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## Message from, Director General of Health Authority

Every individual has a right to nutritional food. Developing healthy eating habits right from childhood is very necessary because it determines the child's academic performance as well as their physical growth. School is child's second home and therefore it is the best and most suitable place to teach, implement and practice healthy eating habits among students, as many of our children suffer from obesity and other health conditions and refrain from eating healthy foods such as vegetables, fresh fruits, milk and rather depend primarily on the snacks that contain poor nutritional value and high calories imposing significant risks for the future and chances of developing multiple diseases such as osteoporosis, tooth decay, diabetes, heart disease and other health problems.

Further, it is the vision of His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice-President and Prime Minister and Ruler of Dubai, to build an educated and cultured society where the present generation and generations to come is mentally and physically healthy, free of diseases and efficient enough to be able to serve his country. In addition, the implementations of the Strategic Plan of Dubai Health Authority are aimed at reducing the incidence of chronic diseases and maintain health and safety of students' at all academic levels in the Emirate of Dubai.

Dubai Health Authority in collaboration with Dubai Municipality proudly issue the first guide line for school canteens to promote healthy eating habits amongst students along with food safety practices amongst school management committee, canteen staff and food suppliers that must be practiced and followed at all time in school premises. I would like to extend my appreciation to all those who contributed and participated in the preparation of this guide from Dubai Municipality and Dubai Health Authority and hoping to apply this guide as a reference standard in all the schools. May Allah guide us all to serve this noble country.

**Qadhi Saeed Al Mrooshid**

**Director General of Dubai Health Authority**

## **Speech of His Excellency the Director General of Dubai Municipality**

Sustaining and promoting public health in the emirate of Dubai is one of the top priorities of Dubai Municipality aiming to have more healthy and active citizens contributing towards the development of our Emirate. Since ensuring food safety is an essential part of public health, the Dubai municipality has taken all the necessary measures to ensure food safety along the food chain.

The youth and students require our special attention pertaining to food safety to meet the principles of healthy nutrition. Therefore, the Dubai municipality along with Dubai health Authority has been keen to ensure the safety of the meals provided for this group as this age group forms the base of our future nation, The aim is educate schools and children about healthy eating and proper food handling practices which will compliment nutritional eating and food safety at the same time.

The main objective of this guide is to make sure that this will be easy and practical for the canteen operators to put into practice and follow the correct procedures that could provide healthy and safe meals for students.

This guide has been prepared by a specialized team comprising of nutritionists, food safety specialists and food inspectors from Dubai Municipality and Dubai Health Authority. It is considered as the fruit of efforts and the outcome of accumulated experiences of both the controlling authorities in the Emirate of Dubai in the areas of food safety and nutrition.

We hope that schools and educational institutions apply the provisions of this guide, mentioning that self-monitoring by these institutions is the best way to guarantee provision of healthy and safe food in school canteens. We hope that these institutions recruit qualified staff in this operation.

Regards,

**Husain Naser Lotah**  
**Director General of Dubai Municipality**



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## Introduction

During the past two decades with increase in the globalization and exposure the eating habits in the local community has changed drastically from the traditional style to the fast food style. Students, who represent the future generation of our nation are most affected by the new eating habits, Such a change along with unhealthy lifestyle with limited physical activity has resulted an increase of health related problems specially obesity and has also increased the rate of incidence of other chronic diseases significantly among the youngsters which may also lead to early death.

In order to minimize the chances of such chronic health conditions right from childhood, we have created and integrated this manual to ensure health and food safety in schools. This manual not only discusses about food safety but also gives information on nutritional value of most commonly consumed food items and nutritional facts related to it. The content of this manual is supported by highly acclaimed scientific studies and practices in the world in addition to the expertise of Dubai Municipality and Dubai Health Authority.

### The Manual is Divided into Two Parts:

#### 1) **Guidance** to implement and maintain health food habits:

This sections covers information on nutritional needs and facts of school children at specific age group and sample food menu with variation that can be followed in school canteens.

#### 2) **Hygiene** requirements and ensuring food safety in school canteens:

This section covers information on standards to maintain food safety and hygiene in school premises specially canteen, service area. It also contains instructions for food supplying bodies in school regarding food safety during handling, transporting, cooking, displaying, and selling.

# Chapter I

## Healthy Nutrition in Schools

## I. Healthy Food

Healthy food is defined as a balanced diet that contains all the nutrients necessary for the body to perform and sustain various physical and mental activities. By nature, no single food contains all the essential and necessary nutrients. Therefore it is necessary to bring variety and diversity in daily food. There are five major groups that provide the required nutrition:

- 1) Cereal and cereal products: this includes all whole and powder grains and cereals like wheat, Maida, rice, cornflakes, and oats.
- 2) Vegetables: this includes a wide variety of colorful food items like egg plant, potatoes, all green leafy vegetables, all fresh beans like French beans.
- 3) Fruits: this includes apples, peaches, mango, melons etc.
- 4) Meat and poultry: this includes red meat, white meat, and fish.
- 5) Dairy and dairy products: this includes milk, yoghurt, cheese, cream cheese.

### Food Dish (Myplate)

USDA used a food pyramid for 20 years to explain the daily food requirements of an individual. This pyramid was updated every 5 years under federal rules and regulations for healthy eating. The food pyramid represented the proportion and amounts that should be consumed on daily basis from the above mentioned 5 food groups to stay healthy and fit. In June 2011, USDA changed the food pyramid to “MYPLATE” Experts say that this replacement intends to illustrate proportion and quantity of each food group item the “My plate” was developed as a result of intensive studies of nutritional behavior of individuals. My plate replaces the current food pyramid because the pyramid was complicated and did not draw attention of public.

Myplate is a Plate Divided into four Colored Parts, Each Color represents the following:

- **Red-Quarter is for Fruits:**

Includes fresh or canned or dried fruit, or natural juices.

- **Green Quarter is for Vegetables:**

Such as raw, cooked, fresh, canned and dried vegetables.

- **Orange Quarter is for Cereals (starch):**

Includes any food made from any of the following cereals (wheat, rice, oats, corn, barley) or pasta, breakfast cereals, groats or freekeh.

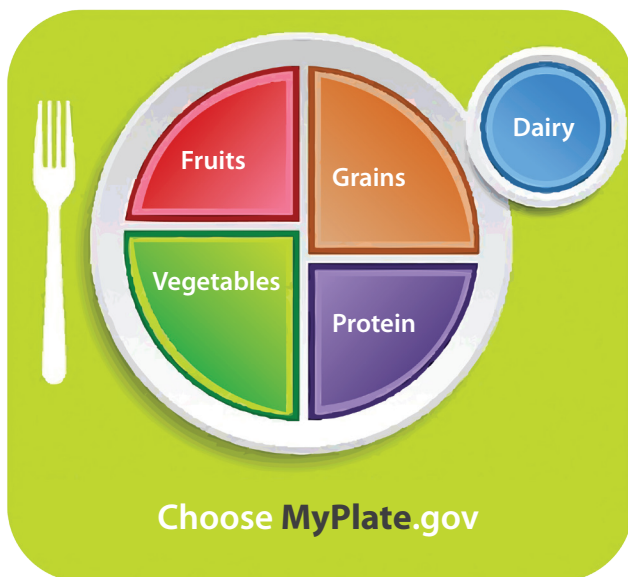
- **Violet Quarter is for Protein:**

Meat, poultry, pulses such as peas, seafood, eggs, soy products, nuts and seeds.

- An added blue circle next to the plate:

Represents dairy products, which includes milk and its products such as yogurt and cheese preferably low-fat or free of it.

The Food Guide attached with My plate contains recommendations to the public in addition to 6 recommendations for special groups of people such as pregnant women.



**Picture of Food Dish**

These recommendations represent the main issue for a healthy life full of vigor and vitality, which reflect the overall pattern of behavior of healthy food that must be followed by individuals. Some of these recommendations are:

#### **A: Recommendations for Balancing of Calories**

1. Enjoy food, but eat small amounts of it.
2. Avoid meals of large sizes such as double or large meals in restaurants.

#### **B: Recommendations of Foods that Should be Consumed more Often**

1. Make half your plate from fruits and vegetables.
2. Make half the amount of carbohydrates as whole grain.
3. Use fat free or low-fat dairy products.

## C: Recommendations of foods that must be reduced




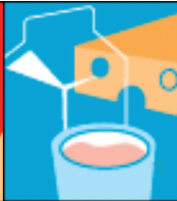

1. Use unsalted or low-salt and sodium food.
2. Drink water instead of drinks containing sugar.

The team assigned for preparation of the food plate guide with its electronic designed (Myplate) believes that it is simple, easy, clear and easy to deal with and does not require weighing of food because it represents a guide for those who want to improve their eating behavior and doesn't direct and lead them; this do not tell people what should they eat, but guide them to right way to choice, taking into account the daily physical activity to increase the efficiency of the system and taking into account the individual needs.

To know more about Myplate, kindly visit the following:

[www.choosemyplate.gov](http://www.choosemyplate.gov)

**Table (1): Food groups advices**

				
Grains Group	Vegetables Group	Fruits Group	Dairy group	Protein group
Make at least half your grains whole.	Take variety of vegetable	Focus on fruits	Take rich in calcium food	Choose non fatty protein foods



## Components of the School Lunch Box:

The school lunch box should consist of five groups of nutrients which are (cereals and their products, vegetables, fruits, meat and poultry and their products, dairy products).

**Table (2): Instructions for the 5 Major Food Group**

Complex Carbohydrates	<p>Be sure to eat:</p> <ul style="list-style-type: none"><li>• Whole cereals such as wheat (brown bread, corn, barley, bulgur wheat).</li></ul>
Vegetables	<p>Be sure to eat:</p> <ul style="list-style-type: none"><li>• Dark green vegetables like spinach, radish, celery, parsley and other from this group.</li><li>• Eat vegetables with orange color like carrots and orange pepper.</li></ul>
Fruits	<ul style="list-style-type: none"><li>• Be sure to have diversity in taking fruits.</li><li>• Take whole fruit instead of juice.</li><li>• Avoid artificially sweetened juices.</li></ul>
Dairy Products	<p>Choose low fat or fat free dairy products.</p>
Meat and Legumes	<p>Be sure to eat:</p> <ul style="list-style-type: none"><li>• Meat, poultry, fish, after removing the fat and skin.</li><li>• Use the following cooking methods.</li><li>• Boiling or grilling or using oven.</li><li>• Eat cereals such as lentils, beans, white beans and beans as the main alternative of the meat group.</li></ul>

## Example of the Lunch Box

### 1. Breakfast meal / Kindergarten Level

Choose a Meal	(1/2) a cup of breakfast cereals (corn flakes, rice and oats). + milk Or middle size sandwiches (cheese, egg)
Fruits	(1/2) a cup of fruit salads or 120 ml of juice.
Snacks in the Second Break	Custer or rice with milk or yogurt with fruit + 250 ml of water.
Water	250 ml of water.



### 2. Breakfast Meal / Elementary Level

Choose a Meal	(1/2) a cup of breakfast cereals (corn flakes, rice and oats). + milk Or small size sandwiches (cheese, egg)
Fruits	(1/2) a cup of fruit salads or 120 ml of juice.
Snacks in the Second Break	Custer or rice with milk or yogurt with fruit + 250 ml of water.
Water	250 ml of water.



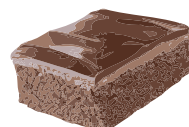
### 3. Breakfast meal / Middle Levels

Choose a Meal	Middle size sandwiches (cheese, egg, chicken and others) or falafel sandwich with vegetables
Fruits	(1/2) a cup of fruit salads or 120 ml of juice
Snacks	Biscuits or doughnut or middle size pies + milk with strawberry or other flavors or milk with rice or pudding + 250 ml water
Water	250 ml of water.



### 4. Breakfast Meal / Secondary Level

Choose a meal	Big size sandwiches (cheese, egg, chicken and others) or falafel sandwich with vegetables
Fruits	+ (1/2) a cup of fruit salads or 120 ml of juice
Small meal	Biscuits or doughnut or middle size pies + milk with strawberry or other flavors or milk with rice or pudding + 250 ml water
Water	250 ml of water.



## II. School Canteen / Restaurant

Foods sold in the food serving area inside schools with or without table service prepared in the school Canteen/restaurant, with requirements and conditions. School Canteens/restaurants vary in terms of capacity and activity. Most of the canteens look like a room where permitted food is distributed without preparation on site, and some canteens are allowed to prepare limited types of sandwiches in the Canteen. This type of canteens may contain an eating area, or may have distribution outlets only like the previous one. In some ideal schools, Canteens may have integrated kitchens serving two meals during the school day where meals are prepared in the kitchen and served to the students in a large attached hall.

During planning for a school canteen meal, it is necessary to take into account the age group of the child and amount of food needed based on his daily physical activity. Meals provided must have good nutritional value as it will affect the performance, efficiency and mental stability of students. School Canteens should avoid selling unhealthy food items like soft drinks containing high amount of sugar, sweet foods like chocolates, cakes, pastries, foods with high fat content and instead should promote healthy food habits to prevent malnutrition and related disorders like obesity, anemia and others.

### Objectives of Controlling Hygiene and Nutritional Practices in School Canteens are:

1. Encouraging the development of healthy eating habits that are compatible with the guidelines of school canteens.
2. Providing many options of healthy foods and drinks that are compatible with the guidelines of school canteens.
3. Providing many types of attractive, healthy foods and drinks at competitive and acceptable prices.
4. Providing students with practical educational experiences related to their decisions of choosing healthy foods, and support what they have learned in the classroom about healthy nutrition.

### III. School Nutrition Committee

**School nutrition committee is selected from the school community itself, its members could be from:**

- School management.
- Canteen Manager / Supervisor / Canteen person in charge.
- Students.
- Students' Parents.
- Teachers.
- School Nurse.

#### Tasks and Responsibilities:

- Preparing a menu of displayed foods in the canteen.
- Ensuring the compliance of facilities and equipments in the canteen to the approved standards and specifications, and submitting recommendations to the school administration whenever necessary.
- Developing new activities aiming to link nutrition with educational system (the Committee should aim to develop good communication with teachers, students, parents and directors because teamwork leads to better results).
- Participating in the development of the policy of the school canteen in partnership with other involved organizational parties in school.
- Ensuring that the school canteen and the food handlers (staff) implement the established policies, procedures and standards by the federal and local governing bodies in addition to the hygiene requirements of the Food Control Department of the emirate.
- Acting as an effective small business enterprise.
- Applying the highest standards of food safety and hygiene, especially those related to preparation, storage and serving for consumption in the canteen in accordance with the national food law and standards.
- Providing opportunities for school community to participate in decisions related to the nature of the activities of these canteens through the National Commission of Canteens.
- Encouraging, respect, courtesy and appreciation among all staff that use the services of the school canteens.
- Providing an opportunity to get the parents and school community collaborate in the nutritional awareness of their children.

## IV. Policy of Healthy Food

Announcement of the canteen policy statement will provide guidance for the development of the canteen and all the staff. Through the participation of the school community in developing this policy, a better understanding of the role of the school canteen can be achieved which will enhance the culture of healthy food and healthy eating habits among students.

This policy, which is signed by the school administration, should be displayed permanently in the school canteens.

## V. Foods Allowed in Schools

### Biscuits and Sweets:

- If the biscuits contain chocolates, amount of biscuits (e.g. Wafer) must be more than the chocolates.
- Its recommended to provide dates in small packages or as sweet or with biscuits.
- Sweets shouldn't be in the form of toys nor should have sharp geometric shapes.
- Packages must be free of advertising.

### Juices:

That contain 30-50% natural juice nectar.

### Dairy Products:

- Pasteurized milk and long life milk prepared from fresh milk or processed milk.
- Milk with natural flavors such as chocolate and strawberry.
- Yogurt drink.
- Plain yogurt and yogurt with natural fruits.

### **These products should comply with the following requirements:**

- Must have two thirds or more of its shelf life indicated in the product label.
- Packed in plastic or cardboard packages according to the specifications and standards in place.
- It's recommended that all milk and milk products should have a low fat content.
- Natural flavors and fruits are allowed.



## Meat, Fish, Poultry and Beans:

- Should be free of fats (or low) and skinless.
- Make sure about the source of meat.
- Lentils and pulses can replace meat in soups.

Vegetarian meals, such as falafel sandwich or vegetable sandwich with the addition of leafy vegetables, may be displayed. This can be served as the lunch meal for vegetarians.

## Carbohydrates and their Products:

- Its recommended that all types of bread are made from wheat or whole grains.
- Percentage of added sugar must not exceed the 6 g / 100 g in any food preparations.

**Note:** There should be a variety in the displayed foods containing carbohydrates, such as displaying different types of baked pies, Arabic bread and sliced bread.

## Fruits and Vegetables:

### Fruits:

- The canteen should offer 3 types of fresh seasonal fruits daily (chilled).
- The canteen is recommended to have yogurt with fruit.

### Vegetables:

- Green and colored leafy vegetables must be imposed and should be preferably boiled or grilled using light vegetable oil.
- Green salads should be displayed permanently. The content of salt, oil and other additives, such as sauces and mayonnaise, must be controlled.
- Use natural soup flavor enhancer like garlic, ginger etc instead of ready soup flavor powder or cubes.

### Bottled Water:

- Prepackaged (bottled) water approved by Dubai Municipality is allowed in school canteens. It should be suitable in size for students.
- Offered amounts of water for students should be increased specially during summer because of the excessive fluid loss from the body.

## **VI. Prohibited Food Items in School Canteens**

- Soft drinks.
- Energy drinks.
- All types of fruit drinks and fruit flavored drinks.
- Milk and yogurt with artificial flavors.
- All types of chewing gum and candies.
- Bafak (special type of Chips).
- Sweets that contain only sugar and colorants.
- Plain chocolate.
- Food items containing monosodium glutamate.
- Saturated or hydrogenated fats for frying and cooking.
- Chip (excluding baked potatoes).

## VII. The recommended daily amounts for student from each food group based on age and sex

### Suggested Table:

#### 1. Daily Recommended Amounts for Grain:

Which include food items such as cereals, wheat. Rice, grains, oats, bread (whole wheat/brown/white), pasta.

1 ounce = 28gms

Gender	Age	Daily Recommend Amount	Minimum Recommended Amount
Children	2 - 3 4 - 8	3 ounce equivalent 4 - 5 ounce equivalent	1½ ounce equivalent 2 - 2½ ounce equivalent
Girls	9 - 13 14 - 18	5 ounce equivalent 6 ounce equivalent	3 ounce equivalent 3 ounce equivalent
Boys	9 - 13 14 - 18	6 ounce equivalent 7 ounce equivalent	3 ounce equivalent 3½ ounce equivalent

#### 2. Daily Recommended Amounts for Vegetables:

Which includes all the vegetables like carrots, beans, broccoli, cucumber, cabbage, spinach, tomatoes and onions.

1 cup = 230gm

Gender	Age	Daily Recommend Amount
Children	2 - 3 4 - 8	1 cup 1½ cups
Girls	9 - 13 14 - 18	2 cups 2½ cups
Boys	9 - 13 14 - 18	2½ cups 3 cups

### 3. Daily Recommended Amount for Fruits:

Which includes fruits like apples, grapes, watermelon, oranges, banana and strawberry.

1 cup = 230 gms

Gender	Age	Daily Recommend Amount
Children	2 - 3	1 cup
	4 - 8	1-1½ cups
Girls	9 - 13	1-1½ cups
	14 - 18	1-1½ cups
Boys	9 - 13	1-1½ cups
	14 - 18	1-1½ cups

### 4. Daily Recommended Amounts for Oils:

Which includes butter, oil, margarine and olive oil.

1 teaspoon = 6gms

Gender	Age	Daily Recommend Amount
Children	2 - 3	3 teaspoons
	4 - 8	4 teaspoons
Girls	9 - 13	5 teaspoons
	14 - 18	5 teaspoons
Boys	9 - 13	5 teaspoons
	14 - 18	5 teaspoons

### 5. Daily Recommended Amounts of Milk and Milk Products:

Which includes milk, curd, yoghurt, cheese, fat free milk and curd.

1 cup = 220 gms

Gender	Age	Daily Recommend Amount
Children	2 - 3	2 cups
	4 - 8	2 cups
Girls	9 - 13	3 cups
	14 - 18	3 cups
Boys	9 - 13	3 cups
	14 - 18	3 cups

## 6. Recommended Daily Amounts of Meat and Beans:

Which includes beans, meat, poultry, and eggs.

1 ounce = 28gms

Gender	Age	Daily recommend Amount
Children	2 - 3 4 - 8	2 ounce equivalents 3 - 4 ounce equivalents
Girls	9 - 13 14 - 18	5 ounce equivalents 5 ounce equivalents
Boys	9 - 13 14 - 18	5 ounce equivalents 5 ounce equivalents

**Table (3) Recommended daily Allowance for Children Based on Age**

Nutritional Recommendation for different age groups (RDA)					
Nutrient	Nutrient Recommendations by Age (RDA)				
	2 - 3 years	4 - 8 years	9 - 13 years	14- 18 years girls	14 - 18 years boys
Calories	1000 - 1400	1400 - 1600	girls:1600-2000 boys: 1800- 2200	2000	2200 - 2400
Protein (grams)	13	19	34	46	52
Calcium (mg)	500	800	1300	1300	1300
Total Fat (g)	33 - 54 (30 -35% of calories)	39 - 62 (25 - 35% of calories)	62 - 85 (25 - 35% of calories)	55 - 78 (25 - 35% of calories)	61 - 95 (25 - 35% of calories)
Saturated Fat (g)	12 - 16 (> age 2 ) (<10% calories)	16 to 18 (<10% calories)	girls: 18-22 boys: 20-24 (<10% calories)	22 (<10% calories)	24 - 27 (<10% calories)

**Table (4) Quantities and source of Calorie in School Children Meals**

Distribution of Calories through out the school day								
	Nutrient Recommendations by Age (RDA)							
	BREAKFAST				LUNCH			
Age group	Calories			TOTAL	Calories			TOTAL
	Proteins	Carbs	Fats		Proteins	Carbs	Fats	
2-3 years	Not defined				Not defined			
4-8 years	75	225	75	375	90	275	90	475
9-13 years	Girls: 108 Boys: 120	Girls: 324 Boys: 360	Girls: 108 Boys: 120	Girls: 540 Boys: 600	Girls: 90 Boys: 100	Girls: 270 Boys: 300	Girls: 90 Boys: 100	Girls: 450 Boys: 500
14 -18 years Girls	120	360	120	600	100	300	100	500
14 – 18 years Boys	132	396	132	660	110	330	110	550



## VIII: Nutritional requirements based on the age group.

### DIETARY REFERENCE INTAKES (DRIs): ESTIMATED AVERAGE REQUIREMENTS

Fat soluble Vitamins				
AGE	Vitamin A mcg/day	Vitamin D mcg/d	Vitamin E mg/d	Vitamin K
Children				
1-3 years	210	10	5	ND
4-8 years	275	10	6	ND
Males				
9-13 years	445	10	9	ND
14-18 years	630	10	12	ND
Females				
9-13 years	420	10	9	ND
14-18 years	485	10	12	ND

Water Soluble Vitamins							
AGE	Vit C mg/day	Vit B12 mcg/d	Vit B6 mg/d	Folate mcg/d	Thiamin (B1) mg/d	Riboflavin (B2) mg/d	Niacin (B3) mg/d
Children							
1-3 years	13	0.7	0.4	120	0.4	0.4	5
4-8 years	22	1.0	0.5	160	0.5	0.5	6
Males							
9-13 years	39	1.5	0.8	250	0.7	0.8	9
14-18 years	63	2.0	1.1	330	1.0	1.1	12
Females							
9-13 years	39	1.5	0.8	250	0.7	0.8	9
14-18 years	56	2.0	1.0	330	0.9	0.9	11

## Minerals

AGE	Ca mg/day	Cu mcg/day	Iodine mcg/day	Iron mg/day	Magnesium mg/day	Ph mg/day	Zn mg/day
Children							
1-3 years	500	260	65	3.0	65	380	2.5
4-8 years	800	340	65	4.1	110	405	4.0
Males							
9-13 years	1.100	540	73	5.9	200	1.055	7.0
14-18 years	1.100	685	95	7.7	340	1.055	8.5
Females							
9-13 years	1.100	540	73	5.7	200	1.055	7.0
14-18 years	1.100	685	95	7.9	300	1.055	7.3

## Food items Equivalents

### Group of Fat

1 serving = 1tsp = 5gm, 0 protein, 50 kcal, 5gm fat

Nut seed oil ( peanut oil, sunflower seed oil, sesame oil)	1tsp
Vegetable oil ( canola, olive oil)	1tsp
Butter/ margarine	5gm
Hydrogenated oil ( ghee)	sparingly

### GROUP OF PULSE AND LEGUMES

1 serving = 30gm, Un soaked = 15gm, 6-7 gm of protein, 100 kcal, 1gm fat

Chick peas	½ cup
Unsoaked beans ( pinto beans, gazebo beans, whole pulses)	15-20gm
Lentils/ split dhals	30gm
Soya beans	20gm
Soya chunks	30gm

## Group of Meat and Products

1 serving = ½ cup = 115gm, 15-18 gm of protein, 100 kcal, 1-2 gm fat

Chicken/turkey (skinless)	½ cup
Frozen/ fresh fish ( salmon, tuna, cod)	1 small or 100 gm
Crab, lobster	50gm
Shrimps	50gm
Whole egg	1
Chicken breast	1 small pc
Chicken legs	1 small
Mortedella	30gm

## Group of Milk and products

1 serving = 1 cup/1 glass/225ml, 7-9 gm of protein, 100 kcal, 1-2gm fat

Whole milk	1 cup
Low fat milk	1 cup
Skim milk	1 cup
Skim milk powder	1tbsp
cheese slice	1 slice
fat free cheese slice	1 slice
Cheese spread ( plain and flavoured)	1 tbsp/ 15gm
Lebanah	30 gm
Cottage cheese	30gm
Whole milk youghurt	1 cup
Fat free youghurt	1 cup
Flavoured youghurt	1 cup

## Group of Vegetables

1 serving = 1 cup cooked or uncooked = 225gm, 1-2 gm of protein, 35-50 kcal, 0gm fat

Green leafy vegetable like spinach, cabbage	1 bunch
French beans/ pinto beans	1 cup
Okra, Eggplant carrots	1 cup
All varieties of gourds like ash gourd, bottle gourd	1 cup
Snake gourd	20gm/1 ½ tbsp
Peas	1cup
Mix vegetables without corn and peas	1 cup
Mix vegetables with corn and peas	1 glass
Tomato juice/ vegetable juice	Few to enhance
Mint/ corrainder	flavour

## Group of Fruits

1 serving = 1 medium size/1cup/1pc, 0 gm of protein, 45-60 kcal, 0gm fat

Citrus fruits ( pineapple, orange, sweet lime, lemon, kiwi)	1 med
Pulpy fruits ( custard apple, banana, papaya, mango)	1 small pc
Juicy fruits ( grapes)	1 cup
Melons ( water melon, musk melon, cantaloupe)	1 cup/ 2 slices
Berries ( strawberries, black berries, cherries)	1 cup
Apple, peaches, plums	1 med

## Group of Cereals

1 serving = 15gm of carbohydrate, 3-4 gm of protein, 100 kcal, 0-1gm fat

Bread slice ( white/brown)	2 slice = 30 gm
Buns/ French bread/beagles/sammoun	1 medium size
Pasta(cooked)	1 cup
Pasta ( uncooked)	½ cup
Rice	30 gm
Fresh corn	½ cup
Corn flakes, oats, any kind of cereals	1 cup = 30 gm
Mashed potato	1 medium size
Pan cake	1 small size/ 1 medium size
Tortilla chips plain	20-25
Tortilla chips cheese	12-15
Salted chips	1 cup/ 20 – 22 pieces
Biscuits plain	2-3 pcs
Cream biscuits	2 pcs

## Distributed food servings and amounts: School main menu

### Models and Examples of the Menu Provided in School Canteens:

Table (5) Food Items Offered in Schools

Food Item	INGREDIENTS	Kcal
<b>SANDWICHES</b>		
Cheese sandwich	21g cheese, 2 bread slice= 50g Lettuce + cucumber + tomatoes = 50g TOTAL =121gm	250
Cheese sandwich	15g/1tbs cream cheese , 2 bread slice = 50gm TOTAL = 65g	140
Cheese sandwich	30g halloumi cheese , 2toast slices = 50g TOTAL = 80gm	215
Cheese sandwich	30g cheese, 50g bread TOTAL = 80g	200
Cheese sandwich	30g cheese, 2 bread slices = 50g TOTAL = 80gm	200
Vegetables sandwich	50g bread + 30g cooked vegetables = 80g	175
Vegetables sandwich	60g Arabic bread + 30g cooked vegetables = 90g	180
Falafel sandwich	60g Arabic bread + 2p falafel (25g) + 15g tahina + 30g lettuce, tomato and cucumber = 130g	250
Labneh sandwich	50g bread + 5g oil + 15g labneh = 70g	190
Labneh with thyme sandwich	50g bread + 5g oil + 15g labneh + 15g thyme = 85g	190
Chicken sandwich	50g bread + 5g mayonnaise + 100g chicken = 155g	310
Chicken sandwich	(50-60)g burger bread + 100g chicken + 5g mayonnaise = (155-165)g	270
Meat sandwich	60g Arabic bread + 100g meat + 15g tahina + 15g lettuce and cucumber = 190g	255
Meat burger	(50) burger bread + 65gm chicken + 21g cheese slices + 15g lettuce and tomato = (151)g	345

## DOUGHNUT

Plain doughnut	(45) g	300
Sugared Doughnut	(60) g	350
Chocolate doughnut	(60) g	345
Strawberry jam doughnut	(60) g	350

## CROISSANTS

Cheese croissant	30g cheddar cheese + 30g croissant = 60g	225
Plain butter croissant	30g croissant + 15g butter = 45g	235
Thyme croissant	30g croissant + 15g thyme + 15g oil = 60g	255
Cacao croissant	30g croissant + 15g butter + 10 gm nutella = 55g	290

## MUFFINS

Plain muffin	(57-60) g	220
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## PIZZA

Thin cheese pizza	30gm flour <sup>1</sup> + 30 gm cheese + 10 oil	300
Thin pizza with chicken and vegetables	30gm flour 1 + 30 gm cheese + 10 gm oil + 45gm chicken+ 30 gm vegetables	375
Thin pizza with meat and vegetables	30gm flour 1 + 30 gm cheese + 10 gm oil + 30gm meat+ 30 gm vegetables	350
Thin pizza with cheese and vegetables	30gm flour 1 + 30 gm cheese + 10 gm oil + 30 gm vegetables	300

## JUICES

Unsweetened packaged orange juice	250ml	115
Fresh orange juice	250 ml	115
Unsweetened packaged apple juice	250ml	115
Fresh apple juice	250ml	115



Packaged grape juice	250ml	115
Fruit cocktail juice	250ml	115
Packages pineapple juice	250 ml	115
Packaged lemon juice	250 ml	115
Fresh mango juice	250 ml	115
Packages mango juice	250 ml	115
Packaged apricot juice	250 ml	115
<b>MILK</b>		
Low fat packaged milk with strawberry flavor	(240) ml	145
Low fat packaged milk with banana flavor	(240) ml	145
Low fat packaged milk with vanilla flavor	(240) ml	145
Packaged milk with chocolate flavor	(240) ml	145
packaged whole milk	(240) ml	100
packaged whole milk with strawberry flavor	(240) ml	160
packaged whole milk with banana flavor	(240) ml	160
packaged whole milk with vanilla	(240) ml	160
Plain whole yogurt	(120) g	50
Whole yogurt with fruits	(120) g	100
Whole yogurt with vanilla	(120) g	85
Low fat Plain yogurt	(120) g	50
Low fat yogurt with fruits	(120) g	65
Low fat yogurt with vanilla	(120) g	65

## BISCUITS

Fresh Plain cake	40gm	190
Frozen Plain cake	(60) g	350
Plain biscuits with wheat bran	(23) g	150
Biscuit with dates	(23) g	180
Biscuits with cream	(20) g	210

## ICE CREAM

Ice cream/whole	½ cup	135
Ice cream with vanilla flavor	½ cup	135
Ice cream with strawberry flavor	½ cup	150
Ice cream with mango flavor	½ cup	150
Ice cream / low fat	½ cup	120
Low fat Ice cream with vanilla flavor	½ cup	120
Low fat Ice cream with strawberry flavor	½ cup	120
Low fat Ice cream with mango flavor	½ cup	120

## SNACKS

Low fat pop corn	50 g	150
low fat fried tortilla chips	(28) g	150
Unsalted low fat tortilla chips	(28) g	150
Wafer biscuits	(28) g	205

SALAD		
Chicken salad	Chicken 50 gm + vegetables 100 gms	125
Tuna salad	Tuna 45 gm + vegetables 85gm	125
Ordinary salad	Vegetables 100 gm + bread crumbs 25gm	100
Vegetables salad	Vegetables 100 gm + salad dressing 10gm	50
PASTA		
Pasta with vegetables	Pasta cooked 45gm + vegetables 50 gms + oil 10gm = 105gm	220
Pasta with chicken	Pasta cooked 60 gm + 50gm chicken + tomato puree 25gm+ butter 1tsp	285
Pasta with meat	Pasta cooked 60gm + tomato puree 25gm + meat 30gm + oil 10gm = 125	300

## Breakfast:

Many studies have shown that skipping breakfast adversely affects the student's ability to concentrate and to remember. The results of these studies revealed that students who had their breakfast had stronger ability to memorize, and their skills in problem-solving calculations improved, moreover, their grades in mathematics were better than their colleagues who skipped the breakfast. The importance of the breakfast is due to its high content of glucose which is the main source of energy required by brain. The breakfast may not be very large but simple and easy to prepare, such as a glass of milk, a sandwich of labneh or cheese, a spoon of honey or jam, a boiled egg with 4 dates or sandwich with oil and thyme as thyme Stimulates memory, increases concentration and helps students to quickly retrieve information.

As the name literally suggest “Break – Fast” meaning to break a fast of almost 8 hours after the last meal before bed until next morning. The night sleep by default increases children’s requirement for breakfast, therefore, breakfast, even if in small quantities is one of the most important meals because it is the first meal of the day and it kick starts the body metabolism.

Multi Choice Model of Breakfast Meal					
	Sunday	Monday	Tuesday	Wednesday	Thursday
Sandwiches	<ul style="list-style-type: none"> <li>• (cheese sandwich)</li> <li>Sammoun bread with slices of cheese, lettuce, tomato and cucumber</li> <li>• (vegetable sandwich)</li> <li>Sammoun bread with vegetables</li> <li>• (falafel sandwich)</li> <li>Arabic bread with falafel, a tablespoon Tahina, lettuce and tomato</li> <li>• Sandwich of labneh and Thyme</li> <li>• Samoun bread with chicken, mayonnaise (preferably low-fat) and in small quantity.</li> </ul>	<ul style="list-style-type: none"> <li>• Sandwich of cheese with Mortadella</li> <li>• cheddar cheese croissant</li> <li>• Thin pizza with cheese and vegetables</li> <li>• Thyme croissant</li> <li>• English muffin with cheese.</li> </ul>	<ul style="list-style-type: none"> <li>• (falafel sandwich)</li> <li>Arabic bread with falafel with a tablespoon Tahina, lettuce and tomato</li> <li>• thin pizza with chicken and vegetables</li> <li>• slices of toast with grilled halloumi cheese, lettuce and cucumber</li> <li>• Sammoun bread with labneh and thyme.</li> <li>• Cocoa croissant.</li> </ul>	<ul style="list-style-type: none"> <li>• English muffin with cheese.</li> <li>• (cheese sandwich)</li> <li>Sammoun bread slices with cheese</li> <li>slices, lettuce, cucumber and tomato</li> <li>• Sammoun bread with chicken and low-fat mayonnaise</li> <li>• Thyme croissant</li> <li>• Sandwich of cheese with Mortadella.</li> </ul>	<ul style="list-style-type: none"> <li>• English muffin with cheese.</li> <li>• Cocoa croissant</li> <li>• Arabic bread with vegetables</li> <li>• Arabic bread with falafel, a tablespoon Tahina, lettuce and tomato</li> <li>• sandwich of labneh and thyme.</li> </ul>

Beverages	<ul style="list-style-type: none"> <li>• unsweetened packaged Orange juice,</li> <li>• Cocktail Fruit Juice</li> <li>• Fresh Mango Juice</li> <li>• packaged Lemon juice</li> <li>• packaged apricot juice</li> </ul>	<ul style="list-style-type: none"> <li>• Fresh apple juice</li> <li>• packaged mango juice</li> <li>• packaged pineapple juice</li> <li>• Cocktail Fruit Juice</li> <li>• packaged apricot juice</li> </ul>	<ul style="list-style-type: none"> <li>• unsweetened packaged orange juice</li> <li>• Cocktail fruit juice.</li> <li>• Fresh mango juice.</li> <li>• packaged lemon juice</li> <li>• packaged apricot juice</li> </ul>	<ul style="list-style-type: none"> <li>• Fresh apple juice</li> <li>• packaged mango juice</li> <li>• packaged pineapple juice</li> <li>• Cocktail Fruit Juice</li> <li>• packaged apricot juice</li> </ul>	<ul style="list-style-type: none"> <li>•unsweetened packaged Orange juice</li> <li>• Cocktail Fruit Juice</li> <li>• Fresh Mango Juice</li> <li>• packaged Lemon juice</li> <li>• packaged apricot juice</li> </ul>
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### Multi choice model of breakfast meal

	Sunday	Monday	Tuesday	Wednesday	Thursday
Milk and its products	<ul style="list-style-type: none"> <li>• packaged milk with chocolate flavor</li> <li>• low-fat packaged milk with strawberry flavor</li> <li>• Ice cream with vanilla flavor</li> <li>• Low-fat yogurt with fruits</li> <li>• low-fat plain yogurt</li> </ul>	<ul style="list-style-type: none"> <li>• low-fat packaged milk with strawberry flavor</li> <li>• low-fat packaged milk with banana flavor</li> <li>• low-fat packaged milk with vanilla flavor</li> <li>• Ice cream with mango flavor</li> <li>• low-fat yogurt with fruits</li> </ul>	<ul style="list-style-type: none"> <li>• packaged milk with chocolate flavor</li> <li>• low-fat packaged milk with strawberry flavor</li> <li>• Ice cream with vanilla flavor</li> <li>• Low-fat yogurt with fruits</li> <li>• low-fat plain yogurt</li> </ul>	<ul style="list-style-type: none"> <li>• low-fat packaged milk with strawberry flavor</li> <li>• low-fat packaged milk with banana flavor</li> <li>• low-fat packaged milk with vanilla flavor</li> <li>• Ice cream with mango flavor</li> <li>• low-fat yogurt with fruits</li> </ul>	<ul style="list-style-type: none"> <li>• packaged milk with chocolate flavor</li> <li>• low-fat packaged milk with strawberry flavor</li> <li>• Ice cream with vanilla flavor</li> <li>• Low-fat yogurt with fruits</li> <li>• low-fat plain yogurt</li> </ul>

Chips, popcorn and biscuits	<ul style="list-style-type: none"> <li>• low-fat popcorn</li> <li>• low fat baked tortilla chips</li> <li>• wafer biscuits</li> <li>• fresh plane cake</li> </ul>	<ul style="list-style-type: none"> <li>• unsalted low fat tortilla chips</li> <li>• wafer Kit Kat chocolate bar</li> <li>• plane wheat bran biscuits</li> <li>• date Biscuits</li> <li>• low-fat chips</li> </ul>	<ul style="list-style-type: none"> <li>• low-fat popcorn</li> <li>• low fat baked tortilla chips</li> <li>• wafer biscuits</li> <li>• fresh plane cake</li> </ul>	<ul style="list-style-type: none"> <li>• unsalted low fat tortilla chips</li> <li>• wafer chocolate bar</li> <li>• plane wheat bran biscuits</li> <li>• date Biscuits</li> <li>• low-fat chips</li> </ul>	<ul style="list-style-type: none"> <li>• low-fat popcorn</li> <li>• low fat baked tortilla chips</li> <li>• wafer biscuits</li> <li>• fresh plane cake</li> </ul>

## Lunch:

The lunch meal is an important meal that provides the body with at least half of its daily nutritional needs. A meal with poor nutritional values makes it difficult for the body to get its daily nutritional needs and sustain active state of body until the end of the day.

In the GCC, rice is the most commonly consumed food item for lunch. Due to the improper ways of cooking and washing, rice may lose some of its nutritional value. It is found that eating rice with any protein source like meat or chicken or fish and salad in proper amounts provides the body with appropriate amounts of nutrients.

## Multi choice model of Lunch meal

	Sunday	Monday	Tuesday	Wednesday	Thursday
<b>Sandwiches</b>	<ul style="list-style-type: none"> <li>• Burger bread with meat burger, cheese slices, lettuce and tomato.</li> <li>• Burger bread with chicken, mayonnaise, preferably low-fat and in small quantity</li> <li>• Sandwich of cheese and Mortadella</li> <li>• Sammoun bread with slices of cheese, lettuce, tomato and cucumber</li> <li>• Arabic bread with meat Shawerma, Tahina, lettuce and cucumber.</li> </ul>	<ul style="list-style-type: none"> <li>• thin pizza with chicken and vegetables</li> <li>• Sammoun bread with labneh and oil</li> <li>• thin pizza with cheese and vegetables</li> <li>• Burger bread with meat burger, cheese slices, lettuce and tomato.</li> <li>• English muffin with cheese.</li> </ul>	<ul style="list-style-type: none"> <li>• thin pizza with meat and vegetables</li> <li>• thin pizza with cheese and vegetables</li> <li>• Sandwich of labneh and Thyme</li> <li>• Burger break with chicken burger, cheese slices, lettuce and tomato.</li> <li>• Arabic bread with falafel, a tablespoon Tahina, lettuce, tomatoes.</li> </ul>	<ul style="list-style-type: none"> <li>• Burger bread with meat burger, cheese slices, lettuce and tomato.</li> <li>• Burger bread with chicken, mayonnaise, preferably low-fat and in small quantity</li> <li>• Sandwich of cheese and Mortadella</li> <li>• Sammoun bread with slices of cheese, lettuce, tomato and cucumber</li> <li>• Arabic bread with meat Shawerma, Tahina, lettuce and cucumber.</li> </ul>	<ul style="list-style-type: none"> <li>• thin pizza with chicken and vegetables</li> <li>• Sammoun bread with labneh and oil</li> <li>• thin pizza with cheese and vegetables</li> <li>• Burger bread with meat burger, cheese slices, lettuce and tomato.</li> <li>• English muffin with cheese.</li> </ul>
<b>Diabetes meals</b>	<ul style="list-style-type: none"> <li>• Brown bread toast with low fat cheese, lettuce and tomato slices.</li> </ul>	<ul style="list-style-type: none"> <li>• Brown bread with chicken burger, lettuce and tomato slices and low-fat cheese.</li> </ul>	<ul style="list-style-type: none"> <li>• Arabic brown bread with tuna or chicken, and vegetables.</li> </ul>	<ul style="list-style-type: none"> <li>• Brown Sammoun bread with vegetables.</li> </ul>	<ul style="list-style-type: none"> <li>• Brown bread toast with low fat cheese, lettuce and tomato slices.</li> </ul>

Meal with rice	<ul style="list-style-type: none"> <li>• Daoud Pasha with white rice.</li> <li>• Okra broth with chicken and white rice.</li> </ul>	<ul style="list-style-type: none"> <li>• Chicken Kofta with rice with vegetables and salad</li> <li>• fish filet with brown rice and salad</li> <li>• Grilled fish with white rice with a salad.</li> </ul>	<ul style="list-style-type: none"> <li>• Biryani chicken salad with yogurt salad</li> <li>• Chicken Makloubi with eggplant and vegetable salad.</li> </ul>	<ul style="list-style-type: none"> <li>• vegetable broth with Chicken, white rice and salad</li> <li>• Vegetable broth with meat, white rice and salad.</li> </ul>	<ul style="list-style-type: none"> <li>• Grilled Chicken with vegetables broth and salad</li> <li>• Kushari with tomato sauce and salad.</li> <li>• Pulses (beans) broth with rice.</li> </ul>
Beverages	<ul style="list-style-type: none"> <li>• unsweetened packaged Orange juice,</li> <li>• Cocktail Fruit Juice</li> <li>• Fresh Mango Juice</li> <li>• packaged Lemon juice</li> <li>• packaged apricot juice</li> </ul>	<ul style="list-style-type: none"> <li>• Fresh apple juice</li> <li>• packaged mango juice</li> <li>• packaged pineapple juice</li> <li>• Cocktail Fruit Juice</li> <li>• packaged apricot juice</li> </ul>	<ul style="list-style-type: none"> <li>• unsweetened packaged Orange juice,</li> <li>• Cocktail Fruit Juice</li> <li>• Fresh Mango Juice</li> <li>• packaged Lemon juice</li> <li>• packaged apricot juice</li> </ul>	<ul style="list-style-type: none"> <li>• Fresh apple juice</li> <li>• packaged mango juice</li> <li>• packaged pineapple juice</li> <li>• Cocktail Fruit Juice</li> <li>• packaged apricot juice</li> </ul>	<ul style="list-style-type: none"> <li>• unsweetened packaged Orange juice,</li> <li>• Cocktail Fruit Juice</li> <li>• Fresh Mango Juice</li> <li>• packaged Lemon juice</li> <li>• packaged apricot juice</li> </ul>



Milk and its products	<ul style="list-style-type: none"> <li>• packaged milk with chocolate flavor</li> <li>• low-fat packaged milk with strawberry flavor</li> <li>• Ice cream with vanilla flavor</li> <li>• Low-fat yogurt with fruits</li> <li>• low-fat plain yogurt</li> </ul>	<ul style="list-style-type: none"> <li>• low-fat packaged milk with strawberry flavor</li> <li>• low-fat packaged milk with banana flavor</li> <li>• low-fat packaged milk with vanilla flavor</li> <li>• Ice cream with mango flavor</li> <li>• low-fat yogurt with fruits</li> </ul>	<ul style="list-style-type: none"> <li>• packaged milk with chocolate flavor</li> <li>• low-fat packaged milk with strawberry flavor</li> <li>• Ice cream with vanilla flavor</li> <li>• Low-fat yogurt with fruits</li> <li>• low-fat plain yogurt</li> </ul>	<ul style="list-style-type: none"> <li>• low-fat packaged milk with strawberry flavor</li> <li>• low-fat packaged milk with banana flavor</li> <li>• low-fat packaged milk with vanilla flavor</li> <li>• Ice cream with mango flavor</li> <li>• low-fat yogurt with fruits</li> </ul>	<ul style="list-style-type: none"> <li>• packaged milk with chocolate flavor</li> <li>• low-fat packaged milk with strawberry flavor</li> <li>• Ice cream with vanilla flavor</li> <li>• Low-fat yogurt with fruits</li> <li>• low-fat plain yogurt</li> </ul>
Sweets	<ul style="list-style-type: none"> <li>• Doughnut with strawberry jam</li> </ul>	<ul style="list-style-type: none"> <li>• Doughnut with chocolate</li> </ul>	<ul style="list-style-type: none"> <li>• Sweetened doughnut</li> </ul>	<ul style="list-style-type: none"> <li>• Plain doughnut</li> </ul>	<ul style="list-style-type: none"> <li>• Doughnut with strawberry jam</li> </ul>

### Meals (in canteens that provide catering):

- Contractor should adhere to the weekly menu provided by the educational authorities which was prepared by the nutrition school committee.
- Contractor should comply with the food safety and hygiene requirements through all the production chain from the raw material to the serving process.
- All the food supplied, and all the ingredients and contents of the meals should be free of any non Halal items.
- Its recommended to have special meals for children with diseases such as diabetes.

## IX: Special Dietary Needs

Some students may require special meals for medical reasons and therefore schools should provide these meals if possible so that all children enjoy a healthy and suitable lunch during school hours.

### Medical cases that have special dietary requirements may include the following:

Diabetes: is the increase of sugar in blood and it may affect men, women and children. School officials and committee members involved in menu planning should offer at least one meal in a day to meet the nutritional requirement of such children. Besides the schools should have an overview of the disease and complications of diabetes to prevent further aggravations.

### Symptoms of sharp rise in blood sugar:

Severe thirst, urination in large quantities, dry tongue, muscle cramps, bad mouth smell like the smell of rotten apples, vomiting and severe abdominal cramps, dizziness and loss of consciousness.

### Symptoms of sharp drop in blood sugar:

overall weakness, extreme hunger, excessive sweating, heart palpitations, tremors of hands, dizziness, headache, lack of concentration and loss of consciousness.

### Essential general guidance for diabetics:

- Avoid foods containing large amounts of sugar such as molasses, soft drinks and sweets.
- Reduce the intake of fat and avoid obesity.
- Eat balanced diets that contain carbohydrates, proteins, more of vegetables and fiber and selected fruits according to the needs of the body.
- Increase the number of meals to five instead of three and reduce the quantity during the meals.

## Celiac Spru

It is an inflammatory condition caused by gluten intolerance in the digestive system. Celiac Spru the digestive system damaging the small intestine resulting in inability to digest gluten a typical protein found in wheat and wheat products and this leads to poor absorption of nutrients. causing barley, rye and oats.

## Prohibited Foods for Celiac Patients:

Wheat - Barley - Oats - Flour of these materials - pasta - vermicelli – all types of bread - bulgur - groats - semolina - Rusk's - Cerelac - canned white beans - any foods with added gluten or flour - barley beverages.

## Food Allergy:

Some foods can be fatal for people who suffer from allergy to such foods. The school canteen should provide appropriate support to this group by increasing their health awareness. The food label should include a remark or a warning in case the item contains any allergic materials. The management of the school should have a list of students who are allergic to certain foods and the canteen must have a copy of this list. The most common food allergies are nuts and oil seeds, berries, tamarind etc. thus any food containing these items or foods prepared in the vessels which were previously used to prepare food items containing as mentioned above should be avoided or labeled correctly.

## X: General tips for Nutrition of Students

1. Eat five meals a day rich in nutrients which are essential for growth and prevention of diseases.
2. Regularly have nutritious foods on the table which will encourage taking and getting used to them.
3. Eating breakfast daily helps to be attentive in the class room.
4. Manage and divide the food groups and food proportions based on the “ my plate”
5. Bring variety in your diet on daily basis..
6. Drink sufficient quantities of liquids such as water, milk, yogurt and juices.
7. Reduce sugary foods and sweets.
8. Stay away from soft drinks.
9. Do not force the child to eat.
10. Encourage Children for physical activities and exercises, whether at home or in school.
11. Parents should set a good example in terms of following and practicing healthy dietary habits.
12. Encourage children to wash hands before and after meals.
13. Stay away from fast food as much as possible.
14. Replace soft drinks with milk, fruit juices and yogurt.







## Chapter II

# Hygiene Requirements and Ensuring Food Safety in School canteens

# I: The classification of school canteens and their requirements:

**School canteens classified in terms of capacity and activity as follows:**

## A – Canteen for distribution and sale of food:

Most of the canteens in the UAE consist of a room where food as per the legal standards and allowances is distributed without preparation in site.

### **a) Requirements of canteen designated for distribution only (without preparation):**

1. should be adequate for storage, displaying and selling of food.
2. Should be away from toilets and drains.
3. Prevent entry of dust, water or insects.
4. Walls should be smooth, washable and easy to clean, and light coated. Walls, ceilings, floors and all surfaces should be free from cracks and crevices.
5. Floors should be covered with tiles of porcelain (ceramic), or any material that is easy to clean, durable non slipping, do not react with detergents or disinfectants, non absorbent and non flammable.
6. Should be provided with adequate ventilation and lighting.
7. Should be kept at a temperature of (25) degrees Celsius or less.
8. Must be provided with coolers (refrigerators) sufficient for keeping cold holding foods, such as milk, yogurt, juice, cold at temperature of 4 degrees Celsius or below. A thermometer should always be placed inside.
9. Dry foods should be stored on shelves made from galvanized iron (zinc coated) or stainless steel. Shelves should be above the ground, about 20 cm or more. Dried foods should be well organized and never condensed.
10. Should have windows suitable for students in number and height.
11. Shouldn't have any cleaning tools (brooms, wipers) inside the canteen or the food warehouse. They should be stored far away.
12. Should be provide with stainless steel hand washing basin with soap and paper towels, in addition to fruits and vegetables washing basin if sold.
13. Should commit to a periodic program for controlling pests.
14. Store pesticides or disinfectants in a place which is far from the canteen or its warehouse.

## **B - Buffet preparation and distribution of meals and food items:**

Some canteens are allowed to prepare certain types of sandwiches on site, and this type may contain an area for eating or it may be like the above type which contains selling outlets only. Some ideal schools have canteens which may include integrated full equipped kitchens offering 2 meals during school hours. These canteens should comply to the following requirements:

1. The canteen area should be sufficient and adequate. The layout of the canteen (kitchen + dining (eating) hall) should be approved by the Food Control Department-Dubai Municipality.
2. The layout of the kitchen should take into account the design of preparation areas and distribution of equipment so that there will be no overlapping among them and is in following sequence (storage, preparation, cooking, serving and a separate cleaning area).
3. The design and layout should allow and facilitate cleaning and disinfection easily and effectively to all areas including areas of equipment and devices used in the preparation area in the canteen.
4. Assure smoothness and ease of flow of all phases of preparation to ensure food safety by dividing the preparation area into different sections thus preventing cross contamination.
5. All floors, walls and ceilings in the canteen (area of preparation, preparation and cooking) should be made of smooth material (quarry, ceramic or vinyl) which is easy to clean, non-absorbent, prevent absorption, fire-resistant, light-colored, non-toxic, non-slipping, do not interact and not affected by detergents and chemicals used, free from cracks, flooring should be suitable for the flow of water and facilitate easy cleaning. Corners between walls, between walls and floors and between wall and ceiling should be tightly closed and concaved to mitigate cleaning.
6. It is strictly prohibited to use wooden tools and surfaces in preparation, cooking and storage (warehouses) areas, these surfaces are recommended to be made from stainless steel.
8. The preparation area(s) should be provided with stainless steel washing basins separately for vegetables, meat and poultry in addition to a large basin for washing tools and articles.
9. Provide separate stainless steel hand washing basin for each preparation area further provided with hot and cold water. Additionally, a dressing room and a bathroom should be provided far from preparation areas.
10. Grease traps are prohibited inside the preparation areas (kitchen).



11. Provide suitable storage areas considering the food quantity to be stored these areas should be well ventilated and provided with sufficient natural or artificial lighting.
12. The water supply used should be approved by Food Control Department. Water filter should be fixed on the main inlet source and a water tank cleaning and disinfection company should be contracted and approved by DM.
13. All tools, utensils, equipments and articles used should have smooth surfaces free of scratches and cracks, be designed to prevent health risks, allow easy cleaning and disinfection and be easy to remove and install. Copper tools and utensils are strictly prohibited in the preparation processes.
14. Windows, ventilation openings, doors and other entries should be tightly closed and installed with mesh screens to prevent entry of pests.
15. Food contact surfaces of machinery and equipments such as tables, utensils and tools used in the kitchen are recommended to be made of stainless steel. Ceramic dishes and preparation tables are permitted as well as food grade plastic cutting boards.
16. Installation of exhaust fans to extract fumes, smoke and hot air from the preparation area.
17. Providing stainless steel shelves for storing utensils and tools used in the canteen (in case of preparation only) at a height of 30 cm from the ground.
18. Providing sufficient number of freezers (-18 degrees Celsius and below) and refrigerators (4 degrees Celsius and below) for storage of food (raw or ready to eat). Raw and ready to eat food must be stored separately. Freezers and refrigerators should be placed in a well ventilated area and provided with thermometers fixed outside them in a suitable place that facilitates reading.
19. Providing special equipments to hot held food and display of hot foods at 60 degree Celsius and above.
20. Providing area for washing utensils, large equipment and tools separated from areas of preparation. This area should include stainless steel receiving table, washing basins equipped with hot and cold water and adequate stainless steel shelves for drying and storage.
21. Kitchen and dining hall must be equipped with insect killers.
22. Contracting an approved pest control company to control pests.

## **II: Requirements of catering establishments providing food to school canteens.**

**1. Caterers should not start supplying canteens with food unless they get approved by the authorities and have complied to the following requirements:**

1-1 the business license of the enterprise should be valid and should be among one of the following activities: food supplier, plant (manufacturer) or food caterer.

1-2 the supplier should adhere to the activity mentioned in the commercial license.

1-3 the supplier should undertake to supply the food mentioned in the contract signed with the school jurisdictions district in compliance to the activity of the licensee. Approval of Food Control Department for food items should be obtained.

**2. Premises that supply dry, chilled or frozen foods must comply to the following requirements in addition to the requirements mentioned above in paragraph "1".**

2-1 Providing furnished office to manage the activity.

2-2 Providing cold, frozen and ventilated storages according to the type and size of the activity.

2-3 Providing appropriate vehicles that meet the requirements of transportation of fresh, chilled and frozen food.

2-4 Contracting a licensed company to control pests.

**3. For plants, shops and catering companies that provide school canteens with ready meals, the following requirements apply in addition to the requirements mentioned in paragraph "1".**

3-1 Should apply a food safety system based on the principles of hazard analysis and critical points "HACCP" system.

3-2 Should be approved by the related authorities and must meet all safety and hygiene requirements set by these bodies.

### **III: Safety and Hygiene requirements for transportation and distribution of food.**

The following safety and hygiene requirements must be met in food transportation and distribution vehicles:

1. Should be thermally insulated by isolation thickness of 5cm at least to prevent food from spoilage or contamination.
2. Walls, ceilings and floors inside the vehicle should be made of stainless steel, free of cracks, washable and cleanable.
3. Should be provided with sufficient and appropriate lighting.
4. Doors should be tightly sealed to prevent entry of air, dust and insects and maintain temperature permanently.
5. Cooling and ventilation tools should be preferably placed outside the storage area to prevent leakage of gas or oil.
6. The internal corners should be designed to facilitate cleaning and the vehicle ground should be slightly tilted to ease discharging of fluids.
7. Should be provided with temperature and humidity reading device.
8. Enough space should be left between the ceilings and walls of the vehicle to facilitate inspection and air ventilation.
9. Food items should be maintained a minimum of 15 cm (6 in.) off the floor.
10. Food items shouldn't be condensed to avoid mechanical damage and to facilitate ventilation.
11. Cleaning agents and disinfectants should be certified to be used in food premises with manufacturer specifications and shouldn't leave residues which have a negative impact on food.
12. Must not be used to transport or distribute material other than the approved ones.
13. All food items should be properly wrapped / packaged according to standards and specifications.
14. Should be clearly identified (ex. a poster on it) that this vehicle is specified for transportation and distribution of food.
15. Chilled Foods should be transported in vehicles with temperatures ranging between (1-4 ° C) and (-18 degrees C) for frozen food.
16. The following hygienic practices should be met during all stages of transportation and distribution of food: -
17. Before loading

- Cleaning the loading area in addition to cleaning of vehicles.
- Running the cooling tools enough time before loading.

#### 18. Loading and transportation

- Fast Loading to avoid any change in temperature.
- Personal hygiene and commitment to suitable hygienic uniform.
- Providing health cards for handlers working in the food transportation vehicles.
- Recording temperatures and humidity of the vehicle during transportation process.

#### 19. Unloading

- Discharging quickly to avoid any change in temperature.
- Recording temperatures during receiving of items.
- Providing suitable and clean unloading area.

## **IV: Receiving requirements of food items.**

1. Food receiving area must be inside the school.
2. Sandwiches must be wrapped in automatically sealed plastic bags. The label should contain the name of the food product, supplier and date of production. Sandwiches may be put in plastic boxes.
3. Delivery should be between 8 am and 9:30 am.
4. The nurse with a teacher should monitor the receipt of food.
5. Food supplied should be checked that it is in the list of food contracted with the school jurisdictions district and approved by Food Control Department.
6. Food should be supplied by a food transporting vehicle approved by the authorities.
7. Chilled food item must be loaded, transported, off loaded and under cooling temperatures, for items such as juice which is stored cooled, pasteurized milk, vegetables and meat which is stored chilled in canteens that prepare food.
8. Meat and poultry must be separated during receiving process from ready to eat food, especially fruits and salad components.
9. Received materials should be stored immediately after receiving in refrigerator or freezer or hot holding tools or in the dry materials store according to food type and storage requirements.
10. Recording and documentation of materials received, name of the supplier, date of receipt, material condition upon receipt and any other necessary comments.

## **V: Storage in canteens.**

1. Should comply to the hygiene requirements of the chiller (fridge), as stated in the Canteen for distribution and sale of food.
2. Should monitor and record the temperature inside the chiller and dry items store on daily bases.
3. Should avoid condensation of food inside the chiller, and take into account the storage capacity and the adequate supply system.
4. Should cover foods stored in chiller, preferably with transparent plastic foils.
5. Should keep the chiller clean from inside and outside.
6. Should separate meat, poultry and fish (in the canteens that provide meals) according to their type, and shouldn't place - for example - meat and fish in one pot, or chicken and burgers in one pot.
7. Should not store dry food items on ground.
8. Dry foods should be stored in a tidy and clean store and the store should not be congested. Adequate storage area should be provided.
9. Canned items should be stored in chiller after opening the can/package or in tightly covered containers according to the type of food and storage requirements.
10. Records should be kept for all required procedures such as receiving, temperature control, etc..

## **VI: Preparation.**

1. Foods that require preparation should be prepared on the same day as that of service, and this may include the following steps following steps: receiving, storage, initial preparation, cooking or heat treatment, hot holding and serving. Receiving and storing may happen a day earlier but other steps such as initial preparation to serving should happen on the same day. Foods cooked today are not allowed to be sold tomorrow.
2. During the initial preparation, all the procedures and standards of personal hygiene and good preparation practices that prevent cross-contamination, or contamination of food in any other way must be implemented
3. While cooking consider all the requirements of personal hygiene, cooking methods that guarantee full cooking (according to food item) and preventing contamination or cross-contamination of foods in any other ways.
4. Full cooking is achieved when the temperature of the inner part of the food reaches 75 ° C or more in order to ensure the elimination of pathogenic bacteria.

## VII: Serving.

1. Hot foods should be hot held in hot pans at 60 degrees Celsius or above until it's served.
2. Food should be covered unless when serving.
3. Food handlers should follow good personal hygiene practices at all times.
4. Serving tools such as forks and scoops should be used when filling in dishes.
5. Handler should use gloves during serving.

## VIII: General requirements for food sold in school canteen.

1. Food items should not contain any toxic material that may endanger the public health.
2. Preparation, manufacturing, packaging, transportation, display and storage of food should occur in hygienic environment that protect it from spoilage and contamination.
3. Food should be well sealed/covered in appropriate package/containers. Food contact materials such as packaging materials shouldn't endanger the public health.
4. In the case of packaged food products, the food label should include the following:
  - The name of the food product.
  - Components.
  - The amount of the following nutritional data:

	Nutritional value	Unit/100g
1	Energy	Kcal
2	Protein	g
3	Carbohydrates	g
4	Sodium	mg
5	Fibers	g
6	Fats	g

- Production and expiry dates.
- Batch number.
- Storage conditions and shelf life
- Manufacturer or producer name and address.
- Country of origin.
- Weight / size of the package.
- Brand name (trademark).
- Alert against any allergy containing substances like peanuts, berries, gluten.

In the case of sandwiches, meals and salads that are prepared in / supplied to the canteen, the person in charge should be provided with all the necessary data to make sure these food items meet the daily requirements as per the RDA to ensure food safety.

The food items must have nutritional value and they should preferably be rich with carbohydrates, vitamins, minerals and protein.

5. Any food item must not contain fat more than 30% and the saturated fats allowance should not be more than (10%) and they should be low in cholesterol. The source of these fats or oils should be mentioned on the label.
6. The food should not contain high amounts of salt or sugar. Sugar should not exceed 2 of daily recommended allowance in each food item
7. The food should not provide high levels of calories only from fats as this may result in obesity and other related chronic health conditions
8. Over usage of spice producing and flavor enhancing food items is prohibited. The meal should have moderate proportions of spices and savory sauces. Use of hot food items such as green, red chilies and chilly powder beyond the moderation level is prohibited. Mono sodium glutamate ( MSG) is strictly prohibited. not contain a high proportion of spices and sauces. The use of hot materials such as dried or fluid chili isn't allowed so is mono sodium glutamate.
9. The food should not contain any food preservatives, colorants, sweeteners or synthetic flavors made from chemicals.
10. Cold sandwiches and salads must be kept at temperature ranging from (1-4 C) and hot food should be hot held in hot holding devices at (60 C and above.
11. Perishable food items such as milk and milk products, eggs, fruits and vegetables should be kept inside the fridge.
12. Frozen food items such as frozen meat and frozen fish should be kept in the freezer at a (- 18 C) or below.

13. Selling of pork and food items containing pork in any form, items containing alcohol (ethanol) are prohibited in school canteens.
14. The food should be in conformity with the legislations from local and federal orders related to the school canteens.

## **IX: Food Handler's Hygiene Requirements**

### **A - Hygiene requirements of handlers:**

1. All food handlers should be fit and have a valid health card (they should be allowed to carry out the business only after undergoing a medical examination by the competent health authorities, and this shall be done periodically according to the applicable laws).
2. Making sure to take the necessary vaccinations, especially hepatitis vaccination.
3. Wearing a clean and suitable uniform like hair net, protective clothing, appropriate shoes required during work in work premises like the preparation area, service area and others.
4. All handlers in canteens that prepare, cook and serve food should attend special training on food safety basic principles as per Dubai Municipality requirements.
5. The number of workers in the canteens should be suitable with respect to the size of the canteen, the presence of any unauthorized person inside the canteens is not allowed.
6. Providing documented records of cleaning programs.
7. Handlers suffering from any disease or carrying any pathogens should stop working even if they do not show symptoms, or if suffering from an inflamed wound, skin infections or boils until complete recovery from illness or until it is found to be no longer infectious .
8. Any handler showing symptoms such as diarrhea, vomiting, fever, abdominal cramps, throat inflammation, skin rash or any other disease symptoms should immediately inform the person in charge.

### **B – Hygiene practices to ensure the safety and quality of food:**

**All food handlers should comply to the following hygiene practices to ensure safety and quality of food provided to the consumer, including students from schools:**



## 1. Personal Hygiene

**washing hands thoroughly with warm water and soap and drying them well: -**

- Before preparation of food.
- After raw and uncooked materials such as meat, poultry and fish.
- After sneezing or cleaning the nose or even a nose injury.
- After leaving the toilet (bathroom).
- After smoking.
- After touching or carrying cash.
- After handling dirt and garbage bins.
- After relaxing, sleeping or resting.
- Using paper towels for drying hands.
- All Handlers uniform or dress should be similar, clean and tidy. Wearing accessories or rings during processing is prohibited.
- Hair should be fully covered using hair net at all times.

## 2. Cleaning

- Clean refrigerators on a weekly basis.
- Always wash utensils and processing equipments with hot water and detergents before and after using for the preparation of food.
- Sterilization of tables and shelves after being washed and dried.
- Dump trash containers as necessary, keep the lid closed.
- Clean floor daily with a disinfectant.
- make sure that the premises are free from insects.

## 3. Food handling

- During preparation of meals, it is strictly prohibited to use raw materials showing signs of damage, spoilage, expiration, from unknown source and should comply to UAE and Gulf standards.
- Should be separated with partitions among areas of hot dishes, meat, salads, cold dishes and desserts.
- Should strictly separate cooked food and their tools and utensils from fresh or uncooked food and their tools and utensils.

- Is not allowed to wear accessories or rings during processing.
- Re used gloves are not allowed.
- Sick handlers are not allowed to prepare or process food.
- Handler should Stop working if they have symptoms of nausea, diarrhea or any other symptoms.
- Eating during preparation/processing of food is not allowed
- Fruits and vegetables should be washed thoroughly before use.
- Plastic bags, paper bags or any storage bags should not be opened using a mouth.
- It is preferred to use stainless steel spoons and tongs instead of hands in preparation/processing of food.
- Wounds or sores must be covered with water proof bandage in addition to gloves.
- Pots with sharp edges during preparation are prohibited.

## **X: Other Requirements**

In addition to the food safety requirements as mentioned above , the following practices should be implemented to complete the food safety policies and procedures and to ensure the efficiency of the system:

### **1. Monitoring of canteens:**

School food should be monitored and controlled by: the nurse, trained members of the faculty, nutrition specialists from the School Health administration and food inspectors from designated authorities

The nurse and the trained members of the faculty should monitor and control the food supply on daily basis.

The nutritionist from the school health administration should conduct surprise visits to canteens to inspect school compliance to the nutritional requirements. Likewise the food inspector should also make frequent informed and uninformed visits to ensure supplier's compliance to food safety requirements.

Authority Inspectors should inspect the school canteen and the caterers who prepare and supply food such as restaurants, bakeries and factories and they should notify the school food committee and the management of the school district in case of suspension / stopping a supplier from supplying schools.

It is mandatory to use approved check lists covering all supply / preparation chain

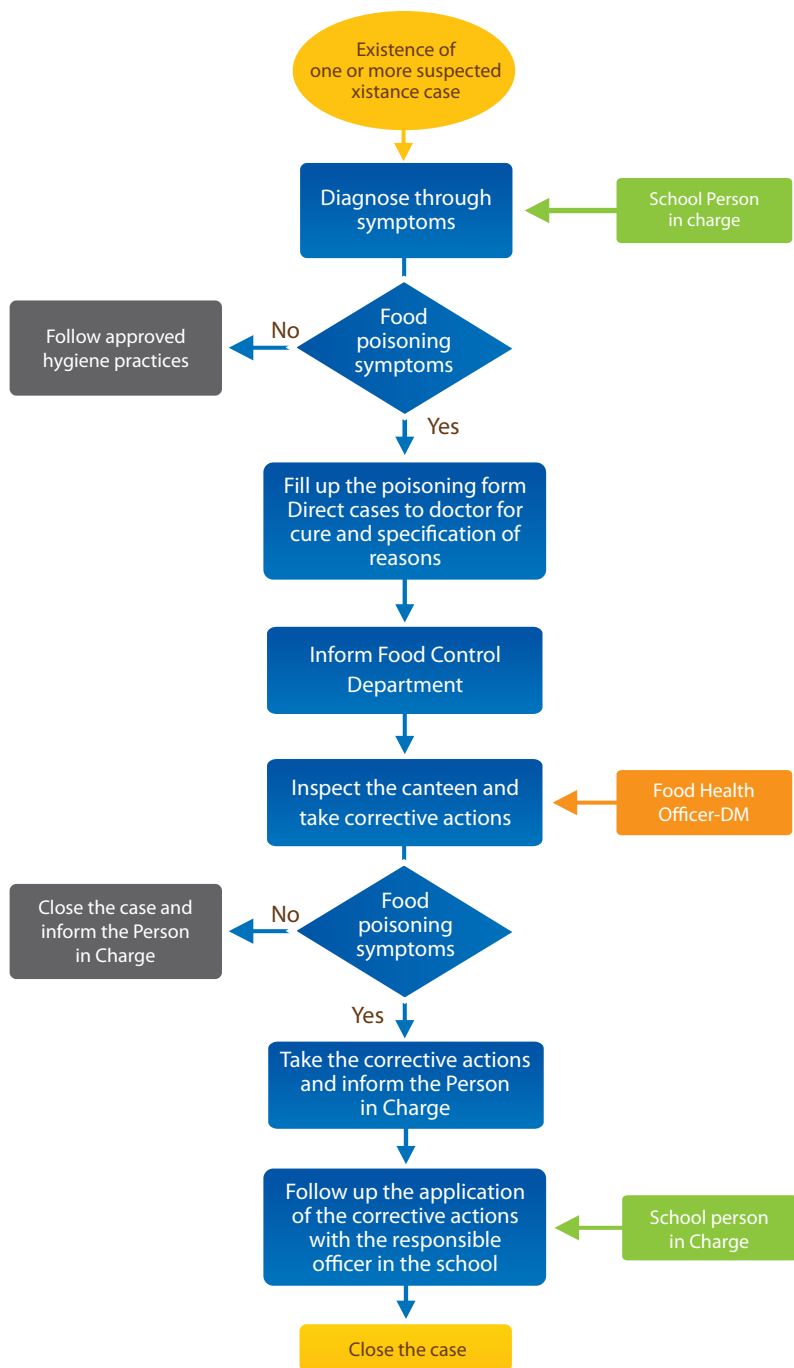
of food according to the site inspected. Records should be kept. It is not allowed to adopt the general or rapid inspection methods.

## **2. Institutional measures and steps in the event of a suspected food poisoning**

### **3. Identify the persons in charge in advance to follow up cases of food poisoning.**

2. Develop written procedures to help the institution to detect cases of poisoning. These procedures should be valid with the official school health officer and should include the following:

- Record the case in a special form which should include information about food handlers who were sick along with the symptoms
- Ensure there are no cases among students and record, if any.
- Recall suspected food and store in a way that maintains their specifications.
- Inform the related health authorities in case more than one case of food poisoning was found.
- Transfer the cases to medical centers for testing and treatment.
- Follow up the situation and record the results.



## FOODBORNE ILLNESS INVESTIGATION CASE REPORT FORM - SCHOOLS

### To be filled by the School Authorities

#### 1) Report

Date:	
Establishment:	
Contact Number(s):	

#### 2) Complainant

Name:	
I. D. Number and Type	
Sex	<input type="checkbox"/> Male <input type="checkbox"/> Female
City:	
Contact Number(s):	

#### 3) ILLNESS INFORMATION

Date Person Became ILL	Date:    /    /	<input type="checkbox"/> AM <input type="checkbox"/> PM
Time Of Attendance To The Clinic	Date:    /    /	<input type="checkbox"/> AM <input type="checkbox"/> PM
Time Of Hospitalization (if applicable)	Date:    /    /	<input type="checkbox"/> AM <input type="checkbox"/> PM

#### 4) Symptoms

<input type="checkbox"/> Diarrhea	<input type="checkbox"/> Vomiting	<input type="checkbox"/> Nausea	<input type="checkbox"/> Abdominal cramps
<input type="checkbox"/> Fever	<input type="checkbox"/> Bloody stool	<input type="checkbox"/> Headache	<input type="checkbox"/> Muscle aches
<input type="checkbox"/> Chills	<input type="checkbox"/> Loss of appetite	<input type="checkbox"/> Fatigue	<input type="checkbox"/> Dizziness
<input type="checkbox"/> Other symptoms			

#### 5) Description of the course of Illness

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6) Meal History for Three Days:

	AM		Place of Dining (at home / outside)	PM		Place of Dining (at home / outside)
Day & Date	Time	Food		Time	Food	
Day 1 Date						
Day 2 Date						
Day 3 Date						
Suspected Food/s						

## 7) List of Persons ate the suspected meal:

S. No.	Name	Age	Sex	Nationality	ILL	Well	Contact No.

## 8) Final Diagnosis from the Doctor ( if available)

A. ☐ Suspected food poisoning: (Clinical case)

B. ☐ Confirmed food poisoning: (By Laboratory)

C. ☐ Other

.....

**Signature of the complainant** .....

## 10) Conclusion (To Be filled by the Food Control Department)

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## Conclusion:

Food is considered as a fuel to the body. Thus healthy nutrition is essential to human growth, maintain good health and even for survival. . Our daily food intake should include variety to ensure adequate of nutrients of all types from all the major five food groups to avoid any nutrition deficiency and thereby avoiding any health diseases.

The best time to develop healthy food practices and nutritious eating is during childhood. Wrong eating habits developed during childhood are difficult to change later in life. Thus is it necessary to teach good and healthy food habits to the child right from his childhood.. Healthy food habits also include hygiene practices in cooking, storing and consuming food. Thus food safety is also a key factor to promote healthy eating right from the childhood.

The aim of this manual is to introduce the concept of healthy eating and make the students, teachers and parents aware about the importance of health eating during childhood and adverse effects of not following a healthy diet. This guide focuses on healthy food and giving examples of healthy meals and guidance for their preparation, supply, storage and display in school canteens so that students enjoy eating a healthy and sound diet.

Schools administrations and suppliers are kindly requested to comply with the safety and hygiene requirements of canteens stated in this guide to assure healthy and safe food.

Regards,





بلدية دبي  
DUBAI MUNICIPALITY

إدارة الرقابة الغذائية  
Food Control Dept.

### Our Vision

**Creating an excellent city that provides the essence  
of success and comfort of sustainable living.**

2011