CATERING MANAGEMENT

Certification of Ships' Cooks Convention, 1946 (No. 69)

Convention concerning the Certification of Ships' Cooks

Article 1

1. This Convention applies to sea-going vessels, whether publicly or privately owned, which are engaged in the transport of cargo or passengers for the purpose of trade and registered in a territory for which this Convention is in force.
2. National laws or regulations or, in the absence of such laws or regulations, collective agreements between employers and workers shall determine the vessels or classes of vessels which are to be regarded as sea-going vessels for the purpose of this Convention.

Article 2

For the purpose of this Convention the term ship's cook means the person directly responsible for the preparation of meals for the crew of the ship.

Article 3

1. No person shall be engaged as ship's cook on board any vessel to which this Convention applies unless he holds a certificate of qualification as ship's cook granted in accordance with the provisions of the following Articles.
2. Provided that the competent authority may grant exemptions from the provisions of this Article if in its opinion there is an inadequate supply of certificated ships' cooks.

Article 4

1. The competent authority shall make arrangements for the holding of examinations and for the granting of certificates of qualification.
2. No person shall be granted a certificate of qualification unless—
   (a) He has reached a minimum age to be prescribed by the competent authority;
   (b) He has served at sea for a minimum period to be prescribed by the competent authority; and
   (c) He has passed an examination to be prescribed by the competent authority.
3. The prescribed examination shall provide a practical test of the candidate's ability to prepare meals; it shall also include a test of his knowledge of food values, the drawing up of varied and properly balanced menus, and the handling and storage of food on board ship.
4. The prescribed examination may be conducted and certificates granted either directly by the competent authority or, subject to its control, by an approved school for the training of cooks or other approved body.

Maritime Labour Convention, 2006 (MLC, 2006)

Regulation 3.2 - Food and catering

Purpose: To ensure that seafarers have access to good quality food and drinking water provided under regulated hygienic conditions

1. Each Member shall ensure that ships that fly its flag carry on board and serve food and drinking water of appropriate quality, nutritional value and quantity that adequately covers the requirements of the ship and takes into account the differing cultural and religious backgrounds.

2. Seafarers on board a ship shall be provided with food free of charge during the period of engagement.

3. Seafarers employed as ships' cooks with responsibility for food preparation must be trained and qualified for their position on board ship.

Standard A3.2 - Food and catering

1. Each Member shall adopt laws and regulations or other measures to provide minimum standards for the quantity and quality of food and drinking water and for the catering standards that apply to meals provided to seafarers on ships that fly its flag, and shall undertake educational activities to promote awareness and implementation of the standards referred to in this paragraph.

2. Each Member shall ensure that ships that fly its flag meet the following minimum standards:

   (a) Food and drinking water supplies, having regard to the number of seafarers on board, their religious requirements and cultural practices as they pertain to food, and the duration and nature of the voyage, shall be suitable in respect of quantity, nutritional value, quality and variety;

   (b) The organization and equipment of the catering department shall be such as to permit the provision to the seafarers of adequate, varied and nutritious meals prepared and served in hygienic conditions; and

   (c) Catering staff shall be properly trained or instructed for their positions.

3. Shipowners shall ensure that seafarers who are engaged as ships' cooks are trained, qualified and found competent for the position in accordance with requirements set out in the laws and regulations of the Member concerned.

4. The requirements under paragraph 3 of this Standard shall include a completion of a training course approved or recognized by the competent authority, which covers practical cookery, food and personal hygiene, food storage, stock control, and environmental protection and catering health and safety.

5. On ships operating with a prescribed manning of less than ten which, by virtue of the size of the crew or the trading pattern, may not be required by the competent authority to carry a fully qualified cook, anyone processing food in the galley shall be trained or instructed in areas including food and personal hygiene as well as handling and storage of food on board ship.

6. In circumstances of exceptional necessity, the competent authority may issue a dispensation permitting a non-fully qualified cook to serve in a specified ship for a specified limited period, until the next convenient port of call or for a period not exceeding one month, provided that the person to whom the dispensation is issued is trained or instructed in areas including food and personal hygiene as well as handling and storage of food on board ship.

7. In accordance with the ongoing compliance procedures under Title 5, the competent authority shall require that frequent documented inspections be carried out on board ships, by or under the authority of the master, with respect to:

   (a) supplies of food and drinking water;
   (b) all spaces and equipment used for the storage and handling of food and drinking water; and
   (c) galley and other equipment for the preparation and service of meals.

8. No seafarer under the age of 18 shall be employed or engaged or work as a ship's cook.

Guideline B3.2 - Food and catering

Guideline B3.2.1 - Inspection, education, research and publication

1. The competent authority should, in cooperation with other relevant agencies and organizations, collect up-to-date information on nutrition and on methods of purchasing, storing, preserving, cooking and serving food, with special reference to the requirements of catering on board a ship. This information should be made available, free of charge or at reasonable cost, to manufacturers of and traders in ships' food supplies and equipment, masters, stewards and cooks, and to shipowners' and seafarers' organizations concerned. Appropriate forms of publicity, such as manuals, brochures, posters, charts or advertisements in trade journals, should be used for this purpose.

2. The competent authority should issue recommendations to avoid wastage of food, facilitate the maintenance of a proper standard of hygiene, and ensure the maximum practicable convenience in working arrangements.

3. The competent authority should work with relevant agencies and organizations to develop educational materials and on-board information concerning methods of ensuring proper food supply and catering services.

4. The competent authority should work in close cooperation with the shipowners' and

seafarers' organizations concerned and with national or local authorities dealing with questions of food and health, and may where necessary utilize the services of such authorities.

Guideline B3.2.2 - Ships' cooks

1. Seafarers should only be qualified as ships' cooks if they have:

   (a) Served at sea for a minimum period to be prescribed by the competent authority, which could be varied to take into account existing relevant qualifications or experience;

   (b) Passed an examination prescribed by the competent authority or passed an equivalent examination at an approved training course for cooks.

2. The prescribed examination may be conducted and certificates granted either directly by the competent authority or, subject to its control, by an approved school for the training of cooks.

3. The competent authority should provide for the recognition, where appropriate, of certificates of qualification as ships' cooks issued by other Members, which have ratified this Convention or the Certification of Ships' Cooks Convention, 1946 (No. 69), or other approved body.

Food has always been regarded as essential for the survival of mankind. It has provided man with more than something to eat. In the primitive ages, men wandered from place to place in a continuous search for food through hunting in order to live. Later, they learned to produce food to meet their needs. In those days, food was regarded as something essential for survival. Men ate in order to live.

As men became more civilized, food was given more social importance. Today, man uses food as a vehicle for sharing hospitality and friendship or as a means of celebrating important events, such as fiesta, a wedding or baptism where friends and relatives from far-off provinces may come to celebrate the occasion. Moreover, food served will definitely be special, unlike those served every day. It is certainly an eating event without regard for any physiological reasons. Food is also used to enliven a gathering of friends.

I. CATERING MANAGEMENT ACTIVITIES

In as much as we eat 3X a day, 365 days a year, it is essential that some thought is put into planning, preparation, and service of meals. Otherwise, mealtimes will become boring, monotonous and uninteresting.

Realizing the factors that influence food and dining, and the many ways to make dining interesting, careful planning is needed to be able to provide nutritionally adequate, economical and satisfying meals. In order to achieve these, it is important to know the essentials of catering management.

Catering Management is the efficient use of available resources to provide meals that are nutritionally adequate, sanitary and aesthetically pleasing, economical in terms of cost, time and energy.

The activities in catering management include the following:

a. Available Resources

Human resources

- Include the available time and energy of the staff
- Knowledge, skills and capabilities in planning, preparing, and serving meals

Non-human resources

- Include the amount of money, facilities and equipment available for preparation and serving of meals and the food materials required for the meal

b. Purchasing and Storage of Food Supplies

A well-planned menu does not ensure satisfying meals unless we are able to buy the proper food items on the menu. Purchasing is a complicated activity and needs a lot of decision-making if we want to obtain the best with the least amount of money, time and energy. Proper purchasing should make economical use of time and energy as well as money.

c. Preparation and Cooking of Food

Resources in terms of time and energy in the preparation of meals should be managed with emphasis on work simplification methods in the kitchen, proper use of tools and equipment, conservation of nutrients and aesthetic preparation of food.

d. Table Setting and Food Service

The manner in which meals are to be served varies with the mood and the occasion of dining. One way is informal and used for daily dining; the other is showy and formal and used when guests are present.

e. Clearing of the Table and Dining Areas

The job of the galley staff does not end after the food has been served, but until the dining area is cleared, dishes are washed and galley has been secured.

Goals of Catering Management

Based on the above-mentioned definitions and activities, catering management gives particular attention to minimize the use of resources, time and energy. Correct catering management has the following goals:

a. Provision of nutritionally adequate meals

Foods prepared are rich in essential food nutrients needed by an individual based on his age, sex, body built and activities engaged in.

b. Provision of satisfying meals

Consider the food differences and food habits, e.g., dietary habits of the nationality-groups; regional food pattern; cultural and religious patterns; socio-economic background.

Proper combination of food, texture and shapes as well as variety in color, form and arrangement.

What people eat and the conditions under which foods are to be served.

c. Economical use of available resources

Time and energy could be saved by simplifying the methods of doing work.

The Catering Department

Scope and Responsibilities of the Department

The Catering Department is responsible for catering/food supplying services which include the production of the right quantity of food at the best standard for the correct number of people at the correct time by the most effective use of staff, equipment and materials.

Eating meals three times a day is one of the greatest pleasures for crew members on board ship, thus, it is essential for the staff of this department to recognize that providing good meals will not only enhance the morale of the crew members but also create a cheerful and congenial (pleasant) atmosphere aboard the ship.

A. Duties and Responsibilities

1. Planning menu is the key job of the Catering Department since it determines the daily operational schedule of the department.
2. Purchasing / Budgeting is an important element or basis in making menu. A well-planned menu does not ensure satisfying meals unless we are able to buy the proper food items on the menu.
3. Proper preservation and storage of food would help in the efficient management of food on board. Thus it is necessary that food will be handled carefully and be inspected periodically.
4. Food preparation should observe rules for safety and sanitation/hygienic preparation of food. It should also observe proper conservation of food nutrients,

minimum use of time and energy, food cost and waste, and aesthetic and sanitary quality of food.

5. Meal service includes provision of courteous and sincere table service to officers /crew members.
6. Stewarding is taking care of all the domestic concerns on board. Comfortable life of crew on board will be created from a clean and shipshape environment.

B. Duties and Responsibilities of the Staff

Staff Chief Cook is responsible for:

1. Efficient management of the Catering Department under the supervision of the Chief Officer;
2. Inventory control of ship's provision and linen;
3. Upkeep and maintenance of cleanliness of the galley, pantry, dining room and cooking materials;
4. Planning of menu, request for provisions and preparation of nutritious, adequate, satisfying meals of the crew members.

Second Cook

1. Assists the Chief Cook in the preparation/cooking of food for crew members;
2. Responsible for the cleanliness and hygiene of the galley, mess room and mess room pantry;
3. Washes the dishes of the ratings;
4. Cleans the provision chambers and dry provision store rooms;
5. Provides the galley with clean dish towels daily;
6. Responsible for cleaning/washing and ironing of linen and bed sheets of officers;

Messman

1. Responsible for cleaning, washing and ironing of linen and bed sheets of officers;
2. Responsible for the cleanliness and hygiene of the dining saloon and saloon pantry;
3. Washes the officers' dishes;
4. Cleans the cabins of the officers daily;
5. Cleans the ship's office, recreation room and saloon deck lavatory;
6. Performs other assigned tasks.
7. Assist in receiving provisions.

Housekeeping Activities of the Galley Crew

The following tasks of the galley crew should be observed regularly:

1. Daily cleaning of the galley, pantry, mess room, passageways, stairs, toilets, bathrooms, recreation room, offices and officers' cabins
2. Change daily: pantry towel, chef’s apron, lavatory towel, duster
3. Clean and arrange the following every two weeks:
   a. Refrigerated chambers (for meat/fish), consumable stores, stores for dry

provisions, linen store, chamber lobby, vegetable stores, small refrigerators in the galley;

b. Clean thoroughly the meat slicer, disposer, mince machine, microwave range, seasoning table, exhaust fan filter;

c. General cleaning of the galley, provision stores (wet and dry) before entering a Japanese port.

4. Change the bed sheets, pillow case, bath towel every two weeks
5. Distribute the goods supplied by the Company (Laundry soap/bath soap/ fabric conditioner/face towels/bath towel)

a. Blankets, quilts, sheets, quilt covers, pillow covers, vacuum bottles, tumblers, trash baskets, ashtrays, towels, bath towels, soap, sponges, and cleanser.

b. Provide the public room with fixtures, draw consumable stores and distribute the necessary quantity of each item to each place for use: galley, pantry, mess rooms, recreation room, office, bathrooms, toilet, sport's room, radio room and bridge.

Routine Works of the Galley, Staff

TIME	CREW IN-CHARGE	ASSIGNMENTS
0500H - 0900H	Chief Cook	1. Cooks and serves breakfast 2. Provides all foodstuff for lunch and dinner 3. Clean and prepare foodstuff for cooking
	Second Cook	1. Bring foodstuff to the galley 2. Cooks the breakfast 3. Prepares food for lunch and dinner 4. Washes used cooking utensils 5. Washes dishes of ratings 6. Clean mess room after mealtimes
0500H 0700H	Messman	1. Cleans the saloon 2. Sets table for breakfast 3. Open the ship's office curtain 4. Clean C/O's, 1/E's cabins and recreational rooms
0700H 0900H	Messman	1. Serves the officers during breakfast 2. Washes dishes of officers 3. Cleans Captain's and C/E's cabins including the Pilot Room
1030H 1300H	Chief Cook	1. Cooks and serves lunch 2. Prepares menu for the following day 3. Washes used cooking utensils
	Second Cook	1. Cooks lunch under the supervision of the Chief Cook 2. Washes used cooking utensils 3. Washes dishes of ratings 4. Cleans the mess room

1030H 1130H	Messman	1. Cleans 3/O's, 3/E's and R/O's cabins 2. Sets table for lunch
1130H 1300H	Messman	1. Serves the officers during lunch 2. Cleans 2/O's and 2/E's cabins 3. Washes the officer's dishes
1600H 1830H	Chief Cook	1. Cooks and serves dinner 2. Prepare foodstuffs for tomorrow's menu 3. Cleans and locks the galley and provision chambers
1600H 1830H	Second Cook	1. Cooks dinner under the supervision of the Chief Cook 2. Washes and cleans cooking utensils and arranged in respective shelves / places 3. Cleans the floor of the galley with soap and brush 4. Cleans the mess room
1600H 1700H	Messman	1. Sets the table for dinner 2. Draws ship's office curtain 3. Washes linen, bed sheets, etc.
1700H 1830H	Messman	1. Serves the officers during dinner 2. Washes dishes of the officers and clean up saloon and saloon pantry

II. MEAL PLANNING

A. Importance

Meal planning is of vital importance in both the consideration of proper nutrition and in the target group's real enjoyment for food. Serving the same group of people day after day is not an easy task to achieve. Hence, thinking ahead and deciding the series of activities in catering management to be able to produce satisfying meals (and avoid monotonous foods) and prevent sickness is necessary.

B. Factors to Consider

1. Know your target persons (crew needs and preferences)
   The first requisite in menu planning is to know for whom the menu is being planned and what they like to eat. The following information will help the cooks during the planning process:
   a. Age and sex of the target persons
   b. Occupation or activities engaged in
   c. Local food customs and taste
   d. Nutritional requirements or food intolerances
   e. Nationality;
   f. Religion

2. Location
   a. Know supply of available foods: know features of each port;
   b. Distance from markets.

3. Season of the year
   If menus are to be compiled a long time, and purchasing will be made in advance of the actual date, the season of the year should be considered because of:
   a. Weather. It may be hot, cold or mild and certain dishes which would be acceptable in hot weather would be most unsuitable in cold weather and vice versa.
   b. Foods in season should be included in menus wherever possible as they are usually in good supply, of good quality and of reasonable price.

4. Hours of service
   In planning the menu, the time range for the various meals served during the day must be considered.

5. Types of meal service
   The method of serving the food will vary according to the type of the people, occasion and budget.

6. Capability and skill of the galley staff
   The capabilities of the cooks should be considered. The demands of the menu should not exceed the manpower skills available.

7. Number of persons to be served

8. Facilities and equipment
   A well-planned menu will tend to consider equipment available for food storage, preparation, cooking and food service. Moreover, non-availability of some cooking equipment and table appointments may destroy the plan.

9. Food budget
   Every ship's procurement work under the budget. An allocated amount of money is reserved for the food and beverage for consumption. The chief cook should ensure that the budget is used appropriately to sustain the needs of the crew onboard.

C. Menu Planning

1. Definition of terms:
   a. A-la-Carte - listed as a single item and priced separately from other food
   b. Meal - food eaten or served at one time
   c. Menu - a list of food
   d. Meal Planning - the process of thinking ahead or deciding the series of activities in catering management

e. Menu Planning - a thought - provoking task of listing down specific food and dish desired for one meal
f. Course - represent the dish contained in the menu or meal
g. Dish - a particular variety or preparation of food
h. Continental Breakfast - fruit, toast, preserves, coffee or, chocolate
i. Oriental Breakfast - fruit, toast, preserves, egg/hot-dog or other meat dish, coffee or chocolate

2. Kinds of Meals Served
   a. Breakfast - first meal of the day; the most important meal
   b. Lunch - meals served in mid-day
   c. Dinner - meals served in late afternoon (night)
   d. Brunch - combined breakfast and lunch, lighter than lunch, heavier than breakfast and usually served between 1000H to 1300H.

3. Meal Pattern for Different Meals Served
   a. Breakfast

Appetizer	(fruit juices/fresh fruits/vegetables)
Main Dish	(egg dish/meat dish)
Cereal	(toast/bread/rice)
Beverage	(coffee/chocolate/milk)

   b. Simple Lunch/Dinner
      - Soup
      - Main Dish
      - Vegetables
      - Dessert

   c. Formal Lunch/Dinner
      - Hors d'oeuvres
      - Soup
      - Salad
      - Entrée (White Wine)
      - Dessert
      - Main Course (Red Wine)
      - Fruits
      - Cakes/Pastry
      - Coffee/Tea
      - Petit Fours

Guidelines in Planning a Menu

A. Nutritive Aspect

Nutrition

Nutrition refers to the food consumed and how the body uses it. Nutrients are substances present in food that keep us healthy, make us grow and give us heat and energy.

Kinds of Nutrients

Proteins are known to be the building blocks of the body. They are essential for growth, for building body tissues and for basic body function. They can also be used for energy if the diet does not contain enough carbohydrates and fats. Proteins consist of substances called amino acids. The body is able to manufacture many of them, but the eight amino acids that it cannot produce must obtained from foods. A food protein that contains all eight amino acids is called complete protein. Meat, poultry, fish, eggs, and dairy products contain complete proteins.

- Proteins are components that make body tissues, and are contained in meats, fish, eggs, and soybeans in large quantities. With a normal diet, there is almost no deficiency.

Carbohydrates are any of the group of inorganic compounds that includes sugar, starches and gums that serve as a major energy source in the diet of man.

Most foods taken by humans consist of sugars, mainly polysaccharides. The most common type is starch that is degraded to glucose through the process of digestion, and is absorbed. Foods are first broken down by amylase in saliva in the oral cavity to maltose, but a part of them is broken down only to dextrin. In addition, they are broken down with digestive fluids in the stomach and intestine to glucose, and are absorbed in small intestine. Moreover, oligosaccharides such as sucrose and lactose are broken down by digestive enzymes in the intestinal fluid to monosaccharide, and are absorbed into the intestine. Pectin and cellulose, which have no digestive enzymes in the human body, are broken down by enteric bacteria in the large intestine, and part of them is absorbed.
Carbohydrates generates 4 kcal, sugariness or saccharinity generates 4 kcal, and lipid generates 9 kcal.

Dietary fiber is an inclusive term of polysaccharide, lignin, chitin, and keratin, which are not digested by the digestive enzymes in humans. Dietary fibers are considered to inhibit colonic cancer. In addition, the inhibition of increase and the inhibitory effect of cholesterol in the blood increase the excretion of bile by increasing the intake of dietary fibers, which consequently reduces cholesterol, a synthesized

component of bile acid. Besides, dietary fibers are expected to be effective for prevention of arteriosclerosis and ischemic heart disease by reducing cholesterol.

Vitamins are present in foods in extremely small quantities, but they are essential for regulating body functions. In addition, lack of certain vitamins cause diseases called deficiency diseases. Fat-soluble vitamins are classified as water-soluble and fat-soluble. Fat-soluble vitamins (A, D, E, and K) can be stored in the body so they do not need to be eaten every day, as long as the total amount eaten over a period is sufficient.

- Vitamin B2 is one of the vitamin B complexes contained in yeasts, germs, liver, etc. It is required to accelerate the growth of animals, and vitamin B2 deficiency can cause sore oral cavity and lips. Deficiency may be caused by taking antibiotics or tranquilizers.
- It is a water-soluble vitamin, and it is necessary to take care when handling foods.
- Vitamin D helps absorb calcium from the intestine. Vitamin D deficiency causes osteomalacia. Because diabetes mellitus is a metabolic disorder of the sugar taken, it is not related to vitamin D.
- Nyctalopia is a vitamin A deficiency.
- Vitamin C can be synthesized in the bodies of animals such as dogs and rodents. Because it cannot be synthesized in the human body, however, it is taken from foods. It is contained in fresh vegetables and fruits in large quantities, but it is soluble in water, so attention should be paid to handling. Vitamin C deficiency causes scorbutus (subcutaneous hemorrhage and bleeding from the gums).
- Vitamin E certainly has antioxidant effects, but as nuts contain a large amount of lipids, excessive consumption of nuts leads to obesity.
- Vitamin A is a fat-soluble vitamin that is contained in large amounts in the livers of chickens, pigs, cows, etc.
- Excessive consumption of salt causes lifestyle-related diseases, salt should be taken in an amount of 10 g or less a day.

Fat function as a protector of vital organs of the body to provide heat and energy and certain fats also provides vitamins.

Lipids are present in subcutaneous tissues and visceral organs in large quantities. They are energy sources and play a role in maintaining body temperature by reducing the diffusion of body heat from body surface. Lipids are completely oxidized in the body. If they are degraded in water and carbon dioxide, 9 kcal/g is produced, so it is more efficient as an energy-storing material than sugars and proteins. In addition, compound lipids function as components of cell membrane.

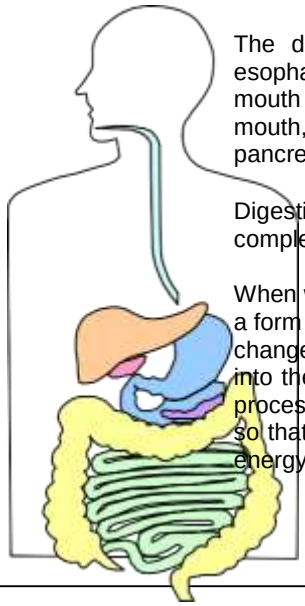
- Polyunsaturated fatty acids such as linoleic acid and linolenic acid, contained in vegetable oil reduce cholesterol

- Dietary fibers have a water-absorbing effect (water retention), delay digestion and absorption and inhibit absorption of cholesterol.

Minerals are also consumed in very small quantities and are essential for regulating certain body processes. The most important minerals in the diet are calcium, phosphorous, iron, copper, iodine and sodium. A compound of salt, is somewhat of a health problem, not because we don't get enough of it but because many people get too much. Too much sodium contributes to high blood pressure.

Nutrient dense foods provides the most nutrients for the lowest amount of calories. In other words, more nutrients for less calorie intake. Nutrient dense foods provides substantial and relatively fewer calories

Malnutrition is the state in which the physical function of an individual is impaired to the point where the person can no longer maintain an adequate level of performance such as physical work, resisting or recovering from illness, maintaining an adequate level of growth, or the process of pregnancy and lactation.



THE DIGESTIVE SYSTEM

The digestive system is composed of a series of organs (mouth, esophagus, stomach, small intestine, large intestine, anus) from the mouth to the anus. Inside this tube is a lining called the mucosa. In the mouth, stomach, and small intestine, glands (from liver, gallbladder, pancreas, lining) produce juices to help digest food.

Digestion begins in the mouth, when we chew and swallow, and is completed in the small intestine.

When we eat such things as bread, meat, and vegetables, they are not in a form that the body can use as nourishment. Our food and drink must be changed into smaller molecules of nutrients before they can be absorbed into the blood and carried to cells throughout the body. Digestion is the process by which food and drink are broken down into their smallest parts so that the body can use them to build and nourish cells and to provide energy.

The menu must always consider proper nutrition, it should meet the nutritional requirements and not only planned to satisfy hunger. Hence, meals served must include the food sources of essential nutrients (carbohydrates, fats, protein, vitamins and minerals) daily with the aid of the guide to good nutrition.

a. Energy Giving Foods

Supplies the energy needed by the body to be able to function well

a. Rice and Other Starchy Products: (Rice/Corn/Tubers/Root crops)
b. Fat-Rich Foods: (oils/lard/butter, etc.)

b. Body Building Foods

Essential for growth, repair and maintenance of body tissues

a. Protein-Rich Foods (Meat/fish/eggs/poultry/nuts/beans)

c. Body Regulating Foods

Provides the body with the essential vitamins/minerals, regulates body processes.

a. Green Leafy and Yellow Vegetables
b. Vitamin C - Rich Foods
c. Other Fruits and Vegetables

A balanced diet is one that gives your body the nutrition it needs to function properly. In order to get truly balanced nutrition, you should obtain the majority of your daily calories from fresh fruits and vegetables, whole grains, and lean proteins.

A balanced diet is important because your body's organs and tissues need proper nutrition to work effectively. Without good nutrition, your body is more prone to disease, infection, fatigue, and poor performance. The number of calories in a meal is a measure of the amount of energy stored in that food. Your body uses calories from food for walking, thinking, breathing, and everything else it does. The average person needs to eat about 2,000 calories every day to maintain his or her weight. Nutrition physiology deals with different types of food and their effects on the metabolism. One topic of nutrition physiology is vitamin loss of frozen foods. Another topic is the calculation of required calories per day and what sort of food should best be avoided for a healthy lifestyle.

A person's daily calorie intake should be based on age, gender, and physical activity level. Men generally need more calories than women, and active people need more calories than sedentary (inactive) people. The following examples of calorie intake are based on U.S.

Department of Agriculture (USDA) guidelines:

GENDER	AGE	CALORIES
Children	2 to 8	1,000 to 1,400
Active Women	14 to 30	2,400
Sedentary Women	14 to 30	1,800 to 2,000
Active Men	14 to 30	2,800 to 3,000
Sedentary Men	14 to 30	2,000 to 2,600
Active Men and Women	over 30	2,200 to 3,000
Sedentary Men and Women	over 30	1,800 to 2,200

The source of your daily calories is just as important as the number of calories you consume. You should limit your consumption of "empty calories," or those that provide little or no nutritional value. The USDA defines empty calories as calories that come from sugars and solid fats, such as butter and shortening.

According to the USDA, Americans consume empty calories most often in: bacon and sausages, cakes, cheese, cookies, doughnuts, energy drinks, fruit drinks, ice cream, pizza, sports drinks and sodas.

How to achieve Balanced-Diet?

At the core of a balanced diet are foods that are high in vitamins, minerals, and other nutrients and low in unnecessary fats and sugars. The following are essential parts of a balanced diet.

Fruits

Besides being a great source of nutrition, fruits make quick and tasty snacks. Choose fruits that are in season in your area—they are fresher and provide the most nutrients.

Vegetables

Vegetables are primary sources of essential vitamins and minerals. Dark, leafy greens generally contain the most nutrition and can be eaten at every meal. Examples include spinach, kale, green beans, broccoli, and collard greens.

Types of Vegetarian

1. Lacto-vegetarian diets exclude meat, fish, poultry and eggs, as well as foods that contain them. Dairy products, such as milk, cheese, yogurt and butter, are included.
2. Ovo-vegetarian diets exclude meat, poultry, seafood and dairy products, but allow eggs.
3. Lacto-ovo vegetarian diets exclude meat, fish and poultry, but allow dairy products and eggs.
4. Pescatarian diets exclude meat and poultry, dairy, and eggs, but allow fish.
5. Pollotarian diets exclude meat, dairy and fish, but allow poultry.

Grains

In the United States, they consume refined white flour more than any other grain. During the refining process, the hull of the grain—the outer shell—is removed. Unfortunately, the hull is where the majority of the grain's nutrition lies. Whole grains, which are prepared using the entire grain, including the hull, provide much more nutrition. Try switching from white to whole-grain breads and pastas.

Proteins

Meats and beans are primary sources of protein, which is essential for proper muscle and brain development. Lean, low-fat meats such as chicken, fish, and certain cuts of beef and pork are the best option. Removing the skin and trimming off any visible fat are easy ways to reduce the amount of fat and cholesterol in meats.

Nuts and beans, such as lentils, peas, almonds, sunflower seeds, and walnuts, are also good sources of protein. Tofu, tempeh, and other soy-based products are excellent sources of protein and are healthy alternatives to meat. Some people have physical reactions when nuts are consumed. Their body reacts differently to the nutrients or chemical of the food. These are considered allergens. Symptoms could be wheezing or shortness of breath.

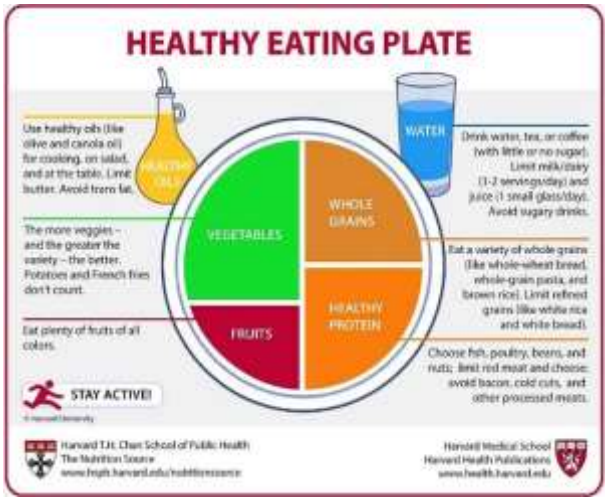
Dairy

Dairy products provide calcium, vitamin D, and other essential nutrients. However, they are also major sources of fat, so it is best to choose reduced-fat or fat-free cheeses, milk, and yogurt.

Oils

Oils should be used sparingly. Opt for low-fat versions of products that contain oil, such as salad dressing and mayonnaise. Good oils, such as olive oil, can replace fattier vegetable oil in your diet. Avoid foods that have been deep-fried in oil because they contain a large number of empty calories.

PLATE PORTION PERCENTAGE CHART



Protein

Meat, Poultry or Seafood

Go lean with protein keep portion to ¼ of the plate nuts, beans, peas seeds, poultry, lean meat, seafood, soy and eggs are in this group

Carbohydrates

Potato, Rice or Pasta make at least half your grains whole. Read labels to find more whole grain foods whole wheat oatmeal and brown rice are all good

Minerals

Fruits Or Vegetables Vary Your Veggies any vegetable or 100% vegetable juice counts as a member of the vegetable group

Developing Healthier Menus

Reduce fat and cholesterol: offer fish, chicken, turkey. Reduce sodium in soups, sauces, marinades offer low-fat and low-sugar foods like fruits and vegetables reduce portion sizes offer fresh-fruit desserts, sugar-free beverages, unsweetened cereals, baked items made with less sugar.

Metabolism

The organic and chemical processes inside of an organism that are necessary to maintain life or how quickly one can burn calories or fat.

Common Diseases

Hypertension, or high blood pressure, is a common condition that will catch up with most people who live into older age. Blood pressure is the force of blood pressing against the walls of your arteries. When it's too high, it raises the heart's workload and can cause serious damage to the arteries. Over time, uncontrolled high blood pressure increases the risk of heart disease, stroke, and kidney disease.

Symptoms

High blood pressure is sometimes called a silent killer because it may have no outward symptoms for years. In fact, one in five people with the condition don't know they have it. Internally, it can quietly damage the heart, lungs, blood vessels, brain, and kidneys if left untreated. It's a major risk factor for strokes and heart attacks in the U.S. Sodium, a major component of salt, can raise blood pressure by causing the body to retain fluid, which leads to a greater burden on the heart. The American Heart Association recommends eating less than 1,500 milligrams of sodium per day. Check food labels and menus carefully. Processed foods contribute up to 75% of our sodium intake. Canned soups and lunch meats are prime suspects.

- Stress may lead to other unhealthy habits, such as a poor diet, alcohol use, or smoking, which can contribute to high blood pressure and heart disease.

- Limit the amount to not more than two drinks a day for men, or one a day for women. They define a drink as one 12-ounce beer, four ounces of wine, 1.5 ounces of 80-proof spirits, or one ounce of 100-proof spirits.
- Non-pharmacologic Treatment
- Lifestyle modifications includes:
  - Dietary sodium restriction
  - Exercise
  - Cessation of smoking
  - Control of lipids

Arthritis is a joint disorder featuring inflammation. A joint is an area of the body where two different bones meet. A joint functions to move the body parts connected by its bones. Arthritis literally means inflammation of one or more joints.

Causes of Arthritis

- Injury (leading to osteoarthritis)
- Metabolic abnormalities (gout)
- Hereditary factors
- Direct and indirect effect of infections (bacterial or viral)
- Misdirected immune system with autoimmunity (rheumatoid arthritis)

Anti-Arthritis Foods

Several nutrients affect arthritic symptoms, some by reducing inflammation and others by retarding the degeneration of cartilage or normalizing immune reactions.

Non-Pharmacologic Treatment

Patient education regarding joint protection and avoidance of excessive joint loading is important for these patients. Physical measures like hot pack, paraffin bath or occupational therapies may be helpful.

B. Economic Aspect

The menu planned must meet the food budget/money available for making a food plan, a tool used to plan the menu.

Food Plan is a list of foods classified in broad groups needed to meet the food requirements of the persons to be served for a given period. It can be used as a shopping list for purchasing the amounts of food necessary to meet the budget and ensure adequate food supply:

FOOD GROUP	NO. OF CREW	FREQ./ WEEK	TOTAL REQ.	WEEKLY REQ.	TOTAL/ MONTH
Meat Pork, lean*	23	3x/wk	3kg	9kg	36kg

*8 persons per kilo

Or, assign a certain percentage of the food budget for each food and classification:

Meat and Poultry	-	20%
Fish and Seafood	-	20%
Fruits and Vegetables	-	10%
Rice/Cereals	-	20%
Dairy	-	10%
Miscellaneous	-	20%

Minimize Cost of Meals

1. Consider proper substitutes.
2. Utilize leftovers.
3. Plan for dishes or recipes utilizing inexpensive food items.
4. Plan for food that the crew like/prefer to avoid plate waste and leftovers.

C. Managerial Aspect

Plan meals that will make reasonable demands on the time and energy of the kitchen staff.

Minimize amount of time and energy by planning meals:

1. According to your capabilities.
2. According to the efficiency and availability of facilities for food preparation and services.
3. To avoid excessive use of the same equipment, thus, you can be able to use different methods of cooking.
4. So that dishes will not require last minute preparation for other staff.

Aesthetic Quality

Variety in food preparation is essential especially if we are catering to a "captive audience" or the same group of people day after day. In any food service no matter how limited the menu or how transient (short period of time) the patrons, the food that is served should be presented in an appealing manner. It is a fact that eyes do the half of the eating, thus meals must be pleasing and satisfying:

1. Variation in color (use of color is perhaps the most effective in terms of eye appeal).
2. Variation of foods selected: fish/pork/beef.
3. Variation in mode of preparation.
4. Contrast in flavor, consistency, shape and form.
5. Contrast in texture.
6. Proper temperature.
7. Prepare foods preferred by many.
8. To break monotony, prepare something new.

Suggestions in Planning Menu

Menus are planned according to how marketing is done. It should be planned according to the following suggestions:

Shellfish, crabs, shells are planned during the first days, fish can be planned for the rest of the days. Very small fishes should be planned during the first days
Perishable vegetables such as the leafy greens, are planned for the first part of the week fruit vegetables can be planned for the first few days

Mechanics in Planning Menu

In making a one-week menu:

a. Start with the main dishes for the lunch or dinner of the most important meal of the week.
b. Plan for the main dishes for the lunch or dinner of the regular days of the week.
c. Then plan the breakfast, soup and dessert.

In making a cycle menu:

a. Basic ingredient of all the main dishes for all the days main dishes are generally made from:

Pork	Chicken	Beef	Seafood
Entrails	Legumes	Fish	Ground meat

Sample Menu Planning

	Meals	Sun	Mon	Tue	Wed	Thurs	Fri	Sat
First Week	Lunch	Pork	Meat Bones	Beef	Legumes	Entrails	Fish	Ground Meat
	Dinner	Fish	Ground Meat	Chicken	Seafood	Pork	Meat Bones	Beef
Second Week	Lunch	Chicken	Seafood	Pork	Meat Bones	Beef	Legumes	Entrails
	Dinner	Legumes	Entrails	Fish	Ground Meat	Chicken	Seafood	Pork
Third Week	Lunch	Fish	Ground Meat	Chicken	Seafood	Pork	Beef	Legumes
	Dinner	Meat Bones	Beef	Legumes	Entrails	Ground Meat	Chicken	Seafood

b. Using the pattern, plan specific dishes for the food item:
    1. If the main dish is dry for lunch, serve main dish with sauce or soup for dinner.
    2. If the main dish is dry, the accompaniments should be saucy.
    3. If the pork for Sunday is dry (ex. Pork Adobo) the Meat bones for Monday should be with soup (ex. Ox-knuckles with Red Beans).
    4. For Filipino dishes served on board, soup for lunch is as important as the daily rice served for the Filipino crew. Always provide soup onboard lunch.

c. If the pork is served 2X a week, serve it in varied styles, or if served 5X during the cycle menu, vary the style 5X, in the following sequence:
   Roast Pork
   Pork Sinigang
   Sweet and Sour Pork
   Pork Chop, fried,
   Pork Menudo

d. If certain combination of dishes is served, do not repeat the same combination on the 2nd and 3rd cycle.
e. If Roast Pork with vegetable salad is used in the first week, Pork Chop should not be planned with vegetable salad on the 2nd week, even if the vegetable salad is different.

Advantages of Cycle Menu

a. Overproduction and over purchase has been greatly reduced
b. Waste has been reduced
c. Inventory has turned faster because of better purchasing
d. Since all menus are known, we can estimate our crew needs more accurately

III. BUDGETING

Introduction

A well planned menu does not ensure satisfying meals unless we are able to buy the proper food items on the menu. Purchasing is a complicated activity and needs a lot of decision making if we want to obtain the best with the least amount of money. Proper purchasing should also make economical use of time and energy.

Purchasing

Purchasing is the buying of materials of the right quality, right quantity, right time, right source at the right price. Purchasing has for its function - to buy the best merchandise at the lowest price. The basic criterion in food purchasing is not the lowest price or the greatest amount for the money. Rather it is the yield or the quantity of cooked, edible food produced or yielded from a given quantity of raw food purchased. For example, a cut of beef, such as a rib roast from which the bones have been removed, may yield servings at a lower unit cost than a lower priced cut of beef which includes waste in bones and trimmings. A higher priced food item may often yield more servings of better quality than a similar item on which the purchase price is lower.

Comparison of the cost per serving portion of different meat cuts

Food and Description	Cost per Purchase	Size per Serving Portion	Number of Serving Portions	Cost per Serving Portion
Pork, lean	P120.00	125 g	8 per kilo	P15.00
Pork legs (trotters)	P90.00	250 g	4 per kilo	P22.50

The Buyer

The buyer must have practical knowledge and experience. He should know the basic cuts of meats and the differences between the various grades. He should be familiar with the methods of processing, grading, and packaging of fresh, canned, frozen, and dehydrated fruits, vegetables, groceries and staples. The buyer must have some knowledge in quantity cookery so that he is able to select the types of food best suited to the needs of the food service for which he buys.

Food Specification

The purpose of food purchasing is to procure the types and kinds of foods offered on the menu. The best way to achieve this objective is through the use of written specifications - a statement of particulars in specific terms or an accurate picture of the definition of a product. Through specifications, buying standards are set up and the chandlers or suppliers are expected to comply with them. The specifications must be in full detail and in language that is clear and concise. It should include the following:

a. Condition upon receipt (frozen or chilled)
b. Cut of pieces per container, per kilo, or per lot (18/22 for prawn size, 10 pcs per kilo)
c. Geographical sources (Philippine mango, Idaho potato, Australian mussels)
d. Packing requirement (box, vacuum-sealed, in tins)
e. Percentage mixture (half and half milk, concentrated)
f. Size of the containers, number (1 case of beer, 1 box)
g. Trade or brand name (Knorr brand, Ayam brand)
h. Type of processing (smoked, dried)
i. Type or style (peeled tomatoes, puree tomato)

Food specification provides suitable buying standards for a particular operation and a common denomination for market bidding. It also gives uniformity and consistency in purchasing, receiving and maintaining a desired food cost.

The ship's chandler will purchase the requested items more specifically if the chief cook would be able to identify the brand, weight, origin, etc. below is a chart of measurement conversions to specify the weight of the item. In that case, the buyer would be able to provide the specified order easily.

Ounce	1 oz.	1 ½ oz.	2 oz.	3 oz.	4 oz.	5 oz.	6 oz.	7 oz.	8 oz.
Grams	28 g	43 g	57 g	85 g	114 g	142 g	170 g	198 g	227 g

1 tsp 5 ml		1/4 C	1/3 C	1/2 C	2/3 C	3/4 C	1 Cup 16 T
	1 T	4 T	5 1/3 T	8 T	10 2/3 T	12 T	
	15 ml	60 ml	80 ml	120 ml	160 ml	180 ml	

1 Cup 240 ml	2 Cups	4 Cups	2 Quarts	4 Quarts 1 Gallon
	1 pint	1 Quart	½ Gallon	
	480 ml	950 ml	1.890 L	

Classes of Purchases

Food purchases may be grouped under the following headings:

1. Perishable Foods - meats, poultry, seafood, fruits, vegetables, butter, eggs, etc.
2. Staple Foods - groceries, spices, and packaged items (flour, sugar, condiments).
3. Contract Items - bread, rolls, pastry, milk, ice cream, coffee, etc., which can be purchased on a formal or implied contract basis.

Federal Standards

For more than 50 years the United States Government through the Department of Agriculture, has established standards and grading procedures for meats, dairy products, and processed foods. With respect to meat products, the government maintains an inspection service of slaughterhouses. Such federal inspection is required for meats shipped across state lines. Federal inspection stamps appear on inspected carcasses that are to be shipped interstate.

These federal services maintain uniformity as well as safety. The experienced buyer makes use of the standards set as a sound basis for comparison knowing that he can rely upon the designated grades. There are however, variations in qualities and yields within the grades. The food buyers must take this into account in seeking the best buys.

Grade shields and inspection legends may appear on bags containing larger wholesale cuts.

1. Meat Grades
   Meats are graded by federal graders in accordance with 3 basic characteristics:
   a. Conformation
      The general form and structure of the carcass. This involves ratio of the bone to total weight.
   b. Finish
      Color, type, and distribution of the fat throughout the carcass. "Marbling" is one of the characteristics that is evidenced in the fine lines of fat running through the meat.
   c. Quality
      This is an overall appraisal of the carcass, taking account its potential tenderness and palatability when cooked.

Grades of meat purchased in restaurants and institutional food services are usually from the following, listed in order of desirability and price:

Beef	Pork	Veal & Lamb	Mutton
Prime	US#1	Prime	Choice
Choice	US#2	Choice	Good
Good	US#3	Good	Commercial
Standard		Commercial	
Commercial			

Grades below Commercial, known as Utility, Cutters and Canners, or in lamb and mutton known as culls, are not generally available to the institutional trade, but are used by the packers in preparing processed meat products.

Poultry Grades

Poultry refers to birds which have been domesticated for egg and meat production. Broilers, fryers, roasters, and turkeys are graded as follows by the US Department of Agriculture:

US Special or US Grade AA
US Prime or US Grade A
US Choice or US Grade B
US Commercial or US Grade C
Most food services are US Grades A & B. The practice now is to mark the grade names on tags sealed to each bird. The boxes in which the poultry is packed are also stamped with the US Grade mark.

Chicken

Fresh chicken can be bought as broilers (or broiler fryers), roasters, capons, and stewing chickens. Broiler-fryers are usually marketed when 8 weeks old and weighs between 1 1/2 and 3 1/2 pounds. A fryer is similar but generally slightly larger.

Roasters are tender chickens weighing from 3 1/2 to 5 pounds and are marketed when about 12 weeks old. Capons are castrated male chickens weighing from 4 to 7 lbs. Stewing chickens are mature hens with meat less tender than that of broilers or roasters. Federal grading and inspection applies only to chickens shipped in interstate commerce and not necessarily to chickens sold within the state in which they are processed. Inspection is for wholesomeness with the inspection mark found on the giblet bag, wing-tip, or carton.

Fresh, ready-to-cook chickens can be procured whole, split in halves without the backbone, or split into quarters. Whole legs, thighs, drumsticks, breasts, backs, wings, and giblets are also available as parts or portion controlled. Boned chicken breasts and boned half-breasts can also be purchased.

Chicken are classified according to the age at which they are slaughtered: native are more flavorful, and tougher than leg horn.

CLASS	AGE
Broiler	8-12 weeks
Fryer	14-20 weeks
Rooster	5-9 months
Capon (unsexed male)	7-12
months Pullet	5-9 months
Stag (male chicken)	10 months

Eggs

Grading of eggs depends upon clearness of the white, blemishes of yolk, size of air cell within the egg and condition of the shell. The quality of the egg at the time of grading and the date graded is indicated by the grade imprint. It is also important to check the length of time so-called the storage eggs have actually been in storage. Methods of collecting eggs at as well as from the farm also affect their freshness.

There are four major standards of quality of chicken eggs: A, B, C, and D. These are based on the interior factors as condition, of the white and yolk, the size and conditions of the air cell and exterior factors of cleanliness and soundness of shell.

As a rule, if large eggs are more than 15% higher in price than medium eggs, it is more economical to buy medium eggs. In the Fall, when medium eggs are in large supply, this size egg is generally a better buy.

Frozen eggs have been used for many years for bakery purposes. They come in 30 pound containers as whites, sugar yolks or whole eggs.

Dried eggs, known as whole-egg solids, egg white solids, or egg yolk solids are also in the market.

What Item to Purchase?

In considering what to buy, one must be able to recognize the best quality in each type or class of food, and decide what will be the best buy at minimum cost.

Sometimes within the same type of food there are variations in state, or form, in quality, in availability and in cost.

Buying Meat

Common types of fresh meats are as follows:

a. Beef*
b. Carabeef
c. Chevon (goat's meat)
d. Lamb (under 1 year old)
e. Mutton (above 1 year old)
f. Pork*
g. Rabbits

*Not usually procured for Indian officers because of religious preference

Consider the desirable characteristics for each type of meat:

a. Tenderness varies with each type according to the texture of muscles and characteristics of the fat.
b. Meats of animals with fine textured muscles and with good marbling are tenderer than those with coarse fiber and little marbling.
c. Generally, carabeef is less tender than beef.

Consider the state of the meat

a. Fresh - the meat was just slaughtered and immediately brought to the market; tender when cooked immediately.
b. Chilled - the meat was kept after thorough cooling at 30^{O}F to 36^{O}F, 48 hours after slaughter; if undergone ripening will be more tender than fresh meat during rigor - mortis (sets - in after a few hours the animal is slaughtered, thus, fresh meat becomes tough when cooked; chilled meat have better quality.
c. Frozen - meats stored for long periods at 0°F (-18°C).

Select the cut most suitable to the type of preparation desired. In general, it is preferable to use tougher meat cuts for stewed dishes; it is tastier and more flavorful

Retail Cuts of Pork

a. Head (Ulo) - includes all parts of the head with a portion of the jowl
b. Shoulder: Picnic (Casim) - lower half of the shoulder
c. Boston Butt (Paypay) - is the upper half of the shoulder
d. Hind Leg or Ham (Pigue) - portion perpendicular to the hind leg; the tail is removed and hind foot is cut on or about the hock point
e. Loin (Lomo) - a small piece of muscle attached underneath the spinal column and is separated before cutting in retail
f. Belly (Liempo) - the remaining portion after removing the loin and the spare ribs
g. Spare Ribs (Tadyang) - separated from the belly
h. Pork Chop (Costillas) - portion ventral to the vertebral column
i. Pig's Feet (Pata) - includes the fore and hind feet which are cut as described above
j. Internal Organs (Laman-loob) or Entrails - include liver, tongue, spleen, kidneys, lungs, intestines, panopano

Consider the color of the fat:

Beef	-	yellowish fat
Carabeef	-	white
Pork	-	white

Consider the grain of the muscle; younger animals have fine grained muscles and are tenderer.
Consider the type and amount of connective tissues.

Retail Cuts of Beef

a. Fore-hind shank (Kenche Unahan) - includes the fore or hind leg which is cut below the rump with the leg cut off.
b. Brisket (Punta y Pecho)
c. Chuck (Paypay)
d. Spare Ribs (Tadyang)
e. Short Loin (Kadera)
f. Flank (Kampto)
g. Ribs (Costillas)
h. Rump (Tapadera)
i. Round (Pierna Corta)
j. Tenderloin (Lomo).
k. Oxtail (Feet)
l. Oxtail (Buntot)
m. Internal Organs - include tripe, liver, tongue, brain, taupe

Consider the ratio of lean meats to bones since this will dictate how much you will buy.

a. Meat cuts with a large amount of bone and waste:

Shanks	pareribs	Short and Back Ribs
Porterhouse	T-Bone Rib	Steaks

b. Meat cuts with a medium amount of bone and waste:

Hams	Roast	Chops	Steaks

c. Meat cuts with little or no bone and waste:

Ground Meat	Meat Cubes
Loin and Rib Chops	Flank
Round Steaks	Boneless Roast
Tenderloin	Brains
Kidney	Heart & Tongue
Liver	Loin

Consider the form available; some cuts are already prepared for specific recipes, the convenience added may increase the price of the commodity/item, but it may be worth it.

Consider the finish (the thickness and distribution of fat inside and outside the carcass and in the flesh itself (marbling) and also the quality, color, and texture of fat since it affects the juiciness, tenderness and shrinkage in cooking; type of finish depends on the type of feeds given the animals: grain-fed cattle produce a creamy white fat; grass-fed cattle produce a yellowish fat; slop-fed hogs produce a soft, oily and grayish fat and a poor finish.

Good and Ideal Finish

1. Pork shows a firm fat, which is white and not brittle.
2. Beef shows smooth, well distributed amount of white to creamy fat in the exterior and a good marbling grade.
3. Consider the odor, it must be free from bad odor unless it is a characteristic odor for that meat.
4. Look for the skin for beef. Beef carcasses should have a piece of naturally attached skin.
5. Consider the color of the muscle; it should be typical for the meat type desired. In general, older animals have darker muscle, while young animals have lighter muscle color, younger animals are tenderer.

Two types of connective tissues:

a. Collagen - whitish in color and changes into gelatine in cooking, thus, is considered more edible; meats with more collagen are more desirable because of tenderness.

b. Elastin - yellowish in color and is not changed by cooking, thus will be tough even after cooking.

Other guidelines in buying meat:

a. Meat may be bought in wholesome cuts: whole, halves, quarters (fore and hind), and retail cuts (the common style in cutting big animals is the Chicago cut – dividing the forequarter and hindquarter between the 12th and 13th ribs).

b. Buy only wholesome products. If meat has offensive odor or discolored, molded, or slimy when opened in the kitchen, return it at once to the market where it was bought, or discard it.

c. Buy cuts and quantity according to intended use.

d. In buying pre-packaged meats with transparent wraps, choose those with leaner portion to bone and fat.

Buying Poultry

Select the type best suited to the method of preparation.

Consider the age of the bird:

a. Younger birds

   Usually tender and more subtly flavored but contain very little fat. Suitable for frying, roasting or grilling. They have flexible beaks and breast-bone tips and smooth skin with no visible hair.

b. Older chicken
   Tougher but have a more appetizing flavor found in young ones.

c. Mature flesh
   Acquires a gelatinous quality that makes it tolerate long cooking required to devise the muscle fibers.

d. Older fowl
   Has fat around the intestines which contributes to better flavor.

Decide what style you prefer; poultry in the market is available live, dressed and drawn or in parts.
Note: Whole chicken are cheaper than parts; dark meat fowl contains more vitamin than light meat.

Poultry parts:

a. Breast - may or may not be separated from the back
b. Drumstick - separated from the thigh by cutting through knee and hock joint
c. Thigh - disjointed at hip point includes pelvic meat
d. Leg - includes thigh and drumstick
e. Wing - includes entire wing with muscle and skin tissue
f. Back - includes pelvic bones and vertebrae posterior to shoulder joint
g. Neck - separated from breast, with head removed
h. Feet - the part which has scales and claws with nails removed
i. Giblets - include gizzards, liver and heart

Buying Eggs

Know how to identify the different types of eggs.
Be familiar with the specifications for good quality eggs and buy them from tested vendors and reputable chandlers.

Quality of eggs refers to the condition of the shell, air-sac, white and yolk.

Fresh eggs - has a clean, unbroken shell and air-sac with a depth of 1/8 inch or less when broken; white is clear and yolk is well rounded

Older eggs - have a bigger air-sac of about 3/8 inch when broken; white is thin and spreads.

Spoiled egg - smell foul and sometimes explodes when broken.

Buy: Grade A eggs, one day old, with clean shells
Size is usually the criterion in purchasing eggs. The various size classifications and minimum weights (30 dozen per crate) are as follows:

Size	Minimum Net Weight
Jumbo	52 gm
Extra	48.5 gm
Large	45 gm
Large	40 gm
Medium	34 gm
Small	52 gm

A few large eggs can cost less than several small ones and give about the same quantity.

Buying Fish and Seafood

1. Know how to recognize freshness; fish and seafood are always best when fresh.
2. Know the different types of fish; each type is best for certain method of preparation.
3. Consider the style desired.

Buying Fruits and Vegetables

Fruits and vegetables are the most difficult food items to buy because of great variations in quality and their high perishability. Quantity in buying these food items depends on the following:

a. Favorable conditions for their growth.
b. Season of their harvest.
c. Variety of the fruit and vegetables.
d. Degree of maturity.
e. Size and uniformity of shape.
f. Presence of defects.

Purchasing Conditions

a. Select the kind and degree of maturity most satisfactory for the use.
b. Select those free from diet, discoloration, surface blemishes and bruise to avoid faster decay.
c. Select the size most suitable for the purpose; size is not the measure of quality, generally smaller fruits and vegetables are tastier: ex: smaller cucumbers are better than big, fat ones taste woody
d. Select those in season since they are plentiful, at peak quality, better-flavored and less expensive.
e. Consider the cost as related to the edible portion, and the amount of waste for each type.
f. Buy only enough for a few days' consumption to get maximum nutrition and

flavor (especially for leafy vegetables).

g. Buy fleshy types that are plump, smooth-skinned and firm, not soft nor soggy.
h. When buying green leafy vegetables, select the young ones which are crisp, bright and free from decay, mold or insects. Avoid wilted, damaged ones; choose green over white varieties.
i. When buying legumes or dry seeds, select those that are free from holes and not powdery. Legumes are susceptible to attack from worms, especially if they have not been stored properly for some time.

Buying Rice

Since rice is our main staple, it is the practice to buy rice in bigger quantities to be stored.

Buying Beverages

Coffee must be bought covered and well-packed in small quantities because it easily loses flavor on contact with air. Buy tea in small amounts as it loses flavor in long storage.

Buying Canned and Packaged Goods

a. Be familiar with can sizes and the number of servings they contain.
b. All necessary information must be indicated in their respective labels. Do not buy canned goods without labels. Check if weights are as stated on labels. The labels must also be sufficiently prominent and contain no foreign words to circumvent (deceive / gain advantage) label requirement.
c. Watch out for defects; do not buy bulging or leaking cans since these are likely spoiled.
d. Buy known brands whose quality you have already tasted.
e. Packaged goods must be well sealed; check containers for convenience and protective factors. Wide mouth jars for spoonable products, slim neck bottles for pourable products, airtight containers for perishables or strong scented foods, bottle caps, etc.
f. Check for the expiry dates of the products; never buy outdated products no matter how cheap

Buying Sugars and Sweeteners

Know the types according to your need. Always check boxes or bags for holes.

Buying Milk and Milk Products

Know the different kinds of milk and milk products, their nutrient contents and keeping qualities, then compare which is best for different purposes.

a. Fresh - pasteurized and homogenized pure cow's milk with natural milk fat, sugar and protein; with expiration dates in plastic packs, tetra packs, and plastic or glass bottle.
b. Evaporated Filled - homogenized and sterilized blend of dry skim milk and refined vegetable fats; cholesterol-free, often vitamin-enriched; sold in tin cans; keeps for month if unopened and not refrigerated; may be used as fresh milk if diluted.
c. Condensed - homogenized blend of non-skimmed milk.

Buying Bread

Know the types of bread:

a. Sliced Loaf Bread - convenient for toast and sandwiches. e.g. plain white, enriched, brown, raisin whole wheat, mongo, rye, soda and breads
b. Soft Buns - usually sold attached to each other; some with sesame seeds on top. e.g. hamburger and hot-dog buns
c. Pan de Sal - bread buns made with salt, variations are pan-de-leche (with milk); pan-de-coco (with coconut); pan-de-mongo (with mongo).
d. Monay - large round breads with sweet taste and heavy texture.
e. Milk Breads- enriched with fat or eggs, have soft texture and keep well. e.g. croissants, French sticks and rolls.

Check for the following:
Dents and holes in the bread. Buy well-shaped loaves. Check date of expiry.
Compare costs, flavor and quality with homemade versions.

Purchasing Cereals, Pasta and Flour

a. Cereals - many varieties are available in plastic bags, boxes, cans and bottles; oats, sago, wheat germ, wheat meal, granola, tapioca, etc.; quick cooking or instant varieties.

b. Pasta - dried dough in various shapes and sizes, creamy colored, some green varieties are made with spinach puree. Pasta swells to thrice its size when cooked, hold its shape; has a sweet nut-like flavor; check plastic bags/boxes for holes. Below are types of pasta.
    1. Strings
       Spaghetti, noodle, vermicelli, local noodles include: misua or Chinese vermicelli (fine thin transparent), sotanghon (thin, glossy, transparent made from mongo): bihon (thick and yellow noodle made from cornstarch), canton (thick and yellow), egg noodles (flat and yellow).
    2. Hollow Tubes
       Macaroni, rigatoni and cannelloni.
    3. Ribbon Pasta
       Lasagna sheet. No cook pasta is also available.
    4. Stuffed Pasta
       Tortellini or ravioli

Buying Fats and Oils

a. Butter is made from ripened cream that is churned until the butter fat separates from the butter milk; has a characteristic rich flavor; available salted or unsalted; quite expensive; has less calories than margarine and more vitamins and minerals .
b. Margarine resembles butter but made of vegetable oils with added milk solids, vitamins and artificial coloring; it is a cheap substitute for butter
c. Lard pork fat rendered at low temperature; white solid, but soft-textured; keeps well, chiefly used for frying
d. Suet is a clear, white solid fat obtained from beef
e. Vegetable shortening is white, solid soft-textured, all-purpose shortening

Buying Condiments, Seasonings and Sauces

a. Salt - has 2 main types: coarse & rock (native salt) varieties: iodized salt, garlic salt, etc., available loose in plastic bags and shakers.
b. MSG.
c. Flavor concentrates of hydrolyzed proteins, water and salt (Knorr and Maggie).
d. Worcestershire Sauce - pungent sauce of soy, vinegar, tamarind, spices and flavorings.
e. Soy Sauce - rich dark brown liquid, made from fermented soybeans.
f. Pepper and Chili Sauces - hot sauces with chili and spices, and red food color.
g. Mustard - in powdered form as yellow paste with a blend of vinegar and seasonings.
h. Catsup - from tomatoes / banana.
i. Banana Sauce - from bananas; a cheap substitute for tomato catsup.
j. Lechon Sauce - thick light brown sauce made from liver, with spices added.
k. Vinegar - fermented sap of coconut, nipa, cane sugar or rice
l. Fish Sauce (Patis) - fermented fish, salt and water, yellow amber to brown liquid, slightly fishy smell and not too salty.
m. Oyster Sauce - viscous brown sauce made from oyster extract.

Buying Flavorings

Common bottled flavorings are extracts of vanilla, almond, lemon, mint, chocolate, rum, coffee, fruits, etc. Cube concentrate flavorings include beef, chicken, garlic, and for sautéing purposes.

Buying Herbs and Spices

Herbs and spices are among the adjuncts used to flavor food; available in cans, bottles, plastic bag and maybe transferred to glass jars for longer storage; buy these in moderate quantities.

Herbs - are aromatic plants whose leaves or seeds are used in cooking; sold fresh or dried, whole or ground.

Common herbs used: garlic, oregano, parsley, chives, mint, thyme, sage, marjoram, rosemary, basil, anise, bay, caraway, curry powder, savory and tarragon.

Spices - mostly seeds from plants grow in hot climates, sold whole or ground: all spice; cinnamon; clover; ginger; mustard, nutmeg, paprika, cinnamon, cloves, mace, saffron, turmeric, chili, caraway, coriander.

Availability of storage facilities

Even when there is enough money to buy in bulk, it is not advisable to do so, if storage facilities are inadequate. Be aware of the shelf life limitations of food items.

When buying in bulk, even if there is enough storage facilities, shelf life of some food items should be considered:

Food Items	Shelf Life
Frozen meats, fish, poultry	1 - 12 months
Canned goods	1 - 12 months
Rice	1 - 6 months
Fresh Eggs	1 week
Butter	2 weeks
Flour	1 - 4 weeks
Cured Meats	1 week
Coffee/Tea	1 week

Portion Control

Portion control means controlling the size or quantity of food to be served to each person (or customer). The amount of food allowed depends on:

1. The type of persons being served - there will obviously be a difference in the size of portions served - for example, to people with heavy activities, such as industrialized workers and female clerical workers.

2. The quality of foods - usually yields a greater number of portions than poor quality ones, such as cheaper stewing beef often needs so much trimming that it is difficult to get six portions to the kilo, and the time and labor involved also means loss of money; on the other hand, good quality stewing beef will often yield eight portions to a kilo with much less time and labor required for the preparation.

3. The buying price of the food - correspond to the quality of the food if the person responsible for buying has bought wisely; a good buyer will ensure that the price paid for any item of food is equivalent to the quality: a good price should mean good quality.

Guides in Purchasing Foodstuffs

1. Make an inventory of foodstuffs before entering a port to get to know the stock in terms of quantity and price, then report it to the Master.

2. Request the Master's opinion on the purchase of foods and receive his instructions regarding the food budget.

3. Prepare the budget estimates:
   a. Check ports where food ingredients can be procured according to the ship's schedule.
   b. In the initial stage of the voyage, make a rough port-wise food purchase plan by taking advantage of features of each port.
   c. Compare and study seasonal price lists at each port.
   d. Make an estimate based on the price lists in order to purchase foodstuff of good quality by considering the quantity and price and whether such foodstuff are local products or imported foods.
   e. Arrange the article names in the corresponding column of an estimate in a systematic order for ready and easy reference; such arrangement will facilitate future inventory.
   f. Make an estimate considering exchange rates, seasonal factors, etc.
   g. Make a rough estimate first, and then adjust the food items to be ordered to meet the budget.
   h. Submit the estimates to the master for approval.

Suggestions for Efficient Buying

1. Acquire and keep up - to - date a sound knowledge of all commodities both fresh and convenient to be purchased.
2. Be aware of the different types and qualities of each commodity that are available.
3. When buying fresh commodities, be aware of partly - prepared items available in the market.
4. Keep a sharp eye on price variations. Buy at the best price to ensure the required quality and also an economic yield. The cheapest item may prove to be the most expensive if waste is excessive. When possible order by number and by weight.
5. Organize an efficient system of ordering with copies of all orders kept for cross - checking whether orders are given in writing, verbally, or by telephone.
6. Compare purchasing by retail, wholesale and contract procedures to ensure the best method is selected for your own particular organization.
7. Explore all possible suppliers (chandlers) local or markets, town or country, small or large
8. Request price lists as often as possible and compare prices continually in order that you buy at a good market price.

9. Deliveries must all be checked against the orders given for quality, quantity, and price. If any goods are delivered that are below the acceptable standard must be returned either for replacement or credit.
10. All invoices must be checked for quantities and prices.

Purchase Plans

There are two (2) methods in purchasing foodstuff:

1. Conventional Method
   A method in which menus are made after food ingredients are purchased based on the food ingredients available or on hand, and crew's needs:

   Calculation of Budget = (allotted budget per crew) x (no. of crew members) x (no. of voyage days)
   ex: $5.00 x 25 crew x 35 days = $4,375.00

2. Sample Menu Method
   A method in which menus are prepared first before ingredients are purchased in accordance with the menu.
   NOTE: The C/C must prepare daily menu aside from the long term menu to meet the actual situation on board

IV. FOOD

PREPARATION

Introduction

Modern cookery began in Italy and France during the Renaissance (14th to 15th centuries). In the 18th and 19th century the French cuisine developed famous chefs like Antoine Marie Careme, who concocted gastronomic delights for his patron, the

Marquis de Talleyrand. During the latter part of the 19th and the years of the present century, men like Auguste Escoffier brought the art of cooking to such heights of perfection that French culinary methods and terms became predominant in the Western World.

Before food can be cooked, it must be prepared for cooking. Food preparation is a series of activities that starts from washing, peeling, cutting of foods to the actual cooking and service of food. It involves the cleaning and removal of waste or inedible portions: the cutting, piercing, chopping, grinding or mashing; and the shaping or molding and other processes that must take place to ready the food for the cooking process.

Objectives

Proper preparation of food is important not only from a culinary and dietetic standpoint, but also because of the operating costs involved. Food Preparation aims for the following:

1. Minimum use of time and energy.
2. Minimum food cost and waste.
3. Conservation of nutrient value in food.
4. Maintenance of aesthetic and sanitary quality.

Cooking

Cooking is the application of heat to food for the purpose of making it more digestible, safer for eating, and more palatable. In the cooking process, heat breaks down the cellulose in plant foods, softens the fibers of tough meat, breaks down the starches present, change and blend flavors in with the food, destroys bacteria, and makes food more acceptable to humans and to the human digestive system.

While proper methods of cooking produce beneficial effects on food, overcooking can bring about undesirable results. Some of these are:

1. Proteins in meats, fish, and fowl are denatured (altered) and the product becomes tough and stringy;
2. Vitamin C (ascorbic acid), a daily requirement in human nutrition, is lost from food by leaching and is degraded by heat;
3. Riboflavin, one of the B vitamins needed in the energy cycle of the body, is sensitive to light and is also degraded by overcooking;
4. Thiamin, another essential vitamin present in meats, is also degraded by high heat;
5. Flavors are leached away and the form, texture, and color of food may be changed unfavorably by overcooking.

Cooking in quantity is different from home cooking, because of the effects of the various ingredients upon each other in large batches, it is not generally possible to merely multiply a recipe for 5 x 20 in order to provide servings for 100. Conversely, one cannot reduce a large batch menu mathematically and expect to obtain the same quality and flavor in the smaller portion.

Methods of Cooking

The method of cooking to be employed will depend primarily upon the characteristics of the food to be cooked. Either dry heat or moist heat is used. Baking in an oven subjects the food to dry heat, as does broiling. Boiling, stewing, or braising in water make use of moist heat. Below is a temperature guide for cooking with different units used to measure temperatures.

Fahrenheit	Celsius	Gas Mark	Description
225	110	¼	Very slow
250	120/130	½	Very slow
275	140	1	Slow
300	150	2	Slow
325	160/170	3	Moderate
350	180	4	Moderate
375	190	5	Moderate hot
400	200	6	Moderate hot
425	220	7	Hot
450	230	8	Hot
475	240	9	Very hot

The principal methods of cooking used in institutional food services are as follows:

Dry Heat Cooking

Baking

Food is cooked by dry heat in an oven at the proper temperatures. Baked foods include breads, pastry, rolls, fish, vegetables, fruits macaroni and baked desserts. In baking, it should be noted that certain types of bread and rolls, steam is injected into the oven during the baking process to produce a crisp and shiny crust.

Tip: A cake is properly baked if the center of the cake springs back when gently pressed or use a cake tester (such as a toothpick), when at the center of the cake, dry indicates a baked cake.

Broiling

This is done by subjecting the food to direct heat, either over hot coals or under a gas flame or electric heating unit. The food is usually placed on a grill below or between fires or heated surfaces. Meats, poultry, seafood, many vegetables and some fruits are prepared by broiling. The toasting of bread comes under this category.

A moderately low temperature (350°F or 177°C) is advised for broiling. For two inch steaks or chops, a distance of three inches from the source of heat to the top of the meat is required; for one inch steaks or chops, about two inches from the source of heat.

Pan broiling means to place the meat/vegetable in a heavy pan or skillet on top of the stove, where heat is transmitted by the hot metal. Meat should be turned frequently and excess fat that accumulates should be removed. To avoid producing steam, do not add liquid nor cover the pan.

Roasting

Roasting is especially the same as baking, in that the food is cooked by dry heat in an oven. However, the term roasting applies generally to meat and poultry such as roast beef, lamb, pork, and fowl. Roast are generally "baste" by dipping spoonfuls of the juices over them from time to time as they are cooked.

Frying

In pan frying or pan broiling, the food is cooked in a shallow pan with just enough fat to prevent the food from sticking to the pan. This method is commonly used with seafood, vegetables, meat balls, eggs, etc. (Grilling of meats, hamburgers, pancakes, etc. is similar to frying.

Sautéing is cooking food in a pan with a small amount of fat (butter or margarine is often used) and is turned and browned on each side as it cooked. This method is used with seafood, poultry and some meats.

For cooking demonstration to show that sautéing can be used for rice as well.

Mushroom Pilaf	Yield: 4	
Ingredients	Unit	Procedure
Mushrooms Rice Onion (medium) Paprika salt and pepper	500 g 1 cup 1 pc Pinch To taste	Sauté onion and mushroom. Add rice and season with paprika, salt and pepper. Add 2 cups of chicken stock and stir. Cover and reduce heat. Add water if necessary.

Deep fat frying is cooking food wholly immersed from 300°F-400°F. Most deep fried foods are first dripped in a butter and "breaded" or coated, with bread crumbs or a prepared mix.

For cooking demonstration to show the proper method for deep-fat frying.

Chicken Cordon Bleu	Yield: 4	
Ingredients	Unit	Procedure
Chicken breast Cheese, 10 x 1 cm Sliced ham Flour Eggs, beaten Bread crumbs Unsalted butter Mushroom, sliced Flour Fresh milk Nutmeg	4 pcs 4 pcs 4 pcs 200 g 2 pcs 200 g 30 g 100 g 30 g 500 ml Dash	Debone chicken breast. Place the cheese on the ham and roll. Spread the chicken breast and place the ham. Roll the chicken and fold both ends of the chicken breast. Bread the chicken evenly. Fry the chicken until golden brown. Finish cooking the chicken in the oven. Melt butter in sauce pan. Sauté mushroom until cooked. Remove from pan and set aside. Sprinkle flour and cook for 2-3 minutes. Remove pan from heat and pour milk. Whisk to prevent lumps. Return to heat and boil for 3-4 minutes. Constantly whisk sauce. Season with nutmeg, salt and white ground peppercorn. Strain sauce. Add cooked mushroom and add chopped parsley. Remove chicken from the oven and cut each chicken to 4 pcs. Arrange chicken on plate and pour sauce. Serve with mashed potato and sautéed green beans.

Pressure Frying is used increasingly in food services, particularly with chicken and also with other meats, seafood and vegetables. The unit is similar to the conventional fryer but has a cover with a tight fitting gasket.

As the heat is transferred from the hot oil to the product, vapor is formed in the fry chamber, causing a significant amount of steam pressure. This is said to seal the moisture with the product and it is claimed that up to 75% of the natural juices are retained, compared to with up to 50% in the traditional fryer, a juicier and more flavorful product is obtained.

Food is cooked faster in pressurized fryer with less grease absorption. The frying temperature can be as low as 275 to 325°F with certain products. Thus, the cooking oil lasts longer and the fuel consumption lower. Because of the speed in cooking, accurate controls are necessary. Shrinkage is said to be considerably less with pressure frying as low as 10% in some cases.

Moist Heat Cooking

Boiling

This is cooking in water or other liquid at a temperature at which bubbles constantly rise and breaks at the surface. The temperature depends upon the altitude or atmospheric pressure and the type and quantity of solids being cooked. Many food including most meat and vegetables as well as cereals, can be cooked by boiling.

Steaming

Steaming or steam cooking is accomplished by placing the food to be cooked in an enclosed vessel known as a "steamer" in which low pressure (from 3 to 15 lbs per square inch) steam is present. The steam may be generated from water within or from an outside source.

Steam cooking is generally used for vegetables, but can It can also be employed in cooking meats, poultry, seafood, fruits, cereals, eggs, and puddings. In some cases, food may be started in the steamer and finished in a hot oven. Small table type steam cookers are used in many institutional kitchens.

Stewing

The food is boiled slowly or simmered in a small quantity of liquid, usually in a covered vessel. Meats, poultry, vegetables, seafood, and combinations of these in chowders or stews are typical of this type of cooking. Soups are prepared from a base or stock of bones and meat which has simmered in the above manner for a long time. Many fruits are also cooked by stewing.

Combination Dry and Moist Heat Cooking

Braising

The meat or vegetables are browned in a small quantity of hot fat, then allowed to simmer (cook slowly) in a small amount of water in a covered pan until done. Braised meat is cooked in a tightly covered pan, either in the oven or on top of the stove. Cooking time is longer and the temperature is low. Beef pot roast, fricassees, Swiss steak, braised beef with vegetables and braised pork chops are examples of foods cooked by this method.

Techniques in Cooking

Soup

Soups serve different purposes, such as:

a. To stimulate appetite for the rest of the meal;
b. To give nourishment to persons unable for any reason, to take solid foods;
c. To be the mainstay of the meal;
d. To supply large amounts of proteins, carbohydrates, minerals and vitamins.

e. Most soups are made from stock (is the liquid left from cooking meat, poultry or vegetables).

Classification of soups:

a. Consommé a well-seasoned stock, which is the liquid left from cooking meat such as veal, poultry or a combination of both.
b. Bouillon is seasoned beef stock, free of fat and clarified.
c. Vegetable Soup contains valuable vitamins and minerals, but because of its blandness, is added to meat stock, gravies or cream soup rather than used alone.
d. Cream Soup made from thin or medium white sauce to which is added puree made from one or more vegetables; among the vegetables most commonly used for cream soup are corn, peas, asparagus, tomatoes, celery, mushrooms, onions and white potatoes.
e. Bisques usually made by combining tin white sauce with chopped sea food and often with some of the liquid in which the seafood has been cooked.
f. Chowders another variation of cream soup; this always contain diced or chopped vegetables or seafood; bits of browned salted pork and diced white potatoes are ingredients of a true chowder.

Cooking Vegetables

Cook in short time to prevent loss of sugars which give these foods good flavor as well as retain more pleasing color and texture.

Cell walls of overcooked vegetables breakdown which result to shrinkage.

Cook strong flavored vegetables in uncovered saucepan to evaporate and release the hydrogen sulfide that causes the unpleasant flavor.
Boil greens in hot water and finish these in a crisp condition keeping their greenness:

a. Prepare a slightly large volume of hot water in the rice cooker and cold water in a bowl.
b. Sprinkle a pinch of salt in the hot water and boil vegetables, then take these out while firm and shift into cold water immediately, after cooling, put in the colander to drain.
c. Chamfer (cut off corners) of pumpkins/squash and potatoes before boiling to keep their shapes.

Cooking Eggs

a. Cool immediately hard boiled eggs (in tap water) to prevent discoloration of the yolk (which is due to the iron that accumulates in the periphery upon cooking FeS), when cooled rapidly, this will diffuse back into the yolk; this will also allow eggs easy to peel off/remove the shell.
b. It is advisable to cook poached eggs by adding vinegar and salt in hot water after

reducing the heat to gather the egg white around the yolk.

c. Half boiled eggs should be boiled for 5 minutes in hot water.
d. Eggs boiled in tepid water (lukewarm) are not easy to peel off.
e. Eggs should be taken out from the refrigerator a day before and be kept at room temperature to prevent from cracking when cooked.

Cooking Protein Foods

Use correct temperature in cooking protein foods, such as meats, fish and seafood; too high temperature will cause degeneration of proteins resulting to a tough product, and shrinkage occur with overcooking:

Meat

Frozen meats should be thawed first (thaw it naturally in the lobby after taking out from the refrigerated chamber). When cooked while frozen, cell breaks and results to tough and dry product.

Thinly sliced meat boiled for a long time would lose its taste and become tough (leathery).

To prevent shrinkage of meat, cut the back joint of a thigh and perforate the skin at several places.

Cook pork with a slice of ginger or garlic to enhance its taste.

Fry croquettes after coating them with wheat flour evenly; if the coat is uneven, bread crumbs and eggs also adhere unevenly, and must also be fried quickly in high temperature to prevent cracked croquettes.

Fry chicken after brushing it with egg white to fry crisp; frying it twice may bring about better results.

In grilling medium rare beef steak:

a. Grill first the upper side (the side that is shown when served) until blood oozes to the surface then turn it only once.
b. Place butter on the grilled steak to increase the brightness of its surface and to enhance its taste.
c. Sprinkle steak with a pinch of salt and pepper just before grilling, otherwise, they will shrink and become tough.
d. Carve or cut steaks at the right angles to the grain of the meat.
e. When leaving steaks and other cut meat for several hours, brush them with cooking oil, or put poignant vegetables on them to enhance flavor without drying.
f. Unlike beef, pork must be completely cooked to avoid problems of contamination (with parasites) because parasites in pork cannot be destroyed completely without

the aid of high heat.

g. Insert a metal skewer into the central part of roast beef to note how it is grilled; if the tip of the skewer becomes hot, the beef is considered to be sufficiently roasted.

Fish

Cover fish with a lid smaller in size than the proper lid of the pot in order to raise the soup level so that the whole fish will be evenly covered in the pot.

It is preferable to cook fresh fish in liquid rather than frozen or oily fish rich in taste.

Add sliced ginger to fish blue in color or slimy (e.g. sardine, mackerel, horse mackerel) when cooked in liquid to remove smell and for better taste.

Cook large fish over medium heat, and small fish over high heat quickly for good tastes.

Smell of fish could not be completely removed if not placed in a hot boiled soup; the smell of fish can be removed if boiled in hot water only for a short period or boiled in sake (Japanese wine).

Adding soy sauce to a liquid sauce of miso paste where fish is cooked would enhance taste.

In frying whole fish, make a few shallow cuts to finish these quickly and preventing fish from breaking its skin.

Cook fish in enough cooking oil over high heat first, then reduce heat to low to finish it in good appearance.

Grilling fish first and then cooking in liquid would keep the form and remove smell, in grilling fish:

a. Lay fish on the cutting block with the head on the right side and the belly on the near side of the cook, then insert 2 to 4 skewers lengthwise along the upper part of its dorsal bones.
b. Wash away the blood in fresh water, then drain fish in a pie dish.
c. Sprinkle fish with a small amount of salt, then grill as skewered with the head on the right side over high direct heat.
d. Check the grilled condition from below, and then turn the fish by holding the metal skewers when the fish gets browned (at this point, the fish lies with its head towards the leftside and the dorsal bones rest on the metal skewers to prevent fish from falling)
e. Rotate metal skewers with fingers while grilling to facilitate drawing them out smoothly after grilling to prevent from its meat sticking to the skewers and from breaking.
f. Put grilled fish on the cutting block and draw skewers slowly.

g. Arrange grilled fish on the far side of a dish its head leftward and the belly towards the diner, and its go with on the near side.

Seafood

Make shallow cuts in cuttlefish, lobsters or prawns to prevent from curling. Cut out the tips of the tails of prawns or lobsters in order to prevent water from splashing out.
In cooking tempura:

a. Use new cooking oil always.
b. Use soft wheat flour or tempura flour, then sift together with the baking soda.
c. Cool eggs in the water with ice batter for a crisp result.
d. As a rule, fry tempura just before serving.
e. Fry a small amount of ingredients one at a time to prevent the temperature from dropping.
f. The appropriate temperature for frying tempura is around 180°F.

Mother Sauces

a. Espagnole (es pan yole) or Brown Sauce – is made from onions, celery, carrots, butter, flour and a brown roux (a mixture of browned flour with melted butter or other fat, used to thicken sauce) which is used in various meat and poultry dishes.

   Derivatives
   Piquant: Chopped shallots + vinegar, +white wine + demi-glaze and strain, garnish with gherkins, chervil, chopped tarragon and pepper. Chopped onions sautéed + white wine + vinegar + pepper reduced + demi-glaze + mustard to finish.

   Bercy: Demi-glaze + meat glaze + minced shallots + white wine + sliced bone marrow.

   Madeira: Demi-glaze + Madeira wine. (Madere Fr.)

   Chasseur: Minced mushrooms, sautéed chopped shallots +, white wine reduced + demi-glaze + butter + chopped parsley.

   Charcutiere: Robert sauce, garnished with juliennes of gherkins.

   Bordelaise: Chopped shallots + Mignonette pepper+ thyme + bay leaves + Red wine.

b. Bechamel (bay-sha-mel) or Cream Sauce - originally prepared from veal stock, the term is now applied to cream sauce; it is made from milk or cream with white roux; used with vegetables and cream dishes.

   Derivatives
   Mornay sauce = Bechamel + gruyere cheese + butter

   For cooking demonstration to show the proper consistency of the béchamel sauce.

Béchamel Sauce	Yield: 500 ml	
Ingredients	Unit	Procedure
Unsalted butter Flour Fresh milk Nutmeg	30 g 30 g 500 ml Dash	Melt butter in sauce pan. Sprinkle flour and cook for 2-3 minutes. Remove pan from heat and pour milk. Whisk to prevent lumps. Return to heat and boil for 3-4 minutes. Constantly whisk sauce. Season with nutmeg, salt and white ground peppercorn. Strain sauce and set aside for later use.

c. Tomato Sauce prepared from tomato products, stock, seasonings and roux; used with many meat, poultry, fish, vegetables, and pastry dishes.

For cooking demonstration to show the proper process of making a tomato sauce.

Tomato Sauce	Yield: 500 ml	
Ingredients	Unit	Procedure
Olive oil Tomato paste garlic, chopped Bacon chopped Tomato, peeled or 1K fresh tomato Thyme Bay leaves Cayenne	2 tbsp 1 tbsp 100 g 100 g 4 tins ½ tsp 2 pcs Dash	Sweat bacon Stir in tomato paste Add tomato, garlic, thyme and bay leaves and cook for 30 minutes. Add cayenne. Season with salt and pepper.

Derivatives

Creole sauce (sautéed onions, green peppers, and garlic, and seasoned with cayenne pepper)

Provençale sauce (sautéed onions, garlic, capers, olives and herbes de Provence).

d. Veloute (ve-lou-tay) sauce made from either chicken or fish stock with a light roux; use with the product (chicken or fish) from which is made.

Derivatives

Albufera Sauce: Addition of meat glaze, or glace de viande.

Allemande sauce: By adding a few drops of lemon juice, egg yolks, and cream

Bercy: Shallots, white wine, lemon juice and parsley added to a fish velouté

Poulette: Mushrooms finished with chopped parsley and lemon juice

Aurore: Tomato purée

Hungarian: Onion, paprika, white wine
Sauce ravigote: The addition of a little lemon or white wine vinegar creates a lightly acidic velouté that is traditionally flavored with onions and shallots, and more recently with mustard.

Sauce Vin Blanc: Sauce Vin Blanc has the addition of fish trim, egg yolks and butter and is typically served with fish.

e. Hollandaise Sauce yellow sauce made from egg yolk, butter, lemon juice, and gastric mixture of white wine or vinegar, crushed pepper, shallots and spices; used with fish, vegetables and eggs (because of its egg and butter content, this must not be subjected to high heat).

Derivatives
Sauce Choron is a variation of béarnaise without tarragon or chervil, plus added tomato purée.

Sauce Foyot (a.k.a. Valois) is béarnaise with meat glaze (Glace de Viande) added

Sauce Colbert is Sauce Foyot with the addition of reduced white wine.

Sauce Café de Paris is béarnaise with curry powder added.

Sauce Paloise is a version of béarnaise with mint substituted for tarragon.

Sauce Bavaroise is hollandaise with added cream, horseradish, and thyme.

Sauce Crème Fleurette is hollandaise with crème fraîche added.

Sauce Dijon, also known as Sauce Moutarde or Sauce Girondine, is hollandaise with Dijon mustard.

Sauce Maltaise is hollandaise to which blanched orange zest and the juice of blood orange is added.

Sauce Mousseline, also known as Sauce Chantilly, is produced by folding whipped cream into hollandaise.

If reduced sherry is first folded into the whipped cream, the result is Sauce Divine.

Madame Benoît's recipe for Mousseline uses whipped egg whites instead of whipped cream.

Sauce Noisette is a hollandaise variation made with browned butter (beurre noisette).

REFERENCE:

- Alton Brown (16 June 2004). "Hittin' the Sauce". Good Eats. Season 8. Episode 1. 12:15 minutes in. Food Network.
- Alton Brown (17 June 2010). "Little Big Lunch: Eggs Benedict". Good Eats. Season 14. Episode 4. Food Network.

Making Yeast Dough

Be sure to dissolve the yeast in lukewarm water, otherwise, the yeast will be killed; mix the dough well by following proper procedures for kneading.

When adequate kneading is done, the product has a nice, smooth, soft texture which "melts in the mouth", and yield higher.

Sugar for food, warmth place and moisture is the best condition wherein yeast grows and reproduce fast.

Straight dough method is mixing yeasted bread wherein all ingredients are combined in a mixing bowl, including yeast mixed separately with water.

Bread Flour has the highest protein content.

Sugar help tenderize dough or batter, aids creaming butter or shortening, add volume to the cake and contributes in attaining brown colour or baked products.

Kitchen Efficiency

A galley staff must have a working knowledge on the use, care and maintenance of the kitchen equipment and utensils, different food ingredients and on food preparation terms to be able to carry out the works at the Catering Department:

Cooking Utensils and Equipment

a. Saucepan has one long handle, use to cook sauces, fruits and vegetables.
b. Saucepot has handles on both sides.
c. Double Boiler - used for low heat cooking, or in reheating a small amount of food
d. Heavy Skillet or Frying Pan - used for frying, sautéing and pan broiling

e. Kitchen Fork - used for turning and lifting meat
f. Egg Turner - used to lift eggs from a skillet, with slots to allow excess fats to run off
g. Pan Cake Turner - used to turn pan cakes, French toast, etc.
h. Pressure Cooker - used to cook food quickly

Cutting and Chopping Equipment

a. Butcher's Knife - used for large or heavy cutting
b. French or Chopping Knife has a long, wide blade used to chop and dice food.
c. Bread Knife has a saw toothed blade, which makes a smooth edge when slicing bread or cutting sandwiches.
d. Cutting Board - used to protect the table when slicing or chopping food; it prevents the edge of the knife from becoming dull
e. Paring Knife has a short blade with a good point, it is used for removing the skin of fruits and vegetables and for cutting them.
f. Parer or Peeler - used to remove the skin from vegetables and fruits
g. Scissors - used to mince, dice, cube and trim food
h. Meat Grinders - used to grind meats
i. Grater - used to grate or shred vegetables, cheese or lemon rind
j. Can Opener - used to open cans
k. Mallet - used to pound raw meat to make it tender; the flat side is used to crack nuts and to crush
l. Masher - used to mash potato and other vegetables

Mixing and Preparation Equipment

a. Mixing bowls - large enough to hold ingredients while being mixed, but should not be so large or too small as to waste food
b. Sifter - used to sift flour, and other dry ingredients
c. Wire Whip - used to beat egg whites, sauces and drinks
d. Whisk Beater - a spoon shaped beater made of many fine crisscross wires, used to beat egg whites into a larger amounts than is possible with a rotary beating
e. Rotary Beater - used to beat whole eggs, egg whites, butter and frostings
f. Wooden Spoon - used to cream or beat cakes by hand, to mix butter or dough, and to stir mixtures such as fudge on the range
g. Mixing Spoon - used to combine ingredients
h. Slotted Spoon - used to lift poached eggs or fried foods
i. Blending Fork - used for thorough mixing
j. Rubber Scraper - used to get the best drip of butter or cake icing out of a bowl
k. China cup - used to strain sauces
l. Tea Strainer - used to strain tea leaves
m. Juice Extractor - used to extract juice from citrus fruits
n. Pastry Brush - used to apply milk or butter on food

Japanese Food Ingredients

a. Atsuage - a deep fried regular tofu which is fried until the outside becomes crisp and golden brown, but the inside is still white
b. Aburage - also a deep fried tofu, but before frying, it is cut into thin sheets
c. Daikon Radish - rich in vitamins, and its leaves contain much calcium; this is thought to aid digestion of oily foods; and good for simmered dishes
d. Dried Bonito - an important ingredient in dashi stock, available in flakes and thread shavings
e. Dried Wakame Seaweed - usually sold in dried form; can be used for various soups; also a good salad ingredient; should not be simmered for more than a minute; rich in vitamins and protein
f. Kelp or Kombu - one of the basic ingredients used for making dashi stock; never wash or rinse it; the speckled surface holds flavor, so do not wash; it is rich in iodine
g. Lotus Root has white and crunchy flesh, with tubular hollow which run through the entire length of the root; should be immersed for a short time in a mixture of alum and water or vinegar and water to prevent discoloration; when preparing it should be pared first then cut into rounds to make it attractive.
h. Mirin called "sweet cooking rice wine" is heavily sweetened sake, used for cooking; sake sweetened with sugar can be a substitute.
i. Miso - fermented soybean paste; the colors range from yellow to brown: yellow miso is referred to as shiro miso, brown miso is called aka miso.
j. Natto - fermented soybean preparation made by the action of special bacteria; it has a rich cheese like flavor and is sticky.
k. Niboshi - made from small sardines; these are soft-boned fish which are sun dried; used for fish stock; the fish stock has rather a strong flavor and is used for miso soup or noodle broth.
l. Nori Seaweed - rich in protein, grows around the bamboo stakes placed under water; gathered at the time it is ready for use, washed, and laid in thin sheets and dried, these are then toasted to improve flavor and texture before it is used or eaten; the best quality nori seaweed is glossy black purple
m. Sake - the most popular beverage in Japan; made by inoculating steamed mold (koji) and then allowing fermentation to occur; it is then refined
n. Shiso Leaves mint - aromatic leaves which come in red and green varieties: red type is used to make umeboshi (pickled plum)
o. Tofu bean curd - an important product of soybeans; rich in protein, vitamins, and minerals; low in calories and saturated fats and entirely cholesterol free; 2 kinds: cotton tofu (firm) and silk tofu (softer and contains more wheat)
p. Trefoil or Mitsuba - a member of the parsley family; the flavor is somewhere between sorrel and celery; it accents the flavor of many Japanese dishes
q. Wasabi - a Japanese horseradish; edible portion is the root; pale green in color; has more delicate aroma and is milder tasting than Western horseradish

V. MEAL SERVICE

Japanese Service

Tableware and food set on the table every meal:

1.	Yunomi Chawan	Japanese tea cup
2.	Dobin	Japanese tea pot
3.	Hashi	Chopsticks
4.	Tsukemono	Salted Pickles
5.	Tsukemono Zara	Round Plate (small)
6.	Umeboshi	Salted Plum
7.	Shiokara	Salted Squid

Other Japanese tableware:

1.	Meshi Chawan	Rice bowl used for cooked rice
2.	Shiru Wan	Soup bowl, black for Japanese soup
3.	Kobachi	Small bowl
4.	Kozara	Round plate (small)
5.	Chuzara	Round plate (medium)
6.	Sashimi Zara	Oval plate (medium), for sashimi
7.	Donburi	Rice bowl (large), for Udon, Hot Soba, Cold Ramen
8.	Chuka Donburi	Chinese Bowl (large), for Hot Ramen, Cold Ramen
9.	Soba Zaru	Soba tub (red, round), Mori Soba, Hiyashi Soba
10.	Unajyu	Unagi tub (black with lid), for Unagi (eel) Rice
11.	Chawan Mushi	Steam bowl with lid, Chawan Mushi Wan
12.	Nabe Yaki Nabe	Small Pan with lid, Nabeyaki Udon, Chiri Nabe

Kitchen Utensils:

1.	Makisu (Sudare)	Bamboo net for Maki Sushi, Tamago Yaki
2.	Oroshi Gane	Radish grater for Daikon Oroshi (grated radish)
3.	Waribashi	Wooden Chopsticks for guests, used for eating noodles
4.	Saibashi	Chopsticks for cooking
5.	Sakazuki	Sake cup
6.	Tokkuri	Sake bottle

On Board Functions

As important guests are invited to the ship, crew members must arrange a simple program so that they may heartily enjoy the party. For that purpose, it is essential for all crew members to respond to the function, and the catering department crew, who play the central role, must fulfil their duties with their best effort.

1. If the vessel is requested to hold an on board function, the following should be discussed meticulously with the Master:
   a. budget for the food / menu
   b. assignments of other crew members

The size and style of the party depends on the budget and the number of guest invited. If a large party is scheduled on board, it is important for the crew members to discuss the plans and preparations.

2. Make a menu, estimate necessary food ingredients, order and receive ordered foodstuff / materials.
3. The C/Cook should make a schedule for the preparatory operations and discuss among the crew to obtain their understanding, mutual cooperation and confirm job assignments.
4. Prepare the tableware and glasses. Be sure these are clean and sanitized. In case of shortage, consult the Master and request the company to supply for the table ware needed, such as, glass, bowls, table knives, forks or chopsticks
5. The following are considerations but necessary unless instructed by the Master and its availability:
    a. Flags of all nation
    b. National flags of the states concerned
    c. Company flag
    d. Arrange flowers
    e. Side tables
    f. Tablecloths
    g. Napkins
    h. Coat hangers
    i. Name tags
    j. Baggage checks
    k. Designation of comfort rooms
6. Conduct general cleaning of the party hall. Discuss with the Chief Mate in advance the wiping / waxing of decks / gangway / hall / passageways, etc., measure to prevent slipping, and cleaning of windows.
7. The responsible person (Master or Chief Mate) shall clearly determine the job assignment to cooperate with each other on board the ship (such as persons in charge of preparation and restoration after the party, including person in charge for the crew mess).
8. Prepare beverages (such as sake or Japanese wine / beer / wine / soft drinks) by cooling / chilling them in the refrigerator.
9. Prepare sufficient quantity of ice. Draw out ice from the ice machine, then pack these in plastic bags and store them in the refrigerator.
10. Pay special attention to personal appearances, and give full consideration to the manner of speaking to guests in order to avoid hurting their feelings.
11. While the cooking operation is carried out on the basis of the menu, keep pre-cook food cool in the chamber.
12. Make a simple menu that will spare labor.
13. It is preferable that an arrangement is set up, such as by assigning other crew

members jobs of receptionists, persons in charge with beverages, and washer in the galley and pantry, so that the catering department staff can devote themselves to the preparation / cooking and service of food.

14. Given the utmost consideration to preparations even in the case of small parties held in the Captain's Room, etc. so that the guest s may fully enjoy your service.

VI. EFFECTIVE

STEWARDING

Introduction

Stewarding is taking care of all the domestic concerns on board, such as housekeeping, food preparation and service of food. Stewarding is one of the main concern of the Catering Department, who is responsible of protecting the health of the crew against infections and diseases which may be caused by the lack of adequate sanitation in the food service, and poor hygienic practices of the galley crew.

Rules on sanitation must be observed strictly to avoid contamination of food with toxic substances and against the transmission of food borne diseases. Constant safeguards must also be maintained and the highest standards of cleanliness and sanitation must prevail to prevent the spread of infectious diseases through effective sanitizing of F & B operating equipment, kitchen utensils, and strict observance of safety and hygiene of the food handlers - the galley crew.

Vessel Sanitation

The United States Public Health Service (USPHS) conducts inspections at least twice a year as part of their Vessel Sanitation Program that must be followed by all shipboard personnel. Ships must receive a total of 86 points to pass the inspection at any time within 60 days. Ships that fail inspection, such as 85 below, will receive a second inspection at any time within 60 days. Ships that fail the USPHS inspection the second time will not be allowed to sail until all failing areas have been corrected. Some important rules governing sanitation are listed below. Each of these conditions are worth the maximum 5 points during a Public Health Service ship inspection:

Food Protection and Service

a. All food must be in sound condition, no spoilage, no cracks in packaging, no cracks in eggshells.
b. Potentially hazardous foods prepared in advance must be promptly stored in refrigerators with air temperatures at or below 40°F (4.5°C), or they must remain heated at or above 140°F (60°C).
c. All cooked foods must be cooked properly and at the correct temperature.

One of the most important phases of sanitation is the proper cleaning of all equipment in which food is held, processed or served. It is essential that these equipment be thoroughly cleaned as often as necessary or at least at the day's work in order to remove all food residue and bacterial accumulation.

A cleaning schedule should be arranged, and personnel assigned accordingly. This means that every food service worker should be responsible for some portion of the clean-up of his area; the entire job should not be assigned to one crew only.

This schedule should include every area of the kitchen and service. Individuals should be especially aware of every nook and cranny. These are always last to be cleaned and the first place that vermin breed.

Sanitation is not just a task but a responsibility to ensure food safety onboard and prevent the ship's crew from illnesses that may cost their lives.

Food hygiene

The most succulent mouth-watering dish into which has gone all the skill of the world's best chefs, using the finest possible ingredients may look, taste and smell superb, yet be unsafe, even dangerous to eat because of harmful bacteria.

It is of utmost importance that everyone who handles food, or who works in a place where food is handled, should know that food must be both clean and safe. Hygiene is the study of health and the prevention of disease, and because of the dangers of food poisoning, hygiene requires particular attention from everyone in the catering industry.

Failure to prevent food poisoning (illness characterized by stomach pains. and diarrhea and sometimes vomiting, developing within 1 36 hours after eating the infected food) may be attributed to the following:

a. Ignorance of the rules of hygiene;
b. Carelessness, thoughtlessness or neglect;
c. Poor standards of equipment or facilities to maintain hygienic standards; or
d. Accident

Food service sanitation helps keep people healthy. Do your part to prevent contamination of food:

a. Take all precautions, every day in every operation;
b. Be keen to food physical, chemical and biological hazards (e.g. hair, chlorine, bacteria, respectively)
c. Inspect your area for hazards;
d. Report any problems to your supervisor.

Don't let food infections start in your kitchen. The following must be observed in the preparation of food:

a. Washing
   Wash raw food thoroughly.
   Wash food in the proper sink don't use the hand or the dish washing sink. Keep washed and unwashed food separately to prevent contamination. Wash hands after cleaning and handling food.

b. Cutting and chopping
   Use hardwood, plastic or rubber cutting boards without holes or splits that collect food or germs.
   Clean and sanitize utensils and board between processing different foods to prevent cross contamination.
   Use color coded cutting board

c. Cooling Leftover
   Microorganism proliferate in warm conditions. To avoid rapid growth of bacteria in warm foods cool down food as quickly as possible.
   The best way to cool leftover sauces before storing is by an ice-bath. Place the food container over a container filled with water and ice.
   Another method is by spreading a viscous food in the food pan not more than 6 inches from the bottom.

d. Thawing
   Thaw frozen foods at the lobby of the chamber or in a refrigerator at 45°F (7°C) or colder.
   Under potable running water, 70°F or colder.
   In a microwave oven if the food will be cooked immediately as part of a continuous cooking process.

e. Heating
   Use an accurate thermometer to make sure that foods have been heated internally to at least:
   - 140°F (60°C)for most foods
   - 150°F (66°C)for pork or foods containing pork
   - 165°F (74°C)for poultry and stuffed meats
   - 130°F (55°C)for rate roast beef

f. Reheating
   Reheat all leftover or stored foods rapidly to an internal temperature of at least 165°F (74°C). Cool and reheat foods as seldom and as quickly as possible.

Don't give germs the time, place or temperature suitable for them tomultiply:

a. Keep food hot or cold, above 140°F or below 45°F, while waiting for the time of service.
b. Keep hands out of the food and off eating surfaces while cooking or serving. Do not taste food with your fingers. Avoid putting your hands in the food preparation area.
c. Use scooper to get ice.
d. Do not reuse unwrapped food such as crackers, rolls, or bread. These foods can be easily contaminated by servers or diners.
e. Do not reuse single service utensils made from plastic or wood. They're impossible to sanitize completely.
f. Keep fresh plates and utensils at salad bar or other self service station. Diners or customers must use a clean plate each time to prevent contaminating food.
g. Keep condiments covered and in clean containers. Be sure each has a serving utensil used only for that food.
h. Handle plates and bowls at the bottom, flatware by the handles. Do not hook your thumb over edge of bowls, plates or glasses.
i. Prepare food as close to serving time as possible so there will be less time for bacteria / germs to multiply. If some food are to be prepared earlier, be sure to keep them hot or cold, and reheat fully to an internal temperature of 165°F (74°C).
j. Smoking is prohibited in food storage and preparation area because smoking can contaminate food primarily by the saliva being carried from the mouth to the hands by the smoker and also cigarette ashes may end up in the food.

Cleanliness and Sanitation

It is a fundamental thing of living together and leading social life to pay special attention to safety and hygiene. Maintaining a clean shipboard environment at all times will also lead to the safe operation of the vessel.

Personal cleanliness

The single most common source of contamination to food are the handlers of food because humans are a walking reservoir of bacteria. Germs or bacteria are to be found in and on the body and they can be transferred on to anything with which the body comes in contact, hence, personal cleanliness is essential to prevent germs getting on to food.

The rules for personal hygiene are common sense. These are the basic rules which must be followed to ensure personal cleanliness but most of all, handwash all the time.

Hands must be washed especially:

a. After using the toilet;
b. Before going to work and after a break;
c. After handling dirty pots, pans, dishes, or other utensils and equipment;
d. After handling raw meat or seafood;
e. Before handling fruits and vegetables or other food which may be eaten raw or

require no further cooking;

f. After smoking cigarettes;
g. After coughing or sneezing (never cough or sneeze directly on food) also, avoid the cough and sneezes of others;
h. After picking things up off the deck;
i. After handling unclean objects.

In general, hand washing should be done after every possible contamination.
Hand washing must be done properly, otherwise it will not be effective. We must use proper hand washing technique. Hands must be washed in approved hand washing facilities and follow the following steps:

a. Turn on the water, make it hot but comfortable.
b. Moisten hands, soap thoroughly and lather to elbow.
c. Scrub thoroughly using brush for nails.
d. Rub hands together using friction for 20 seconds.
e. Rinse thoroughly under running water.
f. Dry hands, using single service towels or hot air dryer.

Practices of Personal Hygiene

a. If you have an open wound, sore, cut or burn on your hands, face or body, see the doctor to have it checked. Never work with an open wound, sore, cut or burn. It must be properly treated by the doctor and kept covered with the water proofed dressing.
b. If you have a sore throat, cold, cough or fever, see the doctor for an examination. Never work while you are feeling ill without first seeing a doctor.
c. Keep your body clean. You must take a shower with soap and water at least once a day.
d. Keep your finger nails short, neat and clean. Bacteria may grow under your finger nails and it will not be possible to clean your hands properly if your nails are long and ragged. Keep your finger nails neat and trimmed.
e. Wear clean uniform always. Dirty uniforms carry bacteria which may contaminate the food. It is your responsibility to keep and maintain your uniform clean.
f. Keep your hair neat and trim and always. Chefs cap must be worn always to avoid hair to fall on the food.
g. Always wear proper shoes while working. Open toed shoes or worn out shoes with holes in them are not proper.
h. Do not scratch your head, face or arm, pick your nose or rub your eyes, nor touch any part of your body while working. Keep your hands away from your face and body.
i. There is no eating, drinking or smoking allowed while working. Eating, drinking and smoking are activities which may contaminate food that is being prepared or served. You must take a break and leave food preparation area when you want to eat, drink or have a cigarette.

Good personal hygiene and cleanliness are essential part of the sanitary operation. To prevent spread of bacterial germs and keep food safe for consumption, it is important that you practice sanitary personal habits. As a professional food handler it is your personal responsibility. The practice of clean habits in the kitchen is the only way to achieve a satisfactory standard of hygiene.

It is always important for the galley crew to remember the following:

a. Cooks and messman should observe personal cleanliness and good grooming.
b. Observe proper hand washing techniques; wash hands before cooking and before dishing up or handling food and F&B operating equipment.
c. If a galley crew sustains an injury in the hand or finger, cover the wound with a water proofed dressing, and be sure that the affected hand/finger will not come in contact with the food.
d. Wear the uniform supplied by the company, such as the chefs coat, apron and cap (wear clean aprons and chef's caps), wash these daily.

Galley hygiene

One of the most important phases of sanitation is the proper cleaning of all equipment in which food is held, processed or served. It is essential that these equipment be thoroughly cleaned as often as necessary or at least at the end of the day's work in order to remove all the residue and bacterial accumulation.

Neglect in the care and cleaning of any part of the premises and equipment could lead to a risk of food infection. Kitchen hygiene is of great importance:

a. To those who work in the galley, because clean working conditions are more agreeable to work in than dirty conditions;
b. To the principal, because sick crew onboard disrupts operation and,
c. To the crew, because no one would want to eat food prepared in a dirty kitchen.

To maintain a hygienic working environment, a wide range of materials and equipment are needed. It is also important that kitchen staff are knowledgeable on the proper use, care and maintenance of the cleaning equipment and materials.

a. To maintain a workable working condition, observe the following always wash and disinfect cutting blocks. Keep them clean always and use these separately according to their respective purposes.

   Example, use cutting block for cutting vegetables or in making salads only, use other cutting blocks for fish and another for meat purposes only.

b. A color-coded cutting board in the kitchen is one way to prevent cross contamination and promote safe handling of foods. The colors assigned to each board make it easy to remember and select the proper board each time you are in

the kitchen.

Color-coded Cutting Board

1. BLUE - Whenever you are preparing raw fish or seafood, the color you would choose is blue. Blue is the color of the sea and a perfect way to remember that the blue sea and fish go together.

2. YELLOW - For cutting raw poultry like chicken and turkey, you would use a yellow board. Yellow is the color of baby chicks and ducks and is easily associated with poultry.

3. RED - For preparing raw meats the board that you would use is colored red. When it comes to food, the majority of meats used are red like beef so it is easy to associate that food and the color together.

4. BROWN - When the meat is cooked and needs cutting, brown/tan is the board to use. A good tasting and well prepared meat is always browned to seal in its juices and flavors, so brown/tan is a perfect color choice.

5. GREEN - Working with and preparing vegetables and fruits should be done using a green board. To help remember that, think of green as freshness and the color of salad and fresh vegetables.

6. WHITE - Dairy products use a board that seems to be an obvious choice, white. This is the easiest one to keep in mind as dairy products are made from milk, and milk is white.

A color-coded cutting board in the kitchen is one way to prevent cross contamination and promote safe handling of foods. The color assigned to each board make it easy to remember and select the proper board each time you are in the kitchen.

a. Wash cooking knives sufficiently after using and keep them in a safe and clean place such as drawers.
b. Never use pantry towels as dusters or vice versa and distinguish these from each other according to their purposes. Pantry towels are of cotton cloth with vertical stripes; dusters are ordinary face towels. These will be replaced with clean ones every morning to keep its cleanliness. Wash and dry dusters after use and never leave these rolled up.
c. Wipe the cooking ranges by using exclusive swabs as these are oily. Distinguish such swabs from dusters for wiping tables.
d. Clean the rice cooker and its adjacent areas.
e. Clean the water way.
f. Clean the wash basin with a liquid soap solution.
g. Turn off the light and lock the galley after checking the following:
    1. Check the cooked food in the pots and pans on the cooking range, and switches;
    2. Check the valves of the rice boiler and water faucets.
    3. Check if you have forgotten anything for the next day.

4. Check if the floor, wash bowl, wash basins, towels, refrigerator, rice washing container, garbage and work top are washed/cleaned.
5. Check if everything is secured against heavy weather, or if there are things that might move during rough weather.

Methods of Cleaning and Sanitizing

Equipment, utensils and work surfaces which come in contact with food must be thoroughly cleaned and sanitized before and after food preparation.

The first step is to manually remove from the utensils as much as adhering food as possible.

Then wash the utensils with a suitable soap or detergent, and hot water (140°F to 60°C), liberally applied by manual or mechanical means.

After rinsing, and after all visible grease and dirt have been removed, sanitize the utensil by using either of the methods outlined below:

Application of proper cleaning method.

1. Wash with warm soap water.
2. Rinse with warm clean water.
3. Swab with a clean towel drenched in chlorine solution or submerge smaller utensils for one minute in chlorine solution.

Heat Sanitation

Using clean hot water (170°F or 76°C or more), apply to all surfaces of the equipment or utensils for at least 30 seconds.

Using live steam, keep surfaces of equipment or utensils in contact with steam under pressure for at least one minute.

Avoid the following:

a. Never use water from hoses to clean surfaces other than the deck.
b. Never throw or splash buckets of water on the deck to clean it.
c. Never clean food contact surface with commercial powder cleaner.
d. Never stack or nest dishes, utensils and tableware for dish washing.
e. Never towel dry food preparation surface, dishes, glasses and utensils: air drying is the correct method.

Other Precautionary Measures

a. Handle cooking knives very carefully.
b. When using a meat slicer or other kitchen machines, take care to avoid hands and fingers from coming in the mincing machine. Use an exclusive pushing bar.

c. Pay special attention to the fall or turn of containers used for boiling or frying on the stoves, particularly during heavy weather.
d. Keep the floor of the galley dry always. Spread mats on the floor of the galley during heavy weather and watch your step to avoid slipping.
e. Work in comfortable clothing.
f. Post a tag on the door, or inform other crew before entering any refrigerated chamber to indicate your presence inside.

Chemical Sanitation

Apply a commercial preparation (Sodium Hypo chlorite type, Iodine or Quaternary Ammonia compound) to the equipment or utensils following label direction for concentration. If no commercial product is available then a sanitizing solution for utensils or equipment can be prepared by mixing 2 ounces (56 grams) of chlorine bleach to 1 gallon (4.5 ~ liter) of lukewarm water.

When using sanitizing solutions, it is important to remember that the solution must remain in contact with the desired surface for at least 30 seconds to a minute and that any solution over 2 hours old must be discarded and replaced with freshly prepared one.

Sanitation with Chlorine

Under United States Public Health standards, chlorine solution should not go beyond 200 parts per million. This standard is considered food-grade standard or safe to use in food preparation areas or operations.

- 1 ml (1/4 teaspoon) household bleach to 500 ml (2 cups) water
- 20 ml (4 teaspoons) household bleach to 10 L (40 cups or approx. 2 gallons)

On the ship, we do not simply wash the dishes and utensils. They are sanitized by:

1. Immersion in clean water of at least 170°F for one minute.
2. Immersion in clean water containing at least 50 parts per million chlorine of at least 75°F for at least one minute.
3. Immersion in clean water containing at least 12.5 parts per million iodine and having a pH of 5.0 or less at a temperature of at least 75°F for at least one minute.
4. Hook securely each door of the refrigerated chamber.
5. Always arrange the refrigerated chambers and stores so that the contents may not shift or collapse.
6. Pay special attention to oxygen deficiency in refrigerated chambers and stores. Never take dry ice into refrigerated chambers.
7. Wear protective clothes against cold weather while working inside the refrigerated chambers for a long time.
8. Conduct test at least once a month on the door opening facilities and emergency bells inside the refrigerated chambers and maintain these in good condition.
9. Before carrying foodstuffs, remove moisture and dirt on the passage ways and stairs and take care to prevent from slipping. When going up and down the stairs,

hold the handrail by one hand without fail.

10. Obtain permission from the Chief Officer, on board a tanker or LPG or LNG carrier, for using fire in the galley, etc. There might be a possibility of gas leakage. The use of fire is prohibited particularly during cargo handling operations.

The 3'S in Steward Operation

a. Scraping by removal of loose soil such as meat, scraps, vegetables and other oily particles from the dishes.
b. Sorting by segregation of newly washed dishes according to size, shape and design.
c. Storing by proper arrangement of items inside the compartmentalized racks or shelves.

Spoilage Agents

Molds

Molds are simple plants which appear like whiskers on foods, particularly on sweet foods, meat and cheese. They grow in warm air moisture and darkness. They are killed by heat and sunlight. They can grow where there is too little moisture for yeast and bacteria to grow. These are found on jams and pickles. Though not harmful, they cause foods to taste musty, hence these are wasted. The top layer of a jar of jam could be removed if it has molds on it.

Yeast

Yeast are larger than bacteria which grow on foods containing moisture and sugar. Foods containing only a small percentage of sugar and large percentage of liquid, such as fruit juices and syrups are liable to ferment because of yeast - which is the basis of beer/wine making. Yeast seldom cause diseases but increase food spoilage. These are destroyed by heat. Foods must be kept under refrigeration to avoid yeast contamination.

Enzymes

Enzymes are chemical substances produced by living cells. These are present in foods such as fruits, vegetables and meat. Fruits and vegetables are ripened, and meats are made tender by the action of enzymes. Foods do not remain edible indefinitely because the enzymes cause the fruits and vegetables to become over ripe, and the meat or game to become tender and eventually spoil. Acid, such as lemon juice or vinegar retards the enzyme's action, i.e. lemon juice prevents the browning of bananas or apples when they are cut into slices.

Bacteria

Bacteria are minute plants or organisms which require moist, warm conditions and a suitable food to multiply, such as:

a. Soup/stock/gravy/sauces;
b. Meat and meat products;
c. Milk and milk products;

d. Egg and egg products;
e. All foods that are handled;
f. All foods that are reheated.

Bacteria spoil the food by attacking it, leaving waste products or by producing poisons in the food. Growth of bacteria are checked by refrigeration, and are killed by heat.

Bacteria are sometimes called "germs" or "microbes". Seen through the microscope, they exhibit three (3) typical shapes:

a. the round or spherical bacteria known as "coccus";
b. the rod-shaped types called "bacillus"; and
c. the thread-like organisms known as "spirillium"

Disease producing bacteria grow best at body temperatures. High temperatures will usually kill them, although some can live at temperatures of 160°F, or higher. Freezing does not kill them, but it keeps them from multiplying. Direct sunlight kills bacteria. Most of these organisms require air, although some can get along with or without it. In general, they require food, warmth and moisture.

Conditions Favorable to Bacterial Growth

Most bacteria grow well in high protein substance and in a nutritive fluid which is approximately neutral (pH value of 4.6 to .90). Lukewarm water is an ideal heat for bacteria to grow in. The longer the time the bacteria stays in the food within the temperature danger zone (41F-140F) the more they proliferate. Washing up must not take place in warm water as bacteria are not killed and the conditions are ideal for their growth, therefore pots and pans, cutlery may become contaminated. Hot water must be used for washing up.

Boiling will kill bacteria in a few minutes, but not necessarily remove the toxins. To kill heat-resistant spores, 4-5 hours boiling is required. It is important to remember that it is necessary not only to heat foods to a sufficiently high temperature but also for a sufficient length of time to be sure of safe food. Extra care should be taken in warm weather to store foods at low temperatures and to reheat thoroughly foods which cannot be boiled.

Food Poisoning

Most cases of food-borne disease are caused by bacteria, transferred to food by careless handling. Foods and water which are contaminated at the source, however, may carry disease-producing bacteria. Rats, mice, flies and roaches may also carry bacteria which they deposit on the food when they eat.

Foods prepared should be clean, wholesome, free from spoilage and safe for human consumption. If you are in doubt, don't take a chance. The life at stake may be your own!

Food poisoning organisms or bacteria can increase to dangerous levels with improper storage:

1. Some are harmful and can cause illness when contaminated foods get into the body.
2. Other bacteria form toxins in food which in turn will cause food poisoning.

Foodborne Illnesses

Food borne intoxication is caused by toxins present in the food, such as botulinum toxin from swollen cans caused by clostridium botulinum.

Foodborne infection is accidentally acquired when food containing large amount of bacteria was consumed.

Chemical food poisoning have many causes. It may be natural such as, poisonous mushrooms, puffer fish, and contaminated source of water. The other source is unintentionally caused by human. This could be the insecticide on the vegetables, redtide for mussels and utensil that was not rinsed well.

Tests for Food Spoilage

Food may already contain food poisoning organisms- on arrival in the kitchen or may become contaminated during preparation given sufficient time and suitable temperature. The following will help you determine spoiled foods:

1. Canned Goods

Canned food that is moldy, gives off a bad odor, or color from bulging can should never be used. It is dangerous even to taste such food. If in doubt, throw it out!

Botulism is a disease that claims lives every year. It is caused by the toxin of a bacillus which may infect canned foods such as string beans, that have been processed improperly and usually the result of home canning. The food may not have a bad odor or appearance, yet a single taste may result in death within a few hours. Buy canned goods from reputable sources. To be sure, boil all home-canned vegetables for at least 10 minutes before serving.

The following indicate spoiled canned food:

a. Swelled top or bottom
b. Dents alongside seam
c. Off-odor
d. Foamy
e. Murkiness or milky color of juice.

This applies to canned vegetables, meats, fish, and poultry. Home-canned foods should be cooked thoroughly.

2. Meats, Fish and Shellfish

All meats should bear a federal inspection stamp or that of an equally reliable state or local authority. Sea foods should come from a source approved by a dealer who is in the official list of the US Public Health Service.

Meat produces off-odor and slimy to touch. Beef usually spoils first on the surface. Pork spoils first at meeting point of bone and flesh in the inner portions. To test for spoiled pork, use a trier or a pointed knife to reach the interior of the meat. An off-odor on the knife means spoilage.

Shucked shellfish should not be accepted except in the original container bearing the packer's certificate number and the state of origin.

Raw shrimp produces pink color on upper fins and near tail, and off-odor similar to ammonia. Some types of shrimp are naturally pink. Cooked shrimp are also pink. Both are wholesome if the odor is not abnormal.

Stickiness under wing, at the point where legs and body join and on upper surface of the tail, and darkening of wing tips will be observed in spoiled dressed poultry.

Dressed poultry should be washed thoroughly before cooking. Wash hands after handling.

3. Fresh Fruits and Vegetables

Fresh fruits and vegetables may have been contaminated through polluted irrigation water, fertilizers or insecticides. Before cooking, all fresh foods should be thoroughly cleaned.

White or grayish powder around stems of fruit and at juncture of leaves and stems of cabbage, cauliflower, celery and lettuce.

This powder indicates spray residues. Most of the chemicals used by growers are not dangerous, but some may be.

All fruits and vegetables must be washed before eaten or cooked. Cooking will not destroy the spray chemicals.

4. Milk and Eggs

Bacteria thrive in milk and eggs. For this reason custard or cream - filled pies and pastries must be kept under cover and refrigerated at all times. The danger of contamination is particularly great during hot and humid weather. Many food services take such items off the menu during the warmer seasons.

All milk products, including ice cream, should come from sources approved by local health authorities. Only pasteurized products of this kind should be used in food services. It must be remembered that even though pasteurized, milk products can be re-contaminated unless kept under refrigeration.

5. Frozen Food

Frozen foods will spoil if kept out of the refrigerator for any great length of time. Spoilage is caused by growth of bacteria on the food. Cook frozen vegetables thoroughly before serving to destroy any infection present.

6. Salads

Chicken salad, tuna and other fish salads, non-acid potato salad, all types of custard-filled pastries and some types of cold cuts must be kept refrigerated at all times. All have been touched with the hands during their manufacture and may be considered slightly infected.

Refrigeration will keep infection from increasing. Spoilage is often impossible to detect until foods are totally spoiled. Serve salads immediately after taking from refrigerator.

7. Leftover Food

Any food that has not been refrigerated below 45° F, may be considered slightly spoiled. The off-odor of spoiled food is not always apparent. Don't keep cooked food after 36 hours unless it is cooked again.

Bacterial spoilage of food begins as soon as it becomes warm. Refrigeration will delay this spoilage. Discoloration, off-color and molds may be observed in spoiled leftover foods. Molds thrive on moist, dry, cold or warm conditions; almost any condition.

8. Cereals

Presence of insects in cereals indicate spoilage. To determine spoilage of cereals, spread the cereal on brown paper. If insects are present, they will be easily seen. If even one is observed, destroy the entire batch of cereal. These insects are not dangerous, but neither are they appetizing.

Methods of Food Preservation

1. Removal of microorganisms through washing and trimming
2. Use of low temperatures:
   a. Chilling aims to slow down the rate of spoilage; retards the decay of the food. It does not prevent food from eventually going bad. Lowering the temperature of chilling to -1°C and 8°C reduces food poisoning hazards provided foods are not contaminated before chilling.

   b. Refrigeration is a method of preservation where microorganisms are not killed, they are only prevented from multiplying; the lower the temperature the longer foods will hold. Temperature between 0°C to 7°C prevent foods from

spoiling for a year and at -28°C for 2 years.

c. Freezing is the simplest way to preserve and the most natural, although not the cheapest because flavor and appearance are not changed; easy to learn; safe; and food spoiling organisms present are unable to multiply at freezing temperature.

3. Drying and dehydration is the extraction of moisture from the food, thus, preventing the molds, yeasts, and bacteria from growing. Foods preserved from drying are: fish, vegetables, herbs, eggs, milk (powdered/evaporated), fruits, and meats.
4. Use of high temperatures such as by pressure cooking.
5. Use of chemical preservation such as by the addition of salt, sugar, acid and other chemical additives:
   a. Microorganisms could not grow in high concentration of salt, such as by salting and smoking.
   b. High concentration of sugar prevents the growth of molds, yeast and bacteria, such as in jams, jellies, candies, and marmalades
   c. Foods may be preserved in vinegar (acetic acid diluted with water), such as in pickling
6. Keeping out microorganisms or asepsis, such as packaging.
7. Maintenance of anaerobic conditions, such as in a sealed, vacuum container or by replacement of the air with carbon dioxide (CO2).
8. Combination of two or more methods, such as canning or bottling, wherein it undergoes pasteurization and sterilization.
   Advised Storage Time for Canning
   a. Fruits up to 12 months
   b. Milk up to 12 months
   c. Vegetables up to 2 years
   d. Meat up to 5 years
   e. Fish in Oil up to 5 years
   f. Fish in Tomato Sauce up to 1 year

   Dented cans which do not leak are safe to use. Blown cans that bulges at either end, must not be used.

Loading Operation

It is necessary to check whether ordered foodstuff have been completely supplied both in terms of quality and quantity. A. quick and efficient operation is required with operational safety and care for keeping freshness of food materials in mind.

1. Keep provision stores in order and clean before loading.

2. Shift all the food in stock to the adjacent area to the entrance of each store for first consumption. Strictly implement the "first in, first out" system.
3. Consult the Chief Mate for advice on the loading time, and request him to arrange loading operations. The Catering Department Staff should never operate a winch or a monorail.
4. Check the safety of the operation. Wear work clothes, safety shoes and gloves.
5. Decide in advance on the storing places for the food to be loaded. At the time of loading, the Chief Cook will instruct the supplier and the crew members where to store the ordered goods.
6. Check the quantity and quality of the ordered goods, if there are foods found inferior in quality, have it replaced.
7. Check to see whether the places of storage for dry and wet provisions, and the perishable and frozen goods are in their corresponding storage room.
8. Bread and other foods are easy to crush and undergo deformation when piled up, hence caution is required.
9. Place rice and fruits on the upper level, decomposable vegetables on the lower level, and other foods on the middle level.
10. Food Stores:
    a. Vegetable stores: rice, vegetables, fruits, tofu (bean curd), misoshiru (miso soup), dairy products, vacuum packed kamaboko (fish cake), instant ramen (Chinese noodles), eggs, tsukudani (shellfish boiled in sweet soy sauce), pickles.
    b. Frozen chamber: natto (fermented soybean), bread, noodles (ramen or Chinese noodles, udon or Japanese noodles, soba or buckwheat noodles), kamaboko not vacuum -packed, salted seaweed, yeast, gyoza, siomai, pasta wrappers for Chinese spring rolls, meat and fish.
    c. Dry provision stores: canned and bottled goods, dried noodles, flour, beans, salt, sugar and other dry provisions.

Storage and Control of Foodstuffs

The skill to keep and control foodstuffs gives influence on not only the quality of food but also the edible quantity. If foodstuffs are not kept properly, the chief cook will have difficulty in making menus, thus putting himself in an unfavorable predicament. Provisions must be periodically inspected and controlled to keep it for a long time. Besides, an inventory should be made at the end of each month without fail, and a month-end inventory report be submitted to the Master.

1. General Instructions for Ship's Storage
    a. Persons with infectious disease or with festering wounds must not enter into the store.
    b. Wear special working clothes when entering the store.
    c. The store must be kept hygienically clean and tidy.
    d. Food containers must be kept clean always.
    e. A food grade container may be used to store most type of foods.
    f. Store foods in respective groupings so that each food can be easily discerned.
    g. Temperature and humidity inside the store must be checked to prevent

spoilage of foodstuff.

h. Check periodically foodstuff in store, throw foods which has indication of spoilage.
   - Make sure that no rats or insects enter the store.
   - Before leaving the store, check:
   - All lights are switched off
   - Freezer door are securely closed
   - No other person is left behind in the store

2. Instructions for the Storage of Vegetables and Fruits
   Vegetables and fruits are living and always breathing. They can live long if well taken care of and temperature is controlled/regulated.
   a. The temperature inside the store must be kept at a level between 3°C and 5°C.
   b. The humidity inside the store must be kept at a level between 85% and 95%.
   c. The vegetables must not be piled high, nor put into the corrugated cartons. After loading, take vegetables out of the boxes (cartons or wooden cases) and arrange them on the shelf. If there are any wet vegetables, dry them first; remove the ice from ice cooled vegetables. Keep vegetables in proper shelves in the same posture (vertically) as when they were grown in the field, this will maintain their freshness for a longer period of time.
   d. Vegetables and fruits which are sensitive to damage by low temperatures must be kept away from the flow of cold air.
   e. When storing pimientos or similar vegetables in plastic bags, the bags must have small holes for ventilation. Packing in plastic bag lets out ethylene gas which promotes the deterioration of vegetables and fruits, absorbs mold, etc. in the air with the application of biochemistry.
   f. Lettuce must not be stored near foodstuffs that spoil easily.
   g. Piled-up vegetables which are likely to be spoiled should sometimes be moved around (upper ones to lower area and vice versa). Never use lettuce, celery, Chinese cabbage, etc., as a whole, but utilize them by peeling outer leaves one by one.
   h. Never pile-up tomatoes as these are crushable, and consume these from the ripest one in sequence.
   i. Consume vegetables starting with those which started deteriorating or old ones in sequence.
   j. Vegetables which are liable to deteriorate if dried excessively, should be protected by covering with newspaper or plastic sheets or by packing in plastic bags. Prevent vegetables from sweating excessively.
   k. Vegetables and fruits which have been stored for the longest time must be used first.
   l. Vegetables which have withered, become moldy or are rotting must be thrown away. Remove the portion which started to deteriorate because it is contagious to others due to enzyme.
      - Soak vegetables which can be preserved by soaking in water buckets, i.e.: cucumbers, green peas, okra, carrots, trefoil leaves, etc.) Change the water with new cold water once a week.
   m. Soak renkon (lotus root), bean sprouts, tofu (bean curd) and the like in bucket of water.

n. Preserve by freezing in ample time perishables and foodstuffs not needed for some time, and those which are difficult to keep fresh due to large quantity.
o. Take out from cartons fruits: such as oranges, grapefruits, apples and the like every ten days for inspection, and remove fruits which have deteriorated.
p. Reserve canned products which can be preserved for a long time, as much as possible for emergency purposes (when fresh fruits and vegetables become short in supply).

3. Instructions for the Storage of Frozen Fish
   a. The temperature inside the store must be kept at a stable level below –18°C.
   b. The humidity inside the store must be kept at around 95%.
   c. There must be no frost on the freezing pipes inside the store.
   d. Frozen fish must be stored in tight wrapping.
   e. In principle, fish should be cooked while it is fresh. If it is necessary to store the leftovers, they must be tightly wrapped and frozen. Fish should be cooked as early as possible.

4. Instructions for the Storage of Meat
   a. The temperature inside the store must be kept at a stable level below -15°C.
   b. The humidity inside the store must be kept at around 95%.
   c. Meat must not be stored without wrapping, nor with broken wrap.
   d. Care must be taken so that only the necessary quantity of meat is taken out each time for cooking.
   e. Care must be taken so that the meat stored for the longest time is taken out first for cooking.

5. Instructions for the Storage of Processed Frozen Foods
   a. The temperature inside the store must be kept at a stable level below -18°C
   b. Before putting frozen foods into the store, make sure that:
      - Each container or package is not damaged;
      - The commodity has not undergone thawing; thawed frozen foods must be utilized at once;
      - The containers bear the producers' certificates for quality and hygienic condition).
   c. Frozen foods must not be stored together with a fish with a strong smell or other unwrapped foods.
   d. Any inspection inside the store must be conducted in such a manner as to avoid water damage to the frozen food packing by water drops or frost.
   e. The food stored for the longest time must be used first; strictly follow: FIRST IN FIRST OUT system.

6. Some Instructions for the Storage of Other Foodstuff
   a. RICE must be stored in the cold store lobby or in the vegetable store at a temperature between l0°C and 15°C.
   b. Paper bags of rice must not get wet due to water drops inside the store.
   c. Before storing EGGS, containers must be opened to make sure that no egg is damaged, nor has stains or dirty marks.
   d. MILK in paper containers must be examined by pressing the container lightly to see if the contents oozes out. If it does, it indicates that the contents may be spoiled.

e. Canned goods which has swollen lids/bottoms must not be used.
f. Store food 6 inches off the floor and 3 inches away from the wall and never store food underneath the stairwell.

Useful Temperatures in Food Preservation and Storage

Temperature (˚F)	Effect/s
-80	All water probably as crystals in frozen food
-30 to -20	Freezing temperature of food
-10 to 0	Storage of frozen food
32	Freezing point of water
30 to 34	Cold storage temperature
98.6	Temperature of the human body
145	Holding pasteurization of milk (30 min.)
160	High temperature - short time (HTST);pasteurization of milk for 15 min.
212	Boiling point of water at standard pressure; short exposure kills most of the vegetative bacteria

Proper storage of food is essential in maintaining the sanitary, nutritive and aesthetic quality of food. It contributes to minimizing waste and food cost, as well as the amount of time and energy in the preparation of meals.

Food spoilage and food-borne diseases can be prevented through proper storage temperature. Different food items has varying degrees of perishability, thereby requiring varying degrees of storage temperatures.

Safety Measures Against Heavy Weather

1. Obtain accurate weather information from deck officers or the Master.
2. Make inspection rounds through the areas under the jurisdiction of the catering department, and take measures such as lashing, if necessary.
3. Pay special attention to the seal lockers and bonded stores containing many fragile things, among the chambers and stores.
4. Wear safety shoes without fail while working in heavy weather.
5. Never go out of the living quarters during heavy weather.
6. Confirm that the portholes are firmly secured to prevent the glass from being broken.
7. Countermeasures against heavy weather in and in the vicinity of the mess room and galley:
   a. Raise up the side frames of the dining tables;
   b. Never wet clothes for dining tables (everything is liable to slip on wet vinyl cloths);
   c. When the vessel is pitching / rolling heavily, put additional wet sheets on the tables, if necessary, to prevent slipping;
   d. Pay special attention to breakable tableware including soy sauce bottles, tea cups, Japanese soup bowls;
   e. Fix chairs with the fitted stoppers;
   f. Secure all movable things rice cookers and bowls for soup with ropes or fix them with tapes;

g. Put wet sheets on the tables in the galley;
h. Fix the cooking range with the fitted rolling stoppers; pay special attention to casserole, deep-fat frying pans with oil in them;
i. Take care to avoid wetting the galley floor, as it is slippery when wet. If the floor gets wet, immediately wipe it off with mop to keep it always in a dry state;
j. If it is dangerous for cooking operations owing to heavy weather, report to the Master to that effect and request him for countermeasures.

Sanitation Tips for Garbage Disposal

Garbage is dangerous in food service operation because it attracts pests that contaminate food items, equipment and utensils. A few general rules on handling garbage are listed below:

1. Garbage containers must be leak-proof, easy to clean, pest-proof and durable. Plastic bags and strength paper bags may be used to line these containers. Containers kept outdoors or in food preparation areas must have tight-fitting lids.
2. Garbage must not be allowed to accumulate anywhere but in regular garbage containers.
3. Garbage should be removed from food preparation area as soon as possible, and should be disposed often to prevent the formation of odor and the attraction of pests.
4. Garbage storage areas, inside or outside should be large enough for the amount of garbage that will accumulate. The inside of garbage storage areas should be easy to clean and pest-proof.
5. An area equipped with hot and cold water and a floor drain must be provided for washing garbage cans. This area must be located in an area where food in the preparation or storage area will not be contaminated when the cans are washed.

Garbage Handling According to Marine Pollution Regulation Annex V

A simplified overview on the discharge provisions of the revised MARPOL Annex V which was force into action on 1 January 2013, developed by the IMO and is presented here below.

Every ship of 100 gross tonnage (instead of 400 GT required by the superseded MARPOL Annex V) and above, and every ship which is certified to carry 15 or more persons, shall carry a garbage management plan (based on IMO Guidelines MEPC.220 (63) and in working language of the crew) containing procedures on:

1. Garbage minimization
2. Garbage collection
3. Garbage storage
4. Garbage processing
5. Garbage disposal
6. Equipment used onboard for handling of garbage

7. The designation of the person or persons in charge for implementing the Garbage Management Plan

It is likely that shipboard garbage destined to be sent to a port waste reception facility will need to be segregated. The requirements for the port concerned should be sought and followed in this respect. Given that some ports may not be able to receive and process all types of waste, the garbage processing capability of the port should be checked prior to arrival.

Every ship of 12 m or more in length overall and fixed or floating platforms shall display placards which notify inform the crew and the passengers regarding the discharge requirements that apply to the ship. The placards shall be written in the working language of the ship's crew and in English or French or Spanish (this requirement remains the same with the one of the superseded regulation of MARPOL Annex V).

MARPOL ANNEX V TABLE

<table>
<tr><th>Type of garbage</th><th>Ships outside special area</th><th>Ships within special area</th><th>Offshore platforms (more than 12nm from land and all ships within 500 m of such platforms</th></tr>
<tr><td>Food waste comminuted or ground</td><td>Discharge permitted
≥ 3 nm from the nearest land, en route
and as far as practicable</td><td>Discharge permitted
≥ 12 nm from the nearest land, en route
and as far as practicable</td><td>Discharge permitted</td></tr>
<tr><td>Food waste not comminuted or ground</td><td>Discharge permitted
≥ 12 nm from the nearest land, en route
and as far as practicable</td><td>Discharge prohibited</td><td>Discharge prohibited</td></tr>
<tr><td>Cargo residues[1] not contained in wash water</td><td rowspan="2">Discharge permitted
≥ 12 nm from the nearest land, en route
and as far as practicable</td><td>Discharge prohibited</td><td>Discharge prohibited</td></tr>
<tr><td>Cargo residues[1] contained in wash water</td><td>Discharge permitted
≥ 12 nm from the nearest land, en route, as far as practicable and subject to two additional conditions[2]</td><td>Discharge prohibited</td></tr>
<tr><td>Cleaning agents and additives contained in cargo hold wash water</td><td>Discharge permitted</td><td>Discharge permitted</td><td>Discharge prohibited</td></tr>
</table>

		≥ 12 nm from the nearest land, en route, as far as practicable and subject to two additional conditions[2]	
Cleaning agents and additives[1] in deck and external surfaces wash water		Discharge permitted	Discharge prohibited
Carcasses of animals carried on board as cargo and which died during the voyage	Discharge permitted as far from the nearest land as possible and en route	Discharge prohibited	Discharge prohibited
All other garbage including plastics, synthetic ropes, fishing gear, plastic garbage bags, incinerator ashes, clinkers, cooking oil, floating dunnage, lining and packing materials, paper, rags, glass, metal, bottles, crockery and similar refuse	Discharge prohibited	Discharge prohibited	Discharge prohibited
Mixed garbage	When garbage is mixed with or contaminated by other substances prohibited from discharge or having different discharge requirements, the more stringent requirements shall apply		

1 These substances must not be harmful to the marine environment.

2 According to regulation 6.1.2 of MARPOL Annex V the discharge shall only be allowed if: (a) both the port of departure and the next port of destination are within the special area and the ship will not transit outside the special area between these ports (regulation 6.1.2.2); and (b) if no adequate reception facilities are available at those ports (regulation 6.1.2.3).