



### Learning Objectives

- Know about the food groups and its significance.
- Gain knowledge on food pyramid.
- Apply the knowledge on maintaining good health.
- Understand the basic principles of the preparations.

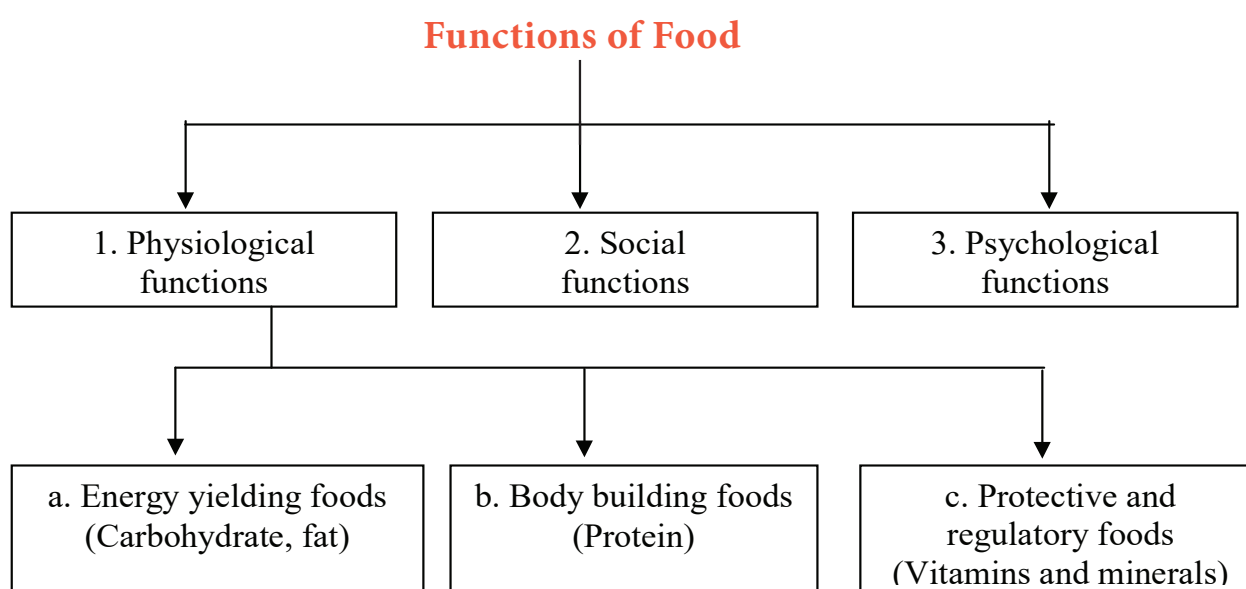


Food is an important basic need of man and is needed for growth, development and to stay healthy. Food contains nutrients that are essential for body functions and for maintaining normal nutritional status. Hence, food plays a key role in a person's physical and mental wellbeing. The nutrients like carbohydrates, proteins, vitamins and minerals not only

help a person with good health but also meet the additional needs during special conditions like pregnancy, lactation and during convalescence.

### 2.1 Functions of Food

Food can be classified according to the function it performs.



▲ Figure 2.1 Functions of Food

### 2.1.1 Physiological Functions of Food

- Satisfies hunger and increases satiety value.
- Helps in maintaining normal secretion of enzymes and hormones.
- Supplies nutrients that are needed for physical growth and development, maintenance of normal body functions, physical activity and health.



▲ Plate 2.1 Functions of food

**a. Energy Yielding Foods:** They provide energy to perform voluntary and involuntary processes in the body. The



▲ Plate 2.2 Energy Yielding Foods

energy needed is supplied by oxidation of foods consumed.

Cereals, millets, roots and tubers, fruits like banana, dried fruits, sugar and jaggery, oil, butter and ghee are energy yielding foods.

**b. Body-Building Foods:** Foods rich in protein are called body building foods.

Milk, egg, meat, fish contain protein of high biological value. These foods have all the essential amino acids in correct proportion for the synthesis of body tissues.

Foods like pulses, oilseeds and nuts contain protein but may not contain all the essential amino acids required for the human body.



▲ Plate 2.3 Body Building Foods

**c. Protective and Regulatory Foods:** Foods rich in vitamins and minerals have regulatory functions in the body e.g., maintaining the heart beat, water balance, temperature. Protective foods prevent diseases as they are rich in antioxidants.



▲ Plate 2.4 Protective and Regulatory Foods

Fruits, vegetables, green leafy vegetables, milk, egg, fish and liver serve as protective and regulatory foods.

### 2.1.2 Social Functions of Food

- Food is a symbol of hospitality throughout the world.
- It is a part of community, social, cultural and religious life.
- It creates a relaxed atmosphere when people are together and it is an instrument for developing social rapport.



#### DO YOU KNOW?

##### How much fluid do we need?

An individual should drink 1.5 - 2 litres of fluid daily to maintain healthy kidney and prevent urinary infections.

The body needs extra fluids when energy expenditure is high and also in hot weather.

- Food is a vehicle for expressing love, friendship and social acceptance in the events like festivals, marriage and birthday party.

### 2.1.3 Psychological Functions of Food

- Gives mental happiness
- Provides sense of security
- Relieves stress and gives pleasure.

## 2.2 Four Food Groups and Food Pyramid

### 2.2.1 Significance of the Four Basic Food Groups

The four food groups can be used for the following purposes.

- i) Planning wholesome, balanced menus to achieve nutritional adequacy
- ii) Assessing nutritional status – a brief diet history of an individual can disclose inadequacies of food and nutrients from any of the four food groups. Based on the assessment, nutrition education can be given to an individual.

### 2.2.2 ICMR Basic Four Food Groups

According to Indian Council of Medical Research (ICMR) the nutrients in Basic four food groups are given in table 2.1.

### 2.2.3 Food Pyramid

The food guide pyramid was introduced in 1992 by United States Department of Agriculture (USDA). It is a valuable



**Table 2.1 Four Food Groups**

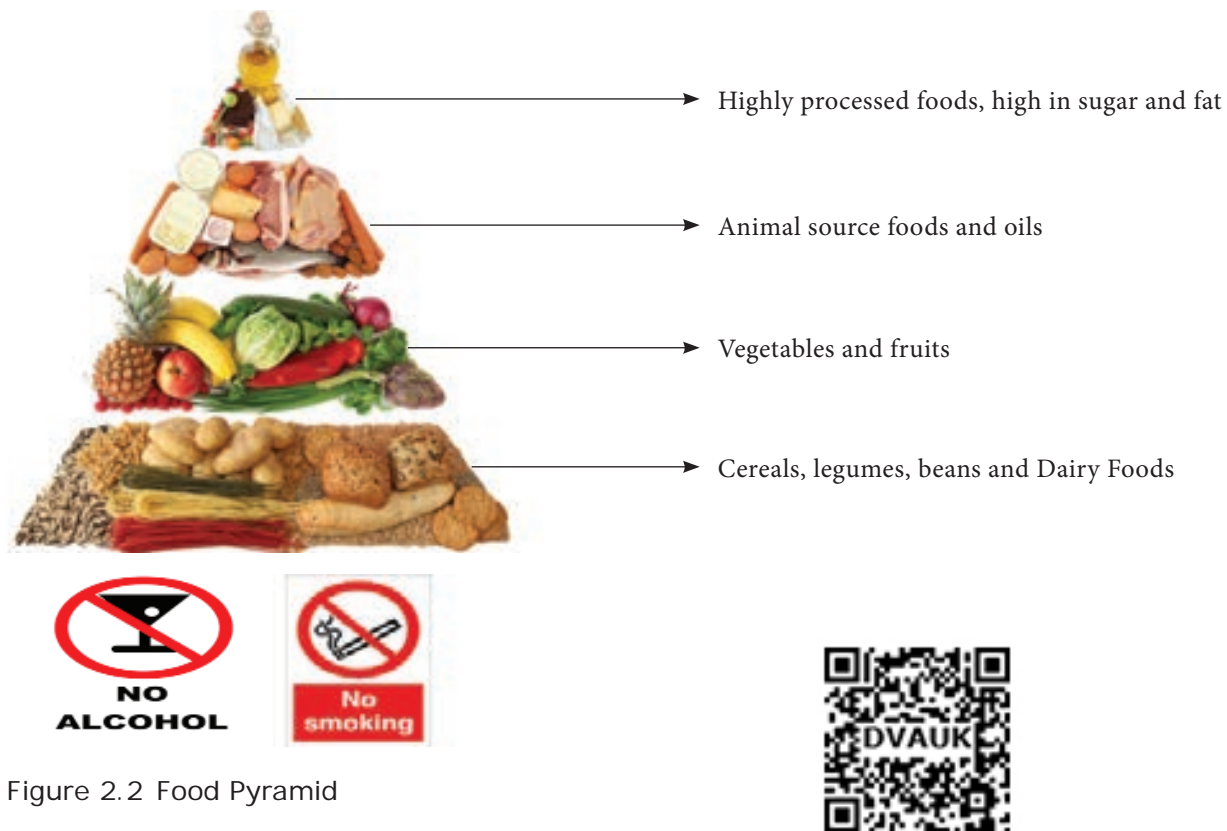
S.No.	Food Groups	Main Nutrients
1	<b>Cereals, millets and pulses:</b> Rice, wheat, bajra, maize, ragi, jowar, barley, rice flakes, wheat flour, malted cereals, Bengal gram, black gram, green gram, red gram (whole as well as dhals) cow pea, peas, rajmah, soya bean, beans, horse gram and sprouted pulses	Energy, protein, invisible fat, thiamine, riboflavin, folic acid, iron, calcium and fibre
2	<b>Vegetables and Fruits</b> <b>Green leafy vegetables:</b> Amaranth, spinach, drumstick leaves, beetroot leaves, coriander leaves, curry leaves, mustard leaves, fenugreek leaves  <b>Other vegetables:</b> Carrot, onion, brinjal, ladies finger, capsicum, beans, drumstick, cauliflower  <b>Fruits:</b> Guava, tomato, mango ripe, papaya, orange, sweet lime, water melon, grapes, amla	Carotenoids, riboflavin, folic acid, calcium, iron, fibre  Carotenoids, folic acid, calcium, fibre  Carotenoids, vitamin-C, fibre
3	<b>Milk and milk products, egg, meat and fish</b> <b>Milk and Milk Products:</b> Milk, curd, skimmed milk, cheese  <b>Egg</b>  <b>Meat:</b> Chicken, liver, mutton  <b>Fish</b>	Protein, fat, riboflavin, calcium,  High biological value protein, vitamin A  Protein, fat, vitamin-A, gamma-aminobutyric acid  Omega-3 Fatty acids, Vitamin A & E
4	<b>Oils &amp; fats and nuts &amp; oilseeds:</b> Butter, ghee, hydrogenated fat (vanaspathy), gingelly oil, groundnut oil, mustard oil, coconut oil, Ground nuts, Gingelly seeds, Cashew nuts, Almonds	Energy fat, essential fatty acids, fat soluble vitamins

Source : Nutritive Value of Indian Foods, National Institute of Nutrition, ICMR (2017)

tool for planning a health promoting diet. The food pyramid (Figure 2.2) provides recommendation for the number of daily servings that should be consumed from each of the food groups. Food

pyramid clearly represents that cereals should form the major bulk of the diet followed by fruits and vegetables, pulses, milk and meat products and less amount of sugar and oils. Food pyramid helps an





▲ Figure 2.2 Food Pyramid

individual to choose favourite foods by incorporating the principles of balance, variety and moderation.

The table 2.2. shows the quantity of food recommended for adolescents.

**Table 2.2 Portion Size of Foods for Adolescents**

Food groups	Portion size (g)	Number of portions	
		Girls	Boys
Cereals and millets	30	10	14
Pulses	30	2	2
Milk	100	5	5
Roots and tubers	100	1	2
Green leafy vegetables	100	1	1
Other vegetables	100	1	1
Fruits	100	1	1
Sugar	5	6	7
Fats and oils	5	5	5

Source : Nutritive Value of Indian foods, National Institute of Nutrition, ICMR (2011)



▲ Plate 2.5 Balanced Meal



## DO YOU KNOW?

### An Ancient Remedy

In India, toasted fennel seeds are chewed after eating to prevent bad breath and to help digestion. In Rome, fennels are eaten to prevent obesity.

It is also recommended to stimulate milk production. A teaspoon full of boiled, cooled, weak fennel tea can be used as gripe water for infants.





## 2.3 Herbs for Good Health

*“Let Medicine be thy food and Let Food be Thy Medicine”*

*Hippocrates, 400 B.C*

Food acts as a therapeutic agent in healing sickness/disease and maintaining health. It allows body to function properly. Points to be kept in mind to maintain health are given below:



▲ Plate 2.6 Medicinal Herbs

## Principles of Food and Health


- Solely taking vitamin supplements is not the way to good health. -Use foods rather than supplements to treat and prevent chronic diseases.
- Good nutrition creates good health in all areas of existence.
- Nutrition can substantially control the adverse effects of noxious chemicals.
- Nutrients in right quantities are important for health

### 2.3.1 Medicinal Value of Herbs

A herb is a plant or plant part used for its scent, flavor or therapeutic properties. Herbal medicines are one type of dietary supplement.

Following Table 2.3 gives therapeutic uses of herbs.

**Table 2.3 Medicinal Value of Herbs**

Herbs / Therapeutic Uses	
<p>Improves blood circulation, menstrual problems. Relieves kidney pain and used in treating diabetes.</p> 	<p>Acts as a tonic for stomach and heart. Used for treating urinary tract infection.</p> 

▲ Plate 2.7 Curry Leaves

▲ Plate 2.8 Coriander Leaves



**Table 2.3 Medicinal Value of Herbs**

Herbs / Therapeutic Uses	
<p>Contains antioxidant and anti-inflammatory agent called rosmarinic acid to treat allergies. It is natural anti-microbial agent and breath freshener</p>  <p>▲ Plate 2.9 Mint</p>	<p>Helps to alleviate cold, cough and reduce sore throat It treats asthma and bronchitis It aids in digestion</p>  <p>▲ Plate 2.12 Karpooravalli</p>
<p>Well known immunity booster Helps to tolerate stress Relieves mouth ulcers and treat bronchitis Treats skin disorders Promotes hunger</p>  <p>▲ Plate 2.10 Tulsi</p>	<p>It acts as a laxative Controls cough and flatulence It helps to regulate uric acid in Stomach It helps in regulating diabetes.</p>  <p>▲ Plate 2.13 Fenugreek</p>
<p>It is used to treat joint pain, arthritis It treats itchy scalp and dandruff It treats eczema Prevents menstrual cramps</p>  <p>▲ Plate 2.11 MudakathanKeerai</p>	<p>It is used to treat digestive tract spasms, stomach ache. Helps to control high blood pressure. Helps to treat rheumatism.</p>  <p>▲ Plate 2.14: Lemon Grass</p>

Source : Reader's Digest 'Foods that harm foods that heal' edited by Alasdair MacVivier, Liz Taseen(2001)



## 2.4 Preliminary Preparation

Preliminary preparation of food is very essential to prepare healthy delicious dishes. The efficiency of a cook depends on how he/she organizes work in the kitchen. If pre-preparation is thoroughly and systematically done then the service will be carried out smoothly.

A good chef takes pride in the thoroughness and quality of the pre-preparation or *mise-en-place* (pronounced *meez-on-plahss*). This French term meaning “everything put in place,” has become almost a professional password in kitchen, because it is important for the success of the establishment.

Pre-preparation saves time and energy. The following steps should be followed before the actual cooking.

- Assemble tools required.
- Collect ingredients needed for cooking
- Wash, trim, cut, prepare, and measure raw materials.
- Check equipment before cooking.

**a. Cleaning/Washing:** All raw ingredients should be washed and cleaned before cooking to ensure microbiological safety of food. All vegetables should be washed thoroughly before peeling or cutting.



Dry ingredients like cereals and pulses should be cleaned to remove dirt, stones and foreign matter before cooking.

**b. Peeling:** Most of the vegetables and fruits are peeled before the preparation of

recipe. The outer skin will be peeled using a peeler or knife. Care should be taken to peel the skin very thin



because most of the nutrients are under the skin of the fruits and vegetables. Certain vegetables like potatoes can also be peeled after boiling. Tomato skin can be peeled after blanching.

**c. Grinding:** Grinding reduces the food to a fine form. Dry grinding helps to get masala powders and wet grinding helps to get chutneys and batters for idli, dosai and adai.



**d. Grating:** Shredding of certain foodstuffs is called grating. Vegetables and fruits can be grated to make salads interesting. Cheese can be shredded to decorate the foods prepared.



**e. Soaking:** Foodstuffs are generally soaked to make them soft as it helps to make cooking faster and grinding easier. Cereals and pulses are soaked for grinding and cooking. It enhances







## DO YOU KNOW?

### How Food Works as Medicine

1. Balances hormones
2. Controls inflammation
3. Neutralizes acid base balance
4. Detoxifies and eliminates toxins
5. Improves absorption
6. Balances blood Sugar

nutritional value and helps in removing the toxic substances. It also saves time and fuel.

**f. Germination:** Germination is the process of a seed to cause sprout or form new tissue following metabolism. In order to sprout seeds like ragi, green gram, cow pea and bengal gram soak in water



Covering with muslin cloth for germination



**Germinated Green Gram** for 8 hours and drain water and cover it in a muslin cloth and keep it in the room temperature for another 8 hours. Sprouting of seeds can be seen. This process enhances the nutritive value by increase in vitamin , folic acid and malting of sugar take place.

**g. Blanching:** Vegetables and fruits are immersed in boiling water for a few minutes and then in cold water. This is called blanching. Blanching is used in



Blanching

food preservation as it inactivates the enzymes that cause food spoilage. This method is also used to loosen the skin of fruits to peel them easily and used for purees and canned foods.

**h. Marinating:** Food is soaked in a marinade to add flavour and tenderize it.

A marinade is a combination of oil, flavouring agents and acid.

**Eg:** Meat, fish, and vegetables



**i. Cutting:**



Cutting

**Easy**  
Dos and Don'ts

### For Teen Workers - Safe Knife Handling -

#### Do:



- ✓ Keep knives sharpened and let other staff know when knives are newly sharpened.
- ✓ Use a knife only for its intended purpose.
- ✓ Use the appropriate knife for the job.
- ✓ Carry knives with the cutting edge slightly away from your body.
- ✓ Store knives properly in racks or knife sheaths.

#### Don't:



- ✗ Touch knife blades.
- ✗ Try and catch a falling knife, let it fall.
- ✗ Hand a knife to someone. Put it down on the counter and let him or her pick it up.
- ✗ Leave a knife soaking in a sink of water.
- ✗ Talk to people while using a knife.

▲ Figure 2.4 Safe Knife Cutting



## 2.4.1 Basic Cuts and Shapes

Cutting food products into uniform shapes and sizes is important for two reasons:

1. It ensures even cooking.
2. It enhances the appearance of the product

### Common Vegetable Cuts:

- Brunoise (broon-wahz); Fine dices (3mm × 3mm × 3mm)  
Fine dices are used to make soups, usili and fried rice.



▲ Plate 2.15 Brunoise

- Dicing  
Small dice: (6mm × 6mm × 6mm)  
Medium dice: (12mm × 12mm × 12mm)  
Large dice: (2cm × 2cm × 2cm)

Medium dice are mostly used in the fried items using yam, raw plantain.

Large dice of vegetables are used in the preparation of mourkuzhambu, sambar.



▲ Plate 2.16 Dicing

**Julienne** (or allumette): (3mm × 3mm × 6cm)

Julienne cuts are used in the preparation of salads and noodles



▲ Plate 2.17 Julienne

- Batonnet: Means little sticks (6mm × 6mm × 6–7.5cm)  
Batonnet cuts are used for making fish fingers.
- French fries or pommefrite: 8–12mm sq × 7.5cm long.

The following terms describe other cutting techniques:

- Chop: to cut into irregular shaped pieces.



▲ Plate 2.18 Batonnet



▲ Plate 2.21 Chopped Coriander



▲ Plate 2.19 Pomme Frite



▲ Plate 2.22 Mince d Onion



▲ Plate 2.20 Coarsely Cut Tomatoes

**Eg:** coriander leaves chopped to garnish dishes.

- Concasser (con-cass-say): to cut coarsely.

**Eg:** tomato cuts for thokku.

Mince: to chop into very fine pieces.

**Eg:** meat for cutlets.

- Shred: to cut into thin strips, either with the coarse blade of a grater or with a knife.

**Eg:** Cheese is shred to top sandwiches and pizzas.

A complete preliminary procedure is part of the mise-en-place or pre-preparation.

## 2.5 Preparation of Suitable Food for a Customer in Food Service

A good restaurant sets a high standard for its food quality and ensures that guests receive





the same quality with every meal. The success of a food service is determined by quality assurance by providing wholesome quality food to the customer in a pleasant manner. High-quality ingredients and experienced personnel are important to serving good food consistently. The way of presentation can lift the dish out of the realm of the ordinary and make it a special creation. These can be achieved by colour and appearance, texture and variety, food presentation and service and ambience.

**a. Colour and Appearance:** The appearance of the food helps to attract the attention of the customers as the looks help in tasting the food. The appearance can be colour, texture and also presentation. Food can be made appealing and appetizing by the way foods appear on the plate. The colour combination with vegetables, natural food colour and combination of spices makes the dish beautiful and more attractive to the customer. Appearance of food only decides the customer's choice of food to be consumed. It describes the origin of food and creativity of the presenter looks and appetizing. Rice served in white color with curd raitha may look monotonous instead of pulao served with tomato sauce or plain rice with sambar may be eye appealing. Little coriander on soups or any dish or a salad with different vegetables or a fruit salad with all kinds of fruits helps to increase the stimulation.

**b. Texture and Variety:** Texture is the sense of food. Choose textures that complement each others. Contrasting texture adds much to the value of food and can lift the dish. If texture is all soft or all firm, it does not appeal to the customer.

It is interesting to have variety of textures on the plate but how these textures are combined is very important.

Another important rule is balancing variety and contrast. Variety can be achieved by various textures and colour. Vegetables combined with different cuts to make vegetable noodles – (Julienne 1/4 inch strips) or vegetable rice (Dice 1/2 × 1/2 inch).

**c. Food Presentation and Service:** Food presentation is as important as taste and flavour of food. The way food is presented to the customers will make a restaurant successful and unsuccessful. No matter how delicious a dish may be, it really matters how it is presented. Service depends on customer expectation. Convenient, timely service, good presentation, serving food at correct temperature and cordial personnel will attract customers. **Eg:** For a kids party it can be fun design instead traditional presentation. Vegetable and fruit carvings, designs and toppings will help to increase the attractiveness of the food, depending on the type of food.

Successful handling of food by maintaining its right temperature with right accompaniments (combination) helps to present the food to full advantage. Preparation of service in terms of laying the cover, placing the right crockery, cutlery according to the dishes that will be served leads to success of any food service. In Indian cuisine banana leaf, katories and Thali are used to serve in a traditional way. While for international cuisines appropriate crockery and cutlery for each course should be placed.



**d. Ambience:** Atmosphere is determined by the décor, uniforms of staff, dress codes of staff, type of service and cutlery and crockery.

The customer's first impression of the restaurant will be the final impression. It can be done by a good table setting that complement the menu and the decor. Desirable ambience can be achieved by maintaining hygienic standards, impeccable hospitality skills, good music, right colour combination and furniture to suit the theme of the restaurant. Comfort with furniture impacts ambience. Creating

more space for customers will make them feel at ease. The lighting enhances the visibility of the food and hence helps in increasing the appearance in turn helps to gain attention. Perfect lighting and creating good mood to eat will make up ambience.

This phenomenon of making food tailored for each customer will have many advantages to the food service institution. It helps to increase the customer turnover and customer satisfaction. It also increases the confidence of the food service institution among the customers.

### Key Words

- Brunoise** : Fine dices  
**Dicing** : Small dice  
**Julienne** : Cuts are used in the preparation of salads and noodles  
**Concasser** : Cut coarsely  
**Chop** : Cut into irregular shaped pieces  
**Mince** : Chop into very fine pieces  
**Shred** : Cut into thin strips

### Linkages

[https://www.youtube.com/watch?v=Gmh\\_xMMJ2Pw](https://www.youtube.com/watch?v=Gmh_xMMJ2Pw) -How to Create a Healthy Plate  
<https://www.youtube.com/watch?v=sssM7c-HiRg>- 4 Food groups  
<https://www.youtube.com/watch?v=G-Fg7l7G1zw>- Basic Knife Skills

### Student Activity

- Identify and name the various millets, pulses and spices in English and Tamil.
- Planning a weekly menu for a school hostel using four food groups
- Cook any one nutritious recipe.
- Bring Medicinal herbs to start a herb garden in school. Plant them and take care of them.
- Training on different cuts of vegetable and prepare a dish with the same.



### Teacher Activity

- Prepare a tray with foodstuffs from the lab to show how food is classified.
- Plan a sample menu using the Food Pyramid and the Four Food groups.
- Facilitate for the development of Kitchen and herbal garden Encourage students to grow herbs in the garden and use them for their practical.
- Demonstration of different types of cutting.



### Questions

#### I. Choose the correct answer

1. Nutritive value of Indian foods is given by .....
  - a. WHO
  - b. ICMR
  - c. USDA
  - d. FAO
2. Soya bean is a rich source of .....
  - a. Fat
  - b. Protein
  - c. Carbohydrate
  - d. Fibre
3. Garnish with coriander improves----- of the food
  - a. Appearance
  - b. Texture
  - c. Variety
  - d. Ambience
4. Julianne cuts of vegetable is followed in the preparation of -----
  - a. Accompaniment
  - b. Vegetable pulao
  - c. Sauce
  - d. Dessert
5. Recommendation for the number of daily servings to be consumed from each of the food group is given by .....
  - a. Four food groups
  - b. Food Pyramid
  - c. Functional Food
  - d. Therapeutic food
6. Green leafy vegetables and fruits are rich source of .....
  - a. Carbohydrates
  - b. Proteins
  - c. Vitamins and Minerals
  - d. Fats
7. A herb used as a breath freshener
  - a. MudakathanKeerai
  - b. Coriander
  - c. Mint
  - d. Tulsi
8. Décor, Color, Light , and furniture creates -----
  - a. Beauty
  - b. Ambience
  - c. Appearance
  - d. Attraction





9. Water required for drink daily is .....
- 1 litre
  - 1.25 litres
  - 2 litres
  - 2.5 litres

10. The number of servings for fats in food pyramid is-----
- High
  - Medium
  - Sparing
  - Very much limited



## II. Write in three lines (3 Marks)

- Food is known as 'an important basic need of man'. Why?
- Pulses are not high biological value of protein food. Give reason.
- What are the Social functions of food?
- What is 'mise-en-place'?
- State two reasons for cutting fruits and vegetables into uniform shape and size.
- How will you bring good ambience in a Restaurant?
- Presentation and service- What are the steps you will take to attract the customer?
- Identify the medicinal value of any two herbs.
- Suggest food herbs for a person suffering from digestive problems.
- State the uses of dicing and Julienne cuts.



## III. Write in a paragraph (5 Marks)

- Draw the food pyramid and state its need for planning menu.
- Tabulate Portion size of foods for an adolescent girl. Evaluate the adequacy of proteins in Indian diet. Give suggestions to improve the same.
- State the principles of food and health – Justify.
- What are the preliminary pre-preparation methods used for making sundal? Give reasons.
- Indicate the safe handling of knives.



## IV. Answer in detail (10 Marks)

- Classify food and Explain.
- Write in detail about the different types of cutting.
- How will you make a food appealing for a customer in a food service?
- Plan a day's menu for an adolescent girl and state reasons for the inclusion of foods.

