		1-3/day	✓
Vegetables	2-3/day		0-2/day	✗
Dairy	2-3/day		2-3/day	✓
Meat, fish & alternatives	At each meal		At lunch as evening meal is not provided.	✗
Oily fish	Once per week		Once a month	✗

### Positive Comments

- The SACN salt target was achieved which is commendable as this is difficult to achieve.

- Nursery C caters for a variety of special diets. However details of this were not provided and therefore cannot be commented on.
- The nursery has a food and drink policy and aims to promote healthy food and provide a positive shared dining experience for its customers. Training on healthy eating for the under 5's is provided for the cook.
- Milk and water are the only drinks provided which will help with dental hygiene.
- All the food is prepared daily with fresh products. Everything is homemade.
- The sucrose is within an acceptable value.

### **Areas for improvement**

- Young children need adequate energy for growth. The food provided is low in carbohydrate and fats and therefore energy and is therefore not adequate to meet the energy needs of this age group.
- Oily fish only appears on the menu once a month in the form of a salmon fish pie. These should be included once per week as they are a good source of beneficial omega 3 fatty acids and vitamin D.
- It was unclear from the analysis what choices were available for toppings on the bread as an afternoon snack. Having cheese, spreading cheese, cold meats or hummus at this snack time would provide an opportunity to eat nutrient rich foods and to refuel with energy. By using such toppings the afternoon snack would help meet the CWT guidelines on energy and zinc. This would lead to an improvement in the nutritional profile of the analysis.
- The morning snack could have alternatives such as cheese and crackers, fruit or cheese scones, crumpets with full fat spread, muffins or bread stick with dips like hummus or tzatziki which would enhance the nutritional adequacy of this important snack in terms of energy, fat and zinc.
- The iron and zinc targets have not been achieved. Making the changes detailed above regarding the morning and afternoon snack and increasing the frequency that red features on the menu should rectify this.

### **Summary**

The nursery is endeavouring to provide nutritionally balanced meals and has a catering policy. However, several key nutrients fall below the recommended level. Making some changes to the provision of the morning and afternoon snack would go a long way to rectify this.

## Nursery I

The nutritional interpretation is based on food available over the full 5 day week.

### Portion size

- The weight of the sample ranged from 661g - 862g, with the mean portion size equating to 760g/day. The expected average weight of food for 1-4 year olds is 547g. Therefore the amount of food provided was larger than average.
- For the purpose of nutritional comparison against the CWT guidelines and other nurseries, the nutritional values in the food provided have been adjusted to the average child's portion size of 547g.

### Nutrient and food based standards

Expected		Actual	Adjusted to expected portion size	✓ or ✗
Weight(g)	547	760	547	✗
Energy (kcal)	903	1107	796	✗
Fat (g)	35	45.6	32.8	✗
Saturates	15	19.7	14.2	✗
Total CHO(g)	120	135.2	97	✗
Sugars (g)	26.6	76.6	55.1	N/A
Fibre(g)	8.1	11.2	8.0	✓
Protein(g)	11	39.0	28.7	✓
Fe (mg)	5.5	4.48	3.22	✗
Ca (mg)	260	617	440	✓
Zinc(mg)	4.3	3.64	2.61	✗
Salt(g)	1.6	2.78	2.0	✗
Sucrose		6.88	4.95	N/A
Starchy Food	At each meal plus snack		At meals	✗
Fruit	1-2 /day		1-2/day	✓
Vegetables	2-3/day		2/day	✓
Dairy	2-3/day		1-3/day	✓
Meat, fish & alternatives	At each meal		At each meal	✓
Oily fish	Once per week		Once a month	✗

### Positive Comments

- The nursery has a 4 weekly cycle menu which is varied and interesting. The menu is available for parents to see. The majority of the meals are made from scratch.

- The response on the questionnaire stated that the nursery has a nutrition policy that is in draft format, but this wasn't available for me to comment on. The questionnaire also stated that all the staff at the nursery receive training on healthy eating.
- The nursery caters for children with allergies and special dietary needs including vegetarians and their recipes are coded accordingly.
- All children are offered a main course with vegetables, and they are allowed a second helping if hungry. They are not allowed second helpings of desserts.
- Milk and water are the only drinks provided which will help with dental hygiene.
- Every meal on the menu contained a source of fruit or vegetable.
- The added sucrose content is low.

### **Areas for Improvement**

- The nursery only provides a morning snack, but does not provide an afternoon snack. This means that children are missing out on the opportunity to eat nutrient rich foods and to refuel their energy levels. This is particularly important for those children attending full day-care. An afternoon snack should be provided to ensure the food provided meets the CWT guidelines. This would lead to an improvement in the nutritional profile of the analysis.
- The morning snack mostly comprises fruit and rice cakes. The snack is therefore relatively high in fibre but low in energy. Alternative healthier snack ideas to serve alongside fruit are toast with butter, breadsticks/crackers with dips such as hummus, cheese and crackers, crumpets, cheese or fruit scones.
- Oily fish only appears on the menu once over the month. This should be included on the menu once a week as it is a good source of beneficial omega 3 fatty acids and vitamin D. This could be achieved by using salmon fish fingers to replace ordinary fish fingers and including sardines and tuna as a sandwich filling.

### **Summary**

This nursery obviously puts a lot of thought and planning into the production of its 4 week menu cycle, which is evident in the varied meal choice that it offers. The nursery has a draft nutrition policy, but this was not included with the returned questionnaire so cannot be commented upon. By incorporating an afternoon snack and making a few other minor changes to the menu, this would result in an improvement in the energy, fat, carbohydrate, iron and zinc content of the meals provided.

## Nursery J

The nutritional interpretation is based on food available over the full 5 day week.

### Portion size

- The weight of the sample ranged from 1000g - 1260g, with the mean portion size equating to 1138/day. The expected average weight of food for 1-4 year olds is 547g. Therefore the amount of food provided was twice that expected.
- For the purpose of nutritional comparison against the CWT guidelines and other nurseries, the nutritional values in the food provided have been adjusted to the average child's portion size of 547g.

### Nutrient and food based standards

Expected		Actual	Adjusted to expected portion size	✓ or x
Weight(g)	547	1138	547	x
Energy (kcal)	903	1040	500	x
Fat (g)	35	34.4	16.53	x
Saturates	15	17.9	8.6	X
Total CHO(g)	120	144	69.2	x
Sugars (g)	26.6	56.3	27	N/A
Fibre(g)	8.1	8.46	4.06	x
Protein(g)	11	38.6	18.55	✓
Fe (mg)	5.5	3.52	1.69	x
Ca (mg)	260	695	334	✓
Zinc(mg)	4.3	4.08	1.96	x
Salt(g)	1.6	2.42	1.16	✓
Sucrose		5.4	2.59	N/A
Starchy Food	At each meal plus snack	At each meal but not at snack		x
Fruit	1-2 /day	1-3/day		✓
Vegetables	2-3/day	1-2/day		x
Dairy	2-3/day	2-3/day		✓
Meat, fish & alternatives	At each meal	Always at lunch but not always at tea time		x
Oily fish	Once per week	3 times over the 6 weeks		✓

### Positive Comments

- The nursery has a 6 weekly cycle menu which is varied and interesting. The menu is available for parents to see. The majority of the meals are made from scratch which is reflected by the

average salt content meeting the SACN maximum recommended intake of 1.6g. This is hard to achieve and should be commended.

- Children who are milk or lactose intolerant or vegetarian are catered for.
- The sucrose content is exceptionally low.

### **Areas for Improvement**

- The energy, fat and carbohydrate content fall far below the recommended levels. Energy and fat are required for growing children to provide energy. Fat also supplies essential vitamins A and E. To improve the fat and carbohydrate levels it would be beneficial to reduce the proportion of fruits in the meals and snacks and increase the quantity of other foods.
- The fat content of the food provided is half the acceptable recommended level. A few small changes could be made to increase the fat levels e.g. including cheese cubes or full fat fromage frais or yoghurt at both snacks, adding grated cheese to the crackers, using a full fat margarine on all breads and crackers, adding margarine and milk to the mashed potatoes and including a protein food at both meals.
- The morning and afternoon snack mostly comprises of fruit and raw vegetables or a cracker. The snacks are relatively high in fibre but low in energy. Alternative healthier snack ideas to serve along the existing snack are toast with butter, using cubes of cheese with the crackers, crumpets, and cheese or fruit scones.
- The CHO content of the food is low. This can be improved by including a dessert other than fresh fruit at both lunch and teatime. Alternative desserts could include fresh fruit salad and Greek yoghurt, sugar free milk jelly, banana and custard, full fat fromage frais, would enhance the meal experience and provide a more balanced dessert.
- The energy content of the food is low. This can be improved by making the changes recommended to meals and snacks as above.
- The iron and zinc content of the food is low. This can be improved by including meat, fish, eggs, nut butters or pulses at both tea and lunch and by including pulse and nut butter based - based dips such as hummus or peanut butter at snack and tea time.
- Oily fish is on the menu 3 times over the 6 week rotation. These should be included once per week as they are a good source of beneficial omega 3 fatty acids and vitamin D.
- The staff need training on the acceptable portion sizes for children under 5 years of age as the sample size far exceeded that recommended by the CWT.

### **Summary**

The nursery obviously puts in a lot of thought and planning to its meals as is evidenced by the varied menu. The salt target has been achieved which is excellent. However, the

concept of healthy eating appears to be more suitable for the college children, which means that young children will not be meeting their nutritional requirements. The menu should be revised with a view to increase the energy, fat, carbohydrate and mineral content of the meals and snacks to ensure it complies with the CWT guidelines.

## Summary of Results

Table 3 summarises how the food provided by the nurseries compared to the CWT standards.

**Table 3 Summary of Results**

Nutrient	Standard	Nursery									
		A	B	C	D	E	F	G	H	I	J
Weight(g)	547	x	x	x	x	√	x	x	x	x	x
Energy (kcal)	903	x	x	x	x	x	x	x	x	x	x
Fat (g)	35	x	x	x	x	x	x	x	x	x	x
Saturates	15	x	x	x	x	√	x	x	x	x	x
Total CHO(g)	120	x	x	x	x	x	x	x	x	x	x
Fibre(g)	8.1	x	x	√	x	x	x	√	x	√	x
Protein(g)	11	√	√	√	√	√	√	√	√	√	√
Fe (mg)	5.5	x	x	x	x	x	x	x	x	x	x
Ca (mg)	260	√	√	√	√	√	√	√	√	√	√
Zinc(mg)	4.3	x	x	x	x	x	x	x	x	x	x
Salt(g)	1.6	√	√	x	√	√	x	√	√	x	√
Starchy Food	At each meal plus snack	x	x	x	x	x	x	√	√	x	x
Fruit	1-2 /day	√	√	√	√	√	√	√	√	√	√
Vegetables	2-3/day	√	√	x	x	x	√	√	x	√	x
Dairy	2-3/day	√	√	√	√	√	√	x	√	√	√
Meat, fish & alternatives	At each meal	x	x	x	x	x	√	√	x	√	x
Oily fish	Once per week	x	x	x	x	√	x	x	x	x	√

- Many of the nurseries provided varied and interesting meals; some with 4, 5 or 6 week menu cycles and catered for children with special diets. Several produced the majority of their meals from scratch and this was reflected by the low salt and sugar content of the food. Several had a food or nutrition policy but unfortunately most did not return these with their questionnaire and so this could not be commented upon.
- Several nurseries had an ethos of happy meal times, with staff sharing meal times with the children and acting as good role models, which is excellent.
- 5 of the nurseries did not provide an afternoon snack and 1 did not provide tea. The CWT guidelines recommend children in full day care are provided with a mid-morning and afternoon snack plus lunch and tea. If this is not provided the children will miss out on an opportunity to refuel with energy and nutrients and may be too tired when they arrive home to eat an adequate amount to compensate.

- Only 1 nursery provided appropriate portion sizes. This was nursery E. Many nurseries appeared to offer portion sizes in excess of the average, often due to large quantities of fruit and vegetables.
- No nursery provided enough energy or total fat in an expected portion size. Including carbohydrate foods at meals and snacks, full fat dairy products and small quantities of mono or polyunsaturated vegetable oils should rectify this.
- As expected all nurseries supplied adequate protein and calcium.
- All nurseries failed to provide adequate iron or zinc. This can be rectified relatively easily by including meat, fish, eggs or pulses with both meals.
- Nurseries A, B, D, E, G, H and J achieved the salt recommendation which is excellent.
- Only nurseries E and J provided oily fish once per week.
- Only nurseries G and H provided a starchy food at both meals and snacks.
- Only nurseries F, G and I provided meat, fish and alternatives at each meal.
- All nurseries provided adequate quantities of fruit but only 5 out of the 10 provided 2-3 servings of vegetables per day.
- Some nurseries appeared to provide meals and snacks based on adult healthy eating principles which are not appropriate for young children who need relatively more energy, fat and protein and less fibre than adults to ensure adequate growth and development.
- The findings from this project indicate that the majority of the nurseries provide food which is low in energy ,fat ,carbohydrate, iron and zinc , whilst having an over representation of fruit and vegetables, corresponding to higher than expected portion sizes. Many of the nurseries appear to be inappropriately applying the principles of adult healthy eating to this age group and could therefore be putting children at risk of nutritional deficiencies as these children are receiving most of their nutrition whilst in day care. Simple changes to the menus can rectify this. Portion control needs to be looked at to ensure that children are not offered larger than expected portions and therefore being encouraged to over eat. These findings concur with those of the East Sussex Trading Standards Nippers Nutrition Project in 2007.

### **Food Sampling**

The results obtained from the laboratory analysis of the samples of nursery food provided detailed information regarding portion sizes and the nutritional content of the food which would not be obtained from a questionnaire alone.

Food sampling although expensive, is an accurate way to obtain information regarding the nutritional quality of food provided to children in day-care.

## Recommendations

The analysis did not include an analysis of NMES and therefore this could not be compared to the CWT standards. If the project is to be repeated it would be beneficial to analyse NMES as well as total carbohydrate.

Many nurseries said they catered for special diets but did not provide evidence for this. It would be useful to have information and a sample menu for any special diets catered for.

Some nurseries provided photographs of the food provided. This was extremely helpful and should be recommended for any future studies.

For any future studies it may be appropriate to take samples for average portion sizes provided for children aged 1-2, 2-3 and 3-4 years, to enable a more accurate picture of average portion sizes served to be obtained; however, this may prove to be too expensive.

This type of project provides extremely useful information about the food provided in day care settings. Future studies could include other day care settings such as child-minders.

Portion control needs to be looked at to ensure that children are not offered larger than expected portions and therefore being encouraged to over eat.

The results suggest that the staff responsible for menu planning in the nurseries often do not have adequate nutritional knowledge regarding the needs of children in the 1-4 age range. It is therefore strongly recommended that nurseries seek the help of a registered paediatric dietitian for advice regarding menu planning and also in the development of an appropriate nutrition policy. Registered NHS and free-lance dietitians can be found via the British Dietetic Association [www.bda.uk.com](http://www.bda.uk.com). Managers of all day-care settings should seek accredited nutrition courses for their catering and nursery staff. Many such courses can be accessed at local further education colleges.

The CWT provides an excellent menu planning guide as part of its resource Eating Well for under -5's in Child Care: Training Materials. This can be obtained from [www.cwt.org.uk](http://www.cwt.org.uk).

The NHS Change4life campaign includes an Early Years Toolkit which provides suggestions for snacks and food related resources. This can be found on [www.nhs.uk/Change4Life](http://www.nhs.uk/Change4Life).

Additionally the Infant and Toddler Forum ([www.infantandtoddlerforum.org](http://www.infantandtoddlerforum.org)) contains a link to 'Little People's Plates' which includes useful printable information sheets.

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